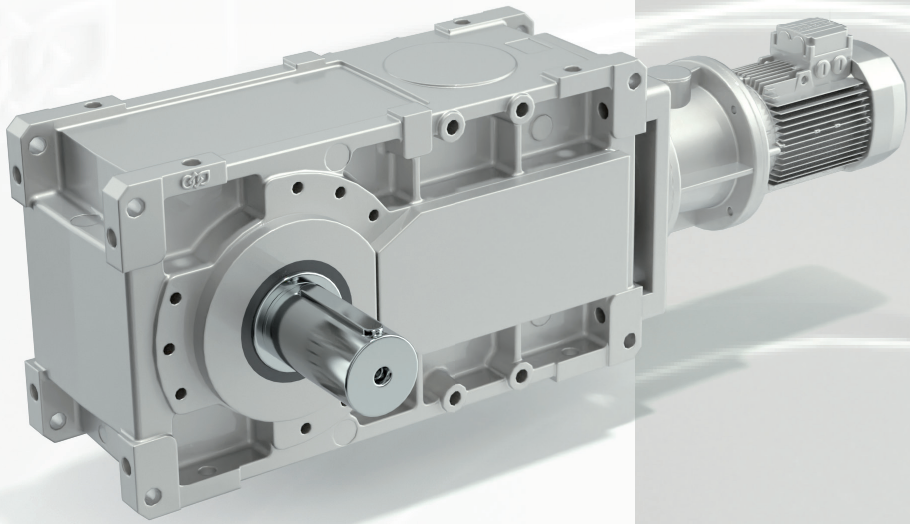
Bonfiglioli



HDP-HDO Series

Parallel shaft gear units HDP series
Bevel helical gear units HDO series

PRODUCTS &
SOLUTIONS

INCLUDED

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Revisions

Refer to page 392 for the catalogue revision index. Visit www.bonfiglioli.com to search for catalogues with up-to-date revisions.

1 SYMBOLS AND UNITS OF MEASUREMENT

Symbols	Units of Measure	Description
$An_{1,2}$	[kN]	Permissible axial force
f_S	–	Service factor
i	–	Gear ratio
l	–	Cyclic duration factor
J	[Kgm^2]	Mass moment of inertia
$M_{1,2}$	[Nm]	Torque
$Mc_{1,2}$	[Nm]	Calculated torque
$Mn_{1,2}$	[Nm]	Rated torque
$Mr_{1,2}$	[Nm]	Torque demand
$n_{1,2}$	[min^{-1}]	Speed
$P_{1,2}$	[kW]	Power
$Pn_{1,2}$	[kW]	Rated power
$Pr_{1,2}$	[kW]	Power demand
P_T	[kW]	Overall thermal capacity
$P_{TFAN...}$	[kW]	Thermal capacity with the contribution of forced ventilation
P_{TSR}	[kW]	Thermal capacity inclusive of contribution from cooling coil
$P_{TMCRA...}$	[kW]	Thermal capacity inclusive of contribution from air/oil exchanger cooling unit
$P_{TMCRW...}$	[kW]	Thermal capacity inclusive of contribution from water/oil exchanger cooling unit
$Rc_{1,2}$	[kN]	Calculated radial force
$Rn_{1,2}$	[kN]	Permissible overhung load
t_a	[°C]	Ambient temperature
t_s	[°C]	Surface temperature
t_o	[°C]	Oil temperature
η	–	Efficiency

$_1$ value applies to input shaft

$_2$ value applies to output shaft

2 GENERAL DESIGN FEATURES

Gear units of the HDP and HDO series make optimum use of advanced design features, to offer:
- Top torque density
- Superior performance
- Silent and vibration-free operation
- Total ruggedness and reliability
- Lifetime calculation in accordance with the applicable ISO and AGMA standards
- Extensive customisation through a wide range of options offered in the catalogue

3 ALLOWED TEMPERATURE LIMITS

Symbols	Description / Condition	Value (*)	
		Synthetic Oil	Mineral Oil
t_a	Ambient temperature		
$t_{au\ min}$	Minimum operating ambient temperature	**-30°C**	**-10°C**
$t_{au\ Max}$	Maximum operating ambient temperature	**+50°C**	**+40°C**
$t_{as\ min}$	Minimum storage ambient temperature	**-40°C**	**-10°C**
$t_{as\ Max}$	Maximum storage ambient temperature	**+50°C**	**+50°C**
t_s	Surface temperature		
$t_{s\ min}$	Minimum gearbox surface temperature starting with partial load (#)	**-25°C**	**-10°C**
$t_{sc\ min}$	Minimum gearbox surface temperature starting with full load	**-10°C**	**-5°C**
$t_{s\ Max}$	Maximum casing surface temperature during continuous operation (measured next to the gearbox input)	**+100°C**	**+100°C** (@)
t_o	Oil temperature		
$t_{o\ Max}$	Maximum oil temperature during continuous operation	**+95°C**	**+95°C** (@)

(*) = Refer to the table “Selection of the optimal oil viscosity” for further information about minimum and maximum values of different oil viscosity and for using hydraulic circuits. For values of t_a < -20°C and t_s, t_o > 80 °C, choose (as permitted in the product configuration stage) the sealing type of the most suitable material to the type of application. If needed contact Bonfiglioli Technical Service.

(@) = Continuous operation it is not advised if t_s and t_o range is 80°C to 95 °C.

(#) = For full load start-up it is recommended to ramp-up and provide for greater absorption of the motor. If needed, contact Bonfiglioli Technical Service.

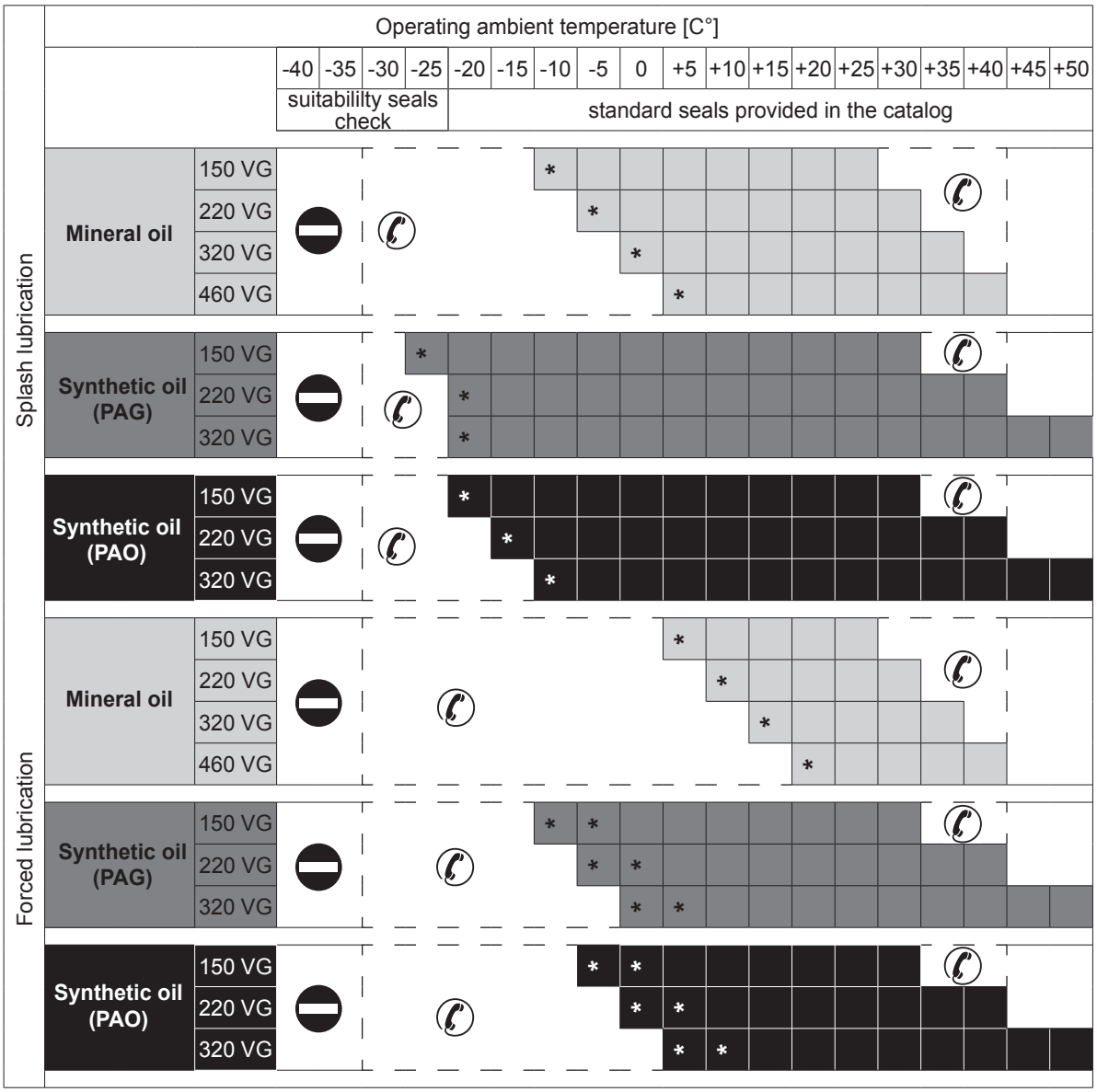
4 INSTALLATION

The following installation instructions must be observed:
• Make sure that the gearbox is correctly secured to avoid vibrations.
If shocks or overloads are expected, install hydraulic couplings, clutches, torque limiters, etc.
• Before the eventual painting, the machined surfaces and the outer face of the oilseals must be protected to prevent paint drying out the rubber and jeopardising the oil-seal function.
• Components to be keyed on to the gearbox output shafts should be machined to ISO H7 tolerances to prevent mating surfaces jamming and causing irreparable damage to the gearbox during installation. Suitable pullers and extractors should also be used to fit and remove such components. These should be properly secured to the threaded hole at the end of the shafts.
The customer is required to verify the mating on the output shaft defining appropriate tolerances according to the torque to be transmitted.
• Mating surfaces must be cleaned and treated with suitable protective products before mounting to avoid oxidation and, as a result, seizure of parts.
• Prior to putting the gear unit into operation make sure that the equipment that incorporates the same complies with the current revision of the Machines Directive 2006/42/CE.
• Before starting up the machine, make sure that oil level conforms to the mounting position specified for the gear unit and viscosity is suitable for the specific application.
• For outdoor installation provide adequate guards in order to protect the drive from rainfalls as well as direct sun radiation.

5 LUBRICATION

Refer to the User's Manual available at www.bonfiglioli.com for indications about checking the oil level and its replacement.
Do not mix mineral oils with synthetic oils and/or different brands.
However, oil level should be checked at regular intervals and topped up as required.
Check monthly if unit operates under intermittent duty, more frequently if duty is continuous.

5.1 Selection of the optimal oil viscosity (data relating to Shell Oils)



Recommended operating limits

Allowed operating limits.

Forbidden operating limits.

* = It is recommended to ramp-up and to provide for greater absorption of the motor.
If needed and in the event of impulse loads, contact Bonfiglioli Technical Service.

5.2 Lubrication for HDP-HDO series gearboxes

The internal parts of HDP gearboxes are lubricated with a mixed immersion and splash system. Should the output speed be lower than 1 min^{-1} or the input speed greater than 1800 min^{-1}, please contact Bonfiglioli Technical Service for advise.
In mounting position V5, the top bearings in gearbox sizes HDP 60 to HDP 90 are pre-lubricated with grease and fitted with Nilos seals, unless the order specifies a forced lubrication system with mechanical pump (optional variants OP1, OP2) or electric pump (option MOP).
If HDP 100 to 180 gearboxes have to be installed in mounting position V5, with the output shaft vertical, one of the above mentioned forced lubrication systems must be specified. The actual system should be selected on the basis of speed and/or operating conditions.
These gearboxes are supplied without lubricant. It is the customer's responsibility to fill them with the appropriate amount of oil before start-up.

The internal parts of HDO gearboxes are lubricated with a mixed immersion and splash system. Should the output speed be lower than 1 min^{-1} or the input speed greater than 1800 min^{-1}, please contact Bonfiglioli Technical Service for advise.
In mounting positions V5 and B6, the top bearings in gearbox sizes HDO 71 to HD0 95 are pre-lubricated with grease and fitted with Nilos seals.
If HDO 100 to 180 gearboxes have to be installed in mounting positions V5 and B6 it is required that the order specifies a forced lubrication system with mechanical pump (optional variants OP1, OP2) or electric pump (option MOP).
Depending on the configuration and mounting position, HDO gearboxes may require one of a number of forced lubrication systems described later in this catalogue.
The gearboxes are supplied without lubricant. It is the customer's responsibility to fill them with the appropriate amount of oil before start-up.

6 STORAGE

Observe the following instructions to ensure correct storage of the products:

- Do not store outdoors, in areas exposed to weather or with excessive humidity.
- Always place boards, wood or other material between the products and the floor. The gearboxes should not have direct contact with the floor.
- In case of long-term storage all machined surfaces such as flanges, shafts and couplings must be coated with a suitable rust inhibiting product (Tectile 506 EH or equivalent). Furthermore gear units must be placed with the fill plug in the highest position and filled up with oil. Before putting the units into operation the appropriate quantity, and type, of oil must be restored.

7 CONDITIONS OF SUPPLY

Gear units are supplied as follows:

- configured for installation in the mounting position specified when ordering;
- tested to manufacturer specifications;
- mating machined surfaces come unpainted;
- nuts and bolts for mounting motors are provided if a flanged motor input is specified.

8 PAINT COATING

HDP gearboxes in sizes 60 to 90 and HDO in sizes 71 to 95 are externally and internally painted in oven hardened epoxy resin and polyester powder paint. The painted (ferrous) surfaces of these gearboxes are protected to at least corrosivity class C2 (UNI EN ISO 12944-2). The colour is RAL 7042 grey. A synthetic top coat may be applied later.
HDP and HDO gearbox sizes 100 to 180 are internally and externally spray painted with an epoxy primer, and then externally painted on completion of assembly. These gearboxes are protected to at least corrosivity class C3 (UNI EN ISO 12944-2). The colour is RAL 7042 grey.

9 SERVICE FACTOR

Service factors listed here under are empirical values based on AGMA and ISO specifications as well as our experience for use in common applications. They apply for state of the art-designed driven machines and normal operating conditions.

Application	≤ 10 hours/day	> 10 hours/day
AGITATORS, MIXERS		
Pure liquids	1.25	1.50
Liquids and solids	1.25	1.50
Liquids - variable density	1.50	1.75
BLOWERS		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Vane	1.25	1.50
CLARIFIERS	1.00	1.25
CLAY WORKING MACHINERY		
Brick press	1.75	2.00
Briquette machine	1.75	2.00
Pug mill	1.25	1.50
COMPACTORS	2.00	2.00
COMPRESSORS		
Centrifugal	1.25	1.50
Lobe	1.25	1.50
Reciprocating, multi-cylinder	1.50	1.75
Reciprocating, single-cylinder	1.75	2.00
CONVEYORS - GENERAL PURPOSE		
Uniformly loaded or fed	1.15	1.25
- Heavy duty		
Not uniformly fed	1.25	1.50
- Reciprocating or shaker	1.75	2.00
CRANES (*)		
Dry dock		
Main hoist	2.50	2.50
Auxiliary hoist	2.50	3.00
Boom hoist	2.50	3.00
Slewing Drive	2.50	3.00
Traction Drive	3.00	3.00

Application	≤ 10 hours/day	> 10 hours/day
Trolley Drive		
Gantry Drive	3.00	3.00
Traction Drive	2.00	2.00
Industrial duty		
Main hoist	2.50	3.00
Auxiliary hoist	2.50	3.00
Bridge and	3.00	3.00
Trolley travel	3.00	3.00
CRUSHER		
Stone or ore	2.00	2.00
DREDGES		
Conveyors	1.25	1.50
Cutter head drives	2.00	2.00
Screen drives	1.75	2.00
Stackers	1.25	1.50
Winches	1.25	1.50
ELEVATORS		
Bucket	1.25	1.50
Centrifugal discharge	1.15	1.25
Escalators	1.15	1.25
Freight	1.25	1.50
Gravity discharge	1.15	1.25
EXTRUDERS		
General	1.50	1.50
Plastics		
Variable speed drive	1.50	1.50
Fixed speed drive	1.75	1.75
Rubber		
Continuous screw operation	1.75	1.75
Intermittent screw operation	1.75	1.75
FANS		
Centrifugal	1.00	1.25
Cooling towers	2.00	2.00

(*) - Indication of service factor based on FEM 1.001 classification available upon request. Consult factory.

- Hoists for passengers lift: charted **values not applicable**. Consult factory.

Application	≤ 10 hours/day	> 10 hours/day
Forced draft	1.25	1.25
Induced draft	1.50	1.50
Industrial and mine	1.50	1.50
FEEDERS		
Apron	1.25	1.50
Belt	1.15	1.50
Disc	1.00	1.25
Reciprocating	1.75	2.00
Screw	1.25	1.50
FOOD INDUSTRY		
Dough mixer	1.25	1.50
Meat grinders	1.25	1.50
Slicers	1.25	1.50
GENERATORS AND EXCITERS	1.00	1.25
HAMMER MILLS	1.75	2.00
HOISTS (*)		
Heavy duty	1.75	2.00
Medium duty	1.25	1.50
Skip hoist	1.25	1.50
LUMBER INDUSTRY		
Barkers - spindle feed	1.25	1.50
Main drive	1.75	1.75
Conveyors - burner	1.25	1.50
Main or heavy duty	1.50	1.50
Main log	1.75	2.00
Re-saw, merry-go-round	1.25	1.50
Conveyors		
Slab	1.75	2.00
Transfer	1.25	1.50
Chains		
Floor	1.50	1.50
Green	1.50	1.75
Cut-off saws		
Chain	1.50	1.75
Drag	1.50	1.75
Debarking drums	1.75	2.00
Feeds		
Edger	1.25	1.50
Gang	1.75	1.75
Trimmer	1.25	1.50
Log deck	1.75	1.75

Application	≤ 10 hours/day	> 10 hours/day
Log hauls - incline - weel type	1.75	1.75
Log turning devices	1.75	1.75
Planer feed	1.25	1.50
Planer tilting hoists	1.50	1.50
Rolls - live-off brg. - roll cases	1.75	1.75
Sorting table	1.25	1.50
Tipple hoist	1.25	1.50
Transfers		
Chain	1.50	1.75
Craneways	1.50	1.75
Tray drives	1.25	1.50
Veneer lathe drives	1.25	1.50
METAL MILLS		
Slab pushers	1.50	1.50
Shears	2.00	2.00
Wire drawing	1.25	1.50
Wire winding machine	1.50	1.50
MILLS, ROTARY TYPE		
Ball and rod	2.00	2.00
Spur ring gear	2.00	2.00
Helical ring gear	1.50	1.50
Direct connected	2.00	2.00
Cement kilns	1.50	1.50
Dryers and coolers	1.50	1.50
MIXERS		
Concrete	1.50	1.75
PAPER MILLS		
Agitator (mixer)	1.50	1.50
Agitator for pure liquors	1.25	1.25
Barking drums	2.00	2.00
Barkers - mechanical	2.00	2.00
Beater	1.50	1.50
Breaker stack	1.25	1.25
Calendar	1.25	1.25
Chipper	2.00	2.00
Chip feeder	1.50	1.50
Coating rolls	1.25	1.25
Conveyors		
Chip, bark, chemical	1.25	1.25
Log (including slab)	2.00	2.00

(*) - Indication of service factor based on FEM 1.001 classification available upon request. Consult factory.

- Hoists for passengers lift: charted **values not applicable**. Consult factory.

Application	≤ 10 hours/day	> 10 hours/day
Couch rolls	1.25	1.25
Cutter	2.00	2.00
Cylinder molds	1.25	1.25
Dryers		
Paper machine	1.25	1.25
Conveyors type	1.25	1.25
Embosser	1.25	1.25
Extruder	1.50	1.50
Jordan	1.50	1.50
Kiln drive	1.50	1.50
Paper rolls	1.25	1.25
Platter	1.50	1.50
Presses - felt and suction	1.25	1.25
Pulper	2.00	2.00
Pumps - vacuum	1.50	1.50
Reel (surface type)	1.25	1.25
Screens		
Chip	1.50	1.50
Rotary	1.50	1.50
Vibrating	2.00	2.00
Size press	1.25	1.25
Super calendar	1.25	1.25
Thickener (AC motor)	1.50	1.50
Thickener (DC motor)	1.25	1.25
Washer (AC motor)	1.50	1.50
Washer (DC motor)	1.25	1.25
Wind and unwind stand	1.25	1.50
Winders (surface type)	1.25	1.25
Yankee dryers	1.25	1.25
PLASTICS INDUSTRY		
Batch mixers	1.75	1.75
Continuous mixers	1.50	1.50
Compounding mill	1.25	1.25
Calendars	1.50	1.50
Secondary processing		
Blow molders	1.50	1.50
Coating	1.25	1.25
Film	1.25	1.25
Pre-plasticizers	1.50	1.50
Rods	1.25	1.25

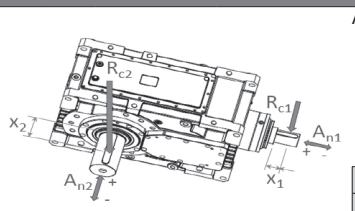
Application	≤ 10 hours/day	> 10 hours/day
Sheet	1.25	1.25
Tubing	1.25	1.50
PUMPS		
Centrifugal	1.15	1.25
Reciprocating		
Single acting, three or more cylinders	1.25	1.50
Double acting, two or more cylinders	1.25	1.50
Rotary		
Gear type	1.15	1.25
Lobe	1.15	1.25
Vane	1.15	1.25
RUBBER INDUSTRY		
Intensive internal mixer		
Batch mixers	1.75	1.75
Continuous mixers	1.50	1.50
Refiner - two rolls	1.50	1.50
Calendars	1.50	1.50
SAND MULLER	1.25	1.50
SEWAGE DISPOSAL EQUIPMENT		
Aerators	2.00	2.00
Chemical feeders	1.25	1.25
Dewatering screens	1.50	1.50
Scum breakers	1.50	1.50
Slow or rapid mixers	1.50	1.50
Sludge collectors	1.25	1.25
Thickeners	1.50	1.50
Vacuum filters	1.50	1.50
SCREENS		
Air washing	1.00	1.25
Rotary - stone or gravel	1.25	1.50
Travelling water intake	1.00	1.25
SUGAR INDUSTRY		
Beet slicer	2.00	2.00
Cane knives	1.50	1.50
Crushers	1.50	1.50
Mills (low speed end)	1.75	1.75
TEXTILE MACHINERY	1.25	1.50

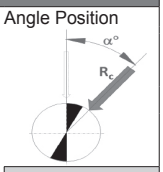
SELECTING THE GEAR UNIT

Selection of the the Atex product must fit through the compilation of this selection form. For a safe selection it is strongly recommended to rely on the long time experience of the Bonfiglioli Technical Service Dept.

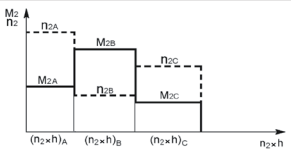
Bonfiglioli Forever Forward	**TECHNICAL DATA REQUIRED FOR THE SELECTION OF HDP - HDO**	Nr:
		Date:
		Rev_ Date:

		A)	***GENERAL DATA***					
#	1		Company / Customer					
#	2		Contact					
#	3		Branch / Distributor					
#	4		Order quantity					
	5		Delivery time					
		B)	***ELECTRIC MOTOR***					
	6		Motor Type					
#	7	P_{n1}	Rated motor power		[kW]			
#	8	P_{r1}	Motor power demand		[kW]			
	9	n_1	Input speed		[min^{-1}]			
	10		Pole number					
	11		Motor mounting: B3 - B5 - B14					
		C_1)	***GEARBOX***			***C_2)***	***ATEX CONDITION [GROUPII] - 2014/34/EU***	
#	12		Gearbox configuration					
#	13	i	Gear ratio			Category: [**2** = standard / **3** = special]		
#	14	n_2	Output speed		[min^{-1}]	Atmosphere: [**G** = gas / **D** = dust]		
#	15	M_{r2}	Output torque demand		[Nm]	Zone: [**1 - 21** / **2 - 22**]		
#	17	f_S	Service factor required			Temperature class: [T4 / 135°C]		
	18		Rotation of the output shaft [front view]:		**CW**		**CCW**	
#	19	L_{10H}	Bearings lifetime		[h]			
	20		Gears lifetime		[h]			
	21	SF_{min}	Safety for tooth root stress		standard reference (ISO preferred)			
	22	SH_{min}	Safety for flank pressure		standard reference (ISO preferred)			
		D)	***ADDITIONAL LOADS***					
	23	R_{c2}	Radial load on output shaft		[N]			
	24	x_2	Load application distance from shaft shoulder		[mm]			
	25	α_{Rc2}	Angle of application of the output Radial load		[° ' "]			
	26	R_{c1}	Radial load on input shaft		[N]			
	27	x_1	Load application distance from shaft shoulder		[mm]			
	28	α_{Rc1}	Angle of application of the input Radial load		[° ' "]			
	29	A_{n2}	Thrust load on output shaft (+ / -)		[N]			
	30	A_{n1}	Thrust load on intput shaft (+ / -)		[N]			





+ =Push
- = Pull

		E)	***APPLICATION***					
#	31		Type of application					
	32		Duty cycle	Time phase %	Time phase hours	Gearbox output torque [Nm]	Gearbox output speed [min^{-1}]	
				,,,,	,,,,			
				,,,,	,,,,			
				,,,,	,,,,			
				,,,,	,,,,			
				,,,,	,,,,			
	33		Notes about Duty Cycle:					
			Duty type	**S1**	**S2**	**S3**	**S4-S8**	
	34	v_A	Ambient air velocity	[m/s]	≤ 0.5	> 0.5 ≤ 1.4	> 1.4	
#	35	t_a	Ambient temperature range	[°C]				
	36		Altitude a.s.l.	[m]				
	37		Rating according FEM class	T-	L-	M-		
		F)	***OPTIONS OR ADDITIONAL REQUESTS***					
	38		Lubrification					
	39		Supplementary cooling systems					
	40		Paint coating					
	41		To specific requests for testing					
		G)	***NOTES***					
	42		Notes and additional Customer requirements:					
#	43		**PLP number if present for Special Gearbox**					

Mandatory for the selection

The selection of the drive unit can only be optimized upon knowing both the engineering and the environmental conditions the gearbox will operate into.

10 ENGINEERING SELECTION

1. First determine the gear ratio:

$$i = \frac{n_1}{n_2}$$

2. Calculate the power $\mathbf{P_{r1}}$ required at the input shaft:

$$P_{r1} = \frac{M_{r2} \times n_2}{9550 \times \eta}$$

	η
2x 	0.96
3x 	0.94
4x 	0.92

3. Determine the applicable service factor $\mathbf{f_s}$ and the adjusting factor $\mathbf{f_m}$ depending on prime mover:

	f_m
Electric motor Hydraulic motor Turbine	1.00
Multi-cylinder internal combustion engine	1.25
Single cylinder internal combustion engine	1.50

4. Use the rating charts to select the gear unit with the gear ratio nearest to that calculated, and with a rated power $\mathbf{P_{n1}}$, so that:

$$P_{n1} \geq P_{r1} \times f_s \times f_m$$

11 VERIFICATIONS

11.1 SHOCK LOADING

For intermittent duty, impact/shock loading applications or start-ups under full load or with high inertial loads, make sure the following condition is satisfied for momentary peak torque $\mathbf{M_p}$ generated during the operating cycle:

$$M_p \leq M_{n2ref} \times f_p$$

Peaks/hour		f_p				
		1	**2 ... 10**	**11 ... 50**	**51 ... 100**	**> 100**
Drive	Constant direction	2.0 1.8 (HDO 71…95 3x ) 1.6 (HDO 71…95 4x )	1.6	1.3	1.1	1.0
	Reversals	1.4 1.3 (HDO 71…95 3x ) 1.1 (HDO 71…95 4x )	1.1	0.9	0.8	0.7

For configuration S (output shaft with shrink disc), use the following values to verify applicability.

Peaks/hour		f_p		
		1 ... 50	**51 ... 100**	**> 100**
Drive	Constant direction	1.3 1.1 (HDP 80) 1 (HDO 81) 1.2 (HDO 95)	1.1 1 (HDO 81)	1.0
	Reversals	0.9 0.8 (HDP 80 - HDO 95) 0.7 (HDO 81)	0.8 0.7 (HDO 81)	0.7

If the above condition is not satisfied, consider installing a torque limiter or selecting a gear unit of the next size up.

11.2 MOTOR MOUNTING

Verify that the appropriate motor adapter is available for the selected gear unit. See sections 15.5 and 26.6.
Because of standardisation, the rated power of the electric motor selected might be greater than power $\mathbf{P_{r1}}$ actually requested by the application. Make sure that the electric motor will never develop the extra power at any stage of the operating cycle. If you have any doubts about the validity of the application data, or uncertainty concerning the actual load pattern, install a torque limiting device or proportionally revise the applicable service factor.

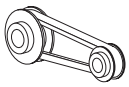
11.3 BACKSTOP DEVICE

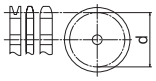
If the gear unit is specified with a backstop, verify the load capacity of the device at sections 15.6.3 and 26.7.3 of this catalogue and make sure the torque M_{1MAX} is never exceeded in operation.

11.4 CALCULATING THE RESULTING OVERHUNG LOAD

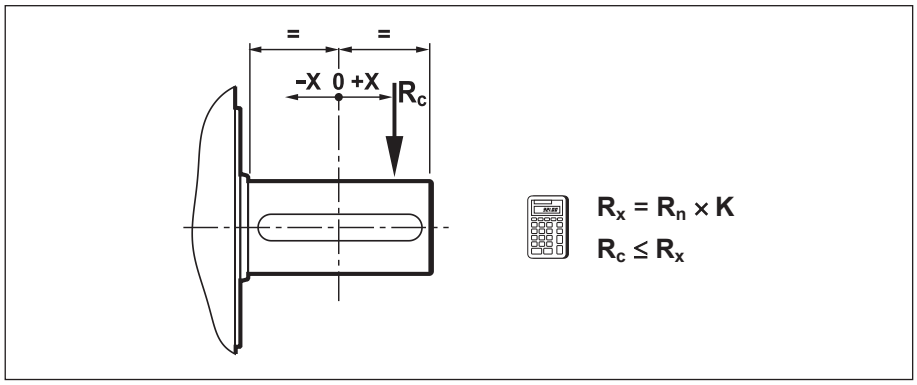
External transmissions keyed onto input and/or output shaft generate loads that act radially onto same shaft.
Resulting shaft loading must be compatible with both the bearing and the shaft capacity.
Namely shaft loading ($\mathbf{R_{c1}}$ for input shaft, $\mathbf{R_{c2}}$ for output shaft), must be equal or lower than admissible overhung load capacity for shaft under study ($\mathbf{R_{x1}}$ for input shaft, $\mathbf{R_{x2}}$ for output shaft). OHL capability listed in the rating chart section.
The procedure described above applies to both the input shaft and the output shaft, but care must be taken to apply factor $\mathbf{K_1}$ or factor $\mathbf{K_2}$ to suit the particular shaft.
The load generated by an external transmission can be calculated, to a good approximation, by the following equation:

$$\mathbf{R_c = \frac{2000 \times M \times K_r}{d}}$$

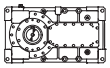
$\mathbf{K_r = 1}$	
$\mathbf{K_r = 1.25}$	
$\mathbf{K_r = 1.5 - 2.0}$	

M [Nm]	
d [mm]	

11.5 OVERHUNG LOADING VERIFICATION

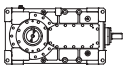


The $Rn_{1\ max}$ values listed in the table are the maximum permissible overhung loads; these loads may have to be reduced in certain applications.
For an exact value, please contact Bonfiglioli's Technical Service.

	i =	$Rn_{1\ max}$ [kN]	K_1												
			x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDP 60 2	7.1 ... 15.2	4.5	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	17.3 … 19.4	3.0	—	—	—	1.28	1.00	0.82	0.70	0.60	0.53	—	—	—	—
HDP 60 3	22.7 … 49.1	3.1	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	56.6 … 98.4	2.1	—	—	—	1.33	1.00	0.80	0.67	0.57	0.50	—	—	—	—
HDP 70 2	8.0 … 17.7	4.5	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	19.4 … 22.6	3.0	—	—	—	1.28	1.00	0.82	0.70	0.60	0.53	—	—	—	—
HDP 70 3	25.5 … 57.0	3.1	—	—	—	1.29	1.00	0.82	0.69	0.60	0.53	—	—	—	—
	63.7 … 114.4	2.1	—	—	—	1.33	1.00	0.80	0.67	0.57	0.50	—	—	—	—
HDP 80 2	8.1 … 14.6	5.0	—	—	1.53	1.21	1.00	0.85	0.74	0.66	0.59	0.49	—	—	—
	15.5 … 22.6	5.5	—	—	—	1.24	1.00	0.84	0.72	0.63	0.56	0.41	—	—	—
HDP 80 3	25.8 …75.2	5.8	—	—	—	1.26	1.00	0.83	0.71	0.62	0.53	0.39	—	—	—
	76.4 … 111.4	3.0	—	—	—	1.29	1.00	0.82	0.69	0.54	0.44	0.32	—	—	—
HDP 90 2	7.9 … 13.6	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	15.8 … 22.4	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
HDP 90 3	25.4 … 73.3	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—
	77.8 … 110.1	3.7	—	—	—	1.22	1.00	0.85	0.73	0.61	0.50	0.37	—	—	—
HDP 100 2	7.4 … 21.8	11.1	—	—	1.35	1.15	1.00	0.89	0.80	0.72	0.66	0.56	0.49	—	—
HDP 100 3	22.8 …50	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	55.5 … 107.8	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 100 4	110.6 … 246.9	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	286.4 … 507.9	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—
HDP 110 2	8.1 … 25.0	11.1	—	—	1.35	1.15	1.00	0.89	0.80	0.72	0.66	0.56	0.49	—	—
HDP 110 3	24.9 … 54.5	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	60.7 …123.5	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 110 4	120. … 214.2	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	248.6 … 499.4	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—



	i =	$Rn_{1\ max}$ [kN]	K_1												
			x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDP 120 2	**7.9 … 25.4**	17.8	—	—	1.37	1.16	1.00	0.88	0.79	0.71	0.65	0.55	0.48	—	—
HDP 120 3	**25.8 … 56.1**	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	64.3 … 125.2	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 120 4	**128 … 277.2**	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
	323.2 … 523.7	2.7	—	—	—	1.25	1.00	0.83	0.71	0.63	0.56	—	—	—	—
HDP 125 2	**8.9 … 25.0**	17.8	—	—	1.37	1.16	1.00	0.88	0.79	0.71	0.65	0.55	0.48	—	—
HDP 125 3	**29.1 … 62.6**	6.3	—	—	1.48	1.19	1.00	0.86	0.76	0.67	0.61	0.51	—	—	—
	72.5 … 123.6	6.9	—	—	1.54	1.21	1.00	0.85	0.74	0.65	0.59	0.49	—	—	—
HDP 125 4	**144.4 … 506.5**	2.1	—	—	—	1.18	1.00	0.87	0.76	0.68	0.62	—	—	—	—
HDP 130 2	**7.3 … 12.3**	28.0	—	1.47	1.27	1.12	1.00	0.90	0.82	0.76	0.69	0.54	0.45	0.38	—
	14.1 … 21.7	22.1	—	—	1.30	1.13	1.00	0.90	0.81	0.74	0.69	0.55	0.45	—	—
HDP 130 3	**21.8 … 48.1**	11.9	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.69	0.60	0.53	—	—
	56.5 … 108.3	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—
HDP 130 4	**111.2 … 237.9**	4.8	—	—	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.57	—	—	—
	274.5 … 534.5	1.8	—	—	—	1.15	1.00	0.88	0.79	0.72	0.65	—	—	—	—
HDP 140 2	**8.4 … 14.4**	28.0	—	1.47	1.27	1.12	1.00	0.90	0.82	0.76	0.69	0.54	0.45	0.38	—
	16.3 … 24.9	22.1	—	—	1.30	1.13	1.00	0.90	0.81	0.74	0.69	0.55	0.45	—	—
HDP 140 3	**25.1 … 56.2**	11.9	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.69	0.60	0.53	—	—
	65.1 … 124.7	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—
HDP 140 4	**141.6 … 277.5**	4.8	—	—	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.57	—	—	—
	315.9 … 495.3	1.8	—	—	—	1.15	1.00	0.88	0.79	0.72	0.65	—	—	—	—
HDP 150 2	**7.9 … 14.1**	31.7	1.60	1.39	1.23	1.10	1.00	0.91	0.84	0.78	0.73	0.61	0.51	0.44	0.38
	15.4 … 19.6	26.4	—	1.43	1.25	1.11	1.00	0.91	0.83	0.77	0.71	0.58	0.48	0.40	—
HDP 150 3	**21.5 … 38.1**	26.6	—	1.44	1.26	1.11	1.00	0.91	0.83	0.77	0.71	0.57	0.47	0.40	—
	43.5 … 77.0	17.4	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.61	0.54	—	—
HDP 150 4	**89.0 … 157.8**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	170.9 … 303.1	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—
HDP 160 2	**9.0 …15.9**	31.7	1.60	1.39	1.23	1.10	1.00	0.91	0.84	0.78	0.73	0.61	0.51	0.44	0.38
	17.5 … 22.1	26.4	—	1.43	1.25	1.11	1.00	0.91	0.83	0.77	0.71	0.58	0.48	0.40	—
HDP 160 3	**24.4 … 43.1**	26.6	—	1.44	1.26	1.11	1.00	0.91	0.83	0.77	0.71	0.57	0.47	0.40	—
	49.4 … 87.0	17.4	—	—	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.61	0.54	—	—
HDP 160 4	**101.1 … 178.1**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	194.1 … 342.2	6.1	—	—	1.45	1.18	1.00	0.87	0.76	0.68	0.62	0.52	—	—	—
HDP 170 2	**7.8 ... 14.2**	35.3	1.33	1.22	1.14	1.06	1.00	0.95	0.90	0.85	0.81	0.73	0.67	0.62	0.58
	15.4 ... 19.3	32.5	1.40	1.28	1.18	1.09	1.00	0.94	0.88	0.82	0.78	0.7	0.65	0.61	0.57
HDP 170 3	**23.2 ... 39.7**	24.8	—	1.29	1.18	1.08	1.00	0.93	0.87	0.82	0.77	0.69	0.62	0.57	—
	45.1 ... 77.2	11.6	—	—	1.13	1.06	1.00	0.97	0.91	0.87	0.84	0.77	0.71	—	—
HDP 170 4	**92.7 ... 158.8**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	177.4 ... 303.8	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—
HDP 180 2	**8.7 ... 15.7**	35.3	1.33	1.22	1.14	1.06	1.00	0.95	0.90	0.85	0.81	0.73	0.67	0.62	0.58
	17.1 ... 21.4	32.5	1.40	1.28	1.18	1.09	1.00	0.94	0.88	0.82	0.78	0.7	0.65	0.61	0.57
HDP 180 3	**25.8 ... 43.9**	24.8	—	1.29	1.18	1.08	1.00	0.93	0.87	0.82	0.77	0.69	0.62	0.57	—
	50.1 ... 85.4	11.6	—	—	1.13	1.06	1.00	0.97	0.91	0.87	0.84	0.77	0.71	—	—
HDP 180 4	**103.0 ... 175.6**	10.8	—	—	1.47	1.19	1.00	0.86	0.76	0.68	0.61	0.51	—	—	—
	197.2 ... 336.1	8.1	—	—	1.31	1.13	1.00	0.89	0.81	0.74	0.68	0.58	—	—	—

	i =	$Rn_{1\ max}$ [kN]	K_1												
			x [mm] =												
			-100	**-75**	**-50**	**-25**	**0**	**25**	**50**	**75**	**100**	**150**	**200**	**250**	**300**
HDO 71 2	**5.6 … 14.6**	11.3	—	—	2.35	1.41	1.00	0.78	0.64	0.54	0.46	—	—	—	—
HDO 71 3	**21.8 … 71.9**	6.1	—	—	—	1.56	1.00	0.70	0.51	0.39	0.33	—	—	—	—
HDO 71 4	**77.0 … 475.4**	4.8	—	—	—	1.88	1.00	0.54	0.38	0.29	0.23	—	—	—	—
HDO 81 2	**5.5 … 14.7**	17.2	—	—	2.59	1.58	1.00	0.69	0.52	0.43	0.35	—	—	—	—
HDO 81 3	**25.9 … 71.9**	11.7	—	—	2.61	1.56	1.00	0.69	0.52	0.43	0.36	—	—	—	—
HDO 81 4	**78.3 … 473.3**	7.2	—	—	—	1.76	1.00	0.54	0.38	0.28	0.22	—	—	—	—
HDO 91 2	**7.4 … 15.9**	17.9	—	—	2.37	1.41	1.00	0.78	0.64	0.54	0.46	—	—	—	—
HDO 91 3	**18.6 … 66.1**	11.6	—	—	2.17	1.37	1.00	0.79	0.65	0.52	0.43	—	—	—	—
HDO 91 4	**82.0 … 489.3**	5.9	—	—	—	1.54	1.00	0.75	0.53	0.42	0.34	—	—	—	—
HDO 95 3	**21.2 … 72.3**	11.6	—	—	2.17	1.37	1.00	0.79	0.65	0.52	0.43	—	—	—	—
HDO 95 4	**81.6 … 489.7**	5.8	—	—	—	1.55	1.00	0.74	0.53	0.41	0.34	—	—	—	—
HDO 100 2	**5.8 … 13.5**	19.4	—	—	1.88	1.30	1.00	0.81	0.68	0.59	0.51	0.40	0.32	—	—
HDO 100 3	**14 … 17.3**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	20.2 … 67.5	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 100 4	**70.8 … 139.8**	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	160 … 344.2	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 110 2	**6.4 … 15.5**	19.4	—	—	1.88	1.30	1.00	0.81	0.68	0.59	0.51	0.40	0.32	—	—
HDO 110 3	**18.9 … 20.9**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	22 … 77.5	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 110 4	**77.4 … 121.7**	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	137.1 … 395	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 120 2	**6.6 … 15.5**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 120 3	**17.3 … 24.6**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	28.3 … 78.6	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 120 4	**87 … 162.2**	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	179.7 … 400.6	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 125 2	**7.4 … 16.9**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 125 3	**19.2 … 35.8**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	38.8 … 85.9	10.8	—	—	2.23	1.38	1.00	0.78	0.63	0.51	0.43	0.32	—	—	—
HDO 125 4	**97.0 … 178.0**	7.2	—	—	—	1.56	1.00	0.72	0.52	0.40	0.33	—	—	—	—
	200.3 … 438.0	4.8	—	—	—	1.56	1.00	0.74	0.58	0.46	0.38	—	—	—	—
HDO 130 2	**5.7 … 13.6**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 130 3	**15.2 … 67.1**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 130 4	**71.5 … 335.6**	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—
HDO 140 2	**6.6 … 15.7**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 140 3	**17.7 … 77.3**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 140 4	**82.3 … 386.6**	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—

	i =	$Rn_{1\ max}$ [kN]	K_1												
			x [mm] =												
			-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
HDO 150 2	**5.5 … 7.0**	54.0	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.67	0.59	0.47	0.40	0.34	0.30
	8.1 … 13.7	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
HDO 150 3	**15.6 … 60.8**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 150 4	**66.9 … 92.9**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	101.8 … 238.8	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—
HDO 160 2	**7.3 … 7.9**	54.0	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.67	0.59	0.47	0.40	0.34	0.30
	8.9 … 15.4	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
HDO 160 3	**17.7 … 68.6**	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 160 4	**75.9 … 96.3**	18.7	—	—	2.23	1.38	1.00	0.78	0.64	0.54	0.45	0.34	—	—	—
	115.2 … 269.7	10.9	—	—	2.25	1.38	1.00	0.78	0.63	0.50	0.42	0.32	—	—	—
HDO 170 3	**15.9 ... 21.7**	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
	26.2 ... 59.9	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 170 4	**72.9 … 239.5**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—
HDO 180 3	**17.7 ... 27.9**	41.6	2.75	1.91	1.47	1.19	1.00	0.86	0.76	0.66	0.58	0.46	0.39	0.33	0.29
	31.4 ... 66.2	35.8	—	2.21	1.57	1.22	1.00	0.85	0.73	0.62	0.54	0.42	0.35	0.30	—
HDO 180 4	**81.0 … 244.9**	22.6	—	—	1.82	1.29	1.00	0.78	0.62	0.51	0.44	0.34	0.28	—	—

The values for overhung and thrust loads are the maximum permissible values.

	$Rn_{2\ max}$ [kN]	K_2																	$An_{2\ max}$ [kN]
		x [mm] =																	
		-100	-75	-50	-25	0	25	50	75	100	150	200	250	300	350	400	450	500	
HDP 60	35.0	—	—	1.20	1.09	1.00	0.74	0.58	0.48	0.41	0.32	—	—	—	—	—	—	—	17.5
HDP 70 HDO 71	40.0	—	1.34	1.20	1.09	1.00	0.77	0.63	0.53	0.46	0.36	0.30	—	—	—	—	—	—	25.0
HDP 80 HDO 81	46.0	1.38	1.26	1.16	1.07	1.00	0.82	0.69	0.59	0.52	0.42	0.35	0.30	—	—	—	—	—	32.5
HDP 90 HDO 91	62.0	1.33	1.23	1.14	1.07	1.00	0.81	0.68	0.58	0.51	0.41	0.34	0.30	—	—	—	—	—	37.5
HDO 95	69.0	1.28	1.20	1.12	1.06	1.00	0.81	0.68	0.58	0.51	0.41	0.34	0.30	0.26	—	—	—	—	38.5
HDP 100 HDO 100	80.0	1.28	1.20	1.12	1.06	1.00	0.81	0.68	0.58	0.51	0.41	0.34	0.30	0.26	—	—	—	—	40.0
HDP 110 HDO 110	86.0	1.27	1.19	1.12	1.06	1.00	0.83	0.71	0.63	0.56	0.45	0.38	0.33	0.29	0.26	0.24	—	—	43.0
HDP 120 HDO 120	107.0	1.25	1.18	1.11	1.05	1.00	0.83	0.71	0.63	0.56	0.45	0.38	0.33	0.29	0.26	0.24	—	—	53.5
HDP 125 HDO 125	130.0	1.20	1.14	1.09	1.04	1.00	0.86	0.75	0.67	0.60	0.50	0.43	0.38	0.33	0.30	0.27	0.25	—	65.0
HDP 130 HDO 130	160.0	1.20	1.14	1.09	1.04	1.00	0.86	0.75	0.67	0.60	0.50	0.43	0.38	0.33	0.30	0.27	0.25	—	80.0
HDP 140 HDO 140	190.0	1.20	1.14	1.09	1.04	1.00	0.86	0.75	0.67	0.60	0.50	0.43	0.38	0.33	0.30	0.27	0.25	—	95.0
HDP 150 HDO 150	200.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	100.0
HDP 160 HDO 160	220.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	110.0
HDP 170 HDO 170	250.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	125.0
HDP 180 HDO 180	260.0	1.15	1.11	1.07	1.03	1.00	0.92	0.85	0.80	0.75	0.66	0.60	0.54	0.49	0.45	0.41	0.38	0.35	130.0

11.6 SHAFT LOADING

11.6.1 Overhung load on the output shaft

Make sure that the overhung load on the output shaft does not exceed the maximum permitted value for the gearbox in question. The HDB option can be specified only for HDP 60...HDP 90 and HDO 71...HDO 91 to provide higher capacity bearings to cater for particularly large overhung loads. If external loads exceed the load capacity of even the heavy duty bearings, consider the options of providing external support for the shafts, reducing external load in some other way, or, if necessary, selecting a gearbox of the next size up.

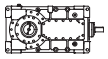
To check overhung load capacity, refer to the figure in section 11.5 and compare the actual overhung load Rc on the shaft with the maximum permissible overhung load **Rx** for the distance from the centre of the shaft at which the load is applied. Maximum permissible overhung load $\mathbf{Rx_2}$ for the output shaft is obtained by multiplying the nominal overhung load $\mathbf{Rn_2}$, as listed in the technical data section, by the load location factor $\mathbf{K_2}$.

Rated overhung loads Rn are conservative values, as they are calculated for the most unfavourable conditions in terms of direction of rotation and angle of application of the force on the shaft.

The following table shows the rated overhung loads that can be applied to solid (LP) output shafts under the following conditions:

- force applied to the centre of the end of the shaft
- no thrust loads
- gearbox service factor ≥ 1.25

Contact Bonfiglioli Riduttori's Technical Service if an exact calculation is required.

	$\mathbf{Rn_2}$ [kN]					
	HDP/HD0 … 2		HDP/HD0 … 3		HDP/HD0 … 4	
n_2	**≤ 150 [min^-1]**		**≤ 75 [min^-1]**		**≤ 25 [min^-1]**	
	Shaft arrangement					
	**LR/RL**	**LL/RR**	**LR/RL**	**LL/RR**	**LL/RR**	**LR/RL**
	**L1/R2**	**L2/R1**	**L1/R2**	**L2/R1**	**L1/R2**	**L2/R1**
HDP 60	22	14	31	22	BONFIGLIOLI TECHNICAL SERVICE	
HDP 70 - HDO 71	18	9	25	16		
HDP 80 - HDO 81	15	8	28	15		
HDP 90 - HDO 91	20	10	36	20		
HDP 100 - HDO 95 - HDO 100	28	13	52	26	80	55
HDP 110 - HDO 110	46	33	61	37	86	72
HDP 120 - HDO 120	62	34	83	54	107	101
HDP 125 - HDO 125	75	48	98	69	130	122
HDP 130 - HDO 130	90	46	119	73	160	137
HDP 140 - HDO 140	85	43	116	73	183	138
HDP 150 - HDO 150	BONFIGLIOLI TECHNICAL SERVICE		109	52	183	132
HDP 160 - HDO 160			88	36	172	110
HDP 170 - HDO 170	BONFIGLIOLI TECHNICAL SERVICE					
HDP 180 - HDO 180						

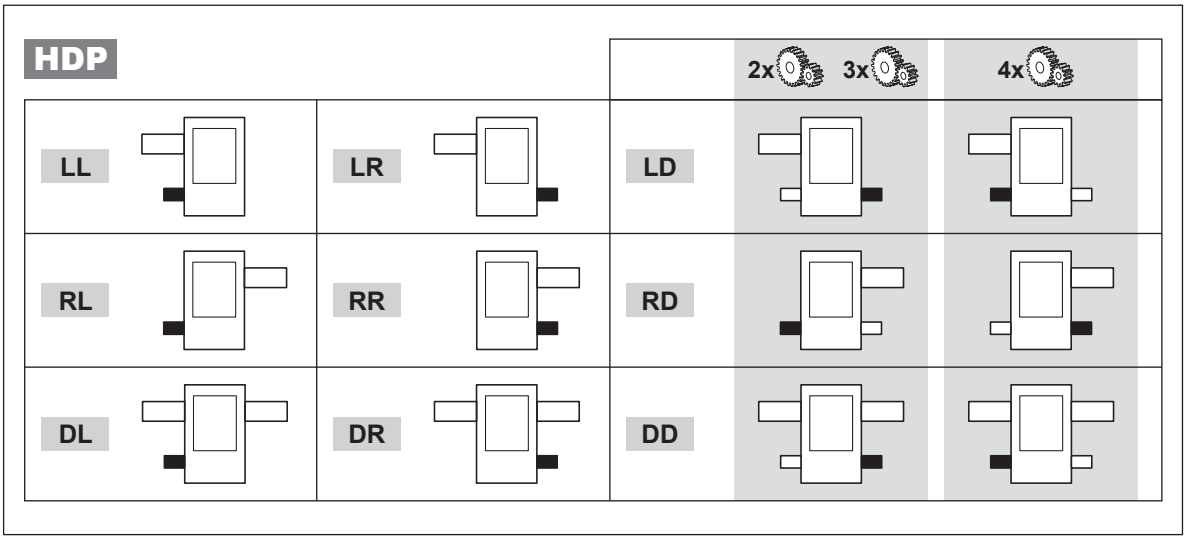
For other load conditions, such as:
- high overhung loads
- thrust loads
- combined overhung and thrust loads
- different output shaft configurations

consult Bonfiglioli Riduttori's Technical Service.

11.6.2 Overhung and thrust loads on input shaft

When checking the overhung load capacity refer to scheme shown at paragraph 11.5. Calculate the admissible overhung load **Rx** that is relevant to the distance the force applies from shaft midpoint and compare this with the force **Rc** that acts onto the shaft. Multiply the nominal radial load $\mathbf{Rn_1}$, as listed in the technical data section, for the load location factor $\mathbf{K_1}$ to get the permissible overhung load $\mathbf{Rx_1}$ for the output shaft.
Rated overhung loads **Rn** are calculated for the most unfavourable condition as far as direction of rotation and the angle the force applies onto the shaft. Catalogue values are therefore conservative, for an in-depth calculation, or in case of HDP with 4 reductions and through-shafts (LD, RD and DD), contact the Technical Service of Bonfiglioli Riduttori.
When a radial force applies a thrust load $\mathbf{An_1 \leq 0.2 \times Rn_1}$ is also permitted.

In the case of HDP gearboxes with through-shafts the maximum permitted overhung load refers to the shaft end highlighted in black below:



If an overhung load is applied to both shaft ends, contact Bonfiglioli Riduttori's Technical Service for advise.

11.7 THERMAL CAPACITY

Thermal power P_T is the maximum power that the gearbox can transmit mechanically, under continuous operation, without the internal temperature rising to a value that could damage the gearbox components.

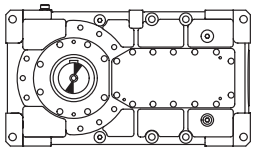
Under the following operating conditions:
- mounting position B3, gearbox connected through a metallic support
- continuous functioning
- installation in large areas (air speed > 1.4 m/s)
- max. installation altitude 1000 m

total thermal capacity values and thermal capacity values inclusive of contributions from auxiliary cooling units are listed in sections 17 and 28.
For other conditions contact Bonfiglioli's Technical Service.

The figure determined must be greater than the Pr_1 power value for the gearbox input shaft. It is therefore important to verify the following formula:

$$P_{T...} \geq Pr_1$$

12 SAMPLE APPLICATIONS



Application data	
n_1 = 1500 min^{-1}	f_s = 1.5
n_2 = 83 min^{-1}	Mr_2 = 7850 Nm
Mounting position:	**B3**
Environmental conditions	
Ambient temperature	= 40°C
Installation in large areas	

Product selection:

a) $i = \frac{n_1}{n_2} = \frac{1500}{83} \approx 18.1$

b) $Pr_1 = \frac{Mr_2 \times n_2}{9550 \times \eta} = \frac{7850 \times 83}{9550 \times 0.96} \approx 71.1$ kW

c) $Pn_1 \geq Pr_1 \cdot f_s \approx 106.6$ kW

→ **HDP 80 2 18.0 LP LR VP B3** [Pn_1 = 108.7 kW @ n_1 = 1500 min^{-1}]

Thermal capacity check:

P_T = 55 kW < Pr_1 = 71.1 kW ⚠

Option 1
- Fan cooling

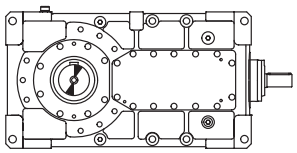
$P_{TFANL/R}$ = 76 kW @ n_1 = 1500 min^{-1}

$P_{TFANL/R} > Pr_1$ ✓ OK

Option 2
- Cooling coil

P_{TSR} = 96 kW @ n_1 = 1500 min^{-1}

$P_{TSR} > Pr_1$ ✓ OK



Application data	
n_1 = 1500 min^{-1}	f_s = 1.5
n_2 = 120 min^{-1}	Mr_2 = 13500 Nm
Mounting position:	**B3**
Environmental conditions	
Ambient temperature	= 40°C
Installation in large areas	

Product selection:

a) $i = \frac{n_1}{n_2} = \frac{1500}{120} = 12.5$ b) $Pr_1 = \frac{Mr_2 \times n_2}{9550 \times \eta} = \frac{13500 \times 120}{9550 \times 0.96} \approx 176.7$ kW c) $Pn_1 \geq Pr_1 \cdot f_s \approx 265.1$ kW

→ **HDO 110 2 12.5 LP L 1 VP B3** [Pn_1 = 329.4 kW @ n_1 = 1500 min^{-1}]

Thermal capacity check:

P_T = 52 kW < Pr_1 = 176.7 kW ⚠

Option 1

- Cooling units with air/oil heat exchanger

P_{TMCRA9} = 184 kW @ n_1 = 1500 min^{-1}

$P_{TMCRA9} > Pr_1$ ✓ OK

Option 2

- Cooling units with water/oil heat exchanger

P_{TMCRW5} = 250 kW @ n_1 = 1500 min^{-1}

$P_{TMCRW5} > Pr_1$ ✓ OK

GEAR UNITS ATEX CONFIGURATION

13 INTRODUCTION TO THE ATEX DIRECTIVES

13.1 Explosive atmosphere

An **explosive atmosphere** for the purposes of Directive 2014/34/EU is defined as a mixture:

a. of **flammable substances**, in the form of gases, vapours, mists or dusts;
b. with **air**;
c. under atmospheric conditions;
d. in which, after ignition, the combustion spreads to the entire unburned mixture (it has to be noted that sometimes, mainly with dust, not always the whole quantity of the combustible material is consumed by the combustion).

An atmosphere, which could become explosive due to local and/or operational conditions is called a **potentially explosive atmosphere**.
It is only in this kind of potentially explosive atmosphere which products falling under the Directive 2014/34/EU are designed for.

13.2 European harmonised atex standards

Directive 2014/34/EU stipulates the minimum safety requirements for products intended for use in explosion risk areas within the member countries of the European Union. The directive also assigns such equipment to **categories,** which are defined by the directive itself.

The following table describes the **zones** into which the user of a plant, in which an explosive atmosphere may occur,is required to divide the equipment application areas.

Zones		Formation frequency of a potentially explosive atmosphere	Type of danger
Gaseous atmosphere G	**Dusty atmosphere** D		
0	20	Present continuously or for long periods	Permanent
1	21	Likely to occur in normal operation occasionally	Potential
2	22	Not likely to occur in normal operation but if it does occur will persist for short period only	Minimal

BONFIGLIOLI RIDUTTORI gear units selected in this catalogue are marked and suitable for installation in zones 1, 21, as highlighted in light gray in the above diagram and they may of course also be installed in areas (minor risk) 2 and 22.
As from 20 April 2016 the ATEX directive 2014/34/EU come into force throughout the entire European Union, and replace existing conflicting national and European laws on explosive atmospheres and the previous directive 94/9/EC.
The directives apply to mechanical, hydraulic and pneumatic equipment.

13.3 Levels of protection for the various categories of equipment

The various categories of equipment must be able to operate in conformity witht he Manufacturer's operational specifications, at certain defined levels of protection.
The availability of BONFIGLIOLI RIDUTTORI products is highlighted in grey.

Protection level	Category		Type of protection	Operating conditions
	Group **I**	Group **II**		
Very high	M1		Two independent means of protection or safety capable of operating even when two independent faults occur	The equipment remains powered and operational even in the presence of an explosive atmosphere
Very high		1	Two independent means of protection or safety capable of operating even when two independent faults occur	The equipment remains powered and operational in zones 0, 1, 2 (G) and/or zones 20, 21, 22 (D)
High	M2		Protection suitable for normal operation and heavy duty conditions	Power to the equipment is shut off in the presence of a potentially explosive atmosphere
High		2	Protection suitable for normal operation and frequent faults or equipment in which malfunction is normal.	The equipment remains powered and operational in zones 1, 2 (G) and/or zones 21, 22 (D)
Normal		3	Protection suitable for normal operation	The equipment remains powered and operational in zones 2 (G) and/or 22 (D)

13.4 Definition of groups

Group I Applies to equipment intended for use underground in parts of mines and those parts of surface installations of such mines, liable to been dangered by fire damp and/or combustible dust.
Group II Applies to equipment intended for use in other places liable to been dangered by explosive atmospheres.

BONFIGLIOLI RIDUTTORI products may not therefore be installed in mines, classified in **Group I** and in **Group II**, category 1.
To summarise, the classification of equipment in to groups, categories and zones is illustrated in the table below, where by the availability of BONFIGLIOLI RIDUTTORI products is highlighted in grey.

Group	I mines, firedamp		II other potentially explosive areas (gas, dust)					
Category	M1	M2	1		2		3	
Atmosphere(1)			G	D	G	D	G	D
Zone			0	20	1	21	2	22
Type of protection gear unit(2)					Ex h Gb	Ex h Db	Ex h Gc	Ex h Dc

(1) **G** = gas **D** = dust
(2) as per 80079-36 and EN 80079-37

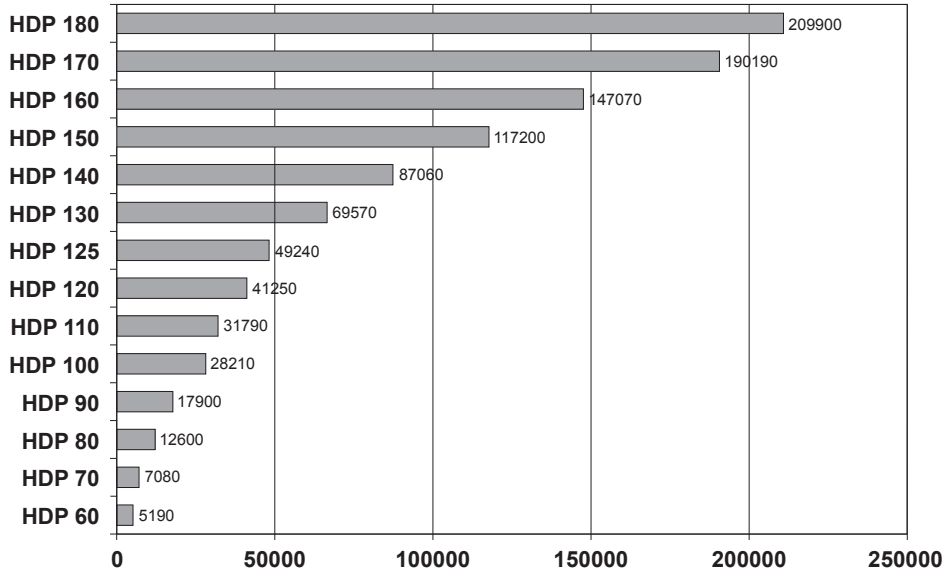
13.5 Declaration of conformity

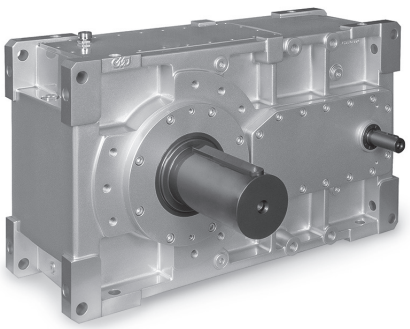
The Declaration of Conformity, is the document which attests to the conformity of the product to Directive 2014/34/EU.
The validity of the Declaration is bound to observance of the instructions given in the User, Installation and Service Manual for safe use of the product throughout its service life.
This can be downloaded from www.bonfiglioli.com where the manual is available in PDF format in a number of languages.
The instructions regarding ambient conditions are of particular importance inasmuch as failure to observe them during operation of the product renders the certificate null and void. In case of doubt regarding the validity of the certificate of conformity, contact the BONFIGLIOLI RIDUTTORI technical department.

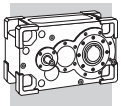


14 DESIGN FEATURES

The main construction features of the HDP parallel shaft gear unit range are:
- sizes from HDP 60 to HDP 90 with double and triple reduction.
- sizes from HDP 100 to HDP 180 with double, triple and quadruple reduction.
- Favourable distribution of rated torque values across the entire ratio range.
- Gear ratios in a 12% progression between consecutive values.
- HDP 60 ... HDP 125: Monobloc housing in rigid, spheroidal cast iron, paint coated both internally and externally. Universal mounting thanks to the many machined surfaces. Profiles and dimensions optimised by FEM analysis for superior structural rigidity and low acoustic emissions.
- HDP 130 ... HDP 180: housing in spheroidal cast iron or electrically-welded steel, horizontally split. This design makes maintenance quick and economical. Profiles and dimensions optimised by FEM analysis for superior structural rigidity and low acoustic emissions.
- Casehardened and hardened alloy steel helical gears ground finished and with profile corrected for:
  - more silent operation and smoother transmission of high speed input gears
  - maximum transmissible torque of the lower speed output gear reductions
- Input shafts generally casehardened and ground finished on outer diametre. Output shafts from hardened and tempered alloy steel.





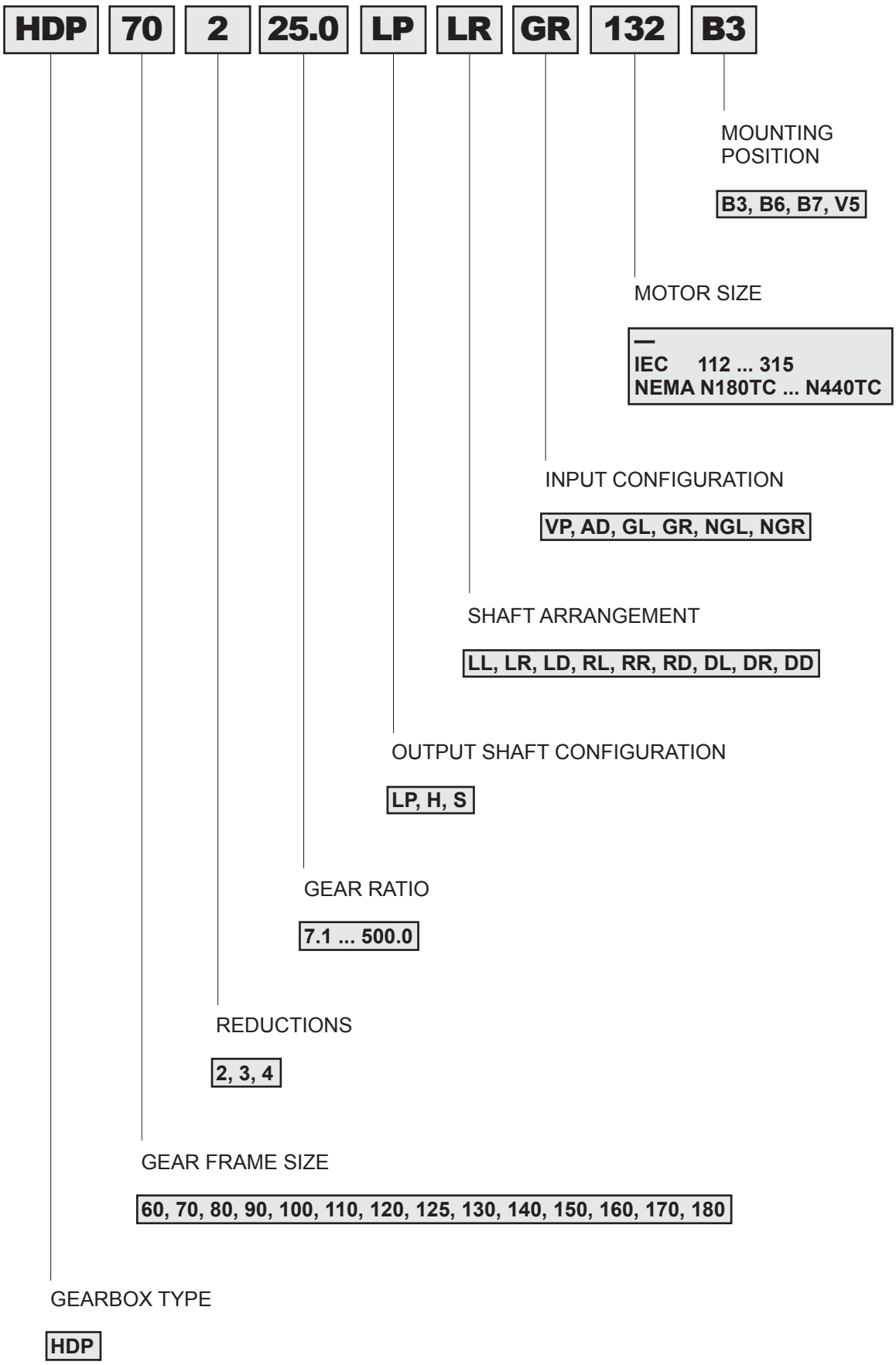


• Input shaft configurations:
- HDP 60 ... HDP 180: solid, single or double-sided shaft with dimensions to UNI/ISO 775-88
- HDP 60 ... HDP 90: direct motor mounting or lantern housing and flexible coupling provision.
- HDP 100 ... HDP 180: motor mounting with bell and housing and flexible coupling.
• Output shaft configurations:
- solid, single or double-sided shaft with dimensions to UNI/ISO 775-88
- hollow shaft with keyway
- hollow shaft with shrink disc
• Heavy duty taper roller bearings or extra large self-aligning roller bearings from the most reputed brands for unparalleled overhung load capacity.

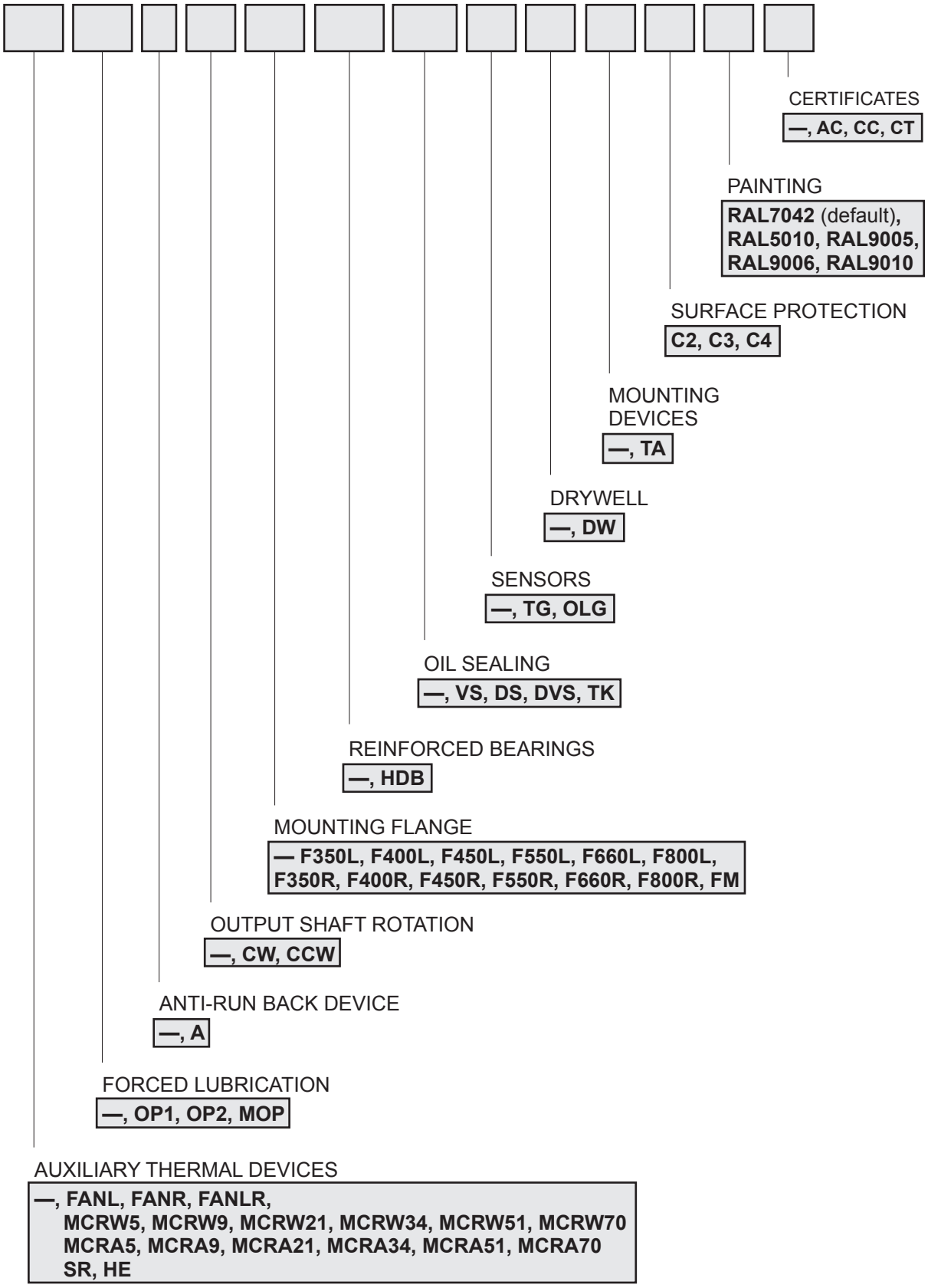
• A wide range of customisation options are available upon request, including:
- auxiliary cooling/heating devices
- forced lubrication systems
- backstop device
- mounting or manifold flanges
- bearings for increased overhung load capacity (only for HDP 60 ... HDP 90)
- seals and gaskets in various types and materials
- sensors
- dry-well device for vertical shaft installations
- fixing elements

15 PRODUCT CONFIGURATIONS

15.1 BASE VARIANTS

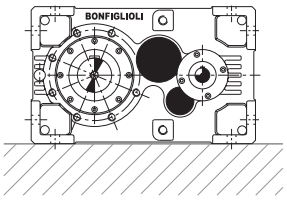
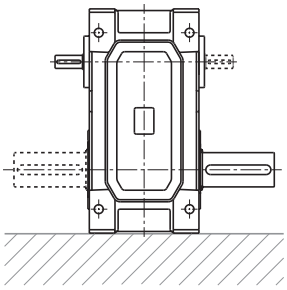
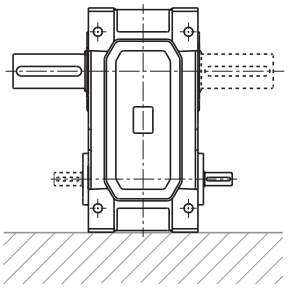
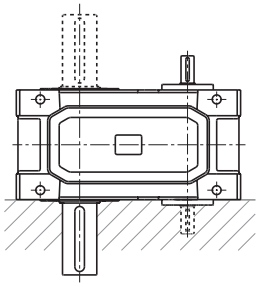


15.2 OPTIONAL VARIANTS



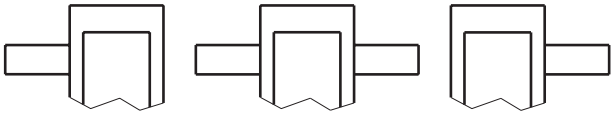
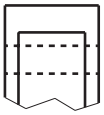
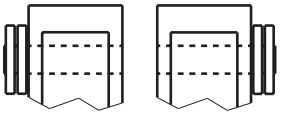
REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

15.3 MOUNTING POSITION

B3	B6	B7	V5
			
	⛔ HDP 170, HDP 180		

15.4 INPUT AND OUTPUT CONFIGURATION

15.4.1 OUTPUT SHAFT CONFIGURATION

LP	H	S
		

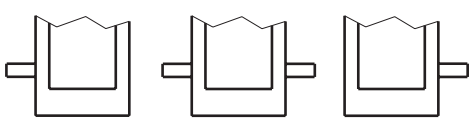
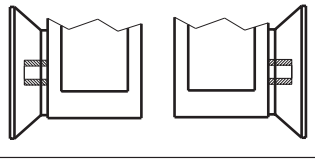
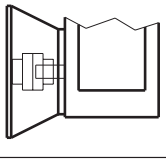
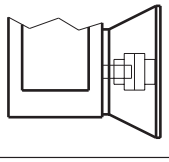
15.4.2 INPUT CONFIGURATION

On the input side the gear unit can be arranged in either one of the configurations described here after:

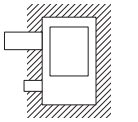
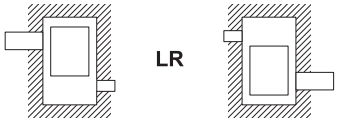
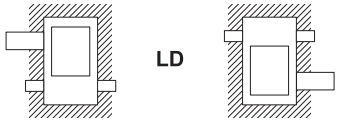
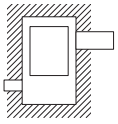
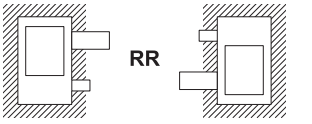
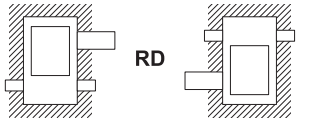
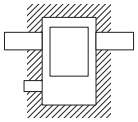
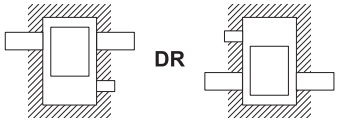
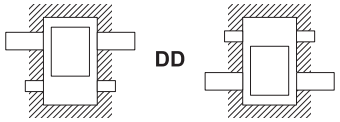
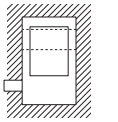
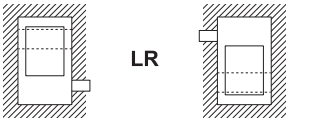
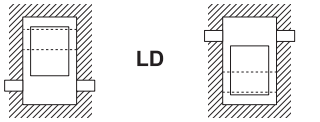
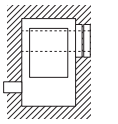
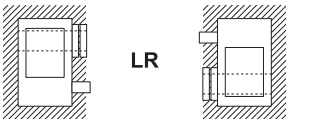
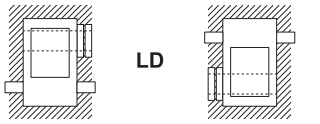
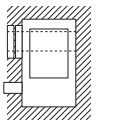
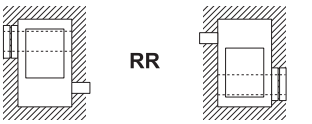
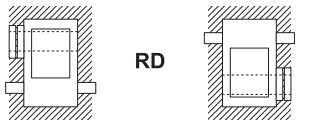
• **Solid input shaft**, single- or double-sided – Specify **VP**

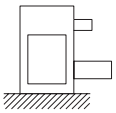
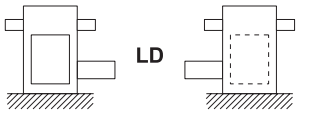
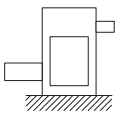
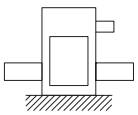
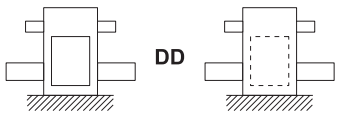
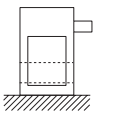
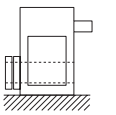
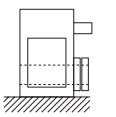
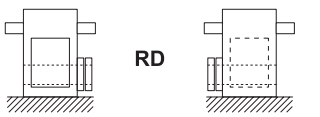
• **Motor flange mounting** for an IEC-standard electric motor with IM B5 flange. The option is only applicable to units HDP 60... HDP 90 in the triple reduction configuration – Specify **AD**.

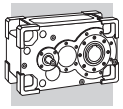
• **Motor mounting through motor bell housing IEC or NEMA and flexible coupling**. The option is designated **GL/NGL** or **GR/NGR** depending on what side of the gear unit the coupling is mounted. The flexible coupling is within the scope for supply.

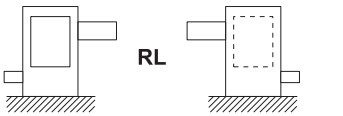
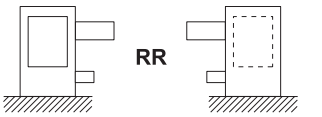
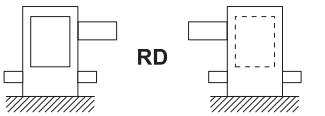
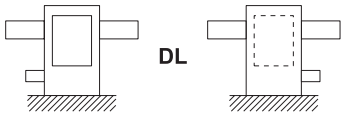
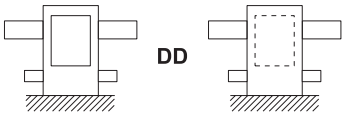
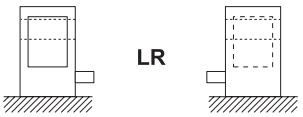
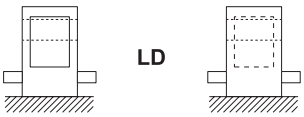
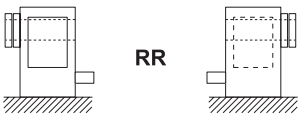
VP	AD	GL-NGL	GR-NGR
			

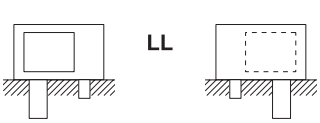
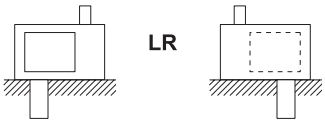
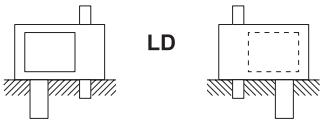
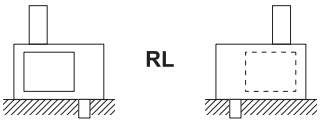
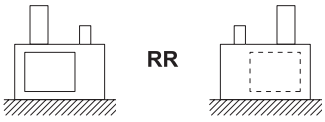
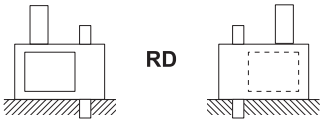
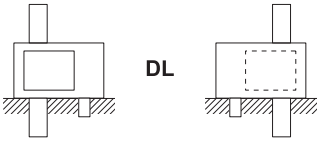
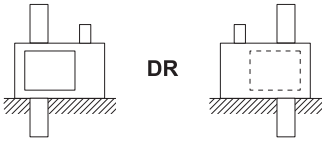
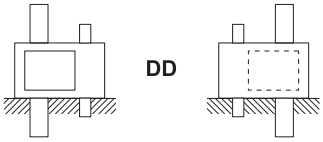
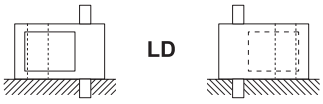
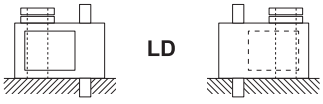
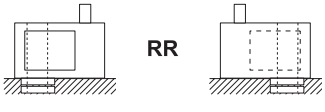
15.4.3 SHAFT ARRANGEMENT

		VP - GL - NGL - AD		VP - GR - NGR - AD		VP - GL - NGL - GR - NGR	
B3	LP		LL		LR		LD
			RL		RR		RD
			DL		DR		DD
	H		LL		LR		LD
	S		LL		LR		LD
			RL		RR		RD

		VP - GL - NGL - AD		VP - GR - NGR - AD		VP - GL - NGL - GR - NGR	
B6	LP		LL		LR		LD
			RL		RR		RD
			DL		DR		DD
	H		LL		LR		LD
	S		LL		LR		LD
			RL		RR		RD



		VP - GL - NGL - AD	VP - GR - NGR - AD	VP - GL - NGL - GR - NGR
B7	LP	 LL	 LR	 LD
		 RL	 RR	 RD
		 DL	 DR	 DD
	H	 LL	 LR	 LD
	S	 LL	 LR	 LD
		 RL	 RR	 RD

		VP - GL - NGL - AD	VP - GR - NGR - AD	VP - GL - NGL - GR - NGR
V5	LP	 LL	 LR	 LD
		 RL	 RR	 RD
		 DL	 DR	 DD
	H	 LL	 LR	 LD
	S	 LL	 LR	 LD
		 RL	 RR	 RD

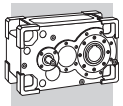
15.5 MOTOR AVAILABILITY

The following charts list the motor/gearbox combinations that are geometrically feasible. Variants are only applicable if either an AD (direct motor mounting) or a GL/NGL - GR/NGR input configuration (coupling through motor bell housing IEC or NEMA and flexible coupling) were previously specified within the ordering code.

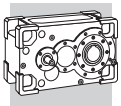
Because of standardisation, the rated power of the electric motor selected might be greater than nominal power Pn1 of choosen gearbox. Make sure that the electric motor will never develop the extra power at any stage of the operating cycle. If you have any doubts about the validity of the application data, or uncertainty concerning the actual load pattern, install a torque limiting device or proportionally revise the applicable service factor.

	Input configuration				
	AD				
	112	132	160	180	200
HDP 60 3	X	X	X	X	
HDP 70 3	X	X	X	X	X
HDP 80 3	—	X	X	X	X
HDP 90 3	—	—	X	X	X

		Input configuration						
		GL - GR						
		132	160	180	200	225	250	280
HDP 60 2	i =	17.3_19.4	7.1_19.4	7.1_19.4	7.1_19.4	7.1_19.4	—	—
HDP 60 3		22.7_98.4	22.7_98.4	22.7_49.1	22.7_49.1	22.7_49.1	—	—
HDP 70 2		19.4_22.6	8.0_22.6	8.0_22.6	8.0_22.6	8.0_22.6	—	—
HDP 70 3		25.5_114.4	25.5_114.4	25.5_57.0	25.5_57.0	25.5_57.0	—	—
HDP 80 2		—	15.5_22.6	15.5_22.6	15.5_22.6	8.1_22.6	8.1_22.6	8.1_22.6
HDP 80 3		—	25.8_111.4	25.8_111.4	25.8_75.2	25.8_75.2	25.8_75.2	25.8_75.2
HDP 90 2		—	15.8_22.4	15.8_22.4	15.8_22.4	15.8_22.4	7.9_22.4	7.9_22.4
HDP 90 3		—	25.4_110.1	25.4_110.1	25.4_110.1	25.4_73.3	25.4_73.3	25.4_73.3



Input configuration										
		GL - GR								
		112	132	160	180	200	225	250	280	315
HDP 100 2		—	—	—	—	—	—	7.4_21.8	7.4_21.8	7.4_21.8
HDP 100 3		—	—	55.5_107.6	55.5_107.6	22.8_107.6	22.8_107.6	22.8_107.6	22.8_50.0	22.8_50.0
HDP 100 4		110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	—	—	—	—
HDP 110 2		—	—	—	—	—	—	8.1_25.0	8.1_25.0	8.1_25.0
HDP 110 3		—	—	60.7_123.4	60.7_123.4	24.9_123.4	24.9_123.4	24.9_123.4	24.9_54.5	24.9_54.5
HDP 110 4		120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	—	—	—	—
HDP 120 2		—	—	—	—	—	—	—	7.9_25.4	7.9_25.4
HDP 120 3		—	—	—	64.3_125.2	64.3_125.2	25.8_125.2	25.8_125.2	25.8_56.1	25.8_56.1
HDP 120 4		—	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	—	—	—
HDP 125 2		—	—	—	—	—	—	—	8.9_25.0	8.9_25.0
HDP 125 3		—	—	—	72.5_123.6	72.5_123.6	29.1_123.6	29.1_123.6	29.1_62.6	29.1_62.6
HDP 125 4		—	144.4_506.5	144.4_506.5	144.4_506.5	144.4_506.5	144.4_506.5	—	—	—
HDP 130 2	i =	—	—	—	—	—	—	—	—	7.3_21.7
HDP 130 3		—	—	—	—	—	56.5_108.3	56.5_108.3	21.8_108.3	21.8_108.3
HDP 130 4		—	—	111.2_534.5	111.2_534.5	111.2_534.5	111.2_237.9	111.2_237.9	—	—
HDP 140 2		—	—	—	—	—	—	—	—	8.4_24.9
HDP 140 3		—	—	—	—	—	65.1_124.7	65.1_124.7	25.1_124.7	25.1_124.7
HDP 140 4		—	—	141.6_495.3	141.6_495.3	141.6_495.3	141.6_277.5	141.6_277.5	—	—
HDP 150 2		—	—	—	—	—	—	—	—	—
HDP 150 3		—	—	—	—	—	—	—	43.5_77.0	21.5_77.0
HDP 150 4		—	—	170.9_303.1	170.9_303.1	89.0_303.1	89.0_303.1	89.0_303.1	89.0_303.1	89.0_157.8
HDP 160 2		—	—	—	—	—	—	—	—	—
HDP 160 3		—	—	—	—	—	—	—	49.4_87.0	24.4_87.0
HDP 160 4		—	—	194.1_342.2	194.1_342.2	101.1_342.2	101.1_342.2	101.1_342.2	101.1_342.2	101.1_178.1
HDP 170		BONFIGLIOLI TECHNICAL SERVICE								
HDP 180										



Input configuration							
NGL - NGR							
		N210TC	N250TC	N280TC	N320TC	N360TC	N400TC
HDP 60 2	i =	17.3_19.4	7.1_19.4	7.1_19.4	7.1_19.4	7.1_19.4	—
HDP 60 3		22.7_98.4	22.7_98.4	22.7_49.1	22.7_49.1	22.7_49.1	—
HDP 70 2		19.4_22.6	8.0_22.6	8.0_22.6	8.0_22.6	8.0_22.6	—
HDP 70 3		25.5_114.4	25.5_114.4	25.5_57.0	25.5_57.0	25.5_57.0	—
HDP 80 2		—	15.5_22.6	15.5_22.6	8.1_22.6	8.1_22.6	8.1_22.6
HDP 80 3		—	25.8_111.4	25.8_111.4	25.8_75.2	25.8_75.2	25.8_75.2
HDP 90 2		—	15.8_22.4	15.8_22.4	15.8_22.4	7.9_22.4	7.9_22.4
HDP 90 3		—	25.4_110.1	25.4_110.1	25.4_110.1	25.4_73.3	25.4_73.3

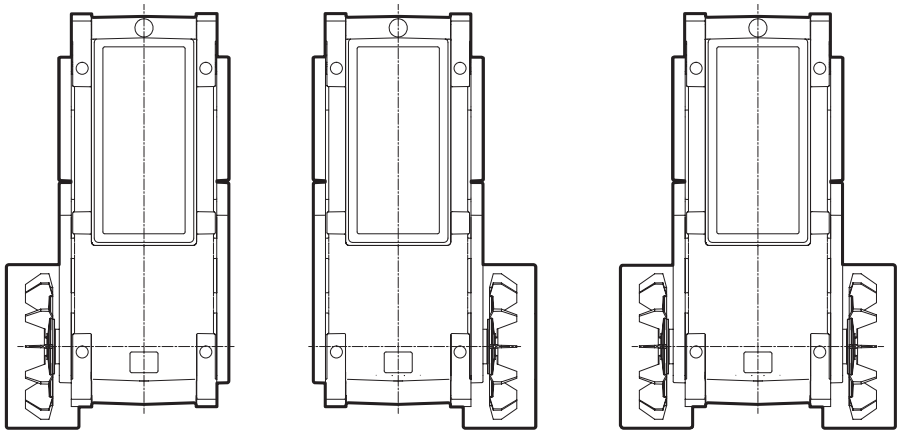
Input configuration									
NGL - NGR									
		N180TC	N210TC	N250TC	N280TC	N320TC	N360TC	N400TC	N440TC
HDP 100 2	i =	—	—	—	—	—	7.4_21.8	7.4_21.8	—
HDP 100 3		—	—	55.5_107.6	55.5_107.6	22.8_107.6	22.8_107.6	22.8_50.0	—
HDP 100 4		110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	110.6_507.9	—	—	—
HDP 110 2		—	—	—	—	—	8.1_25.0	8.1_25.0	—
HDP 110 3		—	—	60.7_123.4	60.7_123.4	24.9_123.4	24.9_123.4	24.9_54.5	—
HDP 110 4		120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	120.9_499.4	—	—	—
HDP 120 2		—	—	—	—	—	—	7.9_25.4	7.9_25.4
HDP 120 3		—	—	—	64.3_125.2	25.8_125.2	25.8_125.2	25.8_56.1	25.8_56.1
HDP 120 4		—	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	128.0_523.7	—	—
HDP 125 2		—	—	—	—	—	—	8.9_25.0	8.9_25.0
HDP 125 3		—	—	—	72.5_123.6	29.1_123.6	29.1_123.6	29.1_62.6	29.1_62.6
HDP 125 4		—	144.4_506.5	144.4_506.5	144.4_506.5	144.4_506.5	144.4_506.5	—	—
HDP 130 2		—	—	—	—	—	—	—	7.3_21.7
HDP 130 3		—	—	—	—	56.5_108.3	56.5_108.3	21.8_108.3	21.8_108.3
HDP 130 4		—	—	111.2_534.5	111.2_534.5	111.2_534.5	111.2_237.9	—	—
HDP 140 2		—	—	—	—	—	—	—	8.4_24.5
HDP 140 3		—	—	—	—	65.1_124.7	65.1_124.7	25.1_124.7	25.1_124.7
HDP 140 4		—	—	141.6_495.3	141.6_495.3	141.6_495.3	141.6_277.5	—	—

15.6 OPTIONAL VARIANTS

15.6.1 AUXILIARY COOLING DEVICES

15.6.1.1 FAN COOLING

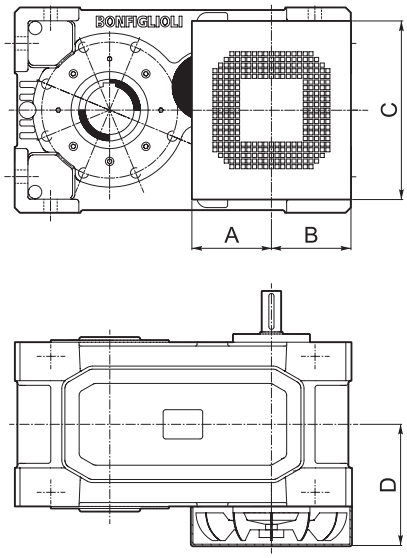
Greater heat dissipation capacity can be achieved by installing cooling fans, which are keyed on to the gearbox input shaft. Gear units HDP 60 ... HDP 90, except for configuration LD – RD – DD, and HDP 100 ... HDP 160 with lantern type motor adapter (GL/NGL or GR/NGR) may have an auxiliary fan fitted to the side opposite the drive end. Specify code **FANL** or **FANR**. On units ranging from HDP 100 to HDP 160 in the solid input shaft configuration (VP), the fan can be mounted on the right or left side irrespective of whether a drive shaft is present or not.
It is also possible to maximise the cooling capacity on HDP 100 to HDP 160 gearboxes by fitting two fans, specifying code FANLR in the order.
On the gearboxes HDP 170 and HDP 180, are used axial fans with fixed airfoil profile as standard.
Along with the specification of the option FANL or FANR, the direction of rotation for the output shaft (CW or CCW) must also be specified in the order, according to the conventions given in paragraph 15.6.3.



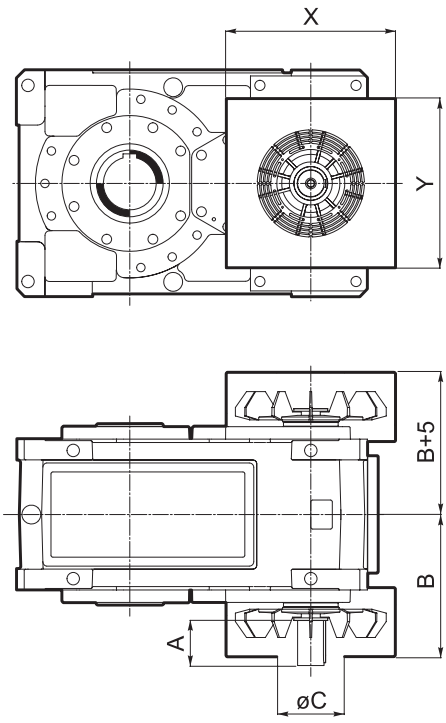
FANL **FANR** **FANLR**

(HDP 100 ... HDP 160)

This option is not available in conjunction with configurations that use the same shaft end or with MOP variant (forced lubrication with electric pump).
The increased cooling effect is shown by the thermal capacity value P_{TFAN}. See chapter 17. The efficiency of forced ventilation falls drastically below the drive speed of n_1 = 900 min^{-1}. In this case, it is advisable to adopt other auxiliary cooling devices to increase the thermal capacity of the gearbox.



	A [mm]	B [mm]	C [mm]	D [mm]
HDP 60 FAN_	125	130	255	200
HDP 70 FAN_	125	130	255	200
HDP 80 FAN_	155	155	348	235
HDP 90 FAN_	178	178	360	260



	i	A [mm]	B [mm]	C [mm]	X [mm]	Y [mm]
HDP 100 FAN_	7.4 ≤ i ≤ 21.8	105	330	180	424	420
	22.8 ≤ i ≤ 107.6	82	330	180	424	420
	110.6 ≤ i ≤ 507.9	58	330	180	424	420
HDP 110 FAN_	8.1 ≤ i ≤ 25.0	105	330	180	424	420
	24.9 ≤ i ≤ 123.4	82	330	180	424	420
	120.9 ≤ i ≤ 499.4	58	330	180	424	420
HDP 120 FAN_	7.9 ≤ i ≤ 25.4	105	345	180	450	450
	25.8 ≤ i ≤ 125.2	85	345	180	450	450
	128.0 ≤ i ≤ 523.7	58	345	180	450	450
HDP 125 FAN_	8.9 ≤ i ≤ 25.0	105	345	180	450	450
	29.1 ≤ i ≤ 123.6	85	345	180	450	450
	144.4 ≤ i ≤ 506.5	58	345	180	450	450
HDP 130 FAN_	7.3 ≤ i ≤ 12.3	130	422	230	540	590
	14.1 ≤ i ≤ 48.1	105	422	230	540	590
	56.5 ≤ i ≤ 237.9	82	422	230	540	590
	274.5 ≤ i ≤ 534.5	58	422	230	540	590
HDP 140 FAN_	8.4 ≤ i ≤ 14.4	130	422	230	540	590
	16.3 ≤ i ≤ 56.2	105	422	230	540	590
	65.1 ≤ i ≤ 277.5	82	422	230	540	590
	315.9 ≤ i ≤ 495.3	58	422	230	540	590
HDP 150 FAN_	7.9 ≤ i ≤ 14.1	165	472	230	540	665
	15.4 ≤ i ≤ 38.1	130	472	230	540	665
	43.5 ≤ i ≤ 77.0	105	472	230	540	665
	89.0 ≤ i ≤ 303.1	82	472	230	540	665
HDP 160 FAN_	9.0 ≤ i ≤ 15.9	165	472	230	540	665
	17.5 ≤ i ≤ 43.1	130	472	230	540	665
	49.4 ≤ i ≤ 87.0	105	472	230	540	665
	101.1 ≤ i ≤ 342.2	82	472	230	540	665
HDP 170 FAN_	BONFIGLIOLI TECHNICAL SERVICE					
HDP 180 FAN_						

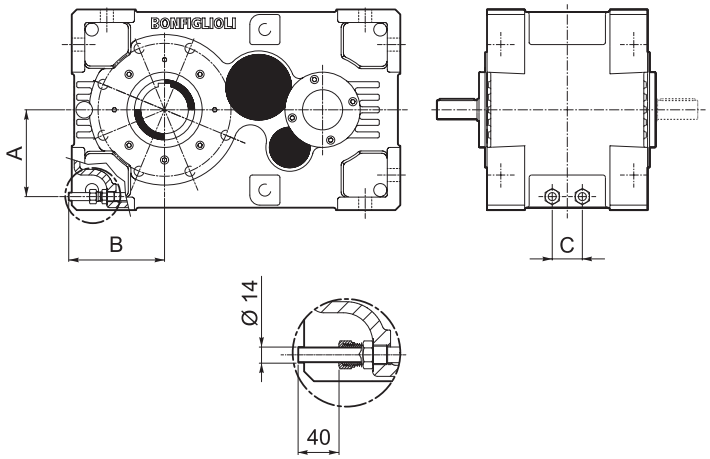
15.6.1.2 HEAT DISSIPATION THROUGH COOLING COIL

The cooling coil option **SR** is designed for integration in a cooling circuit to be provided by the installer.

For optimal efficiency the cooling circuit supply must comply with the following specifications:

- max. pressure 8 bar
- min flow rate 5 l/min for HDP 60 … HDP 90
- min flow rate 10 l/min for HDP 100 … HDP 140
- max. water temperature 20°C

The increased cooling effect obtained in these conditions is shown by the thermal capacity value P_{TSR}. See the section 17



	A [mm]	B [mm]	C [mm]
HDP 60_ SR	147	170	60
HDP 70_ SR	147	170	60
HDP 80_ SR	173	190	60
HDP 90_ SR	190	210	60
HDP 100_ SR	230	285	100
HDP 110_ SR	230	270	100
HDP 120_ SR	258	305	100
HDP 125_ SR	288	345	100
HDP 130_ SR	325	340	100
HDP 140_ SR	325	365	100
HDP 150	BONFIGLIOLI TECHNICAL SERVICE		
HDP 160			
HDP 170			
HDP 180			

15.6.1.3 AUXILIARY COOLING WITH AUTONOMOUS COOLING UNIT

Two types of cooling units are available, each in a range of sizes providing different cooling capacities. The two types use different cooling media for the oil: MCRW… – water/oil heat exchanger and MCRA… – air/oil heat exchanger.

If an independent cooling unit is installed on the advice of the Bonfiglioli Technical Service, no additional forced lubrication devices are required. See section 15.6.2. The following chart shows device availability according to gearbox size.

Your selection must take into account the deficit in thermal capacity that must be made up by contribution P_{TMCRW} or P_{TMCRA} as shown in the chart in section 17.

	MCRW5 MCRA5	MCRW9 MCRA9	MCRW21 MCRA21	MCRW34 MCRA34	MCRW51 MCRA51	MCRW70 MCRA70
HDP 100	**X**	**X**				
HDP 110	**X**	**X**				
HDP 120	**X**	**X**	**X (*)**			
HDP 125	**X**	**X**	**X (**)**			
HDP 130	**X**	**X**	**X**	**X (**)**		
HDP 140	**X**	**X**	**X**	**X (**)**		
HDP 150	**X**	**X**	**X**	**X**	**X (**)**	
HDP 160	**X**	**X**	**X**	**X**	**X (**)**	
HDP 170	BONFIGLIOLI TECHNICAL SERVICE					
HDP 180						

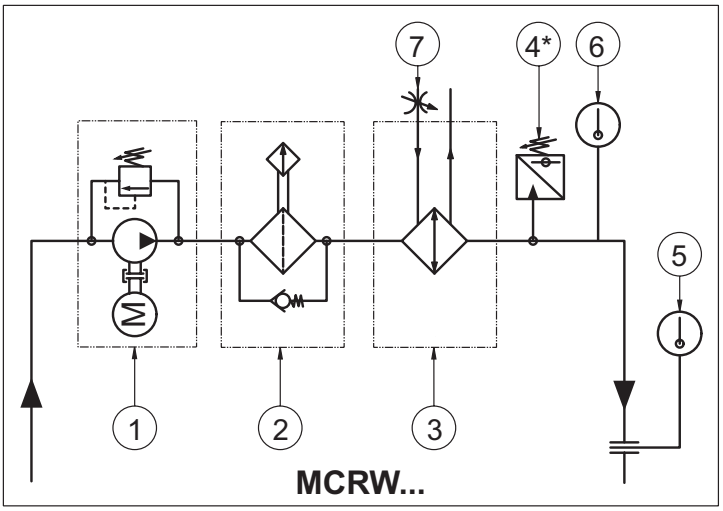
(*) not available for mounting position B3.

(**) not available for double reduction units in the mounting position B3.

The main components of the cooling units are as follows:

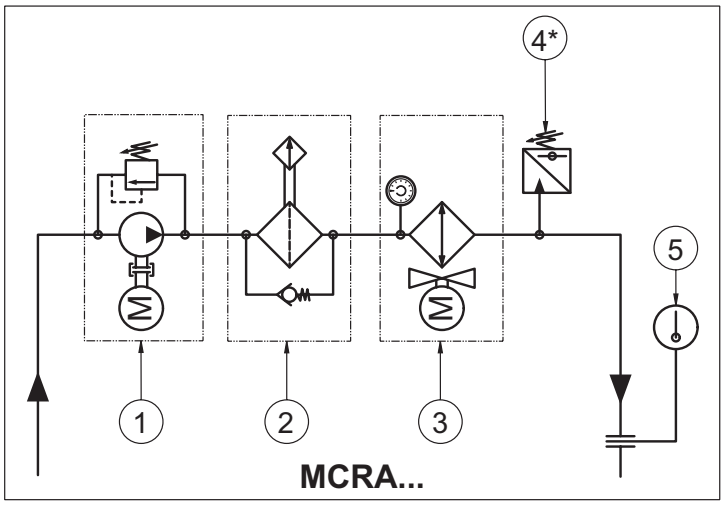
MCRW…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) water/oil heat exchanger
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat
6) minimum temperature switch
7) electro-valve



MCRA…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) air/oil heat exchanger with thermostat
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat



General warnings:

MCRW... : provide a water supply system that corresponds to the following specifications:

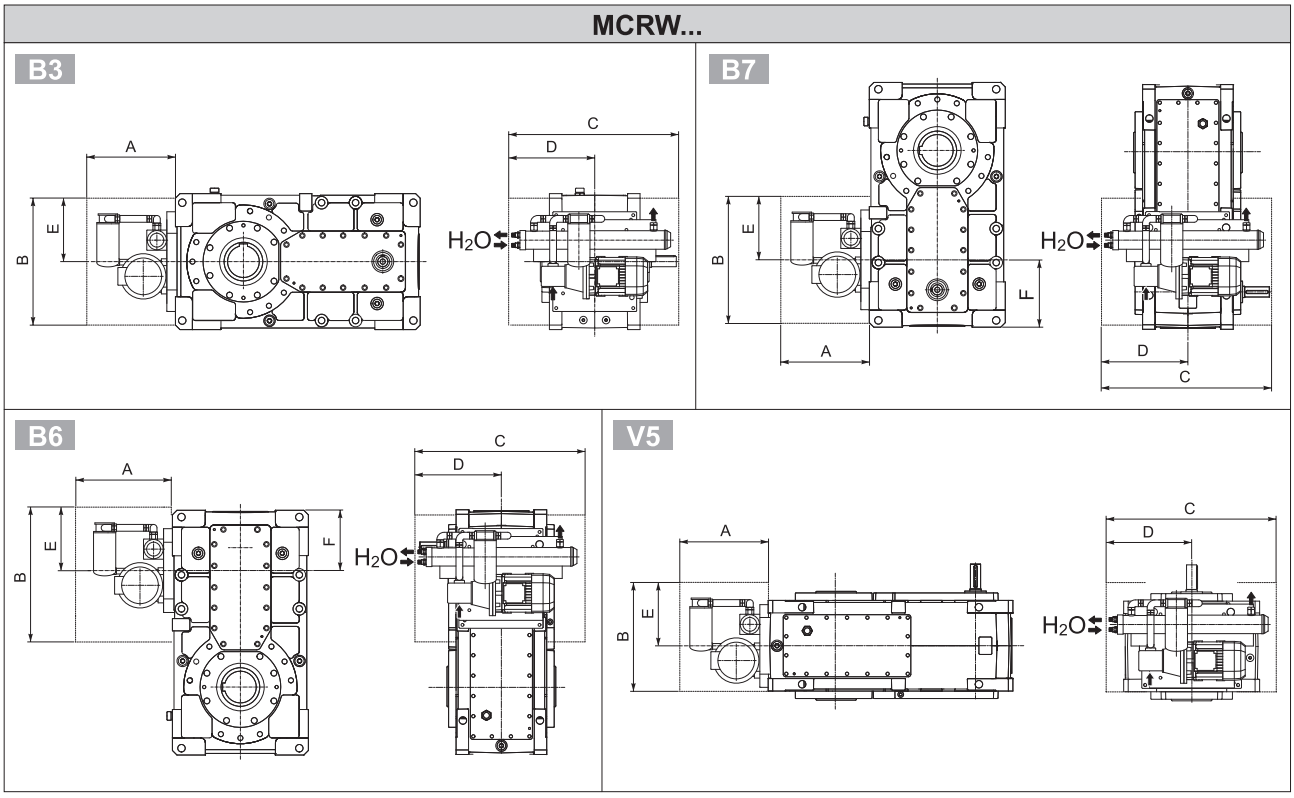
- max. pressure 10 bar
- maximum delivery temperature 20°C
- minimum flow rate Q_{H2O} as per the chart:

	MCRW5	MCRW9	MCRW21	MCRW34	MCRW51	MCRW70
Q_{H2O} [l/min]	10	18	31	56	81	BONFIGLIOLI TECHNICAL SERVICE

MCRA... : leave sufficient space around the heat exchanger to ensure an unrestricted air flow.

The cooling units are mounted as shown in the figure below.

MCRW...

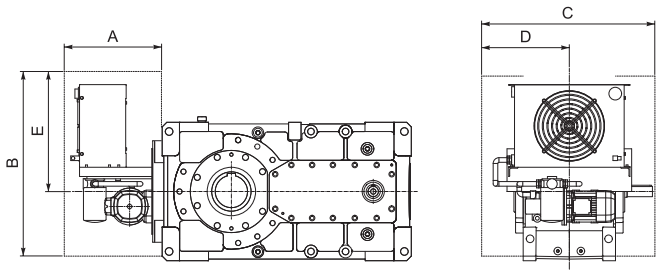


	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]									
						HDP 100 - HDP 110		HDP 120		HDP 125		HDP 130 - HDP 140		HDP 150 - HDP 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRW5	360	415	730	365	230	325	270	350	300	BONFIGLIOLI TECHNICAL SERVICE		420	380	475	395
MCRW9	360	380	870	435	195										
MCRW21	400	425	780	390	240										
MCRW34	430	650	1000	500	465										
MCRW51	520	650	1250	625	465										
MCRW70	BONFIGLIOLI TECHNICAL SERVICE														

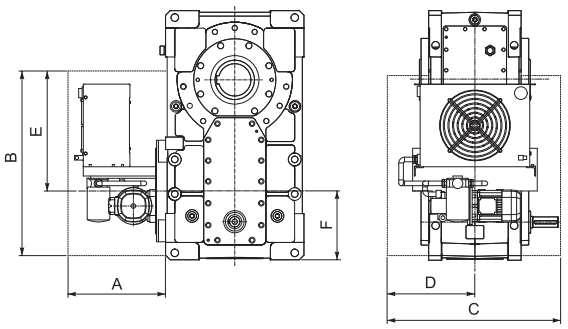
⚠ Overall dimensions A, B, C, D and E are indicative only

MCRA...

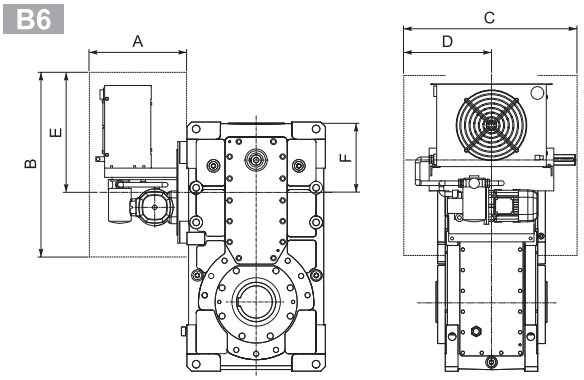
B3



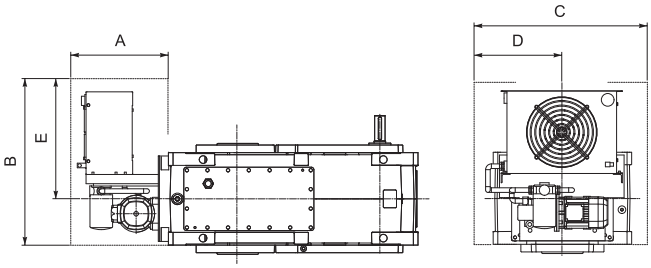
B7



B6



V5



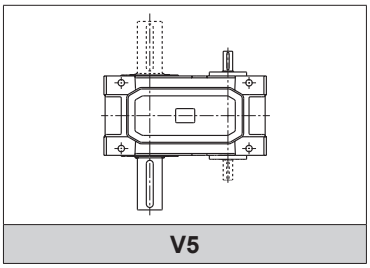
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]									
						HDP 100 - HDP 110		HDP 120		HDP 125		HDP 130 - HDP 140		HDP 150 - HDP 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRA5	400	560	500	250	375	325	270	350	300	BONFIGLIOLI TECHNICAL SERVICE		420	380	475	395
MCRA9	435	650	640	320	465										
MCRA21	440	815	700	350	630										
MCRA34	500	920	840	420	735										
MCRA51	560	1075	1000	500	890										
MCRA70	BONFIGLIOLI TECHNICAL SERVICE														

⚠ Overall dimensions A, B, C, D and E are indicative only

15.6.1.4 HEATERS

In very low ambient temperatures it may prove necessary to pre-heat the lubricant in the sump before start-up and/or during operation. The **HE** option envisages the installation of an electrical heating element, supplied with a thermostat to detect when the minimum temperature needed for correct operation has been reached. The wiring necessary for the thermostat must be provided by the installer.

15.6.2 GREASE LUBRICATION



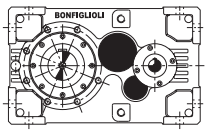
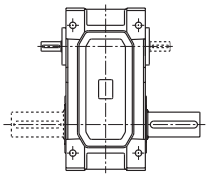
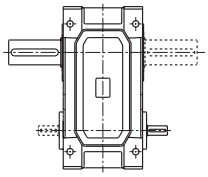
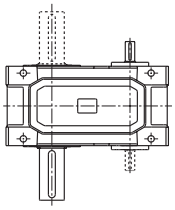
V5

Gearboxes of sizes HDP 60… HDP 90 in mounting position V5 are supplied with upper bearings (not immersed in oil) lubricated with grease and do not require periodic maintenance.

15.6.2.1 FORCED LUBRICATION

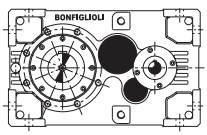
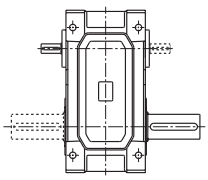
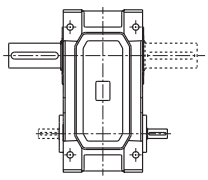
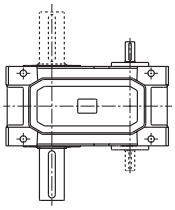
Gearboxes of sizes HDP 60… HDP 90 in mounting position V5 normally supplied with the upper bearings (not immersed in the oil) lubricated with grease can be supplied, on request, with a forced lubrication circuit for the lubrication of the same.

Application conditions of the OPTIONAL forced lubrication devices.

				
	B3	**B6**	**B7**	**V5**
HDP 60 ... HDP 90	⛔	⛔	⛔	OP... MOP

Gearboxes of sizes HDP 100 ... HDP 180 in mounting position V5 are supplied with upper bearings not immersed in oil and lubricated through a forced lubrication circuit the lubrication of the same.

Application conditions of the MANDATORY forced lubrication devices.

				
	B3	**B6**	**B7**	**V5**
HDP 100 ... HDP 180	⛔	⛔	⛔	OP... MOP

Remark: Forced lubrication devices may be replaced, upon approval from Bonfiglioli Technical Service, by independent cooling systems, type MCR...

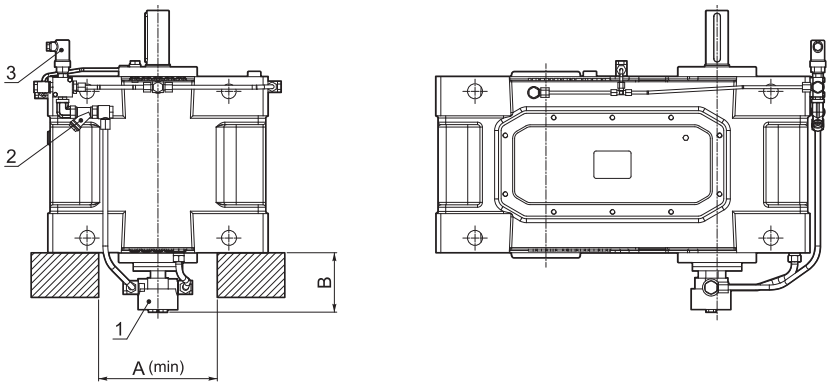
15.6.2.2 MECHANICAL PUMP

In continuous duty applications and V5 mounting position installations, an optional forced lubrication circuit is available on request, complete with a pump keyed to the shaft end opposite the drive side. This system ensures adequate lubrication of the top bearings.
When ordering, specify the pump type - **OP1** or **OP2** to suit drive speed n_1. See the table below.

	n_1 = 1000 min^{-1}	n_1 = 1200 min^{-1}	n_1 = 1500 min^{-1}
HDP 60 ... HDP 140	OP2	OP2	OP1
HDP 150, HDP 160	OP2	OP2	OP2
HDP 170, HDP 180	BONFIGLIOLI TECHNICAL SERVICE		

This option is not available with other configurations that use the same shaft end.

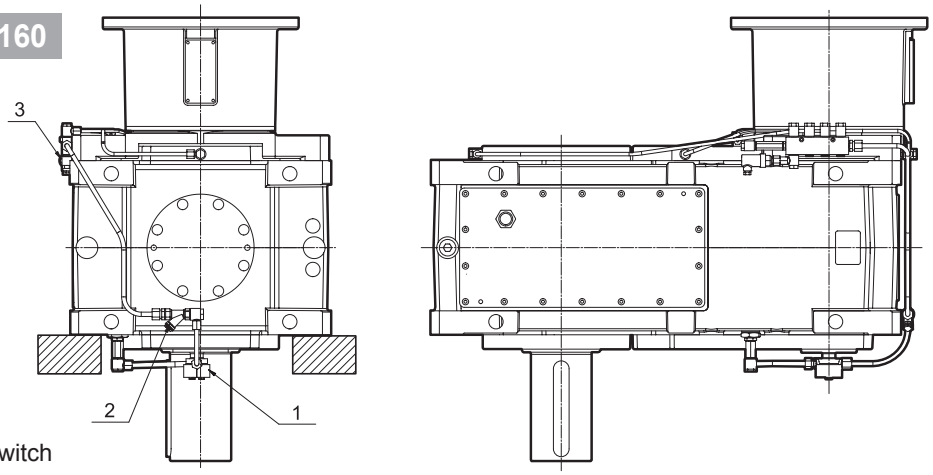
HDP 60 ... HDP 90



1 - Pump
2 - Filter
3 - Minimum pressure switch

	A (min) [mm]	B [mm]
HDP 60_ OP1	190	105
HDP 60_ OP2	190	105
HDP 70_ OP1	215	105
HDP 70_ OP2	215	105
HDP 80_ OP1	240	105
HDP 80_ OP2	240	130
HDP 90_ OP1	240	130
HDP 90_ OP2	240	130

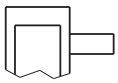
HDP 100 ... HDP 160



1 - Pump
2 - Filter
3 - Minimum pressure switch

Contact the Bonfiglioli Technical Service for overall dimensions.

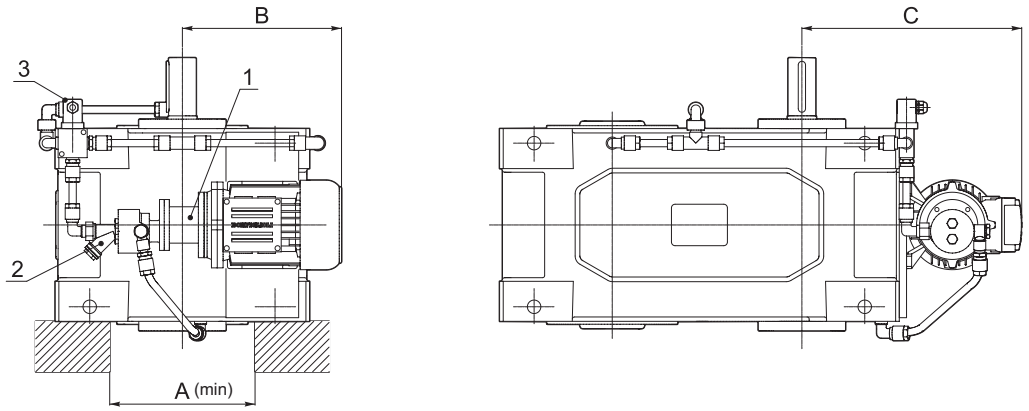
The chart shows the applicability for the pump depending on the input and output configuration.

			LL RL DL	LR RR DR	LD RD DD
HDP 60 ... HDP 180		LP	⛔	VP GR AD	⛔
		H	⛔	VP GR AD	⛔
		S	⛔	VP GR AD	⛔

15.6.2.3 MOTOR PUMP

For intermittent duty applications and V5 mounting position installations, a forced lubrication circuit is available on request, complete with an independently powered motor pump. This system ensures a constant oil flow to the top bearings. Specify the **MOP** option.
Option MOP is not available if fan cooling - option FAN_ - is also specified.

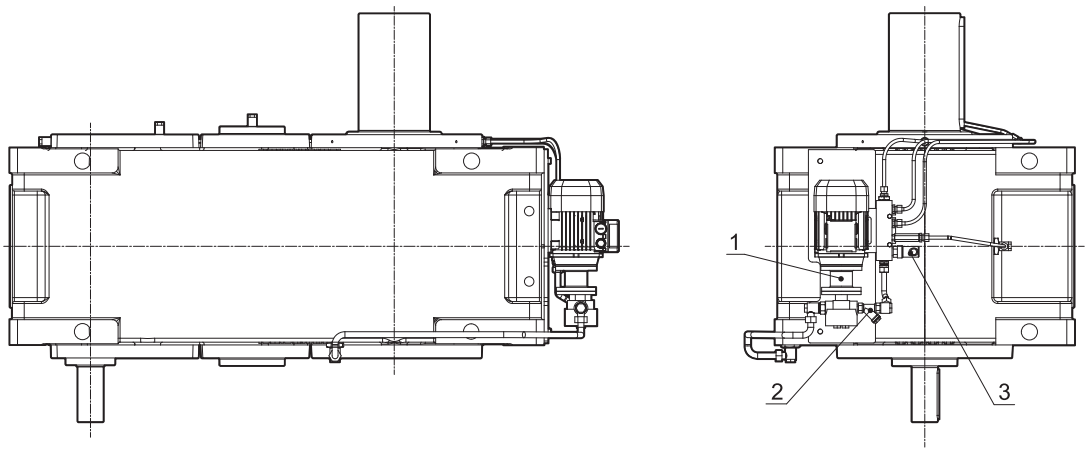
HDP 60 ... HDP 90



1 - Motorpump
2 - Filter
3 - Minimum pressure switch

	A (min) [mm]	B [mm]	C [mm]
HDP 60_ MOP	190	260	310
HDP 70_ MOP	215	260	330
HDP 80_ MOP	240	270	355
HDP 90_ MOP	240	285	390

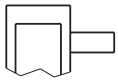
HDP 100 ... HDP 160



1 - Motorpump
2 - Filter
3 - Minimum pressure switch

Contact the Bonfiglioli Technical Service for overall dimensions.

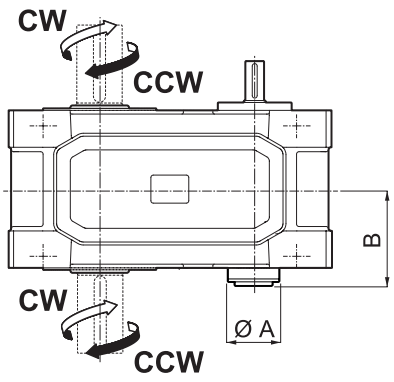
The chart shows the applicability for the motorpump depending on the input and output configuration.

			LL RD DL	LR RR DR	LD RD DD
HDP 60 ... HDP 90		LP	VP	VP GR AD	VP GR
		H	VP	VP GR AD	VP GR
		S	VP	VP GR AD	VP GR
HDP 100 ... HDP 180	No limitation on the basis of output or input configurations				

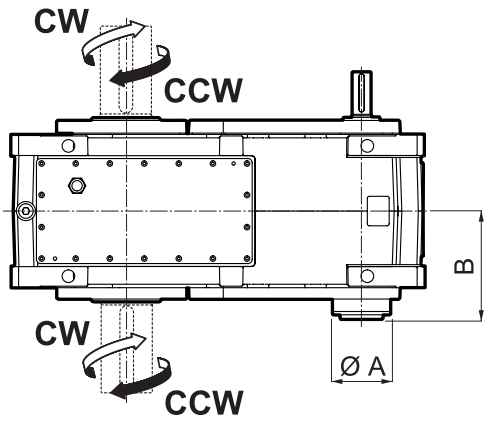
15.6.3 BACKSTOP DEVICE

The backstop device ensures that only one direction of rotation is allowed, and prevents the gearbox to be backdriven by the load connected to the output shaft.
In addition to verifying the shock loads shown in section 11.1, also make sure that the torque transmitted to the backstop $M_1 = M_2 / (i \times \eta)$ is less than the admissible torque M_{1max} listed in the chart below.
The backstop is keyed to the input shaft opposite the drive end and it is accessible for inspection.
Along with the specification of the backstop device, option **A**, the direction of free rotation for the output shaft (**CW** or **CCW**) must also be specified in the order. This option is not available with other configurations that use the same shaft end.
If special operating conditions require it, the user can reverse the direction of rotation of the backstop device by opening the backstop compartment and reversing the direction of the freewheel. If you need to perform this operation, contact Bonfiglioli's Technical Service for the necessary instructions.
The type of backstop device used, based on centrifugally released shoes, does not require any regular maintenance.
This option is not available with other configurations that use the same shaft end.

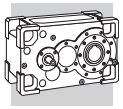
Under continuous operating conditions, it is advisable to maintain a neutral rotation speed n_{1min} greater than that specified in the chart in order to ensure the effective centrifugal release of all the shoes and avoid unnecessary wear.
For further details, contact the Bonfiglioli Technical Service.



	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDP 60 2_A	7.1 ≤ i ≤ 15.2	125	202.5	800	630
	i = 17.3 ; 19.4	100	197.5	375	700
HDP 60 3_A	22.7 ≤ i ≤ 98.4	100	197.5	375	700
HDP 70 2_A	8.0 ≤ i ≤ 17.7	125	202.5	800	630
	i = 19.4 ; 22.6	100	197.5	375	700
HDP 70 3_A	25.5 ≤ i ≤ 114.4	100	197.5	375	700
HDP 80 2_A	8.1 ≤ i ≤ 22.6	130	233	910	610
HDP 80 3_A	25.8 ≤ i ≤ 111.4	110	228	550	710
HDP 90 2_A	7.9 ≤ i ≤ 22.4	150	261	1400	560
HDP 90 3_A	25.4 ≤ i ≤ 110.1	125	256	800	630



	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDP 100 2_A	7.4 ≤ i ≤ 21.8	175	285	2350	510
HDP 100 3_A	22.8 ≤ i ≤ 50.0	150	298	1400	560
	55.5 ≤ i ≤ 107.6	125	293	800	630
HDP 100 4_A	110.6 ≤ i ≤ 507.9	95	262	310	725
HDP 110 2_A	8.1 ≤ i ≤ 25.0	175	285	2350	510
HDP 110 3_A	24.9 ≤ i ≤ 54.5	150	298	1400	560
	60.7 ≤ i ≤ 123.4	125	293	800	630
HDP 110 4_A	120.9 ≤ i ≤ 499.4	95	262	310	725
HDP 120 2_A	7.9 ≤ i ≤ 25.4	190	315	3050	470
HDP 120 3_A	25.8 ≤ i ≤ 56.1	150	285	1400	560
	64.3 ≤ i ≤ 125.2	125	279	800	630
HDP 120 4_A	128.0 ≤ i ≤ 523.7	95	277	310	725
HDP 125 2_A	8.9 ≤ i ≤ 25.0	190	315	3050	470
HDP 125 3_A	29.1 ≤ i ≤ 62.6	150	285	1400	560
	72.5 ≤ i ≤ 123.6	125	279	800	630
HDP 125 4_A	144.4 ≤ i ≤ 506.5	95	277	310	725
HDP 130 2_A	7.3 ≤ i ≤ 12.3	230	425	5600	410
	14.1 ≤ i ≤ 21.7	210	395	4500	440
HDP 130 3_A	21.8 ≤ i ≤ 48.1	190	366	3050	470
	56.5 ≤ i ≤ 108.3	175	355	2350	510
HDP 130 4_A	111.2 ≤ i ≤ 534.5	110	332	550	670
HDP 140 2_A	8.4 ≤ i ≤ 14.4	230	425	5600	410
	16.3 ≤ i ≤ 24.9	210	395	4500	440
HDP 140 3_A	25.1 ≤ i ≤ 56.2	190	366	3050	470
	65.1 ≤ i ≤ 124.7	175	355	2350	510
HDP 140 4_A	141.6 ≤ i ≤ 495.3	110	332	550	670
HDP 150 2_A	7.9 ≤ i ≤ 14.1	290	487.5	10500	355
	15.4 ≤ i ≤ 19.6	230	447.5	5600	410
HDP 150 3_A	21.5 ≤ i ≤ 38.1	230	445.5	5600	410
	43.5 ≤ i ≤ 77.0	190	417	3050	470
HDP 150 4_A	89.0 ≤ i ≤ 303.1	150	385	1400	560
HDP 160 2_A	9.0 ≤ i ≤ 15.9	290	487.5	10500	355
	17.5 ≤ i ≤ 22.1	230	447.5	5600	410
HDP 160 3_A	24.4 ≤ i ≤ 43.1	230	445.5	5600	410
	49.4 ≤ i ≤ 87.0	190	417	3050	470
HDP 160 4_A	101.1 ≤ i ≤ 342.2	150	385	1400	560
HDP 170	BONFIGLIOLI TECHNICAL SERVICE				
HDP 180					



15.6.4 REINFORCED BEARINGS

Optional heavy-duty bearings are also available, with increased overhung load capacity. The HDB option can only be applied to HDP 60 ... HDP 90 units with the LP shaft arrangement (solid shaft). Option cannot be specified along with variant DW -drywell-.

15.6.5 SEALS AND GASKETS

On request, gearboxes can be equipped with different oil sealing systems. These are:

TK - Taconite seals are recommended for environments characterised by the presence of abrasive dust or powders. Taconite seals incorporate a combination of sealing rings, labyrinths and a grease chamber. Greasing must be ensured as part of the scheduled maintenance programme. This option is not available for HDP 60 ... HDP 90 and is not also available for every size of gearboxes if combined with the optional variant “Mounting flanges” (FM excluded).
VS – Fluoro elastomer compound seal rings.
DS – Dual set of seal rings at each shaft end.
DVS – Dual set of Fluoro elastomer compound seal rings at each shaft end.

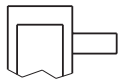
15.6.6 SENSORS

Bimetal thermostat – If the **TG** option is specified, a bimetallic thermostat detects when the oil temperature exceeds 90°C ± 5°C.
The device is supplied with the gear unit, but installation and wiring are the responsibility of the installer.

Oil level indicator – If the **OLG** option is specified in the order, the gearbox is supplied with a device to permit remote control of the oil level. The device best operates when the gearbox is idle and should be bypassed when the gearbox is operating. Wiring is the responsibility of the installer.
The device may not be available in combination with other accessories and/or particular product configurations. Please contact Bonfiglioli Technical Service for advise.

15.6.7 DRYWELL

The Drywell device, option **DW**, guarantees proper sealing for the output shaft. It can only be applied to gearboxes in vertical mounting position V5.
When specified, it necessarily requires the installation of a forced lubrication system, selected from those available for the gearbox, as illustrated in the relevant section of this catalogue.
At scheduled intervals, check and refill the grease in the vane underneath the output shaft’s bottom bearing.
The chart shows the applicability for the drywell depending on the input and output configurations.

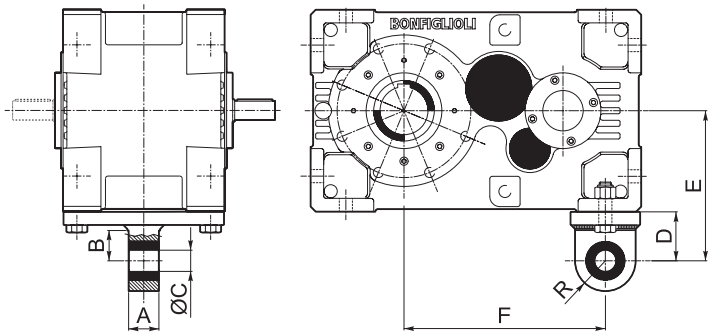
			LR	DR	LD	DD	LL	DL
HDP 60 ... HDP 180		LP	VP GR	VP GR	VP GR GL	VP GR GL	AD	AD
		H	VP GR	⛔	VP GR GL	⛔	AD	⛔
		S	VP GR	⛔	VP GR GL	⛔	AD	⛔

The drywell **is NOT available** for the gear ratios listed here under:

⛔ DW	HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 125	HDP 130	HDP 140	HDP 150	HDP 160	HDP 170	HDP 180
i =	17.3 19.4 43.7 49.1 87.6 98.4	19.4 22.6 49.1 57.0 98.5 114.4	—	20.1 22.4 65.8 73.3 98.9 110.1	BONFIGLIOLI TECHNICAL SERVICE									

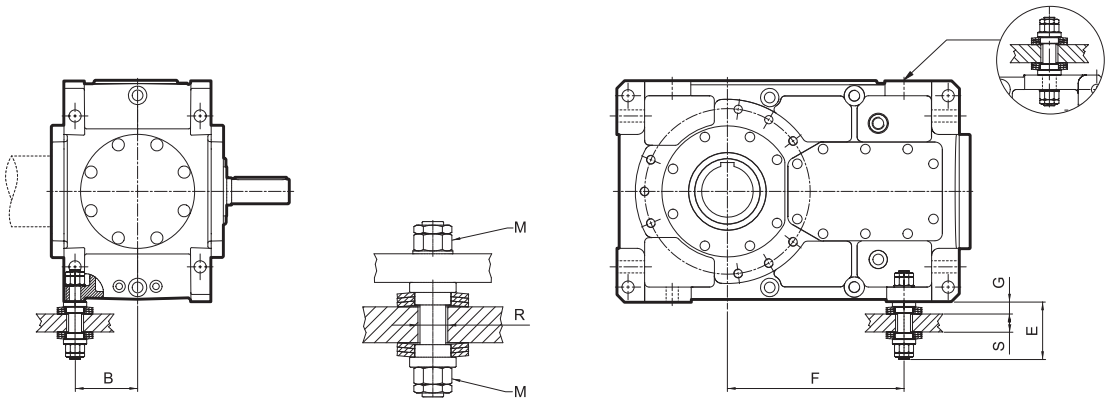
15.6.8 FIXING ELEMENTS

For shaft-mounted installations, HDP 60 ... HDP 90 gearboxes can be fitted with an electro-welded steel torque arm, complete with anti-vibration bushing.

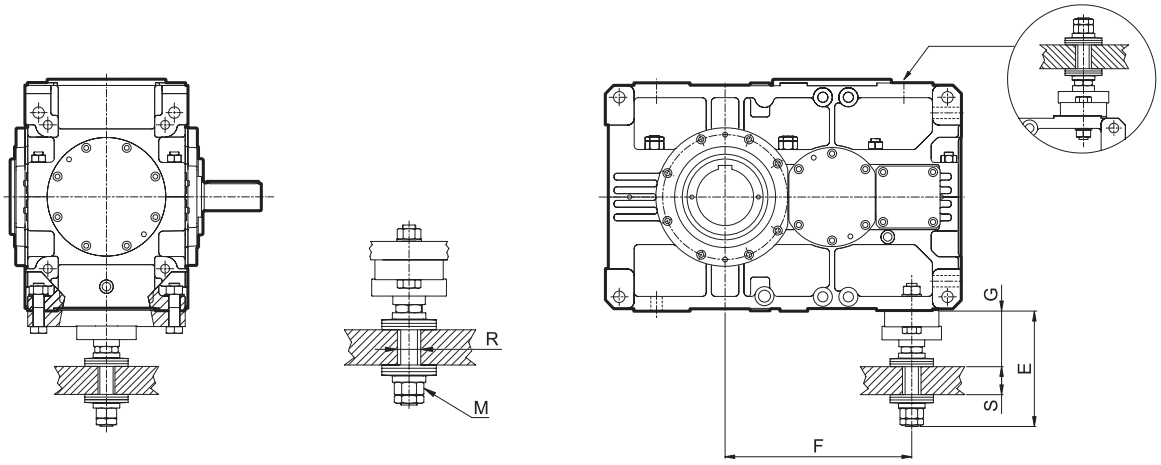


	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	R [mm]
HDP 60_ TA	40	47	32	76	251	340	47
HDP 70_ TA	40	47	32	76	251	375	47
HDP 80_ TA	60	60	42	97	297	400	60
HDP 90_ TA	60	68	42	113	338	460	68

To perform the same function, gearboxes HDP 100 and larger can be supplied with a hardened steel bolt to secure the units to the machine framwork.
Vibration damping cup springs are also supplied within the kit. The customer must adjust the preload of these springs during installation, respecting the value G given in the chart below.
The reaction bolt must be fitted on the side of the gearbox next to the driven machine and in the farthest hole from output shaft centre (see dimension F in the following figure).
Fitting the bolt on same side as the inspection cover is not possible. In this case please contact Bonfiglioli Technical Service for advise.



	F [mm]	B [mm]	E [mm]	G [mm] Rated value	M	R [mm]	S [mm]	DIN2093
HDP 100 2_TA	420	160	153	33.4	M27	35	30 - 40	A100
HDP 100 3_TA **HDP 100 4_TA**	540							
HDP 110 2_TA	435	160	153	33.4	M27	35	30 - 40	A100
HDP 110 3_TA **HDP 110 4_TA**	555							
HDP 120 2_TA	480	170	166	33.4	M30	40	40 - 50	A100
HDP 120 3_TA **HDP 120 4_TA**	630							
HDP 125 2_TA	530	170	166	33.4	M30	40	40 - 50	A100
HDP 125 3_TA **HDP 125 4_TA**	680							
HDP 130 2_TA	585	216	205	42.7	M36	45	50 - 60	A125
HDP 130 3_TA **HDP 130 4_TA**	780							
HDP 140 2_TA	625	216	205	42.7	M36	45	50 - 60	A125
HDP 140 3_TA **HDP 140 4_TA**	790							



	F [mm]	E [mm]	G [mm] Rated value	M	R [mm]	S [mm]	DIN2093
HDP 150 2_TA	687.5	405	204.3	M48x2	52	70 - 80	A160
HDP 150 3_TA **HDP 150 4_TA**	877.5						
HDP 160 2_TA	727.5	405	204.3	M48x2	52	70 - 80	A160
HDP 160 3_TA **HDP 160 4_TA**	927.5						
HDP 170	BONFIGLIOLI TECHNICAL SERVICE						
HDP 180							

15.6.9 SURFACE PROTECTION

HDP 60 ... 90

When no specific protection class is requested, the painted (ferrous) surfaces of gearboxes are protected to at least corrosivity class C2 (UNI EN ISO 12944-2). For improved resistance to atmospheric corrosion, gearboxes can be delivered with C3 and C4 surface protection, obtained by painting the complete gearbox.

HDP 100 ... 180

When no specific protection class is requested, the painted surfaces of gearboxes are protected to at least corrosivity class C3 (UNI EN ISO 12944-2). For improved resistance to atmospheric corrosion, gearboxes can be delivered with C4 surface protection, obtained by painting the complete gearbox.

SURFACE PROTECTION	Typical environments	Maximum surface temperature	Corrosivity class according to UNI EN ISO 12944-2
C3	Urban and industrial environments with up to 100% relative humidity (medium air pollution)	120°C	C3
C4	Industrial areas, coastal areas, chemical plant, with up to 100% relative humidity (high air pollution)	120°C	C4

Gearboxes with optional protection to class C3 or C4 are available in a choice of colours.
If no specific colour is requested (see the “PAINTING” option) gearboxes are finished in RAL 7042.
Gearboxes can also be supplied with surface protection for corrosivity class C5 according to UNI EN ISO 12944-2. Contact our Technical Service for further details.

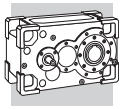
15.6.10 PAINTING

Gearboxes with optional protection to class C3 or C4 are available in the colours listed in the following table.

PAINTING	Colour	RAL number
RAL7042*	Traffik Grey A	7042
RAL5010	Gentian Blue	5010
RAL9005	Jet Black	9005
RAL9006	White Aluminium	9006
RAL9010	Pure White	9010
RAL7035	Light Grey	7035
RAL7001	Silver Grey	7001
RAL5015	Sky Blue	5015
RAL7037	Dusty Grey	7037
RAL5024	Pastel Blue	5024

* Gearboxes are supplied in this standard colour if no other colour is specified.

NOTE - “PAINTING” options can only be specified in conjunction with “SURFACE PROTECTION” options.



15.6.11 CERTIFICATES

AC - Certificate of compliance
The document certifies the compliance of the product with the purchase order and the construction in conformity with the applicable procedures of the Bonfiglioli Quality System.

CC - Inspection certificate
The document entails checking on order compliance, the visual inspection of external conditions and of mating dimensions. Checking on main functional parameters in unloaded conditions is also performed along with oil seal proofing, both in static and in running conditions. Units inspected are sampled within the shipping batch and marked individually.

CT - Type certificate
Further to the activities relevant to the Inspection certificate the following checks are also conducted:
• noise
• surface temperature
• tightness of external hardware
• functionality of ancillary devices, if fitted

All checks are conducted with the gear unit running unloaded. Units inspected are sampled within the shipping batch and marked individually.

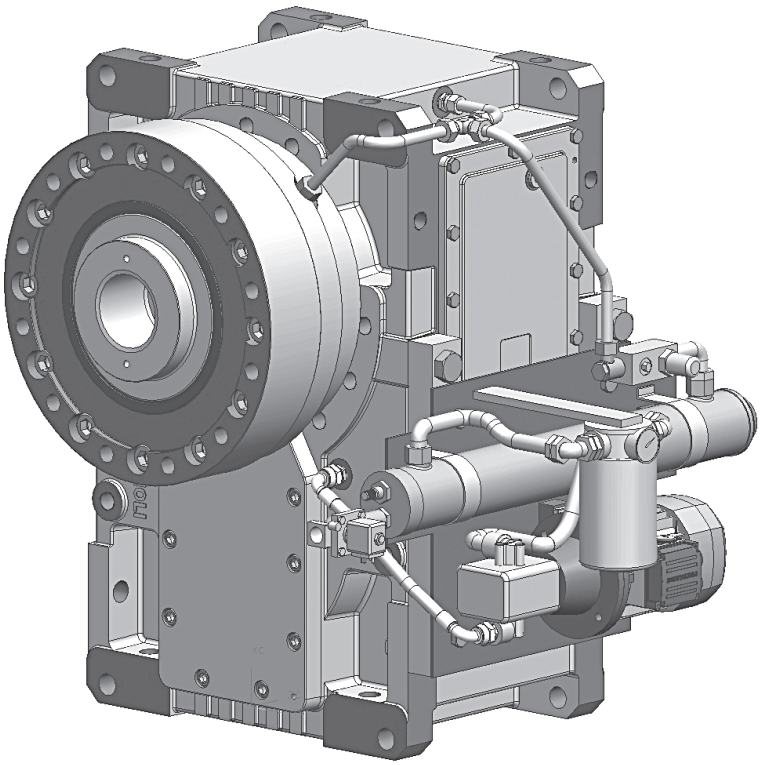
15.7 EXECUTION FOR EXTRUDER

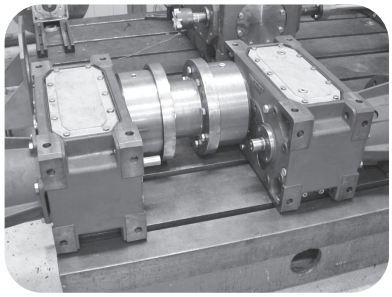
The HDPE series is the configuration specifically developed for **single-screw extruder drive** generated from the renown heavy duty series HDP, with which it shares most of the component parts and gearing.
Mounted forward to the sturdy nodular cast iron case, and housed into a robust extruder support, HDPE units feature a heavy duty spherical roller thrust bearing of series 294…E, exclusively sourced from primary brands.

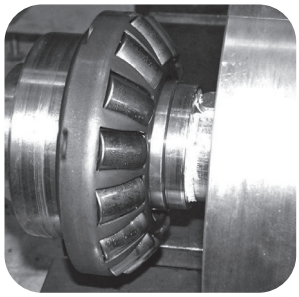
Design features

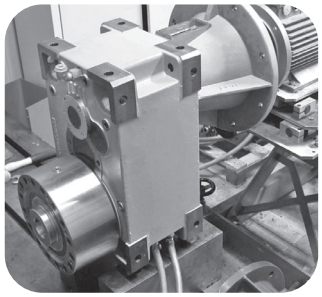
- Spheroidal graphite cast iron casing with universal mounting options
- Thrust bearing optimised for each application
- Radial roller bearings on the output shaft
- Customisable extruder screw/cylinder interface dimensions
- External cooling and forced lubrication units
- Lubrication shared between gearbox casing and screw box
- Fluoro elastomer compound seal rings

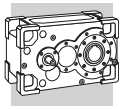
For more information see HDPE catalog.







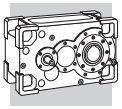




16 REFERENCE TORQUE

The torque values given in the table are influenced by the following elements: gear teeth, shafts and couplings. Performance may therefore vary with application conditions (see the “Thermal Capacity and Rating Charts”).

HDP															
		Mn_{2REF} [Nm]													
	i_N	HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 125	HDP 130	HDP 140	HDP 150	HDP 160	HDP 170	HDP 180
2x	7.1	5.190	—	—	—	24.400	—	—		68.800	—	—	—	—	—
	8.0	4.720	6.200	10.350	14.000	24.710	26.080	36.820		65.830	86.990	113.880	—	150.450	—
	9.0	5.190	7.080	12.050	15.600	24.840	27.420	38.290	42.100	68.360	86.040	116.900	129.320	174.600	167.150
	10.0	4.720	6.750	11.350	17.700	24.740	26.540	37.550	43.940	65.410	86.990	112.740	150.940	189.150	193.450
	11.2	5.190	7.080	12.350	17.120	25.230	27.880	39.010	42.910	67.690	85.490	123.320	144.620	188.900	207.610
	12.5	4.720	6.750	11.500	17.700	24.740	26.940	38.140	44.300	64.770	86.990	115.490	142.390	197.670	209.900
	14.0	5.190	7.080	12.500	17.120	25.620	28.270	39.590	43.590	67.180	84.660	111.370	151.130	188.150	215.480
	16.0	4.720	6.750	11.750	17.000	24.570	27.330	38.580	44.980	64.290	86.990	123.610	142.840	188.900	204.880
	18.0	5.190	7.080	11.950	17.120	25.890	28.660	40.030	44.090	66.730	84.030	114.210	142.390	195.560	209.900
	20.0	4.720	6.750	11.900	17.700	24.410	27.660	39.000	45.480	63.860	86.990	110.150	149.410	186.170	213.180
	22.4	—	7.080	12.600	17.120	22.790	28.990	39.780	44.580	64.070	83.480	—	141.240	—	202.720
	25.0	—	—	—	—	—	26.960	36.630	45.950	—	82.230	—	—	—	—
3x	22.4	5.190	—	—	—	26.130	—	—		66.280	—	113.760	—	183.920	—
	25.0	4.720	6.750	9.900	17.900	24.260	30.360	40.090		63.450	77.440	113.030	129.180	190.190	204.380
	28.0	5.190	7.080	11.500	17.120	25.990	29.680	39.550	45.940	65.790	82.930	109.030	146.300	182.320	202.450
	31.5	4.720	6.750	11.650	17.900	24.140	30.740	40.810	47.450	62.990	84.810	117.200	139.790	188.900	200.130
	35.5	5.190	7.080	12.600	17.120	25.860	29.540	39.330	46.680	65.430	82.330	112.010	143.440	190.190	209.900
	40.0	4.720	6.750	12.600	17.900	24.030	31.130	40.620	48.180	62.650	84.810	108.070	146.300	182.210	202.450
	45.0	5.190	7.080	12.600	17.120	25.740	29.400	39.150	47.230	65.120	81.890	117.200	138.540	183.920	198.410
	50.0	4.720	6.750	11.950	17.900	23.920	31.100	40.410	48.720	62.360	82.170	111.000	138.770	189.610	204.380
	56.0	5.190	7.080	12.600	17.120	25.650	29.270	38.960	47.750	64.780	81.510	107.110	145.150	180.610	202.450
	63.0	4.720	6.750	12.600	17.900	23.830	30.740	40.250	49.240	62.050	84.810	117.200	137.300	188.900	196.680
	71.0	5.190	7.080	12.600	17.120	25.880	29.160	38.800	46.680	65.650	81.100	110.230	143.440	188.320	209.900
	80.0	4.720	6.750	12.000	17.900	24.050	31.130	40.600	48.180	62.890	84.810	106.390	144.140	179.410	202.450
	90.0	5.190	7.080	12.600	17.120	26.850	29.430	39.160	47.230	67.750	82.200	—	136.370	—	195.370
	100.0	4.720	6.750	12.600	17.900	24.880	31.350	41.250	48.720	64.910	82.170	—	—	—	—
	112.0	—	7.080	12.600	17.120	23.340	30.550	40.740	47.750	63.140	84.850	—	—	—	—
	125.0	—	—	—	—	—	27.630	37.570	49.240	—	78.870	—	—	—	—
4x	90.0	—	—	—	—	—	—	—		—	—	116.800	—	183.920	—
	100.0	—	—	—	—	—	—	—		—	—	116.060	132.640	190.190	204.380
	112.0	—	—	—	—	27.790	—	—		69.570	—	112.070	146.300	182.320	202.450
	125.0	—	—	—	—	24.880	31.350	41.250		66.770	—	117.200	143.630	188.900	205.480
	140.0	—	—	—	—	28.210	31.630	40.920	46.680	69.570	87.060	117.090	142.380	190.190	209.900
	160.0	—	—	—	—	24.880	31.790	41.250	48.180	66.770	84.860	114.780	146.300	182.320	202.450
	180.0	—	—	—	—	28.210	31.570	40.920	46.680	69.570	87.060	116.800	147.070	183.920	207.020
	200.0	—	—	—	—	24.880	31.570	41.250	48.180	66.770	81.580	117.090	132.640	190.190	204.380
	224.0	—	—	—	—	28.210	31.790	40.920	47.230	69.570	87.060	114.780	146.300	182.320	202.450
	250.0	—	—	—	—	24.880	31.350	41.250	49.240	66.770	81.230	117.200	147.070	188.900	205.480
	280.0	—	—	—	—	28.210	31.790	40.920	47.750	69.570	87.060	117.090	140.530	190.190	209.900
	315.0	—	—	—	—	25.110	31.570	41.250	48.180	66.770	84.860	114.780	146.300	182.320	202.450
	355.0	—	—	—	—	28.210	31.790	40.920	47.230	69.570	87.060	—	147.070	—	207.020
	400.0	—	—	—	—	25.410	31.570	41.250	48.180	66.770	84.860	—	—	—	—
	450.0	—	—	—	—	28.210	31.790	40.920	47.230	66.770	87.060	—	—	—	—
	500.0	—	—	—	—	25.410	31.570	41.250	49.240	63.140	82.170	—	—	—	—

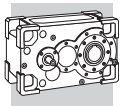


17 THERMAL CAPACITY AND RATING CHARTS

HDP 60											n_1 = 1800 min^{-1}
					t_a = 20°C			t_a = 40°C			
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL / R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL / R}$ [kW]	P_{TSR} [kW]	
HDP 60 2	**7.1**	252	4300	118	52	72	84	*	*	64	
HDP 60 2	**8.0**	224	4410	108	52	72	84	*	46	64	
HDP 60 2	**9.0**	201	4630	101	52	72	84	*	46	64	
HDP 60 2	**10.1**	179	4690	91	57	77	89	37	51	69	
HDP 60 2	**11.2**	161	4960	87	57	77	89	37	51	69	
HDP 60 2	**12.5**	144	4720	74	61	81	93	41	55	73	
HDP 60 2	**13.5**	133	5190	75	61	81	93	41	55	73	
HDP 60 2	**15.2**	118	4720	61	—	—	—	44	58	76	
HDP 60 2	**17.3**	104	5190	59	—	—	—	44	58	76	
HDP 60 2	**19.4**	93	4720	48	—	—	—	46	60	78	
HDP 60 3	**22.7**	79	4460	39	39	53	57	26	36	44	
HDP 60 3	**25.5**	71	4630	36	—	—	—	26	36	44	
HDP 60 3	**28.2**	64	4960	35	—	—	—	26	36	44	
HDP 60 3	**31.7**	57	4720	30	—	—	—	27	37	45	
HDP 60 3	**34.2**	53	5180	30	—	—	—	27	37	45	
HDP 60 3	**38.5**	47	4720	25	—	—	—	—	—	—	
HDP 60 3	**43.7**	41	5190	24	—	—	—	—	—	—	
HDP 60 3	**49.1**	37	4720	19.3	—	—	—	—	—	—	
HDP 60 3	**56.6**	32	5190	18.4	—	—	—	—	—	—	
HDP 60 3	**63.6**	28.3	4720	14.9	—	—	—	—	—	—	
HDP 60 3	**68.6**	26.2	5190	15.1	—	—	—	—	—	—	
HDP 60 3	**77.1**	23.3	4720	12.3	—	—	—	—	—	—	
HDP 60 3	**87.6**	20.6	5190	11.9	—	—	—	—	—	—	
HDP 60 3	**98.4**	18.3	4720	9.6	—	—	—	—	—	—	

* BONFIGLIOLI TECHNICAL SERVICE

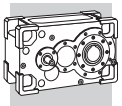
— Thermal verification not necessary



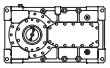
HDP 60											n_1 = 1500 min ^{1}
					t_a = 20°C			t_a = 40°C			
	i	n_2 [min ^{1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 60 2	**7.1**	210	4570	105	57	74	89	*	50	69
HDP 60 2	**8.0**	187	4630	94	57	74	89	*	50	69
HDP 60 2	**9.0**	167	4900	89	57	74	89	37	50	69
HDP 60 2	**10.1**	149	4720	77	61	78	93	41	54	73
HDP 60 2	**11.2**	134	5190	76	61	78	93	41	54	73
HDP 60 2	**12.5**	120	4720	62	—	—	—	44	57	76
HDP 60 2	**13.5**	111	5190	63	—	—	—	44	57	76
HDP 60 2	**15.2**	99	4720	51	—	—	—	46	59	78
HDP 60 2	**17.3**	87	5190	49	—	—	—	46	59	78
HDP 60 2	**19.4**	77	4720	40	—	—	—	—	—	—
HDP 60 3	**22.7**	66	4740	35	—	—	—	28	37	46
HDP 60 3	**25.5**	59	4720	31	—	—	—	28	37	46
HDP 60 3	**28.2**	53	5190	31	—	—	—	28	37	46
HDP 60 3	**31.7**	47	4720	25	—	—	—	—	—	—
HDP 60 3	**34.2**	44	5190	25	—	—	—	—	—	—
HDP 60 3	**38.5**	39	4720	20	—	—	—	—	—	—
HDP 60 3	**43.7**	34	5190	19.8	—	—	—	—	—	—
HDP 60 3	**49.1**	31	4720	16.0	—	—	—	—	—	—
HDP 60 3	**56.6**	26.5	5190	15.3	—	—	—	—	—	—
HDP 60 3	**63.6**	23.6	4720	12.4	—	—	—	—	—	—
HDP 60 3	**68.6**	21.9	5190	12.6	—	—	—	—	—	—
HDP 60 3	**77.1**	19.4	4720	10.2	—	—	—	—	—	—
HDP 60 3	**87.6**	17.1	5190	9.9	—	—	—	—	—	—
HDP 60 3	**98.4**	15.2	4720	8.0	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

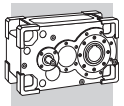


HDP 60 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 60 2	**7.1**	168	4870	89	61	76	93	41	52	73
HDP 60 2	**8.0**	149	4720	77	61	76	93	41	52	73
HDP 60 2	**9.0**	134	5190	76	61	76	93	41	52	73
HDP 60 2	**10.1**	119	4720	61	—	—	—	44	55	76
HDP 60 2	**11.2**	108	5190	61	—	—	—	44	55	76
HDP 60 2	**12.5**	96	4720	49	—	—	—	46	57	78
HDP 60 2	**13.5**	89	5190	50	—	—	—	46	57	78
HDP 60 2	**15.2**	79	4720	41	—	—	—	—	—	—
HDP 60 2	**17.3**	69	5190	39	—	—	—	—	—	—
HDP 60 2	**19.4**	62	4720	32	—	—	—	—	—	—
HDP 60 3	**22.7**	53	5040	30	—	—	—	—	—	—
HDP 60 3	**25.5**	47	4720	25	—	—	—	—	—	—
HDP 60 3	**28.2**	43	5190	25	—	—	—	—	—	—
HDP 60 3	**31.7**	38	4720	20	—	—	—	—	—	—
HDP 60 3	**34.2**	35	5190	20	—	—	—	—	—	—
HDP 60 3	**38.5**	31	4720	16.4	—	—	—	—	—	—
HDP 60 3	**43.7**	27.5	5190	15.9	—	—	—	—	—	—
HDP 60 3	**49.1**	24.4	4720	12.8	—	—	—	—	—	—
HDP 60 3	**56.6**	21.2	5190	12.2	—	—	—	—	—	—
HDP 60 3	**63.6**	18.9	4720	9.9	—	—	—	—	—	—
HDP 60 3	**68.6**	17.5	5190	10.1	—	—	—	—	—	—
HDP 60 3	**77.1**	15.6	4720	8.2	—	—	—	—	—	—
HDP 60 3	**87.6**	13.7	5190	7.9	—	—	—	—	—	—
HDP 60 3	**98.4**	12.2	4720	6.4	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

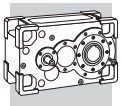


HDP 60 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 60 2	**7.1**	140	5120	78	63	75	95	43	52	75
HDP 60 2	**8.0**	125	4720	64	63	75	95	43	52	75
HDP 60 2	**9.0**	111	5190	63	63	75	95	43	52	75
HDP 60 2	**10.1**	99	4720	51	—	—	—	45	54	77
HDP 60 2	**11.2**	90	5190	51	—	—	—	45	54	77
HDP 60 2	**12.5**	80	4720	41	—	—	—	—	—	—
HDP 60 2	**13.5**	74	5190	42	—	—	—	—	—	—
HDP 60 2	**15.2**	66	4720	34	—	—	—	—	—	—
HDP 60 2	**17.3**	58	5190	33	—	—	—	—	—	—
HDP 60 2	**19.4**	52	4720	27	—	—	—	—	—	—
HDP 60 3	**22.7**	44	5190	25	—	—	—	—	—	—
HDP 60 3	**25.5**	39	4720	21	—	—	—	—	—	—
HDP 60 3	**28.2**	35	5190	20	—	—	—	—	—	—
HDP 60 3	**31.7**	32	4720	16.6	—	—	—	—	—	—
HDP 60 3	**34.2**	29.2	5190	16.9	—	—	—	—	—	—
HDP 60 3	**38.5**	26.0	4720	13.7	—	—	—	—	—	—
HDP 60 3	**43.7**	22.9	5190	13.2	—	—	—	—	—	—
HDP 60 3	**49.1**	20.4	4720	10.7	—	—	—	—	—	—
HDP 60 3	**56.6**	17.7	5190	10.2	—	—	—	—	—	—
HDP 60 3	**63.6**	15.7	4720	8.3	—	—	—	—	—	—
HDP 60 3	**68.6**	14.6	5190	8.4	—	—	—	—	—	—
HDP 60 3	**77.1**	13.0	4720	6.8	—	—	—	—	—	—
HDP 60 3	**87.6**	11.4	5190	6.6	—	—	—	—	—	—
HDP 60 3	**98.4**	10.2	4720	5.3	—	—	—	—	—	—

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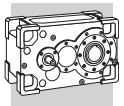


HDP 70 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C P_T [kW]	t_a = 20°C $P_{TFANL/R}$ [kW]	t_a = 20°C P_{TSR} [kW]	t_a = 40°C P_T [kW]	t_a = 40°C $P_{TFANL/R}$ [kW]	t_a = 40°C P_{TSR} [kW]
HDP 70 2	**8.0**	224	5620	137	*	75	87	*	*	66
HDP 70 2	**9.3**	193	5840	123	55	75	87	*	*	66
HDP 70 2	**10.1**	178	6010	117	60	80	92	*	53	71
HDP 70 2	**11.7**	154	6230	104	60	80	92	*	53	71
HDP 70 2	**12.6**	143	6510	102	64	84	96	43	57	75
HDP 70 2	**14.6**	124	6730	91	64	84	96	43	57	75
HDP 70 2	**15.2**	118	6750	87	67	87	99	46	60	78
HDP 70 2	**17.7**	102	7080	79	67	87	99	46	60	78
HDP 70 2	**19.4**	93	6750	68	—	—	—	49	63	81
HDP 70 2	**22.6**	80	7080	62	—	—	—	49	63	81
HDP 70 3	**25.5**	71	6750	53	39	53	57	25	35	43
HDP 70 3	**29.6**	61	7080	48	39	53	57	25	35	43
HDP 70 3	**31.7**	57	6620	42	41	55	59	27	37	45
HDP 70 3	**36.9**	49	6840	37	—	—	—	27	37	45
HDP 70 3	**38.5**	47	6750	35	—	—	—	28	38	46
HDP 70 3	**44.7**	40	7080	32	—	—	—	28	38	46
HDP 70 3	**49.1**	37	6750	28	—	—	—	—	—	—
HDP 70 3	**57.0**	32	7080	25	—	—	—	—	—	—
HDP 70 3	**63.7**	28.3	6670	21	—	—	—	—	—	—
HDP 70 3	**73.9**	24.4	7080	19.2	—	—	—	—	—	—
HDP 70 3	**77.2**	23.3	6750	17.5	—	—	—	—	—	—
HDP 70 3	**89.6**	20.1	7080	15.8	—	—	—	—	—	—
HDP 70 3	**98.5**	18.3	6750	13.7	—	—	—	—	—	—
HDP 70 3	**114.4**	15.7	7080	12.4	—	—	—	—	—	—

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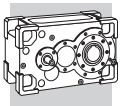


HDP 70 — n_1 = 1500 min^{-1}

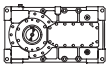
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 70 2	**8.0**	187	5940	121	60	77	92	*	52	71
HDP 70 2	**9.3**	161	6150	108	60	77	92	*	52	71
HDP 70 2	**10.1**	149	6370	103	64	81	96	43	56	75
HDP 70 2	**11.7**	128	6590	92	64	81	96	43	56	75
HDP 70 2	**12.6**	120	6750	88	67	84	99	46	59	78
HDP 70 2	**14.6**	103	7080	79	67	84	99	46	59	78
HDP 70 2	**15.2**	99	6750	73	70	87	102	49	62	81
HDP 70 2	**17.7**	85	7080	66	—	—	—	49	62	81
HDP 70 2	**19.4**	77	6750	57	—	—	—	51	64	83
HDP 70 2	**22.6**	67	7080	51	—	—	—	51	64	83
HDP 70 3	**25.5**	59	6750	44	42	54	60	28	37	46
HDP 70 3	**29.6**	51	7080	40	—	—	—	28	37	46
HDP 70 3	**31.7**	47	6750	35	—	—	—	29	38	47
HDP 70 3	**36.9**	41	7080	32	—	—	—	29	38	47
HDP 70 3	**38.5**	39	6750	29	—	—	—	—	—	—
HDP 70 3	**44.7**	34	7080	26	—	—	—	—	—	—
HDP 70 3	**49.1**	31	6750	23	—	—	—	—	—	—
HDP 70 3	**57.0**	26.3	7080	21	—	—	—	—	—	—
HDP 70 3	**63.7**	23.6	6750	17.7	—	—	—	—	—	—
HDP 70 3	**73.9**	20.3	7080	16.0	—	—	—	—	—	—
HDP 70 3	**77.2**	19.4	6750	14.6	—	—	—	—	—	—
HDP 70 3	**89.6**	16.7	7080	13.2	—	—	—	—	—	—
HDP 70 3	**98.5**	15.2	6750	11.4	—	—	—	—	—	—
HDP 70 3	**114.4**	13.1	7080	10.3	—	—	—	—	—	—

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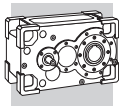


HDP 70 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 70 2	**8.0**	149	6200	101	64	79	96	43	54	75
HDP 70 2	**9.3**	129	6550	92	64	79	96	43	54	75
HDP 70 2	**10.1**	119	6750	88	67	82	99	46	57	78
HDP 70 2	**11.7**	102	7040	79	67	82	99	46	57	78
HDP 70 2	**12.6**	96	6750	70	70	85	102	49	60	81
HDP 70 2	**14.6**	82	7080	64	—	—	—	49	60	81
HDP 70 2	**15.2**	79	6750	58	—	—	—	51	62	83
HDP 70 2	**17.7**	68	7080	52	—	—	—	51	62	83
HDP 70 2	**19.4**	62	6750	45	—	—	—	—	—	—
HDP 70 2	**22.6**	53	7080	41	—	—	—	—	—	—
HDP 70 3	**25.5**	47	6750	35	—	—	—	30	38	48
HDP 70 3	**29.6**	40	7080	32	—	—	—	30	38	48
HDP 70 3	**31.7**	38	6750	28	—	—	—	—	—	—
HDP 70 3	**36.9**	33	7080	26	—	—	—	—	—	—
HDP 70 3	**38.5**	31	6750	23	—	—	—	—	—	—
HDP 70 3	**44.7**	26.8	7080	21	—	—	—	—	—	—
HDP 70 3	**49.1**	24.4	6750	18.3	—	—	—	—	—	—
HDP 70 3	**57.0**	21.0	7080	16.6	—	—	—	—	—	—
HDP 70 3	**63.7**	18.9	6750	14.2	—	—	—	—	—	—
HDP 70 3	**73.9**	16.2	7080	12.8	—	—	—	—	—	—
HDP 70 3	**77.2**	15.5	6750	11.7	—	—	—	—	—	—
HDP 70 3	**89.6**	13.4	7080	10.5	—	—	—	—	—	—
HDP 70 3	**98.5**	12.2	6750	9.1	—	—	—	—	—	—
HDP 70 3	**114.4**	10.5	7080	8.3	—	—	—	—	—	—

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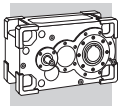


HDP 70 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 70 2	**8.0**	124	6200	84	67	79	99	46	55	78
HDP 70 2	**9.3**	107	6950	81	67	79	99	46	55	78
HDP 70 2	**10.1**	99	6750	73	69	81	101	48	57	80
HDP 70 2	**11.7**	85	7080	66	—	—	—	48	57	80
HDP 70 2	**12.6**	80	6750	59	—	—	—	50	59	82
HDP 70 2	**14.6**	69	7080	53	—	—	—	50	59	82
HDP 70 2	**15.2**	66	6750	48	—	—	—	—	—	—
HDP 70 2	**17.7**	57	7080	44	—	—	—	—	—	—
HDP 70 2	**19.4**	51	6750	38	—	—	—	—	—	—
HDP 70 2	**22.6**	44	7080	34	—	—	—	—	—	—
HDP 70 3	**25.5**	39	6750	29	—	—	—	—	—	—
HDP 70 3	**29.6**	34	7080	27	—	—	—	—	—	—
HDP 70 3	**31.7**	31	6750	24	—	—	—	—	—	—
HDP 70 3	**36.9**	27.1	7080	21	—	—	—	—	—	—
HDP 70 3	**38.5**	26.0	6750	19.5	—	—	—	—	—	—
HDP 70 3	**44.7**	22.4	7080	17.6	—	—	—	—	—	—
HDP 70 3	**49.1**	20.4	6750	15.3	—	—	—	—	—	—
HDP 70 3	**57.0**	17.5	7080	13.8	—	—	—	—	—	—
HDP 70 3	**63.7**	15.7	6750	11.8	—	—	—	—	—	—
HDP 70 3	**73.9**	13.5	7080	10.7	—	—	—	—	—	—
HDP 70 3	**77.2**	13.0	6750	9.7	—	—	—	—	—	—
HDP 70 3	**89.6**	11.2	7080	8.8	—	—	—	—	—	—
HDP 70 3	**98.5**	10.2	6750	7.6	—	—	—	—	—	—
HDP 70 3	**114.4**	8.7	7080	6.9	—	—	—	—	—	—

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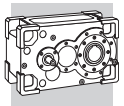


HDP 80 — n_1 = 1800 min^{-1}

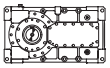
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C P_T [kW]	t_a = 20°C $P_{TFANL/R}$ [kW]	t_a = 20°C P_{TSR} [kW]	t_a = 40°C P_T [kW]	t_a = 40°C $P_{TFANL/R}$ [kW]	t_a = 40°C P_{TSR} [kW]
HDP 80 2	**8.1**	223	9820	239	*	122	130	*	*	102
HDP 80 2	**9.4**	192	10150	213	89	122	130	*	85	102
HDP 80 2	**9.8**	183	10480	209	92	125	133	*	88	105
HDP 80 2	**11.4**	158	10870	187	92	125	133	*	88	105
HDP 80 2	**12.6**	143	11420	178	94	127	135	*	91	108
HDP 80 2	**14.6**	123	11750	158	94	127	135	67	91	108
HDP 80 2	**15.5**	116	11750	149	96	129	137	69	93	110
HDP 80 2	**18.0**	100	11950	130	96	129	137	69	93	110
HDP 80 2	**19.4**	93	11900	120	97	130	138	70	94	111
HDP 80 2	**22.6**	80	12600	110	97	130	138	70	94	111
HDP 80 3	**25.8**	70	9900	77	56	78	84	37	53	65
HDP 80 3	**30.0**	60	11500	77	56	78	84	37	53	65
HDP 80 3	**31.7**	57	11310	71	58	80	86	39	55	67
HDP 80 3	**36.8**	49	12600	69	58	80	86	39	55	67
HDP 80 3	**39.8**	45	12020	60	59	81	87	40	56	68
HDP 80 3	**46.2**	39	12600	55	—	—	—	40	56	68
HDP 80 3	**51.6**	35	11950	46	—	—	—	41	57	69
HDP 80 3	**59.9**	30	12600	42	—	—	—	41	57	69
HDP 80 3	**64.8**	27.8	12600	39	—	—	—	—	—	—
HDP 80 3	**75.2**	23.9	12600	34	—	—	—	—	—	—
HDP 80 3	**76.4**	23.6	11200	29	—	—	—	—	—	—
HDP 80 3	**88.7**	20.3	12600	28	—	—	—	—	—	—
HDP 80 3	**95.9**	18.8	12600	26	—	—	—	—	—	—
HDP 80 3	**111.4**	16.2	12600	23	—	—	—	—	—	—

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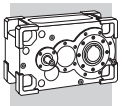


HDP 80 — n_1 = 1500 min^{-1}

					t_a = 20°C			t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 80 2	**8.1**	186	10350	210	92	120	133	*	85	105
HDP 80 2	**9.4**	160	10730	187	92	120	133	*	85	105
HDP 80 2	**9.8**	152	11060	184	94	122	135	*	88	108
HDP 80 2	**11.4**	131	11500	165	94	122	135	67	88	108
HDP 80 2	**12.6**	119	11500	149	96	124	137	69	90	110
HDP 80 2	**14.6**	103	12420	139	96	124	137	69	90	110
HDP 80 2	**15.5**	97	11750	124	97	125	138	70	91	111
HDP 80 2	**18.0**	83	11950	109	97	125	138	70	91	111
HDP 80 2	**19.4**	77	11900	100	99	127	140	71	92	112
HDP 80 2	**22.6**	66	12600	91	—	—	—	71	92	112
HDP 80 3	**25.8**	58	9900	64	59	79	87	40	54	68
HDP 80 3	**30.0**	50	11500	64	59	79	87	40	54	68
HDP 80 3	**31.7**	47	11650	61	60	80	88	42	56	70
HDP 80 3	**36.8**	41	12600	57	—	—	—	42	56	70
HDP 80 3	**39.8**	38	12600	53	—	—	—	43	57	71
HDP 80 3	**46.2**	32	12600	45	—	—	—	43	57	71
HDP 80 3	**51.6**	29.1	11950	39	—	—	—	—	—	—
HDP 80 3	**59.9**	25.0	12600	35	—	—	—	—	—	—
HDP 80 3	**64.8**	23.1	12600	32	—	—	—	—	—	—
HDP 80 3	**75.2**	19.9	12600	28	—	—	—	—	—	—
HDP 80 3	**76.4**	19.6	12000	26	—	—	—	—	—	—
HDP 80 3	**88.7**	16.9	12600	24	—	—	—	—	—	—
HDP 80 3	**95.9**	15.6	12600	22	—	—	—	—	—	—
HDP 80 3	**111.4**	13.5	12600	18.9	—	—	—	—	—	—

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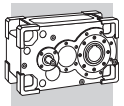


HDP 80 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 80 2	**8.1**	149	10350	168	94	120	135	*	86	108
HDP 80 2	**9.4**	128	11430	160	94	120	135	67	86	108
HDP 80 2	**9.8**	122	11350	151	96	122	137	68	87	109
HDP 80 2	**11.4**	105	12300	141	96	122	137	68	87	109
HDP 80 2	**12.6**	95	11500	119	97	123	138	70	89	111
HDP 80 2	**14.6**	82	12500	112	97	123	138	70	89	111
HDP 80 2	**15.5**	77	11750	99	98	124	139	71	90	112
HDP 80 2	**18.0**	67	11950	87	—	—	—	71	90	112
HDP 80 2	**19.4**	62	11900	80	—	—	—	72	91	113
HDP 80 2	**22.6**	53	12600	73	—	—	—	72	91	113
HDP 80 3	**25.8**	47	9900	51	—	—	—	43	56	71
HDP 80 3	**30.0**	40	11500	51	—	—	—	43	56	71
HDP 80 3	**31.7**	38	11650	49	—	—	—	44	57	72
HDP 80 3	**36.8**	33	12600	46	—	—	—	44	57	72
HDP 80 3	**39.8**	30	12600	42	—	—	—	—	—	—
HDP 80 3	**46.2**	26.0	12600	36	—	—	—	—	—	—
HDP 80 3	**51.6**	23.2	11950	31	—	—	—	—	—	—
HDP 80 3	**59.9**	20.0	12600	28	—	—	—	—	—	—
HDP 80 3	**64.8**	18.5	12600	26	—	—	—	—	—	—
HDP 80 3	**75.2**	15.9	12600	22	—	—	—	—	—	—
HDP 80 3	**76.4**	15.7	12000	21	—	—	—	—	—	—
HDP 80 3	**88.7**	13.5	12600	19.0	—	—	—	—	—	—
HDP 80 3	**95.9**	12.5	12600	17.5	—	—	—	—	—	—
HDP 80 3	**111.4**	10.8	12600	15.1	—	—	—	—	—	—

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— Thermal verification not necessary

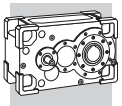


HDP 80 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 80 2	**8.1**	124	10350	140	96	116	137	68	83	109
HDP 80 2	**9.4**	107	12050	140	96	116	137	68	83	109
HDP 80 2	**9.8**	102	11350	126	97	117	138	70	85	111
HDP 80 2	**11.4**	88	12350	118	97	117	138	70	85	111
HDP 80 2	**12.6**	79	11500	100	98	118	139	71	86	112
HDP 80 2	**14.6**	68	12500	93	—	—	—	71	86	112
HDP 80 2	**15.5**	65	11750	83	—	—	—	72	87	113
HDP 80 2	**18.0**	56	11950	72	—	—	—	72	87	113
HDP 80 2	**19.4**	51	11900	67	—	—	—	—	—	—
HDP 80 2	**22.6**	44	12600	61	—	—	—	—	—	—
HDP 80 3	**25.8**	39	9900	43	—	—	—	—	—	—
HDP 80 3	**30.0**	33	11500	43	—	—	—	—	—	—
HDP 80 3	**31.7**	32	11650	41	—	—	—	—	—	—
HDP 80 3	**36.8**	27.2	12600	38	—	—	—	—	—	—
HDP 80 3	**39.8**	25.1	12600	35	—	—	—	—	—	—
HDP 80 3	**46.2**	21.6	12600	30	—	—	—	—	—	—
HDP 80 3	**51.6**	19.4	11950	26	—	—	—	—	—	—
HDP 80 3	**59.9**	16.7	12600	23	—	—	—	—	—	—
HDP 80 3	**64.8**	15.4	12600	22	—	—	—	—	—	—
HDP 80 3	**75.2**	13.3	12600	18.6	—	—	—	—	—	—
HDP 80 3	**76.4**	13.1	12000	17.5	—	—	—	—	—	—
HDP 80 3	**88.7**	11.3	12600	15.8	—	—	—	—	—	—
HDP 80 3	**95.9**	10.4	12600	14.6	—	—	—	—	—	—
HDP 80 3	**111.4**	9.0	12600	12.6	—	—	—	—	—	—

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— Thermal verification not necessary

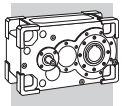


HDP 90 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C P_T [kW]	t_a = 20°C $P_{TFANL/R}$ [kW]	t_a = 20°C P_{TSR} [kW]	t_a = 40°C P_T [kW]	t_a = 40°C $P_{TFANL/R}$ [kW]	t_a = 40°C P_{TSR} [kW]
HDP 90 2	**7.9**	227	12910	320	*	154	163	*	*	*
HDP 90 2	**8.8**	204	13510	300	*	154	163	*	*	127
HDP 90 2	**10.1**	179	14010	273	119	158	167	*	111	131
HDP 90 2	**11.2**	161	14620	256	119	158	167	*	111	131
HDP 90 2	**12.2**	147	14840	238	122	161	170	*	114	134
HDP 90 2	**13.6**	132	15560	225	122	161	170	*	114	134
HDP 90 2	**15.8**	114	15830	197	125	164	173	89	117	137
HDP 90 2	**17.6**	102	16930	189	125	164	173	89	117	137
HDP 90 2	**20.1**	90	16990	166	127	166	175	91	119	139
HDP 90 2	**22.4**	80	17120	150	127	166	175	91	119	139
HDP 90 3	**25.4**	71	16110	127	72	99	94	*	67	69
HDP 90 3	**28.3**	64	16710	118	72	99	94	*	67	69
HDP 90 3	**32.9**	55	17210	105	74	101	96	50	70	72
HDP 90 3	**36.6**	49	17120	94	74	101	96	50	70	72
HDP 90 3	**40.0**	45	16660	83	76	103	98	51	71	73
HDP 90 3	**44.6**	40	17120	77	76	103	98	51	71	73
HDP 90 3	**51.8**	35	17900	69	—	—	—	53	73	75
HDP 90 3	**57.7**	31	17120	59	—	—	—	53	73	75
HDP 90 3	**65.8**	27.3	17900	54	—	—	—	—	—	—
HDP 90 3	**73.3**	24.6	17120	47	—	—	—	—	—	—
HDP 90 3	**77.8**	23.1	17820	46	—	—	—	—	—	—
HDP 90 3	**86.6**	20.8	17120	40	—	—	—	—	—	—
HDP 90 3	**98.9**	18.2	17900	36	—	—	—	—	—	—
HDP 90 3	**110.1**	16.3	17120	31	—	—	—	—	—	—

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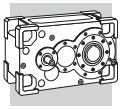
— Thermal verification not necessary



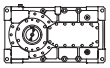
HDP 90											n_1 = 1500 min^{-1}
					t_a = 20°C			t_a = 40°C			
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	
HDP 90 2	**7.9**	189	13620	281	119	153	167	*	*	131	
HDP 90 2	**8.8**	170	14280	265	119	153	167	*	108	131	
HDP 90 2	**10.1**	149	14770	240	122	156	170	*	111	134	
HDP 90 2	**11.2**	134	15470	226	122	156	170	*	111	134	
HDP 90 2	**12.2**	123	15640	209	125	159	173	89	114	137	
HDP 90 2	**13.6**	110	16460	198	125	159	173	89	114	137	
HDP 90 2	**15.8**	95	16730	173	127	161	175	91	116	139	
HDP 90 2	**17.6**	85	17120	159	127	161	175	91	116	139	
HDP 90 2	**20.1**	75	17700	144	128	162	176	92	117	140	
HDP 90 2	**22.4**	67	17120	125	—	—	—	92	117	140	
HDP 90 3	**25.4**	59	17000	112	76	99	98	51	68	73	
HDP 90 3	**28.3**	53	17120	101	76	99	98	51	68	73	
HDP 90 3	**32.9**	46	17900	91	78	101	100	53	70	75	
HDP 90 3	**36.6**	41	17120	78	78	101	100	53	70	75	
HDP 90 3	**40.0**	37	17600	73	—	—	—	55	72	77	
HDP 90 3	**44.6**	34	17120	64	—	—	—	55	72	77	
HDP 90 3	**51.8**	29.0	17900	58	—	—	—	56	73	78	
HDP 90 3	**57.7**	26.0	17120	50	—	—	—	—	—	—	
HDP 90 3	**65.8**	22.8	17900	45	—	—	—	—	—	—	
HDP 90 3	**73.3**	20.5	17120	39	—	—	—	—	—	—	
HDP 90 3	**77.8**	19.3	17900	38	—	—	—	—	—	—	
HDP 90 3	**86.6**	17.3	17120	33	—	—	—	—	—	—	
HDP 90 3	**98.9**	15.2	17900	30	—	—	—	—	—	—	
HDP 90 3	**110.1**	13.6	17120	26	—	—	—	—	—	—	

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— Thermal verification not necessary

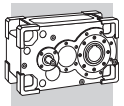


HDP 90 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C			t_a = 40°C		
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]
HDP 90 2	**7.9**	151	14000	231	122	152	170	*	108	134
HDP 90 2	**8.8**	136	15230	226	122	152	170	*	108	134
HDP 90 2	**10.1**	119	15830	206	125	155	173	89	111	137
HDP 90 2	**11.2**	107	16530	193	125	155	173	89	111	137
HDP 90 2	**12.2**	98	16750	179	127	157	175	91	113	139
HDP 90 2	**13.6**	88	17120	165	127	157	175	91	113	139
HDP 90 2	**15.8**	76	17000	141	128	158	176	92	114	140
HDP 90 2	**17.6**	68	17120	127	—	—	—	92	114	140
HDP 90 2	**20.1**	60	17700	115	—	—	—	93	115	141
HDP 90 2	**22.4**	54	17120	100	—	—	—	93	115	141
HDP 90 3	**25.4**	47	17900	94	79	100	101	55	70	77
HDP 90 3	**28.3**	42	17120	81	79	100	101	55	70	77
HDP 90 3	**32.9**	36	17900	73	—	—	—	56	71	78
HDP 90 3	**36.6**	33	17120	62	—	—	—	56	71	78
HDP 90 3	**40.0**	30	17900	60	—	—	—	57	72	79
HDP 90 3	**44.6**	26.9	17120	51	—	—	—	—	—	—
HDP 90 3	**51.8**	23.2	17900	46	—	—	—	—	—	—
HDP 90 3	**57.7**	20.8	17120	40	—	—	—	—	—	—
HDP 90 3	**65.8**	18.2	17900	36	—	—	—	—	—	—
HDP 90 3	**73.3**	16.4	17120	31	—	—	—	—	—	—
HDP 90 3	**77.8**	15.4	17900	31	—	—	—	—	—	—
HDP 90 3	**86.6**	13.8	17120	26	—	—	—	—	—	—
HDP 90 3	**98.9**	12.1	17900	24	—	—	—	—	—	—
HDP 90 3	**110.1**	10.9	17120	21	—	—	—	—	—	—

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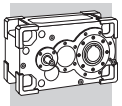
— Thermal verification not necessary



HDP 90											n_1 = 1000 min^{-1}
					t_a = 20°C			t_a = 40°C			
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TSR} [kW]	
HDP 90 2	**7.9**	126	14000	193	124	148	172	88	105	136	
HDP 90 2	**8.8**	113	15600	193	124	148	172	88	105	136	
HDP 90 2	**10.1**	99	16710	181	126	150	174	90	107	138	
HDP 90 2	**11.2**	89	17120	167	126	150	174	90	107	138	
HDP 90 2	**12.2**	82	17680	158	128	152	176	92	109	140	
HDP 90 2	**13.6**	74	17120	137	128	152	176	92	109	140	
HDP 90 2	**15.8**	63	17000	117	—	—	—	93	110	141	
HDP 90 2	**17.6**	57	17120	106	—	—	—	93	110	141	
HDP 90 2	**20.1**	50	17700	96	—	—	—	94	111	142	
HDP 90 2	**22.4**	45	17120	83	—	—	—	—	—	—	
HDP 90 3	**25.4**	39	17900	78	—	—	—	57	69	79	
HDP 90 3	**28.3**	35	17120	67	—	—	—	57	69	79	
HDP 90 3	**32.9**	30	17900	61	—	—	—	58	70	80	
HDP 90 3	**36.6**	27.3	17120	52	—	—	—	—	—	—	
HDP 90 3	**40.0**	25.0	17900	50	—	—	—	—	—	—	
HDP 90 3	**44.6**	22.4	17120	43	—	—	—	—	—	—	
HDP 90 3	**51.8**	19.3	17900	38	—	—	—	—	—	—	
HDP 90 3	**57.7**	17.3	17120	33	—	—	—	—	—	—	
HDP 90 3	**65.8**	15.2	17900	30	—	—	—	—	—	—	
HDP 90 3	**73.3**	13.6	17120	26	—	—	—	—	—	—	
HDP 90 3	**77.8**	12.9	17900	26	—	—	—	—	—	—	
HDP 90 3	**86.6**	11.5	17120	22	—	—	—	—	—	—	
HDP 90 3	**98.9**	10.1	17900	20	—	—	—	—	—	—	
HDP 90 3	**110.1**	9.1	17120	17.3	—	—	—	—	—	—	

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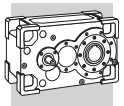
HDP 100

n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 100 2	**7.4**	243	20310	539	*	*	230	266	344	*	*	301
HDP 100 2	**8.2**	219	22760	543	*	*	233	269	347	*	*	304
HDP 100 2	**9.1**	198	21360	460	*	199	245	281	359	194	222	316
HDP 100 2	**10.1**	178	23950	465	*	201	247	283	361	196	224	318
HDP 100 2	**11.3**	160	22520	393	*	211	257	293	371	206	234	328
HDP 100 2	**12.5**	144	24750	389	*	213	259	295	373	208	236	330
HDP 100 2	**14.2**	127	23550	326	*	221	267	303	381	216	244	338
HDP 100 2	**15.7**	114	24700	308	130	223	269	305	383	218	246	340
HDP 100 2	**18.0**	100	24740	270	136	229	275	311	—	224	252	346
HDP 100 2	**20.0**	90	24530	241	137	230	276	312	—	225	253	—
HDP 100 2	**21.8**	83	22900	206	138	231	—	313	—	226	254	—
HDP 100 3	**22.8**	79	22050	194	99	162	192	226	—	162	183	251
HDP 100 3	**25.3**	71	23480	186	100	163	193	227	—	163	184	252
HDP 100 3	**28.1**	64	23210	165	102	165	195	229	—	165	186	—
HDP 100 3	**31.3**	58	23480	150	103	166	—	230	—	166	187	—
HDP 100 3	**35.4**	51	24250	137	105	168	—	232	—	168	189	—
HDP 100 3	**39.3**	46	23480	120	105	168	—	232	—	168	189	—
HDP 100 3	**45.0**	40	25410	113	107	170	—	234	—	170	191	—
HDP 100 3	**50.0**	36	23480	94	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	32	25730	93	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	29.2	23480	76	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	25.7	25620	73	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	23.2	23480	61	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	20.3	26110	59	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	18.2	23480	48	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	16.7	22050	41	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	16.3	24800	46	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	14.6	23480	39	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	12.9	25960	38	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	11.6	23480	31	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	10.2	26450	31	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	9.2	23480	24	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	8.1	26450	24	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	7.3	24880	21	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	6.3	26450	18.9	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	5.7	24890	16.0	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	5.0	26450	15.0	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	4.5	25280	12.9	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.9	28210	12.6	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.5	25410	10.2	—	—	—	—	—	—	—	—

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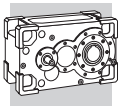
HDP 100

n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	243	20310	539	*	*	*	*	*	*	*	257
HDP 100 2	**8.2**	219	22760	543	*	*	*	*	*	*	*	260
HDP 100 2	**9.1**	198	21360	460	*	*	*	*	203	*	*	272
HDP 100 2	**10.1**	178	23950	465	*	*	*	*	205	*	*	274
HDP 100 2	**11.3**	160	22520	393	*	*	176	171	215	162	190	284
HDP 100 2	**12.5**	144	24750	389	*	*	177	172	216	163	191	285
HDP 100 2	**14.2**	127	23550	326	*	152	186	181	225	172	200	294
HDP 100 2	**15.7**	114	24700	308	*	153	187	182	226	173	201	295
HDP 100 2	**18.0**	100	24740	270	*	160	194	189	233	180	208	302
HDP 100 2	**20.0**	90	24530	241	*	161	195	190	234	181	209	303
HDP 100 2	**21.8**	83	22900	206	94	162	196	191	235	182	210	—
HDP 100 3	**22.8**	79	22050	194	*	111	133	136	167	128	149	217
HDP 100 3	**25.3**	71	23480	186	*	112	134	137	168	129	150	218
HDP 100 3	**28.1**	64	23210	165	68	114	136	139	170	131	152	220
HDP 100 3	**31.3**	58	23480	150	69	115	137	140	171	132	153	—
HDP 100 3	**35.4**	51	24250	137	71	117	139	142	—	134	155	—
HDP 100 3	**39.3**	46	23480	120	71	117	139	142	—	134	155	—
HDP 100 3	**45.0**	40	25410	113	73	119	—	144	—	136	157	—
HDP 100 3	**50.0**	36	23480	94	73	119	—	144	—	136	157	—
HDP 100 3	**55.5**	32	25730	93	80	126	—	151	—	143	164	—
HDP 100 3	**61.7**	29.2	23480	76	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	25.7	25620	73	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	23.2	23480	61	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	20.3	26110	59	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	18.2	23480	48	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	16.7	22050	41	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	16.3	24800	46	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	14.6	23480	39	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	12.9	25960	38	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	11.6	23480	31	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	10.2	26450	31	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	9.2	23480	24	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	8.1	26450	24	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	7.3	24880	21	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	6.3	26450	18.9	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	5.7	24890	16.0	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	5.0	26450	15.0	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	4.5	25280	12.9	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.9	28210	12.6	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.5	25410	10.2	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

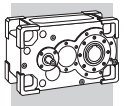


HDP 100 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	203	21450	474	*	*	229	283	361	196	224	318
HDP 100 2	**8.2**	182	24040	478	*	*	231	285	363	198	226	320
HDP 100 2	**9.1**	165	22560	405	*	200	240	294	372	207	235	329
HDP 100 2	**10.1**	148	24740	400	*	202	242	296	374	209	237	331
HDP 100 2	**11.3**	133	23790	346	*	210	250	304	382	217	245	339
HDP 100 2	**12.5**	120	24740	324	130	211	251	305	383	218	246	340
HDP 100 2	**14.2**	106	24880	287	137	218	258	312	—	225	253	347
HDP 100 2	**15.7**	95	24570	255	138	219	259	313	—	226	254	348
HDP 100 2	**18.0**	83	25890	235	143	224	264	318	—	231	259	—
HDP 100 2	**20.0**	75	24410	200	144	225	—	319	—	232	260	—
HDP 100 2	**21.8**	69	22790	171	144	225	—	319	—	232	260	—
HDP 100 3	**22.8**	66	23410	172	106	160	187	233	—	169	190	—
HDP 100 3	**25.3**	59	24260	160	106	160	187	233	—	169	190	—
HDP 100 3	**28.1**	53	24640	146	108	162	—	235	—	171	192	—
HDP 100 3	**31.3**	48	24140	129	108	162	—	235	—	171	192	—
HDP 100 3	**35.4**	42	25740	121	110	164	—	237	—	173	194	—
HDP 100 3	**39.3**	38	24030	102	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	33	25740	95	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	30	23920	80	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	27.0	25650	77	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	24.3	23830	64	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	21.5	25880	62	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	19.3	24050	52	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	16.9	26850	50	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	15.2	24880	42	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	13.9	23340	36	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	13.6	26300	40	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	12.2	24880	34	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	10.8	27540	34	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	9.7	24880	27	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	8.5	28210	27	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	7.6	24880	22	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	6.8	28210	22	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	6.1	24880	17.2	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	5.2	28210	16.8	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	4.7	25110	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	4.2	28210	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.8	25410	10.8	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.3	28210	10.5	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.0	25410	8.5	—	—	—	—	—	—	—	—

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— Thermal verification not necessary



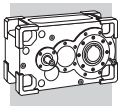
HDP 100

n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	203	21450	474	*	*	*	*	205	*	*	274
HDP 100 2	**8.2**	182	24040	478	*	*	*	*	207	*	*	276
HDP 100 2	**9.1**	165	22560	405	*	*	164	172	216	163	191	285
HDP 100 2	**10.1**	148	24740	400	*	*	166	174	218	165	193	287
HDP 100 2	**11.3**	133	23790	346	*	143	173	181	225	172	200	294
HDP 100 2	**12.5**	120	24740	324	*	145	175	183	227	174	202	296
HDP 100 2	**14.2**	106	24880	287	*	151	181	189	233	180	208	302
HDP 100 2	**15.7**	95	24570	255	*	152	182	190	234	181	209	303
HDP 100 2	**18.0**	83	25890	235	99	158	188	196	240	187	215	309
HDP 100 2	**20.0**	75	24410	200	99	158	188	196	240	187	215	—
HDP 100 2	**21.8**	69	22790	171	100	159	189	197	—	188	216	—
HDP 100 3	**22.8**	66	23410	172	72	112	131	143	174	135	156	224
HDP 100 3	**25.3**	59	24260	160	72	112	131	143	174	135	156	224
HDP 100 3	**28.1**	53	24640	146	74	114	133	145	176	137	158	—
HDP 100 3	**31.3**	48	24140	129	74	114	133	145	—	137	158	—
HDP 100 3	**35.4**	42	25740	121	76	116	135	147	—	139	160	—
HDP 100 3	**39.3**	38	24030	102	76	116	—	147	—	139	160	—
HDP 100 3	**45.0**	33	25740	95	77	117	—	148	—	140	161	—
HDP 100 3	**50.0**	30	23920	80	77	117	—	148	—	140	161	—
HDP 100 3	**55.5**	27.0	25650	77	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	24.3	23830	64	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	21.5	25880	62	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	19.3	24050	52	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	16.9	26850	50	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	15.2	24880	42	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	13.9	23340	36	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	13.6	26300	40	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	12.2	24880	34	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	10.8	27540	34	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	9.7	24880	27	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	8.5	28210	27	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	7.6	24880	22	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	6.8	28210	22	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	6.1	24880	17.2	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	5.2	28210	16.8	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	4.7	25110	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	4.2	28210	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.8	25410	10.8	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	3.3	28210	10.5	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	3.0	25410	8.5	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

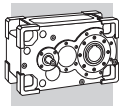


HDP 100 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	162	22930	405	*	193	229	295	373	208	236	330
HDP 100 2	**8.2**	146	24750	394	*	195	231	297	375	210	238	332
HDP 100 2	**9.1**	132	24120	347	*	202	238	304	382	217	245	339
HDP 100 2	**10.1**	119	24730	320	131	204	240	306	384	219	247	341
HDP 100 2	**11.3**	107	25230	293	136	209	245	311	—	224	252	346
HDP 100 2	**12.5**	96	24580	257	137	210	246	312	—	225	253	347
HDP 100 2	**14.2**	85	25620	237	143	216	252	318	—	231	259	—
HDP 100 2	**15.7**	76	24420	203	143	216	—	318	—	231	259	—
HDP 100 2	**18.0**	67	25890	188	147	220	—	322	—	235	263	—
HDP 100 2	**20.0**	60	24270	159	148	221	—	323	—	236	264	—
HDP 100 2	**21.8**	55	22660	136	—	—	—	—	—	—	—	—
HDP 100 3	**22.8**	53	25030	147	110	159	—	237	—	173	194	—
HDP 100 3	**25.3**	47	24140	127	110	159	—	237	—	173	194	—
HDP 100 3	**28.1**	43	25870	123	112	161	—	239	—	175	196	—
HDP 100 3	**31.3**	38	24030	103	—	—	—	—	—	—	—	—
HDP 100 3	**35.4**	34	25750	97	—	—	—	—	—	—	—	—
HDP 100 3	**39.3**	31	23920	81	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	26.7	25640	76	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	24.0	23820	64	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	21.6	25850	62	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	19.4	24030	52	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	17.2	26780	51	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	15.4	24880	43	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	13.5	27810	42	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	12.2	24880	34	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	11.2	23870	30	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	10.8	26510	33	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	9.8	24880	28	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	8.6	27770	27	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	7.8	24880	22	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	6.8	28210	22	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	6.1	24880	17.2	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	5.4	28210	17.3	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.9	24990	13.8	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	4.2	28210	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.8	25410	10.9	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.3	28210	10.7	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.0	25410	8.7	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.6	28210	8.4	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.4	25410	6.8	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

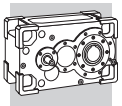


HDP 100 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	162	22930	405	*	*	*	173	217	164	192	286
HDP 100 2	**8.2**	146	24750	394	*	*	158	175	219	166	194	288
HDP 100 2	**9.1**	132	24120	347	*	*	165	182	226	173	201	295
HDP 100 2	**10.1**	119	24730	320	*	139	166	183	227	174	202	296
HDP 100 2	**11.3**	107	25230	293	*	145	172	189	233	180	208	302
HDP 100 2	**12.5**	96	24580	257	*	146	173	190	234	181	209	303
HDP 100 2	**14.2**	85	25620	237	98	151	178	195	239	186	214	308
HDP 100 2	**15.7**	76	24420	203	99	152	179	196	240	187	215	—
HDP 100 2	**18.0**	67	25890	188	103	156	183	200	—	191	219	—
HDP 100 2	**20.0**	60	24270	159	104	157	184	201	—	192	220	—
HDP 100 2	**21.8**	55	22660	136	104	157	—	201	—	192	220	—
HDP 100 3	**22.8**	53	25030	147	76	112	129	147	—	139	160	—
HDP 100 3	**25.3**	47	24140	127	76	112	129	147	—	139	160	—
HDP 100 3	**28.1**	43	25870	123	78	114	131	149	—	141	162	—
HDP 100 3	**31.3**	38	24030	103	78	114	—	149	—	141	162	—
HDP 100 3	**35.4**	34	25750	97	79	115	—	150	—	142	163	—
HDP 100 3	**39.3**	31	23920	81	79	115	—	150	—	142	163	—
HDP 100 3	**45.0**	26.7	25640	76	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	24.0	23820	64	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	21.6	25850	62	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	19.4	24030	52	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	17.2	26780	51	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	15.4	24880	43	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	13.5	27810	42	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	12.2	24880	34	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	11.2	23870	30	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	10.8	26510	33	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	9.8	24880	28	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	8.6	27770	27	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	7.8	24880	22	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	6.8	28210	22	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	6.1	24880	17.2	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	5.4	28210	17.3	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.9	24990	13.8	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	4.2	28210	13.4	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.8	25410	10.9	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	3.3	28210	10.7	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	3.0	25410	8.7	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.6	28210	8.4	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.4	25410	6.8	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

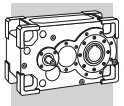


HDP 100 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	135	24220	357	*	186	214	304	382	217	245	339
HDP 100 2	**8.2**	122	24750	328	*	187	215	305	383	218	246	340
HDP 100 2	**9.1**	110	24840	297	136	193	221	311	—	224	252	346
HDP 100 2	**10.1**	99	24600	265	137	194	222	312	—	225	253	347
HDP 100 2	**11.3**	89	25490	247	142	199	227	317	—	230	258	—
HDP 100 2	**12.5**	80	24450	213	143	200	228	318	—	231	259	—
HDP 100 2	**14.2**	71	25620	197	147	204	—	322	—	235	263	—
HDP 100 2	**15.7**	64	24300	168	147	204	—	322	—	235	263	—
HDP 100 2	**18.0**	56	25890	157	151	208	—	326	—	239	267	—
HDP 100 2	**20.0**	50	24170	132	—	—	—	—	—	—	—	—
HDP 100 2	**21.8**	46	22570	113	—	—	—	—	—	—	—	—
HDP 100 3	**22.8**	44	25880	126	113	151	—	240	—	176	197	—
HDP 100 3	**25.3**	40	24040	106	—	—	—	—	—	—	—	—
HDP 100 3	**28.1**	36	25880	102	—	—	—	—	—	—	—	—
HDP 100 3	**31.3**	32	23950	85	—	—	—	—	—	—	—	—
HDP 100 3	**35.4**	28.2	25670	81	—	—	—	—	—	—	—	—
HDP 100 3	**39.3**	25.4	23850	67	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	22.2	25740	64	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	20.0	23920	53	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	18.0	26590	53	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	16.2	24720	45	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	14.3	27560	44	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	12.9	24880	36	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	11.3	28210	35	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	10.1	24880	28	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	9.3	23870	25	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	9.0	28210	29	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	8.1	24880	23	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	7.2	28210	23	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	6.5	24880	18.3	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	5.6	28210	18.1	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	5.1	24890	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	4.5	28210	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.1	25410	11.7	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.5	28210	11.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.1	25410	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	2.8	28210	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.5	25410	7.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.2	28210	7.0	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.0	25410	5.7	—	—	—	—	—	—	—	—

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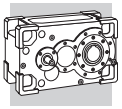


HDP 100 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 100 2	**7.4**	135	24220	357	*	*	147	182	226	173	201	295
HDP 100 2	**8.2**	122	24750	328	*	*	148	183	227	174	202	296
HDP 100 2	**9.1**	110	24840	297	*	134	154	189	233	180	208	302
HDP 100 2	**10.1**	99	24600	265	*	135	155	190	234	181	209	303
HDP 100 2	**11.3**	89	25490	247	*	140	160	195	239	186	214	308
HDP 100 2	**12.5**	80	24450	213	98	140	160	195	239	186	214	—
HDP 100 2	**14.2**	71	25620	197	103	145	165	200	—	191	219	—
HDP 100 2	**15.7**	64	24300	168	103	145	165	200	—	191	219	—
HDP 100 2	**18.0**	56	25890	157	106	148	168	203	—	194	222	—
HDP 100 2	**20.0**	50	24170	132	107	149	—	204	—	195	223	—
HDP 100 2	**21.8**	46	22570	113	107	149	—	204	—	195	223	—
HDP 100 3	**22.8**	44	25880	126	79	107	120	150	—	142	163	—
HDP 100 3	**25.3**	40	24040	106	79	107	—	150	—	142	163	—
HDP 100 3	**28.1**	36	25880	102	81	109	—	152	—	144	165	—
HDP 100 3	**31.3**	32	23950	85	81	109	—	152	—	144	165	—
HDP 100 3	**35.4**	28.2	25670	81	—	—	—	—	—	—	—	—
HDP 100 3	**39.3**	25.4	23850	67	—	—	—	—	—	—	—	—
HDP 100 3	**45.0**	22.2	25740	64	—	—	—	—	—	—	—	—
HDP 100 3	**50.0**	20.0	23920	53	—	—	—	—	—	—	—	—
HDP 100 3	**55.5**	18.0	26590	53	—	—	—	—	—	—	—	—
HDP 100 3	**61.7**	16.2	24720	45	—	—	—	—	—	—	—	—
HDP 100 3	**69.9**	14.3	27560	44	—	—	—	—	—	—	—	—
HDP 100 3	**77.7**	12.9	24880	36	—	—	—	—	—	—	—	—
HDP 100 3	**88.9**	11.3	28210	35	—	—	—	—	—	—	—	—
HDP 100 3	**98.8**	10.1	24880	28	—	—	—	—	—	—	—	—
HDP 100 3	**107.6**	9.3	23870	25	—	—	—	—	—	—	—	—
HDP 100 4	**110.6**	9.0	28210	29	—	—	—	—	—	—	—	—
HDP 100 4	**122.9**	8.1	24880	23	—	—	—	—	—	—	—	—
HDP 100 4	**139.2**	7.2	28210	23	—	—	—	—	—	—	—	—
HDP 100 4	**154.7**	6.5	24880	18.3	—	—	—	—	—	—	—	—
HDP 100 4	**177.0**	5.6	28210	18.1	—	—	—	—	—	—	—	—
HDP 100 4	**196.7**	5.1	24890	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**222.2**	4.5	28210	14.4	—	—	—	—	—	—	—	—
HDP 100 4	**246.9**	4.1	25410	11.7	—	—	—	—	—	—	—	—
HDP 100 4	**286.4**	3.5	28210	11.2	—	—	—	—	—	—	—	—
HDP 100 4	**318.3**	3.1	25410	9.1	—	—	—	—	—	—	—	—
HDP 100 4	**359.6**	2.8	28210	8.9	—	—	—	—	—	—	—	—
HDP 100 4	**399.5**	2.5	25410	7.2	—	—	—	—	—	—	—	—
HDP 100 4	**457.1**	2.2	28210	7.0	—	—	—	—	—	—	—	—
HDP 100 4	**507.9**	2.0	25410	5.7	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

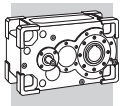


HDP 110 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	223	23430	569	*	*	*	262	340	*	*	297
HDP 110 2	**9.0**	201	24780	543	*	*	229	265	343	*	*	300
HDP 110 2	**9.9**	181	24630	486	*	196	242	278	356	*	219	313
HDP 110 2	**11.0**	163	26540	473	*	198	244	280	358	193	221	315
HDP 110 2	**12.3**	146	25950	414	*	208	254	290	368	203	231	325
HDP 110 2	**13.6**	132	27970	403	*	210	256	292	370	205	233	327
HDP 110 2	**15.5**	116	27100	344	*	219	265	301	379	214	242	336
HDP 110 2	**17.1**	105	28660	328	*	221	267	303	381	216	244	338
HDP 110 2	**19.7**	92	27660	276	135	228	274	310	—	223	251	345
HDP 110 2	**21.8**	83	28990	261	136	229	275	311	—	224	252	346
HDP 110 2	**25.0**	72	27090	213	137	230	—	312	—	225	253	—
HDP 110 3	**24.9**	72	25300	204	99	192	238	274	—	187	215	—
HDP 110 3	**27.6**	65	26400	192	99	192	—	274	—	187	215	—
HDP 110 3	**30.7**	59	27110	177	102	195	—	277	—	190	218	—
HDP 110 3	**34.0**	53	28320	167	102	195	—	277	—	190	218	—
HDP 110 3	**38.7**	47	28270	146	104	197	—	279	—	192	220	—
HDP 110 3	**42.8**	42	29040	136	105	198	—	280	—	193	221	—
HDP 110 3	**49.2**	37	29090	118	106	199	—	281	—	194	222	—
HDP 110 3	**54.5**	33	29040	107	107	200	—	282	—	195	223	—
HDP 110 3	**60.7**	29.7	30740	101	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	26.8	29040	87	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	23.6	30960	81	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	21.3	29040	69	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	18.5	29090	60	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	16.7	29040	54	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	14.6	26010	42	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	14.9	28540	48	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	13.4	29040	44	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	10.7	29040	35	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	9.4	31570	34	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	9.3	29090	31	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	8.4	29040	28	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	7.2	31350	26	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	6.5	29040	22	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	5.8	31570	21	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	5.2	29040	17.1	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	4.6	31570	16.4	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	4.1	29040	13.5	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.6	29090	11.9	—	—	—	—	—	—	—	—

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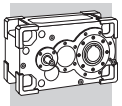


HDP 110 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	223	23430	569	*	*	*	*	*	*	*	252
HDP 110 2	**9.0**	201	24780	543	*	*	*	*	*	*	*	256
HDP 110 2	**9.9**	181	24630	486	*	*	*	*	199	*	*	268
HDP 110 2	**11.0**	163	26540	473	*	*	*	*	202	*	*	271
HDP 110 2	**12.3**	146	25950	414	*	*	173	168	212	*	187	281
HDP 110 2	**13.6**	132	27970	403	*	*	175	170	214	*	189	283
HDP 110 2	**15.5**	116	27100	344	*	150	184	179	223	170	198	292
HDP 110 2	**17.1**	105	28660	328	*	151	185	180	224	171	199	293
HDP 110 2	**19.7**	92	27660	276	*	159	193	188	232	179	207	301
HDP 110 2	**21.8**	83	28990	261	*	160	194	189	233	180	208	302
HDP 110 2	**25.0**	72	27090	213	93	161	195	190	234	181	209	303
HDP 110 3	**24.9**	72	25300	204	*	133	167	162	206	153	181	275
HDP 110 3	**27.6**	65	26400	192	*	133	167	162	206	153	181	275
HDP 110 3	**30.7**	59	27110	177	*	136	170	165	209	156	184	—
HDP 110 3	**34.0**	53	28320	167	68	136	170	165	209	156	184	—
HDP 110 3	**38.7**	47	28270	146	70	138	172	167	—	158	186	—
HDP 110 3	**42.8**	42	29040	136	71	139	—	168	—	159	187	—
HDP 110 3	**49.2**	37	29090	118	72	140	—	169	—	160	188	—
HDP 110 3	**54.5**	33	29040	107	73	141	—	170	—	161	189	—
HDP 110 3	**60.7**	29.7	30740	101	80	148	—	177	—	168	196	—
HDP 110 3	**67.2**	26.8	29040	87	80	148	—	177	—	168	196	—
HDP 110 3	**76.4**	23.6	30960	81	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	21.3	29040	69	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	18.5	29090	60	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	16.7	29040	54	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	14.6	26010	42	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	14.9	28540	48	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	13.4	29040	44	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	10.7	29040	35	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	9.4	31570	34	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	9.3	29090	31	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	8.4	29040	28	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	7.2	31350	26	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	6.5	29040	22	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	5.8	31570	21	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	5.2	29040	17.1	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	4.6	31570	16.4	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	4.1	29040	13.5	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.6	29090	11.9	—	—	—	—	—	—	—	—

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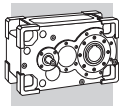


HDP 110 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	186	24740	500	*	*	244	280	358	*	221	315
HDP 110 2	**9.0**	167	26170	478	*	200	246	282	360	195	223	317
HDP 110 2	**9.9**	151	26010	428	*	210	256	292	370	205	233	327
HDP 110 2	**11.0**	136	27880	414	*	212	258	294	372	207	235	329
HDP 110 2	**12.3**	122	26940	358	*	220	266	302	380	215	243	337
HDP 110 2	**13.6**	110	28270	340	*	221	267	303	381	216	244	338
HDP 110 2	**15.5**	97	27330	289	135	228	274	310	—	223	251	345
HDP 110 2	**17.1**	88	28660	273	136	229	275	311	—	224	252	346
HDP 110 2	**19.7**	76	27660	230	142	235	—	317	—	230	258	—
HDP 110 2	**21.8**	69	28990	218	142	235	—	317	—	230	258	—
HDP 110 2	**25.0**	60	26960	176	143	236	—	318	—	231	259	—
HDP 110 3	**24.9**	60	26870	180	105	198	—	280	—	193	221	—
HDP 110 3	**27.6**	54	28010	170	105	198	—	280	—	193	221	—
HDP 110 3	**30.7**	49	28750	156	107	200	—	282	—	195	223	—
HDP 110 3	**34.0**	44	29540	145	108	201	—	283	—	196	224	—
HDP 110 3	**38.7**	39	30000	129	109	202	—	284	—	197	225	—
HDP 110 3	**42.8**	35	29400	115	109	202	—	284	—	197	225	—
HDP 110 3	**49.2**	31	31100	106	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	27.5	29270	90	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	24.7	30740	85	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	22.3	29160	72	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	19.6	31130	68	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	17.7	29430	58	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	15.4	31120	53	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	13.9	30550	47	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	12.2	27630	37	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	12.4	30410	43	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	11.2	31630	40	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	8.9	31790	32	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	7.9	31570	28	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	7.8	31570	28	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	7.0	31790	25	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	6.0	31350	21	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	5.4	31790	19.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	4.8	31570	17.2	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	4.3	31790	15.6	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.8	31570	13.7	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	3.4	31790	12.3	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.0	31570	10.8	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

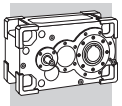


HDP 110 — n_1 = 1500 min^{-1}

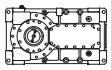
	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	186	24740	500	*	*	*	*	201	*	*	270
HDP 110 2	**9.0**	167	26170	478	*	*	*	*	204	*	*	273
HDP 110 2	**9.9**	151	26010	428	*	*	175	*	214	*	189	283
HDP 110 2	**11.0**	136	27880	414	*	*	176	171	215	*	190	284
HDP 110 2	**12.3**	122	26940	358	*	150	184	179	223	170	198	292
HDP 110 2	**13.6**	110	28270	340	*	152	186	181	225	172	200	294
HDP 110 2	**15.5**	97	27330	289	*	159	193	188	232	179	207	301
HDP 110 2	**17.1**	88	28660	273	*	160	194	189	233	180	208	302
HDP 110 2	**19.7**	76	27660	230	97	165	199	194	238	185	213	307
HDP 110 2	**21.8**	69	28990	218	98	166	200	195	239	186	214	308
HDP 110 2	**25.0**	60	26960	176	99	167	201	196	—	187	215	—
HDP 110 3	**24.9**	60	26870	180	*	139	173	168	212	159	187	—
HDP 110 3	**27.6**	54	28010	170	71	139	173	168	212	159	187	—
HDP 110 3	**30.7**	49	28750	156	73	141	175	170	—	161	189	—
HDP 110 3	**34.0**	44	29540	145	74	142	176	171	—	162	190	—
HDP 110 3	**38.7**	39	30000	129	75	143	—	172	—	163	191	—
HDP 110 3	**42.8**	35	29400	115	75	143	—	172	—	163	191	—
HDP 110 3	**49.2**	31	31100	106	77	145	—	174	—	165	193	—
HDP 110 3	**54.5**	27.5	29270	90	77	145	—	174	—	165	193	—
HDP 110 3	**60.7**	24.7	30740	85	83	151	—	180	—	171	199	—
HDP 110 3	**67.2**	22.3	29160	72	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	19.6	31130	68	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	17.7	29430	58	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	15.4	31120	53	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	13.9	30550	47	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	12.2	27630	37	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	12.4	30410	43	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	11.2	31630	40	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	8.9	31790	32	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	7.9	31570	28	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	7.8	31570	28	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	7.0	31790	25	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	6.0	31350	21	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	5.4	31790	19.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	4.8	31570	17.2	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	4.3	31790	15.6	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.8	31570	13.7	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	3.4	31790	12.3	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	3.0	31570	10.8	—	—	—	—	—	—	—	—

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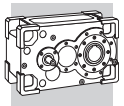


HDP 110 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	148	26080	422	*	191	227	293	371	206	234	328
HDP 110 2	**9.0**	134	27420	401	*	192	228	294	372	207	235	329
HDP 110 2	**9.9**	121	26540	349	*	200	236	302	380	215	243	337
HDP 110 2	**11.0**	109	27880	331	*	202	238	304	382	217	245	339
HDP 110 2	**12.3**	98	26940	287	135	208	244	310	—	223	251	345
HDP 110 2	**13.6**	88	28270	272	136	209	245	311	—	224	252	346
HDP 110 2	**15.5**	78	27330	231	141	214	250	316	—	229	257	—
HDP 110 2	**17.1**	70	28660	219	142	215	251	317	—	230	258	—
HDP 110 2	**19.7**	61	27660	184	147	220	—	322	—	235	263	—
HDP 110 2	**21.8**	55	28990	174	147	220	—	322	—	235	263	—
HDP 110 2	**25.0**	48	26810	140	—	—	—	—	—	—	—	—
HDP 110 3	**24.9**	48	28730	154	110	159	—	237	—	173	194	—
HDP 110 3	**27.6**	44	29530	143	110	159	—	237	—	173	194	—
HDP 110 3	**30.7**	39	30740	134	111	160	—	238	—	174	195	—
HDP 110 3	**34.0**	35	29400	115	112	161	—	239	—	175	196	—
HDP 110 3	**38.7**	31	31110	107	—	—	—	—	—	—	—	—
HDP 110 3	**42.8**	28.0	29270	91	—	—	—	—	—	—	—	—
HDP 110 3	**49.2**	24.4	30980	84	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	22.0	29150	71	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	19.8	30740	68	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	17.8	29400	58	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	15.7	31130	54	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	14.2	30470	48	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	12.4	31350	43	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	11.2	31650	39	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	9.7	28180	30	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	9.9	31350	35	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	9.0	31790	32	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	7.1	31790	26	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	6.3	31570	23	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	6.2	31570	22	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	5.6	31790	20	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.8	31350	17.2	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	4.4	31790	15.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.8	31570	13.7	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	3.5	31790	12.5	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.1	31570	10.9	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.7	31790	9.8	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.4	31570	8.6	—	—	—	—	—	—	—	—

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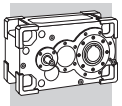


HDP 110 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	148	26080	422	*	*	*	170	214	*	189	283
HDP 110 2	**9.0**	134	27420	401	*	*	*	172	216	163	191	285
HDP 110 2	**9.9**	121	26540	349	*	*	163	180	224	171	199	293
HDP 110 2	**11.0**	109	27880	331	*	137	164	181	225	172	200	294
HDP 110 2	**12.3**	98	26940	287	*	144	171	188	232	179	207	301
HDP 110 2	**13.6**	88	28270	272	*	145	172	189	233	180	208	302
HDP 110 2	**15.5**	78	27330	231	97	150	177	194	238	185	213	307
HDP 110 2	**17.1**	70	28660	219	98	151	178	195	239	186	214	308
HDP 110 2	**19.7**	61	27660	184	102	155	182	199	—	190	218	—
HDP 110 2	**21.8**	55	28990	174	103	156	183	200	—	191	219	—
HDP 110 2	**25.0**	48	26810	140	104	157	—	201	—	192	220	—
HDP 110 3	**24.9**	48	28730	154	75	111	128	146	177	138	159	—
HDP 110 3	**27.6**	44	29530	143	76	112	129	147	—	139	160	—
HDP 110 3	**30.7**	39	30740	134	77	113	130	148	—	140	161	—
HDP 110 3	**34.0**	35	29400	115	78	114	131	149	—	141	162	—
HDP 110 3	**38.7**	31	31110	107	79	115	—	150	—	142	163	—
HDP 110 3	**42.8**	28.0	29270	91	79	115	—	150	—	142	163	—
HDP 110 3	**49.2**	24.4	30980	84	80	116	—	151	—	143	164	—
HDP 110 3	**54.5**	22.0	29150	71	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	19.8	30740	68	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	17.8	29400	58	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	15.7	31130	54	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	14.2	30470	48	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	12.4	31350	43	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	11.2	31650	39	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	9.7	28180	30	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	9.9	31350	35	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	9.0	31790	32	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	7.1	31790	26	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	6.3	31570	23	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	6.2	31570	22	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	5.6	31790	20	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.8	31350	17.2	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	4.4	31790	15.7	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.8	31570	13.7	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	3.5	31790	12.5	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	3.1	31570	10.9	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.7	31790	9.8	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.4	31570	8.6	—	—	—	—	—	—	—	—

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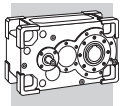


HDP 110 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	124	26080	352	*	184	212	302	380	215	243	337
HDP 110 2	**9.0**	112	27420	334	*	185	213	303	381	216	244	338
HDP 110 2	**9.9**	101	26540	291	134	191	219	309	—	222	250	344
HDP 110 2	**11.0**	91	27880	276	136	193	221	311	—	224	252	346
HDP 110 2	**12.3**	81	26940	239	141	198	226	316	—	229	257	—
HDP 110 2	**13.6**	73	28270	226	141	198	226	316	—	229	257	—
HDP 110 2	**15.5**	65	27330	193	146	203	—	321	—	234	262	—
HDP 110 2	**17.1**	58	28660	182	146	203	—	321	—	234	262	—
HDP 110 2	**19.7**	51	27660	153	150	207	—	325	—	238	266	—
HDP 110 2	**21.8**	46	28990	145	—	—	—	—	—	—	—	—
HDP 110 2	**25.0**	40	26700	116	—	—	—	—	—	—	—	—
HDP 110 3	**24.9**	40	30340	136	113	151	—	240	—	176	197	—
HDP 110 3	**27.6**	36	29420	119	113	151	—	240	—	176	197	—
HDP 110 3	**30.7**	33	30740	111	—	—	—	—	—	—	—	—
HDP 110 3	**34.0**	29.4	29300	96	—	—	—	—	—	—	—	—
HDP 110 3	**38.7**	25.9	31010	89	—	—	—	—	—	—	—	—
HDP 110 3	**42.8**	23.3	29180	76	—	—	—	—	—	—	—	—
HDP 110 3	**49.2**	20.3	31100	70	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	18.4	29270	60	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	16.5	30740	56	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	14.9	30240	50	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	13.1	31130	45	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	11.8	31360	41	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	10.3	31350	36	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	9.3	31790	33	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	8.1	28180	25	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	8.3	31350	29	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	7.5	31790	27	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	5.9	31790	21	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	5.2	31570	18.8	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	5.2	31570	18.5	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	4.7	31790	16.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.0	31350	14.3	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	3.6	31790	13.1	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.2	31570	11.5	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	2.9	31790	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.5	31570	9.1	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.3	31790	8.2	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.0	31570	7.2	—	—	—	—	—	—	—	—

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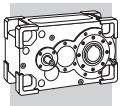


HDP 110 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 110 2	**8.1**	124	26080	352	*	*	144	179	223	170	198	292
HDP 110 2	**9.0**	112	27420	334	*	*	146	181	225	172	200	294
HDP 110 2	**9.9**	101	26540	291	*	132	152	187	231	178	206	300
HDP 110 2	**11.0**	91	27880	276	*	133	153	188	232	179	207	301
HDP 110 2	**12.3**	81	26940	239	96	138	158	193	237	184	212	306
HDP 110 2	**13.6**	73	28270	226	97	139	159	194	238	185	213	307
HDP 110 2	**15.5**	65	27330	193	101	143	163	198	—	189	217	—
HDP 110 2	**17.1**	58	28660	182	102	144	164	199	—	190	218	—
HDP 110 2	**19.7**	51	27660	153	106	148	168	203	—	194	222	—
HDP 110 2	**21.8**	46	28990	145	106	148	—	203	—	194	222	—
HDP 110 2	**25.0**	40	26700	116	107	149	—	204	—	195	223	—
HDP 110 3	**24.9**	40	30340	136	79	107	120	150	—	142	163	—
HDP 110 3	**27.6**	36	29420	119	79	107	120	150	—	142	163	—
HDP 110 3	**30.7**	33	30740	111	80	108	121	151	—	143	164	—
HDP 110 3	**34.0**	29.4	29300	96	80	108	—	151	—	143	164	—
HDP 110 3	**38.7**	25.9	31010	89	81	109	—	152	—	144	165	—
HDP 110 3	**42.8**	23.3	29180	76	—	—	—	—	—	—	—	—
HDP 110 3	**49.2**	20.3	31100	70	—	—	—	—	—	—	—	—
HDP 110 3	**54.5**	18.4	29270	60	—	—	—	—	—	—	—	—
HDP 110 3	**60.7**	16.5	30740	56	—	—	—	—	—	—	—	—
HDP 110 3	**67.2**	14.9	30240	50	—	—	—	—	—	—	—	—
HDP 110 3	**76.4**	13.1	31130	45	—	—	—	—	—	—	—	—
HDP 110 3	**84.6**	11.8	31360	41	—	—	—	—	—	—	—	—
HDP 110 3	**97.1**	10.3	31350	36	—	—	—	—	—	—	—	—
HDP 110 3	**107.6**	9.3	31790	33	—	—	—	—	—	—	—	—
HDP 110 3	**123.4**	8.1	28180	25	—	—	—	—	—	—	—	—
HDP 110 4	**120.9**	8.3	31350	29	—	—	—	—	—	—	—	—
HDP 110 4	**133.9**	7.5	31790	27	—	—	—	—	—	—	—	—
HDP 110 4	**168.5**	5.9	31790	21	—	—	—	—	—	—	—	—
HDP 110 4	**191.0**	5.2	31570	18.8	—	—	—	—	—	—	—	—
HDP 110 4	**193.4**	5.2	31570	18.5	—	—	—	—	—	—	—	—
HDP 110 4	**214.2**	4.7	31790	16.8	—	—	—	—	—	—	—	—
HDP 110 4	**248.6**	4.0	31350	14.3	—	—	—	—	—	—	—	—
HDP 110 4	**275.4**	3.6	31790	13.1	—	—	—	—	—	—	—	—
HDP 110 4	**313.0**	3.2	31570	11.5	—	—	—	—	—	—	—	—
HDP 110 4	**346.7**	2.9	31790	10.4	—	—	—	—	—	—	—	—
HDP 110 4	**392.9**	2.5	31570	9.1	—	—	—	—	—	—	—	—
HDP 110 4	**440.7**	2.3	31790	8.2	—	—	—	—	—	—	—	—
HDP 110 4	**499.4**	2.0	31570	7.2	—	—	—	—	—	—	—	—

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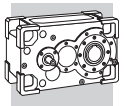


HDP 120 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	228	31180	774	*	*	*	*	344	*	*	*
HDP 120 2	**8.6**	209	31770	724	*	*	*	*	347	*	*	304
HDP 120 2	**10.3**	175	33810	644	*	*	277	295	373	*	*	330
HDP 120 2	**11.2**	160	34440	602	*	*	279	297	375	*	*	332
HDP 120 2	**13.0**	138	35100	529	*	245	296	314	392	227	255	349
HDP 120 2	**14.2**	127	35830	496	*	246	297	315	393	228	256	350
HDP 120 2	**16.0**	113	36900	453	*	257	308	326	404	239	267	361
HDP 120 2	**17.4**	103	37690	425	*	259	310	328	406	241	269	363
HDP 120 2	**20.6**	87	39000	371	164	270	321	339	417	252	280	374
HDP 120 2	**22.5**	80	39990	349	165	271	322	340	418	253	281	375
HDP 120 2	**25.4**	71	36810	285	166	272	323	341	—	254	282	376
HDP 120 3	**25.8**	70	34260	266	123	197	233	250	307	186	207	275
HDP 120 3	**28.0**	64	34980	250	123	197	233	250	—	186	207	275
HDP 120 3	**32.5**	55	35860	221	127	201	237	254	—	190	211	279
HDP 120 3	**35.4**	51	36410	206	127	201	237	254	—	190	211	—
HDP 120 3	**39.9**	45	37670	189	130	204	—	257	—	193	214	—
HDP 120 3	**43.5**	41	38220	176	130	204	—	257	—	193	214	—
HDP 120 3	**51.6**	35	38880	151	133	207	—	260	—	196	217	—
HDP 120 3	**56.1**	32	38500	137	133	207	—	260	—	196	217	—
HDP 120 3	**64.3**	28.0	38880	121	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	25.7	38500	110	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	22.8	38880	99	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	21.0	38500	90	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	17.7	38880	76	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	16.2	38500	70	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	14.4	34920	56	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	14.1	35910	57	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	12.9	39160	57	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	11.5	37010	48	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	10.5	38500	46	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	8.9	38880	39	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	8.2	38500	36	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	7.1	38880	31	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	6.5	38500	28	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	5.6	38880	25	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	5.1	38500	22	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	4.4	38880	19.6	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	4.0	40920	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	3.4	41250	16.1	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

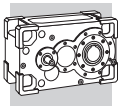


HDP 120 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	228	31180	774	*	*	*	*	*	*	*	*
HDP 120 2	**8.6**	209	31770	724	*	*	*	*	*	*	*	*
HDP 120 2	**10.3**	175	33810	644	*	*	*	*	*	*	*	275
HDP 120 2	**11.2**	160	34440	602	*	*	*	*	*	*	*	277
HDP 120 2	**13.0**	138	35100	529	*	*	*	*	225	*	*	294
HDP 120 2	**14.2**	127	35830	496	*	*	201	*	227	*	202	296
HDP 120 2	**16.0**	113	36900	453	*	*	212	194	238	185	213	307
HDP 120 2	**17.4**	103	37690	425	*	176	213	195	239	186	214	308
HDP 120 2	**20.6**	87	39000	371	*	187	224	206	250	197	225	319
HDP 120 2	**22.5**	80	39990	349	*	188	225	207	251	198	226	320
HDP 120 2	**25.4**	71	36810	285	*	190	227	209	253	200	228	322
HDP 120 3	**25.8**	70	34260	266	*	135	162	152	183	144	165	233
HDP 120 3	**28.0**	64	34980	250	*	135	162	152	183	144	165	233
HDP 120 3	**32.5**	55	35860	221	*	139	166	156	187	148	169	237
HDP 120 3	**35.4**	51	36410	206	86	140	167	157	188	149	170	238
HDP 120 3	**39.9**	45	37670	189	88	142	169	159	190	151	172	240
HDP 120 3	**43.5**	41	38220	176	89	143	170	160	191	152	173	241
HDP 120 3	**51.6**	35	38880	151	91	145	172	162	—	154	175	—
HDP 120 3	**56.1**	32	38500	137	91	145	—	162	—	154	175	—
HDP 120 3	**64.3**	28.0	38880	121	100	154	—	171	—	163	184	—
HDP 120 3	**70.0**	25.7	38500	110	100	154	—	171	—	163	184	—
HDP 120 3	**78.9**	22.8	38880	99	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	21.0	38500	90	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	17.7	38880	76	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	16.2	38500	70	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	14.4	34920	56	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	14.1	35910	57	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	12.9	39160	57	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	11.5	37010	48	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	10.5	38500	46	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	8.9	38880	39	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	8.2	38500	36	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	7.1	38880	31	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	6.5	38500	28	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	5.6	38880	25	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	5.1	38500	22	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	4.4	38880	19.6	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	4.0	40920	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	3.4	41250	16.1	—	—	—	—	—	—	—	—

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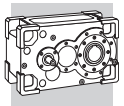


HDP 120 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	190	32940	681	*	*	*	291	369	*	*	326
HDP 120 2	**8.6**	174	33560	637	*	*	255	294	372	*	*	329
HDP 120 2	**10.3**	146	35710	567	*	231	275	314	392	*	255	349
HDP 120 2	**11.2**	134	36370	530	*	232	276	315	393	228	256	350
HDP 120 2	**13.0**	115	37080	466	*	245	289	328	406	241	269	363
HDP 120 2	**14.2**	106	37840	437	*	247	291	330	408	243	271	365
HDP 120 2	**16.0**	94	38580	395	163	255	299	338	416	251	279	373
HDP 120 2	**17.4**	86	39810	374	164	256	300	339	417	252	280	374
HDP 120 2	**20.6**	73	39000	309	173	265	309	348	—	261	289	383
HDP 120 2	**22.5**	67	39780	290	174	266	310	349	—	262	290	384
HDP 120 2	**25.4**	59	36630	236	175	267	—	350	—	263	291	—
HDP 120 3	**25.8**	58	36330	235	130	194	226	257	—	193	214	282
HDP 120 3	**28.0**	53	37110	221	131	195	227	258	—	194	215	283
HDP 120 3	**32.5**	46	38040	195	133	197	—	260	—	196	217	—
HDP 120 3	**35.4**	42	38620	182	134	198	—	261	—	197	218	—
HDP 120 3	**39.9**	38	39930	167	136	200	—	263	—	199	220	—
HDP 120 3	**43.5**	34	39150	150	136	200	—	263	—	199	220	—
HDP 120 3	**51.6**	29.1	40410	131	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	26.7	38960	116	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	23.3	40250	105	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	21.4	38800	93	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	19.0	40600	86	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	17.5	39160	76	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	14.7	41250	68	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	13.5	40740	61	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	12.0	37570	50	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	11.7	38110	51	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	10.8	40920	50	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	9.5	39600	43	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	8.8	40920	41	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	7.4	41250	35	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	6.8	40920	32	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	5.9	41250	28	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	5.4	40920	25	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	4.6	41250	22	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	4.3	40920	19.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.7	41250	17.3	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.3	40920	15.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.9	41250	13.4	—	—	—	—	—	—	—	—

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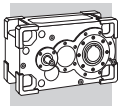


HDP 120 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	190	32940	681	*	*	*	*	*	*	*	*
HDP 120 2	**8.6**	174	33560	637	*	*	*	*	*	*	*	275
HDP 120 2	**10.3**	146	35710	567	*	*	*	*	*	*	*	294
HDP 120 2	**11.2**	134	36370	530	*	*	*	*	227	*	*	296
HDP 120 2	**13.0**	115	37080	466	*	*	199	196	240	187	215	309
HDP 120 2	**14.2**	106	37840	437	*	*	200	197	241	188	216	310
HDP 120 2	**16.0**	94	38580	395	*	176	209	206	250	197	225	319
HDP 120 2	**17.4**	86	39810	374	*	177	210	207	251	198	226	320
HDP 120 2	**20.6**	73	39000	309	*	185	218	215	259	206	234	328
HDP 120 2	**22.5**	67	39780	290	119	186	219	216	260	207	235	329
HDP 120 2	**25.4**	59	36630	236	120	187	220	217	261	208	236	330
HDP 120 3	**25.8**	58	36330	235	*	135	158	159	190	151	172	240
HDP 120 3	**28.0**	53	37110	221	89	136	159	160	191	152	173	241
HDP 120 3	**32.5**	46	38040	195	92	139	162	163	194	155	176	244
HDP 120 3	**35.4**	42	38620	182	92	139	162	163	194	155	176	244
HDP 120 3	**39.9**	38	39930	167	94	141	164	165	196	157	178	—
HDP 120 3	**43.5**	34	39150	150	94	141	164	165	—	157	178	—
HDP 120 3	**51.6**	29.1	40410	131	96	143	—	167	—	159	180	—
HDP 120 3	**56.1**	26.7	38960	116	96	143	—	167	—	159	180	—
HDP 120 3	**64.3**	23.3	40250	105	103	150	—	174	—	166	187	—
HDP 120 3	**70.0**	21.4	38800	93	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	19.0	40600	86	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	17.5	39160	76	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	14.7	41250	68	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	13.5	40740	61	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	12.0	37570	50	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	11.7	38110	51	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	10.8	40920	50	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	9.5	39600	43	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	8.8	40920	41	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	7.4	41250	35	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	6.8	40920	32	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	5.9	41250	28	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	5.4	40920	25	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	4.6	41250	22	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	4.3	40920	19.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.7	41250	17.3	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	3.3	40920	15.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.9	41250	13.4	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

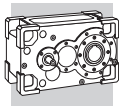


HDP 120 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	152	35220	583	*	*	258	310	388	*	251	345
HDP 120 2	**8.6**	139	35880	545	*	220	260	312	390	225	253	347
HDP 120 2	**10.3**	116	37550	477	*	236	276	328	406	241	269	363
HDP 120 2	**11.2**	107	38890	454	*	237	277	329	407	242	270	364
HDP 120 2	**13.0**	92	38140	383	164	247	287	339	417	252	280	374
HDP 120 2	**14.2**	85	39590	366	165	248	288	340	418	253	281	375
HDP 120 2	**16.0**	75	38580	316	172	255	295	347	—	260	288	382
HDP 120 2	**17.4**	69	39820	299	173	256	296	348	—	261	289	383
HDP 120 2	**20.6**	58	39000	247	179	262	—	354	—	267	295	—
HDP 120 2	**22.5**	53	39550	230	180	263	—	355	—	268	296	—
HDP 120 2	**25.4**	47	36420	188	181	264	—	356	—	269	297	—
HDP 120 3	**25.8**	47	38840	201	136	194	222	263	—	199	220	—
HDP 120 3	**28.0**	43	39340	187	136	194	—	263	—	199	220	—
HDP 120 3	**32.5**	37	40610	167	138	196	—	265	—	201	222	—
HDP 120 3	**35.4**	34	39140	147	138	196	—	265	—	201	222	—
HDP 120 3	**39.9**	30	40430	135	—	—	—	—	—	—	—	—
HDP 120 3	**43.5**	27.6	38980	120	—	—	—	—	—	—	—	—
HDP 120 3	**51.6**	23.3	40240	104	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	21.4	38800	92	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	18.7	40710	85	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	17.1	39270	75	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	15.2	41250	70	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	14.0	40540	63	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	11.8	41250	54	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	10.8	40920	49	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	9.6	37730	40	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	9.4	40750	43	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	8.6	40920	40	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	7.6	41250	36	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	7.0	40920	33	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	5.9	41250	28	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	5.4	40920	25	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	4.7	41250	22	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	4.3	40920	20	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.7	41250	17.4	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	3.4	40920	15.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.0	41250	13.9	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.6	40920	12.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.3	41250	10.7	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

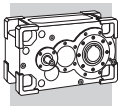


HDP 120 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	152	35220	583	*	*	*	*	*	*	*	291
HDP 120 2	**8.6**	139	35880	545	*	*	*	*	224	*	*	293
HDP 120 2	**10.3**	116	37550	477	*	*	*	195	239	*	214	308
HDP 120 2	**11.2**	107	38890	454	*	*	189	196	240	187	215	309
HDP 120 2	**13.0**	92	38140	383	*	170	199	206	250	197	225	319
HDP 120 2	**14.2**	85	39590	366	*	172	201	208	252	199	227	321
HDP 120 2	**16.0**	75	38580	316	*	178	207	214	258	205	233	327
HDP 120 2	**17.4**	69	39820	299	*	179	208	215	259	206	234	328
HDP 120 2	**20.6**	58	39000	247	125	186	215	222	266	213	241	335
HDP 120 2	**22.5**	53	39550	230	125	186	215	222	266	213	241	—
HDP 120 2	**25.4**	47	36420	188	126	187	216	223	—	214	242	—
HDP 120 3	**25.8**	47	38840	201	94	136	157	165	196	157	178	246
HDP 120 3	**28.0**	43	39340	187	94	136	157	165	196	157	178	246
HDP 120 3	**32.5**	37	40610	167	96	138	159	167	—	159	180	—
HDP 120 3	**35.4**	34	39140	147	97	139	160	168	—	160	181	—
HDP 120 3	**39.9**	30	40430	135	98	140	—	169	—	161	182	—
HDP 120 3	**43.5**	27.6	38980	120	98	140	—	169	—	161	182	—
HDP 120 3	**51.6**	23.3	40240	104	100	142	—	171	—	163	184	—
HDP 120 3	**56.1**	21.4	38800	92	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	18.7	40710	85	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	17.1	39270	75	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	15.2	41250	70	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	14.0	40540	63	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	11.8	41250	54	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	10.8	40920	49	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	9.6	37730	40	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	9.4	40750	43	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	8.6	40920	40	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	7.6	41250	36	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	7.0	40920	33	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	5.9	41250	28	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	5.4	40920	25	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	4.7	41250	22	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	4.3	40920	20	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.7	41250	17.4	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	3.4	40920	15.8	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	3.0	41250	13.9	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.6	40920	12.3	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	2.3	41250	10.7	—	—	—	—	—	—	—	—

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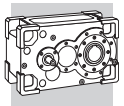


HDP 120 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	126	36820	508	*	212	244	323	401	236	264	358
HDP 120 2	**8.6**	116	37900	480	*	214	246	325	403	238	266	360
HDP 120 2	**10.3**	97	37550	397	162	226	258	337	415	250	278	372
HDP 120 2	**11.2**	89	39010	379	163	227	259	338	416	251	279	373
HDP 120 2	**13.0**	77	38520	323	171	235	267	346	—	259	287	381
HDP 120 2	**14.2**	71	39590	305	172	236	268	347	—	260	288	382
HDP 120 2	**16.0**	63	38920	266	178	242	274	353	—	266	294	—
HDP 120 2	**17.4**	57	39630	248	178	242	274	353	—	266	294	—
HDP 120 2	**20.6**	48	39000	206	184	248	—	359	—	272	300	—
HDP 120 2	**22.5**	45	39380	191	184	248	—	359	—	272	300	—
HDP 120 2	**25.4**	39	36270	156	—	—	—	—	—	—	—	—
HDP 120 3	**25.8**	39	40090	173	139	184	—	266	—	202	223	—
HDP 120 3	**28.0**	36	39180	155	140	185	—	267	—	203	224	—
HDP 120 3	**32.5**	31	40450	138	—	—	—	—	—	—	—	—
HDP 120 3	**35.4**	28.2	39000	122	—	—	—	—	—	—	—	—
HDP 120 3	**39.9**	25.0	40300	112	—	—	—	—	—	—	—	—
HDP 120 3	**43.5**	23.0	38850	99	—	—	—	—	—	—	—	—
HDP 120 3	**51.6**	19.4	40480	87	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	17.8	39040	77	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	15.6	40860	71	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	14.3	40390	64	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	12.7	41250	58	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	11.6	40920	53	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	9.8	41250	45	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	9.0	40920	41	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	8.0	37730	34	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	7.8	41250	37	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	7.2	40920	33	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	6.4	41250	30	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	5.8	40920	27	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	4.9	41250	23	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	4.5	40920	21	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	3.9	41250	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	3.6	40920	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.1	41250	14.5	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	2.8	40920	13.2	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.5	41250	11.5	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.2	40920	10.2	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	1.9	41250	8.9	—	—	—	—	—	—	—	—

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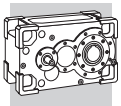


HDP 120 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 120 2	**7.9**	126	36820	508	*	*	*	*	235	*	210	304
HDP 120 2	**8.6**	116	37900	480	*	*	*	192	236	*	211	305
HDP 120 2	**10.3**	97	37550	397	*	*	178	205	249	196	224	318
HDP 120 2	**11.2**	89	39010	379	*	156	179	206	250	197	225	319
HDP 120 2	**13.0**	77	38520	323	*	164	187	214	258	205	233	327
HDP 120 2	**14.2**	71	39590	305	*	165	188	215	259	206	234	328
HDP 120 2	**16.0**	63	38920	266	123	170	193	220	264	211	239	333
HDP 120 2	**17.4**	57	39630	248	124	171	194	221	265	212	240	334
HDP 120 2	**20.6**	48	39000	206	129	176	199	226	—	217	245	—
HDP 120 2	**22.5**	45	39380	191	130	177	200	227	—	218	246	—
HDP 120 2	**25.4**	39	36270	156	130	177	—	227	—	218	246	—
HDP 120 3	**25.8**	39	40090	173	98	131	147	169	200	161	182	—
HDP 120 3	**28.0**	36	39180	155	98	131	147	169	—	161	182	—
HDP 120 3	**32.5**	31	40450	138	100	133	149	171	—	163	184	—
HDP 120 3	**35.4**	28.2	39000	122	100	133	—	171	—	163	184	—
HDP 120 3	**39.9**	25.0	40300	112	101	134	—	172	—	164	185	—
HDP 120 3	**43.5**	23.0	38850	99	—	—	—	—	—	—	—	—
HDP 120 3	**51.6**	19.4	40480	87	—	—	—	—	—	—	—	—
HDP 120 3	**56.1**	17.8	39040	77	—	—	—	—	—	—	—	—
HDP 120 3	**64.3**	15.6	40860	71	—	—	—	—	—	—	—	—
HDP 120 3	**70.0**	14.3	40390	64	—	—	—	—	—	—	—	—
HDP 120 3	**78.9**	12.7	41250	58	—	—	—	—	—	—	—	—
HDP 120 3	**85.9**	11.6	40920	53	—	—	—	—	—	—	—	—
HDP 120 3	**101.8**	9.8	41250	45	—	—	—	—	—	—	—	—
HDP 120 3	**110.9**	9.0	40920	41	—	—	—	—	—	—	—	—
HDP 120 3	**125.2**	8.0	37730	34	—	—	—	—	—	—	—	—
HDP 120 4	**128.0**	7.8	41250	37	—	—	—	—	—	—	—	—
HDP 120 4	**139.4**	7.2	40920	33	—	—	—	—	—	—	—	—
HDP 120 4	**157.1**	6.4	41250	30	—	—	—	—	—	—	—	—
HDP 120 4	**171.1**	5.8	40920	27	—	—	—	—	—	—	—	—
HDP 120 4	**202.8**	4.9	41250	23	—	—	—	—	—	—	—	—
HDP 120 4	**220.8**	4.5	40920	21	—	—	—	—	—	—	—	—
HDP 120 4	**254.6**	3.9	41250	18.4	—	—	—	—	—	—	—	—
HDP 120 4	**277.2**	3.6	40920	16.8	—	—	—	—	—	—	—	—
HDP 120 4	**323.2**	3.1	41250	14.5	—	—	—	—	—	—	—	—
HDP 120 4	**351.9**	2.8	40920	13.2	—	—	—	—	—	—	—	—
HDP 120 4	**405.7**	2.5	41250	11.5	—	—	—	—	—	—	—	—
HDP 120 4	**454.3**	2.2	40920	10.2	—	—	—	—	—	—	—	—
HDP 120 4	**523.7**	1.9	41250	8.9	—	—	—	—	—	—	—	—

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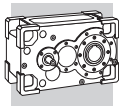


HDP 125 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	202	38070	837	*	*	*	*	355	*	*	*
HDP 125 2	**9.6**	187	38660	790	*	*	*	*	387	*	*	344
HDP 125 2	**11.6**	155	41280	697	*	*	303	321	399	*	*	356
HDP 125 2	**12.5**	144	41890	657	*	271	322	340	418	*	281	375
HDP 125 2	**14.7**	123	42740	571	*	274	325	343	421	256	284	378
HDP 125 2	**15.8**	114	43450	540	*	285	336	354	432	267	295	389
HDP 125 2	**18.0**	100	44090	480	*	287	338	356	434	269	297	391
HDP 125 2	**19.4**	93	45480	460	191	297	348	366	444	279	307	401
HDP 125 2	**23.3**	77	44580	376	193	299	350	368	446	281	309	403
HDP 125 2	**25.0**	72	45950	360	194	300	351	369	—	282	310	404
HDP 125 3	**29.1**	62	38810	267	150	224	260	277	—	213	234	302
HDP 125 3	**31.3**	58	41360	265	153	227	263	280	—	216	237	305
HDP 125 3	**36.7**	49	43580	238	155	229	—	282	—	218	239	—
HDP 125 3	**39.5**	46	44100	224	157	231	—	284	—	220	241	—
HDP 125 3	**45.1**	40	45710	203	157	231	—	284	—	220	241	—
HDP 125 3	**48.5**	37	46240	191	160	234	—	287	—	223	244	—
HDP 125 3	**58.2**	31	47750	164	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	28.8	49240	158	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	24.8	46430	128	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	23.1	48180	124	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	20.2	47230	106	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	18.8	48720	102	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	15.7	47750	83	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	14.6	49240	80	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	12.5	40710	58	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	11.6	43810	58	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	9.9	46060	52	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	9.2	48180	50	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	8.1	47230	43	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	7.3	49240	41	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	6.3	47750	34	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	5.6	48180	31	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	4.9	47230	26	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	4.5	48180	25	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	3.9	47230	21	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	3.6	49240	19.9	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



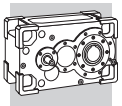
HDP 125

n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	202	38070	837	*	*	*	*	*	*	*	*
HDP 125 2	**9.6**	187	38660	790	*	*	*	*	*	*	*	*
HDP 125 2	**11.6**	155	41280	697	*	*	*	*	*	*	*	292
HDP 125 2	**12.5**	144	41890	657	*	*	*	*	*	*	*	311
HDP 125 2	**14.7**	123	42740	571	*	*	*	*	244	*	*	313
HDP 125 2	**15.8**	114	43450	540	*	*	230	*	256	*	231	325
HDP 125 2	**18.0**	100	44090	480	*	194	231	213	257	204	232	326
HDP 125 2	**19.4**	93	45480	460	*	205	242	224	268	215	243	337
HDP 125 2	**23.3**	77	44580	376	*	206	243	225	269	216	244	338
HDP 125 2	**25.0**	72	45950	360	*	207	244	226	270	217	245	339
HDP 125 3	**29.1**	62	38810	267	*	155	182	172	203	164	185	253
HDP 125 3	**31.3**	58	41360	265	*	158	185	175	206	167	188	256
HDP 125 3	**36.7**	49	43580	238	106	160	187	177	208	169	190	258
HDP 125 3	**39.5**	46	44100	224	108	162	189	179	210	171	192	260
HDP 125 3	**45.1**	40	45710	203	108	162	189	179	210	171	192	—
HDP 125 3	**48.5**	37	46240	191	111	165	—	182	—	174	195	—
HDP 125 3	**58.2**	31	47750	164	111	165	—	182	—	174	195	—
HDP 125 3	**62.6**	28.8	49240	158	120	174	—	191	—	183	204	—
HDP 125 3	**72.5**	24.8	46430	128	120	174	—	191	—	183	204	—
HDP 125 3	**78.0**	23.1	48180	124	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	20.2	47230	106	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	18.8	48720	102	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	15.7	47750	83	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	14.6	49240	80	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	12.5	40710	58	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	11.6	43810	58	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	9.9	46060	52	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	9.2	48180	50	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	8.1	47230	43	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	7.3	49240	41	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	6.3	47750	34	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	5.6	48180	31	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	4.9	47230	26	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	4.5	48180	25	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	3.9	47230	21	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	3.6	49240	19.9	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

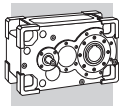


HDP 125 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	168	40210	737	*	*	*	308	386	*	*	343
HDP 125 2	**9.6**	156	40830	696	*	*	294	333	411	*	*	368
HDP 125 2	**11.6**	129	42910	604	*	260	304	343	421	256	284	378
HDP 125 2	**12.5**	120	44240	578	*	274	318	357	435	270	298	392
HDP 125 2	**14.7**	102	43590	486	*	276	320	359	437	272	300	394
HDP 125 2	**15.8**	95	44980	466	193	285	329	368	446	281	309	403
HDP 125 2	**18.0**	83	44090	400	194	286	330	369	447	282	310	404
HDP 125 2	**19.4**	77	45480	383	202	294	338	377	455	290	318	412
HDP 125 2	**23.3**	64	44580	313	203	295	339	378	—	291	319	—
HDP 125 2	**25.0**	60	45950	300	204	296	340	379	—	292	320	—
HDP 125 3	**29.1**	52	40990	235	158	222	254	285	—	221	242	—
HDP 125 3	**31.3**	48	43680	233	160	224	—	287	—	223	244	—
HDP 125 3	**36.7**	41	46030	209	161	225	—	288	—	224	245	—
HDP 125 3	**39.5**	38	46580	197	163	227	—	290	—	226	247	—
HDP 125 3	**45.1**	33	47230	175	163	227	—	290	—	226	247	—
HDP 125 3	**48.5**	31	48720	168	—	—	—	—	—	—	—	—
HDP 125 3	**58.2**	25.8	47750	137	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	24.0	49240	131	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	20.7	46680	107	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	19.2	48180	103	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	16.9	47230	89	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	15.7	48720	85	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	13.1	48230	70	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	12.1	49240	66	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	10.4	43000	51	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	9.7	46280	51	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	8.3	46680	44	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	7.7	48180	42	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	6.7	47230	36	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	6.1	49240	34	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	5.2	47750	28	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	4.7	48180	26	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	4.1	47230	22	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	3.7	48180	20	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	3.3	47230	17.6	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	3.0	49240	16.6	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



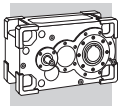
HDP 125

n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL./R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	168	40210	737	*	*	*	*	*	*	*	*
HDP 125 2	**9.6**	156	40830	696	*	*	*	*	*	*	*	304
HDP 125 2	**11.6**	129	42910	604	*	*	*	*	244	*	*	313
HDP 125 2	**12.5**	120	44240	578	*	*	*	*	259	*	234	328
HDP 125 2	**14.7**	102	43590	486	*	*	219	216	260	207	235	329
HDP 125 2	**15.8**	95	44980	466	*	195	228	225	269	216	244	338
HDP 125 2	**18.0**	83	44090	400	*	196	229	226	270	217	245	339
HDP 125 2	**19.4**	77	45480	383	*	205	238	235	279	226	254	348
HDP 125 2	**23.3**	64	44580	313	139	206	239	236	280	227	255	349
HDP 125 2	**25.0**	60	45950	300	140	207	240	237	281	228	256	350
HDP 125 3	**29.1**	52	40990	235	108	155	178	179	210	171	192	260
HDP 125 3	**31.3**	48	43680	233	111	158	181	182	213	174	195	263
HDP 125 3	**36.7**	41	46030	209	112	159	182	183	214	175	196	264
HDP 125 3	**39.5**	38	46580	197	114	161	184	185	—	177	198	—
HDP 125 3	**45.1**	33	47230	175	114	161	184	185	—	177	198	—
HDP 125 3	**48.5**	31	48720	168	116	163	—	187	—	179	200	—
HDP 125 3	**58.2**	25.8	47750	137	116	163	—	187	—	179	200	—
HDP 125 3	**62.6**	24.0	49240	131	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	20.7	46680	107	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	19.2	48180	103	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	16.9	47230	89	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	15.7	48720	85	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	13.1	48230	70	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	12.1	49240	66	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	10.4	43000	51	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	9.7	46280	51	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	8.3	46680	44	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	7.7	48180	42	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	6.7	47230	36	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	6.1	49240	34	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	5.2	47750	28	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	4.7	48180	26	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	4.1	47230	22	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	3.7	48180	20	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	3.3	47230	17.6	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	3.0	49240	16.6	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

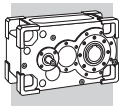


HDP 125 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	135	42100	617	*	*	280	332	410	*	273	367
HDP 125 2	**9.6**	125	43500	593	*	259	299	351	429	264	292	386
HDP 125 2	**11.6**	103	42910	483	*	266	306	358	436	271	299	393
HDP 125 2	**12.5**	96	44300	463	195	278	318	370	448	283	311	405
HDP 125 2	**14.7**	82	43590	388	196	279	319	371	449	284	312	406
HDP 125 2	**15.8**	76	44980	372	203	286	326	378	—	291	319	413
HDP 125 2	**18.0**	67	44090	320	204	287	327	379	—	292	320	414
HDP 125 2	**19.4**	62	45480	307	210	293	333	385	—	298	326	—
HDP 125 2	**23.3**	52	44580	251	211	294	—	386	—	299	327	—
HDP 125 2	**25.0**	48	45950	240	212	295	—	387	—	300	328	—
HDP 125 3	**29.1**	41	43830	201	163	221	—	290	—	226	247	—
HDP 125 3	**31.3**	38	46710	199	165	223	—	292	—	228	249	—
HDP 125 3	**36.7**	33	46680	170	—	—	—	—	—	—	—	—
HDP 125 3	**39.5**	30	48180	163	—	—	—	—	—	—	—	—
HDP 125 3	**45.1**	26.6	47230	140	—	—	—	—	—	—	—	—
HDP 125 3	**48.5**	24.7	48720	134	—	—	—	—	—	—	—	—
HDP 125 3	**58.2**	20.6	47750	110	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	19.2	49240	105	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	16.6	46680	86	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	15.4	48180	82	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	13.5	47230	71	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	12.5	48720	68	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	10.4	48230	56	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	9.7	49240	53	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	8.3	45980	43	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	7.7	48180	42	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	6.6	46680	35	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	6.2	48180	34	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	5.4	47230	29	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	4.9	49240	27	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	4.2	47750	23	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	3.8	48180	21	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	3.3	47230	17.6	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	3.0	48180	16.4	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	2.6	47230	14.1	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	2.4	49240	13.2	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



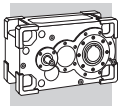
HDP 125

n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	135	42100	617	*	*	*	*	*	*	*	302
HDP 125 2	**9.6**	125	43500	593	*	*	*	*	252	*	*	321
HDP 125 2	**11.6**	103	42910	483	*	*	209	216	260	207	235	329
HDP 125 2	**12.5**	96	44300	463	*	191	220	227	271	218	246	340
HDP 125 2	**14.7**	82	43590	388	*	193	222	229	273	220	248	342
HDP 125 2	**15.8**	76	44980	372	*	200	229	236	280	227	255	349
HDP 125 2	**18.0**	67	44090	320	139	200	229	236	280	227	255	349
HDP 125 2	**19.4**	62	45480	307	146	207	236	243	287	234	262	356
HDP 125 2	**23.3**	52	44580	251	147	208	237	244	288	235	263	—
HDP 125 2	**25.0**	48	45950	240	147	208	237	244	—	235	263	—
HDP 125 3	**29.1**	41	43830	201	114	156	177	185	216	177	198	266
HDP 125 3	**31.3**	38	46710	199	116	158	179	187	—	179	200	—
HDP 125 3	**36.7**	33	46680	170	116	158	179	187	—	179	200	—
HDP 125 3	**39.5**	30	48180	163	118	160	—	189	—	181	202	—
HDP 125 3	**45.1**	26.6	47230	140	118	160	—	189	—	181	202	—
HDP 125 3	**48.5**	24.7	48720	134	—	—	—	—	—	—	—	—
HDP 125 3	**58.2**	20.6	47750	110	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	19.2	49240	105	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	16.6	46680	86	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	15.4	48180	82	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	13.5	47230	71	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	12.5	48720	68	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	10.4	48230	56	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	9.7	49240	53	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	8.3	45980	43	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	7.7	48180	42	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	6.6	46680	35	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	6.2	48180	34	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	5.4	47230	29	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	4.9	49240	27	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	4.2	47750	23	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	3.8	48180	21	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	3.3	47230	17.6	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	3.0	48180	16.4	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	2.6	47230	14.1	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	2.4	49240	13.2	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

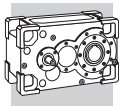


HDP 125 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C							
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	112	42100	514	*	237	269	348	426	261	289	383
HDP 125 2	**9.6**	104	43500	494	*	252	284	363	441	276	304	398
HDP 125 2	**11.6**	86	42910	402	194	258	290	369	447	282	310	404
HDP 125 2	**12.5**	80	44300	386	203	267	299	378	456	291	319	413
HDP 125 2	**14.7**	68	43590	324	205	269	301	380	—	293	321	415
HDP 125 2	**15.8**	63	44980	310	210	274	306	385	—	298	326	—
HDP 125 2	**18.0**	55	44530	269	211	275	—	386	—	299	327	—
HDP 125 2	**19.4**	52	45480	256	216	280	—	391	—	304	332	—
HDP 125 2	**23.3**	43	44580	209	—	—	—	—	—	—	—	—
HDP 125 2	**25.0**	40	45950	200	—	—	—	—	—	—	—	—
HDP 125 3	**29.1**	34	45940	176	167	212	—	294	—	230	251	—
HDP 125 3	**31.3**	32	47450	169	—	—	—	—	—	—	—	—
HDP 125 3	**36.7**	27.2	47150	143	—	—	—	—	—	—	—	—
HDP 125 3	**39.5**	25.3	48180	136	—	—	—	—	—	—	—	—
HDP 125 3	**45.1**	22.2	47230	117	—	—	—	—	—	—	—	—
HDP 125 3	**48.5**	20.6	48720	112	—	—	—	—	—	—	—	—
HDP 125 3	**58.2**	17.2	48230	92	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	16.0	49240	88	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	13.8	47150	72	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	12.8	48180	69	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	11.2	47230	59	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	10.4	48720	57	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	8.7	48230	47	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	8.1	49240	44	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	6.9	46680	37	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	6.4	48180	35	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	5.5	46680	29	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	5.1	48180	28	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	4.5	47230	24	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	4.1	49240	23	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	3.5	47750	18.9	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	3.1	48180	17.1	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	2.7	47230	14.7	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	2.5	48180	13.6	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	2.2	47230	11.7	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	2.0	49240	11.0	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

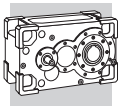


HDP 125 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C							
					P_T [kW]	$P_{TFANL/R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDP 125 2	**8.9**	112	42100	514	*	*	*	*	249	*	224	318
HDP 125 2	**9.6**	104	43500	494	*	*	*	221	265	212	240	334
HDP 125 2	**11.6**	86	42910	402	*	177	200	227	271	218	246	340
HDP 125 2	**12.5**	80	44300	386	*	186	209	236	280	227	255	349
HDP 125 2	**14.7**	68	43590	324	140	187	210	237	281	228	256	350
HDP 125 2	**15.8**	63	44980	310	146	193	216	243	287	234	262	356
HDP 125 2	**18.0**	55	44530	269	146	193	216	243	287	234	262	356
HDP 125 2	**19.4**	52	45480	256	152	199	222	249	293	240	268	—
HDP 125 2	**23.3**	43	44580	209	152	199	222	249	—	240	268	—
HDP 125 2	**25.0**	40	45950	200	153	200	223	250	—	241	269	—
HDP 125 3	**29.1**	34	45940	176	118	151	167	189	—	181	202	—
HDP 125 3	**31.3**	32	47450	169	119	152	—	190	—	182	203	—
HDP 125 3	**36.7**	27.2	47150	143	120	153	—	191	—	183	204	—
HDP 125 3	**39.5**	25.3	48180	136	—	—	—	—	—	—	—	—
HDP 125 3	**45.1**	22.2	47230	117	—	—	—	—	—	—	—	—
HDP 125 3	**48.5**	20.6	48720	112	—	—	—	—	—	—	—	—
HDP 125 3	**58.2**	17.2	48230	92	—	—	—	—	—	—	—	—
HDP 125 3	**62.6**	16.0	49240	88	—	—	—	—	—	—	—	—
HDP 125 3	**72.5**	13.8	47150	72	—	—	—	—	—	—	—	—
HDP 125 3	**78.0**	12.8	48180	69	—	—	—	—	—	—	—	—
HDP 125 3	**89.0**	11.2	47230	59	—	—	—	—	—	—	—	—
HDP 125 3	**95.8**	10.4	48720	57	—	—	—	—	—	—	—	—
HDP 125 3	**114.9**	8.7	48230	47	—	—	—	—	—	—	—	—
HDP 125 3	**123.6**	8.1	49240	44	—	—	—	—	—	—	—	—
HDP 125 4	**144.4**	6.9	46680	37	—	—	—	—	—	—	—	—
HDP 125 4	**155.4**	6.4	48180	35	—	—	—	—	—	—	—	—
HDP 125 4	**181.2**	5.5	46680	29	—	—	—	—	—	—	—	—
HDP 125 4	**195.0**	5.1	48180	28	—	—	—	—	—	—	—	—
HDP 125 4	**222.5**	4.5	47230	24	—	—	—	—	—	—	—	—
HDP 125 4	**246.2**	4.1	49240	23	—	—	—	—	—	—	—	—
HDP 125 4	**287.2**	3.5	47750	18.9	—	—	—	—	—	—	—	—
HDP 125 4	**319.6**	3.1	48180	17.1	—	—	—	—	—	—	—	—
HDP 125 4	**364.6**	2.7	47230	14.7	—	—	—	—	—	—	—	—
HDP 125 4	**401.2**	2.5	48180	13.6	—	—	—	—	—	—	—	—
HDP 125 4	**457.7**	2.2	47230	11.7	—	—	—	—	—	—	—	—
HDP 125 4	**506.5**	2.0	49240	11.0	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

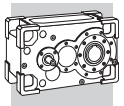


HDP 130 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	248	45820	1238	*	*	*	*	*	622		*	*	*	496	
HDP 130 2	**7.9**	227	48550	1202	*	*	*	*	*	628		*	*	*	502	
HDP 130 2	**8.6**	209	48410	1103	*	*	*	*	*	655		*	*	*	529	
HDP 130 2	**9.4**	191	51170	1068	*	*	*	*	*	660		*	*	*	534	
HDP 130 2	**11.3**	159	53590	930	*	*	450	373	451	694		*	*	408	568	
HDP 130 2	**12.3**	146	54820	872	*	373	454	377	455	698	⛔	*	*	412	572	⛔
HDP 130 2	**14.1**	127	54730	760	*	394	475	398	476	719		330	339	433	593	
HDP 130 2	**15.4**	117	56150	714	*	396	477	400	478	721		332	341	435	595	
HDP 130 2	**17.4**	103	58690	661	*	411	492	415	493	736		347	356	450	610	
HDP 130 2	**19.0**	95	62410	644	*	413	494	417	495	738		349	358	452	612	
HDP 130 2	**21.7**	83	64410	584	245	416	497	420	498	741		352	361	455	615	
HDP 130 3	**21.8**	83	62200	572	*	298	356	305	362	538	664	280	262	330	446	668
HDP 130 3	**23.8**	76	62590	527	*	299	357	306	363	539	—	281	263	331	447	669
HDP 130 3	**28.6**	63	65230	457	186	306	364	313	370	546	—	288	270	338	454	676
HDP 130 3	**31.2**	58	62590	401	187	307	365	314	371	547	—	289	271	339	455	—
HDP 130 3	**35.7**	50	62040	348	192	312	370	319	376	—	—	294	276	344	460	—
HDP 130 3	**39.0**	46	62590	321	192	312	370	319	376	—	—	294	276	344	—	—
HDP 130 3	**44.1**	41	64510	293	196	316	—	323	—	—	—	298	280	348	—	—
HDP 130 3	**48.1**	37	62590	260	196	316	—	323	—	—	—	298	280	—	—	—
HDP 130 3	**56.5**	32	65020	230	213	333	—	340	—	—	—	315	297	—	—	—
HDP 130 3	**61.7**	29.2	62270	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	25.5	64730	183	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	23.3	62000	161	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	20.7	64510	148	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	18.9	62590	132	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	16.6	58960	109	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	16.2	57640	106	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	14.8	62590	105	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	13.0	65230	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	11.9	62590	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	10.2	64840	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	9.3	62590	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	8.3	64510	61	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	7.6	62590	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	6.6	65230	49	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	6.0	62590	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	5.2	65230	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	4.7	62590	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.8	62590	27	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	3.4	58960	23	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

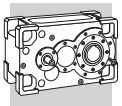


HDP 130 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	248	45820	1238	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDP 130 2	**7.9**	227	48550	1202	*	*	*	*	*	*		*	*	*	*	
HDP 130 2	**8.6**	209	48410	1103	*	*	*	*	*	*		*	*	*	446	
HDP 130 2	**9.4**	191	51170	1068	*	*	*	*	*	*		*	*	*	451	
HDP 130 2	**11.3**	159	53590	930	*	*	*	*	*	392		*	*	*	486	
HDP 130 2	**12.3**	146	54820	872	*	*	*	*	*	396		*	*	*	490	
HDP 130 2	**14.1**	127	54730	760	*	*	325	*	*	416		*	*	350	510	
HDP 130 2	**15.4**	117	56150	714	*	*	328	*	*	419		*	*	353	513	
HDP 130 2	**17.4**	103	58690	661	*	283	343	*	299	434		265	274	368	528	
HDP 130 2	**19.0**	95	62410	644	*	285	345	*	301	436		267	276	370	530	
HDP 130 2	**21.7**	83	64410	584	*	288	348	260	304	439		270	279	373	533	
HDP 130 3	**21.8**	83	62200	572	*	*	244	*	*	314	384	*	*	266	382	604
HDP 130 3	**23.8**	76	62590	527	*	*	245	*	217	315	385	217	*	267	383	605
HDP 130 3	**28.6**	63	65230	457	*	210	252	193	224	322	392	224	206	274	390	612
HDP 130 3	**31.2**	58	62590	401	*	211	253	194	225	323	393	225	207	275	391	613
HDP 130 3	**35.7**	50	62040	348	*	215	257	198	229	327	397	229	211	279	395	—
HDP 130 3	**39.0**	46	62590	321	*	216	258	199	230	328	—	230	212	280	396	—
HDP 130 3	**44.1**	41	64510	293	131	219	261	202	233	331	—	233	215	283	399	—
HDP 130 3	**48.1**	37	62590	260	132	220	262	203	234	332	—	234	216	284	—	—
HDP 130 3	**56.5**	32	65020	230	149	237	—	220	251	—	—	251	233	—	—	—
HDP 130 3	**61.7**	29.2	62270	202	149	237	—	220	—	—	—	251	233	—	—	—
HDP 130 3	**70.7**	25.5	64730	183	152	240	—	223	—	—	—	254	236	—	—	—
HDP 130 3	**77.1**	23.3	62000	161	152	240	—	223	—	—	—	254	236	—	—	—
HDP 130 3	**87.2**	20.7	64510	148	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	18.9	62590	132	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	16.6	58960	109	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	16.2	57640	106	93	160	—	148	—	—	—	171	159	—	—	—
HDP 130 4	**121.4**	14.8	62590	105	93	160	—	148	—	—	—	171	159	—	—	—
HDP 130 4	**139.0**	13.0	65230	96	94	161	—	149	—	—	—	172	160	—	—	—
HDP 130 4	**151.7**	11.9	62590	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	10.2	64840	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	9.3	62590	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	8.3	64510	61	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	7.6	62590	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	6.6	65230	49	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	6.0	62590	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	5.2	65230	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	4.7	62590	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.8	62590	27	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	3.4	58960	23	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



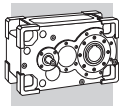
HDP 130

n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	207	48400	1090	*	*	*	*	*	663		*	*	*	537	
HDP 130 2	**7.9**	189	51280	1058	*	*	*	*	425	668		*	*	*	542	
HDP 130 2	**8.6**	174	51140	971	*	*	411	*	445	688		*	*	402	562	
HDP 130 2	**9.4**	160	54050	940	*	*	415	*	449	692		*	*	406	566	
HDP 130 2	**11.3**	133	56600	819	*	372	442	398	476	719		330	339	433	593	
HDP 130 2	**12.3**	122	57900	767	*	375	445	401	479	722	⛔	333	342	436	596	⛔
HDP 130 2	**14.1**	106	57810	669	*	391	461	417	495	738		349	358	452	612	
HDP 130 2	**15.4**	97	59300	629	*	393	463	419	497	740		351	360	454	614	
HDP 130 2	**17.4**	86	61990	582	255	404	474	430	508	751		362	371	465	625	
HDP 130 2	**19.0**	79	63860	549	257	406	476	432	510	753		364	373	467	627	
HDP 130 2	**21.7**	69	64070	484	259	408	478	434	512	—		366	375	469	629	
HDP 130 3	**21.8**	69	65950	505	*	296	347	319	376	552	—	294	276	344	460	682
HDP 130 3	**23.8**	63	63450	445	193	297	348	320	377	553	—	295	277	345	461	—
HDP 130 3	**28.6**	52	65790	384	198	302	353	325	382	558	—	300	282	350	466	—
HDP 130 3	**31.2**	48	62990	337	199	303	354	326	383	—	—	301	283	351	—	—
HDP 130 3	**35.7**	42	65430	305	202	306	—	329	—	—	—	304	286	354	—	—
HDP 130 3	**39.0**	38	62650	268	203	307	—	330	—	—	—	305	287	—	—	—
HDP 130 3	**44.1**	34	65120	246	205	309	—	332	—	—	—	307	289	—	—	—
HDP 130 3	**48.1**	31	62360	216	206	310	—	333	—	—	—	308	290	—	—	—
HDP 130 3	**56.5**	26.5	64780	191	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	24.3	62050	168	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	21.2	65650	155	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	19.4	62890	136	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	17.2	67750	130	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	15.8	64910	114	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	13.9	63140	97	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	13.5	61600	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	12.4	66770	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	10.8	69570	85	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	8.5	69350	67	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	7.8	66770	59	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	6.9	69570	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	4.3	69570	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.9	66770	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.2	66770	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.8	63140	20	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

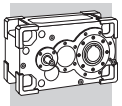


HDP 130 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	207	48400	1090	*	*	*	*	*	*	⛔	*	*	*	455	⛔
HDP 130 2	**7.9**	189	51280	1058	*	*	*	*	*	*		*	*	*	460	
HDP 130 2	**8.6**	174	51140	971	*	*	*	*	*	*		*	*	*	480	
HDP 130 2	**9.4**	160	54050	940	*	*	*	*	*	390		*	*	*	484	
HDP 130 2	**11.3**	133	56600	819	*	*	*	*	*	417		*	*	351	511	
HDP 130 2	**12.3**	122	57900	767	*	*	*	*	*	419		*	*	353	513	
HDP 130 2	**14.1**	106	57810	669	*	268	320	*	300	435		*	275	369	529	
HDP 130 2	**15.4**	97	59300	629	*	270	322	258	302	437		268	277	371	531	
HDP 130 2	**17.4**	86	61990	582	*	282	334	270	314	449		280	289	383	543	
HDP 130 2	**19.0**	79	63860	549	*	283	335	271	315	450		281	290	384	544	
HDP 130 2	**21.7**	69	64070	484	*	286	338	274	318	453		284	293	387	547	
HDP 130 3	**21.8**	69	65950	505	*	203	240	*	229	327	397	229	211	279	395	617
HDP 130 3	**23.8**	63	63450	445	*	204	241	199	230	328	398	230	212	280	396	618
HDP 130 3	**28.6**	52	65790	384	*	210	247	205	236	334	404	236	218	286	402	—
HDP 130 3	**31.2**	48	62990	337	*	211	248	206	237	335	405	237	219	287	403	—
HDP 130 3	**35.7**	42	65430	305	138	214	251	209	240	338	—	240	222	290	406	—
HDP 130 3	**39.0**	38	62650	268	139	215	252	210	241	339	—	241	223	291	—	—
HDP 130 3	**44.1**	34	65120	246	141	217	254	212	243	341	—	243	225	293	—	—
HDP 130 3	**48.1**	31	62360	216	142	218	—	213	244	—	—	244	226	—	—	—
HDP 130 3	**56.5**	26.5	64780	191	155	231	—	226	—	—	—	257	239	—	—	—
HDP 130 3	**61.7**	24.3	62050	168	155	231	—	226	—	—	—	257	239	—	—	—
HDP 130 3	**70.7**	21.2	65650	155	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	19.4	62890	136	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	17.2	67750	130	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	15.8	64910	114	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	13.9	63140	97	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	13.5	61600	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	12.4	66770	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	10.8	69570	85	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	8.5	69350	67	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	7.8	66770	59	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	6.9	69570	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	4.3	69570	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.9	66770	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	3.2	66770	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.8	63140	20	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

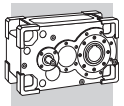


HDP 130 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	165	51750	932	*	*	395	*	451	694		*	*	408	568	
HDP 130 2	**7.9**	151	54830	905	*	*	398	376	454	697		*	*	411	571	
HDP 130 2	**8.6**	139	54680	831	*	351	414	392	470	713		*	333	427	587	
HDP 130 2	**9.4**	128	57790	804	*	354	417	395	473	716		327	336	430	590	
HDP 130 2	**11.3**	106	60520	700	*	375	438	416	494	737		348	357	451	611	
HDP 130 2	**12.3**	97	61910	656	*	377	440	418	496	739	⛔	350	359	453	613	⛔
HDP 130 2	**14.1**	85	61810	572	256	390	453	431	509	752		363	372	466	626	
HDP 130 2	**15.4**	78	63410	538	257	391	454	432	510	753		364	373	467	627	
HDP 130 2	**17.4**	69	66280	497	266	400	463	441	519	—		373	382	476	636	
HDP 130 2	**19.0**	63	63450	436	267	401	464	442	—	—		374	383	477	—	
HDP 130 2	**21.7**	55	63690	385	269	403	—	444	—	—		376	385	—	—	
HDP 130 3	**21.8**	55	65880	404	202	296	341	329	386	562	—	304	286	354	470	—
HDP 130 3	**23.8**	50	63070	354	203	297	342	330	387	—	—	305	287	355	—	—
HDP 130 3	**28.6**	42	65430	305	207	301	346	334	—	—	—	309	291	359	—	—
HDP 130 3	**31.2**	38	62650	268	208	302	—	335	—	—	—	310	292	—	—	—
HDP 130 3	**35.7**	34	65100	243	210	304	—	337	—	—	—	312	294	—	—	—
HDP 130 3	**39.0**	31	62340	213	211	305	—	338	—	—	—	313	295	—	—	—
HDP 130 3	**44.1**	27.2	64820	196	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	24.9	62080	172	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	21.2	65650	155	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	19.4	62890	136	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	17.0	67880	128	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	15.6	65050	113	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	13.8	69570	107	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	12.6	66770	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	11.1	63140	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	10.8	66220	81	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	8.6	69570	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	7.9	66770	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	6.8	69570	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	6.2	66770	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	4.4	69570	35	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	4.0	66770	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	3.4	69570	27.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.2	66770	23.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.6	66770	19.4	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.2	63140	16.1	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

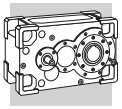


HDP 130 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\ /\ R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	165	51750	932	*	*	*	*	*	391		*	*	*	485	
HDP 130 2	**7.9**	151	54830	905	*	*	*	*	*	395		*	*	*	489	
HDP 130 2	**8.6**	139	54680	831	*	*	*	*	*	411		*	*	345	505	
HDP 130 2	**9.4**	128	57790	804	*	*	*	*	*	414		*	*	348	508	
HDP 130 2	**11.3**	106	60520	700	*	*	304	*	300	435		*	*	369	529	
HDP 130 2	**12.3**	97	61910	656	*	*	306	*	302	437	⛔	268	277	371	531	⛔
HDP 130 2	**14.1**	85	61810	572	*	271	318	270	314	449		280	289	383	543	
HDP 130 2	**15.4**	78	63410	538	*	273	320	272	316	451		282	291	385	545	
HDP 130 2	**17.4**	69	66280	497	*	282	329	281	325	460		291	300	394	554	
HDP 130 2	**19.0**	63	63450	436	185	283	330	282	326	461		292	301	395	555	
HDP 130 2	**21.7**	55	63690	385	187	285	332	284	328	463		294	303	397	—	
HDP 130 3	**21.8**	55	65880	404	*	207	240	209	240	338	408	240	222	290	406	—
HDP 130 3	**23.8**	50	63070	354	*	207	240	209	240	338	408	240	222	290	406	—
HDP 130 3	**28.6**	42	65430	305	143	212	245	214	245	343	—	245	227	295	411	—
HDP 130 3	**31.2**	38	62650	268	143	212	245	214	245	343	—	245	227	295	—	—
HDP 130 3	**35.7**	34	65100	243	146	215	248	217	248	—	—	248	230	298	—	—
HDP 130 3	**39.0**	31	62340	213	146	215	—	217	—	—	—	248	230	—	—	—
HDP 130 3	**44.1**	27.2	64820	196	148	217	—	219	—	—	—	250	232	—	—	—
HDP 130 3	**48.1**	24.9	62080	172	149	218	—	220	—	—	—	251	233	—	—	—
HDP 130 3	**56.5**	21.2	65650	155	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	19.4	62890	136	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	17.0	67880	128	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	15.6	65050	113	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	13.8	69570	107	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	12.6	66770	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	11.1	63140	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	10.8	66220	81	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	8.6	69570	68	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	7.9	66770	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	6.8	69570	54	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	6.2	66770	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	4.4	69570	35	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	4.0	66770	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	3.4	69570	27.2	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	3.2	66770	23.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.6	66770	19.4	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	2.2	63140	16.1	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

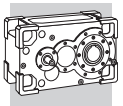


HDP 130 — n_1 = 1000 min^{-1}

					t_a = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDP 130 2	**7.3**	138	54660	821	*	*	373	394	472	715		*	335	429	589	
HDP 130 2	**7.9**	126	57910	796	*	326	376	397	475	718		329	338	432	592	
HDP 130 2	**8.6**	116	57750	731	*	338	388	409	487	730		341	350	444	604	
HDP 130 2	**9.4**	106	61040	708	*	341	391	412	490	733		344	353	447	607	
HDP 130 2	**11.3**	88	63920	616	254	358	408	429	507	750		361	370	464	624	
HDP 130 2	**12.3**	81	63920	565	255	359	409	430	508	751	⛔	362	371	465	625	⛔
HDP 130 2	**14.1**	71	65290	504	265	369	419	440	518	—		372	381	475	635	
HDP 130 2	**15.4**	65	63500	449	267	371	421	442	520	—		374	383	477	—	
HDP 130 2	**17.4**	57	65950	413	274	378	428	449	—	—		381	390	484	—	
HDP 130 2	**19.0**	53	63140	362	275	379	—	450	—	—		382	391	—	—	
HDP 130 2	**21.7**	46	63390	319	276	380	—	451	—	—		383	392	—	—	
HDP 130 3	**21.8**	46	65570	335	209	282	317	336	—	—	—	311	293	361	—	—
HDP 130 3	**23.8**	42	62780	294	210	283	318	337	—	—	—	312	294	362	—	—
HDP 130 3	**28.6**	35	65160	253	213	286	—	340	—	—	—	315	297	—	—	—
HDP 130 3	**31.2**	32	62400	222	213	286	—	340	—	—	—	315	297	—	—	—
HDP 130 3	**35.7**	28.0	64850	202	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**39.0**	25.6	62110	177	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**44.1**	22.7	65010	164	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**48.1**	20.8	62270	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	17.7	67470	133	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	16.2	64640	117	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	14.2	69570	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	13.0	66770	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	11.5	69570	89	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	10.5	66770	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	9.2	63140	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	9.0	69570	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	8.2	66770	62	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	7.2	69570	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	6.6	66770	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	5.7	69570	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	5.2	66770	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	4.6	69570	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	4.2	66770	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	3.6	69570	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.3	66770	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	2.9	69570	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.6	66770	19.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.1	66770	16.1	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	1.9	63140	13.4	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

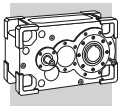


HDP 130 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 130 2	**7.3**	138	54660	821	*	*	*	*	*	412		*	*	346	506	
HDP 130 2	**7.9**	126	57910	796	*	*	*	*	*	415		*	*	349	509	
HDP 130 2	**8.6**	116	57750	731	*	*	*	*	293	428		*	*	362	522	
HDP 130 2	**9.4**	106	61040	708	*	*	*	*	295	430		*	*	364	524	
HDP 130 2	**11.3**	88	63920	616	*	247	284	268	312	447		278	287	381	541	
HDP 130 2	**12.3**	81	63920	565	*	249	286	270	314	449	⛔	280	289	383	543	⛔
HDP 130 2	**14.1**	71	65290	504	*	259	296	280	324	459		290	299	393	553	
HDP 130 2	**15.4**	65	63500	449	184	260	297	281	325	460		291	300	394	554	
HDP 130 2	**17.4**	57	65950	413	191	267	304	288	332	467		298	307	401	561	
HDP 130 2	**19.0**	53	63140	362	192	268	305	289	333	468		299	308	402	—	
HDP 130 2	**21.7**	46	63390	319	194	270	307	291	335	—		301	310	404	—	
HDP 130 3	**21.8**	46	65570	335	145	198	224	216	247	345	—	247	229	297	413	—
HDP 130 3	**23.8**	42	62780	294	145	198	224	216	247	345	—	247	229	297	—	—
HDP 130 3	**28.6**	35	65160	253	149	202	228	220	251	349	—	251	233	301	—	—
HDP 130 3	**31.2**	32	62400	222	149	202	228	220	251	—	—	251	233	—	—	—
HDP 130 3	**35.7**	28.0	64850	202	151	204	—	222	—	—	—	253	235	—	—	—
HDP 130 3	**39.0**	25.6	62110	177	152	205	—	223	—	—	—	254	236	—	—	—
HDP 130 3	**44.1**	22.7	65010	164	153	206	—	224	—	—	—	255	237	—	—	—
HDP 130 3	**48.1**	20.8	62270	144	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**56.5**	17.7	67470	133	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**61.7**	16.2	64640	117	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**70.7**	14.2	69570	110	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**77.1**	13.0	66770	96	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**87.2**	11.5	69570	89	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**95.1**	10.5	66770	78	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 3	**108.3**	9.2	63140	65	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**111.2**	9.0	69570	71	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**121.4**	8.2	66770	62	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**139.0**	7.2	69570	57	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**151.7**	6.6	66770	50	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**176.7**	5.7	69570	45	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**192.9**	5.2	66770	39	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**217.9**	4.6	69570	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**237.9**	4.2	66770	32	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**274.5**	3.6	69570	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**299.6**	3.3	66770	25	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**348.9**	2.9	69570	23	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**380.9**	2.6	66770	19.9	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**469.8**	2.1	66770	16.1	—	—	—	—	—	—	—	—	—	—	—	—
HDP 130 4	**534.5**	1.9	63140	13.4	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary



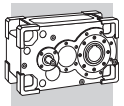
HDP 140

n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\ /\ R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	215	52740	1238	*	*	*	*	*	623		*	*	*	497	
HDP 140 2	**9.3**	195	58360	1238	*	*	*	*	*	632		*	*	*	506	
HDP 140 2	**9.9**	182	55720	1103	*	*	*	*	*	658		*	*	*	532	
HDP 140 2	**11.0**	164	61660	1103	*	*	*	*	*	665		*	*	*	539	
HDP 140 2	**13.0**	138	63200	953	*	*	457	*	458	701		*	*	415	575	
HDP 140 2	**14.4**	125	69940	953	*	*	462	385	463	706	⊖	*	*	420	580	⊖
HDP 140 2	**16.3**	111	71870	867	*	402	483	406	484	727		*	*	441	601	
HDP 140 2	**18.0**	100	77420	844	*	405	486	409	487	730		341	350	444	604	
HDP 140 2	**20.1**	90	67550	661	*	420	501	424	502	745		356	365	459	619	
HDP 140 2	**22.2**	81	74750	661	*	423	504	427	505	748		359	368	462	622	
HDP 140 2	**24.9**	72	82150	646	*	426	507	430	508	751		362	371	465	625	
HDP 140 3	**25.1**	72	71610	572	*	305	363	312	369	545	671	287	269	337	453	675
HDP 140 3	**27.7**	65	79250	572	*	306	364	313	370	546	672	288	270	338	454	676
HDP 140 3	**32.9**	55	80680	491	*	314	372	321	378	554	—	296	278	346	462	684
HDP 140 3	**36.4**	49	80850	445	195	315	373	322	379	555	—	297	279	347	463	—
HDP 140 3	**41.1**	44	80350	391	200	320	378	327	384	560	—	302	284	352	468	—
HDP 140 3	**45.5**	40	80850	356	200	320	378	327	384	—	—	302	284	352	468	—
HDP 140 3	**50.7**	35	74300	293	204	324	—	331	—	—	—	306	288	356	—	—
HDP 140 3	**56.2**	32	80850	288	204	324	—	331	—	—	—	306	288	—	—	—
HDP 140 3	**65.1**	27.7	82330	253	222	342	—	349	—	—	—	324	306	—	—	—
HDP 140 3	**72.0**	25.0	80850	225	222	342	—	349	—	—	—	324	306	—	—	—
HDP 140 3	**81.3**	22.1	81510	201	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	20.0	80850	180	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	17.9	74300	148	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	16.2	80850	146	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	14.4	73920	119	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	12.7	73370	106	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	11.3	81510	104	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	10.2	80850	93	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	9.1	74300	77	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	8.0	80850	73	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	7.2	74300	61	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	6.5	80850	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	5.7	81510	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	5.1	80850	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	4.5	81510	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	4.1	80850	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.6	74300	31	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

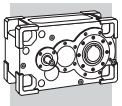


HDP 140 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	215	52740	1238	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.3**	195	58360	1238	*	*	*	*	*	*		*	*	*	*	
HDP 140 2	**9.9**	182	55720	1103	*	*	*	*	*	*		*	*	*	447	
HDP 140 2	**11.0**	164	61660	1103	*	*	*	*	*	*		*	*	*	453	
HDP 140 2	**13.0**	138	63200	953	*	*	*	*	*	395		*	*	*	489	
HDP 140 2	**14.4**	125	69940	953	*	*	*	*	*	400	⊖	*	*	*	494	⊖
HDP 140 2	**16.3**	111	71870	867	*	*	*	*	*	421		*	*	355	515	
HDP 140 2	**18.0**	100	77420	844	*	*	*	*	*	425		*	*	359	519	
HDP 140 2	**20.1**	90	67550	661	*	288	348	*	304	439		270	279	373	533	
HDP 140 2	**22.2**	81	74750	661	*	291	351	*	307	442		273	282	376	536	
HDP 140 2	**24.9**	72	82150	646	*	294	354	266	310	445		276	285	379	539	
HDP 140 3	**25.1**	72	71610	572	*	*	248	*	*	318	388	*	*	270	386	608
HDP 140 3	**27.7**	65	79250	572	*	*	250	*	*	320	390	*	*	272	388	610
HDP 140 3	**32.9**	55	80680	491	*	215	257	198	229	327	397	229	211	279	395	617
HDP 140 3	**36.4**	49	80850	445	*	216	258	199	230	328	398	230	212	280	396	618
HDP 140 3	**41.1**	44	80350	391	*	221	263	204	235	333	403	235	217	285	401	—
HDP 140 3	**45.5**	40	80850	356	*	222	264	205	236	334	404	236	218	286	402	—
HDP 140 3	**50.7**	35	74300	293	137	225	267	208	239	337	—	239	221	289	405	—
HDP 140 3	**56.2**	32	80850	288	138	226	268	209	240	338	—	240	222	290	—	—
HDP 140 3	**65.1**	27.7	82330	253	155	243	285	226	257	—	—	257	239	307	—	—
HDP 140 3	**72.0**	25.0	80850	225	155	243	—	226	—	—	—	257	239	—	—	—
HDP 140 3	**81.3**	22.1	81510	201	158	246	—	229	—	—	—	260	242	—	—	—
HDP 140 3	**90.0**	20.0	80850	180	158	246	—	229	—	—	—	260	242	—	—	—
HDP 140 3	**100.3**	17.9	74300	148	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	16.2	80850	146	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	14.4	73920	119	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	12.7	73370	106	96	163	—	151	—	—	—	174	162	—	—	—
HDP 140 4	**160.0**	11.3	81510	104	98	165	—	153	—	—	—	176	164	—	—	—
HDP 140 4	**177.0**	10.2	80850	93	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	9.1	74300	77	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	8.0	80850	73	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	7.2	74300	61	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	6.5	80850	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	5.7	81510	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	5.1	80850	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	4.5	81510	41	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	4.1	80850	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.6	74300	31	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

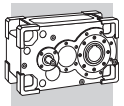


HDP 140 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	179	55710	1090	*	*	*	*	*	667		*	*	*	541	
HDP 140 2	**9.3**	162	61640	1090	*	*	*	*	*	674		*	*	*	548	
HDP 140 2	**9.9**	151	58850	971	*	*	417	*	451	694		*	*	408	568	
HDP 140 2	**11.0**	137	65130	971	*	*	423	*	457	700		*	*	414	574	
HDP 140 2	**13.0**	115	66760	839	*	380	450	406	484	727		338	347	441	601	
HDP 140 2	**14.4**	104	73870	839	*	384	454	410	488	731	⊖	342	351	445	605	⊖
HDP 140 2	**16.3**	92	75910	763	*	400	470	426	504	747		358	367	461	621	
HDP 140 2	**18.0**	83	81780	743	*	403	473	429	507	750		361	370	464	624	
HDP 140 2	**20.1**	75	71350	582	265	414	484	440	518	761		372	381	475	635	
HDP 140 2	**22.2**	68	78950	582	267	416	486	442	520	763		374	383	477	637	
HDP 140 2	**24.9**	60	82230	539	270	419	489	445	523	766		377	386	480	640	
HDP 140 3	**25.1**	60	75910	505	*	303	354	326	383	559	—	301	283	351	467	689
HDP 140 3	**27.7**	54	82930	499	200	304	355	327	384	560	—	302	284	352	468	690
HDP 140 3	**32.9**	46	84810	430	206	310	361	333	390	566	—	308	290	358	474	—
HDP 140 3	**36.4**	41	82330	377	207	311	362	334	391	—	—	309	291	359	475	—
HDP 140 3	**41.1**	36	84810	344	210	314	365	337	394	—	—	312	294	362	—	—
HDP 140 3	**45.5**	33	81890	300	211	315	—	338	—	—	—	313	295	363	—	—
HDP 140 3	**50.7**	29.6	82170	270	214	318	—	341	—	—	—	316	298	—	—	—
HDP 140 3	**56.2**	26.7	81510	242	214	318	—	341	—	—	—	316	298	—	—	—
HDP 140 3	**65.1**	23.1	84810	218	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	20.8	81100	188	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	18.4	84810	174	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	16.7	82200	152	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	15.0	82170	137	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	13.5	84850	128	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	12.0	78870	106	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	10.6	78480	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	9.4	84820	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	8.5	87060	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	7.6	81580	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	6.7	87060	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	6.0	81230	55	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	5.4	87060	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	4.7	84820	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	4.3	87060	42	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.7	84820	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.4	87060	33	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.0	82170	28	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

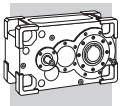


HDP 140 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	179	55710	1090	*	*	*	*	*	*		*	*	*	456	
HDP 140 2	**9.3**	162	61640	1090	*	*	*	*	*	*		*	*	*	462	
HDP 140 2	**9.9**	151	58850	971	*	*	*	*	*	388		*	*	*	482	
HDP 140 2	**11.0**	137	65130	971	*	*	*	*	*	394		*	*	*	488	
HDP 140 2	**13.0**	115	66760	839	*	*	*	*	*	421		*	*	355	515	
HDP 140 2	**14.4**	104	73870	839	*	*	*	*	*	425	⛔	*	*	359	519	⛔
HDP 140 2	**16.3**	92	75910	763	*	*	326	*	306	441		*	*	375	535	
HDP 140 2	**18.0**	83	81780	743	*	*	329	*	309	444		*	*	378	538	
HDP 140 2	**20.1**	75	71350	582	*	288	340	276	320	455		286	295	389	549	
HDP 140 2	**22.2**	68	78950	582	*	290	342	278	322	457		288	297	391	551	
HDP 140 2	**24.9**	60	82230	539	*	293	345	281	325	460		291	300	394	554	
HDP 140 3	**25.1**	60	75910	505	*	208	245	203	234	332	402	234	216	284	400	622
HDP 140 3	**27.7**	54	82930	499	*	210	247	205	236	334	404	236	218	286	402	624
HDP 140 3	**32.9**	46	84810	430	*	215	252	210	241	339	409	241	223	291	407	629
HDP 140 3	**36.4**	41	82330	377	*	216	253	211	242	340	410	242	224	292	408	—
HDP 140 3	**41.1**	36	84810	344	144	220	257	215	246	344	414	246	228	296	412	—
HDP 140 3	**45.5**	33	81890	300	144	220	257	215	246	344	—	246	228	296	412	—
HDP 140 3	**50.7**	29.6	82170	270	147	223	260	218	249	347	—	249	231	299	—	—
HDP 140 3	**56.2**	26.7	81510	242	148	224	261	219	250	—	—	250	232	300	—	—
HDP 140 3	**65.1**	23.1	84810	218	161	237	—	232	—	—	—	263	245	—	—	—
HDP 140 3	**72.0**	20.8	81100	188	161	237	—	232	—	—	—	263	245	—	—	—
HDP 140 3	**81.3**	18.4	84810	174	163	239	—	234	—	—	—	265	247	—	—	—
HDP 140 3	**90.0**	16.7	82200	152	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	15.0	82170	137	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	13.5	84850	128	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	12.0	78870	106	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	10.6	78480	94	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	9.4	84820	90	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	8.5	87060	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	7.6	81580	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	6.7	87060	66	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	6.0	81230	55	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	5.4	87060	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	4.7	84820	46	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	4.3	87060	42	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.7	84820	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	3.4	87060	33	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	3.0	82170	28	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

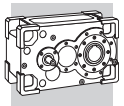


HDP 140 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	144	59560	932	*	*	401	379	457	700		*	*	414	574	
HDP 140 2	**9.3**	130	65910	932	*	*	406	384	462	705		*	*	419	579	
HDP 140 2	**9.9**	121	62930	831	*	359	422	400	478	721		*	341	435	595	
HDP 140 2	**11.0**	109	69630	831	*	363	426	404	482	725		336	345	439	599	
HDP 140 2	**13.0**	92	71380	718	*	384	447	425	503	746		357	366	460	620	
HDP 140 2	**14.4**	83	78980	718	*	387	450	428	506	749	⊖	360	369	463	623	⊖
HDP 140 2	**16.3**	74	81170	653	266	400	463	441	519	762		373	382	476	636	
HDP 140 2	**18.0**	67	83440	606	268	402	465	443	521	764		375	384	478	638	
HDP 140 2	**20.1**	60	76290	498	277	411	474	452	530	—		384	393	487	647	
HDP 140 2	**22.2**	54	82930	489	278	412	475	453	531	—		385	394	488	648	
HDP 140 2	**24.9**	48	82300	432	280	414	477	455	—	—		387	396	490	—	
HDP 140 3	**25.1**	48	77440	412	210	304	349	337	394	570	—	312	294	362	478	—
HDP 140 3	**27.7**	43	82440	397	211	305	350	338	395	571	—	313	295	363	479	—
HDP 140 3	**32.9**	36	84810	344	215	309	354	342	399	—	—	317	299	367	—	—
HDP 140 3	**36.4**	33	81890	300	216	310	—	343	—	—	—	318	300	368	—	—
HDP 140 3	**41.1**	29.2	84810	275	219	313	—	346	—	—	—	321	303	—	—	—
HDP 140 3	**45.5**	26.4	81480	239	219	313	—	346	—	—	—	321	303	—	—	—
HDP 140 3	**50.7**	23.6	82170	216	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	21.4	81140	193	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	18.4	84810	174	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	16.7	82200	152	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	14.8	84810	139	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	13.3	85020	126	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	12.0	82170	109	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	10.8	87060	105	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	9.6	78870	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	8.5	84370	81	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	7.5	84820	72	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	6.8	87060	67	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	6.1	81250	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	5.3	87060	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.8	80930	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	4.3	87060	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.8	84820	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	3.4	87060	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.0	84820	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.7	87060	27	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.4	82170	23	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

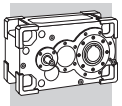


HDP 140 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	144	59560	932	*	*	*	*	*	394		*	*	*	488	
HDP 140 2	**9.3**	130	65910	932	*	*	*	*	*	399		*	*	*	493	
HDP 140 2	**9.9**	121	62930	831	*	*	*	*	*	415		*	*	349	509	
HDP 140 2	**11.0**	109	69630	831	*	*	*	*	*	419		*	*	353	513	
HDP 140 2	**13.0**	92	71380	718	*	*	309	*	305	440		*	*	374	534	
HDP 140 2	**14.4**	83	78980	718	*	*	312	*	308	443	⛔	*	*	377	537	⛔
HDP 140 2	**16.3**	74	81170	653	*	278	325	277	321	456		287	296	390	550	
HDP 140 2	**18.0**	67	83440	606	*	280	327	279	323	458		289	298	392	552	
HDP 140 2	**20.1**	60	76290	498	*	289	336	288	332	467		298	307	401	561	
HDP 140 2	**22.2**	54	82930	489	*	291	338	290	334	469		300	309	403	563	
HDP 140 2	**24.9**	48	82300	432	194	292	339	291	335	470		301	310	404	564	
HDP 140 3	**25.1**	48	77440	412	*	212	245	214	245	343	413	245	227	295	411	633
HDP 140 3	**27.7**	43	82440	397	*	213	246	215	246	344	414	246	228	296	412	—
HDP 140 3	**32.9**	36	84810	344	148	217	250	219	250	348	—	250	232	300	416	—
HDP 140 3	**36.4**	33	81890	300	149	218	251	220	251	349	—	251	233	301	—	—
HDP 140 3	**41.1**	29.2	84810	275	152	221	254	223	254	352	—	254	236	304	—	—
HDP 140 3	**45.5**	26.4	81480	239	152	221	254	223	254	—	—	254	236	304	—	—
HDP 140 3	**50.7**	23.6	82170	216	154	223	—	225	—	—	—	256	238	—	—	—
HDP 140 3	**56.2**	21.4	81140	193	155	224	—	226	—	—	—	257	239	—	—	—
HDP 140 3	**65.1**	18.4	84810	174	165	234	—	236	—	—	—	267	249	—	—	—
HDP 140 3	**72.0**	16.7	82200	152	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	14.8	84810	139	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	13.3	85020	126	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	12.0	82170	109	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	10.8	87060	105	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	9.6	78870	84	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	8.5	84370	81	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	7.5	84820	72	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	6.8	87060	67	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	6.1	81250	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	5.3	87060	53	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.8	80930	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	4.3	87060	43	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.8	84820	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	3.4	87060	34	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	3.0	84820	29	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.7	87060	27	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.4	82170	23	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

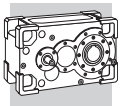


HDP 140 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDP 140 2	**8.4**	120	62910	821	*	330	380	401	479	722		333	342	436	596	
HDP 140 2	**9.3**	108	69620	821	*	334	384	405	483	726		337	346	440	600	
HDP 140 2	**9.9**	101	66470	731	*	347	397	418	496	739		350	359	453	613	
HDP 140 2	**11.0**	91	73550	731	*	350	400	421	499	742		353	362	456	616	
HDP 140 2	**13.0**	77	75390	632	263	367	417	438	516	759		370	379	473	633	
HDP 140 2	**14.4**	69	83420	632	266	370	420	441	519	762	⊖	373	382	476	636	⊖
HDP 140 2	**16.3**	61	85730	575	276	380	430	451	529	772		383	392	486	646	
HDP 140 2	**18.0**	56	83000	503	278	382	432	453	531	—		385	394	488	648	
HDP 140 2	**20.1**	50	80570	438	285	389	439	460	—	—		392	401	495	—	
HDP 140 2	**22.2**	45	82520	405	286	390	440	461	—	—		393	402	496	—	
HDP 140 2	**24.9**	40	82350	360	288	392	—	463	—	—		395	404	—	—	
HDP 140 3	**25.1**	40	77440	344	217	290	325	344	—	—	—	319	301	369	—	—
HDP 140 3	**27.7**	36	82060	329	218	291	326	345	—	—	—	320	302	370	—	—
HDP 140 3	**32.9**	30	84810	287	221	294	—	348	—	—	—	323	305	—	—	—
HDP 140 3	**36.4**	27.5	81560	249	222	295	—	349	—	—	—	324	306	—	—	—
HDP 140 3	**41.1**	24.3	84810	229	224	297	—	351	—	—	—	326	308	—	—	—
HDP 140 3	**45.5**	22.0	81180	198	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**50.7**	19.7	82170	180	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**56.2**	17.8	81390	161	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**65.1**	15.4	84810	145	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	13.9	84490	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	12.3	84810	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	11.1	87060	108	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	10.0	82030	91	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	9.0	87060	87	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	8.0	78870	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	7.1	87060	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	6.3	84820	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	5.6	87060	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	5.1	81010	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.4	87060	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.0	81280	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	3.6	87060	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.2	84820	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	2.9	87060	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.5	84820	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.3	87060	22	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.0	82170	18.8	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

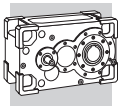


HDP 140 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 140 2	**8.4**	120	62910	821	*	*	*	*	*	416		*	*	350	510	
HDP 140 2	**9.3**	108	69620	821	*	*	*	*	*	420		*	*	354	514	
HDP 140 2	**9.9**	101	66470	731	*	*	*	*	298	433		*	*	367	527	
HDP 140 2	**11.0**	91	73550	731	*	*	*	*	301	436		*	*	370	530	
HDP 140 2	**13.0**	77	75390	632	*	254	291	275	319	454		285	294	388	548	
HDP 140 2	**14.4**	69	83420	632	*	256	293	277	321	456	⛔	287	296	390	550	⛔
HDP 140 2	**16.3**	61	85730	575	*	266	303	287	331	466		297	306	400	560	
HDP 140 2	**18.0**	56	83000	503	*	268	305	289	333	468		299	308	402	562	
HDP 140 2	**20.1**	50	80570	438	199	275	312	296	340	475		306	315	409	569	
HDP 140 2	**22.2**	45	82520	405	200	276	313	297	341	476		307	316	410	—	
HDP 140 2	**24.9**	40	82350	360	202	278	315	299	343	478		309	318	412	—	
HDP 140 3	**25.1**	40	77440	344	150	203	229	221	252	350	—	252	234	302	418	—
HDP 140 3	**27.7**	36	82060	329	151	204	230	222	253	351	—	253	235	303	419	—
HDP 140 3	**32.9**	30	84810	287	155	208	234	226	257	355	—	257	239	307	—	—
HDP 140 3	**36.4**	27.5	81560	249	155	208	234	226	257	—	—	257	239	307	—	—
HDP 140 3	**41.1**	24.3	84810	229	157	210	236	228	259	—	—	259	241	—	—	—
HDP 140 3	**45.5**	22.0	81180	198	158	211	—	229	—	—	—	260	242	—	—	—
HDP 140 3	**50.7**	19.7	82170	180	159	212	—	230	—	—	—	261	243	—	—	—
HDP 140 3	**56.2**	17.8	81390	161	160	213	—	231	—	—	—	262	244	—	—	—
HDP 140 3	**65.1**	15.4	84810	145	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**72.0**	13.9	84490	131	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**81.3**	12.3	84810	116	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**90.0**	11.1	87060	108	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**100.3**	10.0	82030	91	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**111.0**	9.0	87060	87	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 3	**124.7**	8.0	78870	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**141.6**	7.1	87060	70	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**160.0**	6.3	84820	60	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**177.0**	5.6	87060	56	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**197.3**	5.1	81010	47	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**225.0**	4.4	87060	44	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**250.8**	4.0	81280	37	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**277.5**	3.6	87060	36	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**315.9**	3.2	84820	30	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**349.6**	2.9	87060	28	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**401.6**	2.5	84820	24	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**444.4**	2.3	87060	22	—	—	—	—	—	—	—	—	—	—	—	—
HDP 140 4	**495.3**	2.0	82170	18.8	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

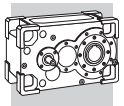


HDP 150 — n_1 = 1800 min^{-1}

					t_a = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	228	74450	1848	*	*	*	*	*	*	794		*	*	*	799	
HDP 150 2	**9.3**	194	87230	1848	*	*	*	*	*	*	813		*	*	*	818	
HDP 150 2	**10.1**	178	92670	1803	*	*	*	*	*	*	821		*	*	*	826	
HDP 150 2	**11.1**	163	91890	1630	*	*	*	*	*	716	891		*	*	*	896	
HDP 150 2	**13.0**	139	100380	1520	*	*	*	*	*	728	903	●	*	*	*	908	●
HDP 150 2	**14.1**	128	102730	1428	*	*	*	*	*	733	908		*	*	607	913	
HDP 150 2	**15.4**	117	97390	1244	*	*	590	*	535	778	953		*	*	652	958	
HDP 150 2	**18.0**	100	111710	1217	*	505	598	*	543	786	961		*	500	660	966	
HDP 150 2	**19.6**	92	110820	1109	*	508	601	468	546	789	964		*	503	663	969	
HDP 150 3	**21.5**	84	87340	813	*	353	418	333	390	566	692	756	*	358	474	696	906
HDP 150 3	**25.2**	71	102350	813	*	357	422	337	394	570	696	760	*	362	478	700	910
HDP 150 3	**27.4**	66	109620	800	*	359	424	339	396	572	698	762	*	364	480	702	912
HDP 150 3	**29.9**	60	117200	785	*	371	436	351	408	584	710	774	*	376	492	714	924
HDP 150 3	**35.0**	51	112560	644	*	373	438	353	410	586	712	—	310	378	494	716	—
HDP 150 3	**38.1**	47	108590	570	*	375	440	355	412	588	—	—	312	380	496	718	—
HDP 150 3	**43.5**	41	117200	540	265	412	477	392	449	625	—	—	349	417	533	755	—
HDP 150 3	**50.9**	35	111470	438	267	414	479	394	451	—	—	—	351	419	535	—	—
HDP 150 3	**55.5**	32	107560	388	267	414	—	394	—	—	—	—	351	419	—	—	—
HDP 150 3	**60.4**	29.8	117200	389	273	420	—	400	—	—	—	—	357	425	—	—	—
HDP 150 3	**70.8**	25.4	110640	313	274	421	—	401	—	—	—	—	358	—	—	—	—
HDP 150 3	**77.0**	23.4	106780	278	274	421	—	401	—	—	—	—	358	—	—	—	—
HDP 150 4	**89.0**	20.2	110220	253	191	303	—	291	—	—	—	—	257	—	—	—	—
HDP 150 4	**104.3**	17.3	111430	218	191	303	—	291	—	—	—	—	257	—	—	—	—
HDP 150 4	**113.6**	15.9	109050	196	192	304	—	292	—	—	—	—	258	—	—	—	—
HDP 150 4	**123.6**	14.6	117200	194	193	305	—	293	—	—	—	—	259	—	—	—	—
HDP 150 4	**144.9**	12.4	117090	165	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	11.4	114590	148	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	10.5	114510	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	9.0	117090	119	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	8.3	114780	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	7.6	117200	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	6.5	117090	86	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	5.9	114780	77	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDP 150 — n_1 = 1800 min^{-1}

					t_a = 40°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\ /\ R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	228	74450	1848	*	*	*	*	*	*	*	●	*	*	*	*	●
HDP 150 2	**9.3**	194	87230	1848	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**10.1**	178	92670	1803	*	*	*	*	*	*	*		*	*	*	*	
HDP 150 2	**11.1**	163	91890	1630	*	*	*	*	*	*	*		*	*	*	785	
HDP 150 2	**13.0**	139	100380	1520	*	*	*	*	*	*	*		*	*	*	797	
HDP 150 2	**14.1**	128	102730	1428	*	*	*	*	*	*	*		*	*	*	803	
HDP 150 2	**15.4**	117	97390	1244	*	*	*	*	*	*	544		*	*	541	847	
HDP 150 2	**18.0**	100	111710	1217	*	*	*	*	*	*	552		*	*	549	855	
HDP 150 2	**19.6**	92	110820	1109	*	*	*	*	*	459	556		*	*	553	859	
HDP 150 3	**21.5**	84	87340	813	*	*	*	*	*	*	391	421	*	*	389	611	821
HDP 150 3	**25.2**	71	102350	813	*	*	*	*	*	*	395	425	*	*	393	615	825
HDP 150 3	**27.4**	66	109620	800	*	*	*	*	*	327	397	427	*	*	395	617	827
HDP 150 3	**29.9**	60	117200	785	*	*	*	*	*	339	409	439	*	*	407	629	839
HDP 150 3	**35.0**	51	112560	644	*	*	297	*	*	342	412	442	*	294	410	632	842
HDP 150 3	**38.1**	47	108590	570	*	251	298	*	245	343	413	443	*	295	411	633	—
HDP 150 3	**43.5**	41	117200	540	*	288	335	251	282	380	450	480	264	332	448	670	—
HDP 150 3	**50.9**	35	111470	438	182	290	337	253	284	382	452	—	266	334	450	—	—
HDP 150 3	**55.5**	32	107560	388	183	291	338	254	285	383	453	—	267	335	451	—	—
HDP 150 3	**60.4**	29.8	117200	389	188	296	343	259	290	388	458	—	272	340	456	—	—
HDP 150 3	**70.8**	25.4	110640	313	189	297	344	260	291	389	—	—	273	341	—	—	—
HDP 150 3	**77.0**	23.4	106780	278	190	298	—	261	292	—	—	—	274	342	—	—	—
HDP 150 4	**89.0**	20.2	110220	253	126	208	244	181	206	283	—	—	192	245	336	—	—
HDP 150 4	**104.3**	17.3	111430	218	127	209	245	182	207	284	—	—	193	246	—	—	—
HDP 150 4	**113.6**	15.9	109050	196	127	209	—	182	207	—	—	—	193	246	—	—	—
HDP 150 4	**123.6**	14.6	117200	194	129	211	—	184	209	—	—	—	195	—	—	—	—
HDP 150 4	**144.9**	12.4	117090	165	129	211	—	184	—	—	—	—	195	—	—	—	—
HDP 150 4	**157.8**	11.4	114590	148	129	211	—	184	—	—	—	—	195	—	—	—	—
HDP 150 4	**170.9**	10.5	114510	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	9.0	117090	119	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	8.3	114780	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	7.6	117200	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	6.5	117090	86	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	5.9	114780	77	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

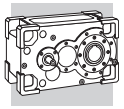
HDP 150

n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	190	78630	1627	*	*	*	*	*	685	860	◐	*	*	*	865	◐
HDP 150 2	**9.3**	162	92140	1627	*	*	*	*	*	700	875		*	*	*	880	
HDP 150 2	**10.1**	149	97880	1587	*	*	*	*	*	706	881		*	*	*	886	
HDP 150 2	**11.1**	136	97060	1435	*	*	*	*	*	760	935		*	*	634	940	
HDP 150 2	**13.0**	116	106020	1338	*	*	541	*	*	769	944		*	*	643	949	
HDP 150 2	**14.1**	106	108500	1257	*	*	545	*	530	773	948		*	*	647	953	
HDP 150 2	**15.4**	98	102870	1095	*	498	579	486	564	807	982		*	521	681	987	
HDP 150 2	**18.0**	83	114210	1037	*	504	585	492	570	813	988		433	527	687	993	
HDP 150 2	**19.6**	76	110150	919	*	507	588	495	573	816	991		436	530	690	996	
HDP 150 3	**21.5**	70	92560	718	*	359	415	358	415	591	717	781	315	383	499	721	—
HDP 150 3	**25.2**	60	108460	718	*	362	418	361	418	594	720	—	318	386	502	724	—
HDP 150 3	**27.4**	55	109030	663	*	363	419	362	419	595	721	—	319	387	503	725	—
HDP 150 3	**29.9**	50	117200	654	*	373	429	372	429	605	731	—	329	397	513	735	—
HDP 150 3	**35.0**	43	112010	534	247	375	431	374	431	607	—	—	331	399	515	737	—
HDP 150 3	**38.1**	39	108070	473	247	375	431	374	431	607	—	—	331	399	515	—	—
HDP 150 3	**43.5**	35	117200	450	276	404	460	403	460	—	—	—	360	428	544	—	—
HDP 150 3	**50.9**	29.5	111000	364	278	406	—	405	—	—	—	—	362	430	—	—	—
HDP 150 3	**55.5**	27.0	107110	322	278	406	—	405	—	—	—	—	362	—	—	—	—
HDP 150 3	**60.4**	24.8	117200	324	282	410	—	409	—	—	—	—	366	—	—	—	—
HDP 150 3	**70.8**	21.2	110230	260	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	19.5	106390	230	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	16.9	116800	224	202	299	—	302	—	—	—	—	268	—	—	—	—
HDP 150 4	**104.3**	14.4	116060	190	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	13.2	112070	168	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	12.1	117200	161	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	10.4	117090	138	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	9.5	114780	124	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	8.8	116800	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	7.5	117090	100	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	6.9	114780	90	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	6.3	117200	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	5.4	117090	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.9	114780	64	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

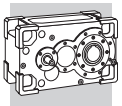


HDP 150 — n_1 = 1500 min^{-1}

					t_a = 40°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\ /\ R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	190	78630	1627	*	*	*	*	*	*	*	◐	*	*	*	755	◐
HDP 150 2	**9.3**	162	92140	1627	*	*	*	*	*	*	*		*	*	*	769	
HDP 150 2	**10.1**	149	97880	1587	*	*	*	*	*	*	*		*	*	*	775	
HDP 150 2	**11.1**	136	97060	1435	*	*	*	*	*	*	*		*	*	*	829	
HDP 150 2	**13.0**	116	106020	1338	*	*	*	*	*	*	535		*	*	*	838	
HDP 150 2	**14.1**	106	108500	1257	*	*	*	*	*	*	539		*	*	536	842	
HDP 150 2	**15.4**	98	102870	1095	*	*	*	*	*	477	574		*	*	571	877	
HDP 150 2	**18.0**	83	114210	1037	*	*	*	*	*	483	580		*	417	577	883	
HDP 150 2	**19.6**	76	110150	919	*	*	406	*	*	485	582		*	419	579	885	
HDP 150 3	**21.5**	70	92560	718	*	*	*	*	*	346	416	446	*	298	414	636	846
HDP 150 3	**25.2**	60	108460	718	*	*	*	*	*	349	419	449	*	301	417	639	849
HDP 150 3	**27.4**	55	109030	663	*	*	285	*	*	350	420	450	*	302	418	640	850
HDP 150 3	**29.9**	50	117200	654	*	*	295	*	262	360	430	460	*	312	428	650	860
HDP 150 3	**35.0**	43	112010	534	*	256	297	233	264	362	432	462	246	314	430	652	—
HDP 150 3	**38.1**	39	108070	473	*	257	298	234	265	363	433	463	247	315	431	653	—
HDP 150 3	**43.5**	35	117200	450	191	285	326	262	293	391	461	—	275	343	459	—	—
HDP 150 3	**50.9**	29.5	111000	364	193	287	328	264	295	393	—	—	277	345	461	—	—
HDP 150 3	**55.5**	27.0	107110	322	193	287	328	264	295	393	—	—	277	345	—	—	—
HDP 150 3	**60.4**	24.8	117200	324	197	291	332	268	299	397	—	—	281	349	—	—	—
HDP 150 3	**70.8**	21.2	110230	260	198	292	—	269	—	—	—	—	282	—	—	—	—
HDP 150 3	**77.0**	19.5	106390	230	199	293	—	270	—	—	—	—	283	—	—	—	—
HDP 150 4	**89.0**	16.9	116800	224	137	208	240	192	217	294	—	—	203	256	—	—	—
HDP 150 4	**104.3**	14.4	116060	190	138	209	—	193	—	—	—	—	204	—	—	—	—
HDP 150 4	**113.6**	13.2	112070	168	138	209	—	193	—	—	—	—	204	—	—	—	—
HDP 150 4	**123.6**	12.1	117200	161	139	210	—	194	—	—	—	—	205	—	—	—	—
HDP 150 4	**144.9**	10.4	117090	138	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	9.5	114780	124	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	8.8	116800	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	7.5	117090	100	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	6.9	114780	90	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	6.3	117200	84	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	5.4	117090	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.9	114780	64	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



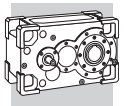
HDP 150

n_1 = 1200 min^{-1}

					t_a = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	152	84080	1392	*	*	*	*	*	735	910		*	*	609	915	
HDP 150 2	**9.3**	130	98520	1392	*	*	*	*	*	746	921		*	*	620	926	
HDP 150 2	**10.1**	119	104660	1357	*	*	*	*	*	751	926		*	*	625	931	
HDP 150 2	**11.1**	108	103780	1227	*	*	538	*	550	793	968		*	507	667	973	
HDP 150 2	**13.0**	93	113360	1144	*	472	545	479	557	800	975	●	*	514	674	980	●
HDP 150 2	**14.1**	85	110530	1024	*	475	548	482	560	803	978		423	517	677	983	
HDP 150 2	**15.4**	78	109990	936	*	501	574	508	586	829	1004		449	543	703	1009	
HDP 150 2	**18.0**	67	113410	824	338	506	579	513	591	834	—		454	548	708	1014	
HDP 150 2	**19.6**	61	109400	730	340	508	581	515	593	836	—		456	550	710	1016	
HDP 150 3	**21.5**	56	98970	614	250	365	416	377	434	610	736	—	334	402	518	740	—
HDP 150 3	**25.2**	48	112320	595	252	367	418	379	436	612	—	—	336	404	520	742	—
HDP 150 3	**27.4**	44	108370	527	253	368	419	380	437	613	—	—	337	405	521	743	—
HDP 150 3	**29.9**	40	117200	524	260	375	426	387	444	620	—	—	344	412	528	—	—
HDP 150 3	**35.0**	34	111390	425	262	377	428	389	446	—	—	—	346	414	530	—	—
HDP 150 3	**38.1**	31	107480	376	262	377	—	389	—	—	—	—	346	414	—	—	—
HDP 150 3	**43.5**	27.6	117200	360	285	400	—	412	—	—	—	—	369	—	—	—	—
HDP 150 3	**50.9**	23.6	110470	290	286	401	—	413	—	—	—	—	370	—	—	—	—
HDP 150 3	**55.5**	21.6	106610	257	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	19.9	117200	259	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	17.0	113250	214	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	15.6	109330	189	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	13.5	116800	179	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	11.5	117090	153	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	10.6	114780	138	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	9.7	117200	129	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	8.3	117090	110	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	7.6	114780	99	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	7.0	116800	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	6.0	117090	80	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	5.5	114780	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	5.1	117200	67	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	4.3	117090	57	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.0	114780	52	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDP 150 — n_1 = 1200 min^{-1}

					t_a = 40°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	152	84080	1392	*	*	*	*	*	*	*	◐	*	*	*	804	◐
HDP 150 2	**9.3**	130	98520	1392	*	*	*	*	*	*	*		*	*	*	815	
HDP 150 2	**10.1**	119	104660	1357	*	*	*	*	*	*	*		*	*	*	820	
HDP 150 2	**11.1**	108	103780	1227	*	*	*	*	*	*	559		*	*	556	862	
HDP 150 2	**13.0**	93	113360	1144	*	*	*	*	*	469	566		*	*	563	869	
HDP 150 2	**14.1**	85	110530	1024	*	*	*	*	*	472	569		*	*	566	872	
HDP 150 2	**15.4**	78	109990	936	*	*	400	*	*	499	596		*	433	593	899	
HDP 150 2	**18.0**	67	113410	824	*	350	404	*	368	503	600		343	437	597	903	
HDP 150 2	**19.6**	61	109400	730	*	353	407	327	371	506	603		346	440	600	906	
HDP 150 3	**21.5**	56	98970	614	*	250	286	*	267	365	435	465	249	317	433	655	—
HDP 150 3	**25.2**	48	112320	595	*	252	288	238	269	367	437	467	251	319	435	657	—
HDP 150 3	**27.4**	44	108370	527	*	253	289	239	270	368	438	468	252	320	436	658	—
HDP 150 3	**29.9**	40	117200	524	*	260	296	246	277	375	445	475	259	327	443	665	—
HDP 150 3	**35.0**	34	111390	425	177	262	298	248	279	377	447	—	261	329	445	—	—
HDP 150 3	**38.1**	31	107480	376	178	263	299	249	280	378	—	—	262	330	446	—	—
HDP 150 3	**43.5**	27.6	117200	360	200	285	321	271	302	400	—	—	284	352	468	—	—
HDP 150 3	**50.9**	23.6	110470	290	201	286	322	272	303	—	—	—	285	353	—	—	—
HDP 150 3	**55.5**	21.6	106610	257	201	286	—	272	—	—	—	—	285	—	—	—	—
HDP 150 3	**60.4**	19.9	117200	259	205	290	—	276	—	—	—	—	289	—	—	—	—
HDP 150 3	**70.8**	17.0	113250	214	205	290	—	276	—	—	—	—	289	—	—	—	—
HDP 150 3	**77.0**	15.6	109330	189	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	13.5	116800	179	146	210	—	201	—	—	—	—	212	—	—	—	—
HDP 150 4	**104.3**	11.5	117090	153	146	210	—	201	—	—	—	—	212	—	—	—	—
HDP 150 4	**113.6**	10.6	114780	138	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	9.7	117200	129	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	8.3	117090	110	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	7.6	114780	99	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	7.0	116800	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	6.0	117090	80	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	5.5	114780	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	5.1	117200	67	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	4.3	117090	57	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	4.0	114780	52	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

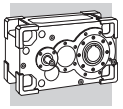
HDP 150

n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C												
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 150 2	**7.9**	126	88800	1225	*	*	*	*	525	768	943		*	*	642	948	
HDP 150 2	**9.3**	108	104050	1225	*	*	*	*	534	777	952		*	491	651	957	
HDP 150 2	**10.1**	99	110540	1195	*	*	*	*	538	781	956		*	495	655	961	
HDP 150 2	**11.1**	90	109610	1080	*	449	506	493	571	814	989		434	528	688	994	
HDP 150 2	**13.0**	77	113930	958	*	455	512	499	577	820	995	●	440	534	694	1000	●
HDP 150 2	**14.1**	71	109890	849	*	458	515	502	580	823	998		443	537	697	1003	
HDP 150 2	**15.4**	65	116170	824	348	479	536	523	601	844	—		464	558	718	1024	
HDP 150 2	**18.0**	56	112810	683	352	483	540	527	605	848	—		468	562	722	—	
HDP 150 2	**19.6**	51	108820	605	354	485	542	529	607	—	—		470	564	724	—	
HDP 150 3	**21.5**	46	104540	541	262	352	391	389	446	622	—	—	346	414	530	752	—
HDP 150 3	**25.2**	40	111790	493	264	354	393	391	448	624	—	—	348	416	532	—	—
HDP 150 3	**27.4**	36	107860	437	265	355	394	392	449	—	—	—	349	417	533	—	—
HDP 150 3	**29.9**	33	117200	436	271	361	400	398	455	—	—	—	355	423	539	—	—
HDP 150 3	**35.0**	28.6	110920	352	272	362	—	399	—	—	—	—	356	—	—	—	—
HDP 150 3	**38.1**	26.2	107040	312	272	362	—	399	—	—	—	—	356	—	—	—	—
HDP 150 3	**43.5**	23.0	117200	300	290	380	—	417	—	—	—	—	374	—	—	—	—
HDP 150 3	**50.9**	19.6	110840	242	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**55.5**	18.0	106990	215	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**60.4**	16.6	117200	216	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**70.8**	14.1	116370	183	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	13.0	112360	162	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	11.2	116800	149	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	9.6	117090	127	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	8.8	114780	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	8.1	117200	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	6.9	117090	92	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	6.3	114780	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	5.8	116800	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	5.0	117090	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	4.6	114780	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	4.2	117200	56	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	3.6	117090	48	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.3	114780	43	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDP 150 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C												
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 150 2	**7.9**	126	88800	1225	*	*	*	*	*	*	534	◐	*	*	531	837	◐
HDP 150 2	**9.3**	108	104050	1225	*	*	*	*	*	*	543		*	*	540	846	
HDP 150 2	**10.1**	99	110540	1195	*	*	*	*	*	*	547		*	*	544	850	
HDP 150 2	**11.1**	90	109610	1080	*	*	*	*	*	484	581		*	*	578	884	
HDP 150 2	**13.0**	77	113930	958	*	*	*	*	*	489	586		*	423	583	889	
HDP 150 2	**14.1**	71	109890	849	*	*	354	*	357	492	589		*	426	586	892	
HDP 150 2	**15.4**	65	116170	824	*	333	375	334	378	513	610		353	447	607	913	
HDP 150 2	**18.0**	56	112810	683	*	337	379	338	382	517	614		357	451	611	917	
HDP 150 2	**19.6**	51	108820	605	243	339	381	340	384	519	616		359	453	613	—	
HDP 150 3	**21.5**	46	104540	541	*	243	271	248	279	377	447	477	261	329	445	667	—
HDP 150 3	**25.2**	40	111790	493	*	245	273	250	281	379	449	479	263	331	447	669	—
HDP 150 3	**27.4**	36	107860	437	180	246	274	251	282	380	450	—	264	332	448	—	—
HDP 150 3	**29.9**	33	117200	436	186	252	280	257	288	386	456	—	270	338	454	—	—
HDP 150 3	**35.0**	28.6	110920	352	187	253	281	258	289	387	—	—	271	339	455	—	—
HDP 150 3	**38.1**	26.2	107040	312	188	254	282	259	290	388	—	—	272	340	—	—	—
HDP 150 3	**43.5**	23.0	117200	300	206	272	300	277	308	—	—	—	290	358	—	—	—
HDP 150 3	**50.9**	19.6	110840	242	206	272	—	277	—	—	—	—	290	—	—	—	—
HDP 150 3	**55.5**	18.0	106990	215	207	273	—	278	—	—	—	—	291	—	—	—	—
HDP 150 3	**60.4**	16.6	117200	216	209	275	—	280	—	—	—	—	293	—	—	—	—
HDP 150 3	**70.8**	14.1	116370	183	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 3	**77.0**	13.0	112360	162	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**89.0**	11.2	116800	149	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**104.3**	9.6	117090	127	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**113.6**	8.8	114780	115	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**123.6**	8.1	117200	108	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**144.9**	6.9	117090	92	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**157.8**	6.3	114780	83	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**170.9**	5.8	116800	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**200.3**	5.0	117090	66	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**218.1**	4.6	114780	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**237.5**	4.2	117200	56	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**278.3**	3.6	117090	48	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 150 4	**303.1**	3.3	114780	43	—	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

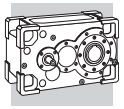
HDP 160

n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C												
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 160 2	**9.0**	201	84540	1848	*	*	*	*	*	*	796		*	*	*	801	
HDP 160 2	**10.5**	172	98670	1848	*	*	*	*	*	*	818		*	*	*	823	
HDP 160 2	**11.4**	158	104630	1803	*	*	*	*	*	*	829		*	*	*	834	
HDP 160 2	**12.6**	143	104350	1630	*	*	*	*	*	727	902		*	*	*	907	
HDP 160 2	**14.7**	123	113510	1519	*	*	*	*	*	741	916	●	*	*	615	921	●
HDP 160 2	**15.9**	113	115960	1428	*	*	*	*	*	748	923		*	*	622	928	
HDP 160 2	**17.5**	103	110600	1244	*	513	606	*	551	794	969		*	508	668	974	
HDP 160 2	**20.4**	88	126330	1217	*	523	616	*	561	804	979		*	518	678	984	
HDP 160 2	**22.1**	81	128970	1143	*	527	620	487	565	808	983		*	522	682	988	
HDP 160 3	**24.4**	74	99160	813	*	366	431	346	403	579	705	769	*	371	487	709	919
HDP 160 3	**28.5**	63	115770	813	*	371	436	351	408	584	710	774	*	376	492	714	924
HDP 160 3	**31.0**	58	125840	813	*	373	438	353	410	586	712	776	*	378	494	716	926
HDP 160 3	**33.9**	53	134250	792	*	386	451	366	423	599	725	789	323	391	507	729	939
HDP 160 3	**39.6**	45	146300	740	*	388	453	368	425	601	727	791	325	393	509	731	941
HDP 160 3	**43.1**	42	139210	647	*	390	455	370	427	603	729	—	327	395	511	733	—
HDP 160 3	**49.4**	36	133700	543	281	428	493	408	465	641	—	—	365	433	549	—	—
HDP 160 3	**57.6**	31	145030	504	283	430	495	410	467	643	—	—	367	435	551	—	—
HDP 160 3	**62.6**	28.7	137880	441	284	431	496	411	468	—	—	—	368	436	552	—	—
HDP 160 3	**68.6**	26.3	143440	419	289	436	—	416	473	—	—	—	373	441	—	—	—
HDP 160 3	**80.0**	22.5	144680	362	290	437	—	417	—	—	—	—	374	—	—	—	—
HDP 160 3	**87.0**	20.7	136870	315	291	438	—	418	—	—	—	—	375	—	—	—	—
HDP 160 4	**101.1**	17.8	125180	253	204	316	—	304	—	—	—	—	270	—	—	—	—
HDP 160 4	**117.9**	15.3	146130	253	205	317	—	305	—	—	—	—	271	—	—	—	—
HDP 160 4	**128.2**	14.0	137000	218	205	317	—	305	—	—	—	—	271	—	—	—	—
HDP 160 4	**140.4**	12.8	142990	208	207	319	—	307	—	—	—	—	273	—	—	—	—
HDP 160 4	**163.9**	11.0	146300	182	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	10.1	146860	168	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	9.3	130070	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	7.9	146300	132	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	7.3	147070	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	6.7	141000	107	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	5.7	146300	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	5.3	147070	88	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

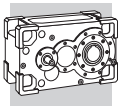


HDP 160 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C												
					P_T	$P_{TFANL\ /\ R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 160 2	**9.0**	201	84540	1848	*	*	*	*	*	*	*	◐	*	*	*	*	◐
HDP 160 2	**10.5**	172	98670	1848	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**11.4**	158	104630	1803	*	*	*	*	*	*	*		*	*	*	*	
HDP 160 2	**12.6**	143	104350	1630	*	*	*	*	*	*	*		*	*	*	789	
HDP 160 2	**14.7**	123	113510	1519	*	*	*	*	*	*	*		*	*	*	803	
HDP 160 2	**15.9**	113	115960	1428	*	*	*	*	*	*	*		*	*	*	810	
HDP 160 2	**17.5**	103	110600	1244	*	*	*	*	*	*	553		*	*	550	856	
HDP 160 2	**20.4**	88	126330	1217	*	*	*	*	*	*	563		*	*	560	866	
HDP 160 2	**22.1**	81	128970	1143	*	*	*	*	*	470	567		*	*	564	870	
HDP 160 3	**24.4**	74	99160	813	*	*	*	*	*	330	400	430	*	*	398	620	830
HDP 160 3	**28.5**	63	115770	813	*	*	*	*	*	334	404	434	*	*	402	624	834
HDP 160 3	**31.0**	58	125840	813	*	*	*	*	*	336	406	436	*	*	404	626	836
HDP 160 3	**33.9**	53	134250	792	*	*	*	*	*	349	419	449	*	*	417	639	849
HDP 160 3	**39.6**	45	146300	740	*	*	307	*	*	352	422	452	*	304	420	642	852
HDP 160 3	**43.1**	42	139210	647	*	261	308	*	*	353	423	453	*	305	421	643	853
HDP 160 3	**49.4**	36	133700	543	*	299	346	262	293	391	461	491	275	343	459	681	—
HDP 160 3	**57.6**	31	145030	504	*	301	348	264	295	393	463	493	277	345	461	683	—
HDP 160 3	**62.6**	28.7	137880	441	194	302	349	265	296	394	464	—	278	346	462	—	—
HDP 160 3	**68.6**	26.3	143440	419	199	307	354	270	301	399	469	—	283	351	467	—	—
HDP 160 3	**80.0**	22.5	144680	362	201	309	356	272	303	401	—	—	285	353	469	—	—
HDP 160 3	**87.0**	20.7	136870	315	201	309	356	272	303	401	—	—	285	353	—	—	—
HDP 160 4	**101.1**	17.8	125180	253	136	218	254	191	216	293	—	—	202	255	—	—	—
HDP 160 4	**117.9**	15.3	146130	253	136	218	254	191	216	293	—	—	202	255	—	—	—
HDP 160 4	**128.2**	14.0	137000	218	137	219	—	192	217	294	—	—	203	256	—	—	—
HDP 160 4	**140.4**	12.8	142990	208	139	221	—	194	219	—	—	—	205	258	—	—	—
HDP 160 4	**163.9**	11.0	146300	182	139	221	—	194	—	—	—	—	205	—	—	—	—
HDP 160 4	**178.1**	10.1	146860	168	139	221	—	194	—	—	—	—	205	—	—	—	—
HDP 160 4	**194.1**	9.3	130070	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	7.9	146300	132	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	7.3	147070	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	6.7	141000	107	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	5.7	146300	95	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	5.3	147070	88	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

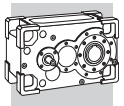


HDP 160 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C												
		[min^{-1}]	[Nm]	[kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 160 2	**9.0**	167	89290	1627	*	*	*	*	*	693	868		*	*	*	873	
HDP 160 2	**10.5**	143	104220	1627	*	*	*	*	*	710	885		*	*	*	890	
HDP 160 2	**11.4**	132	110510	1587	*	*	*	*	*	718	893		*	*	*	898	
HDP 160 2	**12.6**	119	110220	1435	*	*	*	*	*	775	950		*	*	649	955	
HDP 160 2	**14.7**	102	119890	1337	*	*	558	*	543	786	961	◐	*	*	660	966	◐
HDP 160 2	**15.9**	94	122470	1257	*	*	563	*	548	791	966		*	505	665	971	
HDP 160 2	**17.5**	86	116810	1095	*	517	598	505	583	826	1001		446	540	700	1006	
HDP 160 2	**20.4**	74	133430	1071	*	524	605	512	590	833	1008		453	547	707	1013	
HDP 160 2	**22.1**	68	136230	1006	*	528	609	516	594	837	1012		457	551	711	1017	
HDP 160 3	**24.4**	61	105110	718	*	373	429	372	429	605	731	—	329	397	513	735	—
HDP 160 3	**28.5**	53	122690	718	*	377	433	376	433	609	735	—	333	401	517	739	—
HDP 160 3	**31.0**	48	133350	718	*	378	434	377	434	610	736	—	334	402	518	740	—
HDP 160 3	**33.9**	44	142310	700	*	388	444	387	444	620	746	—	344	412	528	750	—
HDP 160 3	**39.6**	38	146300	616	262	390	446	389	446	622	—	—	346	414	530	752	—
HDP 160 3	**43.1**	35	138540	537	263	391	447	390	447	623	—	—	347	415	531	753	—
HDP 160 3	**49.4**	30	138770	469	293	421	477	420	477	—	—	—	377	445	561	—	—
HDP 160 3	**57.6**	26.0	145150	421	294	422	—	421	—	—	—	—	378	446	—	—	—
HDP 160 3	**62.6**	24.0	137300	366	295	423	—	422	—	—	—	—	379	—	—	—	—
HDP 160 3	**68.6**	21.9	143440	349	299	427	—	426	—	—	—	—	383	—	—	—	—
HDP 160 3	**80.0**	18.7	144140	301	300	428	—	427	—	—	—	—	384	—	—	—	—
HDP 160 3	**87.0**	17.2	136370	262	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	14.8	132640	224	215	312	—	315	—	—	—	—	281	—	—	—	—
HDP 160 4	**117.9**	12.7	146300	211	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	11.7	143630	191	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	10.7	142380	173	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	9.2	146300	152	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	8.4	147070	141	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	7.7	132640	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	6.6	146300	110	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	6.1	147070	102	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	5.6	140530	89	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	4.8	146300	79	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	4.4	147070	73	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDP 160 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C												
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 160 2	**9.0**	167	89290	1627	*	*	*	*	*	*	*		*	*	*	755	
HDP 160 2	**10.5**	143	104220	1627	*	*	*	*	*	*	*		*	*	*	772	
HDP 160 2	**11.4**	132	110510	1587	*	*	*	*	*	*	*		*	*	*	780	
HDP 160 2	**12.6**	119	110220	1435	*	*	*	*	*	*	*		*	*	*	837	
HDP 160 2	**14.7**	102	119890	1337	*	*	*	*	*	*	545	●	*	*	542	848	●
HDP 160 2	**15.9**	94	122470	1257	*	*	*	*	*	*	550		*	*	547	853	
HDP 160 2	**17.5**	86	116810	1095	*	*	*	*	*	488	585		*	*	582	888	
HDP 160 2	**20.4**	74	133430	1071	*	*	*	*	*	495	592		*	429	589	895	
HDP 160 2	**22.1**	68	136230	1006	*	*	420	*	*	499	596		*	433	593	899	
HDP 160 3	**24.4**	61	105110	718	*	*	291	*	*	356	426	456	*	308	424	646	856
HDP 160 3	**28.5**	53	122690	718	*	*	294	*	*	359	429	459	*	311	427	649	859
HDP 160 3	**31.0**	48	133350	718	*	*	296	*	*	361	431	461	*	313	429	651	861
HDP 160 3	**33.9**	44	142310	700	*	*	305	*	*	370	440	470	*	322	438	660	870
HDP 160 3	**39.6**	38	146300	616	*	267	308	*	275	373	443	473	257	325	441	663	—
HDP 160 3	**43.1**	35	138540	537	*	268	309	245	276	374	444	474	258	326	442	664	—
HDP 160 3	**49.4**	30	138770	469	203	297	338	274	305	403	473	—	287	355	471	—	—
HDP 160 3	**57.6**	26.0	145150	421	204	298	339	275	306	404	474	—	288	356	472	—	—
HDP 160 3	**62.6**	24.0	137300	366	205	299	340	276	307	405	—	—	289	357	473	—	—
HDP 160 3	**68.6**	21.9	143440	349	209	303	344	280	311	409	—	—	293	361	—	—	—
HDP 160 3	**80.0**	18.7	144140	301	210	304	—	281	312	—	—	—	294	362	—	—	—
HDP 160 3	**87.0**	17.2	136370	262	211	305	—	282	—	—	—	—	295	—	—	—	—
HDP 160 4	**101.1**	14.8	132640	224	147	218	250	202	227	—	—	—	213	266	—	—	—
HDP 160 4	**117.9**	12.7	146300	211	147	218	—	202	227	—	—	—	213	—	—	—	—
HDP 160 4	**128.2**	11.7	143630	191	148	219	—	203	—	—	—	—	214	—	—	—	—
HDP 160 4	**140.4**	10.7	142380	173	149	220	—	204	—	—	—	—	215	—	—	—	—
HDP 160 4	**163.9**	9.2	146300	152	150	221	—	205	—	—	—	—	216	—	—	—	—
HDP 160 4	**178.1**	8.4	147070	141	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	7.7	132640	116	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	6.6	146300	110	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	6.1	147070	102	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	5.6	140530	89	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	4.8	146300	79	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	4.4	147070	73	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

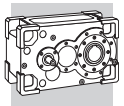
HDP 160

n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C												
					P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 160 2	**9.0**	134	95480	1392	*	*	*	*	*	747	922		*	*	621	927	
HDP 160 2	**10.5**	115	111440	1392	*	*	*	*	*	760	935		*	*	634	940	
HDP 160 2	**11.4**	105	118160	1357	*	*	*	*	*	767	942		*	*	641	947	
HDP 160 2	**12.6**	96	117850	1227	*	*	555	*	567	810	985		*	524	684	990	
HDP 160 2	**14.7**	82	128200	1144	*	491	564	498	576	819	994	●	*	533	693	999	●
HDP 160 2	**15.9**	75	130950	1075	*	495	568	502	580	823	998		443	537	697	1003	
HDP 160 2	**17.5**	69	124900	936	*	522	595	529	607	850	1025		470	564	724	1030	
HDP 160 2	**20.4**	59	142670	916	*	528	601	535	613	856	1031		476	570	730	1036	
HDP 160 2	**22.1**	54	140260	829	362	530	603	537	615	858	—		478	572	732	1038	
HDP 160 3	**24.4**	49	112390	614	265	380	431	392	449	625	—	—	349	417	533	755	—
HDP 160 3	**28.5**	42	131180	614	267	382	433	394	451	627	—	—	351	419	535	757	—
HDP 160 3	**31.0**	39	138920	598	269	384	435	396	453	629	—	—	353	421	537	759	—
HDP 160 3	**33.9**	35	143440	564	276	391	442	403	460	636	—	—	360	428	544	766	—
HDP 160 3	**39.6**	30	145660	491	278	393	444	405	462	638	—	—	362	430	546	—	—
HDP 160 3	**43.1**	27.9	137780	427	279	394	445	406	463	—	—	—	363	431	—	—	—
HDP 160 3	**49.4**	24.3	138770	375	301	416	—	428	—	—	—	—	385	—	—	—	—
HDP 160 3	**57.6**	20.8	144450	335	303	418	—	430	—	—	—	—	387	—	—	—	—
HDP 160 3	**62.6**	19.2	136660	291	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	17.5	143440	279	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	15.0	146300	244	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	13.8	140140	215	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	11.9	132640	179	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	10.2	146300	169	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	9.4	147070	156	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	8.5	141690	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	7.3	146300	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	6.7	147070	112	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	6.2	132640	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	5.3	146300	88	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.9	147070	81	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	4.4	141690	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.8	146300	63	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	3.5	147070	59	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

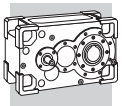


HDP 160 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C												
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 160 2	**9.0**	134	95480	1392	*	*	*	*	*	*	*		*	*	*	809	
HDP 160 2	**10.5**	115	111440	1392	*	*	*	*	*	*	*		*	*	*	822	
HDP 160 2	**11.4**	105	118160	1357	*	*	*	*	*	*	*		*	*	*	829	
HDP 160 2	**12.6**	96	117850	1227	*	*	*	*	*	*	569		*	*	566	872	
HDP 160 2	**14.7**	82	128200	1144	*	*	*	*	*	481	578	●	*	*	575	881	●
HDP 160 2	**15.9**	75	130950	1075	*	*	*	*	*	485	582		*	*	579	885	
HDP 160 2	**17.5**	69	124900	936	*	*	413	*	377	512	609		*	446	606	912	
HDP 160 2	**20.4**	59	142670	916	*	*	419	*	383	518	615		*	452	612	918	
HDP 160 2	**22.1**	54	140260	829	*	367	421	341	385	520	617		360	454	614	920	
HDP 160 3	**24.4**	49	112390	614	*	260	296	246	277	375	445	475	259	327	443	665	—
HDP 160 3	**28.5**	42	131180	614	*	263	299	249	280	378	448	478	262	330	446	668	—
HDP 160 3	**31.0**	39	138920	598	*	264	300	250	281	379	449	479	263	331	447	669	—
HDP 160 3	**33.9**	35	143440	564	*	272	308	258	289	387	457	487	271	339	455	677	—
HDP 160 3	**39.6**	30	145660	491	*	273	309	259	290	388	458	488	272	340	456	678	—
HDP 160 3	**43.1**	27.9	137780	427	189	274	310	260	291	389	459	—	273	341	457	—	—
HDP 160 3	**49.4**	24.3	138770	375	212	297	333	283	314	412	—	—	296	364	480	—	—
HDP 160 3	**57.6**	20.8	144450	335	213	298	334	284	315	413	—	—	297	365	—	—	—
HDP 160 3	**62.6**	19.2	136660	291	213	298	—	284	315	—	—	—	297	—	—	—	—
HDP 160 3	**68.6**	17.5	143440	279	217	302	—	288	—	—	—	—	301	—	—	—	—
HDP 160 3	**80.0**	15.0	146300	244	218	303	—	289	—	—	—	—	302	—	—	—	—
HDP 160 3	**87.0**	13.8	140140	215	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	11.9	132640	179	155	219	—	210	—	—	—	—	221	—	—	—	—
HDP 160 4	**117.9**	10.2	146300	169	156	220	—	211	—	—	—	—	222	—	—	—	—
HDP 160 4	**128.2**	9.4	147070	156	156	220	—	211	—	—	—	—	222	—	—	—	—
HDP 160 4	**140.4**	8.5	141690	137	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	7.3	146300	122	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	6.7	147070	112	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	6.2	132640	93	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	5.3	146300	88	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.9	147070	81	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	4.4	141690	72	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.8	146300	63	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	3.5	147070	59	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

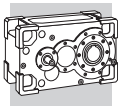


HDP 160 — n_1 = 1000 min^{-1}

					t_a = 20°C												
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	$P_{TFANL\,/\,R}$ [kW]	P_{TFANLR} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDP 160 2	**9.0**	111	100840	1225	*	*	*	*	539	782	957		*	496	656	962	
HDP 160 2	**10.5**	95	117700	1225	*	*	*	*	550	793	968		*	507	667	973	
HDP 160 2	**11.4**	88	124800	1195	*	*	490	*	555	798	973		*	512	672	978	
HDP 160 2	**12.6**	80	124480	1080	*	469	526	513	591	834	1009		454	548	708	1014	
HDP 160 2	**14.7**	68	135400	1007	*	476	533	520	598	841	1016	●	461	555	715	1021	●
HDP 160 2	**15.9**	63	138320	946	*	479	536	523	601	844	1019		464	558	718	1024	
HDP 160 2	**17.5**	57	131920	824	370	501	558	545	623	866	—		486	580	740	1046	
HDP 160 2	**20.4**	49	147540	790	375	506	563	550	628	871	—		491	585	745	1051	
HDP 160 2	**22.1**	45	139510	687	377	508	565	552	630	873	—		493	587	747	—	
HDP 160 3	**24.4**	41	118710	541	278	368	407	405	462	638	—	—	362	430	546	—	—
HDP 160 3	**28.5**	35	138550	541	280	370	409	407	464	640	—	—	364	432	548	—	—
HDP 160 3	**31.0**	32	138270	496	281	371	410	408	465	641	—	—	365	433	549	—	—
HDP 160 3	**33.9**	29.5	143440	470	287	377	416	414	471	—	—	—	371	439	555	—	—
HDP 160 3	**39.6**	25.2	145050	407	288	378	417	415	—	—	—	—	372	440	—	—	—
HDP 160 3	**43.1**	23.2	137210	355	289	379	—	416	—	—	—	—	373	—	—	—	—
HDP 160 3	**49.4**	20.3	138770	313	307	397	—	434	—	—	—	—	391	—	—	—	—
HDP 160 3	**57.6**	17.4	144930	280	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**62.6**	16.0	137140	244	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**68.6**	14.6	143440	233	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**80.0**	12.5	146300	203	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	11.5	144010	184	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	9.9	132640	149	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	8.5	146300	141	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	7.8	147070	130	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	7.1	141170	114	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	6.1	146300	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	5.6	147070	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	5.2	132640	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.4	146300	73	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.1	147070	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	3.7	143440	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.2	146300	53	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	2.9	147070	49	—	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

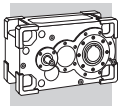


HDP 160 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C												
					P_T	$P_{TFANL\,/\,R}$	P_{TFANLR}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDP 160 2	**9.0**	111	100840	1225	*	*	*	*	*	*	541		*	*	538	844	
HDP 160 2	**10.5**	95	117700	1225	*	*	*	*	*	*	552		*	*	549	855	
HDP 160 2	**11.4**	88	124800	1195	*	*	*	*	*	*	557		*	*	554	860	
HDP 160 2	**12.6**	80	124480	1080	*	*	*	*	*	496	593		*	*	590	896	
HDP 160 2	**14.7**	68	135400	1007	*	*	*	*	*	503	600	⛔	*	437	597	903	⛔
HDP 160 2	**15.9**	63	138320	946	*	*	*	*	*	506	603		*	440	600	906	
HDP 160 2	**17.5**	57	131920	824	*	348	390	349	393	528	625		368	462	622	928	
HDP 160 2	**20.4**	49	147540	790	*	353	395	354	398	533	630		373	467	627	933	
HDP 160 2	**22.1**	45	139510	687	*	355	397	356	400	535	632		375	469	629	935	
HDP 160 3	**24.4**	41	118710	541	*	254	282	259	290	388	458	488	272	340	456	678	—
HDP 160 3	**28.5**	35	138550	541	*	256	284	261	292	390	460	490	274	342	458	680	—
HDP 160 3	**31.0**	32	138270	496	*	257	285	262	293	391	461	491	275	343	459	681	—
HDP 160 3	**33.9**	29.5	143440	470	197	263	291	268	299	397	467	497	281	349	465	687	—
HDP 160 3	**39.6**	25.2	145050	407	199	265	293	270	301	399	469	—	283	351	467	—	—
HDP 160 3	**43.1**	23.2	137210	355	199	265	293	270	301	399	—	—	283	351	467	—	—
HDP 160 3	**49.4**	20.3	138770	313	218	284	312	289	320	—	—	—	302	370	—	—	—
HDP 160 3	**57.6**	17.4	144930	280	219	285	—	290	—	—	—	—	303	—	—	—	—
HDP 160 3	**62.6**	16.0	137140	244	219	285	—	290	—	—	—	—	303	—	—	—	—
HDP 160 3	**68.6**	14.6	143440	233	222	288	—	293	—	—	—	—	306	—	—	—	—
HDP 160 3	**80.0**	12.5	146300	203	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 3	**87.0**	11.5	144010	184	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**101.1**	9.9	132640	149	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**117.9**	8.5	146300	141	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**128.2**	7.8	147070	130	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**140.4**	7.1	141170	114	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**163.9**	6.1	146300	101	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**178.1**	5.6	147070	94	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**194.1**	5.2	132640	78	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**226.6**	4.4	146300	73	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**246.3**	4.1	147070	68	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**269.7**	3.7	143440	60	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**314.8**	3.2	146300	53	—	—	—	—	—	—	—	—	—	—	—	—	—
HDP 160 4	**342.2**	2.9	147070	49	—	—	—	—	—	—	—	—	—	—	—	—	—

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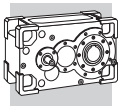


HDP 170 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C		t_a = 40°C	
					P_T [kW]	P_{TFAN} [kW]	P_T [kW]	P_{TFAN} [kW]
HDP 170 2	**7.8**	191	133930	2796	*	*	*	*
HDP 170 2	**9.1**	165	140750	2532	*	*	*	*
HDP 170 2	**9.8**	152	143860	2389	*	*	*	*
HDP 170 2	**11.3**	133	144760	2099	*	*	*	*
HDP 170 2	**13.1**	115	159740	1996	*	*	*	*
HDP 170 2	**14.2**	106	163600	1887	*	*	*	*
HDP 170 2	**15.4**	98	157710	1679	*	*	*	*
HDP 170 2	**17.8**	84	165580	1519	*	641	*	*
HDP 170 2	**19.3**	78	169600	1436	*	645	*	*
HDP 170 3	**23.2**	65	151770	1093	*	*	*	*
HDP 170 3	**26.9**	56	176160	1093	*	*	*	*
HDP 170 3	**29.1**	51	182320	1044	*	420	*	*
HDP 170 3	**31.6**	48	177810	940	*	434	*	*
HDP 170 3	**36.7**	41	190190	866	*	436	*	*
HDP 170 3	**39.7**	38	182210	766	*	438	*	*
HDP 170 3	**45.1**	33	183920	680	336	481	*	336
HDP 170 3	**52.4**	28.6	189610	604	338	483	*	338
HDP 170 3	**56.7**	26.4	180610	531	338	483	232	338
HDP 170 3	**61.4**	24.4	188900	513	344	489	238	344
HDP 170 3	**71.3**	21.0	188320	441	346	491	239	345
HDP 170 3	**77.2**	19.4	179410	388	346	491	240	346
HDP 170 4	**92.7**	16.2	183920	338	212	322	*	212
HDP 170 4	**107.6**	13.9	190190	301	213	323	132	213
HDP 170 4	**116.6**	12.9	182320	266	223	333	142	223
HDP 170 4	**126.3**	11.9	188900	255	229	339	149	230
HDP 170 4	**146.6**	10.2	190190	221	—	—	149	230
HDP 170 4	**158.8**	9.4	182320	196	—	—	156	237
HDP 170 4	**177.4**	8.5	183920	177	—	—	176	257
HDP 170 4	**206.0**	7.3	190190	157	—	—	—	—
HDP 170 4	**223.1**	6.7	182320	139	—	—	—	—
HDP 170 4	**241.7**	6.2	188900	133	—	—	—	—
HDP 170 4	**280.5**	5.3	190190	115	—	—	—	—
HDP 170 4	**303.8**	4.9	182320	102	—	—	—	—

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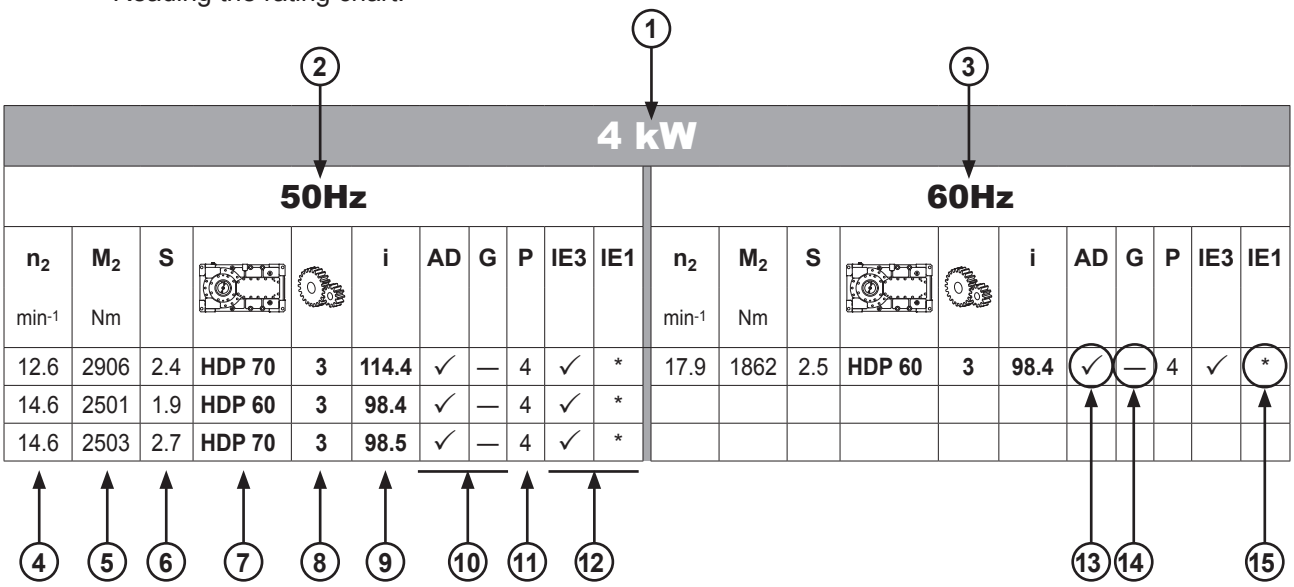
HDP 180								n_1 = 1500 min^{-1}
					t_a = 20°C		t_a = 40°C	
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_T [kW]	P_{TFAN} [kW]
HDP 180 2	**8.7**	172	148810	2796	*	*	*	*
HDP 180 2	**10.1**	149	155960	2533	*	*	*	*
HDP 180 2	**10.9**	138	159170	2390	*	*	*	*
HDP 180 2	**12.5**	120	160840	2099	*	*	*	*
HDP 180 2	**14.5**	103	176950	1996	*	*	*	*
HDP 180 2	**15.7**	96	180960	1887	*	*	*	*
HDP 180 2	**17.1**	88	175290	1680	*	*	*	*
HDP 180 2	**19.8**	76	183470	1519	*	678	*	*
HDP 180 2	**21.4**	70	187640	1437	*	682	*	*
HDP 180 3	**25.8**	58	168630	1093	*	441	*	*
HDP 180 3	**29.8**	50	195130	1093	*	445	*	*
HDP 180 3	**32.2**	47	200130	1036	*	446	*	*
HDP 180 3	**35.1**	43	197560	940	*	459	*	*
HDP 180 3	**40.6**	37	202450	832	*	462	*	*
HDP 180 3	**43.9**	34	198410	754	318	463	*	311
HDP 180 3	**50.1**	29.9	204380	680	361	506	*	354
HDP 180 3	**58.0**	25.9	202450	583	363	508	250	356
HDP 180 3	**62.7**	23.9	196680	523	363	508	251	357
HDP 180 3	**68.3**	22.0	209900	513	369	514	257	363
HDP 180 3	**79.0**	19.0	202450	428	370	515	258	364
HDP 180 3	**85.4**	17.6	195370	382	371	516	258	364
HDP 180 4	**103.0**	14.6	204380	338	231	341	145	226
HDP 180 4	**119.2**	12.6	202450	289	231	341	146	227
HDP 180 4	**128.9**	11.6	205480	271	241	351	155	236
HDP 180 4	**140.3**	10.7	209900	255	248	358	162	243
HDP 180 4	**162.4**	9.2	202450	212	—	—	163	244
HDP 180 4	**175.6**	8.5	207020	201	—	—	170	251
HDP 180 4	**197.2**	7.6	204380	177	—	—	—	—
HDP 180 4	**228.1**	6.6	202450	151	—	—	—	—
HDP 180 4	**246.7**	6.1	205480	142	—	—	—	—
HDP 180 4	**268.5**	5.6	209900	133	—	—	—	—
HDP 180 4	**310.7**	4.8	202450	111	—	—	—	—
HDP 180 4	**336.1**	4.5	207020	105	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

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17.1 GEARMOTOR RATING CHARTS

Reading the rating chart.



1	Motor Power coupled with the gearbox
2	50 Hz section
3	60 Hz section
4	Gearbox output speed
5	Torque delivered at the output shaft
6	Service factor
7	Gearbox size
8	Gearbox stages
9	Gearbox ratio
10	Availability for direct motor mounting (AD) / coupling through bell housing and flexible coupling (G)
11	Number of motor poles
12	Efficiency motor availability
13	Symbol for available variant
14	Symbol for not available variant
15	Contact Bonfiglioli Technical Support

For the complete gearmotor desingation see motor correlation tables

POLE		**4**	
Efficiency class		**IE1**	**IE3**
Pn [kW]	**4**	BN 112M 4	BX 112M 4
	5.5	BN 132S 4	BX 132SB 4
	7.5	BN 132MA 4	BX 132MA 4
	9.2	BN 132MB 4	BX 160MA 4
	11	BN 160MR 4	BX 160MB 4
	15	BN 160L 4	BX 160L 4
	18.5	BN 180M 4	BX 180M 4
	22	BN 180L 4	BX 180L 4
	30	BN 200L 4	BX 200LAK 4
	37	—	BX 225SAK 4
	45	—	BX 225SBK 4
	55	—	BX 250MAK 4
	75	—	BX 280SAK 4
	90	—	BX 280SBK 4

For more information on Bonfiglioli electric motors, as available options, performances, dimensions, etc. ... see the specific catalogue.

Example of complete gearmotor designation: **HDP 80 3 51.6 AD 180 BX 180M 4**

For Thermal Power validation take in consideration the appropriate catalogue section.

4 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.6	2906	2.4	**HDP 70**	**3**	**114.4**	✓	—	4	✓	*
14.6	2501	1.9	**HDP 60**	**3**	**98.4**	✓	—	4	✓	*
14.6	2503	2.7	**HDP 70**	**3**	**98.5**	✓	—	4	✓	*
16.4	2225	2.3	**HDP 60**	**3**	**87.6**	✓	—	4	✓	*
18.7	1960	2.4	**HDP 60**	**3**	**77.1**	✓	—	4	✓	*
21.0	1744	3.0	**HDP 60**	**3**	**68.6**	✓	—	4	✓	*
22.6	1616	2.9	**HDP 60**	**3**	**63.6**	✓	—	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
17.9	1862	2.5	**HDP 60**	**3**	**98.4**	✓	—	4	✓	*

5.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.8	3875	1.8	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
14.8	3334	1.4	**HDP 60**	**3**	**98.4**	✓	✓	4	✓	*
14.8	3338	2.0	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
16.3	3037	2.3	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
16.7	2967	1.7	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
18.9	2613	1.8	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
18.9	2616	2.6	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
19.8	2504	2.8	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
21.3	2325	2.2	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
23.0	2154	2.2	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
25.8	1917	2.7	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
29.7	1663	2.8	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.5	3197	2.2	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
18.0	2751	1.7	**HDP 60**	**3**	**98.4**	✓	✓	4	✓	*
18.0	2754	2.5	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
19.7	2506	2.8	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
20.2	2448	2.1	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
22.9	2156	2.2	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
25.8	1919	2.7	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
27.8	1777	2.7	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*

7.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.8	5275	1.3	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
13.1	5135	2.5	**HDP 80**	**3**	**111.4**	✓	—	4	✓	*
14.8	4538	1.0	**HDP 60**	**3**	**98.4**	✓	✓	4	✓	*
14.8	4543	1.5	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
15.2	4423	2.8	**HDP 80**	**3**	**95.9**	✓	—	4	✓	*
16.3	4134	1.7	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
16.7	4038	1.3	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
18.9	3557	1.3	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
18.9	3561	1.9	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.5	4360	1.6	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
15.9	4245	3.0	**HDP 80**	**3**	**111.4**	✓	—	4	✓	*
18.0	3751	1.3	**HDP 60**	**3**	**98.4**	✓	✓	4	✓	*
18.0	3755	1.8	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
19.7	3417	2.1	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
20.2	3338	1.6	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
22.9	2940	1.6	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
22.9	2943	2.3	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
24.0	2817	2.5	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*

7.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
19.8	3408	2.1	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
21.3	3165	1.6	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
22.9	2935	2.3	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
23.0	2932	1.6	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
25.6	2631	2.7	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
25.8	2609	2.0	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
29.7	2264	2.1	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
29.7	2266	3.0	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
33	2014	2.6	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
38	1774	2.7	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
25.8	2616	2.0	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
27.8	2424	1.9	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
27.8	2426	2.7	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
31	2157	2.4	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
36	1871	2.5	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*

9.2 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.8	6459	1.1	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
13.1	6288	2.0	**HDP 80**	**3**	**111.4**	✓	—	4	✓	*
14.8	5563	1.2	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
15.2	5416	2.3	**HDP 80**	**3**	**95.9**	✓	—	4	✓	*
16.3	5062	1.4	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
16.5	5009	2.5	**HDP 80**	**3**	**88.7**	✓	—	4	✓	*
16.7	4945	1.0	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
18.9	4356	1.1	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
18.9	4360	1.5	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
19.1	4315	2.8	**HDP 80**	**3**	**76.4**	✓	—	4	✓	*
19.4	4249	3.0	**HDP 80**	**3**	**75.2**	✓	—	4	✓	*
19.8	4173	1.7	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
21.3	3876	1.3	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
22.9	3594	1.9	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
23.0	3591	1.3	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
25.6	3221	2.2	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
25.8	3195	1.6	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
29.7	2772	1.7	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
29.7	2775	2.4	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
33	2525	2.8	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
33	2466	2.1	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
38	2172	2.2	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
43	1933	2.7	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
46	1791	2.6	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.5	5339	1.3	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
15.9	5198	2.4	**HDP 80**	**3**	**111.4**	✓	—	4	✓	*
18.0	4594	1.0	**HDP 60**	**3**	**98.4**	✓	✓	4	✓	*
18.0	4599	1.5	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
18.5	4477	2.8	**HDP 80**	**3**	**95.9**	✓	—	4	✓	*
19.7	4185	1.7	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
20.2	4088	1.3	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
22.9	3601	1.3	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
22.9	3605	1.9	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
24.0	3450	2.1	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
25.8	3204	1.6	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
27.8	2968	1.6	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
27.8	2971	2.2	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
31	2663	2.7	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
31	2641	2.0	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
36	2294	2.9	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
36	2291	2.1	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
41	2039	2.5	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
46	1796	2.6	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*

11 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.8	7751	0.9	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
13.2	7546	1.7	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
13.3	7461	2.3	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
14.8	6701	2.7	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
14.9	6676	1.0	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
15.3	6499	1.9	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
16.3	6075	1.2	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
16.5	6011	2.1	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*
16.9	5872	2.9	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
19.0	5227	0.9	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
19.0	5232	1.3	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
19.2	5178	2.3	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
19.5	5099	2.5	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
19.8	5008	1.4	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
21.3	4651	1.1	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
22.6	4392	2.9	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
23.0	4309	1.1	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
23.0	4313	1.6	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
25.7	3866	1.8	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
25.9	3834	1.4	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
29.8	3326	1.4	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
29.8	3330	2.0	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
33	3030	2.3	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
34	2960	1.8	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
38	2610	2.6	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
38	2607	1.8	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
40	2498	2.8	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
43	2320	2.2	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
46	2149	2.2	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
52	1912	2.7	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
58	1728	2.7	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.5	6383	1.1	**HDP 70**	**3**	**114.4**	✓	✓	4	✓	*
15.9	6215	2.0	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
16.1	6145	2.8	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
18.0	5498	1.2	**HDP 70**	**3**	**98.5**	✓	✓	4	✓	*
18.5	5353	2.4	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
19.7	5003	1.4	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*
20.0	4951	2.5	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*
20.2	4887	1.1	**HDP 60**	**3**	**87.6**	✓	✓	4	✓	*
22.9	4305	1.1	**HDP 60**	**3**	**77.1**	✓	✓	4	✓	*
22.9	4309	1.6	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
23.2	4264	2.6	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
24.0	4124	1.7	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
25.8	3831	1.4	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
27.8	3549	1.3	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
27.8	3552	1.9	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
31	3184	2.2	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
31	3158	1.6	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
36	2742	2.5	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
36	2739	1.7	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
40	2495	2.8	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
41	2438	2.1	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
46	2147	2.2	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
52	1911	2.7	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
56	1770	2.7	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*

15 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
13.2	10271	1.2	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
13.3	10155	1.7	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
14.8	9121	2.0	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
15.3	8847	1.4	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
16.5	8182	1.5	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.9	8479	1.5	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
16.1	8383	2.0	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
17.9	7529	2.4	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
18.5	7303	1.7	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
19.7	6826	1.0	**HDP 70**	**3**	**89.6**	✓	✓	4	✓	*

15 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.9	7992	2.1	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
18.8	7178	2.5	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
19.0	7122	0.9	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
19.2	7047	1.7	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
19.5	6940	1.8	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
19.8	6816	1.0	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
20.0	6761	2.5	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
22.3	6073	2.9	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
22.6	5977	2.1	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
23.0	5871	1.1	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
24.4	5528	2.3	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
25.7	5262	1.3	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
25.9	5219	1.0	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
28.4	4762	2.5	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
29.8	4527	1.0	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
29.8	4532	1.5	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
32	4263	3.0	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
33	4124	1.7	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
34	4028	1.3	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
38	3552	1.9	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
38	3548	1.3	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
40	3400	2.1	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
43	3157	1.6	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
46	2928	2.3	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
46	2925	1.6	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
49	2733	2.6	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
52	2603	2.0	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
57	2354	2.9	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
58	2352	2.0	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
65	2092	2.3	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*
76	1826	2.6	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
20.0	6754	1.9	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*
20.4	6597	2.6	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
22.9	5879	1.1	**HDP 70**	**3**	**77.2**	✓	✓	4	✓	*
23.2	5818	1.9	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
23.5	5729	2.2	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
24.0	5627	1.3	**HDP 70**	**3**	**73.9**	✓	✓	4	✓	*
25.8	5226	1.0	**HDP 60**	**3**	**68.6**	✓	✓	4	✓	*
27.3	4934	2.6	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
27.8	4841	1.0	**HDP 60**	**3**	**63.6**	✓	✓	4	✓	*
27.8	4846	1.4	**HDP 70**	**3**	**63.7**	✓	✓	4	✓	*
29.5	4564	2.8	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
31	4343	1.6	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
31	4308	1.2	**HDP 60**	**3**	**56.6**	✓	✓	4	✓	*
36	3741	1.8	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
36	3737	1.3	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
40	3404	2.1	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
41	3325	1.6	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
46	2929	1.6	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
46	2932	2.3	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
48	2806	2.4	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
52	2606	2.0	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
56	2415	2.0	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
56	2417	2.7	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
63	2149	2.3	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
69	1941	2.4	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
78	1727	2.6	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*

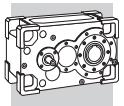
18.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
13.2	12681	1.0	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
13.3	12539	1.4	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
14.8	11261	1.6	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
15.3	10923	1.2	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
16.5	10102	1.2	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.0	10397	1.2	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
16.2	10280	1.7	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
18.0	9232	1.9	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
18.6	8955	1.4	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
20.1	8282	1.5	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*



18.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.9	9868	1.7	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
18.8	8862	2.0	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
19.2	8701	1.4	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
19.5	8568	1.5	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
20.0	8348	2.1	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
22.3	7498	2.4	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
22.6	7380	1.7	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
23.0	7249	0.9	**HDP 70**	**3**	**63.7**	✓	—	4	✓	*
24.4	6826	1.8	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
25.4	6570	2.6	**HDP 90**	**3**	**57.7**	✓	✓	4	✓	*
25.7	6496	1.1	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
28.4	5879	2.0	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
29.8	5596	1.2	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
32	5263	2.4	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
33	5092	1.4	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
34	4974	1.0	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
37	4534	2.8	**HDP 80**	**3**	**39.8**	✓	✓	4	✓	*
38	4386	1.5	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
38	4381	1.1	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
40	4197	1.7	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
43	3898	1.3	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
46	3615	1.9	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
46	3612	1.3	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
49	3374	2.1	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
52	3214	1.6	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
57	2906	2.3	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
58	2903	1.6	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
65	2584	1.8	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*
65	2621	2.7	**HDP 70**	**2**	**22.6**	—	✓	4	✓	*
75	2257	3.0	**HDP 70**	**2**	**19.4**	—	✓	4	✓	*
76	2255	2.1	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*
85	2007	2.6	**HDP 60**	**2**	**17.3**	—	✓	4	✓	*
96	1767	2.7	**HDP 60**	**2**	**15.2**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
20.5	8090	2.1	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
22.9	7266	2.5	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
23.1	7209	0.9	**HDP 70**	**3**	**77.2**	✓	—	4	✓	*
23.3	7134	1.6	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
23.7	7025	1.8	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
24.1	6900	1.0	**HDP 70**	**3**	**73.9**	✓	—	4	✓	*
24.3	6844	2.5	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
27.0	6147	2.9	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
27.5	6051	2.1	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
28.0	5943	1.1	**HDP 70**	**3**	**63.7**	✓	—	4	✓	*
29.7	5596	2.3	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
31	5326	1.3	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
32	5282	1.0	**HDP 60**	**3**	**56.6**	✓	—	4	✓	*
35	4820	2.5	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
36	4587	1.5	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
36	4583	1.0	**HDP 60**	**3**	**49.1**	✓	✓	4	✓	*
39	4315	2.9	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
40	4174	1.7	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
41	4078	1.3	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
46	3596	1.9	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
46	3592	1.3	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
48	3441	2.0	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
52	3196	1.6	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
56	2961	1.6	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
56	2964	2.2	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
60	2766	2.6	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
63	2635	1.9	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
70	2383	2.8	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
70	2380	1.9	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
79	2118	2.1	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*
92	1849	2.6	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*

22 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
13.3	14819	1.2	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
14.8	13309	1.3	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
15.3	12909	1.0	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.9	12367	1.0	**HDP 80**	**3**	**111.4**	✓	✓	4	✓	*
16.1	12228	1.4	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
18.0	10982	1.6	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*

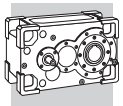
22 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.5	11939	1.1	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*
16.9	11662	1.5	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
18.8	10474	1.7	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
19.2	10283	1.2	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
19.5	10126	1.2	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
20.0	9866	1.7	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
22.3	8861	2.0	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
22.6	8722	1.4	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
24.4	8067	1.6	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
25.4	7764	2.2	**HDP 90**	**3**	**57.7**	✓	✓	4	✓	*
25.7	7678	0.9	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
28.3	6973	2.6	**HDP 90**	**3**	**51.8**	✓	✓	4	✓	*
28.4	6948	1.7	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
29.8	6613	1.0	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
32	6220	2.0	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
33	6018	1.2	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
33	6000	2.9	**HDP 90**	**3**	**44.6**	✓	✓	4	✓	*
37	5358	2.4	**HDP 80**	**3**	**39.8**	✓	✓	4	✓	*
38	5183	1.3	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
38	5178	0.9	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
40	4961	1.4	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
40	4955	2.5	**HDP 80**	**3**	**36.8**	✓	✓	4	✓	*
43	4607	1.1	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
46	4273	1.6	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
46	4268	1.1	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
46	4268	2.7	**HDP 80**	**3**	**31.7**	✓	✓	4	✓	*
49	4031	2.9	**HDP 80**	**3**	**30.0**	✓	✓	4	✓	*
49	3988	1.8	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
52	3798	1.4	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
57	3472	2.9	**HDP 80**	**3**	**25.8**	✓	✓	4	✓	*
57	3435	2.0	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
58	3431	1.4	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
65	3053	1.6	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*
65	3097	2.3	**HDP 70**	**2**	**22.6**	—	✓	4	✓	*
75	2668	2.5	**HDP 70**	**2**	**19.4**	—	✓	4	✓	*
76	2665	1.8	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*
83	2428	2.9	**HDP 70**	**2**	**17.7**	—	✓	4	✓	*
85	2371	2.2	**HDP 60**	**2**	**17.3**	—	✓	4	✓	*
96	2089	2.3	**HDP 60**	**2**	**15.2**	—	✓	4	✓	*
108	1859	2.8	**HDP 60**	**2**	**13.5**	—	✓	4	✓	*
117	1722	2.7	**HDP 60**	**2**	**12.5**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
18.5	10652	1.2	**HDP 80**	**3**	**95.9**	✓	✓	4	✓	*
20.0	9852	1.3	**HDP 80**	**3**	**88.7**	✓	✓	4	✓	*
20.5	9623	1.8	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
22.8	8642	2.1	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
23.2	8486	1.3	**HDP 80**	**3**	**76.4**	✓	✓	4	✓	*
23.6	8356	1.5	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
24.2	8141	2.1	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
27.0	7312	2.4	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
27.4	7197	1.8	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
27.9	7069	0.9	**HDP 70**	**3**	**63.7**	✓	—	4	✓	*
29.6	6657	1.9	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
31	6407	2.7	**HDP 90**	**3**	**57.7**	✓	✓	4	✓	*
31	6335	1.1	**HDP 70**	**3**	**57.0**	✓	✓	4	✓	*
34	5734	2.1	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
36	5457	1.2	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
38	5133	2.5	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
40	4966	1.4	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
41	4851	1.1	**HDP 60**	**3**	**43.7**	✓	✓	4	✓	*
45	4421	2.7	**HDP 80**	**3**	**39.8**	✓	✓	4	✓	*
46	4272	1.1	**HDP 60**	**3**	**38.5**	✓	✓	4	✓	*
46	4277	1.6	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
48	4093	1.7	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
52	3802	1.4	**HDP 60**	**3**	**34.2**	✓	✓	4	✓	*
56	3526	1.9	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
56	3522	1.3	**HDP 60**	**3**	**31.7**	✓	✓	4	✓	*
60	3291	2.2	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
63	3134	1.6	**HDP 60**	**3**	**28.2**	✓	✓	4	✓	*
70	2834	2.4	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
70	2831	1.6	**HDP 60**	**3**	**25.5**	✓	✓	4	✓	*
78	2519	1.8	**HDP 60**	**3**	**22.7**	✓	✓	4	✓	*
79	2556	2.8	**HDP 70**	**2**	**22.6**	—	✓	4	✓	*
92	2199	2.1	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*
103	1957	2.7	**HDP 60**	**2**	**17.3**	—	✓	4	✓	*
117	1724	2.7	**HDP 60**	**2**	**15.2**	—	✓	4	✓	*



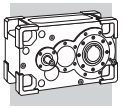
30 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
15.0	17981	1.0	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
17.1	15756	1.1	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
19.1	14150	1.3	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
19.7	13681	0.9	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
20.2	13330	1.3	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
22.5	11972	1.5	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
22.9	11784	1.1	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
24.7	10899	1.2	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
25.7	10490	1.6	**HDP 90**	**3**	**57.7**	✓	✓	4	✓	*
28.6	9421	1.9	**HDP 90**	**3**	**51.8**	✓	✓	4	✓	*
28.7	9387	1.3	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
32	8404	1.5	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
33	8106	2.1	**HDP 90**	**3**	**44.6**	✓	✓	4	✓	*
37	7280	2.4	**HDP 90**	**3**	**40.0**	✓	✓	4	✓	*
37	7239	1.7	**HDP 80**	**3**	**39.8**	✓	✓	4	✓	*
39	7003	1.0	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
40	6702	1.1	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
40	6695	1.9	**HDP 80**	**3**	**36.8**	✓	✓	4	✓	*
41	6657	2.6	**HDP 90**	**3**	**36.6**	✓	✓	4	✓	*
45	5978	3.0	**HDP 90**	**3**	**32.9**	✓	✓	4	✓	*
47	5773	1.2	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
47	5767	2.0	**HDP 80**	**3**	**31.7**	✓	✓	4	✓	*
50	5447	2.1	**HDP 80**	**3**	**30.0**	✓	✓	4	✓	*
50	5388	1.3	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
53	5131	1.0	**HDP 60**	**3**	**28.2**	—	✓	4	✓	*
58	4691	2.1	**HDP 80**	**3**	**25.8**	✓	✓	4	✓	*
58	4641	1.5	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
58	4636	1.0	**HDP 60**	**3**	**25.5**	—	✓	4	✓	*
65	4125	1.1	**HDP 60**	**3**	**22.7**	—	✓	4	✓	*
66	4185	1.7	**HDP 70**	**2**	**22.6**	—	✓	4	✓	*
76	3604	1.9	**HDP 70**	**2**	**19.4**	—	✓	4	✓	*
76	3600	1.3	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*
84	3280	2.2	**HDP 70**	**2**	**17.7**	—	✓	4	✓	*
86	3204	1.6	**HDP 60**	**2**	**17.3**	—	✓	4	✓	*
97	2825	2.4	**HDP 70**	**2**	**15.2**	—	✓	4	✓	*
98	2822	1.7	**HDP 60**	**2**	**15.2**	—	✓	4	✓	*
102	2704	2.6	**HDP 70**	**2**	**14.6**	—	✓	4	✓	*
110	2511	2.1	**HDP 60**	**2**	**13.5**	—	✓	4	✓	*
118	2329	2.9	**HDP 70**	**2**	**12.6**	—	✓	4	✓	*
118	2326	2.0	**HDP 60**	**2**	**12.5**	—	✓	4	✓	*
133	2070	2.5	**HDP 60**	**2**	**11.2**	—	✓	4	✓	*
147	1870	2.5	**HDP 60**	**2**	**10.1**	—	✓	4	✓	*
165	1664	2.9	**HDP 60**	**2**	**9.0**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.2	16580	1.0	**HDP 90**	**3**	**110.1**	✓	✓	4	✓	*
18.1	14891	1.2	**HDP 90**	**3**	**98.9**	✓	✓	4	✓	*
20.1	13358	0.9	**HDP 80**	**3**	**88.7**	✓	—	4	✓	*
20.6	13048	1.3	**HDP 90**	**3**	**86.6**	✓	✓	4	✓	*
23.0	11719	1.5	**HDP 90**	**3**	**77.8**	✓	✓	4	✓	*
23.4	11506	1.0	**HDP 80**	**3**	**76.4**	✓	—	4	✓	*
23.7	11330	1.1	**HDP 80**	**3**	**75.2**	✓	✓	4	✓	*
24.4	11039	1.6	**HDP 90**	**3**	**73.3**	✓	✓	4	✓	*
27.1	9914	1.8	**HDP 90**	**3**	**65.8**	✓	✓	4	✓	*
27.6	9759	1.3	**HDP 80**	**3**	**64.8**	✓	✓	4	✓	*
29.8	9026	1.4	**HDP 80**	**3**	**59.9**	✓	✓	4	✓	*
31	8687	2.0	**HDP 90**	**3**	**57.7**	✓	✓	4	✓	*
35	7802	2.3	**HDP 90**	**3**	**51.8**	✓	✓	4	✓	*
35	7774	1.5	**HDP 80**	**3**	**51.6**	✓	✓	4	✓	*
36	7399	0.9	**HDP 70**	**3**	**49.1**	✓	✓	4	✓	*
39	6960	1.8	**HDP 80**	**3**	**46.2**	✓	✓	4	✓	*
40	6733	1.1	**HDP 70**	**3**	**44.7**	✓	✓	4	✓	*
40	6713	2.6	**HDP 90**	**3**	**44.6**	✓	✓	4	✓	*
45	6029	2.8	**HDP 90**	**3**	**40.0**	✓	✓	4	✓	*
45	5995	2.0	**HDP 80**	**3**	**39.8**	✓	✓	4	✓	*
46	5799	1.2	**HDP 70**	**3**	**38.5**	✓	✓	4	✓	*
49	5550	1.2	**HDP 70**	**3**	**36.9**	✓	✓	4	✓	*
49	5544	2.3	**HDP 80**	**3**	**36.8**	✓	✓	4	✓	*
52	5155	1.0	**HDP 60**	**3**	**34.2**	—	✓	4	✓	*
56	4776	1.0	**HDP 60**	**3**	**31.7**	—	✓	4	✓	*
56	4781	1.4	**HDP 70**	**3**	**31.7**	✓	✓	4	✓	*
56	4776	2.4	**HDP 80**	**3**	**31.7**	✓	✓	4	✓	*
60	4511	2.5	**HDP 80**	**3**	**30.0**	✓	✓	4	✓	*
60	4462	1.6	**HDP 70**	**3**	**29.6**	✓	✓	4	✓	*
63	4249	1.2	**HDP 60**	**3**	**28.2**	—	✓	4	✓	*
69	3885	2.5	**HDP 80**	**3**	**25.8**	✓	✓	4	✓	*
70	3843	1.8	**HDP 70**	**3**	**25.5**	✓	✓	4	✓	*
70	3839	1.2	**HDP 60**	**3**	**25.5**	—	✓	4	✓	*
79	3416	1.3	**HDP 60**	**3**	**22.7**	—	✓	4	✓	*
79	3465	2.0	**HDP 70**	**2**	**22.6**	—	✓	4	✓	*
92	2985	2.3	**HDP 70**	**2**	**19.4**	—	✓	4	✓	*
92	2982	1.6	**HDP 60**	**2**	**19.4**	—	✓	4	✓	*
101	2716	2.6	**HDP 70**	**2**	**17.7**	—	✓	4	✓	*
103	2653	2.0	**HDP 60**	**2**	**17.3**	—	✓	4	✓	*
117	2340	2.9	**HDP 70**	**2**	**15.2**	—	✓	4	✓	*
117	2337	2.0	**HDP 60**	**2**	**15.2**	—	✓	4	✓	*
132	2080	2.5	**HDP 60**	**2**	**13.5**	—	✓	4	✓	*
143	1927	2.4	**HDP 60**	**2**	**12.5**	—	✓	4	✓	*
160	1714	2.9	**HDP 60**	**2**	**11.2**	—	✓	4	✓	*



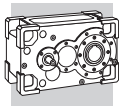
37 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
20.2	16462	1.0	**HDP 90**	**3**	**73.3**	—	✓	4	✓	—
22.5	14785	1.2	**HDP 90**	**3**	**65.8**	—	✓	4	✓	—
24.7	13460	0.9	**HDP 80**	**3**	**59.9**	—	✓	4	✓	—
25.7	12955	1.3	**HDP 90**	**3**	**57.7**	—	✓	4	✓	—
28.6	11635	1.5	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
28.7	11593	1.0	**HDP 80**	**3**	**51.6**	—	✓	4	✓	—
32	10379	1.2	**HDP 80**	**3**	**46.2**	—	✓	4	✓	—
33	10011	1.7	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
37	8991	2.0	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
37	8940	1.4	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
40	8268	1.5	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
41	8221	2.1	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
45	7383	2.4	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
47	7129	0.9	**HDP 70**	**3**	**31.7**	—	✓	4	✓	—
47	7122	1.6	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
50	6727	1.7	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
50	6654	1.1	**HDP 70**	**3**	**29.6**	—	✓	4	✓	—
52	6353	2.7	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
57	5794	1.7	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
58	5731	1.2	**HDP 70**	**3**	**25.5**	—	✓	4	✓	—
58	5705	3.0	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
65	5094	0.9	**HDP 60**	**3**	**22.7**	—	✓	4	✓	—
66	5168	1.4	**HDP 70**	**2**	**22.6**	—	✓	4	✓	—
66	5172	2.4	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
76	4455	2.7	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
76	4451	1.5	**HDP 70**	**2**	**19.4**	—	✓	4	✓	—
76	4447	1.1	**HDP 60**	**2**	**19.4**	—	✓	4	✓	—
82	4120	2.9	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
84	4051	1.7	**HDP 70**	**2**	**17.7**	—	✓	4	✓	—
86	3957	1.3	**HDP 60**	**2**	**17.3**	—	✓	4	✓	—
97	3489	1.9	**HDP 70**	**2**	**15.2**	—	✓	4	✓	—
97	3485	1.4	**HDP 60**	**2**	**15.2**	—	✓	4	✓	—
102	3339	2.1	**HDP 70**	**2**	**14.6**	—	✓	4	✓	—
110	3101	1.7	**HDP 60**	**2**	**13.5**	—	✓	4	✓	—
118	2876	2.3	**HDP 70**	**2**	**12.6**	—	✓	4	✓	—
118	2873	1.6	**HDP 60**	**2**	**12.5**	—	✓	4	✓	—
127	2684	2.5	**HDP 70**	**2**	**11.7**	—	✓	4	✓	—
133	2556	2.0	**HDP 60**	**2**	**11.2**	—	✓	4	✓	—
147	2312	2.8	**HDP 70**	**2**	**10.1**	—	✓	4	✓	—
147	2310	2.0	**HDP 60**	**2**	**10.1**	—	✓	4	✓	—
159	2139	2.9	**HDP 70**	**2**	**9.3**	—	✓	4	✓	—
165	2055	2.4	**HDP 60**	**2**	**9.0**	—	✓	4	✓	—
185	1840	2.5	**HDP 60**	**2**	**8.0**	—	✓	4	✓	—
207	1637	2.8	**HDP 60**	**2**	**7.1**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.3	13661	1.3	**HDP 90**	**3**	**73.3**	—	✓	4	✓	—
27.1	12269	1.5	**HDP 90**	**3**	**65.8**	—	✓	4	✓	—
27.5	12077	1.0	**HDP 80**	**3**	**64.8**	—	✓	4	✓	—
29.8	11170	1.1	**HDP 80**	**3**	**59.9**	—	✓	4	✓	—
31	10751	1.6	**HDP 90**	**3**	**57.7**	—	✓	4	✓	—
34	9655	1.9	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
35	9621	1.2	**HDP 80**	**3**	**51.6**	—	✓	4	✓	—
39	8613	1.5	**HDP 80**	**3**	**46.2**	—	✓	4	✓	—
40	8307	2.1	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
45	7461	2.2	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
45	7419	1.6	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
46	7177	0.9	**HDP 70**	**3**	**38.5**	—	✓	4	✓	—
48	6869	1.0	**HDP 70**	**3**	**36.9**	—	✓	4	✓	—
49	6861	1.8	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
49	6822	2.5	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
54	6127	2.8	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
56	5916	1.1	**HDP 70**	**3**	**31.7**	—	✓	4	✓	—
56	5910	1.9	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
60	5582	2.1	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
60	5522	1.3	**HDP 70**	**3**	**29.6**	—	✓	4	✓	—
63	5259	0.9	**HDP 60**	**3**	**28.2**	—	✓	4	✓	—
69	4808	2.1	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
70	4756	1.4	**HDP 70**	**3**	**25.5**	—	✓	4	✓	—
70	4751	1.0	**HDP 60**	**3**	**25.5**	—	✓	4	✓	—
79	4228	1.1	**HDP 60**	**3**	**22.7**	—	✓	4	✓	—
79	4292	2.9	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
79	4289	1.7	**HDP 70**	**2**	**22.6**	—	✓	4	✓	—
92	3694	1.8	**HDP 70**	**2**	**19.4**	—	✓	4	✓	—
92	3690	1.3	**HDP 60**	**2**	**19.4**	—	✓	4	✓	—
101	3361	2.1	**HDP 70**	**2**	**17.7**	—	✓	4	✓	—
103	3283	1.6	**HDP 60**	**2**	**17.3**	—	✓	4	✓	—
117	2895	2.3	**HDP 70**	**2**	**15.2**	—	✓	4	✓	—
117	2892	1.6	**HDP 60**	**2**	**15.2**	—	✓	4	✓	—
122	2771	2.4	**HDP 70**	**2**	**14.6**	—	✓	4	✓	—
132	2573	2.0	**HDP 60**	**2**	**13.5**	—	✓	4	✓	—
142	2387	2.7	**HDP 70**	**2**	**12.6**	—	✓	4	✓	—
142	2384	2.0	**HDP 60**	**2**	**12.5**	—	✓	4	✓	—
152	2228	2.8	**HDP 70**	**2**	**11.7**	—	✓	4	✓	—
160	2121	2.3	**HDP 60**	**2**	**11.2**	—	✓	4	✓	—
177	1917	2.4	**HDP 60**	**2**	**10.1**	—	✓	4	✓	—
199	1705	2.7	**HDP 60**	**2**	**9.0**	—	✓	4	✓	—
222	1527	2.9	**HDP 60**	**2**	**8.0**	—	✓	4	✓	—



45 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
22.5	17970	1.0	**HDP 90**	**3**	**65.8**	—	✓	4	✓	—
25.7	15746	1.1	**HDP 90**	**3**	**57.7**	—	✓	4	✓	—
28.6	14142	1.3	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
32	12615	1.0	**HDP 80**	**3**	**46.2**	—	✓	4	✓	—
33	12167	1.4	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
37	10928	1.6	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
37	10866	1.2	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
40	10049	1.3	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
41	9992	1.7	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
45	8974	2.0	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
47	8656	1.3	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
50	8176	1.4	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
52	7721	2.2	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
57	7042	1.4	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
58	6966	1.0	**HDP 70**	**3**	**25.5**	—	✓	4	✓	—
58	6934	2.5	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
66	6281	1.1	**HDP 70**	**2**	**22.6**	—	✓	4	✓	—
66	6287	2.0	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
66	6229	2.7	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
76	5415	2.2	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
76	5410	1.2	**HDP 70**	**2**	**19.4**	—	✓	4	✓	—
82	5008	2.4	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
84	4923	1.4	**HDP 70**	**2**	**17.7**	—	✓	4	✓	—
86	4809	1.1	**HDP 60**	**2**	**17.3**	—	✓	4	✓	—
96	4314	2.7	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
97	4240	1.6	**HDP 70**	**2**	**15.2**	—	✓	4	✓	—
97	4236	1.1	**HDP 60**	**2**	**15.2**	—	✓	4	✓	—
102	4058	1.7	**HDP 70**	**2**	**14.6**	—	✓	4	✓	—
110	3769	1.4	**HDP 60**	**2**	**13.5**	—	✓	4	✓	—
118	3496	1.9	**HDP 70**	**2**	**12.6**	—	✓	4	✓	—
118	3492	1.4	**HDP 60**	**2**	**12.5**	—	✓	4	✓	—
127	3263	2.0	**HDP 70**	**2**	**11.7**	—	✓	4	✓	—
133	3107	1.7	**HDP 60**	**2**	**11.2**	—	✓	4	✓	—
147	2810	2.3	**HDP 70**	**2**	**10.1**	—	✓	4	✓	—
147	2807	1.7	**HDP 60**	**2**	**10.1**	—	✓	4	✓	—
159	2599	2.4	**HDP 70**	**2**	**9.3**	—	✓	4	✓	—
165	2498	2.0	**HDP 60**	**2**	**9.0**	—	✓	4	✓	—
184	2239	2.7	**HDP 70**	**2**	**8.0**	—	✓	4	✓	—
185	2237	2.1	**HDP 60**	**2**	**8.0**	—	✓	4	✓	—
207	1990	2.3	**HDP 60**	**2**	**7.1**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.4	16559	1.0	**HDP 90**	**3**	**73.3**	—	✓	4	✓	—
27.1	14872	1.2	**HDP 90**	**3**	**65.8**	—	✓	4	✓	—
29.8	13539	0.9	**HDP 80**	**3**	**59.9**	—	✓	4	✓	—
31	13031	1.3	**HDP 90**	**3**	**57.7**	—	✓	4	✓	—
35	11703	1.5	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
35	11661	1.0	**HDP 80**	**3**	**51.6**	—	✓	4	✓	—
39	10440	1.2	**HDP 80**	**3**	**46.2**	—	✓	4	✓	—
40	10069	1.7	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
45	9044	1.8	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
45	8992	1.3	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
49	8317	1.5	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
49	8269	2.1	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
54	7427	2.3	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
56	7171	0.9	**HDP 70**	**3**	**31.7**	—	✓	4	✓	—
56	7163	1.6	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
60	6766	1.7	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
60	6693	1.1	**HDP 70**	**3**	**29.6**	—	✓	4	✓	—
63	6390	2.6	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
69	5828	1.7	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
70	5765	1.2	**HDP 70**	**3**	**25.5**	—	✓	4	✓	—
70	5739	2.8	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
79	5198	1.4	**HDP 70**	**2**	**22.6**	—	✓	4	✓	—
79	5203	2.4	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
92	4481	2.7	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
92	4477	1.5	**HDP 70**	**2**	**19.4**	—	✓	4	✓	—
92	4473	1.1	**HDP 60**	**2**	**19.4**	—	✓	4	✓	—
99	4145	2.9	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
101	4074	1.7	**HDP 70**	**2**	**17.7**	—	✓	4	✓	—
103	3980	1.3	**HDP 60**	**2**	**17.3**	—	✓	4	✓	—
117	3509	1.9	**HDP 70**	**2**	**15.2**	—	✓	4	✓	—
117	3506	1.3	**HDP 60**	**2**	**15.2**	—	✓	4	✓	—
123	3359	2.0	**HDP 70**	**2**	**14.6**	—	✓	4	✓	—
132	3119	1.7	**HDP 60**	**2**	**13.5**	—	✓	4	✓	—
142	2893	2.3	**HDP 70**	**2**	**12.6**	—	✓	4	✓	—
142	2890	1.6	**HDP 60**	**2**	**12.5**	—	✓	4	✓	—
152	2700	2.3	**HDP 70**	**2**	**11.7**	—	✓	4	✓	—
160	2571	1.9	**HDP 60**	**2**	**11.2**	—	✓	4	✓	—
177	2326	2.6	**HDP 70**	**2**	**10.1**	—	✓	4	✓	—
177	2323	2.0	**HDP 60**	**2**	**10.1**	—	✓	4	✓	—
191	2151	2.7	**HDP 70**	**2**	**9.3**	—	✓	4	✓	—
199	2067	2.2	**HDP 60**	**2**	**9.0**	—	✓	4	✓	—
222	1851	2.4	**HDP 60**	**2**	**8.0**	—	✓	4	✓	—
250	1647	2.6	**HDP 60**	**2**	**7.1**	—	✓	4	✓	—

55 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
28.6	17272	1.0	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
33	14861	1.2	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
37	13347	1.3	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
37	13271	0.9	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
40	12274	1.0	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
41	12204	1.4	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
45	10961	1.6	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
47	10572	1.1	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
50	9986	1.2	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
52	9430	1.8	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
57	8601	1.2	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
58	8470	2.0	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
66	7678	1.6	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
66	7608	2.3	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
74	6833	2.6	**HDP 90**	**2**	**20.1**	—	✓	4	✓	—
76	6613	1.8	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
82	6117	2.0	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
84	5987	2.9	**HDP 90**	**2**	**17.6**	—	✓	4	✓	—
96	5268	2.2	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
101	4976	2.5	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—
118	4286	2.7	**HDP 80**	**2**	**12.6**	—	✓	4	✓	—
130	3888	3.0	**HDP 80**	**2**	**11.4**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
27.1	18156	1.0	**HDP 90**	**3**	**65.8**	—	✓	4	✓	—
31	15909	1.1	**HDP 90**	**3**	**57.7**	—	✓	4	✓	—
35	14288	1.3	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
39	12745	1.0	**HDP 80**	**3**	**46.2**	—	✓	4	✓	—
40	12293	1.4	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
45	11041	1.5	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
45	10978	1.1	**HDP 80**	**3**	**39.8**	—	✓	4	✓	—
49	10153	1.2	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
49	10095	1.7	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
54	9067	1.9	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
56	8745	1.3	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
60	8260	1.4	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
63	7801	2.1	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
69	7115	1.4	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
70	7006	2.3	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
79	6352	2.0	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
80	6293	2.7	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
92	5471	2.2	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
99	5060	2.4	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
115	4358	2.7	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
122	4116	2.9	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—

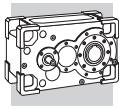
75 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
37	18200	1.0	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
41	16642	1.0	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
45	14946	1.2	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
53	12860	1.3	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
59	11549	1.5	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
66	10470	1.2	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
66	10374	1.7	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
74	9317	1.9	**HDP 90**	**2**	**20.1**	—	✓	4	✓	—
76	9018	1.3	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
83	8341	1.4	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
84	8164	2.1	**HDP 90**	**2**	**17.6**	—	✓	4	✓	—
94	7332	2.3	**HDP 90**	**2**	**15.8**	—	✓	4	✓	—
96	7184	1.6	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
102	6786	1.8	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
35	19554	0.9	**HDP 90**	**3**	**51.8**	—	✓	4	✓	—
40	16824	1.0	**HDP 90**	**3**	**44.6**	—	✓	4	✓	—
45	15110	1.1	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
49	13896	0.9	**HDP 80**	**3**	**36.8**	—	✓	4	✓	—
49	13817	1.2	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
54	12409	1.4	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
56	11969	0.9	**HDP 80**	**3**	**31.7**	—	✓	4	✓	—
60	11305	1.0	**HDP 80**	**3**	**30.0**	—	✓	4	✓	—
63	10676	1.6	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
69	9737	1.0	**HDP 80**	**3**	**25.8**	—	✓	4	✓	—
70	9589	1.7	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
79	8693	1.4	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
80	8613	2.0	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
89	7735	2.2	**HDP 90**	**2**	**20.1**	—	✓	4	✓	—



75 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
109	6309	2.6	**HDP 90**	**2**	**13.6**	—	✓	4	✓	—
118	5845	2.0	**HDP 80**	**2**	**12.6**	—	✓	4	✓	—
122	5666	2.8	**HDP 90**	**2**	**12.2**	—	✓	4	✓	—
130	5301	2.2	**HDP 80**	**2**	**11.4**	—	✓	4	✓	—
133	5195	3.0	**HDP 90**	**2**	**11.2**	—	✓	4	✓	—
151	4566	2.4	**HDP 80**	**2**	**9.8**	—	✓	4	✓	—
159	4342	2.5	**HDP 80**	**2**	**9.4**	—	✓	4	✓	—
184	3740	2.8	**HDP 80**	**2**	**8.1**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
92	7487	1.6	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
99	6925	1.7	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
102	6778	2.5	**HDP 90**	**2**	**17.6**	—	✓	4	✓	—
113	6087	2.6	**HDP 90**	**2**	**15.8**	—	✓	4	✓	—
115	5965	2.0	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
122	5634	2.1	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—
132	5238	3.0	**HDP 90**	**2**	**13.6**	—	✓	4	✓	—
142	4853	2.4	**HDP 80**	**2**	**12.6**	—	✓	4	✓	—
157	4401	2.5	**HDP 80**	**2**	**11.4**	—	✓	4	✓	—
182	3791	2.8	**HDP 80**	**2**	**9.8**	—	✓	4	✓	—
191	3605	2.8	**HDP 80**	**2**	**9.4**	—	✓	4	✓	—

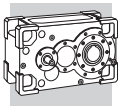
90 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
45	17886	1.0	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
53	15389	1.1	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
59	13821	1.2	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
66	12530	1.0	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
66	12415	1.4	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
74	11150	1.6	**HDP 90**	**2**	**20.1**	—	✓	4	✓	—
76	10792	1.1	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
83	9981	1.2	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
84	9770	1.8	**HDP 90**	**2**	**17.6**	—	✓	4	✓	—
94	8774	1.9	**HDP 90**	**2**	**15.8**	—	✓	4	✓	—
96	8597	1.4	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
102	8120	1.5	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—
109	7550	2.2	**HDP 90**	**2**	**13.6**	—	✓	4	✓	—
118	6994	1.6	**HDP 80**	**2**	**12.6**	—	✓	4	✓	—
122	6780	2.3	**HDP 90**	**2**	**12.2**	—	✓	4	✓	—
130	6344	1.8	**HDP 80**	**2**	**11.4**	—	✓	4	✓	—
133	6217	2.5	**HDP 90**	**2**	**11.2**	—	✓	4	✓	—
148	5584	2.6	**HDP 90**	**2**	**10.1**	—	✓	4	✓	—
151	5464	2.0	**HDP 80**	**2**	**9.8**	—	✓	4	✓	—
159	5196	2.1	**HDP 80**	**2**	**9.4**	—	✓	4	✓	—
168	4901	2.9	**HDP 90**	**2**	**8.8**	—	✓	4	✓	—
184	4476	2.3	**HDP 80**	**2**	**8.1**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
45	18125	0.9	**HDP 90**	**3**	**40.0**	—	✓	4	✓	—
49	16573	1.0	**HDP 90**	**3**	**36.6**	—	✓	4	✓	—
54	14884	1.2	**HDP 90**	**3**	**32.9**	—	✓	4	✓	—
63	12806	1.3	**HDP 90**	**3**	**28.3**	—	✓	4	✓	—
70	11502	1.4	**HDP 90**	**3**	**25.4**	—	✓	4	✓	—
79	10427	1.2	**HDP 80**	**2**	**22.6**	—	✓	4	✓	—
80	10331	1.7	**HDP 90**	**2**	**22.4**	—	✓	4	✓	—
89	9279	1.8	**HDP 90**	**2**	**20.1**	—	✓	4	✓	—
92	8981	1.3	**HDP 80**	**2**	**19.4**	—	✓	4	✓	—
99	8306	1.4	**HDP 80**	**2**	**18.0**	—	✓	4	✓	—
102	8130	2.1	**HDP 90**	**2**	**17.6**	—	✓	4	✓	—
113	7302	2.2	**HDP 90**	**2**	**15.8**	—	✓	4	✓	—
115	7154	1.6	**HDP 80**	**2**	**15.5**	—	✓	4	✓	—
122	6758	1.7	**HDP 80**	**2**	**14.6**	—	✓	4	✓	—
132	6283	2.5	**HDP 90**	**2**	**13.6**	—	✓	4	✓	—
142	5821	2.0	**HDP 80**	**2**	**12.6**	—	✓	4	✓	—
146	5642	2.6	**HDP 90**	**2**	**12.2**	—	✓	4	✓	—
157	5279	2.1	**HDP 80**	**2**	**11.4**	—	✓	4	✓	—
160	5174	2.8	**HDP 90**	**2**	**11.2**	—	✓	4	✓	—
182	4547	2.3	**HDP 80**	**2**	**9.8**	—	✓	4	✓	—
191	4324	2.3	**HDP 80**	**2**	**9.4**	—	✓	4	✓	—
222	3724	2.6	**HDP 80**	**2**	**8.1**	—	✓	4	✓	—

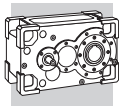


18 MASS MOMENT OF INERTIA

Moments of inertia listed refer to gearbox input shaft and apply exclusively for configurations with a single extension input and output shaft.

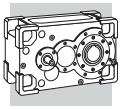
	i_N	$J \cdot 10^{-4}$ [kg m^2]													
		HDP 60	**HDP 70**	**HDP 80**	**HDP 90**	**HDP 100**	**HDP 110**	**HDP 120**	**HDP 125**	**HDP 130**	**HDP 140**	**HDP 150**	**HDP 160**	**HDP 170**	**HDP 180**
2x	**7.1**	120	—	—	—	1220	—	—	—	5602	—	—	—		
	8.0	116	143	335	600	1170	1288	2558	—	5402	6157	12297	—		
	9.0	95	133	314	570	918	1232	2481	2729	4446	5858	11477	13554		
	10.0	92	109	263	440	884	963	1804	2643	4303	4840	11094	12503		
	11.2	68	103	248	421	682	926	1759	1905	3050	4627	7584	12014		
	12.5	67	77	183	324	661	712	1285	1854	2967	3279	7165	8226		
	14.0	54	74	175	311	508	688	1256	1348	1916	3155	6970	7689		
	16.0	53	60	132	226	494	526	1038	1316	1863	2062	4651	7439		
	18.0	33	58	127	219	388	511	1019	1080	1418	1983	4434	4983		
	20.0	33	40	99	171	379	399	717	1059	1383	1514	4332	4705		
	22.4	—	38	95	166	374	390	705	742	1621	1462	—	4576		
	25.0	—	—	—	—	—	378	689	729	—	1401	—	—		
3x	**22.4**	33	—	—	—	346	—	—	—	1365	—	4112	—		
	25.0	33	36	85	177	341	354	468	—	1343	1427	4002	4282		
	28.0	29	35	83	174	307	348	461	485	1147	1394	3950	4140		
	31.5	29	30	68	156	304	312	382	476	1134	1183	3433	4074		
	35.5	27	30	67	154	279	308	378	393	1031	1163	3375	3521		
	40.0	27	28	67	91	277	282	341	387	1023	1054	3348	3447		
	45.0	24	27	66	90	261	280	338	348	959	1041	1306	3413		
	50.0	24	25	44	82	260	263	296	345	953	974	1278	1347		
	56.0	11	25	44	82	110	262	294	300	414	966	1266	1312		
	63.0	11	12	41	77	109	111	137	298	410	451	1139	1296		
	71.0	11	12	41	77	102	110	136	140	384	446	1125	1161		
	80.0	11	11	21	39	102	103	126	138	382	390	1118	1143		
	90.0	10	11	21	38	97	103	126	128	365	387	—	1134		
	100.0	10	10	20	36	97	98	112	127	364	369	—	—		
	112.0	—	10	20	36	97	97	111	116	374	367	—	—		
	125.0	—	—	—	—	—	97	111	115	—	365	—	—		
4x	**90.0**	—	—	—	—	—	—	—	—	—	—	510	—		
	100.0	—	—	—	—	—	—	—	—	—	—	503	519		
	112.0	—	—	—	—	46	—	—	—	244	—	500	511		
	125.0	—	—	—	—	46	47	51	—	243	—	470	507		
	140.0	—	—	—	—	45	46	51	52	237	245	466	475		
	160.0	—	—	—	—	44	45	49	52	239	238	465	471		
	180.0	—	—	—	—	43	40	49	45	214	237	184	469		
	200.0	—	—	—	—	43	44	46	45	214	233	182	187		
	224.0	—	—	—	—	39	43	46	43	212	215	181	184		
	250.0	—	—	—	—	39	16	41	43	211	212	173	183		
	280.0	—	—	—	—	16	16	41	41	74	212	172	175		
	315.0	—	—	—	—	16	16	17	18	73	74	172	173		
	355.0	—	—	—	—	15	16	17	17	68	74	—	173		
	400.0	—	—	—	—	15	15	15	16	68	68	—	—		
	450.0	—	—	—	—	14	15	16	16	67	68	—	—		
	500.0	—	—	—	—	14	14	15	16	67	67	—	—		

BONFIGLIOLI TECHNICAL SERVICE



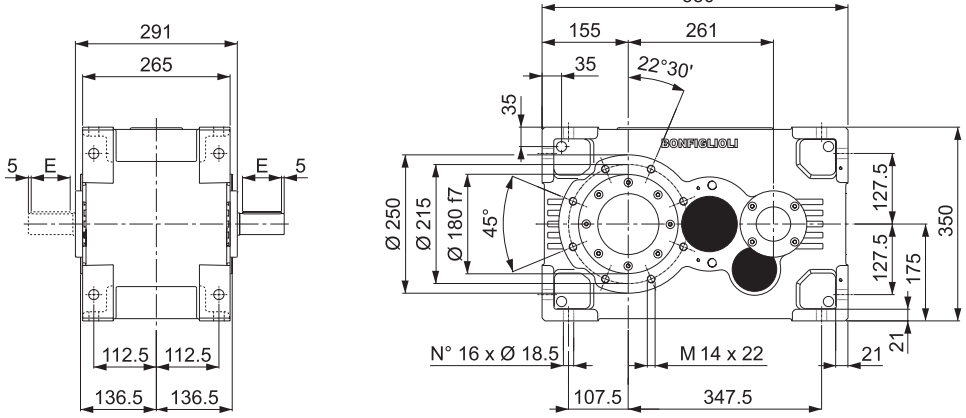
19 EXACT RATIOS

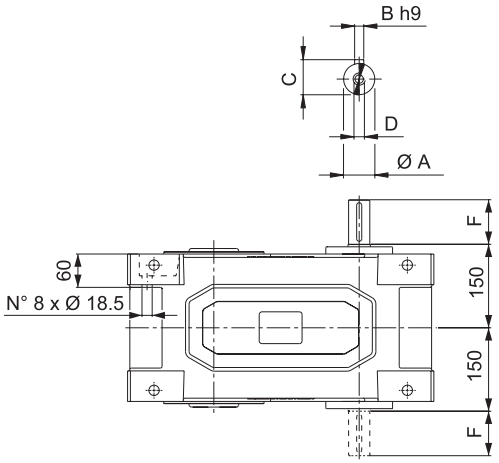
	i_N	i													
		HDP 60	HDP 70	HDP 80	HDP 90	HDP 100	HDP 110	HDP 120	HDP 125	HDP 130	HDP 140	HDP 150	HDP 160	HDP 170	HDP 180
2x	7.1	7.146	—	—	—	7.400	—	—	—	7.263	—	—	—	—	—
	8.0	8.031	8.039	8.063	7.929	8.222	8.085	7.907	—	7.929	8.359	7.905	—	7.833	—
	9.0	8.969	9.333	9.361	8.828	9.106	8.956	8.611	8.922	8.613	9.250	9.263	8.977	9.092	8.704
	10.0	10.079	10.090	9.844	10.059	10.118	9.949	10.302	9.601	9.402	9.913	10.087	10.478	9.848	10.071
	11.2	11.156	11.714	11.429	11.200	11.250	11.021	11.219	11.624	11.307	10.969	11.063	11.389	11.278	10.892
	12.5	12.538	12.551	12.600	12.214	12.500	12.292	13.013	12.508	12.343	13.013	12.963	12.563	13.090	12.531
	14.0	13.533	14.571	14.629	13.600	14.160	13.616	14.171	14.682	14.133	14.400	14.116	14.663	14.178	14.500
	16.0	15.209	15.225	15.488	15.807	15.733	15.471	15.976	15.800	15.429	16.267	15.370	15.938	15.361	15.681
	18.0	17.267	17.676	17.981	17.600	18.000	17.138	17.398	18.025	17.431	18.000	18.010	17.454	17.830	17.068
	20.0	19.404	19.425	19.441	20.086	20.000	19.667	20.624	19.397	19.029	20.062	19.612	20.371	19.311	19.750
	22.4	—	22.552	22.571	22.364	21.786	21.786	22.459	23.269	21.652	22.200	—	22.143	—	21.359
	25.0	—	—	—	—	—	25.000	25.357	25.040	—	24.941	—	—	—	—
3x	22.4	22.686	—	—	—	22.765	—	—	—	21.785	—	21.510	—	23.182	—
	25.0	25.494	25.521	25.800	25.406	25.294	24.873	25.756	—	23.781	25.073	25.205	24.427	26.908	25.758
	28.0	28.219	29.630	29.954	28.288	28.125	27.553	28.048	29.059	28.599	27.744	27.448	28.510	29.143	29.806
	31.5	31.713	31.746	31.713	32.878	31.250	30.729	32.533	31.271	31.220	32.916	29.886	30.990	31.576	32.234
	35.5	34.231	36.857	36.818	36.608	35.400	34.040	35.429	36.706	35.749	36.424	35.019	33.938	36.650	35.084
	40.0	38.470	38.510	39.809	40.036	39.333	38.678	39.940	39.500	39.025	41.145	38.135	39.611	39.695	40.597
	45.0	43.675	44.710	46.218	44.578	45.000	42.845	43.495	45.063	44.090	45.529	43.460	43.056	45.111	43.905
	50.0	49.082	49.134	51.625	51.811	50.000	49.167	51.560	48.493	48.131	50.746	50.924	49.353	52.361	50.123
	56.0	56.578	57.044	59.937	57.689	55.547	54.464	56.148	58.172	56.533	56.153	55.456	57.603	56.711	58.000
	63.0	63.583	63.650	64.805	65.837	61.719	60.690	64.253	62.600	61.714	65.067	60.381	62.612	61.444	62.726
	71.0	68.633	73.898	75.238	73.306	69.915	67.229	69.971	72.494	70.667	72.000	70.752	68.568	71.319	68.272
	80.0	77.131	77.213	76.405	77.818	77.683	76.389	78.882	78.013	77.143	81.333	77.048	80.031	77.244	79.000
	90.0	87.567	89.644	88.706	86.646	88.875	84.619	85.902	88.999	87.156	90.000	—	86.990	—	85.437
	100.0	98.408	98.513	95.911	98.884	98.750	97.104	101.830	95.774	95.143	100.311	—	—	—	—
	112.0	—	114.373	111.352	110.102	107.567	107.567	110.892	114.890	108.259	111.000	—	—	—	—
	125.0	—	—	—	—	—	123.438	125.201	123.636	—	124.704	—	—	—	—
4x	90.0	—	—	—	—	—	—	—	—	—	—	88.989	—	92.728	—
	100.0	—	—	—	—	—	—	—	—	—	—	104.273	101.055	107.631	103.032
	112.0	—	—	—	—	110.625	—	—	—	111.182	—	113.553	117.948	116.573	119.222
	125.0	—	—	—	—	122.917	120.868	127.964	—	121.371	—	123.638	128.205	126.302	128.937
	140.0	—	—	—	—	139.240	133.891	139.352	144.376	138.978	141.600	144.873	140.402	146.601	140.336
	160.0	—	—	—	—	154.711	168.525	157.099	155.367	151.714	159.956	157.765	163.872	158.780	162.389
	180.0	—	—	—	—	177.000	190.972	171.080	181.235	176.667	177.000	170.942	178.122	177.437	175.621
	200.0	—	—	—	—	196.667	193.389	202.801	195.031	192.857	197.279	200.301	194.121	205.954	197.152
	225.0	—	—	—	—	222.188	214.226	220.849	222.499	217.889	225.000	218.127	226.571	223.064	228.133
	250.0	—	—	—	—	246.875	248.643	254.575	246.228	237.857	250.778	237.499	246.272	241.681	246.722
	280.0	—	—	—	—	286.437	275.434	277.231	287.226	274.481	277.500	278.290	269.702	280.523	268.535
	315.0	—	—	—	—	318.263	312.958	323.176	319.611	299.636	315.912	303.056	314.787	303.828	310.733
	355.0	—	—	—	—	359.563	346.679	351.936	364.624	348.917	349.575	—	342.160	—	336.052
	400.0	—	—	—	—	399.514	392.856	405.681	401.207	380.893	401.583	—	—	—	—
	450.0	—	—	—	—	457.071	440.694	454.317	457.712	469.768	444.375	—	—	—	—
	500.0	—	—	—	—	507.857	499.393	523.697	506.527	534.530	495.286	—	—	—	—



20 DIMENSIONS AND WEIGHT

HDP 60



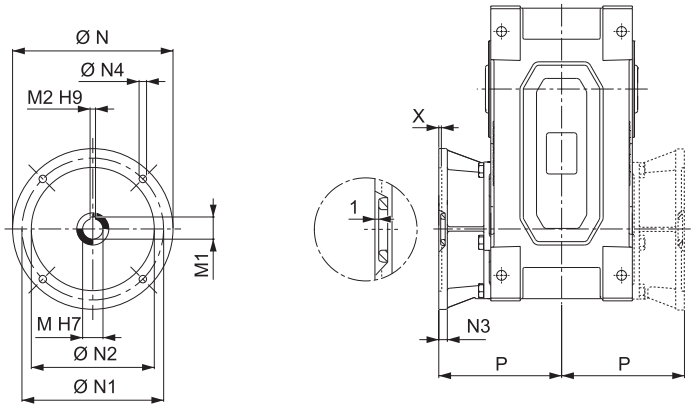


VP

Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	Kg LP
HDP 60 2	**7.1 ... 15.2**	38 k6	10	41	M12x28	70	80	161
HDP 60 2	**17.3 ... 19.4**	32 k6	10	35	M12x28	70	80	161
HDP 60 3	**22.7 ... 49.1**	32 k6	10	35	M12x28	70	80	164
HDP 60 3	**56.6 ... 98.4**	28 j6	8	31	M10x22	50	60	164

AD

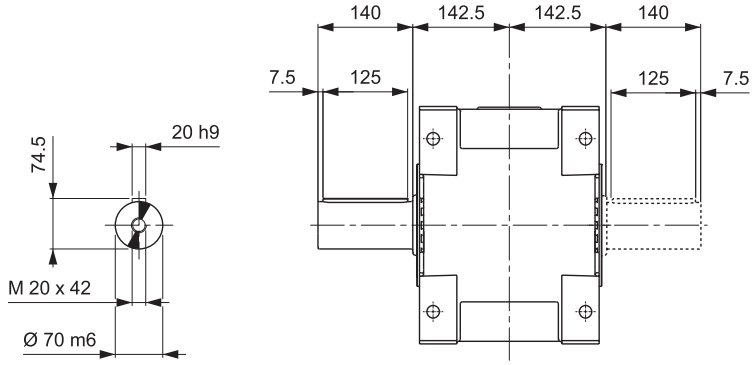


Dimensions are in [mm].

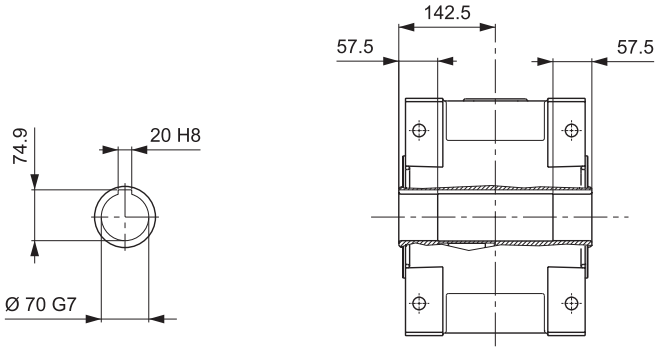
AD	M [mm]	M1 [mm]	M2 [mm]	N [mm]	N1 [mm]	N2 [mm]	N3 [mm]	N4 [mm]	X [mm]	P [mm]
HDP 60 3_ 112	28	31.3	8	250	215	180	15	14	5	220
HDP 60 3_ 132	38	41.3	10	300	265	230	16	14	5	230
HDP 60 3_ 160	42	45.3	12	350	300	250	23	18	6	261
HDP 60 3_ 180	48	51.8	14	350	300	250	23	18	6	261

HDP 60

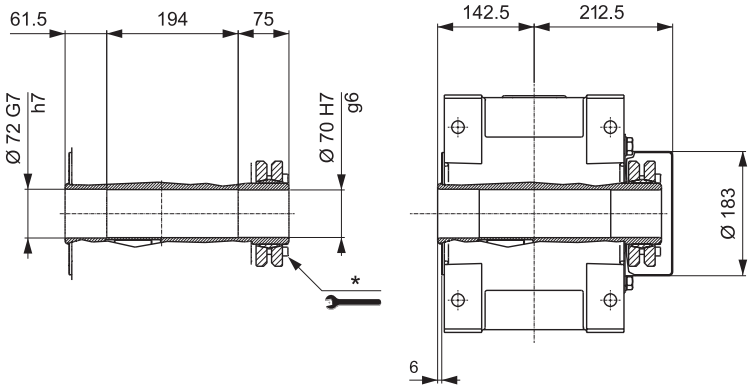
LP



H



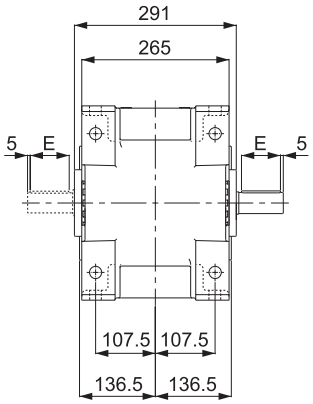
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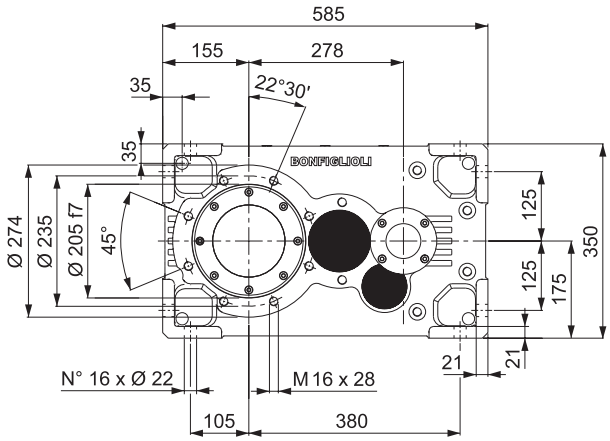


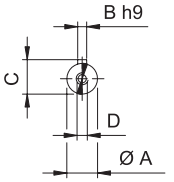
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

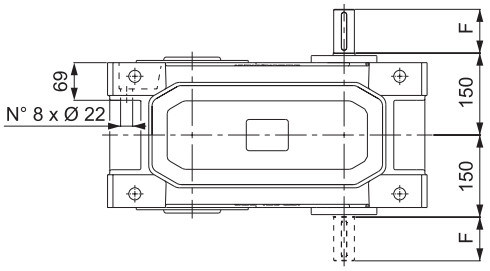
HDP 70







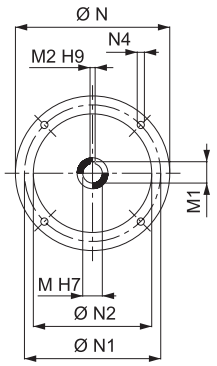
VP

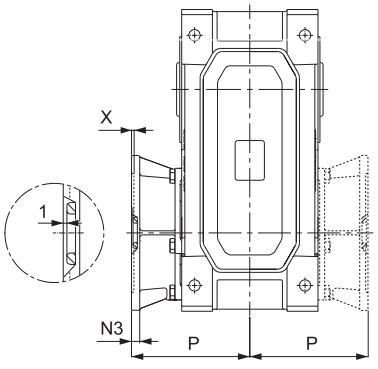


Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	Kg LP
HDP 70 2	**8.0 ... 17.7**	38 k6	10	41	M12x28	70	80	189
HDP 70 2	**19.4 ... 22.6**	32 k6	10	35	M12x28	70	80	189
HDP 70 3	**25.5 ... 57.0**	32 k6	10	35	M12x28	70	80	192
HDP 70 3	**63.7 ... 114.4**	28 j6	8	31	M10x22	50	60	192

AD



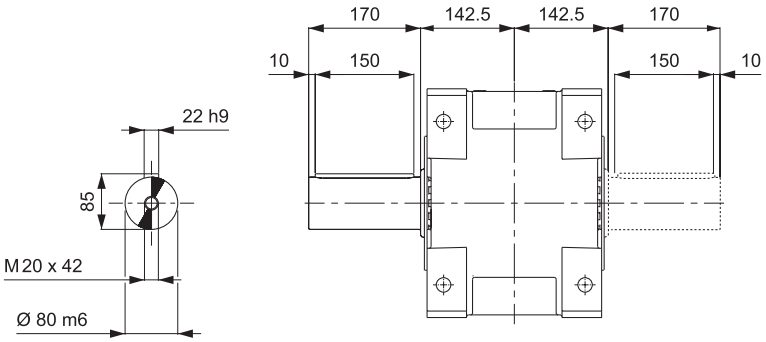


Dimensions are in [mm].

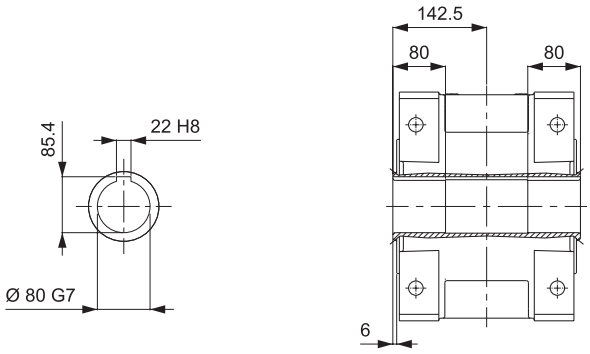
AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 70 3_ 112	28	31.3	8	250	215	180	15	14	5	220
HDP 70 3_ 132	38	41.3	10	300	265	230	16	14	5	230
HDP 70 3_ 160	42	45.3	12	350	300	250	23	18	6	261
HDP 70 3_ 180	48	51.8	14	350	300	250	23	18	6	261
HDP 70 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	286

HDP 70

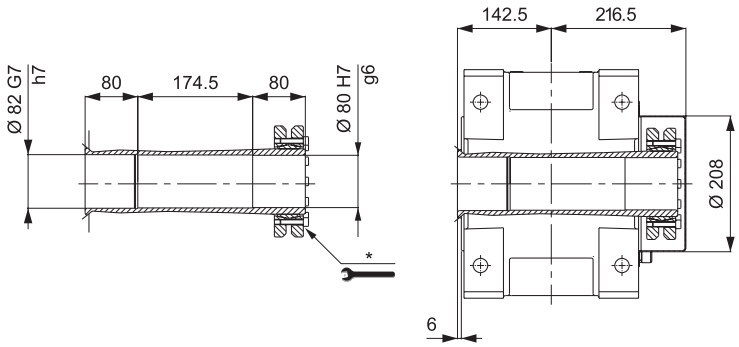
LP



H



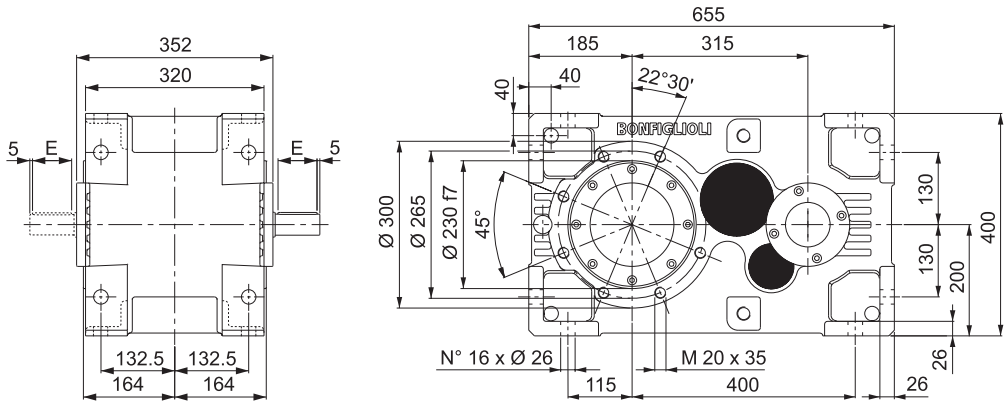
S



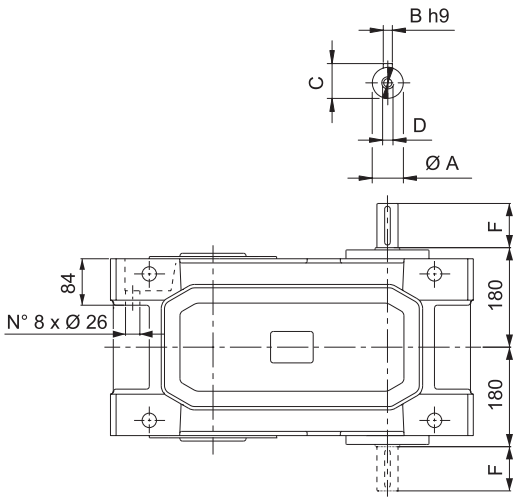
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDP 80



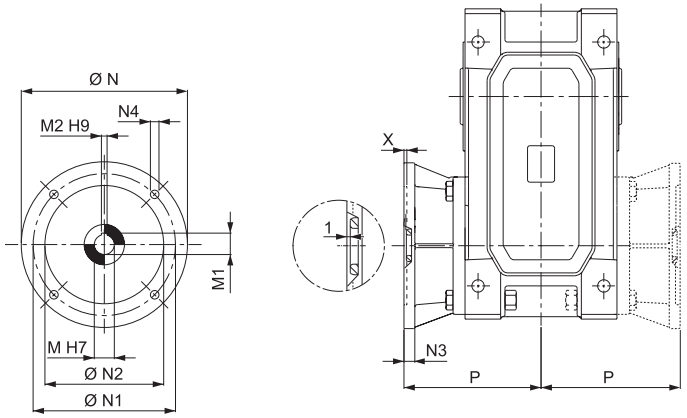
VP



Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	Kg LP
HDP 80 2	**8.1 ... 14.6**	45 k6	14	48.5	M16x36	100	110	301
HDP 80 2	**15.5 ... 22.6**	38 k6	10	41	M12x28	70	80	301
HDP 80 3	**25.8 ... 75.2**	38 k6	10	41	M12x28	70	80	306
HDP 80 3	**76.4 ... 114.4**	28 j6	8	31	M10x22	50	60	306

AD

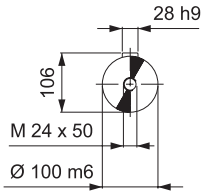


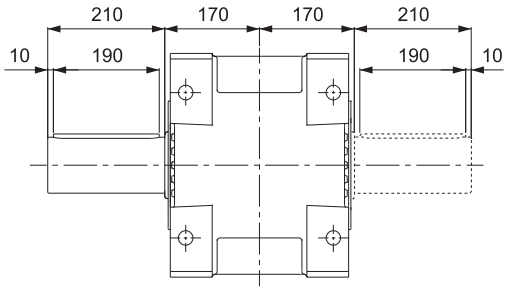
Dimensions are in [mm].

AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 80 3_ 132	38	41.3	10	300	265	230	16	14	5	257.5
HDP 80 3_ 160	42	45.3	12	350	300	250	23	18	6	288.5
HDP 80 3_ 180	48	51.8	14	350	300	250	23	18	6	288.5
HDP 80 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	313.5

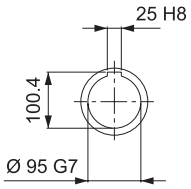
HDP 80

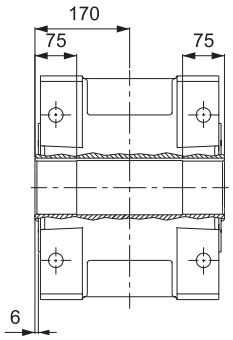
LP



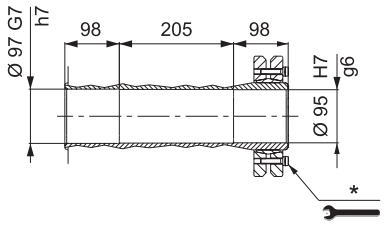


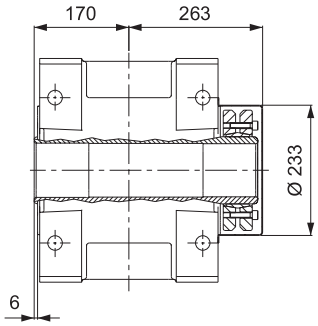
H





S

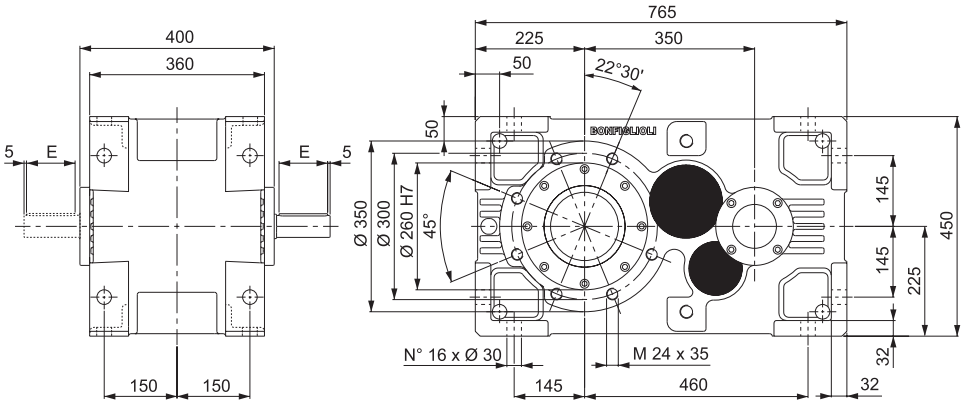




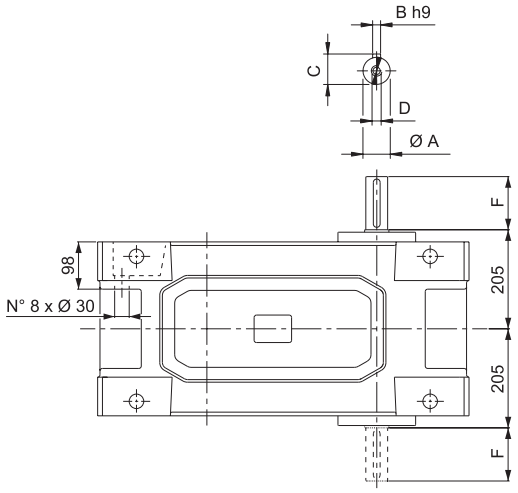
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDP 90



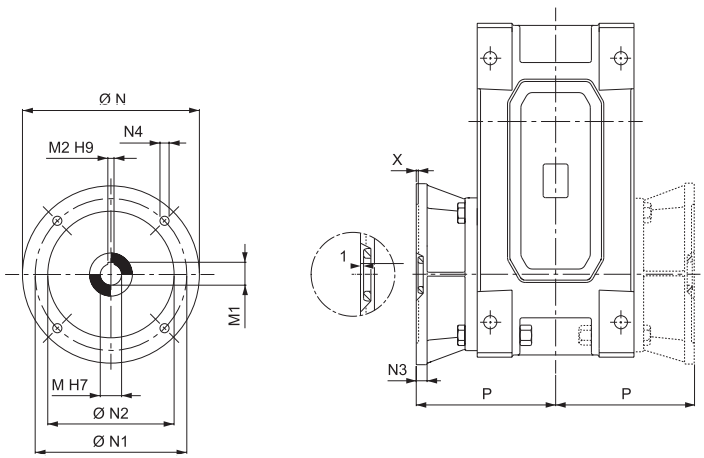
VP



Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	Kg LP
HDP 90 2	**7.9 ... 13.6**	50 k6	14	53.5	M16x36	100	110	429
HDP 90 2	**15.8 ... 22.4**	45 k6	14	48.5	M16x36	100	110	429
HDP 90 3	**25.4 ... 73.3**	45 k6	14	48.5	M16x36	100	110	440
HDP 90 3	**77.8 ... 110.1**	32 k6	10	35	M12x28	70	80	440

AD

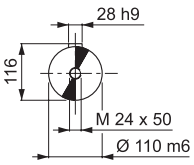


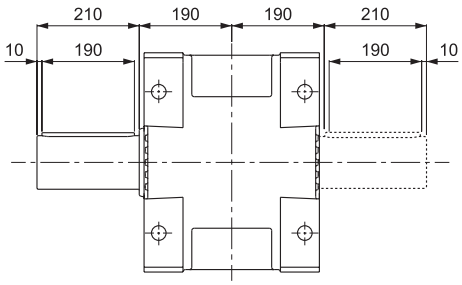
Dimensions are in [mm].

AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 90 3_ 160	42	45.3	12	350	300	250	23	18	6	308.5
HDP 90 3_ 180	48	51.8	14	350	300	250	23	18	6	308.5
HDP 90 3_ 200	55	59.3	16	400	350	300	-	M16x23	7	333.5

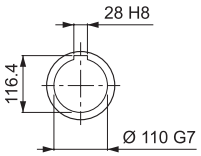
HDP 90

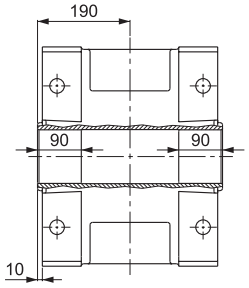
LP



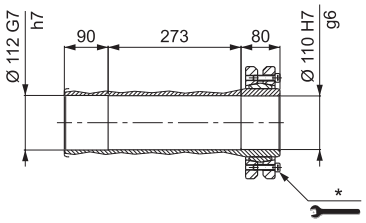


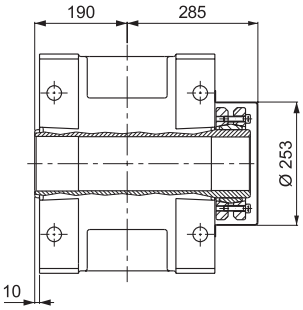
H





S



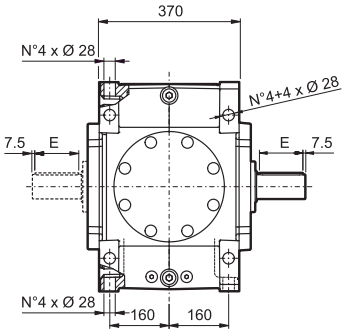


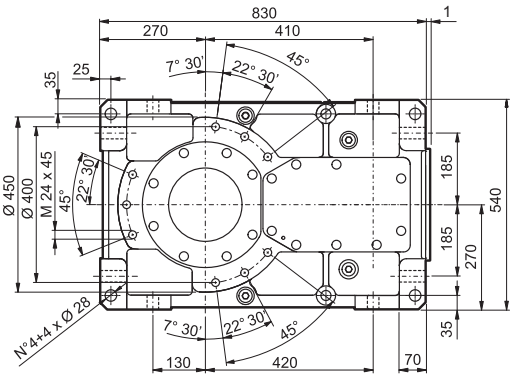
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

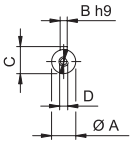
Dimensions are in [mm].

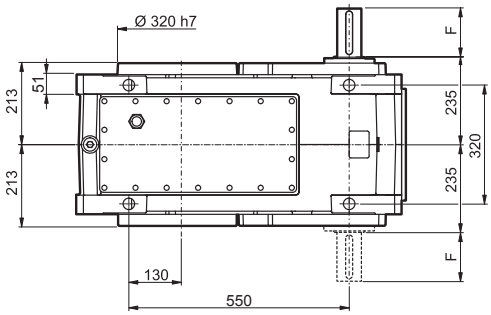
HDP 100

HDP 100 2

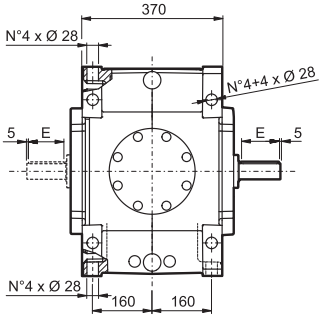


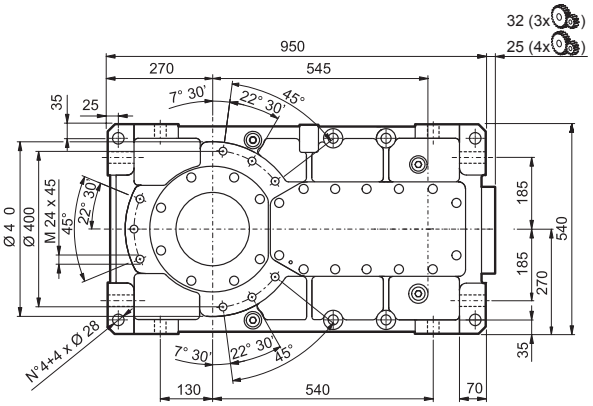


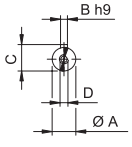


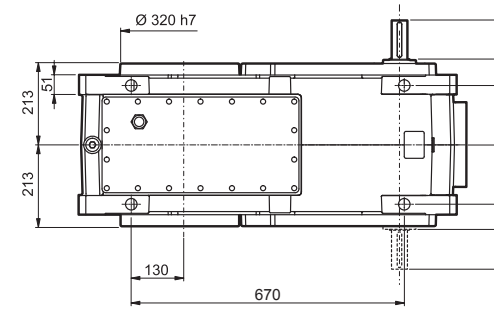


HDP 100 3
HDP 100 4







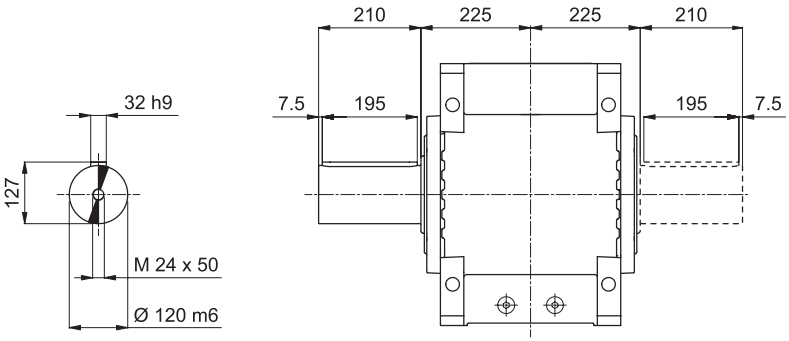


Dimensions are in [mm].

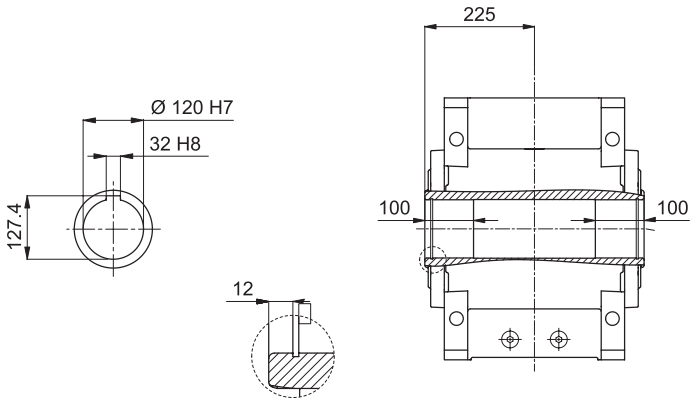
VP	i =	A	B	C	D	E	F	Kg LP
HDP 100 2	**7.4 … 21.8**	60 m6	18	64	M20x42	125	140	625
HDP 100 3	**22.8 … 50**	48 k6	14	51.5	M16x36	100	110	700
HDP 100 3	**55.5 … 107.8**	45 k6	14	48.5	M16x36	100	110	700
HDP 100 4	**110.6 … 507.9**	32 k6	10	35	M12x28	70	80	715

HDP 100

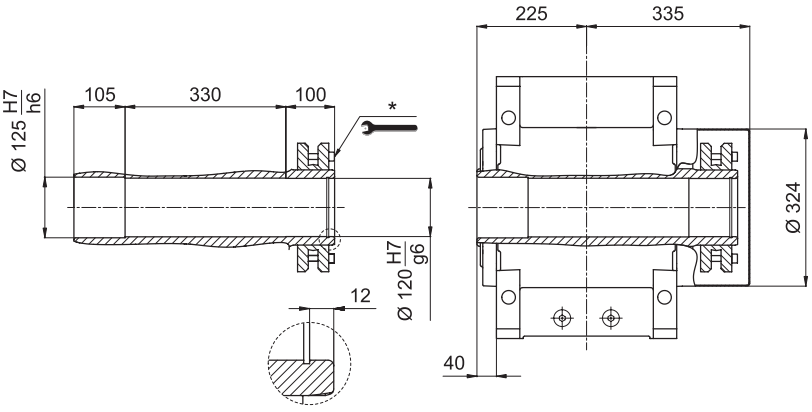
LP



H



S

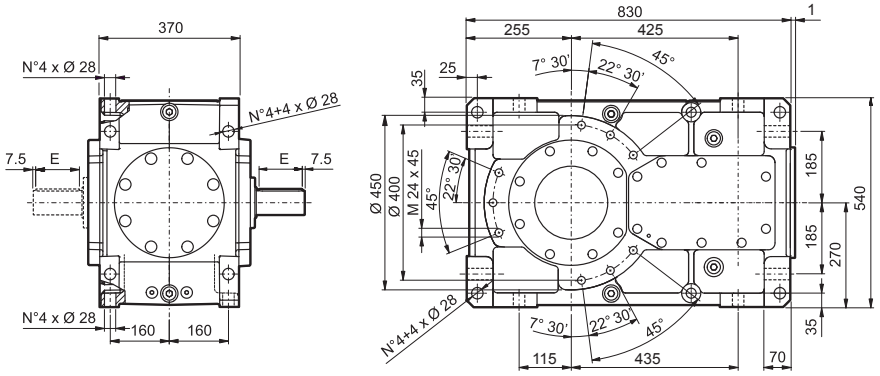


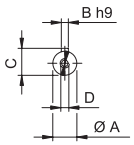
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

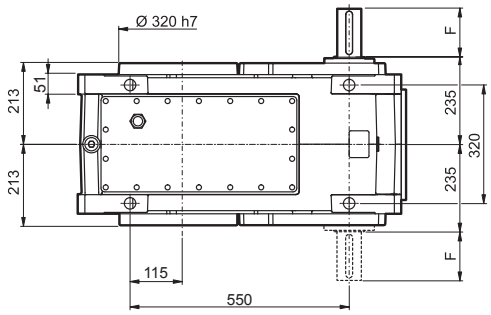
Dimensions are in [mm].

HDP 110

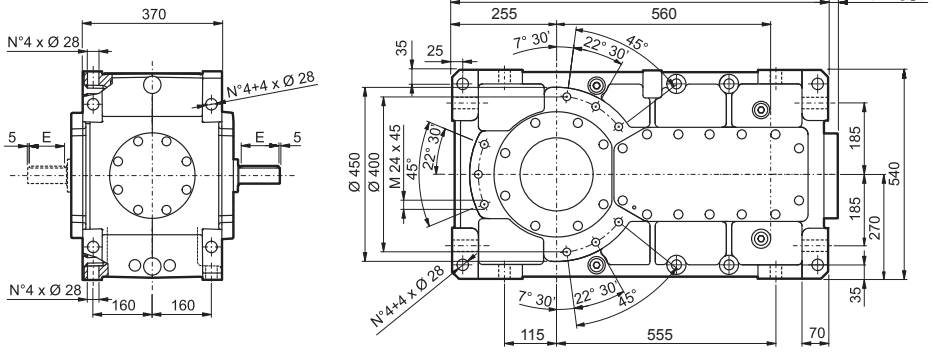
HDP 110 2

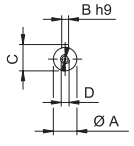


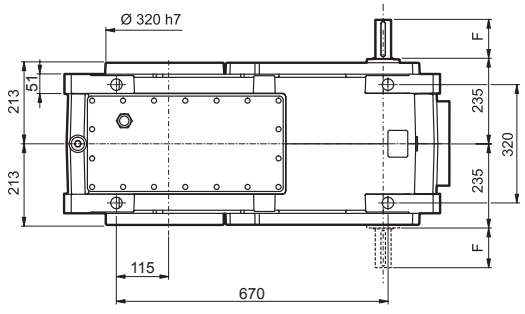




HDP 110 3
HDP 110 4





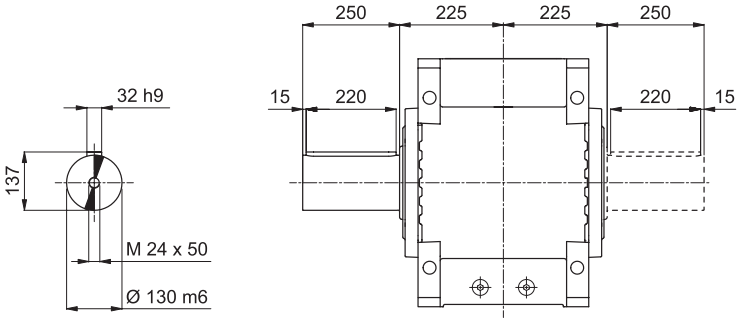


Dimensions are in [mm].

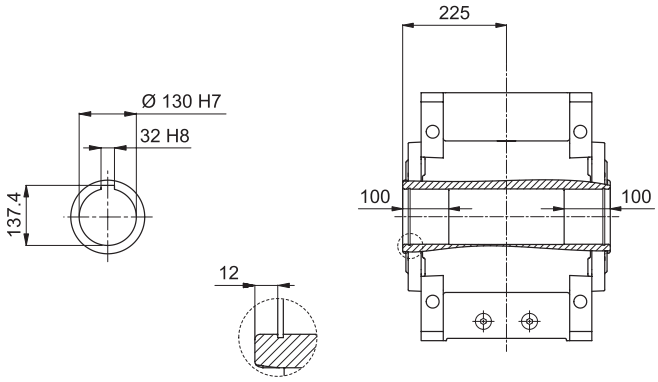
VP	i =	A	B	C	D	E	F	Kg LP
HDP 110 2	**8.1 … 25.0**	60 m6	18	64	M20x42	125	140	670
HDP 110 3	**24.9 … 54.5**	48 k6	14	51.5	M16x36	100	110	740
HDP 110 3	**60.7 … 123.5**	45 k6	14	48.5	M16x36	100	110	740
HDP 110 4	**120.9 … 499.4**	32 k6	10	35	M12x28	70	80	730

HDP 110

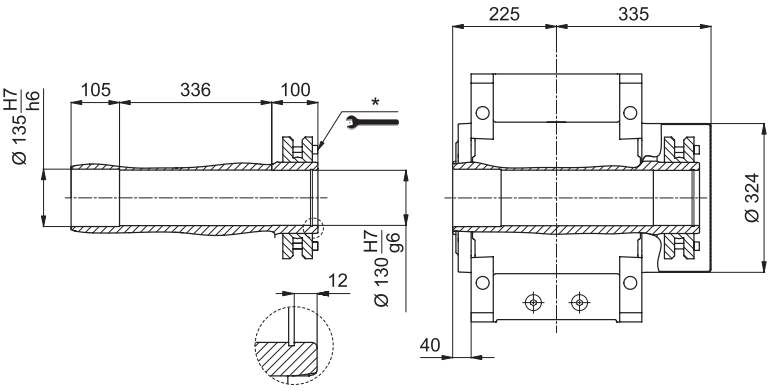
LP



H



S

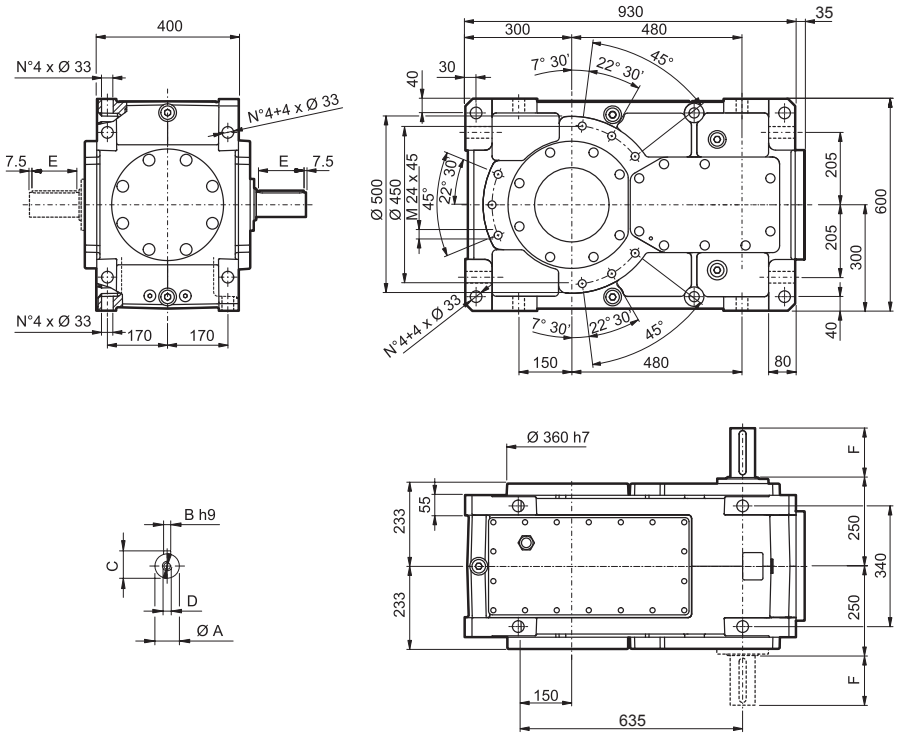


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

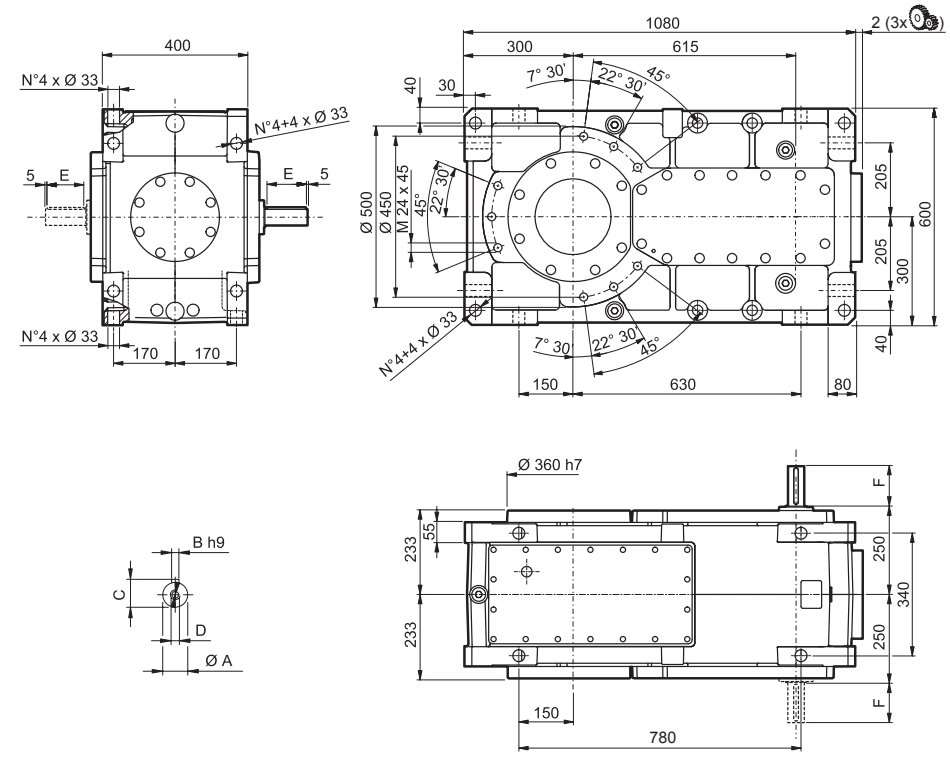
Dimensions are in [mm].

HDP 120

HDP 120 2



HDP 120 3
HDP 120 4

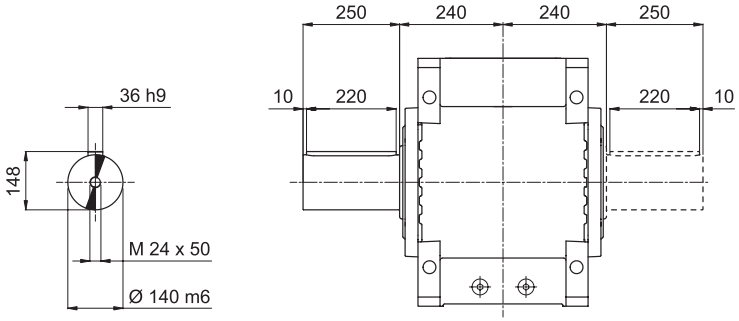


Dimensions are in [mm].

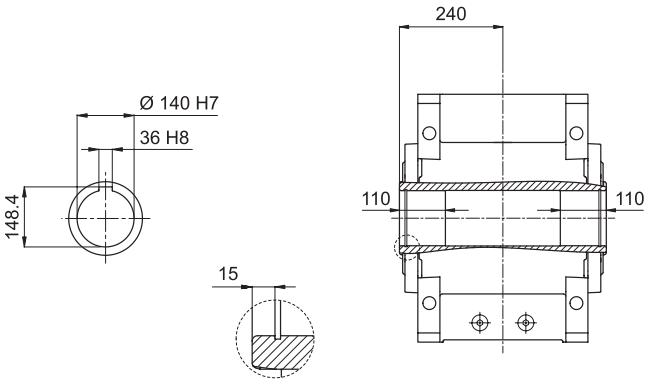
VP	i =	A	B	C	D	E	F	Kg LP
HDP 120 2	**7.9 … 25.4**	70 m6	20	74.5	M20x42	125	140	890
HDP 120 3	**25.8 … 56.1**	48 k6	14	51.5	M16x36	100	110	995
HDP 120 3	**64.3 … 125.2**	45 k6	14	48.5	M16x36	100	110	995
HDP 120 4	**128 … 523.7**	32 k6	10	35	M12x36	70	80	985

HDP 120

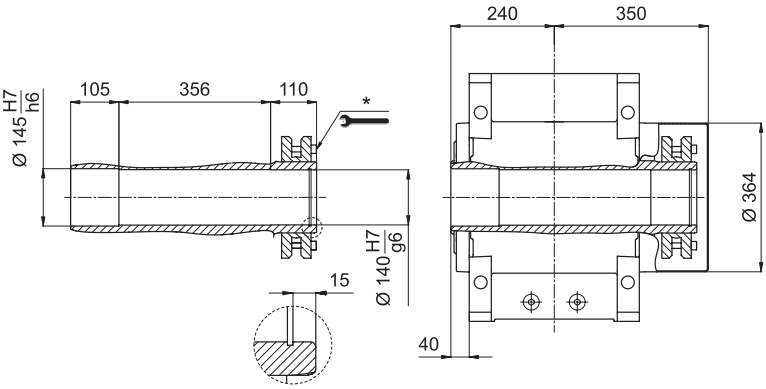
LP



H



S

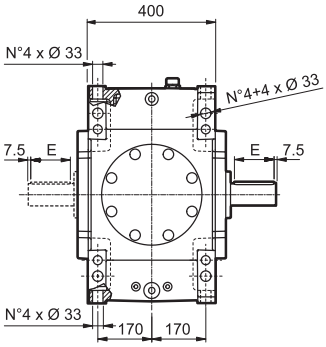


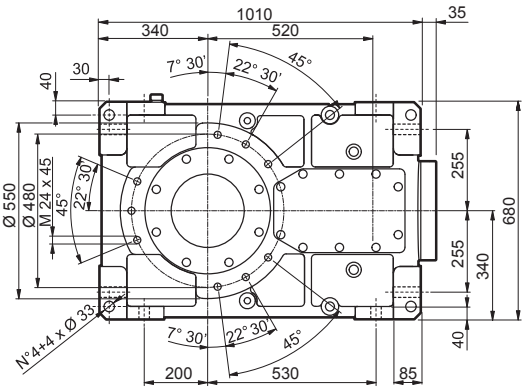
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

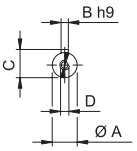
Dimensions are in [mm].

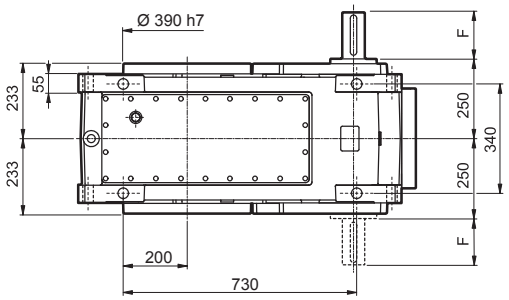
HDP 125

HDP 125 2

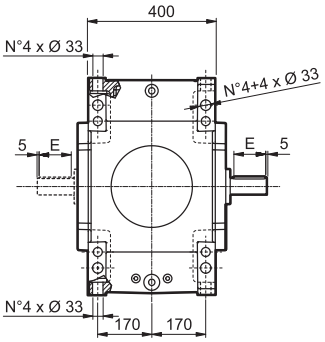


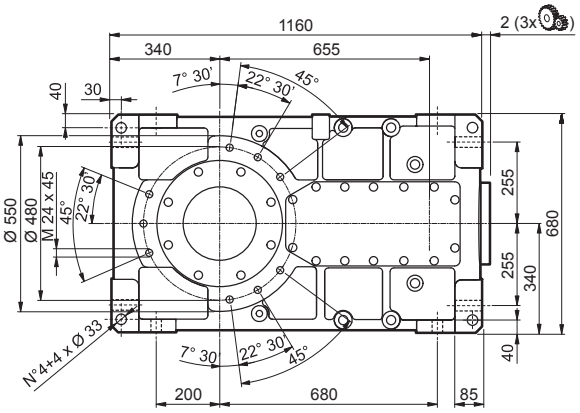


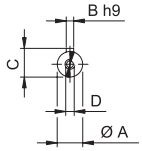


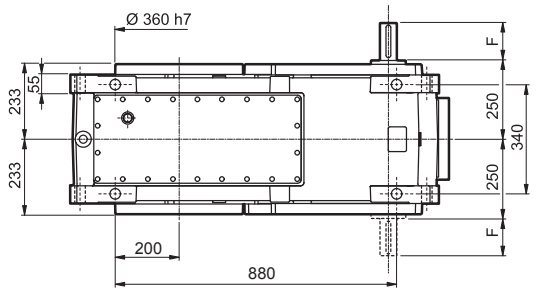


HDP 125 3
HDP 125 4







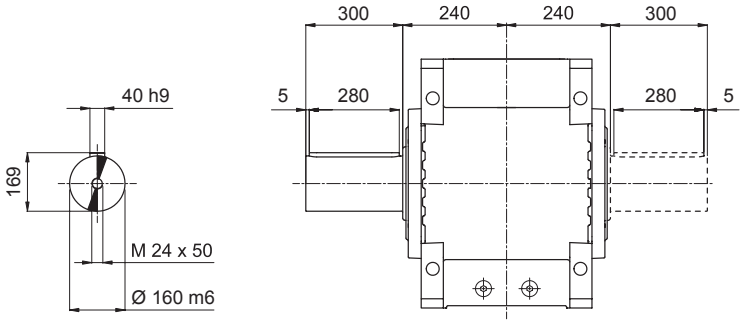


Dimensions are in [mm].

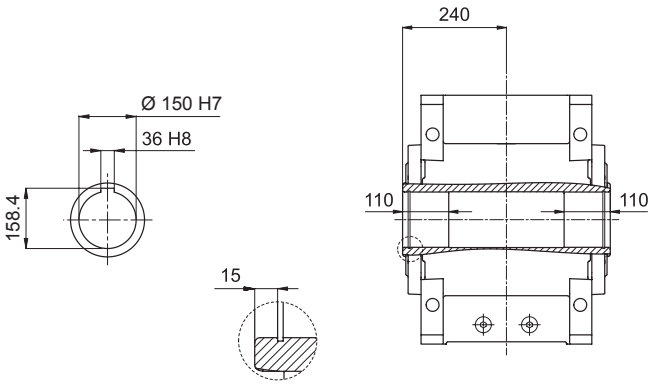
VP	i =	A	B	C	D	E	F	Kg LP
HDP 125 2	**8.9 ... 25.0**	70 m6	20	74.5	M20x42	125	140	1075
HDP 125 3	**29.1 … 62.6**	48 k6	14	51.5	M16x36	100	110	1175
HDP 125 3	**72.5 … 123.6**	45 k6	14	48.5	M16x36	100	110	1175
HDP 125 4	**144.4 … 506.5**	32 k6	10	35	M12x28	70	80	1160

HDP 125

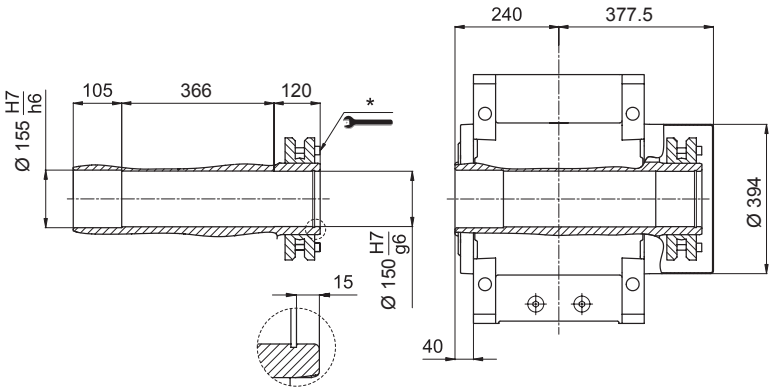
LP



H



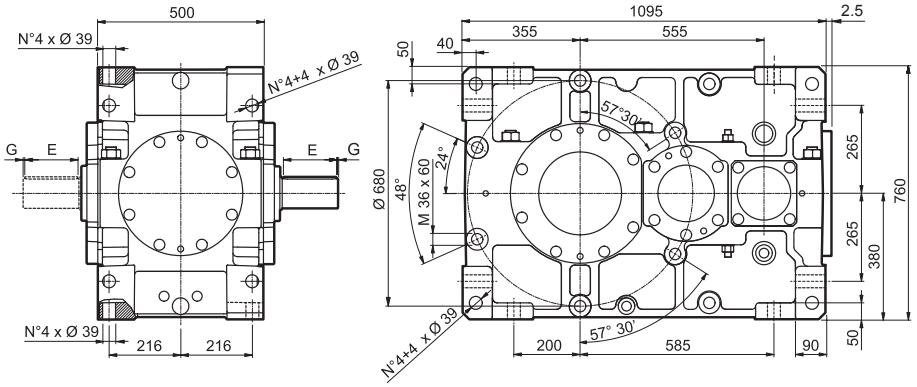
S



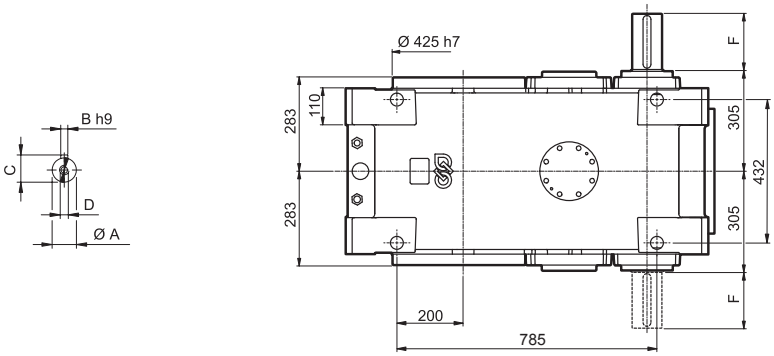
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

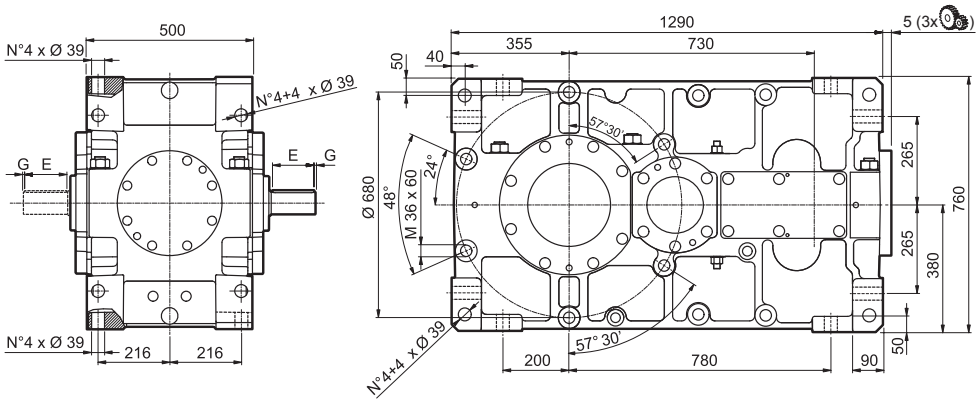
Dimensions are in [mm].

HDP 130

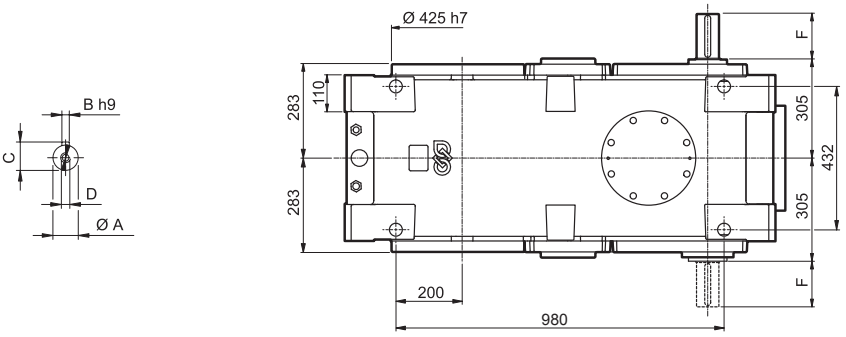


HDP 130 2





HDP 130 3
HDP 130 4

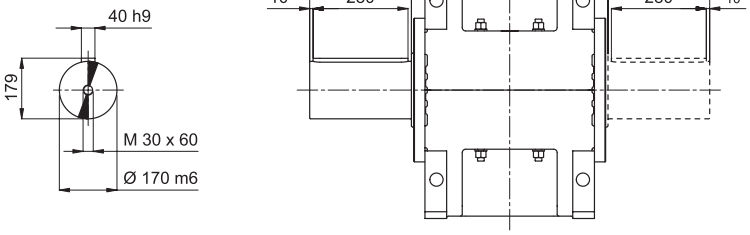


Dimensions are in [mm].

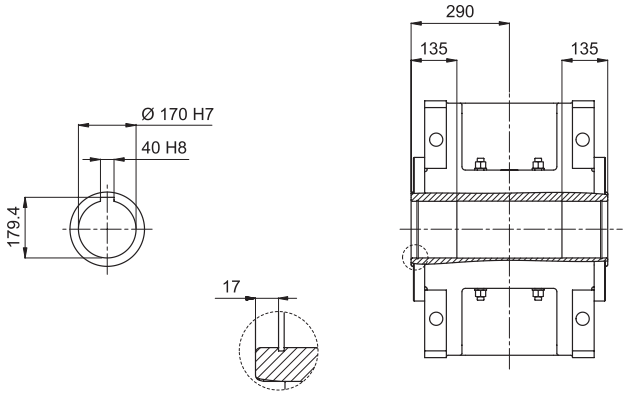
VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 130 2	**7.3 … 12.3**	90 m6	25	95	M24x50	160	170	5	1500
HDP 130 2	**14.1 … 21.7**	70 m6	20	74.5	M20x42	125	140	7.5	1500
HDP 130 3	**21.8 … 48.1**	65 m6	18	69	M20x42	125	140	7.5	1705
HDP 130 3	**56.5 … 108.3**	50 k6	14	53.5	M16x36	100	110	5	1705
HDP 130 4	**111.2 … 237.9**	42 k6	12	45	M16x36	100	110	5	1740
HDP 130 4	**274.5 … 534.5**	32 k6	10	35	M12x28	70	80	5	1740

HDP 130

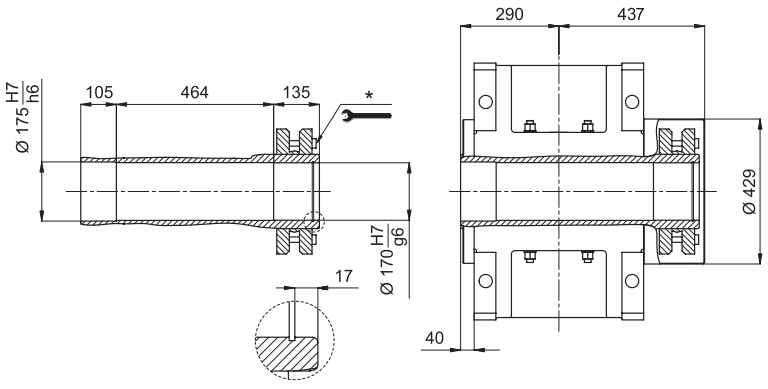
LP



H



S

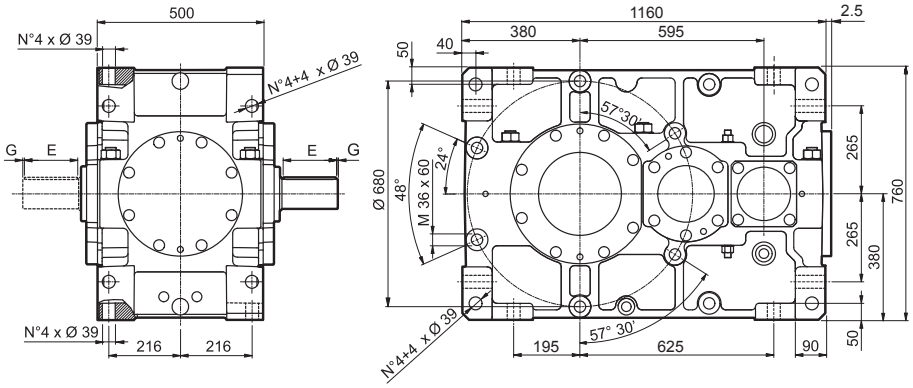


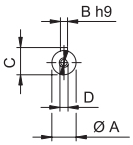
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

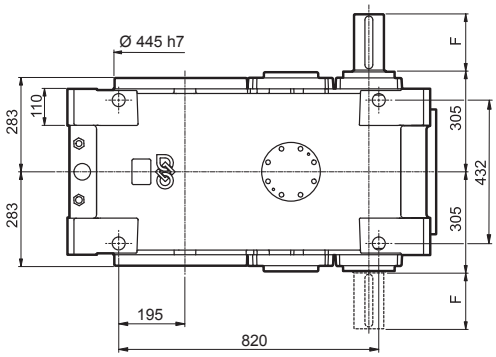
Dimensions are in [mm].

HDP 140

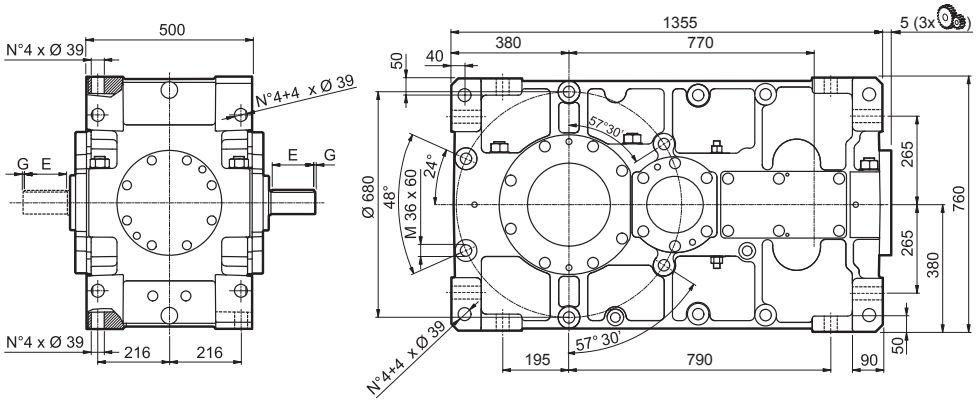
HDP 140 2

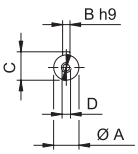


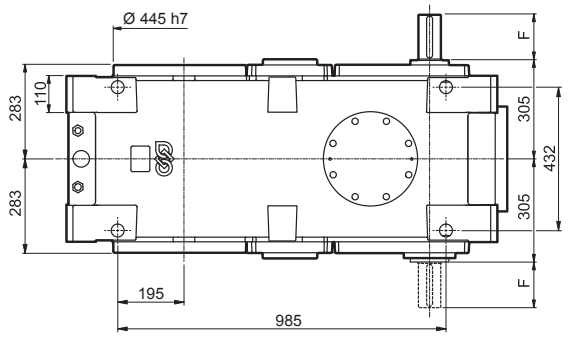




HDP 140 3
HDP 140 4





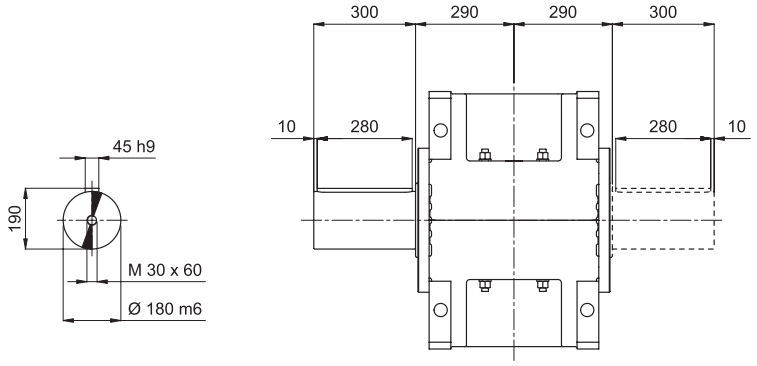


Dimensions are in [mm].

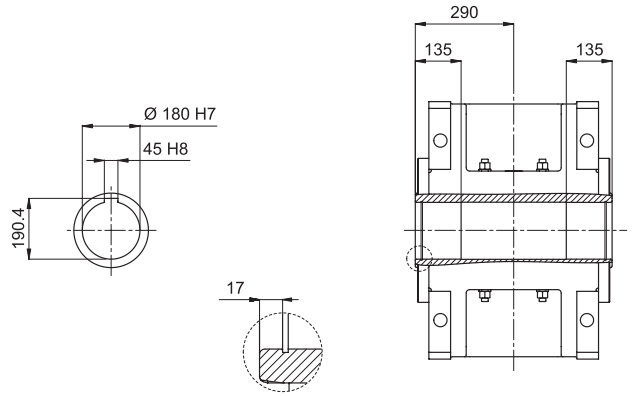
VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 140 2	**8.4 … 14.4**	90 m6	25	95	M24x50	160	170	5	1640
HDP 140 2	**16.3 … 24.9**	70 m6	20	74.5	M20x42	125	140	7.5	1640
HDP 140 3	**25.1 … 56.2**	65 m6	18	69	M20x42	125	140	7.5	1915
HDP 140 3	**65.1 … 124.7**	50 k6	14	53.5	M16x36	100	110	5	1915
HDP 140 4	**141.6 … 277.5**	42 k6	12	45	M16x36	100	110	5	1935
HDP 140 4	**315.9 … 495.3**	32 k6	10	35	M12x28	70	80	5	1935

HDP 140

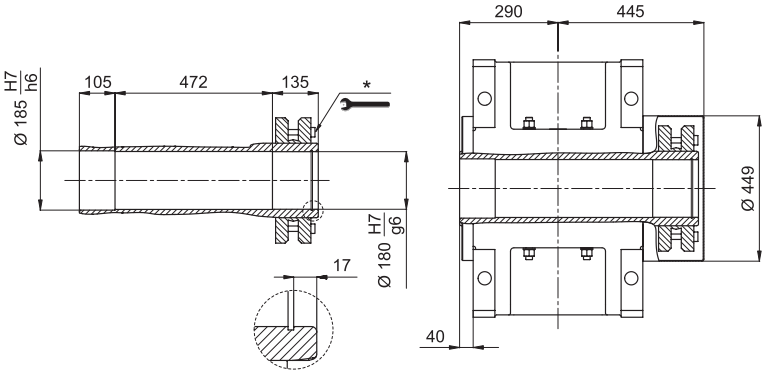
LP



H



S

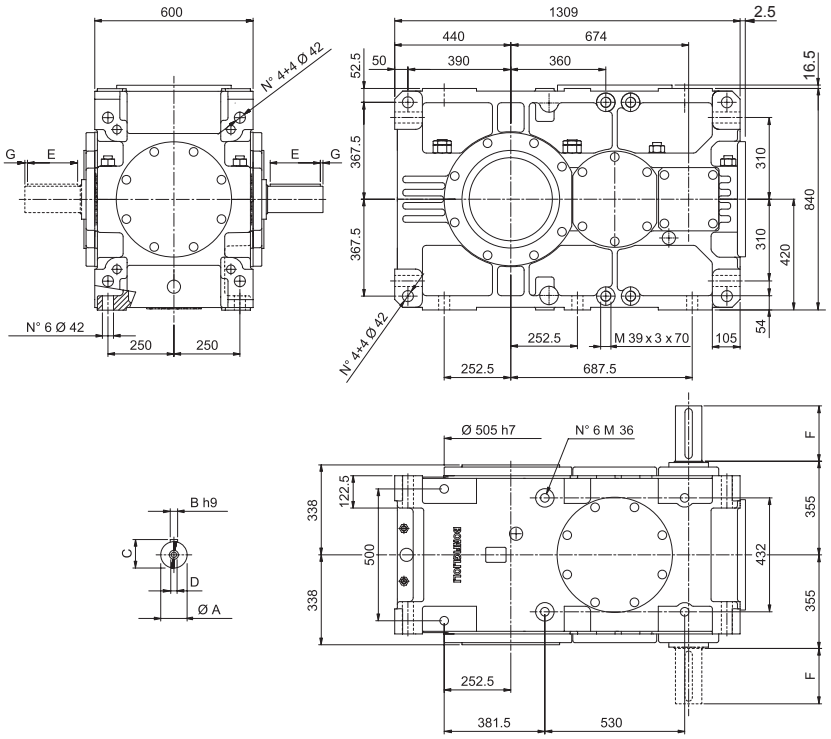


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

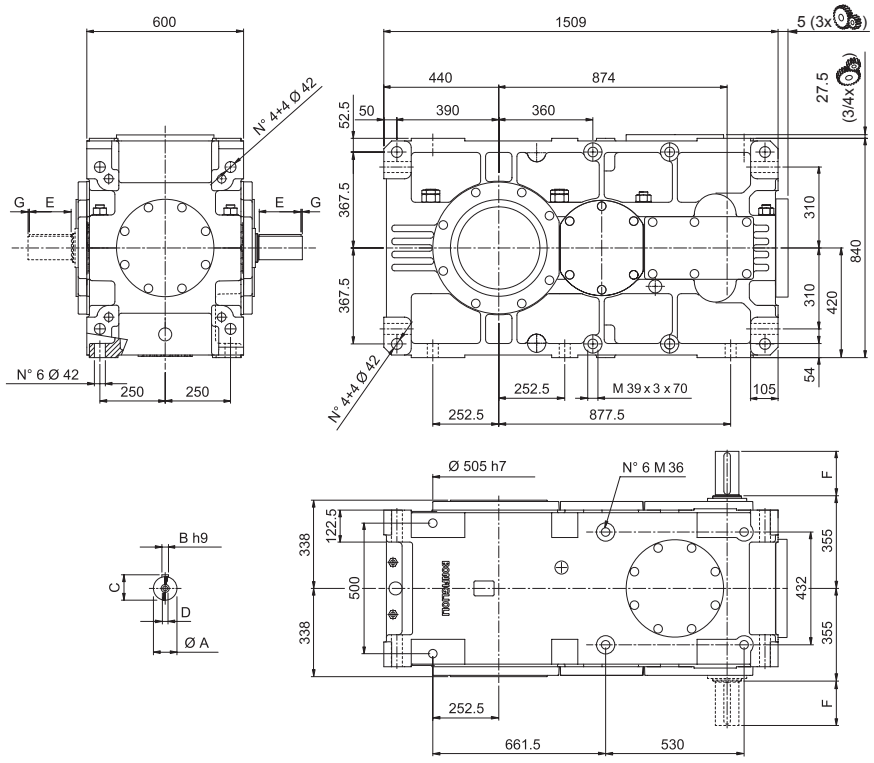
Dimensions are in [mm].

HDP 150

HDP 150 2



HDP 150 3
HDP 150 4

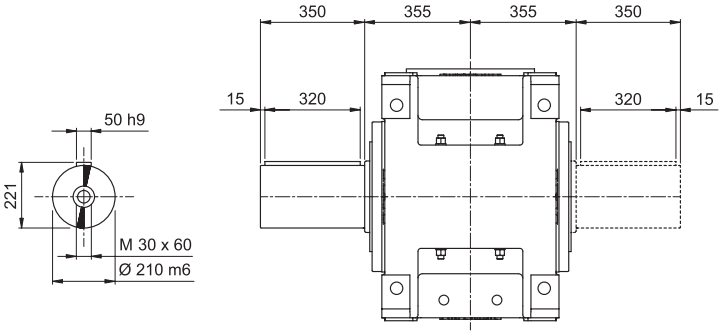


Dimensions are in [mm].

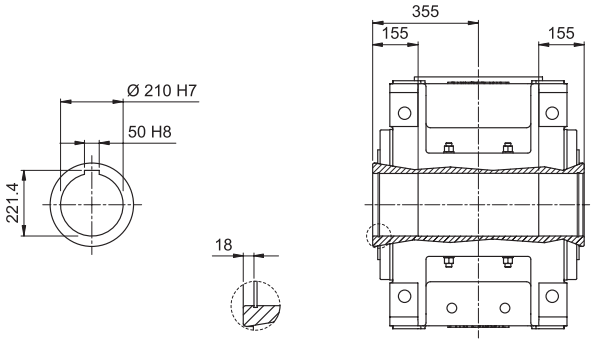
VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 150 2	**7.9 … 14.1**	100 m6	28	106	M24x50	190	210	10	2585
HDP 150 2	**15.4 … 19.6**	90 m6	25	95	M24x50	160	170	5	2585
HDP 150 3	**21.5 … 38.1**	90 m6	25	95	M24x50	160	170	5	2835
HDP 150 3	**43.5 … 77.0**	70 m6	20	74.5	M20x42	125	140	7.5	2835
HDP 150 4	**89.0 … 157.8**	55 m6	16	59	M20x42	90	110	10	2870
HDP 150 4	**170.9 … 303.1**	45 k6	14	48.5	M16x36	100	110	5	2870

HDP 150

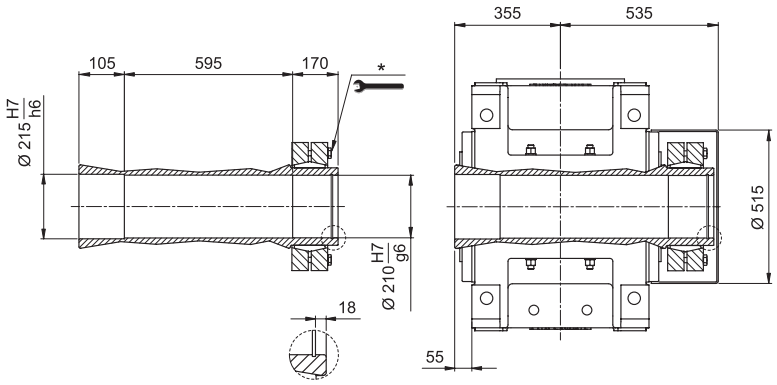
LP



H



S

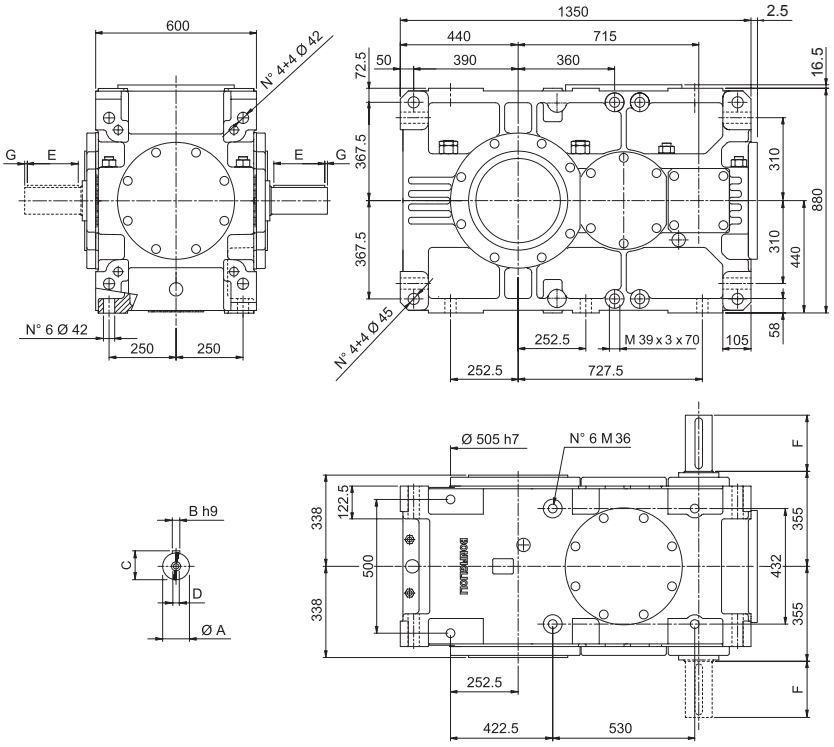


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

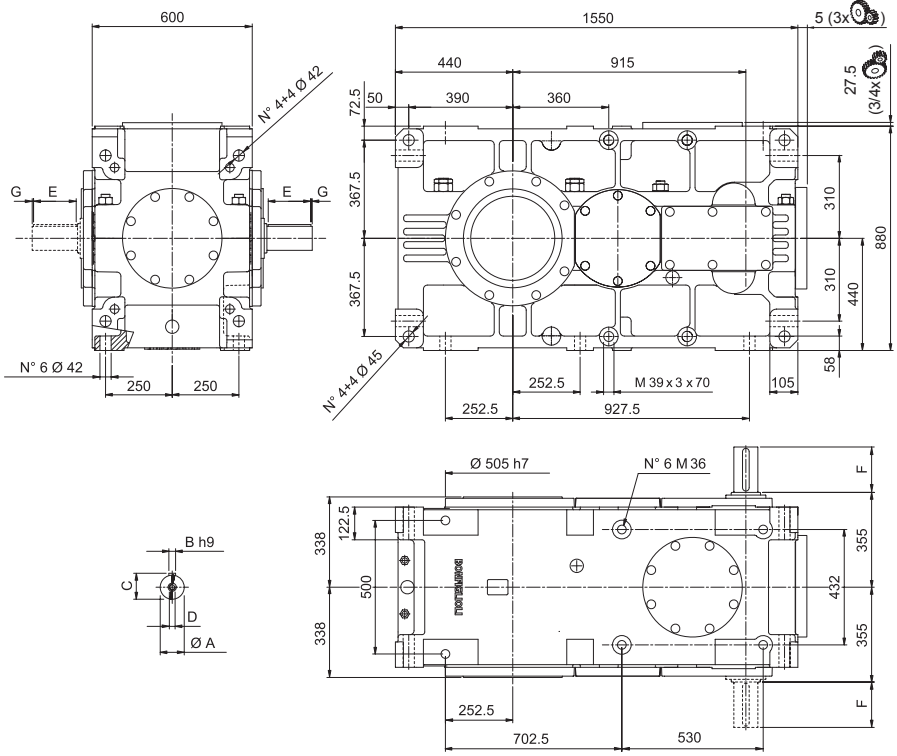
Dimensions are in [mm].

HDP 160

HDP 160 2



HDP 160 3
HDP 160 4

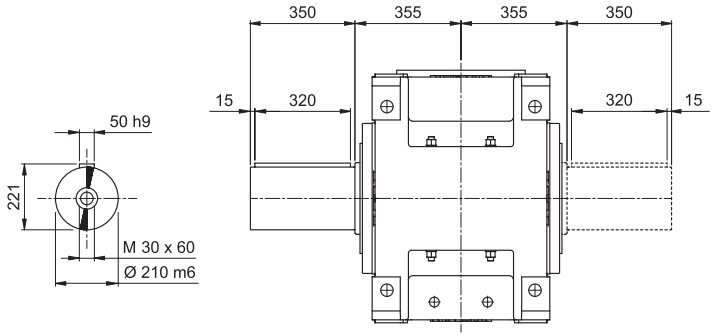


Dimensions are in [mm].

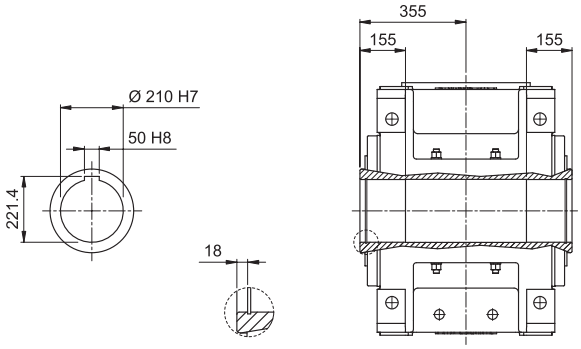
VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 160 2	**9.0 … 15.9**	100 m6	28	106	M24x50	190	210	10	2860
HDP 160 2	**17.5 … 22.1**	90 m6	25	95	M24x50	160	170	5	2860
HDP 160 3	**24.4 … 43.1**	90 m6	25	95	M24x50	160	170	5	3120
HDP 160 3	**49.4 … 87.0**	70 m6	20	74.5	M20x42	125	140	7.5	3120
HDP 160 4	**101.1 … 178.1**	55 m6	16	59	M20x42	90	110	10	3145
HDP 160 4	**194.1 … 342.2**	45 k6	14	48.5	M16x36	100	110	5	3145

HDP 160

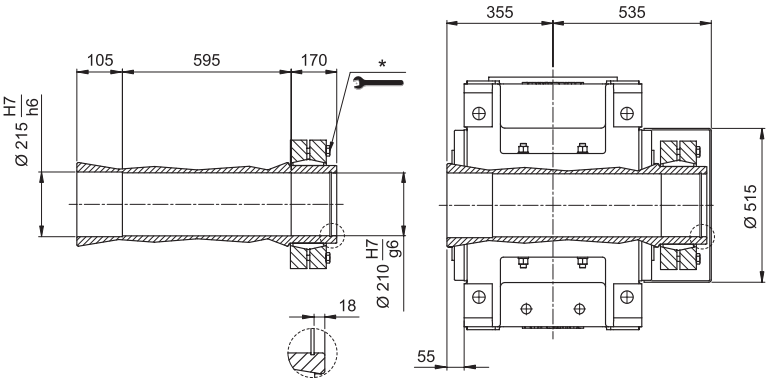
LP



H



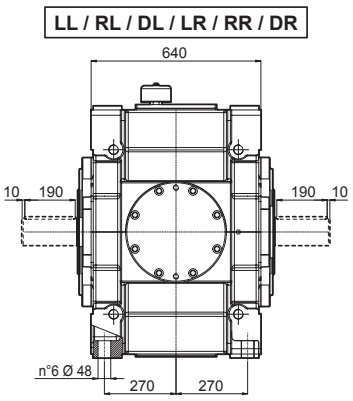
S

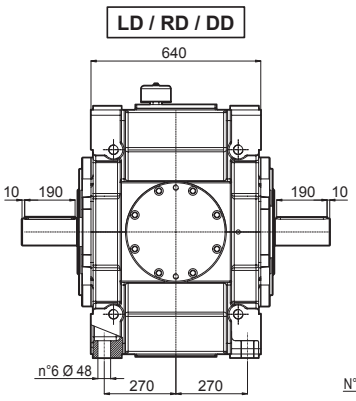


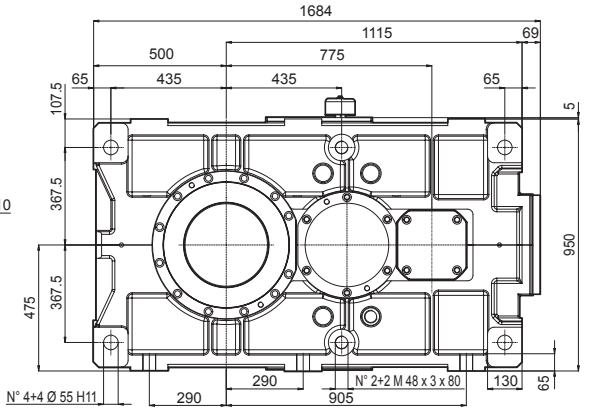
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

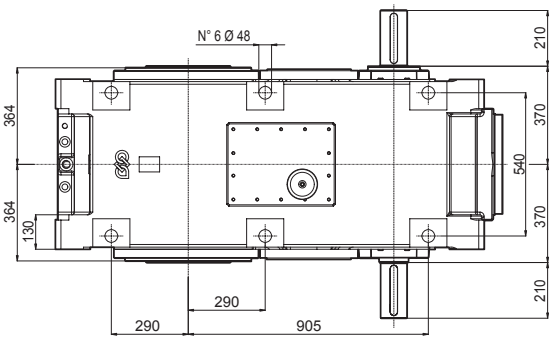
HDP 170

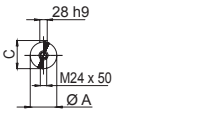


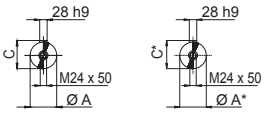


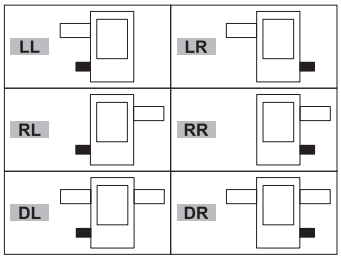


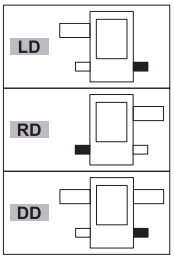
HDP 170 2









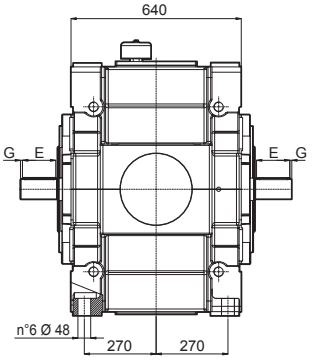


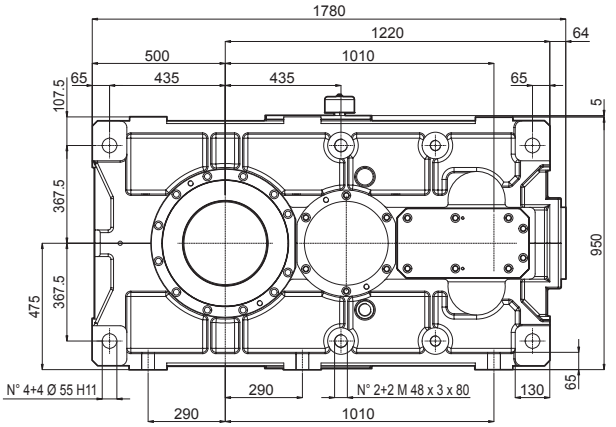
■ A/C single extension

■ A/C primary extension
□ A*/C* secondary extension

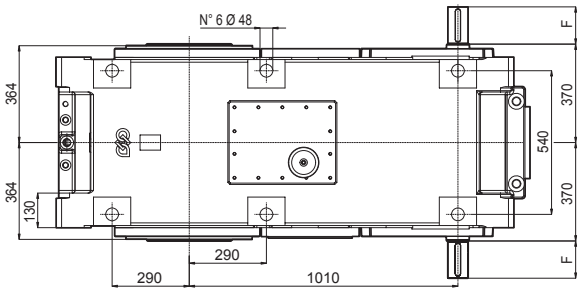
VP	i =	A	A*	C	C*	Kg LP
HDP 170 2	**7.8 ... 14.2**	110 m6	100 m6	116	106	3495
HDP 170 2	**15.4 ... 19.3**	100 m6		106		3495

HDP 170 3
HDP 170 4







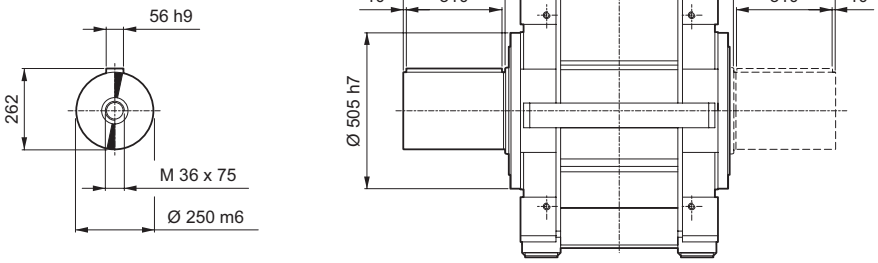


Dimensions are in [mm].

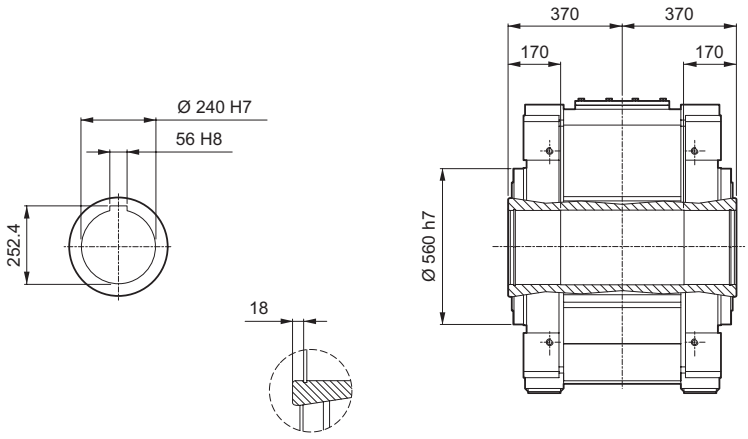
VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 170 3	**23.2 ... 39.7**	90 m6	25	95	M24x50	160	170	5	3765
HDP 170 3	**45.1 ... 77.2**	75 m6	20	79.5	M20x42	125	140	7.5	3765
HDP 170 4	**92.7 ... 158.8**	55 m6	16	59	M20x42	90	110	10	3795
HDP 170 4	**177.4 ... 303.8**	50 k6	14	53.5	M16x36	100	110	5	3795

HDP 170

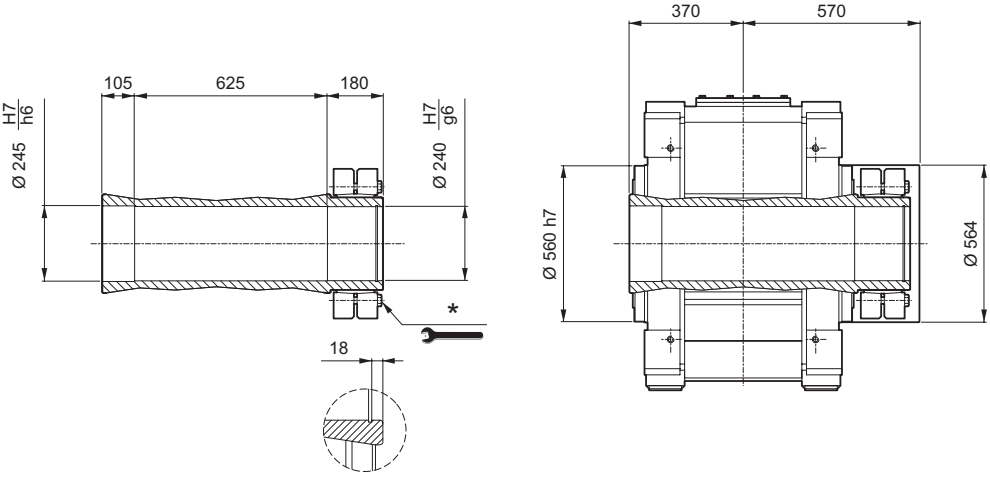
LP



H



S

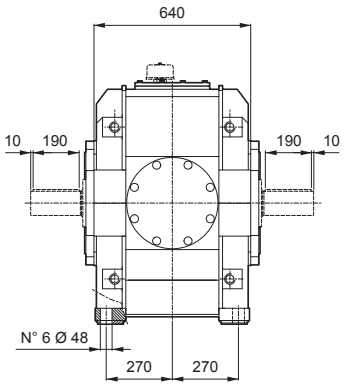


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

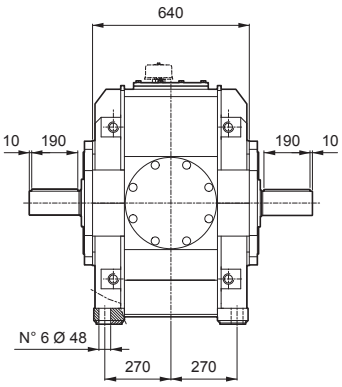
Dimensions are in [mm].

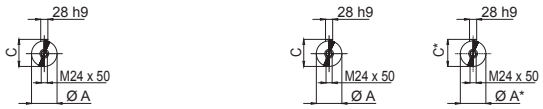
HDP 180

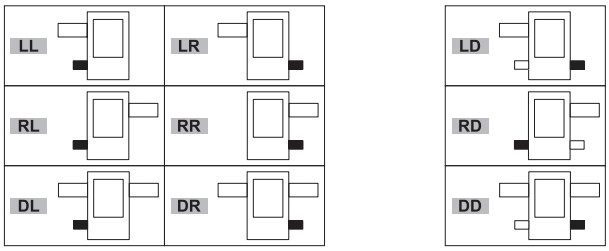
LL / RL / DL / LR / RR / DR



LD / RD / DD





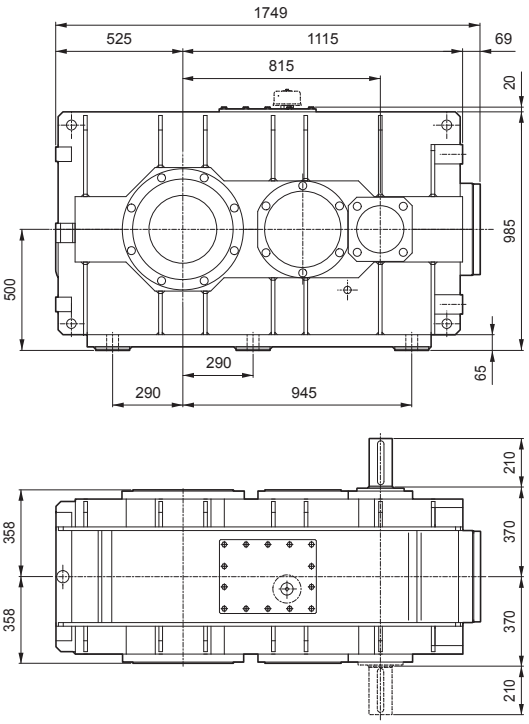


■ A/C single extension

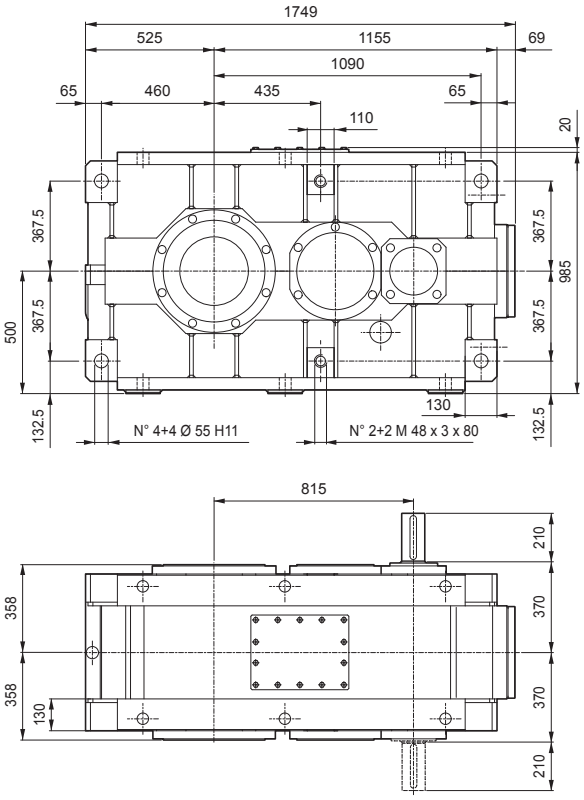
■ A/C primary extension
□ A*/C* secondary extension

VP	i =	A	A*	C	C*	Kg LP
HDP 180 2	**8.7 ... 15.7**	110 m6	100 m6	116	106	3640
HDP 180 2	**17.1 ... 21.4**	100 m6		106		3640

HDP 180 2 B3



HDP 180 2 V5

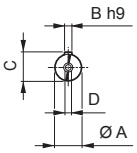


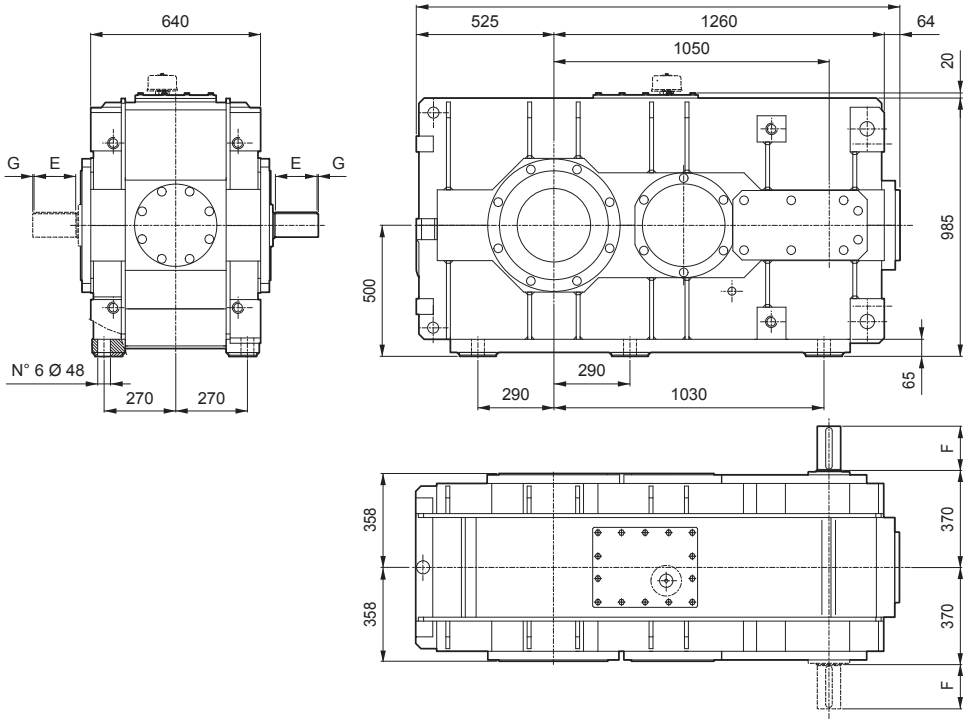
Dimensions are in [mm].

HDP 180

HDP 180 3/4

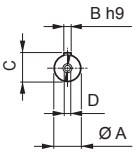
B3

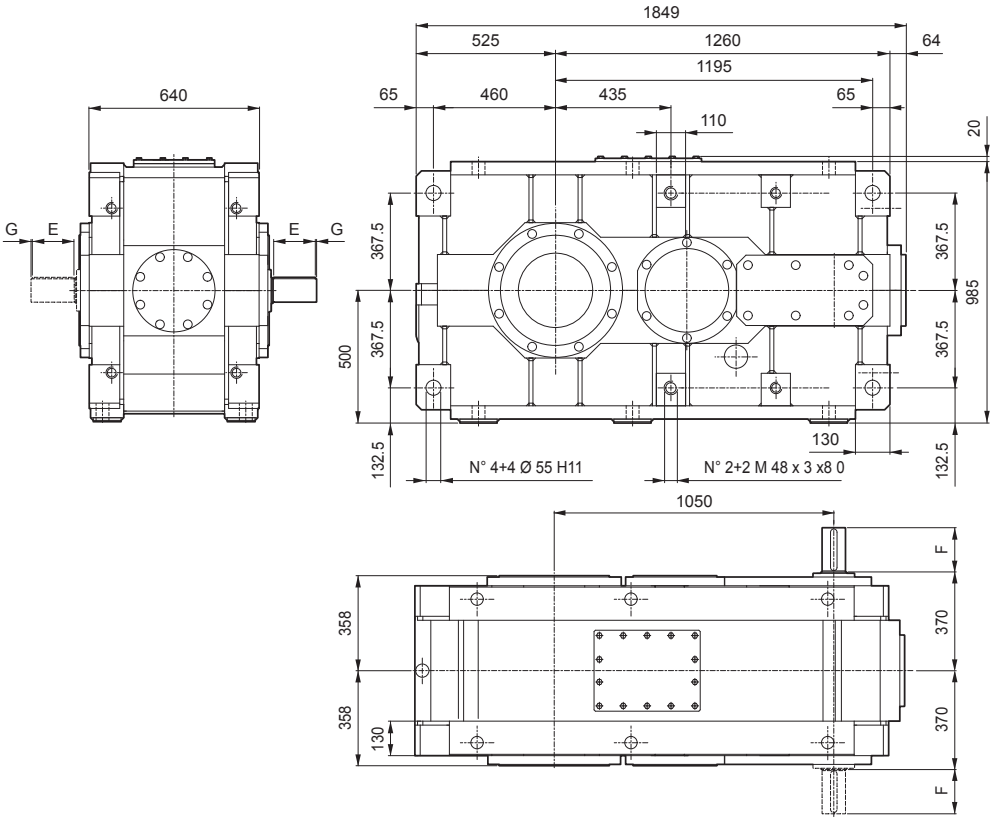




HDP 180 3/4

V5



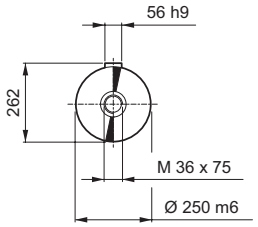


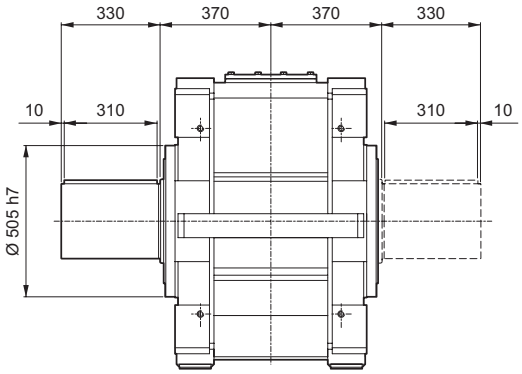
Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	Kg LP
HDP 180 3	**25.8 ... 43.9**	90 m6	25	95	M24x50	160	170	5	3860
HDP 180 3	**50.1 ... 85.4**	75 m6	20	79.5	M20x42	125	140	7.5	3860
HDP 180 4	**103.0 ... 175.6**	55 m6	16	59	M20x42	90	110	10	3890
HDP 180 4	**197.2 ... 336.1**	50 k6	14	53.5	M16x36	100	110	5	3890

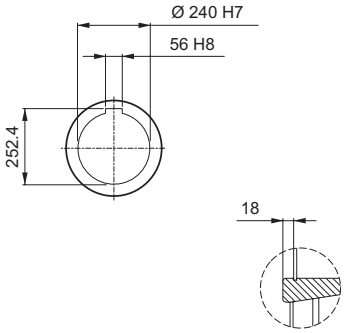
HDP 180

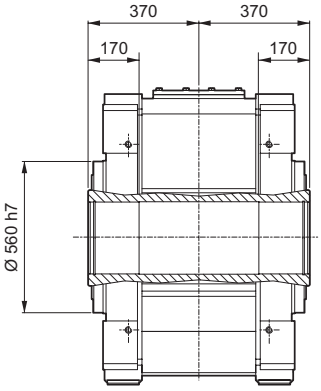
LP



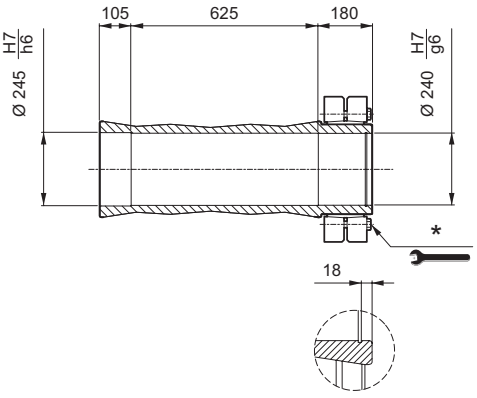


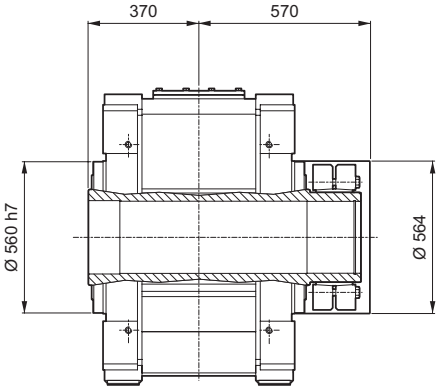
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S

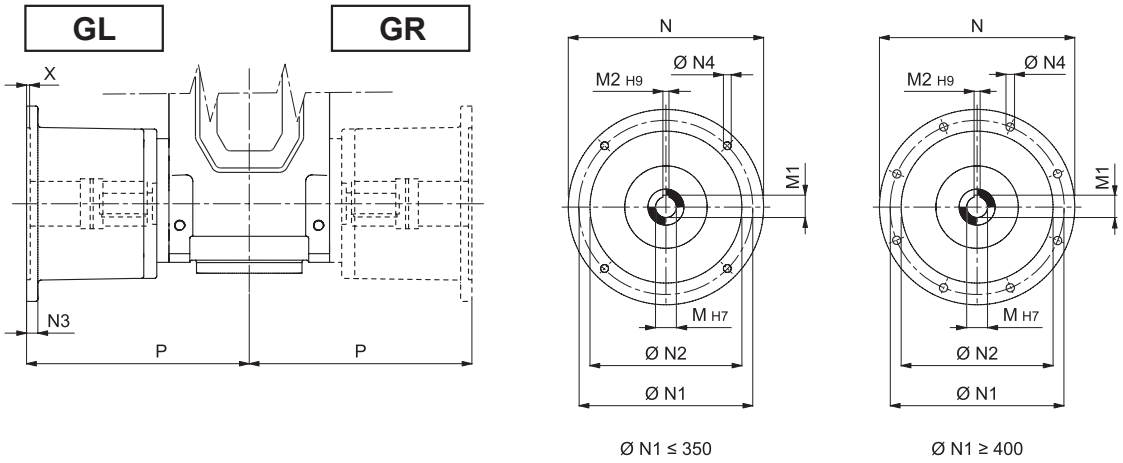




* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

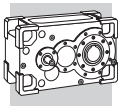
Dimensions are in [mm].

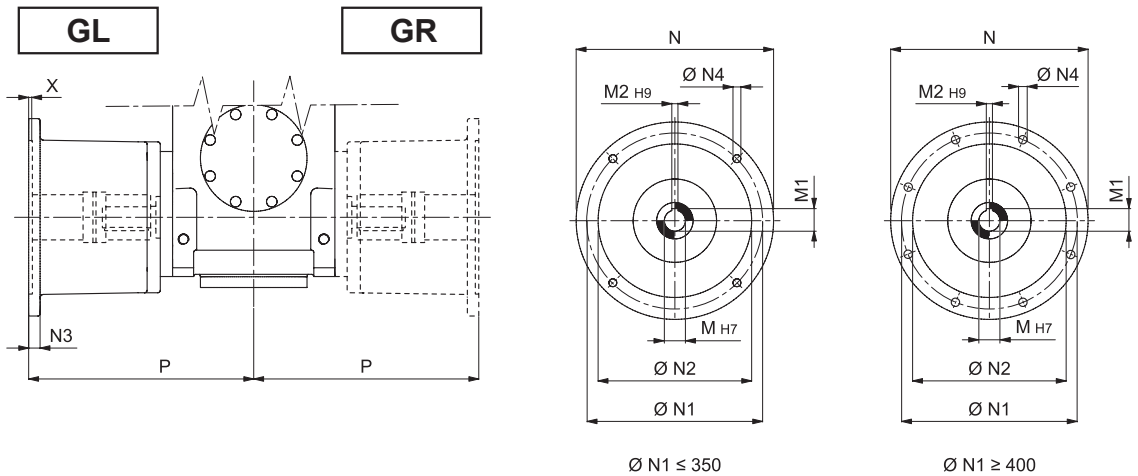
20.1 MOTOR MOUNTING WITH BELL HOUSING AND FLEXIBLE COUPLING



	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 60_132	38	41.3	10	300	265	230	16	14	5	311
HDP 60_160	42	45.3	12	350	300	250	23	18	6	341
HDP 60_180	48	51.8	14	350	300	250	23	18	6	341
HDP 60_200	55	59.3	16	400	350	300	—	M16x23	7	366
HDP 60_225	60	64.4	18	450	400	350	25	18	7	374
HDP 70_132	38	41.3	10	300	265	230	16	14	5	311
HDP 70_160	42	45.3	12	350	300	250	23	18	6	341
HDP 70_180	48	51.8	14	350	300	250	23	18	6	341
HDP 70_200	55	59.3	16	400	350	300	—	M16x23	7	366
HDP 70_225	60	64.4	18	450	400	350	25	18	7	374
HDP 80_160	42	45.3	12	350	300	250	23	18	6	371
HDP 80_180	48	51.8	14	350	300	250	23	18	6	371
HDP 80_200	55	59.3	16	400	350	300	—	M16x23	7	396
HDP 80_225	60	64.4	18	450	400	350	25	18	7	432
HDP 80_250	65	69.4	18	550	500	450	30	18	6	462
HDP 80_280	75	79.9	20	550	500	450	30	18	6	462
HDP 90_160	42	45.3	12	350	300	250	23	18	6	427
HDP 90_180	48	51.8	14	350	300	250	23	18	6	427
HDP 90_200	55	59.3	16	400	350	300	—	M16x23	7	452
HDP 90_225	60	64.4	18	450	400	350	25	18	7	457
HDP 90_250	65	69.4	18	550	500	450	30	18	6	487
HDP 90_280	75	79.9	20	550	500	450	30	18	6	487

Dimensions are in [mm].

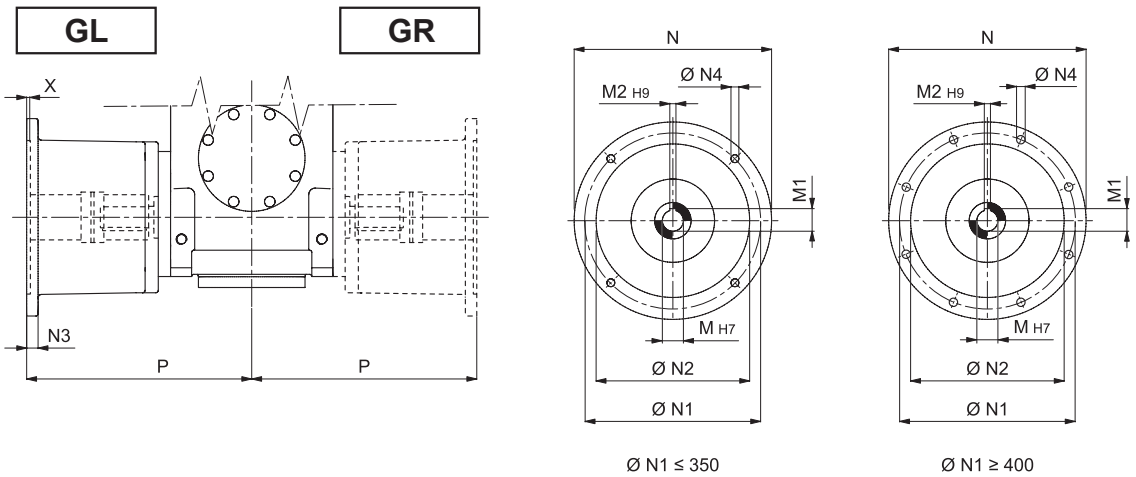




Ø N1 ≤ 350 Ø N1 ≥ 400

	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 100_112	28	31.3	8	250	215	180	15	14	5	395
HDP 100_132	38	41.3	10	300	265	230	—	M12x20	6	415
HDP 100_160	42	45.3	12	350	300	250	23	18	6	481
HDP 100_180	48	51.8	14	350	300	250	23	18	6	481
HDP 100_200	55	59.3	16	400	350	300	—	M16x23	7	506
HDP 100_225	60	64.4	18	450	400	350	26	18	7	513
HDP 100_250	65	69.4	18	550	500	450	30	18	6	543
HDP 100_280	75	79.9	20	550	500	450	30	18	6	543
HDP 100_315	80	85.4	22	660	600	550	22	22	10	579.5
HDP 110_112	28	31.3	8	250	215	180	15	14	5	395
HDP 110_132	38	41.3	10	300	265	230	—	M12x20	6	415
HDP 110_160	42	45.3	12	350	300	250	23	18	6	481
HDP 110_180	48	51.8	14	350	300	250	23	18	6	481
HDP 110_200	55	59.3	16	400	350	300	—	M16x23	7	506
HDP 110_225	60	64.4	18	450	400	350	26	18	7	513
HDP 110_250	65	69.4	18	550	500	450	30	18	6	543
HDP 110_280	75	79.9	20	550	500	450	30	18	6	543
HDP 110_315	80	85.4	22	660	600	550	22	22	10	579.5
HDP 120_132	38	41.3	10	300	265	230	—	M12x20	6	430
HDP 120_160	42	45.3	12	350	300	250	23	18	6	496
HDP 120_180	48	51.8	14	350	300	250	23	18	6	496
HDP 120_200	55	59.3	16	400	350	300	—	M16x23	7	521
HDP 120_225	60	64.4	18	450	400	350	26	18	7	528
HDP 120_250	65	69.4	18	550	500	450	30	18	6	558
HDP 120_280	75	79.9	20	550	500	450	30	18	6	558
HDP 120_315	80	85.4	22	660	600	550	22	22	10	594.5
HDP 125_132	38	41.3	10	300	265	230	—	M12x20	6	430
HDP 125_160	42	45.3	12	350	300	250	23	18	6	496
HDP 125_180	48	51.8	14	350	300	250	23	18	6	496
HDP 125_200	55	59.3	16	400	350	300	—	M16x23	7	521
HDP 125_225	60	64.4	18	450	400	350	26	18	7	528
HDP 125_250	65	69.4	18	550	500	450	30	18	6	558
HDP 125_280	75	79.9	20	550	500	450	30	18	6	558
HDP 125_315	80	85.4	22	660	600	550	22	22	10	594.5

Dimensions are in [mm].

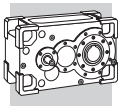


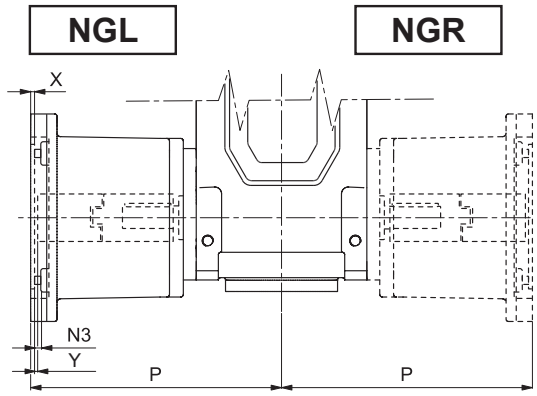
Ø N1 ≤ 350

Ø N1 ≥ 400

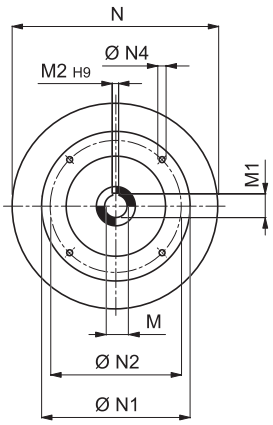
	M	M1	M2	N	N1	N2	N3	N4	X	P
HDP 130_160	42	45.3	12	350	300	250	23	18	6	551
HDP 130_180	48	51.8	14	350	300	250	23	18	6	551
HDP 130_200	55	59.3	16	400	350	300	—	M16x23	7	576
HDP 130_225	60	64.4	18	450	400	350	26	18	7	583
HDP 130_250	65	69.4	18	550	500	450	30	18	6	613
HDP 130_280	75	79.9	20	550	500	450	30	18	6	613
HDP 130_315	80	85.4	22	660	600	550	22	22	10	649.5
HDP 140_160	42	45.3	12	350	300	250	23	18	6	551
HDP 140_180	48	51.8	14	350	300	250	23	18	6	551
HDP 140_200	55	59.3	16	400	350	300	—	M16x23	7	576
HDP 140_225	60	64.4	18	450	400	350	26	18	7	583
HDP 140_250	65	69.4	18	550	500	450	30	18	6	613
HDP 140_280	75	79.9	20	550	500	450	30	18	6	613
HDP 140_315	80	85.4	22	660	600	550	22	22	10	649.5
HDP 150_160	42	45.3	12	350	300	250	23	18	6	601
HDP 150_180	48	51.8	14	350	300	250	23	18	6	601
HDP 150_200	55	59.3	16	400	350	300	—	M16x23	7	626
HDP 150_225	60	64.4	18	450	400	350	26	18	7	633
HDP 150_250	65	69.4	18	550	500	450	30	18	6	663
HDP 150_280	75	79.9	20	550	500	450	30	18	6	663
HDP 150_315	80	85.4	22	660	600	550	22	22	10	699.5
HDP 160_160	42	45.3	12	350	300	250	23	18	6	601
HDP 160_180	48	51.8	14	350	300	250	23	18	6	601
HDP 160_200	55	59.3	16	400	350	300	—	M16x23	7	626
HDP 160_225	60	64.4	18	450	400	350	26	18	7	633
HDP 160_250	65	69.4	18	550	500	450	30	18	6	663
HDP 160_280	75	79.9	20	550	500	450	30	18	6	663
HDP 160_315	80	85.4	22	660	600	550	22	22	10	699.5
HDP 170	BONFIGLIOLI TECHNICAL SERVICE									
HDP 180										

Dimensions are in [mm].

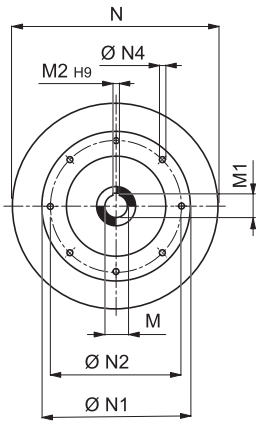




N180TC ... N360TC

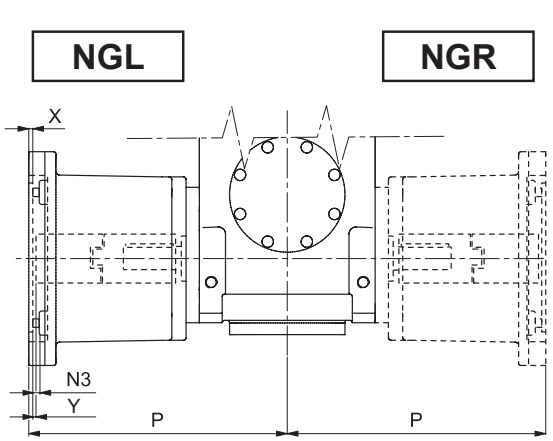


N400TC ... N440TC

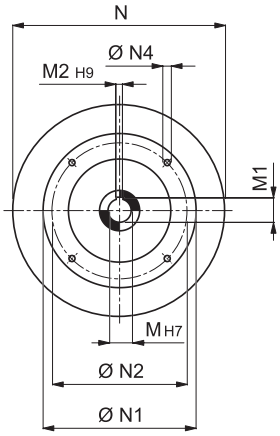


	M	M1	M2	N	N1	N2	N3	N4	X	Y	P
HDP 60_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	11.811	7.25	8.520	0.413	0.551	0.217	0.128	13.012
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*300*	*184.15*	*215.9*	*10.5*	*14*	*5.5*	*3.25*	*330.5*
HDP 60_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.193
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*360.5*
HDP 60_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.39
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.3*	*365.5*
HDP 60_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	15.768
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*400.5*
HDP 60_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	15.768
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*400.5*
HDP 70_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	11.811	7.25	8.520	0.413	0.551	0.217	0.128	13.012
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*300*	*184.15*	*215.9*	*10.5*	*14*	*5.5*	*3.25*	*330.5*
HDP 70_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.193
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*360.5*
HDP 70_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.39
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.3*	*365.5*
HDP 70_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	15.768
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*400.5*
HDP 70_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	15.768
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*400.5*
HDP 80_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	15.374
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*390.5*
HDP 80_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	15.571
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*395.5*
HDP 80_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	18.051
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*458.5*
HDP 80_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	18.051
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*458.5*
HDP 80_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	18.642
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*473.5*
HDP 90_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	17.579
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*446.5*
HDP 90_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	17.776
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*451.5*
HDP 90_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	19.035
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*483.5*
HDP 90_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	19.035
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*483.5*
HDP 90_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	19.626
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*498.5*

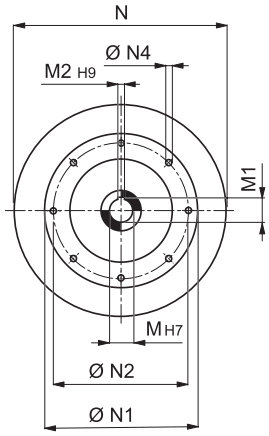
Dimensions are in Inch except when shown in *italic [mm]*



N180TC ... N360TC

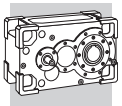


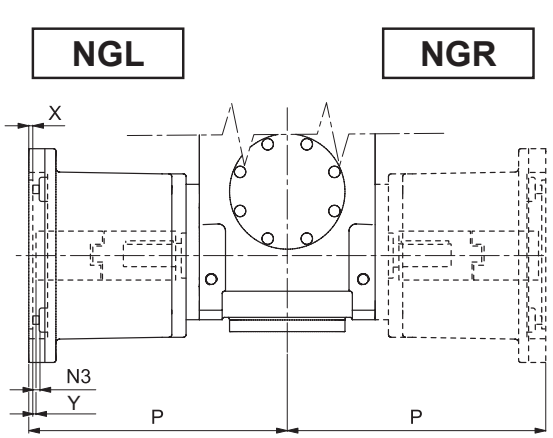
N400TC ... N440TC



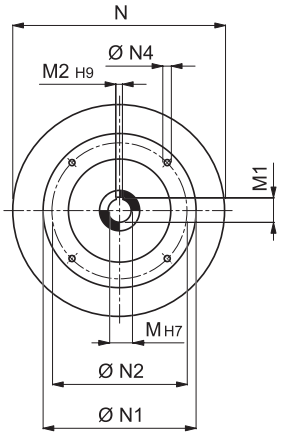
	M	M1	M2	N	N1	N2	N3	N4	X	Y	P
HDP 100_N180TC	1.125 $^{+0.0014}_{+0.0006}$	1.241	0.25 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.061	16.535
	28.575 $^{+0.035}_{+0.015}$	*31.521*	*6.35* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*420*
HDP 100_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	16.535
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*420*
HDP 100_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	19.705
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*500.5*
HDP 100_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	19.902
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*505.5*
HDP 100_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	21.24
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*539.5*
HDP 100_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	21.24
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*539.5*
HDP 100_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	21.831
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*554.5*
HDP 110_N180TC	1.125 $^{+0.0014}_{+0.0006}$	1.241	0.25 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.061	16.535
	28.575 $^{+0.035}_{+0.015}$	*31.521*	*6.35* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*420*
HDP 110_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	16.535
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*420*
HDP 110_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	19.705
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*500.5*
HDP 110_N280TC	1.87 5 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	19.902
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*505.5*
HDP 110_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	21.24
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*539.5*
HDP 110_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	21.24
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*539.5*
HDP 110_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	21.831
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*554.5*
HDP 120_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	17.126
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*435*
HDP 120_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	20.295
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*515.5*
HDP 120_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	20.492
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*520.5*
HDP 120_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	21.831
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*554.5*
HDP 120_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	21.831
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*554.5*
HDP 120_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	22.421
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*569.5*
HDP 120_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	24.882
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*632*

Dimensions are in Inch except when shown in *italic [mm]*

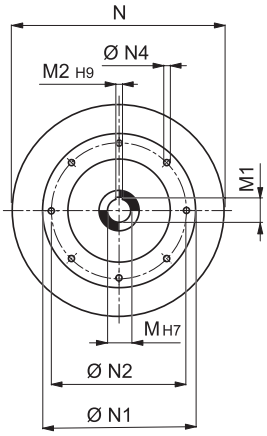




N180TC ... N360TC



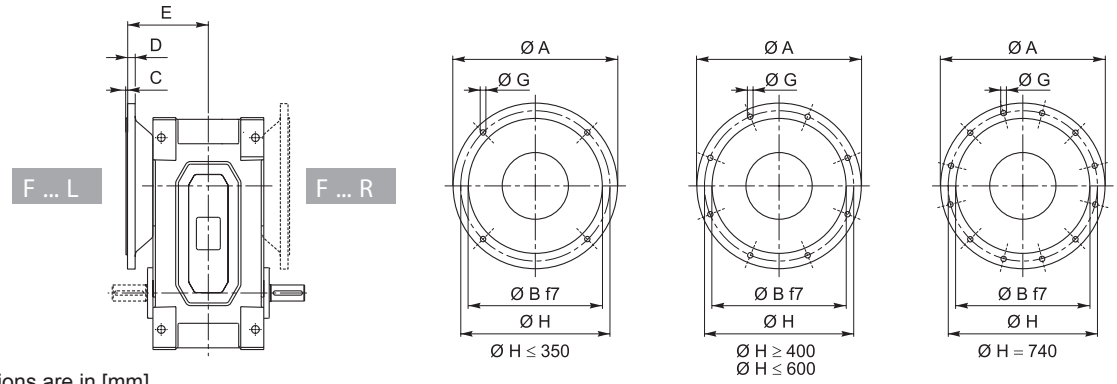
N400TC ... N440TC



	M	M1	M2	N	N1	N2	N3	N4	X	Y	P
HDP 125_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	17.126
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*435*
HDP 125_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	20.295
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*515.5*
HDP 125_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	20.492
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*520.5*
HDP 125_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	21.831
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*554.5*
HDP 125_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	21.831
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*554.5*
HDP 125_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	22.421
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*569.5*
HDP 125_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	24.882
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*632*
HDP 130_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	22.461
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*570.5*
HDP 130_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	22.657
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*575.5*
HDP 130_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	23.996
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*609.5*
HDP 130_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	23.996
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*609.5*
HDP 130_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	24.587
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*624.5*
HDP 130_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	27.047
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*687*
HDP 140_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	22.461
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*570.5*
HDP 140_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	22.657
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*575.5*
HDP 140_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	23.996
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*609.5*
HDP 140_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	23.996
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*609.5*
HDP 140_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	24.587
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*624.5*
HDP 140_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	27.047
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*687*

Dimensions are in Inch except when shown in *italic [mm]*

20.2 MOUNTING FLANGE

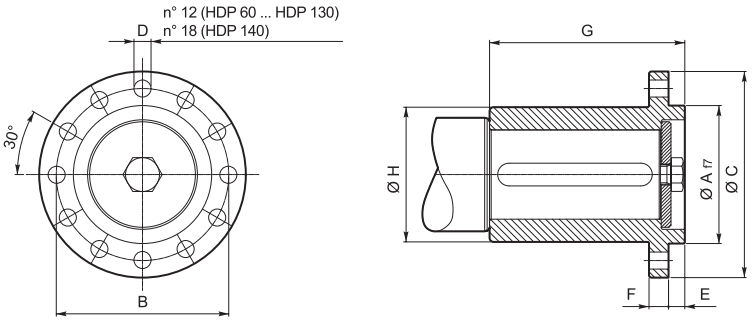


Dimensions are in [mm].

		A	B	C	D	E	G	H
HDP 60	**F350_**	350	250	5	18	187.5	18	300
	F400_	400	300	5	20	187.5	18	350
HDP 70	**F450_**	450	350	5	22	210	18	400
	F550_	550	450	5	24	210	18	500
HDP 80	**F450_**	450	350	5	22	240	18	400
	F550_	550	450	5	24	240	18	500
HDP 90	**F550_**	550	450	5	24	260	18	500
HDP 100	**F660_**	660	550	7	30	335	22	600
HDP 110	**F660_**	660	550	7	30	335	22	600
HDP 120	**F660_**	660	550	7	30	355	26	600
HDP 125	**F730_**	730	580	7	35	360	26	660
HDP 130	**F800_**	800	680	7	40	460	26	740
HDP 140	**F800_**	800	680	7	40	460	26	740
HDP 150		BONFIGLIOLI TECHNICAL SERVICE						
HDP 160								
HDP 170								
HDP 180								

20.3 MANIFOLD FLANGE

Available for shaft arrangement: LL, LR, LD, RL, RR and RD, all featuring a single output shaft extension.

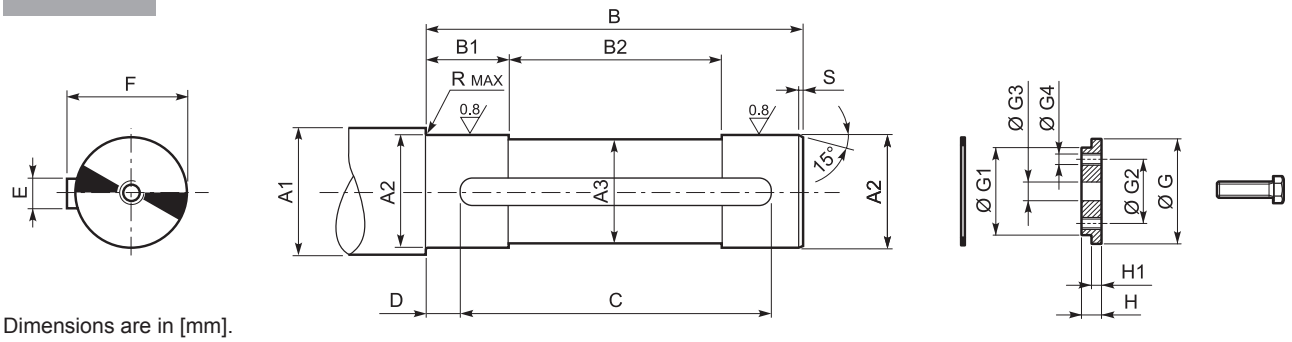


Dimensions are in [mm].

	A	B	C	D	E	F	G	H
HDP 60_ FM	125	175	208	19	14	21	165	135
HDP 70_ FM	125	175	208	19	14	21	195	135
HDP 80_ FM	170	212	254	21	20	24	240	166
HDP 90_ FM	170	212	254	21	20	24	240	166
HDP 100_ FM	200	260	309	25	19	31	244	200
HDP 110_ FM	200	260	309	25	19	31	289	200
HDP 120_ FM	200	260	309	25	19	31	289	200
HDP 125_ FM	220	320	384	32	19	31	344	240
HDP 130_ FM	220	320	384	32	19	31	344	250
HDP 140_ FM	250	380	450	32	19	40	344	310
HDP 150	BONFIGLIOLI TECHNICAL SERVICE							
HDP 160								
HDP 170								
HDP 180								

20.4 CUSTOMER'S SHAFT

H

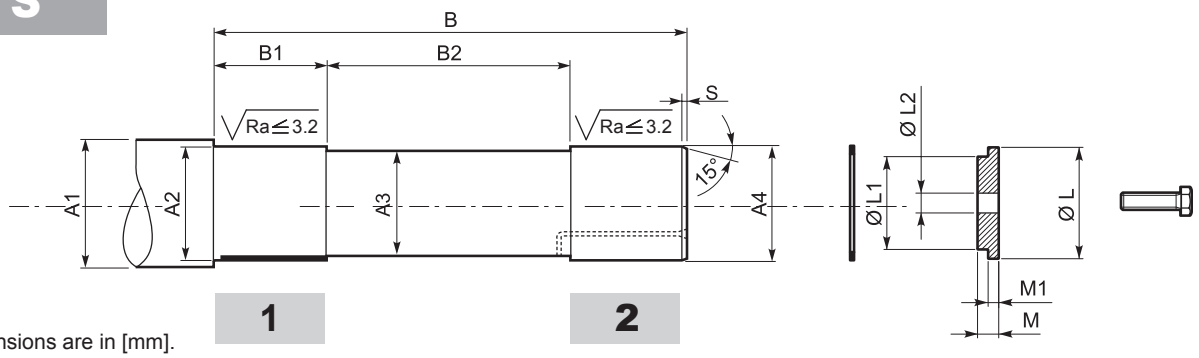


Dimensions are in [mm].

	A1	A2	A3	B	B1	B2	C	D	E	F	R	S	UNI6604
HDP 60	≥ 78	70 h6	69	283	56	172	220	30	20 h9	74.5	2.5	2	20x12x220A
HDP 70	≥ 89	80 h6	79	283	78	127	220	30	22 h9	85	2.5	2.5	22x14x220A
HDP 80	≥ 104	95 h6	94	338	73	192	280	30	25 h9	100	2.5	2.5	25x14x280A
HDP 90	≥ 121	110 h6	109	378	88	202	320	30	28 h9	116	2.5	2.5	28x16x320A
HDP 100	≥ 133	120 h6	119.5	420	100	250	360	30	32 h9	127	3	2.5	32x18x360A
HDP 110	≥ 143	130 h6	129.5	420	100	250	360	30	32 h9	137	3	2.5	32x18x360A
HDP 120	≥ 153	140 h6	139.5	444	110	260	400	40	36 h9	148	3	2.5	36x20x400A
HDP 125	≥ 163	150 h6	149.5	444	110	260	400	40	36 h9	158	3	2.5	36x20x400A
HDP 130	≥ 183	170 h6	169.5	540	135	310	400	80	40 h9	179	3	2.5	40x22x400A
HDP 140	≥ 193	180 h6	179.5	540	135	310	400	80	45 h9	190	3	2.5	45x25x400A
HDP 150	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDP 160	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDP 170	≥ 255	240 h6	239.5	697	170	400	506	100	56 h9	252	3	3	56x32x450B
HDP 180	BONFIGLIOLI TECHNICAL SERVICE												

	Out of scope for supply								
	UNI7437	G	G1	G2	G3	G4	H	H1	UNI5739
HDP 60	—	90	70 d9	—	22	—	10	8.5	M20x50
HDP 70	—	100	80 d9	—	22	—	10	8.5	M20x50
HDP 80	—	115	95 d9	—	26	—	15	13.5	M24x60
HDP 90	—	130	110 d9	—	26	—	15	13.5	M24x60
HDP 100	120x4	120 d9	96	64	26	M16	24	12	M24x70
HDP 110	130x4	130 d9	105	69	26	M20	24	12	M24x70
HDP 120	140x4	140 d9	115	79	26	M20	30	15	M24x80
HDP 125	150x4	150 d9	122	86	26	M20	30	15	M24x80
HDP 130	170x4	170 d9	142	102	33	M24	34	17	M30x90
HDP 140	180x4	180 d9	150	110	33	M24	34	17	M30x90
HDP 150	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDP 160	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDP 170	240x5	240 d9	208	160	39	M24	36	18	M36x110
HDP 180	BONFIGLIOLI TECHNICAL SERVICE								

S



Dimensions are in [mm].

	A1	A2	A3	A4	B	B1	B2	R	S
HDP 60	≥ 90	72 h7	69	70 g6	328	59	194	2.5	2.5
HDP 70	≥ 104	82 h7	79	80 g6	332	77	174	2.5	2.5
HDP 80	≥ 119	97 h7	94	95 g6	398	95	205	2.5	2.5
HDP 90	≥ 136	112 h7	109	110 g6	440	87	273	2.5	2.5
HDP 100	≥ 138	125 h6	119.5	120 g6	517	104	328	3	2.5
HDP 110	≥ 148	135 h6	129.5	130 g6	523	104	334	3	2.5
HDP 120	≥ 158	145 h6	139.5	140 g6	550	104	354	3	2.5
HDP 125	≥ 168	155 h6	149.5	150 g6	570	104	363	3	2.5
HDP 130	≥ 188	175 h6	169.5	170 g6	681	104	462	3	2.5
HDP 140	≥ 198	185 h6	179.5	180 g6	689	104	470	3	2.5
HDP 150	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDP 160	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDP 170	BONFIGLIOLI TECHNICAL SERVICE								
HDP 180									

	Out of scope for supply						
							
	UNI7437	**L**	**L1**	**L2**	**M**	**M1**	**UNI5739**
HDP 60	—	90	70 d9	22	10	8.5	M20x50
HDP 70	—	100	80 d9	22	10	8.5	M20x50
HDP 80	—	115	95 d9	26	15	13.5	M24x60
HDP 90	—	130	110 d9	26	15	13.5	M24x60
HDP 100	120x4	120 d9	96	26	16	12	M24x65
HDP 110	130x4	130 d9	105	26	16	12	M24x65
HDP 120	140x4	140 d9	115	26	19	15	M24x70
HDP 125	150x4	150 d9	122	26	19	15	M24x70
HDP 130	170x4	170 d9	142	33	21	17	M30x80
HDP 140	180x4	180 d9	150	33	21	17	M30x80
HDP 150	210x5	210 d9	178	33	29	18	M30x90
HDP 160	210x5	210 d9	178	33	29	18	M30x90
HDP 170	BONFIGLIOLI TECHNICAL SERVICE						
HDP 180							

To facilitate part removal in the area of the cylindrical guide opposite the shrink disc, install a machine pivot to which a self-lubricating cylindrical bushing (1) can be fitted and/or with a hole big enough to allow application of a rust treatment (2).
In the presence of external thrust loads, vibration, safety problems, requirements for enhanced reliability, or unfavourable mounting positions (e.g. V5 mounting positions, output shaft directed downwards), install suitable devices to secure the shaft in an axial direction and prevent accidental decoupling.

PARALLEL SHAFT GEAR UNIT SERIES HDP ATEX CONFIGURATION

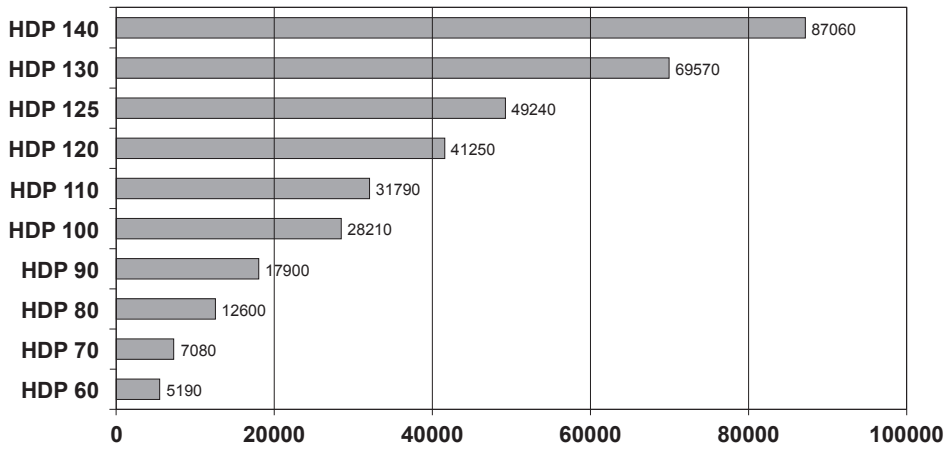
Selection of the the product must fit through the compilation of the selection form (see page 11). For a safe selection it is strongly recommended to rely on the long time experience of the Bonfiglioli Technical Service Dept.

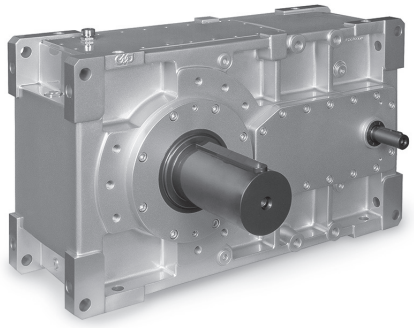
21 INSTALLATION, USE AND MAINTENANCE

All the instructions for installation, use and maintenance of the product are given in the unit's Manual. This can be downloaded from www.bonfiglioli.com where the manual is available in PDF format in a number of languages.
This document must be kept in a suitable place, in the vicinity of the installed gear unit, as a reference for all persons authorised to work with or on the product throughout its service life.

22 CONSTRUCTION OF ATEX-SPECIFIED EQUIPMENT

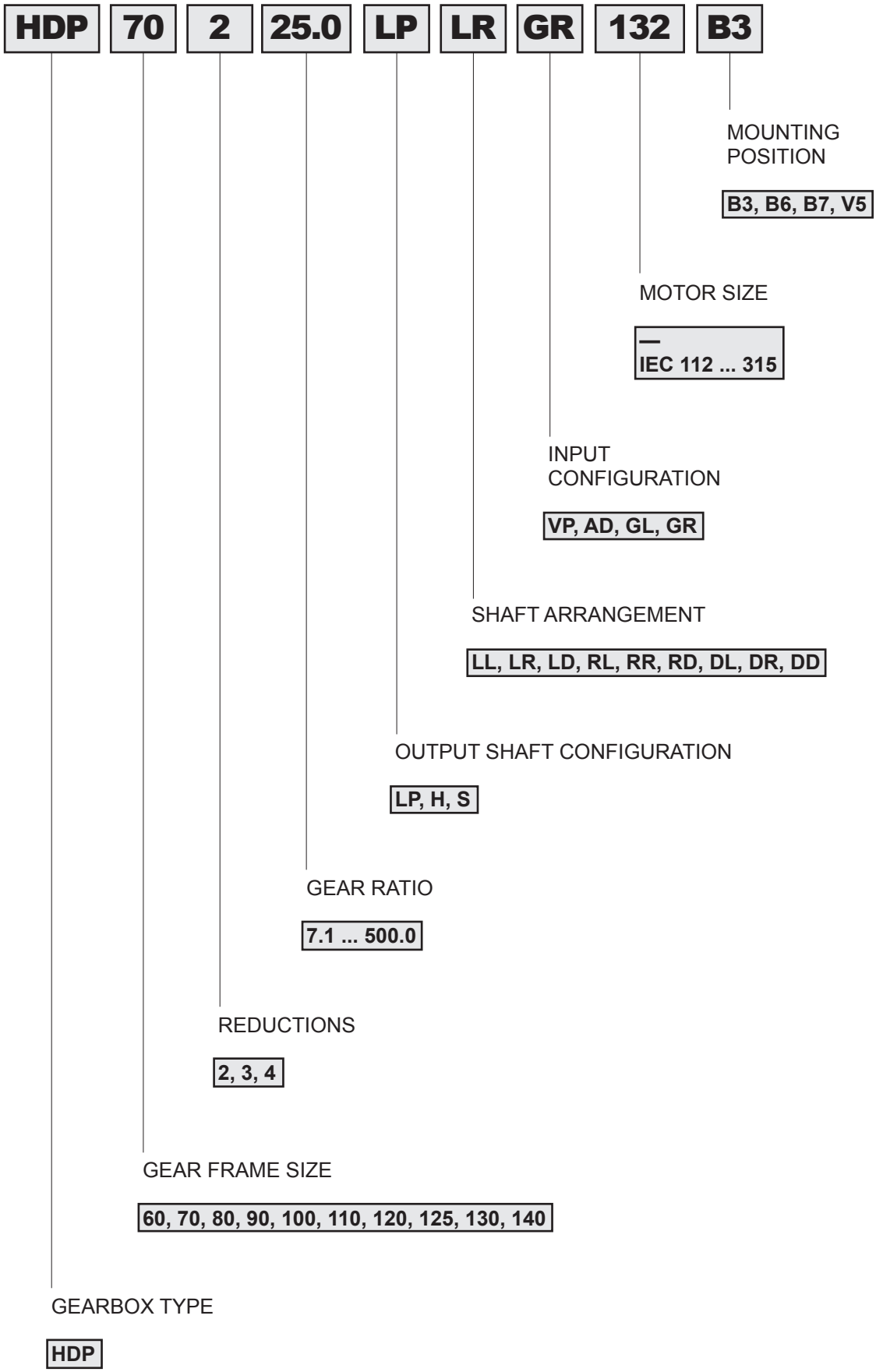
- Equipped with service plugs for periodic lubricant level checks.
- Equipped with vent caps with anti-intrusion valve.
- Fluoro elastomer seal rings as standard.
- No plastic component parts..
- Nameplate indication of the product category and type of protection.
- Components operable at above the operating temperature.
- Temperature indicator supplied along with each unit.



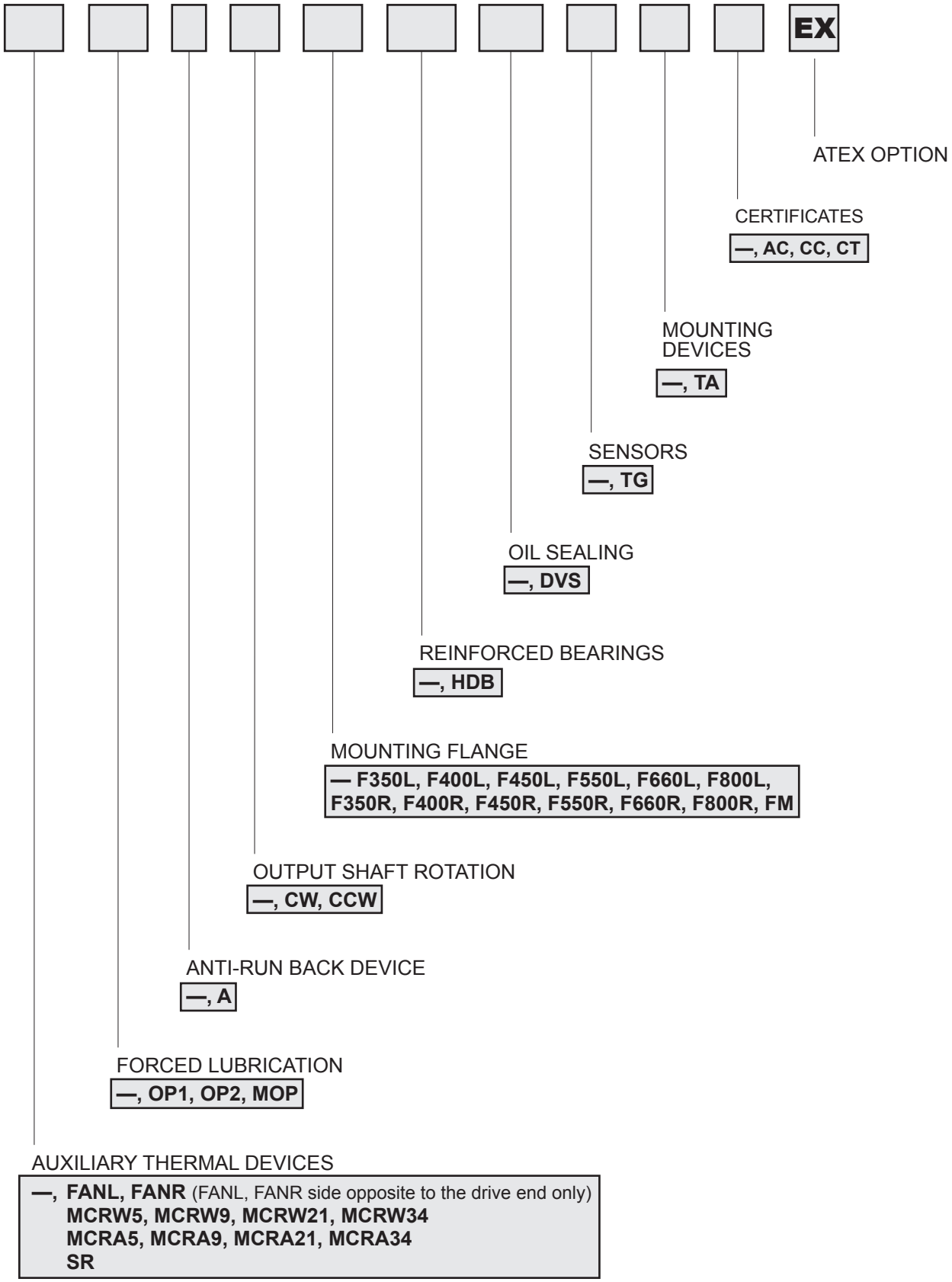


23 DESIGNATION

23.1 BASE VARIANTS



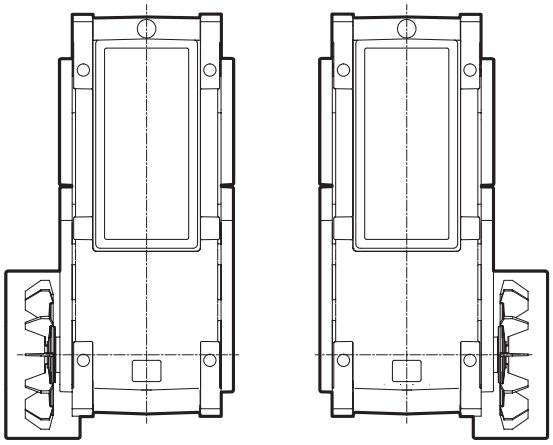
23.2 OPTIONAL VARIANTS



REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

23.3 FAN COOLING

Greater heat dissipation capacity can be achieved by installing cooling fans, which are keyed on to the gearbox input shaft. Gear units HDP 60 ... HDP 90 featuring a solid input shaft (VP), except for configuration LD – RD – DD and HDP 100 ... HDP 160 with lantern type motor adapter (GL/GR) may have an auxiliary fan fitted to the side opposite the drive end. Specify code **FANL** or **FANR.**



FANL **FANR**

23.4 AUXILIARY COOLING WITH AUTONOMOUS COOLING UNIT

Two types of cooling units are available, each in a range of sizes providing different cooling capacities. The two types use different cooling media for the oil: MCRW…EX – water/oil heat exchanger and MCRA…EX – air/oil heat exchanger.
If an independent cooling unit is installed on the advice of the Bonfiglioli Technical Service, no additional forced lubrication devices are required. See section 15.6.2. The following chart shows device availability according to gearbox size.
Your selection must take into account the deficit in thermal capacity that must be made up by contribution P_{TMCRW} or P_{TMCRA} as shown in the chart in section 17.

	MCRW5_EX MCRA5_EX	MCRW9_EX MCRA9_EX	MCRW21_EX MCRA21_EX	MCRW34_EX MCRA34_EX
HDP 100_EX	**X**	**X**		
HDP 110_EX	**X**	**X**		
HDP 120_EX	**X**	**X**	**X (*)**	
HDP 125_EX	**X**	**X**	**X (**)**	
HDP 130_EX	**X**	**X**	**X**	**X (**)**
HDP 140_EX	**X**	**X**	**X**	**X (**)**

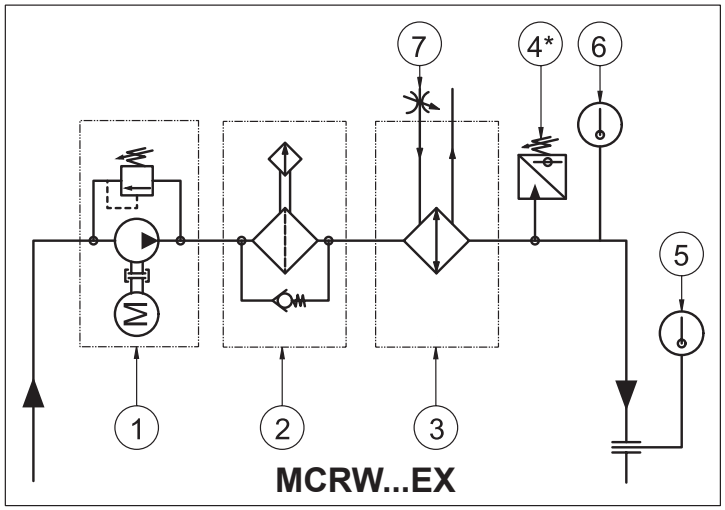
(*) not available for mounting position B3.

(**) not available for double reduction units in the mounting position B3.

The main components of the cooling units are as follows:

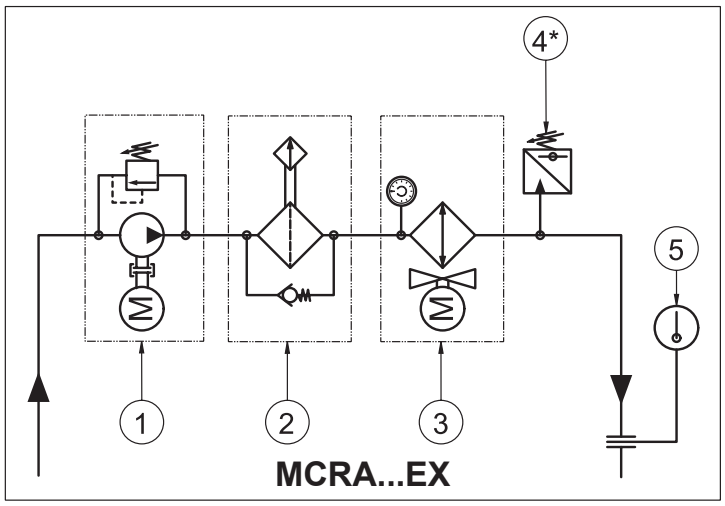
MCRW...EX

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) water/oil heat exchanger
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat
6) minimum temperature switch
7) electro-valve



MCRA...EX

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) air/oil heat exchanger with thermostat
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat

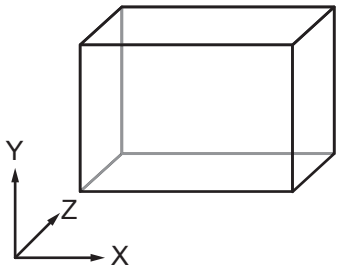


General warnings:
MCRW...EX : provide a water supply system that corresponds to the following specifications:
- max. pressure 10 bar
- maximum delivery temperature 20°C
- minimum flow rate Q_{H2O} as per the chart:

	MCRW5_EX	MCRW9_EX	MCRW21_EX	MCRW34_EX
Q_{H2O} [l/min]	10	18	31	56

MCRA...EX : leave sufficient space around the heat exchanger to ensure an unrestricted air flow.

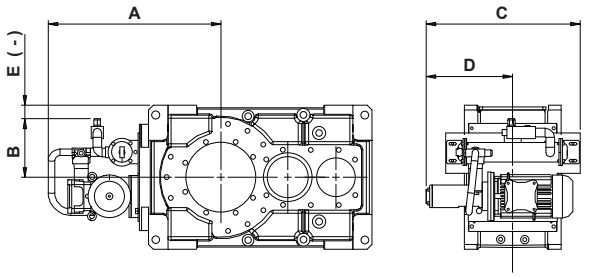
Cooling units maximum dimensions



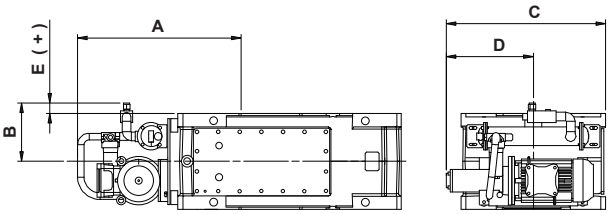
	X	Y	Z
MCRW5_EX	500	288	432
MCRW9_EX	565	328	409
MCRW21_EX	641	382	429
MCRW34_EX	811	430	551
MCRA5_EX	630	505	788
MCRA9_EX	808	605	648
MCRA21_EX	640	605	921
MCRA34_EX	921	605	699

MCRW...EX

B3



V5



B3 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	596	247	500	295	-23
	110	2x ; 3x ; 4x	581				-23
	120	2x ; 3x ; 4x	626				-53
	125	2x ; 3x ; 4x	666				-93
	130	2x ; 3x ; 4x	681				-133
	140	2x ; 3x ; 4x	706				-133

V5 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	596	247	500	295	62
	110	2x ; 3x ; 4x	581				62
	120	2x ; 3x ; 4x	626				47
	125	2x ; 3x ; 4x	666				47
	130	2x ; 3x ; 4x	681				-3
	140	2x ; 3x ; 4x	706				-3

B3 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	610.5	224	565	295	-46
	110	2x ; 3x ; 4x	595.5				-46
	120	2x ; 3x ; 4x	640.5				-76
	125	2x ; 3x ; 4x	680.5				-116
	130	2x ; 3x ; 4x	695.5				-156
	140	2x ; 3x ; 4x	720.5				-156

V5 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	610.5	224	565	295	39
	110	2x ; 3x ; 4x	595.5				39
	120	2x ; 3x ; 4x	640.5				24
	125	2x ; 3x ; 4x	680.5				24
	130	2x ; 3x ; 4x	695.5				-26
	140	2x ; 3x ; 4x	720.5				-26

B3 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x ; 3x ; 4x	—	—	—	—	—
	125	2x	—	—	—	—	—
		3x ; 4x	760	244	641.5	361.5	-96
	130	2x ; 3x ; 4x	775				-136
	140	2x ; 3x ; 4x	800				-136

V5 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x ; 3x ; 4x	720	244	641.5	361.5	44
	125	2x ; 3x ; 4x	760				44
	130	2x ; 3x ; 4x	775				-6
	140	2x ; 3x ; 4x	800				-6

B3 - MCRW34_EX

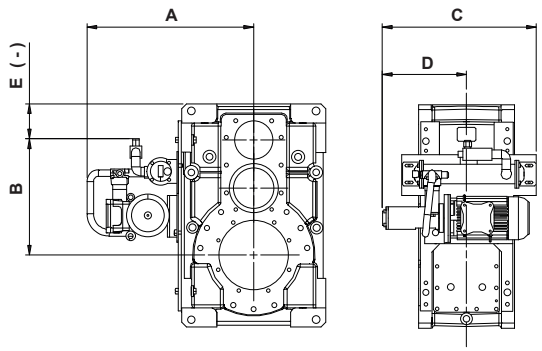
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	—	—	—	—	—
		3x ; 4x	823	366	811	431	-14
	140	2x	—	—	—	—	—
		3x ; 4x	848	366	811	431	-14

V5 - MCRW34_EX

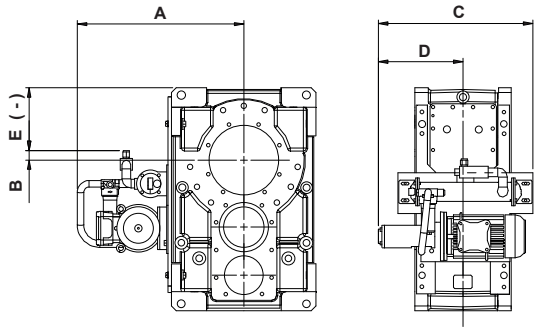
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x ; 3x ; 4x	823	366	811	431	116
	140	2x ; 3x ; 4x	848				116

MCRW...EX

B6



B7



B6 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	573	465	500	295	-95
		3x ; 4x	573	585			-95
	110	2x	573	480			-95
		3x ; 4x	573	600			-95
	120	2x	603	473			-157
		3x ; 4x	603	608			-172
	125	2x	643	473			-197
		3x ; 4x	643	608			-212
	130	2x	683	479.5			-260.5
		3x ; 4x	683	575.8			-359.3
	140	2x	683	501.5			-278.5
		3x ; 4x	683	585.8			-389.3

B7 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	573	29	500	295	-241
		3x ; 4x	573	-91			-361
	110	2x	573	14			-241
		3x ; 4x	573	-106			-361
	120	2x	603	21			-279
		3x ; 4x	603	-114			-414
	125	2x	643	21			-319
		3x ; 4x	643	-114			-454
	130	2x	683	14.5			-340.5
		3x ; 4x	683	-86			-441
	140	2x	683	-8.5			-388.5
		3x ; 4x	683	-91			-471

B6 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	587.5	442	565	295	-118
		3x ; 4x	587.5	562			-118
	110	2x	587.5	457			-118
		3x ; 4x	587.5	577			-118
	120	2x	617.5	450			-180
		3x ; 4x	617.5	585			-195
	125	2x	657.5	450			-220
		3x ; 4x	657.5	585			-235
	130	2x	697.5	456.5			-283.5
		3x ; 4x	697.5	552.8			-382.3
	140	2x	697.5	478.5			-301.5
		3x ; 4x	697.5	562.8			-412.3

B7 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	587.5	6	565	295	-264
		3x ; 4x	587.5	-114			-384
	110	2x	587.5	-9			-264
		3x ; 4x	587.5	-129			-384
	120	2x	617.5	-2			-302
		3x ; 4x	617.5	-137			-437
	125	2x	657.5	-2			-342
		3x ; 4x	657.5	-137			-477
	130	2x	697.5	-8.5			-363.5
		3x ; 4x	697.5	-109			-464
	140	2x	697.5	-31.5			-411.5
		3x ; 4x	697.5	-114			-494

B6 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x	697	470	641.2	361.2	-160
		3x ; 4x	697	605			-175
	125	2x	737	470			-200
		3x ; 4x	737	605			-215
	130	2x	777	476.5			263.5
		3x ; 4x	777	572.8			-362.3
	140	2x	777	498.5			-281.5
		3x ; 4x	777	582.8			-392.3

B7 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x	697	18	641.2	361.2	-282
		3x ; 4x	697	-117			-417
	125	2x	737	18			-322
		3x ; 4x	737	-117			-457
	130	2x	777	11.5			-343.5
		3x ; 4x	777	-89			-444
	140	2x	777	-11.5			-391.5
		3x ; 4x	777	-94			-474

B6 - MCRW34_EX

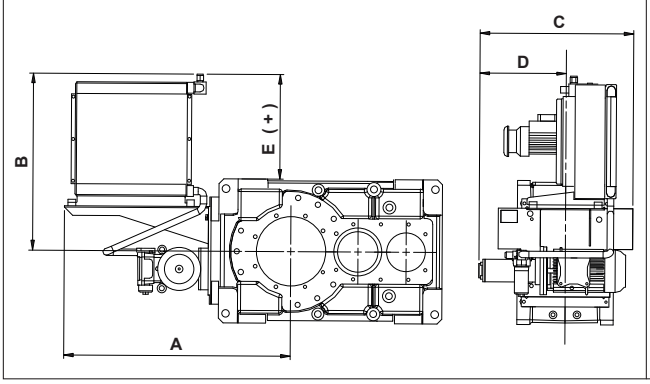
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	825	618.5	811	431	-121.5
		3x ; 4x	825	714.8			-220.3
	140	2x	825	640.5			-139.5
		3x ; 4x	825	724.8			-250.3

B7 - MCRW34_EX

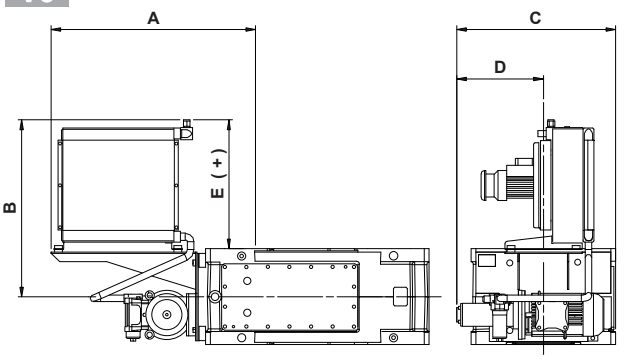
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	825	153.5	811	431	-201.5
		3x ; 4x	825	53			-302
	140	2x	825	130.5			-249.5
		3x ; 4x	825	48			-332

MCRA...EX

B3



V5



B3 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	813	603	642	430	333
	110	2x ; 3x ; 4x	798				333
	120	2x ; 3x ; 4x	843				303
	125	2x ; 3x ; 4x	883				263
	130	2x ; 3x ; 4x	898				223
	140	2x ; 3x ; 4x	923				223

V5 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	813	603	642	430	418
	110	2x ; 3x ; 4x	798				418
	120	2x ; 3x ; 4x	843				403
	125	2x ; 3x ; 4x	883				403
	130	2x ; 3x ; 4x	898				353
	140	2x ; 3x ; 4x	923				353

B3 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	913	623	678	295.5	353
	110	2x ; 3x ; 4x	898				353
	120	2x ; 3x ; 4x	943				323
	125	2x ; 3x ; 4x	983				283
	130	2x ; 3x ; 4x	998				243
	140	2x ; 3x ; 4x	1023				243

V5 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x ; 3x ; 4x	913	623	678	295.5	438
	110	2x ; 3x ; 4x	898				438
	120	2x ; 3x ; 4x	943				423
	125	2x ; 3x ; 4x	983				423
	130	2x ; 3x ; 4x	998				373
	140	2x ; 3x ; 4x	1023				373

B3 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x ; 3x ; 4x	—	—	—	—	—
	125	2x	—	—	—	—	—
		3x ; 4x	983	736	640.5	360.5	396
	130	2x ; 3x ; 4x	998				356
	140	2x ; 3x ; 4x	1023				356

V5 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x ; 3x ; 4x	943	736	640.5	360.5	536
	125	2x ; 3x ; 4x	983				536
	130	2x ; 3x ; 4x	998				486
	140	2x ; 3x ; 4x	1023				486

B3 - MCRA34_EX

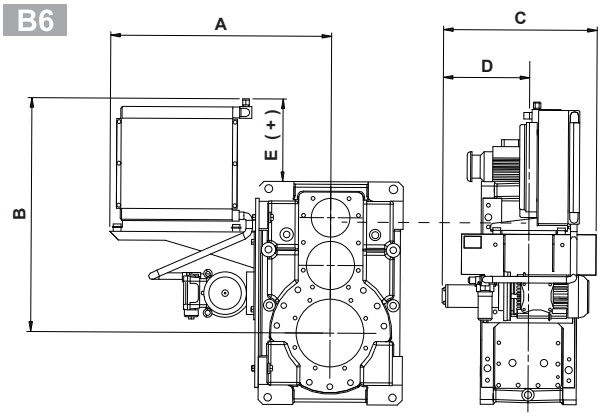
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	—	—	—	—	—
		3x ; 4x	998	736	701	416	356
	140	2x	—	—	—	—	—
		3x ; 4x	1023	736	701	416	356

V5 - MCRA34_EX

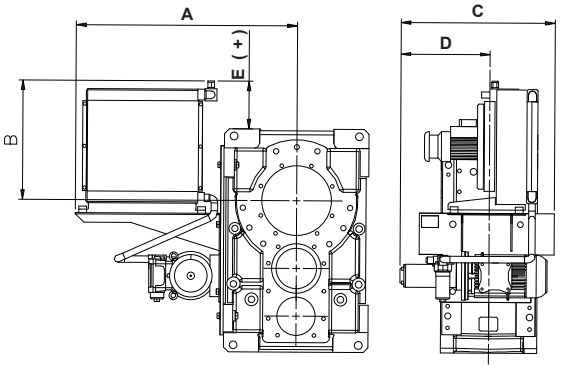
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x ; 3x ; 4x	998	736	701	416	486
	140	2x ; 3x ; 4x	1023				486

MCRA...EX

B6



B7



B6 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	790	820.5	641.7	430	260.5
		3x ; 4x	790	940.5			260.5
	110	2x	790	835.5			260.5
		3x ; 4x	790	955.5			260.5
	120	2x	820	828.5			198.5
		3x ; 4x	820	963.5			183.5
	125	2x	860	828.5			158.5
		3x ; 4x	860	963.5			143.5
	130	2x	900	835			95
		3x ; 4x	900	931.3			-3.8
	140	2x	900	857			77
		3x ; 4x	900	941.3			-33.8

B7 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	790	384.5	641.7	430	114.5
		3x ; 4x	790	264.5			-5.5
	110	2x	790	369.5			114.5
		3x ; 4x	790	249.5			-5.5
	120	2x	820	376.5			76.5
		3x ; 4x	820	241.5			-58.5
	125	2x	860	376.5			36.5
		3x ; 4x	860	241.5			-98.5
	130	2x	900	370			15
		3x ; 4x	900	269.5			-85.5
	140	2x	900	347			-33
		3x ; 4x	900	264.5			-115.5

B6 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	890	840.5	680	295.2	280.5
		3x ; 4x	890	960.5			280.5
	110	2x	890	855.5			280.5
		3x ; 4x	890	975.5			280.5
	120	2x	920	848.5			218.5
		3x ; 4x	920	983.5			203.5
	125	2x	960	848.5			178.5
		3x ; 4x	960	983.5			163.5
	130	2x	1000	855			115
		3x ; 4x	1000	951.3			16.3
	140	2x	1000	877			97
		3x ; 4x	1000	961.3			-13.8

B7 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	100	2x	890	404.5	680	295.2	134.5
		3x ; 4x	890	284.5			14.5
	110	2x	890	389.5			134.5
		3x ; 4x	890	269.5			14.5
	120	2x	920	396.5			96.5
		3x ; 4x	920	261.5			-38.5
	125	2x	960	396.5			56.5
		3x ; 4x	960	261.5			-78.5
	130	2x	1000	390			35
		3x ; 4x	1000	289.5			-65.5
	140	2x	1000	367			-13
		3x ; 4x	1000	284.5			-95.5

B6 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x	920	962	640.2	360.2	332
		3x ; 4x	920	1097			317
	125	2x	960	962			292
		3x ; 4x	960	1097			277
	130	2x	1000	968.5			228.5
		3x ; 4x	1000	1064.8			129.8
	140	2x	1000	990.5			210.5
		3x ; 4x	1000	1074.8			99.8

B7 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	120	2x	920	510	640.2	360.2	210
		3x ; 4x	920	375			75
	125	2x	960	510			170
		3x ; 4x	960	375			35
	130	2x	1000	503.5			148.5
		3x ; 4x	1000	403			48
	140	2x	1000	480.5			100.5
		3x ; 4x	1000	398			18

B6 - MCRA34_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	1000	966	701	416	226
		3x ; 4x	1000	1062.3			127.3
	140	2x	1000	988			208
		3x ; 4x	1000	1072.3			97.3

B7 - MCRA34_EX

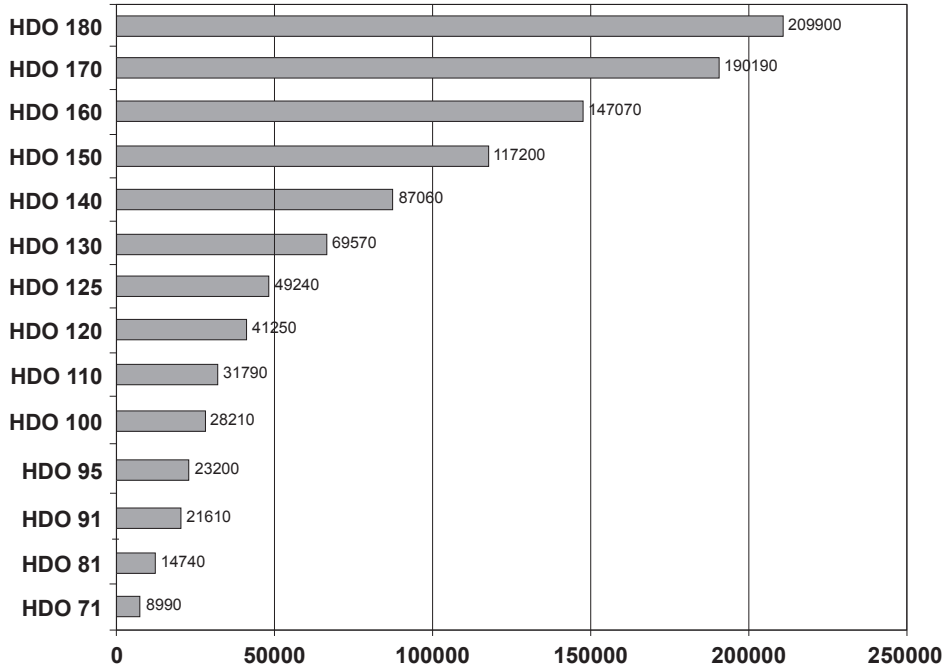
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDP	130	2x	1000	501	701	416	146
		3x ; 4x	1000	400.5			45.5
	140	2x	1000	478			98
		3x ; 4x	1000	395.5			15.5

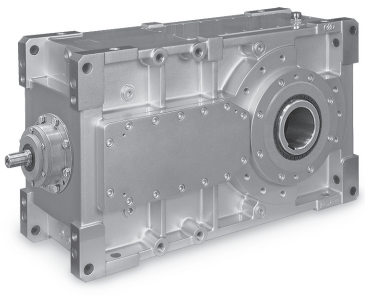
24 OTHER INFORMATION ABOUT GEARBOX AND GEARMOTOR

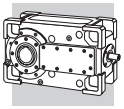
Mounting positions, technical data, motor availability,moments of inertia and dimensions of **HDP-EX (Atex)** series don't change among equivalent **HDP** product series. All of these information can be obtained in the related chapters of this catalogue.

25 DESIGN FEATURES

The main design features of the HDO bevel helical range are:
• 11 frame sizes: HDO 71, 81, 91, 100, 110, 120, 125, 130, 140, 150 and 160, with 2, 3, and 4 reduction stages.
• 3 frame sizes: HDO 95, 170, 180, with 3, and 4 reduction stages.
• Excellent distribution of rated torque values across the entire ratio range.
• Gear ratios with constant 12% escalation.
• HDO 71, 81, 91, 95, 100, 110, 120 and 125: monobloc casing in rigid, strong and precision machined spheroidal graphite cast iron, with internal and external paint finish. Universal mounting thanks to large number of machined and drilled surfaces. Casing shapes and thicknesses optimised by FEM analysis for superior structural rigidity, low acoustic emissions and reduced weight.
• HDO 130 ... HDO 180: spheroidal graphite cast iron or electrically-welded steel body made up of two half-casings, split along the same plane as the shafts. This design makes maintenance operations quick and economical. Casing shapes and thicknesses optimised by FEM analysis for superior structural rigidity, low acoustic emissions and reduced weight.
• Case hardened, tempered and ground finished alloyed steel bevel and helical gears, with corrected profiles for:
- more silent operation and smoother running of input gears
- maximum transmissible torque from final reduction stages
• Casehardened and ground finished input shafts; output shafts in extremely rigid hardened and tempered steel.





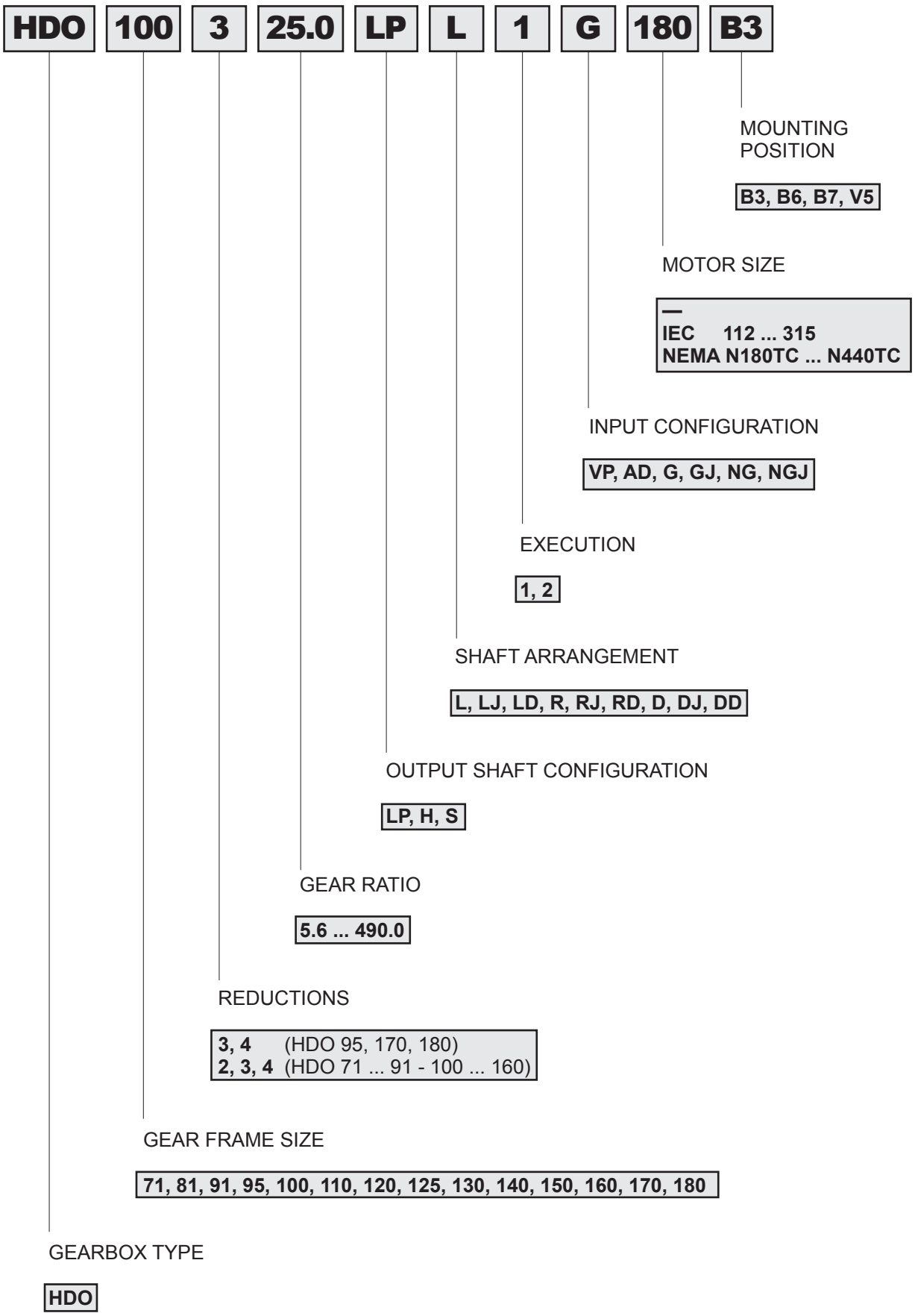


• Input shaft configurations:
Solid input shaft on same plane as or orthogonal to gear shafts, even simultaneously.Shaft end according to UNI/ISO 775-88 standards.
Provision for motor mounting with coupling bell and flexible joint.
• Output shaft configurations:
- solid, single or double-extension output shaft with ends conforming to UNI/ISO 775-88 standards
- hollow shaft with keyway
- hollow shaft with shrink disc
• Large, leading brand taper roller or self aligning roller bearings capable of withstanding high external loads.

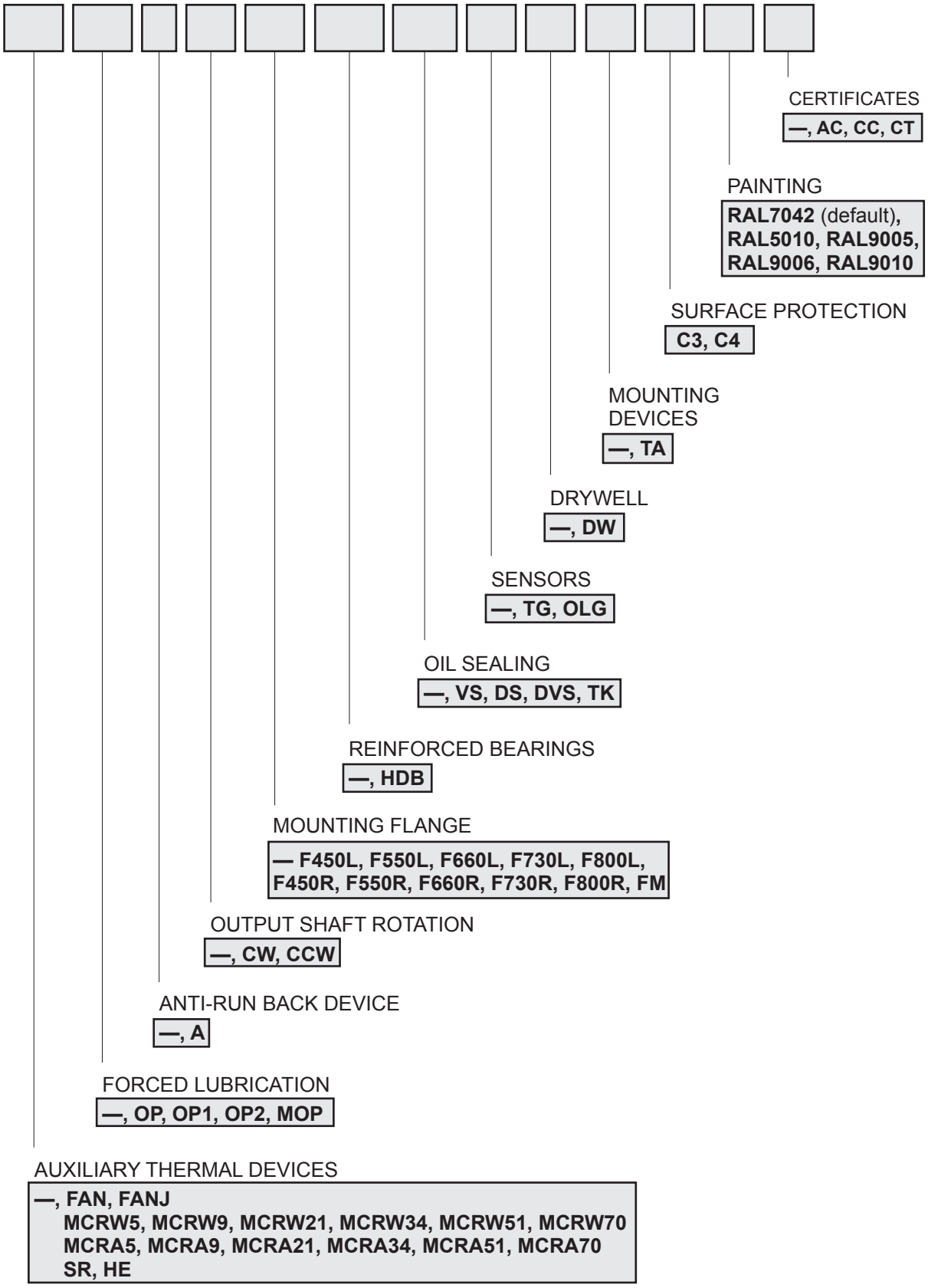
• A wide range of gearbox customisation options available upon request, including:
- auxiliary cooling/heating devices
- forced lubrication systems
- backstop device
- mounting flanges or sleeves
- seals and gaskets in various types and materials
- sensors
- dry-well device for vertical shaft installations
- fixing elements

26 PRODUCT CONFIGURATIONS

26.1 BASE VARIANTS

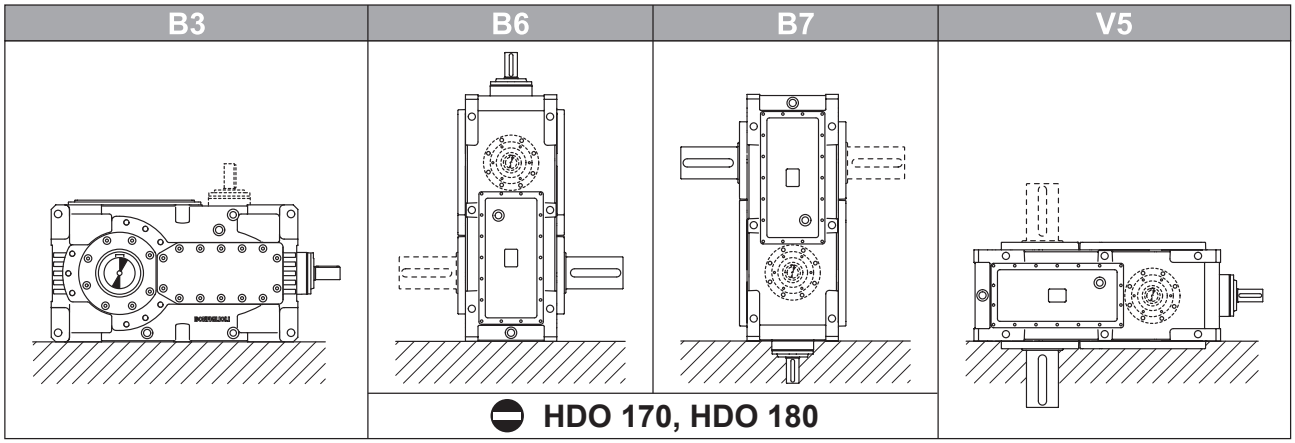


26.2 OPTIONAL VARIANTS



REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

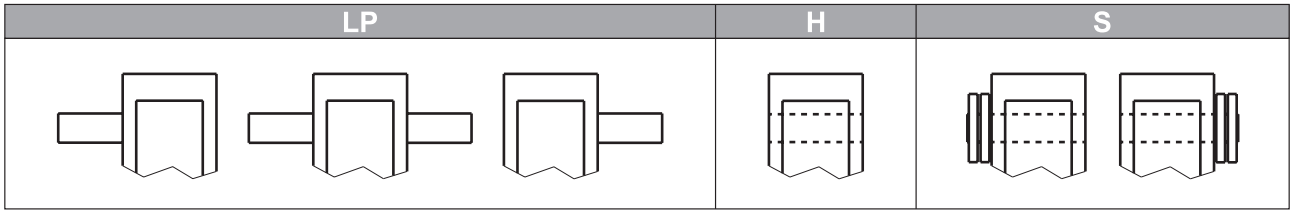
26.3 MOUNTING POSITION



If necessary, the sizes HDO 71-81-91-95 in position B3 can be used with the inspection cover on the bottom side (B3 flip over). In this case it will be necessary for the installer to reverse the position of some plugs to ensure proper lubrication. For this operation please refer to the Operation and Maintenance Manual. This operation has to be evaluated taking into consideration its compatibility with the individual variants (fast part **J** configuration) and options **(SR, HE, TG, OLG)** by consulting our Technical Service.

26.4 INPUT AND OUTPUT CONFIGURATION

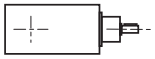
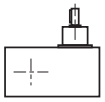
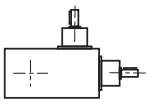
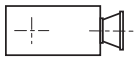
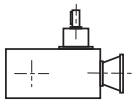
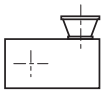
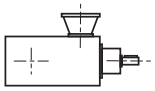
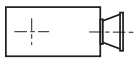
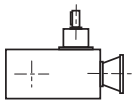
26.4.1 OUTPUT SHAFT CONFIGURATION



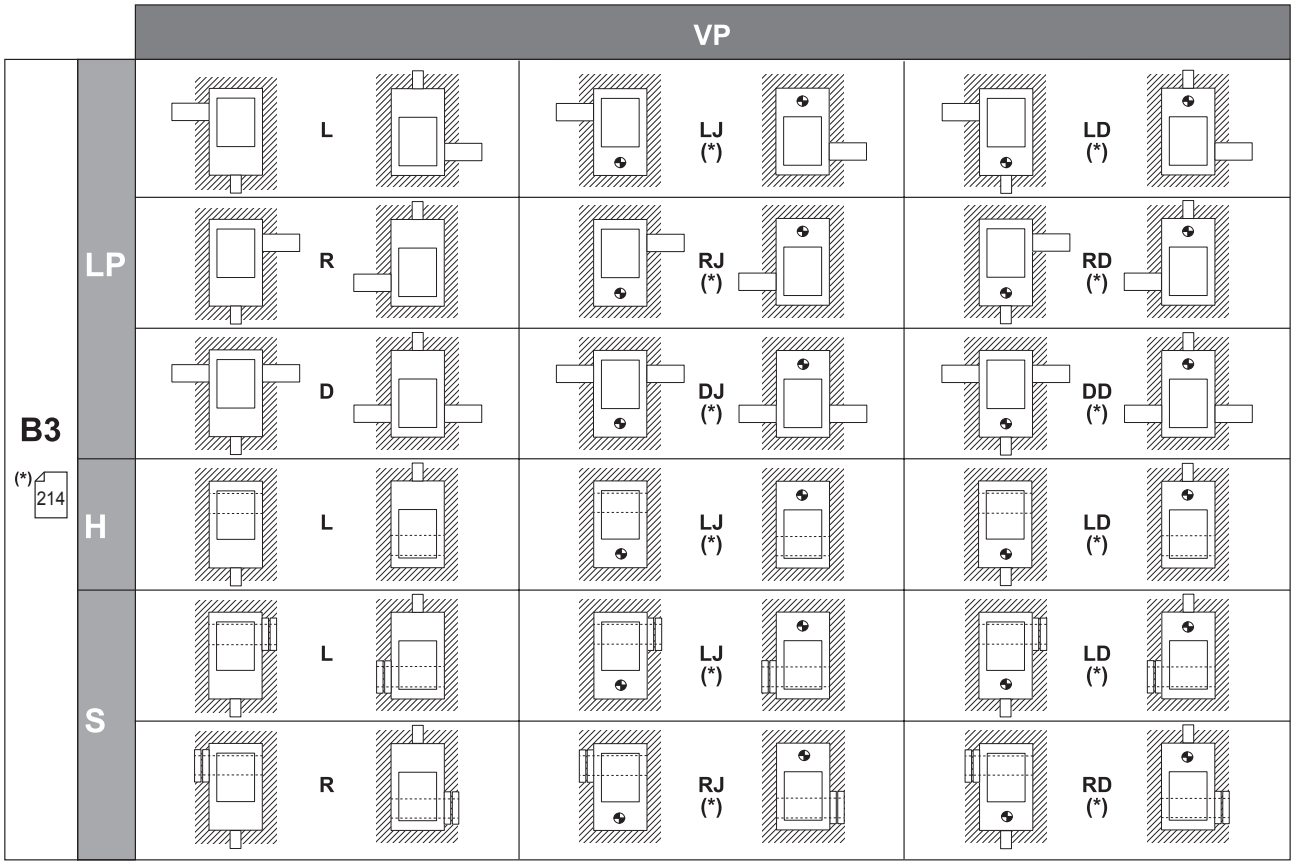
26.4.2 INPUT CONFIGURATION

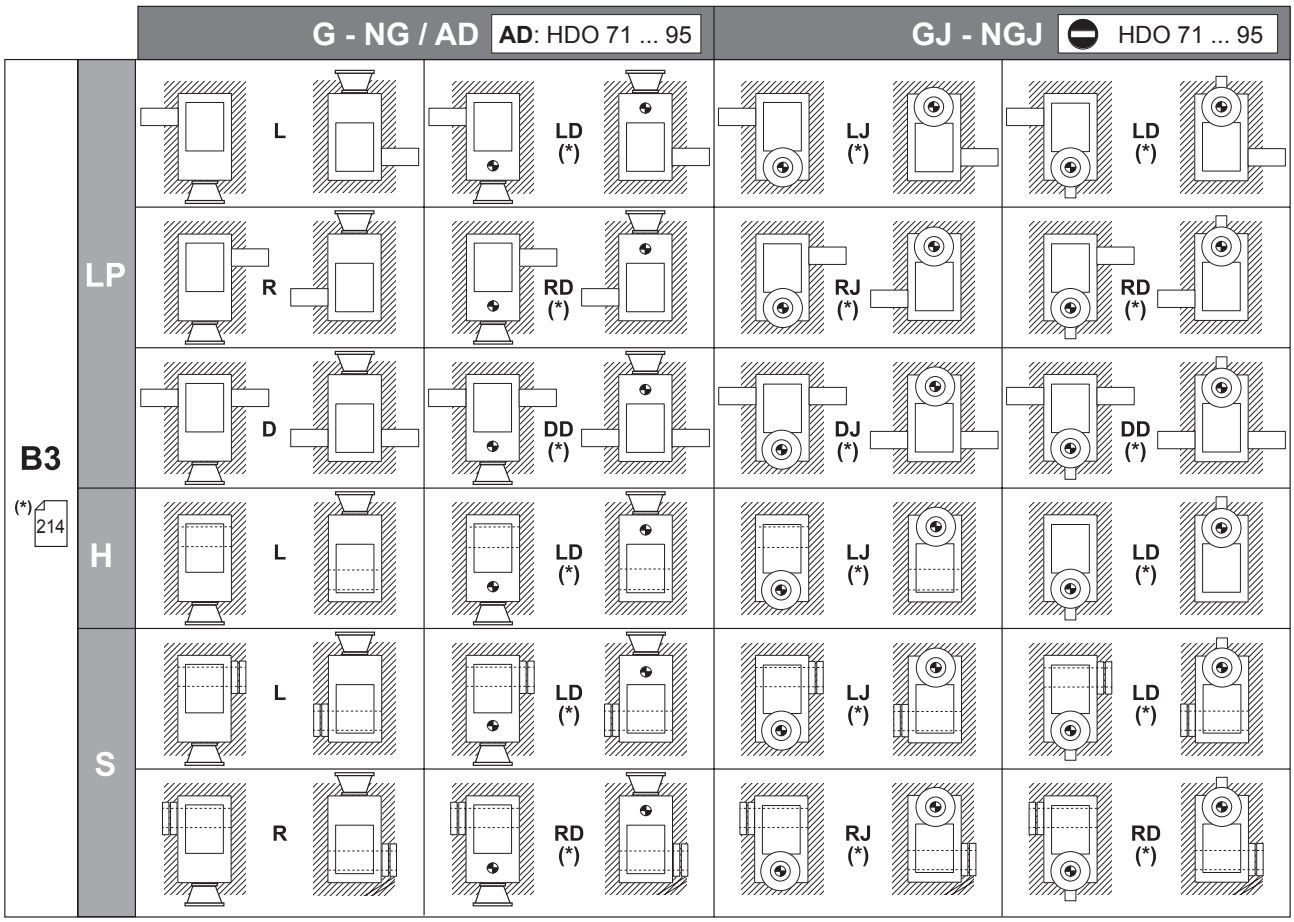
On the input side the gear unit can be arranged in either one of the configurations described here after:

- **Solid input shaft**, single- or double-sided – Specify **VP**
- **Motor mounting through bell housing IEC or NEMA and flexible coupling.** The option is designated **G/NG** or **GJ/NGJ** depending on what side of the gear unit the coupling is mounted. The flexible coupling is within the scope for supply.
- **Motor mounting for direct coupling** to an electric motor normalized in IM B5 construction form. It is only available for the HDO 71 ... 95 gearboxes in the three-stage reduction version - Specify **AD**.

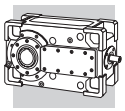
VP			
G **NG**		⛔	
GJ **NGJ**	⛔	 ⛔ HDO 71 ... 95	 ⛔ HDO 71 ... 95
AD	 HDO 71 ... 95	⛔ HDO 71 ... 95	 HDO 71 ... 95

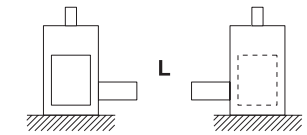
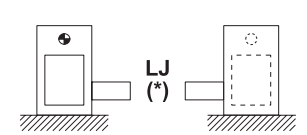
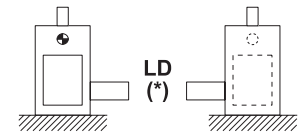
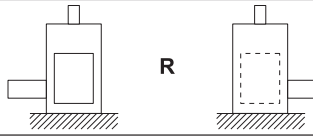
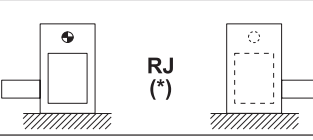
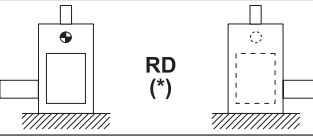
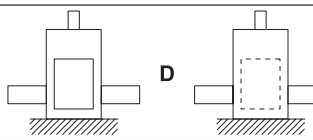
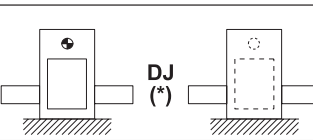
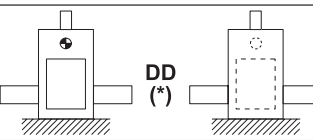
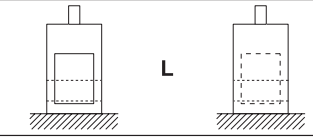
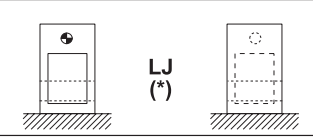
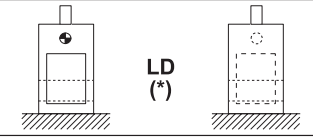
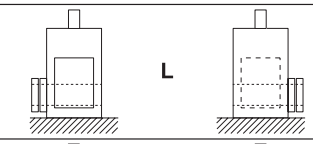
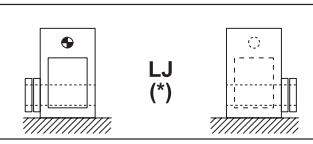
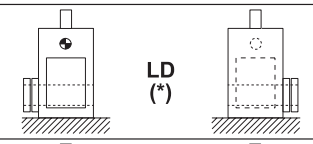
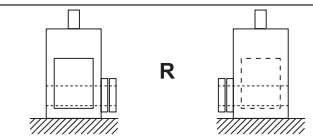
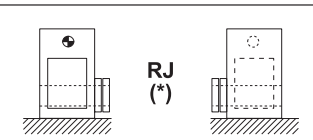
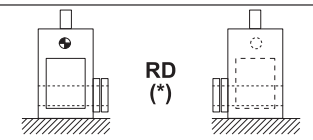
26.4.3 SHAFT ARRANGEMENT

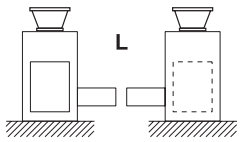
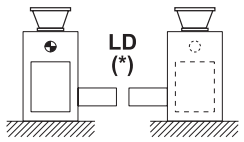
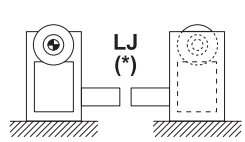
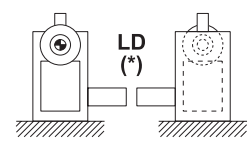
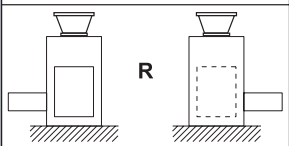
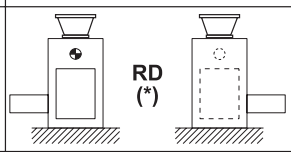
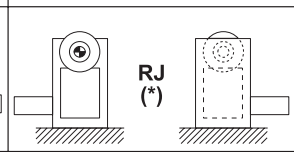
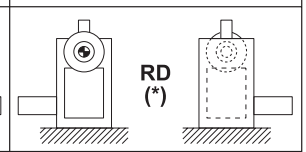
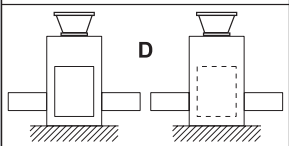
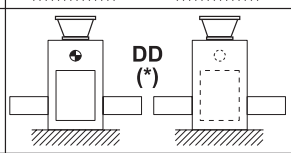
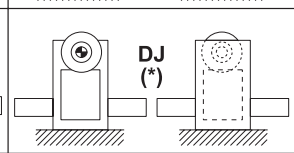
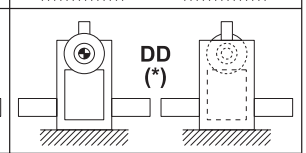
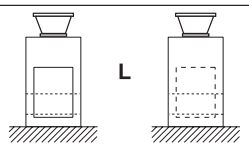
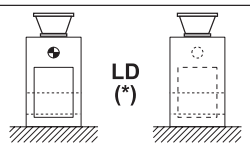
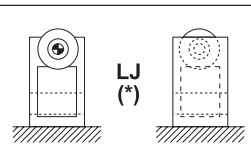
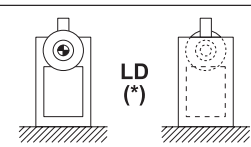
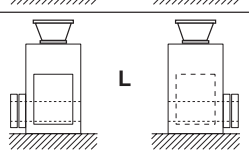
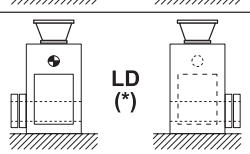
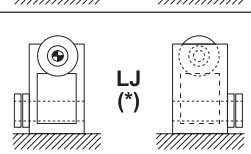
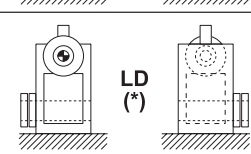
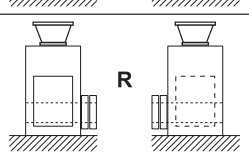
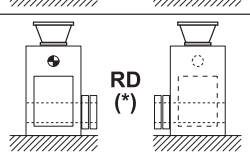
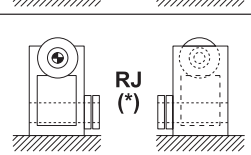
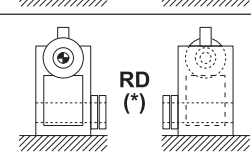


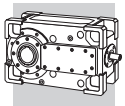


Bonfiglioli Riduttori



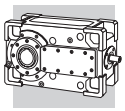
		VP		
B6 (*) 214	LP	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)
		 D	 DJ (*)	 DD (*)
	H	 L	 LJ (*)	 LD (*)
	S	 L	 LJ (*)	 LD (*)
		 R	 RJ (*)	 RD (*)

		G - NG / AD **AD**: HDO 71 ... 95		GJ - NGJ ⊖ HDO 71 ... 95	
B6 (*) 214	LP	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	 RD (*)	 RJ (*)	 RD (*)
		 D	 DD (*)	 DJ (*)	 DD (*)
	H	 L	 LD (*)	 LJ (*)	 LD (*)
	S	 L	 LD (*)	 LJ (*)	 LD (*)
		 R	 RD (*)	 RJ (*)	 RD (*)



		VP		
B7 (*) 214	LP	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)
		D	DJ (*)	DD (*)
	H	L	LJ (*)	LD (*)
	S	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)

		G - NG / AD **AD**: HDO 71 ... 95		GJ - NGJ ⊖ HDO 71 ... 95	
B7 (*) 214	LP	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)
		D	DD (*)	DJ (*)	DD (*)
	H	L	LD (*)	LJ (*)	LD (*)
	S	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)



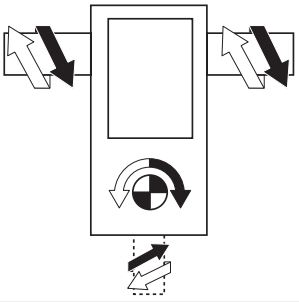
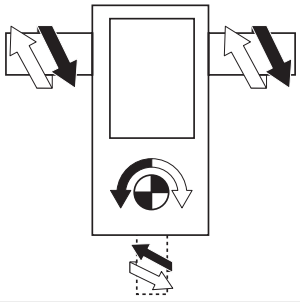
		VP		
V5 (*) 214	LP	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)
		D	DJ (*)	DD (*)
	H	L	LJ (*)	LD (*)
	S	L	LJ (*)	LD (*)
		R	RJ (*)	RD (*)

		G - NG / AD **AD**: HDO 71 ... 95		GJ - NGJ ⊖ HDO 71 ... 95	
V5 (*) 214	LP	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)
		D	DD (*)	DJ (*)	DD (*)
	H	L	LD (*)	LJ (*)	LD (*)
	S	L	LD (*)	LJ (*)	LD (*)
		R	RD (*)	RJ (*)	RD (*)

The gear ratios listed below are those that are not available for the configurations marked with (*) in the charts here before.

(*)	Configurations not possible
	i
HDO 71 2	⊖
HDO 71 4	⊖
HDO 81 2	⊖
HDO 81 4	⊖
HDO 91 2	⊖
HDO 91 3	i = 30.6
HDO 91 4	⊖
HDO 95 2	⊖
HDO 95 3	34.9 ≤ i ≤ 40.5
HDO 95 4	⊖
HDO 100 2	⊖
HDO 100 4	⊖
HDO 110 2	⊖
HDO 110 4	⊖
HDO 120 2	⊖
HDO 120 3	i = 24.6
HDO 120 4	⊖
HDO 125 2	⊖
HDO 125 3	27.7 ≤ i ≤ 35.8
HDO 125 4	⊖
HDO 130 2	⊖
HDO 130 4	⊖
HDO 140 2	⊖
HDO 140 4	⊖
HDO 150 2	⊖
HDO 150 3	15.6 ≤ i ≤ 25.4
HDO 150 4	⊖
HDO 160 2	⊖
HDO 160 3	17.7 ≤ i ≤ 31.3
HDO 160 4	⊖
HDO 170	⊖
HDO 180	⊖

26.5 EXECUTION

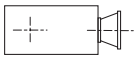
HDO□ 1	HDO□ 2
	

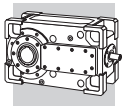
26.6 MOTOR AVAILABILITY

The following charts list the motor/gearbox combinations that are geometrically feasible. Variants are only applicable if either an AD (direct motor mounting) or a G/NG - GJ/NGJ input configuration (coupling through bell housing IEC or NEMA and flexible coupling) were previously specified within the ordering code.

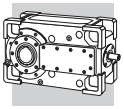
Because of standardisation, the rated power of the electric motor selected might be greater than nominal power Pn_1 of choosen gearbox. Make sure that the electric motor will never develop the extra power at any stage of the operating cycle. If you have any doubts about the validity of the application data, or uncertainty concerning the actual load pattern, install a torque limiting device or proportionally revise the applicable service factor.

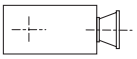
	Input configuration				
	AD				
	112	132	160	180	200
HDO 71 3	—	X	X	X	X
HDO 81 3	—	—	X	X	X
HDO 91 3	—	—	—	X	X
HDO 91 4	—	—	X	X	X
HDO 95 3	—	—	—	X	X
HDO 95 4	—	—	X	X	X

		Input configuration							
		G							
		112	132	160	180	200	225	250	280
HDO 71 2	i =	—	—	—	—	5.6_14.6	5.6_14.6	—	—
HDO 71 3		—	15.9_69.2	15.9_69.2	15.9_69.2	15.9_69.2	15.9_69.2	—	—
HDO 81 2		—	—	—	—	5.5_14.7	5.5_14.7	5.5_14.7	5.5_14.7
HDO 81 3		—	—	15.5_69.2	15.5_69.2	15.5_69.2	15.5_69.2	15.5_69.2	15.5_69.2
HDO 91 2		—	—	—	—	7.4_15.9	7.4_15.9	7.4_15.9	7.4_15.9
HDO 91 3		—	—	18.6_66.1	18.6_66.1	18.6_66.1	18.6_66.1	18.6_66.1	18.6_66.1
HDO 91 4		82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	—	—
HDO 95 3		—	—	21.2_72.3	21.2_72.3	21.2_72.3	21.2_72.3	21.2_72.3	21.2_72.3
HDO 95 4		81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	—	—

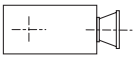


		Input configuration								
		G								
		112	132	160	180	200	225	250	280	315
HDO 100_2		—	—	—	—	—	—	5.8_13.5	5.8_13.5	5.8_13.5
HDO 100_3		—	—	20.2_67.5	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	14.0_67.5
HDO 100_4		160.0_344.2	70.8_344.2	70.8_344.2	70.8_344.2	70.8_139.8	70.8_139.8	—	—	—
HDO 110_2		—	—	—	—	—	—	—	6.4_15.5	6.4_15.5
HDO 110_3		—	—	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	18.9_77.5
HDO 110_4		137.1_395.0	137.1_395.0	77.4_395.0	77.4_395.0	77.4_121.7	77.4_121.7	—	—	—
HDO 120_2		—	—	—	—	—	—	—	—	6.6_15.5
HDO 120_3		—	—	—	—	28.3_78.6	28.3_78.6	28.3_78.6	17.3_78.6	17.3_78.6
HDO 120_4		—	87.0_400.6	87.0_400.6	87.0_400.6	87.0_162.2	87.0_162.2	—	—	—
HDO 125_2		—	—	—	—	—	—	—	—	7.4_16.9
HDO 125_3		—	—	—	—	38.8_85.9	38.8_85.9	38.8_85.9	19.2_85.9	19.2_85.9
HDO 125_4		—	97.0_438.0	97.0_438.0	97.0_438.0	97.0_178.0	97.0_178.0	—	—	—
HDO 130_2	i =	—	—	—	—	—	—	—	—	5.7_13.6
HDO 130_3		—	—	—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 130_4		—	—	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	—
HDO 140_2		—	—	—	—	—	—	—	—	6.6_15.7
HDO 140_3		—	—	—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3
HDO 140_4		—	—	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	—
HDO 150_2		—	—	—	—	—	—	—	—	—
HDO 150_3		—	—	—	—	—	—	—	15.6_60.8	15.6_60.8
HDO 150_4		—	—	—	101.8_238.8	101.8_238.8	101.8_238.8	66.9_238.8	66.9_238.8	66.9_238.8
HDO 160_2		—	—	—	—	—	—	—	—	—
HDO 160_3		—	—	—	—	—	—	—	17.7_68.6	17.7_68.6
HDO 160_4		—	—	—	115.2_269.7	115.2_269.7	115.2_269.7	75.9_269.7	75.9_269.7	75.9_269.7
HDO 170		BONFIGLIOLI TECHNICAL SERVICE								
HDO 180										

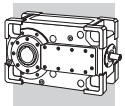




		Input configuration						
		NG						
		N180TC	N210TC	N250TC	N280TC	N320TC	N360TC	N400TC
HDO 71 2	i =	—	—	—	—	5.6_14.6	5.6_14.6	—
HDO 71 3		—	15.9_69.2	15.9_69.2	15.9_69.2	15.9_69.2	15.9_69.2	—
HDO 81 2		—	—	—	—	5.5_14.7	5.5_14.7	5.5_14.7
HDO 81 3		—	—	15.5_69.2	15.5_69.2	15.5_69.2	15.5_69.2	15.5_69.2
HDO 91 2		—	—	—	—	7.4_15.9	7.4_15.9	7.4_15.9
HDO 91 3		—	—	18.6_66.1	18.6_66.1	18.6_66.1	18.6_66.1	18.6_66.1
HDO 91 4		82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	82.0_489.3	—
HDO 95 3		—	—	21.2_72.3	21.2_72.3	21.2_72.3	21.2_72.3	21.2_72.3
HDO 95 4		81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	81.6_489.7	—



		Input configuration							
		NG							
		N180TC	N210TC	N250TC	N280TC	N320TC	N360TC	N400TC	N440TC
HDO 100_2	i =	—	—	—	—	—	5.8_13.5	5.8_13.5	—
HDO 100_3		—	—	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	—
HDO 100_4		160.0_344.2	70.8_344.2	70.8_344.2	70.8_344.2	70.8_139.8	70.8_139.8	—	—
HDO 110_2		—	—	—	—	—	—	6.4_15.5	—
HDO 110_3		—	—	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	—
HDO 110_4		137.1_395.0	77.4_395.0	77.4_395.0	77.4_395.0	77.4_121.7	77.4_121.7	—	—
HDO 120_2		—	—	—	—	—	—	—	6.6_15.5
HDO 120_3		—	—	—	—	28.3_78.6	28.3_78.6	17.3_78.6	17.3_78.6
HDO 120_4		—	87.0_400.6	87.0_400.6	87.0_400.6	87.0_162.2	87.0_162.2	—	—
HDO 125_2		—	—	—	—	—	—	—	7.4_16.9
HDO 125_3		—	—	—	—	38.8_85.9	38.8_85.9	19.2_85.9	19.2_85.9
HDO 125_4		—	97.0_438.0	97.0_438.0	97.0_438.0	97.0_178.0	97.0_178.0	—	—
HDO 130_2		—	—	—	—	—	—	—	5.7_13.6
HDO 130_3		—	—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 130_4		—	—	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	71.5_335.6	—
HDO 140_2		—	—	—	—	—	—	—	6.6_15.7
HDO 140_3		—	—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3
HDO 140_4		—	—	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	82.3_386.6	—



		Input configuration						
		GJ						
		160	180	200	225	250	280	315
HDO 100_2	i =	⛔						
HDO 100_3		20.2_67.5	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	14.0_67.5
HDO 100_4		⛔						
HDO 110_2		⛔						
HDO 110_3		22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	18.9_77.5
HDO 110_4		⛔						
HDO 120_2		⛔						
HDO 120_3		—	—	28.3_78.6	28.3_78.6	28.3_78.6	17.3_78.6 ⛔ (24.6)	17.3_78.6 ⛔ (24.6)
HDO 120_4		⛔						
HDO 125_2		⛔						
HDO 125_3		—	—	38.8_85.9	38.8_85.9	38.8_85.9	19.2_85.9 ⛔ (27.7_33.0_35.8)	19.2_85.9 ⛔ (27.7_33.0_35.8)
HDO 125_4		⛔						
HDO 130_2		⛔						
HDO 130_3		—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 130_4		⛔						
HDO 140_2		⛔						
HDO 140_3		—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3
HDO 140_4		⛔						
HDO 150_2		⛔						
HDO 150_3		—	—	—	—	—	28.2_60.8	28.2_60.8
HDO 150_4		⛔						
HDO 160_2		⛔						
HDO 160_3		—	—	—	—	—	34.9_68.6	34.9_68.6
HDO 160_4		⛔						
HDO 170		⛔						
HDO 180								

		Input configuration							
		NGJ							
		N180TC	N210TC	N250TC	N280TC	N320TC	N360TC	N400TC	N440TC
HDO 100_3	i =	—	—	20.2_67.5	20.2_67.5	20.2_67.5	14.0_67.5	14.0_67.5	—
HDO 110_3		—	—	22.0_77.5	22.0_77.5	22.0_77.5	22.0_77.5	18.9_77.5	—
HDO 120_3		—	—	—	—	28.3_78.6	28.3_78.6	17.3_78.6 ⛔ (24.6)	17.3_78.6 ⛔ (24.6)
HDO 125_3		—	—	—	—	38.8_85.9	38.8_85.9	19.2_85.9 ⛔ (27.7_33.0_35.8)	19.2_85.9 ⛔ (27.7_33.0_35.8)
HDO 130_3		—	—	—	—	—	15.2_67.1	15.2_67.1	15.2_67.1
HDO 140_3		—	—	—	—	—	17.7_77.3	17.7_77.3	17.7_77.3

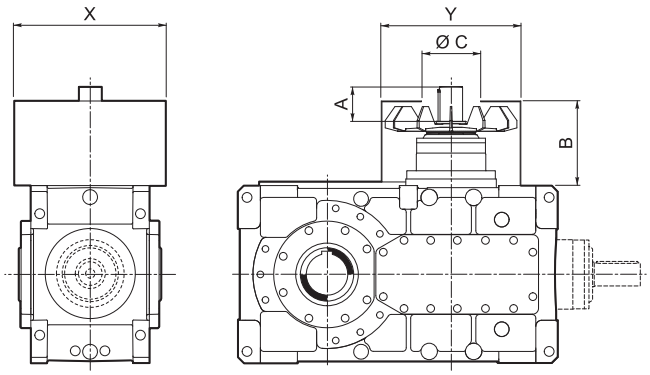
26.7 OPTIONAL VARIANTS

26.7.1 AUXILIARY THERMAL DEVICES

26.7.1.1 FORCED VENTILATION

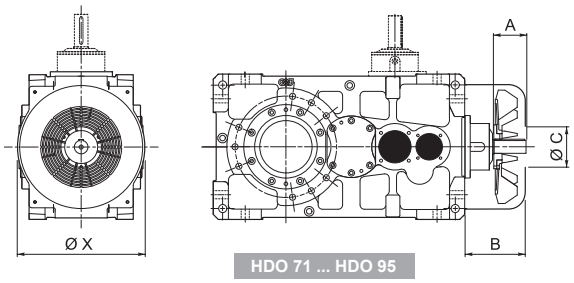
Improved heat dissipation can be achieved on HDO gearboxes by keying a cooling fan on to the gearbox input shaft.
Specify the **FAN** option to have the fan installed on the shaft in the same plane. The alternative option, **FANJ**, with an orthogonally mounted fan, is only available with three stage gearboxes.
In combination with some configuration or mounting position forced ventilation may not be available along with forced lubrication devices - option OP... or MOP.
The increased cooling effect is shown by the thermal capacity value P_{TFAN} listed in section 28.
This value is only significant with continuous duty applications.
The effectiveness of forced ventilation is drastically reduced in intermittent duty applications and also below drive speeds of n_1 = 900 min^{-1}.
In such cases, other auxiliary cooling devices should be used to increase the thermal capacity of the gearbox.

FANJ

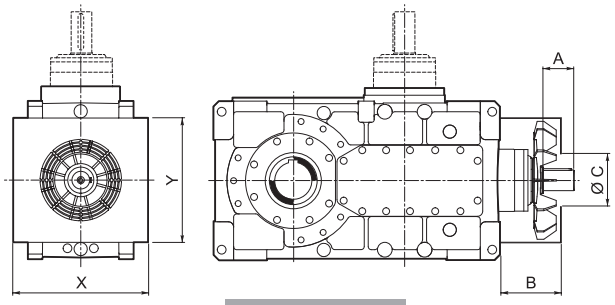


	A [mm]	B [mm]	C [mm]	X [mm]	Y [mm]
HDO 100 3	82	207	180	460	440
HDO 110 3	82	207	180	460	440
HDO 120 3	82	172	180	480	480
HDO 125 3	82	172	180	480	480
HDO 130 3	105	222	230	600	600
HDO 140 3	105	222	230	600	600
HDO 150 3	⛔				
HDO 160 3					
HDO 170					
HDO 180					

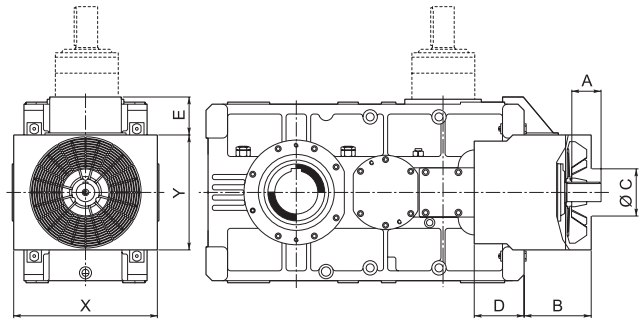
FAN



HDO 71 ... HDO 95



HDO 100 ... HDO 140

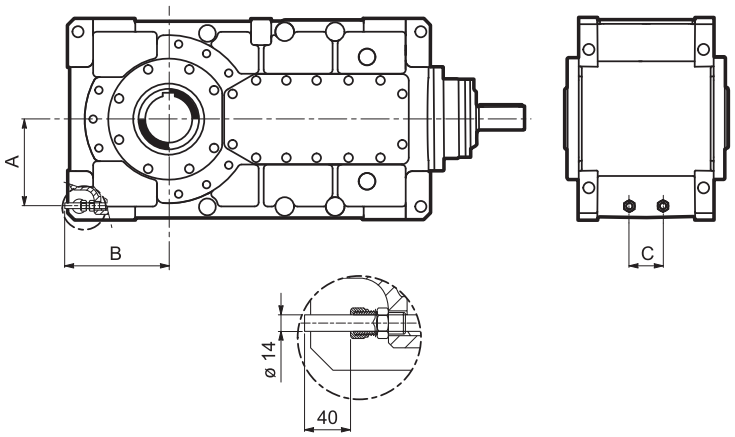


HDO 150 - HDO 160

	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	X [mm]	Y [mm]
HDO 71_2	82	151.5	140	—	—	345	—
HDO 71_3	58	152	140	—	—	345	—
HDO 81_2	82	161.5	140	—	—	345	—
HDO 81_3	82	162	140	—	—	345	—
HDO 91_2	82	208.5	140	—	—	440	—
HDO 91_3	82	209	140	—	—	440	—
HDO 91_4	58	209	140	—	—	440	—
HDO 95_3	82	209	140	—	—	440	—
HDO 95_4	58	209	140	—	—	440	—
HDO 100_2	105	207	180	—	—	460	424
HDO 100_3	82	207	180	—	—	460	424
HDO 100_4	58	207	180	—	—	460	424
HDO 110_2	105	207	180	—	—	460	424
HDO 110_3	82	207	180	—	—	460	424
HDO 110_4	58	207	180	—	—	460	424
HDO 120_2	105	232	180	—	—	480	460
HDO 120_3	82	172	180	—	—	480	460
HDO 120_4	58	172	180	—	—	480	460
HDO 125_2	105	232	180	—	—	480	460
HDO 125_3	82	172	180	—	—	480	460
HDO 125_4	58	172	180	—	—	480	460
HDO 130_2	140	327	230	—	—	600	600
HDO 130_3	105	222	230	—	—	600	600
HDO 130_4	82	287	230	—	—	600	600
HDO 140_2	140	327	230	—	—	600	600
HDO 140_3	105	222	230	—	—	600	600
HDO 140_4	82	287	230	—	—	600	600
HDO 150_2	165	387	230	243	185	700	560
HDO 150_3	130	327	230	243	185	700	560
HDO 150_4	82	297	230	243	185	700	560
HDO 160_2	165	387	230	243	185	700	560
HDO 160_3	130	327	230	243	185	700	560
HDO 160_4	82	297	230	243	185	700	560
HDO 170	BONFIGLIOLI TECHNICAL SERVICE						
HDO 180							

26.7.1.2 HEAT DISSIPATION THROUGH COOLING COIL

The cooling coil option **SR** is designed for integration in a cooling circuit to be provided by the installer.
For optimal efficiency the cooling circuit supply must comply with the following specifications:
• max. pressure 8 bar
• min flow rate 5 l/min for HDO 71 … HDO 95
• min flow rate 10 l/min for HDO 100 … HDO 140
• max. water temperature 20°C
The increased cooling effect obtained in these conditions is shown by the thermal capacity value P_{TSR}. See the section 28



	A [mm]	B [mm]	C [mm]
HDO 71_ SR	147	170	60
HDO 81_ SR	173	190	60
HDO 91_ SR	190	210	60
HDO 95_ SR	215	259	60
HDO 100_ SR	230	285	100
HDO 110_ SR	230	270	100
HDO 120_ SR	258	305	100
HDO 125_ SR	258	305	100
HDO 130_ SR	325	340	100
HDO 140_ SR	325	365	100
HDO 150	BONFIGLIOLI TECHNICAL SERVICE		
HDO 160			
HDO 170			
HDO 180			

26.7.1.3 AUXILIARY COOLING WITH AUTONOMOUS COOLING UNIT

Two types of cooling unit are available, each in a range of sizes providing different cooling capacities. The two types use different cooling media for the oil: MCRW… – water/oil heat exchanger and MCRA… – air/oil heat exchanger.
If an autonomous cooling unit is installed on the advice of the Bonfiglioli Technical Service, no additional forced lubrication devices are required. See section 26.7.2. The following chart shows device availability according to gearbox size. Your selection must take into account the deficit in thermal power that must be made up by contribution P_{TMCRW} or P_{TMCRA} as shown in the chart in section 28.

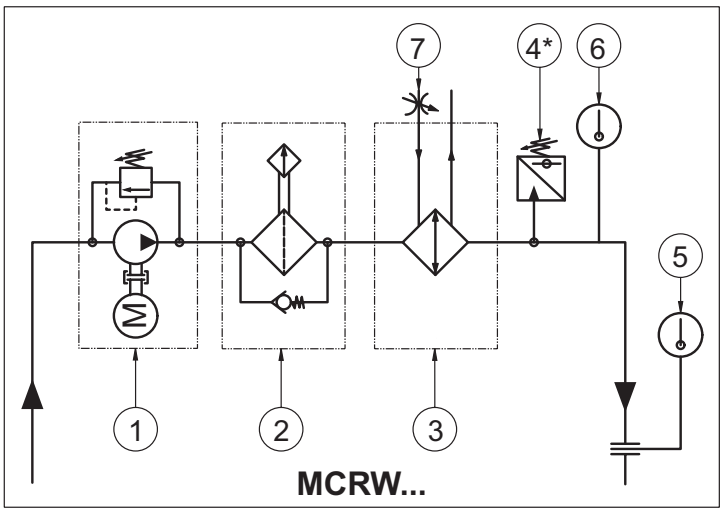
	MCRW5 MCRA5	MCRW9 MCRA9	MCRW21 MCRA21	MCRW34 MCRA34	MCRW51 MCRA51	MCRW70 MCRA70
HDO 100	X	X				
HDO 110	X	X				
HDO 120	X	X	X (*)			
HDO 125	X	X	X (**)			
HDO 130	X	X	X	X (**)		
HDO 140	X	X	X	X (**)		
HDO 150	X	X	X	X	X (**)	
HDO 160	X	X	X	X	X (**)	
HDO 170	BONFIGLIOLI TECHNICAL SERVICE					
HDO 180						

(*) not available for mounting position B3.
(**) not available for double reduction units in the mounting position B3.

The main components of the cooling units are as follows:

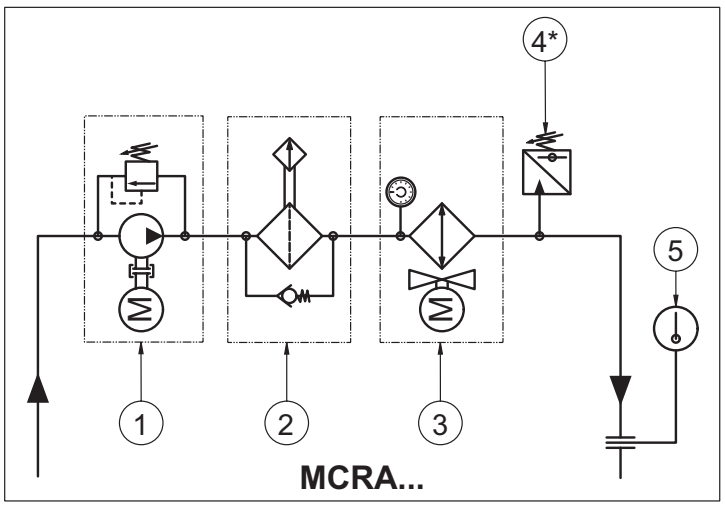
MCRW…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) water/oil heat exchanger
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat
6) minimum temperature switch
7) electro-valve



MCRA…

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) air/oil heat exchanger with thermostat
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat



General warnings:

MCRW... : provide a water supply system that corresponds to the following specifications:

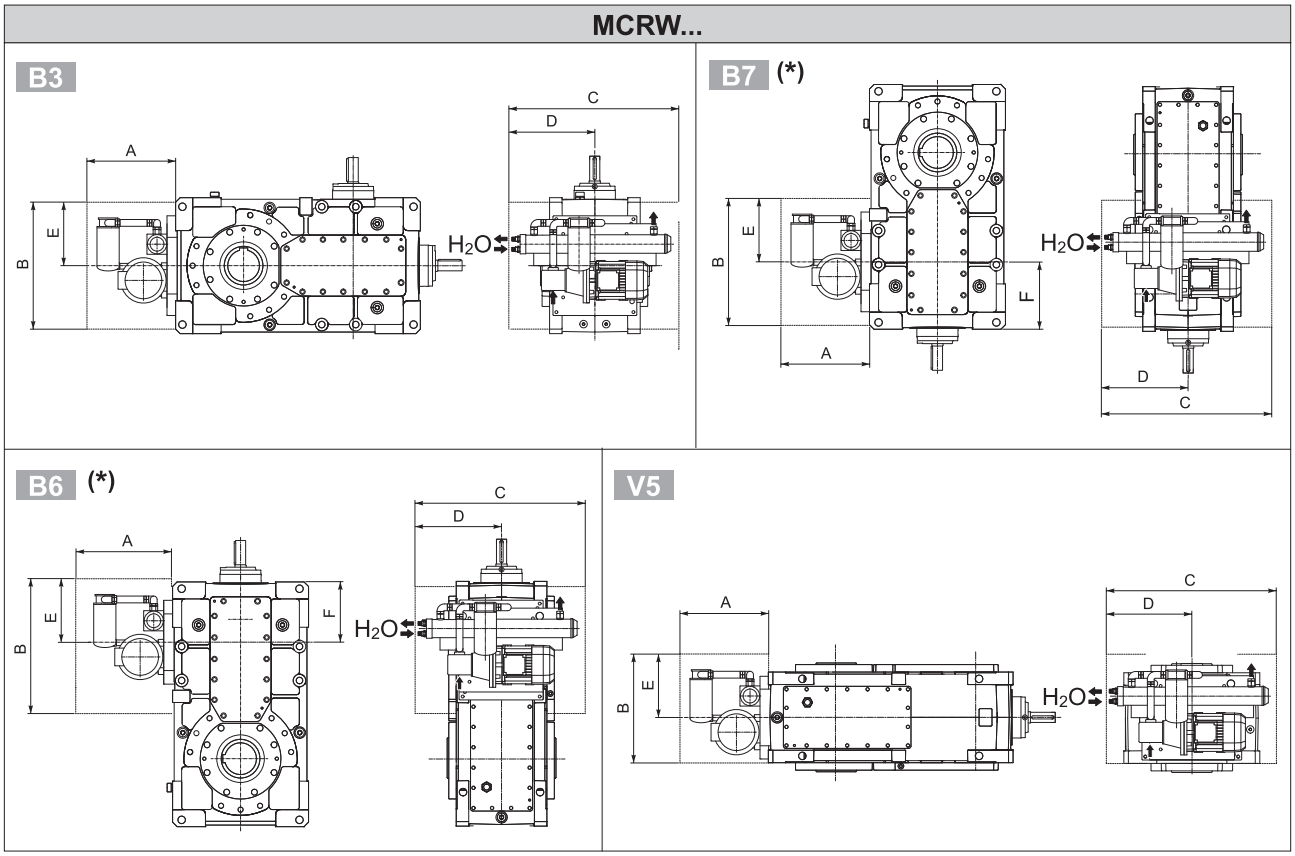
- max. pressure, 10 bar
- maximum delivery temperature, 20°C
- minimum flow rate Q_{H2O} as per the chart:

	MCRW5	MCRW9	MCRW21	MCRW34	MCRW51	MCRW70
Q_{H2O} [l/min]	10	18	31	56	81	BONFIGLIOLI TECHNICAL SERVICE

MCRA... : leave sufficient space around the heat exchanger to ensure an unrestricted air flow.

The cooling units are installed on the gearboxes as shown in the figure below.

MCRW...

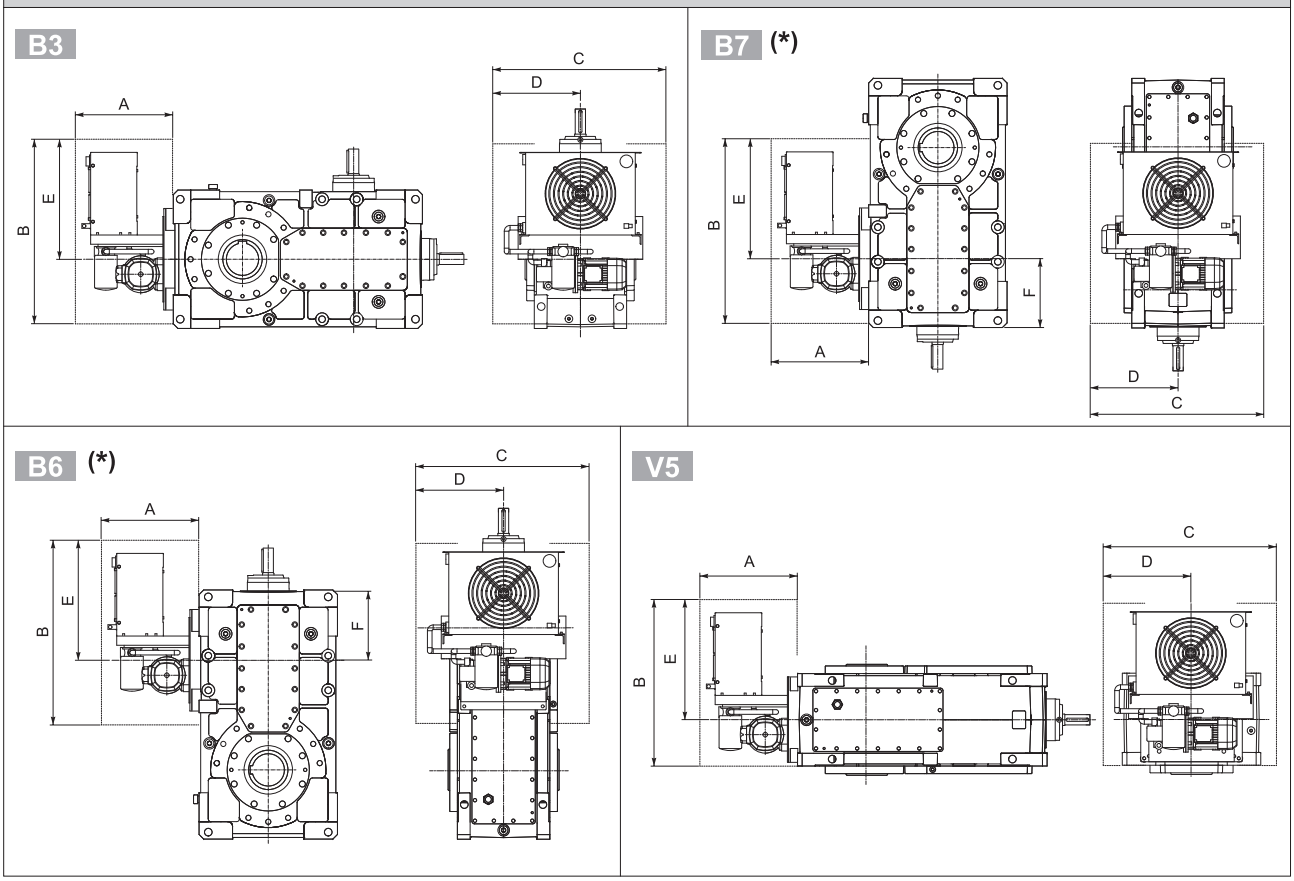


	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]								
						HDO 100 - HDO 110		HDO 120		HDO 125		HDO 130 - HDO 140		HDO 150 - HDO 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRW5	360	415	730	365	230	325	270	350	300	BONFIGLIOLI TECHNICAL SERVICE		420	380	475	395
MCRW9	360	380	870	435	195										
MCRW21	400	425	780	390	240										
MCRW34	430	650	1000	500	465										
MCRW51	520	650	1250	625	465										
MCRW70	BONFIGLIOLI TECHNICAL SERVICE														

(*) Units featuring the "J" input configuration have the cooling unit fitted on opposite side as shown.

Overall dimensions A, B, C, D and E are indicative only

MCRA...



	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]									
						HDO 100 - HDO 110		HDO 120		HDO 125		HDO 130 - HDO 140		HDO 150 - HDO 160	
						2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x	2x	3x/4x
MCRA5	400	560	500	250	375	325	270	350	300	BONFIGLIOLI TECHNICAL SERVICE		420	380	475	395
MCRA9	435	650	640	320	465										
MCRA21	440	815	700	350	630										
MCRA34	500	920	840	420	735										
MCRA51	560	1075	1000	500	890										
MCRA70	BONFIGLIOLI TECHNICAL SERVICE														

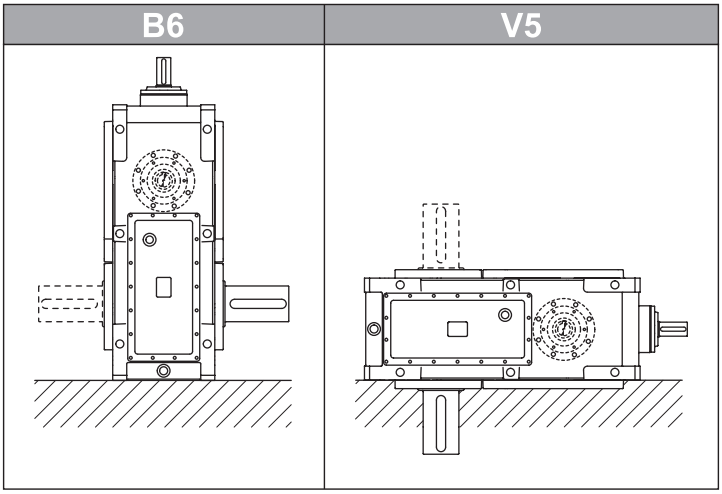
(*) Units featuring the "J" input configuration have the cooling unit fitted on opposite side as shown.

⚠ Overall dimensions A, B, C, D and E are indicative only

26.7.1.4 HEATERS

In very low ambient temperatures it may prove necessary to pre-heat the lubricant in the sump before start-up and/or during operation. The **HE** option envisages the installation of an electrical heating element, supplied with a thermostat to detect when the minimum temperature needed for correct operation has been reached. The wiring necessary for the thermostat must be provided by the installer.

26.7.2 GREASE LUBRICATION

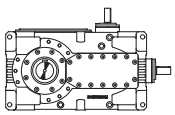
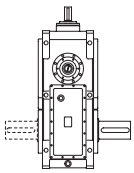
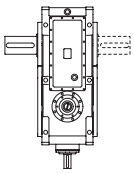
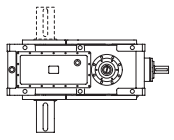


Gearboxes of sizes HDO 71… HDO 95 in mounting position V5 are supplied with upper bearings (not immersed in oil) lubricated with grease and do not require periodic maintenance.
Gearboxes of sizes HDO 71… HDO 95 in mounting position B6 (or B3 with input J) are supplied with the upper bearings (not immersed in oil) lubricated with grease and require periodic maintenance. For lubrication, methodology, quantity and type of grease, refer to the Use and Maintenance Manual.

26.7.2.1 FORCED LUBRICATION

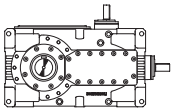
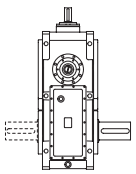
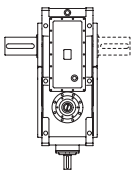
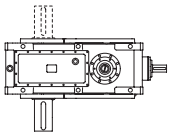
Gearboxes of sizes HDO 71… HDO 95 in mounting position V5 and B6 (or B3 with input J) normally supplied with the upper bearings (not immersed in the oil) lubricated with grease can be supplied, on request, with a forced lubrication circuit for the lubrication of the same.

Application conditions of the OPTIONAL forced lubrication devices.

HDO 71 ... HDO 95					
		B3	**B6**	**B7**	**V5**
	**L R D**	⛔	OP MOP	⛔	⛔
	**LJ RJ DJ**	OP MOP	⛔	⛔	⛔
	**LD RD DD**	OP MOP	OP MOP	⛔	⛔

Gearboxes of sizes HDO 100 ... HDO 180 in mounting position V5 and B6 (or B3 with input J) are supplied with upper bearings not immersed in oil and lubricated through a forced lubrication circuit the lubrication of the same.

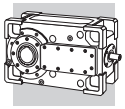
Application conditions of the MANDATORY forced lubrication devices.

HDO 100 ... HDO 180					
		B3	**B6**	**B7**	**V5**
	**L R D**	⛔	OP MOP	⛔	OP... MOP
	**LJ RJ DJ**	OP MOP	⛔	⛔	OP... MOP
	**LD RD DD**	OP MOP	OP MOP	⛔	OP... MOP

Remark: Forced lubrication devices for gearboxes size HDO 100 ... HDO 180 may be replaced, upon approval from Bonfiglioli Techical Service, by independent cooling systems, type MCR...

26.7.2.2 PUMP FOR MOUNTING POSITIONS B3 and B6

In continuous duty applications and, when required, for B3 or B6 mounting positions (see section 26.7.2.1), an optional forced lubrication circuit is available with a mechanically driven pump keyed on to the intermediate shaft.
This circuit only guarantees lubrication of the top bearings that are not immersed in oil.
Before specifying the OP option in your order, check the chart to make sure that the device is fully compatible with the drive speed n_1 and reduction ratio. See the following diagram.



	i	n_1		
		1000 min^{-1}	1200 min^{-1}	1500 min^{-1}
HDO 71 2	5.6 ≤ i ≤ 9.5	OP	OP	OP
	i = 11.1	⛔	OP	OP
	12.1 ≤ i ≤ 14.6	⛔	⛔	OP
HDO 71 3	15.9 ≤ i ≤ 35.6	OP	OP	OP
	38.5 ≤ i ≤ 69.2	⛔	⛔	OP
HDO 71 4	77.0 ≤ i ≤ 197.0 i=237.7	OP	OP	OP
	i=228.2 308.9 ≤ i ≤ 475.4	⛔	⛔	⛔
HDO 81 2	5.5 ≤ i ≤ 9.1	OP	OP	OP
	9.6 ≤ i ≤ 11.1	⛔	OP	OP
	12.2 ≤ i ≤ 14.7	⛔	⛔	OP
HDO 81 3	15.5 ≤ i ≤ 35.6	OP	OP	OP
	38.6 ≤ i ≤ 69.2	⛔	⛔	OP
HDO 81 4	78.3 ≤ i ≤ 181.4 i=227.8	OP	OP	OP
	i=196.5 254.8 ≤ i ≤ 473.3	⛔	⛔	⛔
HDO 91 2	7.4 ≤ i ≤ 9.0	OP	OP	OP
	10.3 ≤ i ≤ 12.5	⛔	OP	OP
	14.6 ≤ i ≤ 15.9	⛔	⛔	OP
HDO 91 3	18.6 ≤ i ≤ 30.6	OP	OP	OP
	36.9 ≤ i ≤ 66.1	⛔	⛔	OP
HDO 91 4	82.0 ≤ i ≤ 225.4	OP	OP	OP
	256.3 ≤ i ≤ 489.3	⛔	⛔	⛔
HDO 95 3	21.2≤ i ≤ 40.5	OP	OP	OP
	44.0 ≤ i ≤ 72.3	⛔	⛔	OP
HDO 95 4	81.6 ≤ i ≤ 231.1	OP	OP	OP
	256.6 ≤ i ≤ 489.7	⛔	⛔	⛔
HDO 100 2	5.8 ≤ i ≤ 8.7	OP	OP	OP
	i = 10.0; 10.9	⛔	OP	OP
	i = 12.4; 13.5	⛔	⛔	OP
HDO 100 3	14.0 ≤ i ≤ 40.0	OP	OP	OP
	43.9 ≤ i ≤ 67.5	⛔	⛔	OP
HDO 100 4	70.8 ≤ i ≤ 139.8	OP	OP	OP
	160.0 ≤ i ≤ 344.2	⛔	⛔	OP
HDO 110 2	6.4 ≤ i ≤ 10.0	OP	OP	OP
	i = 10.9; 12.5	⛔	OP	OP
	i = 13.5; 15.5	⛔	⛔	OP
HDO 110 3	18.9 ≤ i ≤ 43.6	OP	OP	OP
	48.0 ≤ i ≤ 77.5	⛔	⛔	OP
HDO 110 4	77.4 ≤ i ≤ 121.7	OP	OP	OP
	137.1 ≤ i ≤ 395.0	⛔	⛔	OP
HDO 120 2	6.6 ≤ i ≤ 10.0	OP	OP	OP
	i = 11.1; 12.5	⛔	OP	OP
	i = 13.7; 15.5	⛔	⛔	OP
HDO 120 3	17.3 ≤ i ≤ 44.9	OP	OP	OP
	49.5 ≤ i ≤ 78.6	⛔	⛔	OP
HDO 120 4	87.0 ≤ i ≤ 162.2	OP	OP	OP
	179.7 ≤ i ≤ 400.6	⛔	⛔	OP

	i	n_1		
		1000 min^{-1}	1200 min^{-1}	1500 min^{-1}
HDO 125 2	7.4 ≤ i ≤ 9.9	OP	OP	OP
	i = 11.5; 12.3	⛔	OP	OP
	i = 14.2; 15.3; 16.9	⛔	⛔	OP
HDO 125 3	19.2 ≤ i ≤ 55.5	OP	OP	OP
	60.1 ≤ i ≤ 85.9	⛔	⛔	OP
HDO 125 4	90.1 ≤ i ≤ 178.0	OP	OP	OP
	200.3 ≤ i ≤ 438.0	⛔	⛔	OP
HDO 130 2	5.7 ≤ i ≤ 7.1	⛔	OP	OP
	i = 7.7; 8.8	⛔	⛔	OP
	9.6 ≤ i ≤ 13.6	⛔	⛔	⛔
HDO 130 3	15.2 ≤ i ≤ 34.9	OP	OP	OP
	38.3 ≤ i ≤ 67.1	⛔	⛔	OP
HDO 130 4	71.5 ≤ i ≤ 190.3	OP	OP	OP
	219.1 ≤ i ≤ 335.6	⛔	⛔	OP
HDO 140 2	6.6 ≤ i ≤ 8.2	⛔	OP	OP
	i = 9.0; 10.1	⛔	⛔	OP
	11.3 ≤ i ≤ 15.7	⛔	⛔	⛔
HDO 140 3	17.7 ≤ i ≤ 44.4	OP	OP	OP
	50.4 ≤ i ≤ 77.3	⛔	⛔	OP
HDO 140 4	82.3 ≤ i ≤ 180.0	OP	OP	OP
	198.3 ≤ i ≤ 386.6	⛔	⛔	OP
HDO 150 2	5.5 ≤ i ≤ 7.0	⛔	OP	OP
	i = 8.1; 8.9	⛔	⛔	OP
	10.0 ≤ i ≤ 13.7	⛔	⛔	⛔
HDO 150 3	15.6 ≤ i ≤ 25.4	⛔	OP	OP
	28.2 ≤ i ≤ 36.0	⛔	⛔	OP
	40.2 ≤ i ≤ 60.8	⛔	⛔	⛔
HDO 150 4	66.9 ≤ i ≤ 92.9	OP	OP	OP
	101.8 ≤ i ≤ 141.5	⛔	OP	OP
	157.9 ≤ i ≤ 238.8	⛔	⛔	⛔
HDO 160 2	i = 7.3; 7.9	⛔	OP	OP
	8.9 ≤ i ≤ 11.3	⛔	⛔	OP
	12.2 ≤ i ≤ 15.4	⛔	⛔	⛔
HDO 160 3	17.7 ≤ i ≤ 31.3	⛔	OP	OP
	34.9 ≤ i ≤ 44.3	⛔	⛔	OP
	49.4 ≤ i ≤ 68.6	⛔	⛔	⛔
HDO 160 4	75.9 ≤ i ≤ 96.3	OP	OP	OP
	115.2 ≤ i ≤ 174.0	⛔	OP	OP
	194.1 ≤ i ≤ 269.7	⛔	⛔	⛔
HDO 170		⛔		
HDO 180				

This option is not available with other configurations that use the same shaft end.

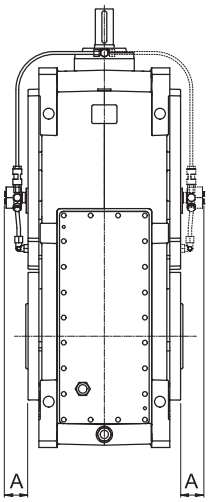
HDO ... G-NG ... B6
HDO ... VP ... B6

HDO 71 ... 91
2x ... 2
3x ... 2
4x ... 2

HDO 95
3x ... 2
4x ... 2

HDO 100 ... 140
2x ... 2
3x ... 2
4x ... 2

HDO 150 - 160
2x ... 2
3x ... 2
4x ... 1



HDO 71 ... 91
2x ... 1
3x ... 1
4x ... 1

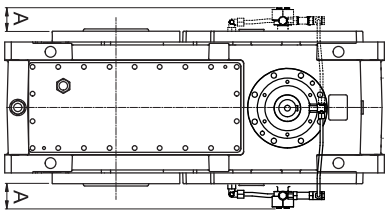
HDO 95
3x ... 1
4x ... 1

HDO 100 ... 140
2x ... 1
3x ... 1
4x ... 1

HDO 150 - 160
2x ... 1
3x ... 1
4x ... 2

HDO ... VP ... B3

HDO 71 ... 95
3x ... 2

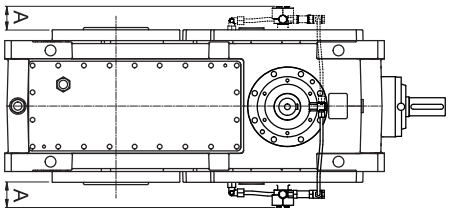


HDO 71 ... 95
3x ... 1

HDO ... GJ-NGJ ... B3
HDO ... VP ... B3

HDO 100 ... 140
2x ... 2
3x ... 2
4x ... 2

HDO 150 - 160
2x ... 2
3x ... 2
4x ... 1



HDO 100 ... 140
2x ... 1
3x ... 1
4x ... 1

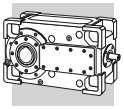
HDO 150 - 160
2x ... 1
3x ... 1
4x ... 2

	A (min) [mm]
HDO 71 2_OP	85
HDO 71 3_OP	78
HDO 71 4_OP	85
HDO 81 2_OP	78
HDO 81 3_OP	78
HDO 81 4_OP	78
HDO 91 2_OP	78
HDO 91 3_OP	78
HDO 91 4_OP	75

	A (min) [mm]
HDO 95 3_OP	53
HDO 95 4_OP	50
HDO 100 2_OP	100
HDO 100 3_OP	95
HDO 100 4_OP	95
HDO 110 2_OP	130
HDO 110 3_OP	95
HDO 110 4_OP	95

	A (min) [mm]
HDO 120 2_OP	125
HDO 120 3_OP	105
HDO 120 4_OP	100
HDO 125 2_OP	125
HDO 125 3_OP	105
HDO 125 4_OP	100
HDO 130 2_OP	120
HDO 130 3_OP	110
HDO 130 4_OP	110

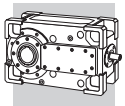
	A (min) [mm]
HDO 140 2_OP	125
HDO 140 3_OP	110
HDO 140 4_OP	110
HDO 150 2_OP	125
HDO 150 3_OP	110
HDO 150 4_OP	110
HDO 160 2_OP	125
HDO 160 3_OP	110
HDO 160 4_OP	110



The following chart specifies the availability of the pump on the basis of mounting position, shaft arrangement and input configuration.

Mounting position	Shaft arrangement	Input configuration
B3	LJ - RJ - DJ - LD - RD - DD	VP - GJ* - NGJ*
B6	L - R - D - LD - RD - DD	VP - G - NG

(*) HDO 71 ... HDO 95 excluded



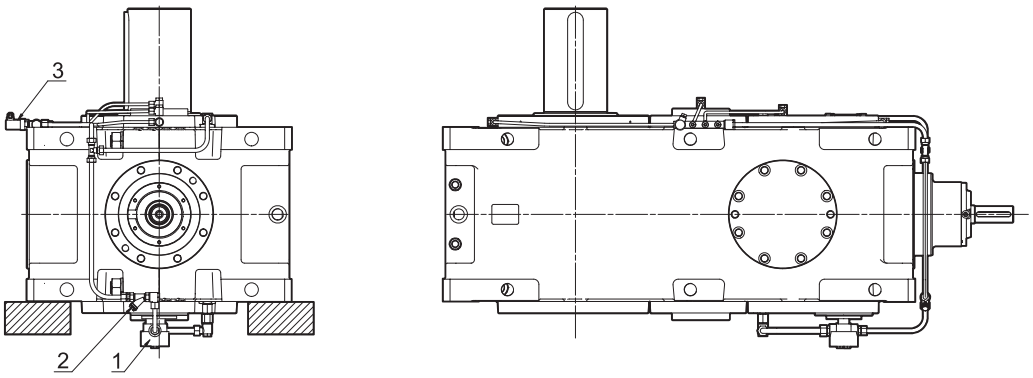
26.7.2.3 PUMP FOR MOUNTING POSITION V5

In continuous duty applications and with V5 mounting positions version 1 (version 2 for 4-stage HDO 150 ... HDO 180), an optional forced lubrication circuit is available with a mechanically driven pump keyed on to the intermediate shaft.
This circuit only guarantees lubrication of the top bearings that are not immersed in oil. If this device is required in conjunction with the Drywell device, consult the Bonfiglioli Technical Service.
When ordering, specify the OP1 or OP2 option in your order after first checking the chart to make sure that the device is fully compatible with drive speed n_1 and the reduction ratio. See the following diagram.

	i	n_1		
		1000 min^{-1}	1200 min^{-1}	1500 min^{-1}
HDO 100 2	5.8 ≤ i ≤ 7.0	OP1	OP1	OP1
	i = 8.0; 8.7	⛔	OP1	OP1
	i = 10.0; 10.9	⛔	⛔	OP1
	i = 12.4; 13.5	⛔	⛔	⛔
HDO 100 3	14.0 ≤ i ≤ 17.3	OP2	OP1	OP1
	20.2 ≤ i ≤ 40.0	⛔	OP2	OP1
	43.9 ≤ i ≤ 67.5	⛔	⛔	⛔
HDO 100 4	70.8 ≤ i ≤ 139.8	⛔	OP2	OP1
	160.0 ≤ i ≤ 344.2	⛔	⛔	⛔
HDO 110 2	6.4 ≤ i ≤ 8.1	OP2	OP2	OP1
	i = 8.7; 10.0	⛔	OP2	OP2
	i = 10.9; 12.5	⛔	⛔	OP2
	i = 13.5; 15.5	⛔	⛔	⛔
HDO 110 3	i = 18.9; 20.9	OP2	OP1	OP1
	22.0 ≤ i ≤ 43.6	⛔	OP2	OP1
	48.0 ≤ i ≤ 77.5	⛔	⛔	⛔
HDO 110 4	77.4 ≤ i ≤ 121.7	⛔	OP2	OP2
	137.1 ≤ i ≤ 395.0	⛔	⛔	⛔
HDO 120 2	6.6 ≤ i ≤ 8.1	OP2	OP2	OP1
	i = 8.9; 10.0	⛔	OP2	OP2
	i = 11.1; 12.5	⛔	⛔	OP2
	i = 13.7; 15.5	⛔	⛔	⛔
HDO 120 3	17.3 ≤ i ≤ 28.3	OP2	OP2	OP1
	32.0 ≤ i ≤ 44.9	⛔	OP2	OP2
	49.5 ≤ i ≤ 78.6	⛔	⛔	⛔
HDO 120 4	87.0 ≤ i ≤ 162.2	⛔	OP2	OP2
	179.0 ≤ i ≤ 400.6	⛔	⛔	⛔
HDO 125 2	7.4 ≤ i ≤ 8.8	OP2	OP2	OP1
	i = 9.9	⛔	OP2	OP2
	i = 11.5; 12.3	⛔	⛔	OP2
	14.2 ≤ i ≤ 16.9	⛔	⛔	⛔
HDO 125 3	19.2 ≤ i ≤ 35.8	OP2	OP2	OP1
	38.8 ≤ i ≤ 55.4	⛔	OP2	OP2
	60.1 ≤ i ≤ 85.9	⛔	⛔	⛔
HDO 125 4	97.0 ≤ i ≤ 178.0	⛔	OP2	OP2
	200.3 ≤ i ≤ 438.0	⛔	⛔	⛔
HDO 130 2	5.7 ≤ i ≤ 7.1	OP2	OP1	OP1
	i = 7.7; 8.8	⛔	OP2	OP1
	i = 9.6; 11.0	⛔	⛔	OP2
	i = 12.0; 13.6	⛔	⛔	⛔
HDO 130 3	15.2 ≤ i ≤ 19.9	OP2	OP2	OP1
	22.6 ≤ i ≤ 34.9	⛔	OP2	OP2
	38.3 ≤ i ≤ 67.1	⛔	⛔	⛔
HDO 130 4	71.5 ≤ i ≤ 190.3	⛔	OP2	OP1
	219.1 ≤ i ≤ 335.6	⛔	⛔	⛔

	i	n_1		
		1000 min^{-1}	1200 min^{-1}	1500 min^{-1}
HDO 140 2	6.6 ≤ i ≤ 8.2	OP2	OP2	OP1
	i = 9.0; 10.1	⛔	OP2	OP2
	i = 11.3; 12.6	⛔	⛔	OP2
	i = 14.0; 15.7	⛔	⛔	⛔
HDO 140 3	17.7 ≤ i ≤ 23.3	OP2	OP2	OP1
	26.0 ≤ i ≤ 44.4	⛔	OP2	OP2
	50.4 ≤ i ≤ 77.3	⛔	⛔	⛔
HDO 140 4	82.3 ≤ i ≤ 180.0	⛔	OP2	OP1
	198.3 ≤ i ≤ 386.6	⛔	⛔	⛔
HDO 150 2	5.5 ≤ i ≤ 7.0	OP2	OP2	OP1
	i = 8.1; 8.9	⛔	OP2	OP2
	10.0 ≤ i ≤ 10.9	⛔	⛔	OP2
	12.6 ≤ i ≤ 13.7	⛔	⛔	⛔
HDO 150 3	15.6 ≤ i ≤ 25.4	OP2	OP2	OP1
	28.2 ≤ i ≤ 36.0	⛔	OP2	OP2
	40.2 ≤ i ≤ 60.8	⛔	⛔	⛔
HDO 150 4	66.9 ≤ i ≤ 92.9	OP2	OP2	OP1
	101.8 ≤ i ≤ 141.5	⛔	OP2	OP2
	157.9 ≤ i ≤ 238.8	⛔	⛔	⛔
HDO 160 2	i = 7.3; 7.9	OP2	OP2	OP1
	8.9 ≤ i ≤ 11.3	⛔	⛔	OP2
	12.2 ≤ i ≤ 15.4	⛔	⛔	⛔
HDO 160 3	17.7 ≤ i ≤ 31.3	OP2	OP2	OP1
	34.9 ≤ i ≤ 44.3	⛔	OP2	OP2
	49.4 ≤ i ≤ 68.6	⛔	⛔	⛔
HDO 160 4	75.9 ≤ i ≤ 96.3	OP2	OP2	OP1
	115.2 ≤ i ≤ 174.0	⛔	OP2	OP2
	194.1 ≤ i ≤ 269.7	⛔	⛔	⛔
HDO 170 HDO 180	BONFIGLIOLI TECHNICAL SERVICE			

This option is not available with other configurations that use the same shaft end.



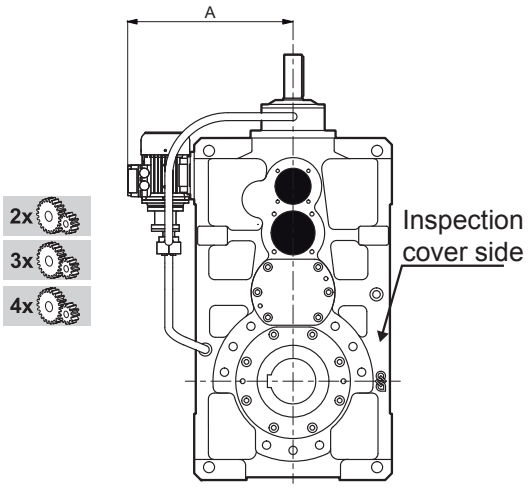
1 - Pump
2 - Filter
3 - Minimum pressure switch

Contact the Bonfiglioli Technical Service for overall dimensions.

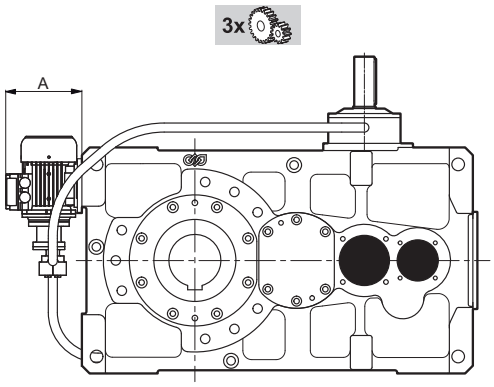
26.7.2.4 ELECTRIC PUMP FOR MOUNTING POSITIONS B3 and B6

In intermittent duty applications, if speeds are incompatible with the use of the OP pump option, and when required for B3 and B6 mounting positions (see section 26.7.2.1), the MOP optional forced lubrication circuit is available with an independently powered electric pump. This system ensures a constant flow of oil to the top bearings.

HDO ... G-NG ... B6
HDO ... VP ... B6



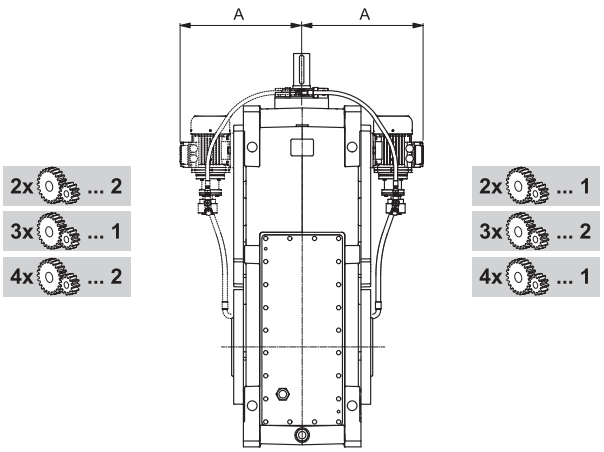
HDO ... VP ... B3



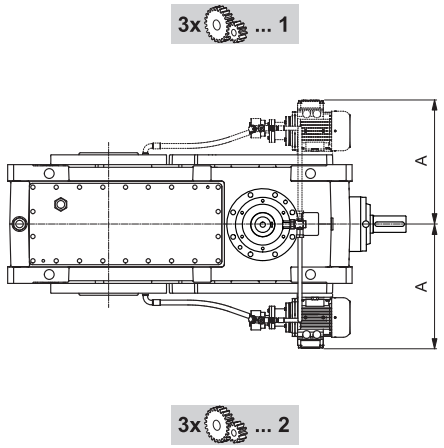
	A (min) [mm]
HDO 71	345
HDO 81	370
HDO 91	395
HDO 95	420

	A (min) [mm]
HDO 71	170
HDO 81	170
HDO 91	170
HDO 95	170

HDO ... G-NG ... B6
HDO ... VP ... B6



HDO ... GJ-NGJ ... B3
HDO ... VP ... B3



	A (min) [mm]
HDO 100	410
HDO 110	410
HDO 120	430
HDO 125	430
HDO 130	480
HDO 140	480
HDO 150	BONFIGLIOLI TECHNICAL SERVICE
HDO 160	
HDO 170	⛔
HDO 180	

The electric pump arrangements shown above are purely indicative. Pump positions may vary depending on the presence of other options

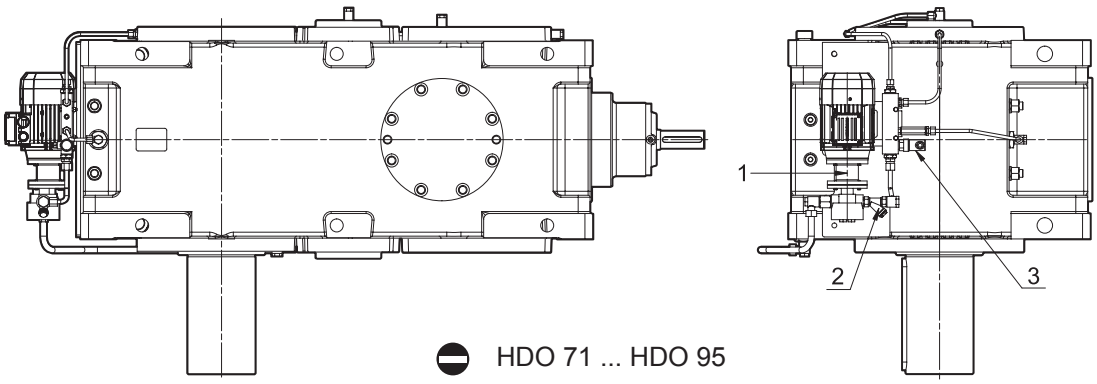
The chart specifies electric pump availability on the basis of mounting position and shaft arrangement.

Mounting position	Shaft arrangement	Input configuration
B3	LJ - RJ - DJ - LD - RD - DD	VP - GJ* - NGJ*
B6	L - R - D - LD - RD - DD	VP - G - NG

(*) HDO 71 ... HDO 95 excluded

26.7.2.5 ELECTRIC PUMP FOR MOUNTING POSITION V5

In intermittent duty applications or when speeds are incompatible with the use of the OP pump option, and when required for mounting position V5, the MOP optional forced lubrication circuit is available with an independently powered electric pump.
If this device is required in conjunction with the Drywell device, consult the Bonfiglioli Technical Service. This system ensures a constant flow of oil to the top bearings.



HDO 71 ... HDO 95

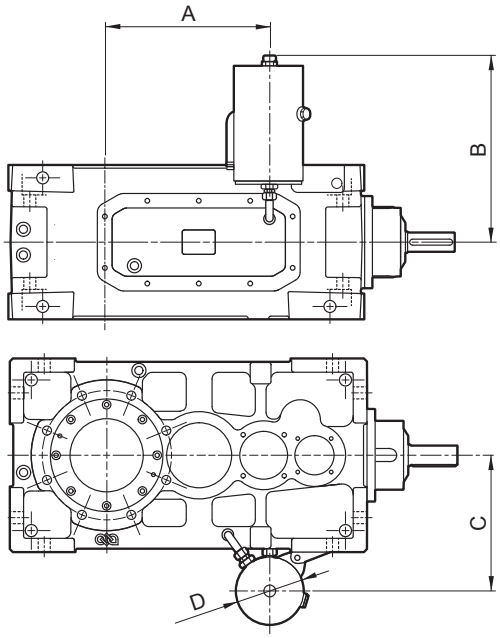
1 - Motorpump
2 - Filter
3 - Minimum pressure switch

The electric pump arrangements shown above are purely indicative. Pump positions may vary depending on the presence of other options at the same time.

Contact the Bonfiglioli Technical Service for overall dimensions.

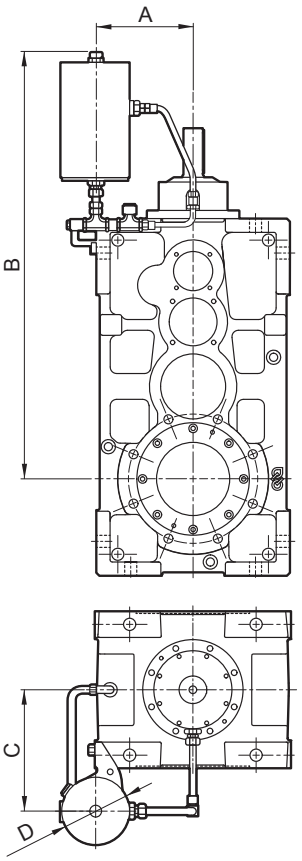
26.7.2.6 OIL BATH LUBRICATION SYSTEM (SPECIAL VARIANT)

As a variant of the forced lubrication systems (OP or MOP) and oil splash and grease lubrication systems (where provided), the option “oil bath lubrication” system is available.
The “oil bath lubrication” option may be supplied only for gearboxes in mounting positions B6 and V5.
With this variant, gears and bearings will be completely immersed in oil and the gearbox will be equipped with an expansion tank in order to compensate any variations in the volume of lubricant that will occur in the gearbox due to temperature variations.
Using the gearbox outside of the “Allowed temperature limits” may compromise the correct lubrication, it will therefore be appropriate to thermally check the gearbox according to the work cycle and the application.
The HDO 71, HDO 81, HDO 91, HDO 95 gearboxes, in mounting positions V5 and B6 can be supplied with the “oil bath lubrication” system by consulting the Bonfiglioli Technical Service in advance (type of lubrication not configurable as standard).



HDO 71 ... HDO 91 - V5

	A [mm]	B [mm]	C [mm]	D [mm]
HDO 71 2 - 3 - 4	330	366	235	99
HDO 81 2 - 3 - 4	405	393	262	99
HDO 91 2	281	483	340	159
HDO 91 3 - 4	369	483	340	159



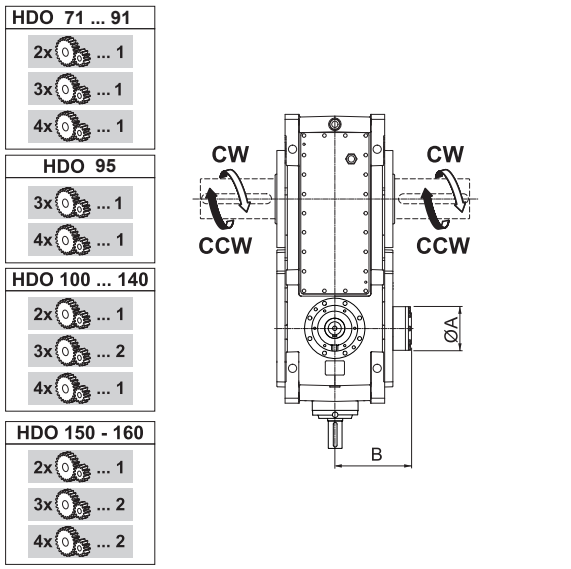
HDO 71 ... HDO 95 - B6

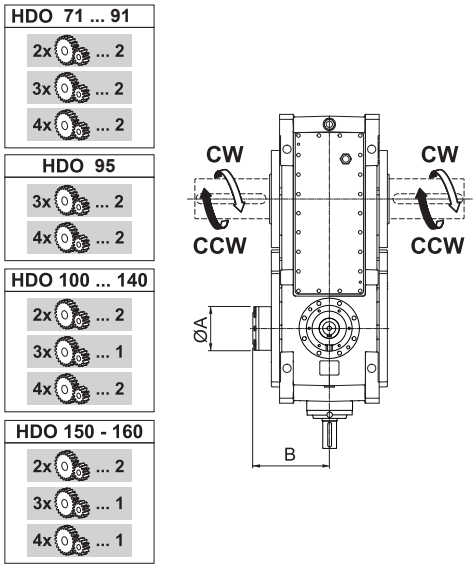
	A [mm]	B [mm]	C [mm]	D [mm]
HDO 71 2	185	644	200	99
HDO 71 3	175	694	200	99
HDO 71 4	175	730	165	99
HDO 81 2	201	715	220	99
HDO 81 3	201	757	220	99
HDO 81 4	190	833	185	99
HDO 91 2	225	929	295	159
HDO 91 3 - 4	225	1050	295	159
HDO 95 3 - 4	225	1044	295	159

26.7.3 BACKSTOP DEVICE

The backstop device ensures that only one direction of rotation is allowed, and prevents the gearbox to be backdriven by the load connected to the output shaft.
In addition to verifying the shock loads shown in section 11.1, also make sure that the torque transmitted to the backstop $M_1 = M_2 / (i \times \eta)$ is less than the admissible torque M_{1max} listed in the chart below.
Along with the specification of the backstop device, option **A**, the direction of free rotation for the output shaft (**CW** or **CCW**) must also be specified in the order.
If special operating conditions require it, the user can reverse the direction of rotation of the backstop device by opening the backstop compartment and reversing the direction of the freewheel. If you need to perform this operation, contact Bonfiglioli's Technical Service for the necessary instructions.
The type of backstop device used, based on centrifugally released shoes, does not require any regular maintenance.
This option is not available with other configurations that use the same shaft end.

Under continuous operating conditions, it is advisable to maintain a neutral rotation speed n_{1min} greater than that specified in the chart in order to ensure the effective centrifugal release of all the shoes and avoid unnecessary wear. For further details, contact the Bonfiglioli Technical Service.

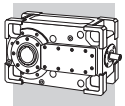


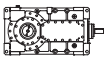


	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 71 2_A	5.6 ≤ i ≤ 6.8	130	212	650	870
	7.9 ≤ i ≤ 9.5			460	1220
	i=11.1			380	1490
	12.1 ≤ i ≤ 14.6			300	(*)
HDO 71 3_A	15.9 ≤ i ≤ 35.6	110	204	350	1060
	38.5 ≤ i ≤ 69.2			180	(*)
HDO 71 4_A	77.0 ≤ i ≤ 197.0 i=237.7	91	199	100	1500
	i=228.2 308.9 ≤ i ≤ 475.4			50	(*)
HDO 81 2_A	5.5 ≤ i ≤ 6.7	151	242	1010	790
	i=7.9 ; 9.1			710	1120
	i=9.6 ; 11.1			580	1365
	12.2 ≤ i ≤ 14.7			460	1740
HDO 81 3_A	15.5 ≤ i ≤ 35.8	110	231	350	1060
	38.6 ≤ i ≤ 69.2			180	(*)
HDO 81 4_A	78.3 ≤ i ≤ 181.4 i=227.8	95	231	150	1485
	i=196.5 254.8 ≤ i ≤ 473.3			80	(*)

	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 91 2_A	7.4 ≤ i ≤ 9.0	175	279	1310	935
	i=10.3 ; 12.5			940	1290
	i=14.6 ; 15.9			740	1640
HDO 91 3_A	18.6 ≤ i ≤ 30.6	130	259	610	930
	36.9 ≤ i ≤ 66.1			340	1660
HDO 91 4_A	82.0 ≤ i ≤ 225.4	110	250	270	1455
	256.3 ≤ i ≤ 489.3			130	(*)
HDO 95 3_A	21.2 ≤ i ≤ 40.5	130	259	610	930
	44.0 ≤ i ≤ 72.3			340	1660
HDO 95 4_A	81.6 ≤ i ≤ 231.1	110	250	270	1455
	256.6 ≤ i ≤ 489.7			130	(*)

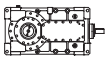
(*) Contact the Bonfiglioli Technical Service.

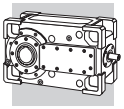


	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 100 2_A	5.8 ≤ i ≤ 7.0	210	335	2840	715
	i = 8.0 ; 8.7			2290	880
	i = 10.0 ; 10.9			1830	1100
	i = 12.4 ; 13.5			1480	1365
HDO 100 3_A	14.0 ≤ i ≤ 17.3	175	285	1550	785
	20.2 ≤ i ≤ 40.0			1190	1020
	43.9 ≤ i ≤ 67.5			770	1585
HDO 100 4_A	70.8 ≤ i ≤ 139.8	125	278	400	1260
	160.0 ≤ i ≤ 344.2			250	(*)
HDO 110 2_A	6.4 ≤ i ≤ 8.1	210	335	2840	715
	i = 8.7 ; 10.0			2290	880
	i = 10.9 ; 12.5			1830	1100
	i = 13.5 ; 15.5			1480	1365
HDO 110 3_A	i = 18.9 ; 20.9	175	285	1550	785
	22.0 ≤ i ≤ 43.6			1190	1020
	48.0 ≤ i ≤ 77.5			770	1585
HDO 110 4_A	77.4 ≤ i ≤ 121.7	125	278	400	1260
	137.1 ≤ i ≤ 395.0			250	(*)
HDO 120 2_A	6.6 ≤ i ≤ 8.1	230	336	3530	665
	i = 8.9 ; 10.0			2850	820
	i = 11.1 ; 12.5			2280	1025
	i = 13.7 ; 15.5			1840	1275
HDO 120 3_A	17.3 ≤ i ≤ 24.6	175	305	1550	785
	28.3 ≤ i ≤ 44.9			1190	1020
	49.5 ≤ i ≤ 78.6			770	1585
HDO 120 4_A	87.0 ≤ i ≤ 162.2	125	279	400	1260
	179.7 ≤ i ≤ 400.6			250	(*)
HDO 125 2_A	7.4 ≤ i ≤ 8.8	230	336	3530	665
	i = 9.9			2850	820
	i = 11.5 ; 12.3			2280	1025
	14.2 ≤ i ≤ 16.9			1840	1275
HDO 125 3_A	19.2 ≤ i ≤ 35.8	175	305	1550	785
	38.8 ≤ i ≤ 55.4			1190	1020
	60.1 ≤ i ≤ 85.9			770	1585
HDO 125 4_A	97.0 ≤ i ≤ 178.0	125	279	400	1260
	200.3 ≤ i ≤ 438.0			250	(*)

(*) Contact the Bonfiglioli Technical Service.

(**) Option not available in configuration ...S-L-1... e ...S-R-2...

	i	A [mm]	B [mm]	M_{1max} [Nm]	n_{1min} [min^{-1}]
HDO 130 2_A (**)	5.7 ≤ i ≤ 7.1	290	437	6630	575
	i = 7.7 ; 8.8			5350	710
	i = 9.6 ; 11.0			4280	890
	i = 12.0 ; 13.6			3450	1105
HDO 130 3_A	15.2 ≤ i ≤ 19.9	210	402	2840	715
	22.6 ≤ i ≤ 34.9			2290	880
	38.3 ≤ i ≤ 67.1			1480	1365
HDO 130 4_A	71.5 ≤ i ≤ 190.3	175	366	1190	1020
	219.1 ≤ i ≤ 335.6			770	1585
HDO 140 2_A (**)	6.6 ≤ i ≤ 8.2	290	437	6630	575
	i = 9.0 ; 10.1			5350	710
	i = 11.3 ; 12.6			4280	890
	i = 14.0 ; 15.7			3450	1105
HDO 140 3_A	17.7 ≤ i ≤ 23.3	210	402	2840	715
	26.0 ≤ i ≤ 44.4			2290	880
	50.4 ≤ i ≤ 77.3			1480	1365
HDO 140 4_A	82.3 ≤ i ≤ 180.0	175	366	1190	1020
	198.3 ≤ i ≤ 386.6			770	1585
HDO 150 2_A	5.5 ≤ i ≤ 7.0	322	447	10110	525
	i = 8.1 ; 8.9			8030	660
	i = 10.0 ; 10.9			6520	815
	i = 12.6 ; 13.7			5180	1025
HDO 150 3_A	15.6 ≤ i ≤ 25.4	230	440	4040	580
	28.2 ≤ i ≤ 36.0			2850	820
	40.2≤ i ≤ 60.8			1840	1275
HDO 150 4_A	66.9 ≤ i ≤ 92.9	—	333	1550	785
	101.8 ≤ i ≤ 141.5			1190	1020
	157.9 ≤ i ≤ 238.8			770	1585
HDO 160 2_A	i = 7.3 ; 7.9	322	447	10110	525
	8.9 ≤ i ≤ 11.3			7090	750
	12.2 ≤ i ≤ 15.4			5210	1020
HDO 160 3_A	17.7 ≤ i ≤ 31.3	230	440	4040	580
	34.9 ≤ i ≤ 44.3			2850	820
	49.4 ≤ i ≤ 68.6			1840	1275
HDO 160 4_A	75.9 ≤ i ≤ 96.3	—	333	1550	785
	115.2 ≤ i ≤ 174.0			1190	1020
	194.1 ≤ i ≤ 269.7			770	1585
HDO 170	BONFIGLIOLI TECHNICAL SERVICE				
HDO 180					



26.7.4 REINFORCED BEARINGS

Optional heavy-duty bearings are also available, with increased overhung load capacity. The HDB option can only be applied to HDO 71, 81, 91 units with the LP shaft arrangement (solid shaft).

26.7.5 SEALS AND GASKETS

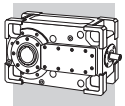
On request, gearboxes can be equipped with different oil sealing systems. These are:

TK – Taconite seals are recommended for environments characterised by the presence of abrasive dust or powders. Taconite seals incorporate a combination of sealing rings, labyrinths and a grease chamber. Greasing must be ensured as part of the scheduled maintenance programme.
Gearboxes of size HDO 71 ... HDO 95 with AD-G-NG inputs are provided with the taconite seal on the output axis only. This option is not available if combined with the optional variant “Mounting flanges” (FM excluded).
VS – Fluoro elastomer compound seal rings.
DS – Dual set of seal rings at each shaft end.
DVS – Dual set of Fluoro elastomer compound seal rings at each shaft end.

26.7.6 SENSORS

Bimetal thermostat – If the **TG** option is specified, a bimetallic thermostat detects when the oil temperature exceeds 90°C ± 5°C.
The device is supplied with the gear unit, but installation and wiring are the responsibility of the installer.

Oil level indicator – If the **OLG** option is specified in the order, the gearbox is supplied with a device permitting the remote checking of the oil level. The device best operates when the gearbox is idle and should be bypassed when the gearbox is operating. Wiring is the responsibility of the installer.
The device may not be available in combination with other accessories and/or particular product configurations. Please contact Bonfiglioli Technical Service for advise.

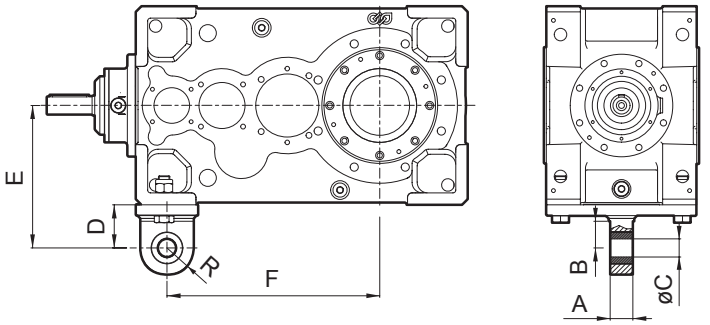


26.7.7 DRYWELL

The “drywell” - option **DW** - is a device providing output shaft sealing for units with output shaft laying vertically in the V5 position.
For gearboxes from HDO 71 to HDO 95 with “drywell” sealing system consult the Bonfiglioli Technical Service.
When specified, for HDO 100 to 180 gearboxes, it necessarily requires the installation of a forced lubrication system, selected from those available for the gearbox, as illustrated in the relevant section of this catalogue.
At scheduled intervals, check and refill the grease in the vane underneath the output shaft’s bottom bearing.
Availability of the Drywell may be subject to limitations, depending on the contemporary specification of other devices. Please consult with Bonfiglioli Technical Service.

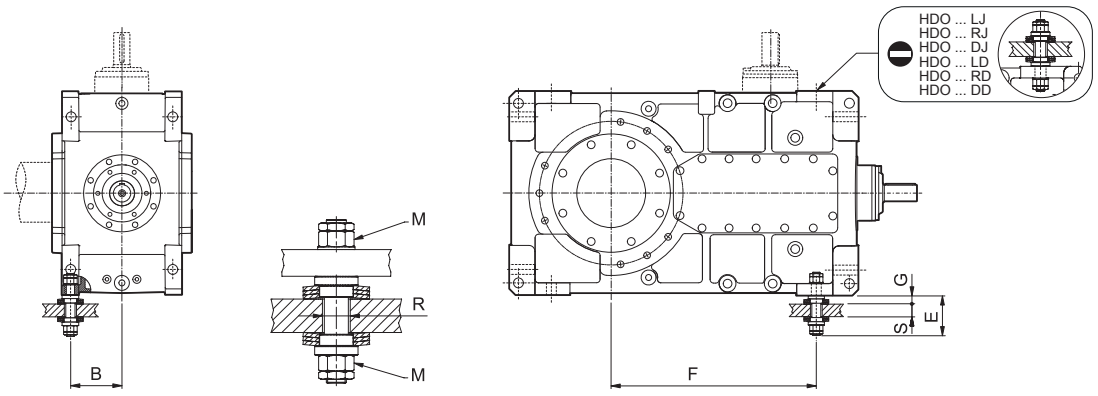
26.7.8 FIXING ELEMENTS

For shaft-mounted installations, **HDO 71 ... HDO 95** gearboxes can be fitted with an electro-welded steel torque arm, complete with anti-vibration bushing.

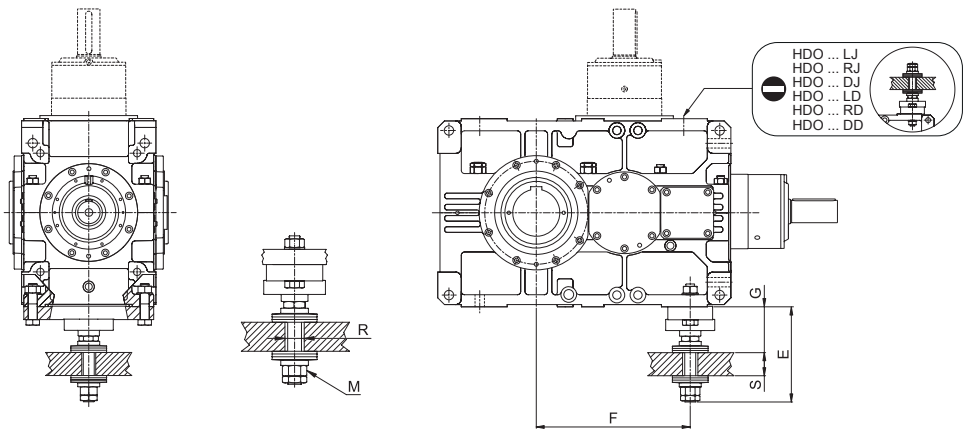


	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	R [mm]
HDO 71_TA	40	47	32	76	251	375	47
HDO 81_TA	60	60	42	97	297	413	60
HDO 91_TA	60	68	42	113	338	525	68
HDO 95_TA	60	68	42	113	363	520	68

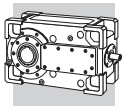
For shaft mounted HDO gearboxes, a specially shaped hardened steel bolt is available to secure the unit to the supporting structure.
Vibration damping cup springs are also supplied in the kit. The customer must adjust the preload of these springs during installation, respecting the value G given in the following chart.
The reaction bolt must be fitted on the side of the gearbox next to the driven machine and in the farthest hole from output shaft centre (see dimension F in the following figure).
Fitting the bolt on same side as the inspection cover is not possible. In this case please contact Bonfiglioli Technical Service for advise.



	F [mm]	B [mm]	E [mm]	G [mm] Rated value	M	R [mm]	S [mm]	DIN2093
HDO 100 2_TA	420	160	153	33.4	M27	35	30 - 40	A100
HDO 100 3_TA **HDO 100 4_TA**	540							
HDO 110 2_TA	435	160	153	33.4	M27	35	30 - 40	A100
HDO 110 3_TA **HDO 110 4_TA**	555							
HDO 120 2_TA	480	170	166	33.4	M30	40	40 - 50	A125
HDO 120 3_TA **HDO 120 4_TA**	630							
HDO 125 2_TA	530	170	166	33.4	M30	40	40 - 50	A125
HDO 125 3_TA **HDO 125 4_TA**	680							
HDO 130 2_TA	585	216	205	42.7	M36	45	50 - 60	A125
HDO 130 3_TA **HDO 130 4_TA**	780							
HDO 140 2_TA	625	216	205	42.7	M36	45	50 - 60	A125
HDO 140 3_TA **HDO 140 4_TA**	790							



	F [mm]	E [mm]	G [mm] Rated value	M	R [mm]	S [mm]	DIN2093
HDO 150 2_TA	687.5	405	204.3	M48x2	52	70 - 80	A160
HDO 150 3_TA **HDO 150 4_TA**	877.5						
HDO 160 2_TA	727.5	405	204.3	M48x2	52	70 - 80	A160
HDO 160 3_TA **HDO 160 4_TA**	927.5						
HDO 170 **HDO 180**	BONFIGLIOLI TECHNICAL SERVICE						



26.7.9 SURFACE PROTECTION

HDO 71 ... 95

When no specific protection class is requested, the painted (ferrous) surfaces of gearboxes are protected to at least corrosivity class C2 (UNI EN ISO 12944-2). For improved resistance to atmospheric corrosion, gearboxes can be delivered with C3 and C4 surface protection, obtained by painting the complete gearbox.

SURFACE PROTECTION	Typical environments	Maximum surface temperature	Corrosivity class according to UNI EN ISO 12944-2
C3	Urban and industrial environments with up to 100% relative humidity (medium air pollution)	120°C	C3
C4	Industrial areas, coastal areas, chemical plant, with up to 100% relative humidity (high air pollution)	120°C	C4

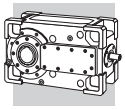
Gearboxes with optional protection to class C3 or C4 are available in a choice of colours.
If no specific colour is requested (see the “PAINTING” option) gearboxes are finished in RAL 7042.
Gearboxes can also be supplied with surface protection for corrosivity class C5 according to UNI EN ISO 12944-2. Contact our Technical Service for further details.

HDO 100 ... 180

When no specific protection class is requested, the painted surfaces of gearboxes are protected to at least corrosivity class C3 (UNI EN ISO 12944-2). For improved resistance to atmospheric corrosion, gearboxes can be delivered with C4 surface protection, obtained by painting the complete gearbox.

SURFACE PROTECTION	Typical environments	Maximum surface temperature	Corrosivity class according to UNI EN ISO 12944-2
C4	Industrial areas, coastal areas, chemical plant, with up to 100% relative humidity (high air pollution)	120°C	C4

Gearboxes with optional protection to class C4 are available in a choice of colours.
If no specific colour is requested (see the “PAINTING” option) gearboxes are finished in RAL 7042.
Gearboxes can also be supplied with surface protection for corrosivity class C5 according to UNI EN ISO 12944-2. Contact our Technical Service for further details.



26.7.10 PAINTING

Gearboxes with optional protection to class C3 or C4 are available in the colours listed in the following table.

PAINTING	Colour	RAL number
RAL7042*	Traffik Grey A	7042
RAL5010	Gentian Blue	5010
RAL9005	Jet Black	9005
RAL9006	White Aluminium	9006
RAL9010	Pure White	9010
RAL7035	Light Grey	7035
RAL7001	Silver Grey	7001
RAL5015	Sky Blue	5015
RAL7037	Dusty Grey	7037
RAL5024	Pastel Blue	5024

* Gearboxes are supplied in this standard colour if no other colour is specified.

NOTE - “PAINTING” options can only be specified in conjunction with “SURFACE PROTECTION” options.

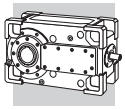
26.7.11 CERTIFICATES

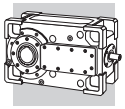
AC - Certificate of compliance
The document certifies the compliance of the product with the purchase order and the construction in conformity with the applicable procedures of the Bonfiglioli Quality System.

CC - Inspection certificate
The document entails checking on order compliance, the visual inspection of external conditions and of mating dimensions. Checking on main functional parameters in unloaded conditions is also performed along with oil seal proofing, both in static and in running conditions. Units inspected are sampled within the shipping batch and marked individually.

CT - Type certificate
Further to the activities relevant to the Inspection certificate the following checks are also conducted:
• noise
• surface temperature
• tightness of external hardware
• functionality of ancillary devices, if fitted

All checks are conducted with the gear unit running unloaded. Units inspected are sampled within the shipping batch and marked individually.



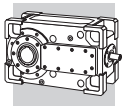


27 REFERENCE TORQUE

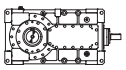
The torque values given in the table are influenced by the following elements: gear teeth, shafts and couplings. Performance may therefore vary with application conditions (see the “Thermal Capacity and Rating Charts”).

HDO

		Mn_{2ref} [Nm]													
	i_N	HDO 71	HDO 81	HDO 91	HDO 95	HDO 100	HDO 110	HDO 120	HDO 125	HDO 130	HDO 140	HDO 150	HDO 160	HDO 170	HDO 180
2x	5.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5.6	6560	11680	—	—	20910	—	—	—	60700	—	89750	—	—	—
	6.3	7530	13060	—	—	22620	22220	31520	—	66260	69850	105160	—	—	—
	7.1	7030	11950	18910	—	23610	23580	32970	35500	65220	77290	114290	118960	—	—
	8.0	6390	11510	18230	—	22820	25740	35120	36890	65900	81460	113280	129300	—	—
	9.0	7420	12670	17150	—	23430	23790	34440	39420	65400	80240	113290	121910	—	—
	10.0	6950	11060	17810	—	22070	25960	36600	38520	62660	81680	104620	131940	—	—
	11.2	7400	12200	18040	—	23110	23040	33350	35910	65440	73090	112410	137750	—	—
	12.5	6030	10220	16970	—	21490	25180	35500	37300	59310	80740	105820	116840	—	—
	14.0	7000	11820	17920	—	22530	22480	32500	34960	64980	69190	111480	126850	—	—
	16.0	6870	11890	16850	—	—	24600	34640	36350	—	77730	—	132600	—	—
	18.0	—	—	—	—	—	—	—	38880	—	—	—	—	—	—
3x	14.0	—	—	—	—	26470	—	—	—	—	—	—	—	—	—
	16.0	7630	9930	—	—	—	—	—	—	—	—	99460	—	179960	—
	18.0	7310	11520	16760	—	26310	30740	32720	—	65750	68660	114150	111830	190190	199920
	20.0	7590	10760	17750	20040	24400	29890	35300	36480	63770	77140	110100	131830	182320	202450
	22.4	7270	12490	16690	21290	26130	29850	38530	39920	65610	82910	117200	141170	188900	202480
	25.0	7560	12280	18260	19320	24270	30740	40340	43390	63380	75510	113000	136270	190190	209900
	28.0	7240	12520	16590	20680	25990	29690	36250	45510	65810	82850	108950	146300	182320	202450
	31.5	7530	12920	18160	19200	24140	31130	38110	46950	63010	84810	116920	139750	188900	200290
	35.5	7210	12460	17520	20940	25860	29540	39350	47750	65470	82360	111930	132770	190190	209900
	40.0	7500	12870	16480	19110	24020	31240	40590	46730	62680	82170	107250	146300	190190	202450
	45.0	7180	12410	18030	19070	25750	29390	39130	46650	65130	81940	107700	138440	181730	198560
	50.0	7470	12820	16400	20680	23930	31120	37620	49240	62370	82500	114010	131890	188900	197890
	56.0	7160	12370	17960	18980	25640	29280	38990	46390	64840	81520	110770	129470	189370	209900
	63.0	7450	12770	17360	20940	23830	30990	40250	48720	62100	82170	106900	144850	180390	202450
	71.0	7140	12330	16330	18910	22260	29160	38800	47750	62420	81170	—	137030	—	196430
	80.0	—	—	—	—	—	26350	35760	49240	—	78870	—	—	—	—
	90.0	—	—	—	—	—	—	—	46010	—	—	—	—	—	—
4x	71.0	—	—	—	—	25930	—	—	—	65760	—	109890	—	180330	—
	80.0	7530	11500	18190	21220	24100	31130	—	—	63000	84810	111250	124790	190190	200360
	90.0	7220	12570	17590	20330	26910	29490	39240	—	67870	82350	117200	135850	182320	202450
	100.0	7830	11750	17710	21370	24880	30740	41250	48720	65030	82170	112750	137650	188900	199380
	112.0	7510	11790	18340	19300	27820	30610	40820	47750	69570	85000	111670	127540	190190	209900
	125.0	7010	12060	17260	21370	24880	31130	41250	49240	66770	84810	117200	137260	182320	202450
	140.0	—	13000	16540	19980	28210	31750	40920	47230	69570	87060	117090	142460	183700	207020
	160.0	8260	12070	19230	21370	24880	31350	41250	48720	66770	84810	116600	146300	190190	204100
	180.0	8100	13910	19250	20680	28210	31790	40920	47700	69570	87060	114780	147070	182320	202450
	200.0	8010	12070	20310	21370	24880	31570	41250	49240	66770	84810	117200	143330	188900	205480
	224.0	8430	14530	19250	20940	28210	31790	40920	47700	69570	87060	117090	141140	190190	209900
	250.0	7890	12070	19360	21370	24880	31570	41250	48720	66770	84810	114780	146300	182320	202450
	280.0	—	13000	20210	22400	28210	31790	40920	47230	69570	87060	—	147070	—	—
	315.0	8260	11980	18950	19420	25080	31570	41250	49240	66770	80940	—	—	—	—
	355.0	—	13910	19740	20680	23870	31790	40920	47750	63140	87060	—	—	—	—
	400.0	8150	13190	20550	23200	—	28490	37730	49240	—	78870	—	—	—	—
	450.0	8990	14740	20460	20940	—	—	—	49240	—	—	—	—	—	—
	500.0	8890	12990	21610	21940	—	—	—	—	—	—	—	—	—	—

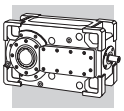


28 THERMAL CAPACITY AND RATING CHARTS

HDO 71					n_1 = 1800 min^{-1}		
					t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 71 2	**5.6**	321	3930	138	*	*	*
HDO 71 2	**6.5**	277	4570	138	*	*	*
HDO 71 2	**6.8**	266	4750	138	*	*	*
HDO 71 2	**7.9**	229	4380	109	*	49	*
HDO 71 2	**9.1**	197	5090	109	*	47	*
HDO 71 2	**9.5**	189	5290	109	*	47	*
HDO 71 2	**11.1**	162	5110	90	*	44	38
HDO 71 2	**12.1**	149	5080	82	*	45	39
HDO 71 2	**14.0**	128	5870	82	*	43	37
HDO 71 2	**14.6**	123	6070	82	*	43	37
HDO 71 3	**15.9**	113	5640	71	*	41	36
HDO 71 3	**18.5**	97	6550	71	*	39	35
HDO 71 3	**19.8**	91	6270	63	*	39	34
HDO 71 3	**23.0**	78	7280	63	*	38	33
HDO 71 3	**24.0**	75	6750	56	*	37	33
HDO 71 3	**27.9**	64	7270	52	*	36	32
HDO 71 3	**30.7**	59	7360	48	*	35	31
HDO 71 3	**35.6**	51	7230	41	*	34	30
HDO 71 3	**38.5**	47	7230	38	*	34	30
HDO 71 3	**44.7**	40	7200	32	14	32	29
HDO 71 3	**46.7**	39	7490	32	14	32	29
HDO 71 3	**54.2**	33	7180	27	13	—	—
HDO 71 3	**59.6**	30	7470	25	14	—	—
HDO 71 3	**69.2**	26.0	7150	21	13	—	—
HDO 71 4	**77.0**	23.4	7420	20	16	⛔	—
HDO 71 4	**89.4**	20.1	7130	16	15		—
HDO 71 4	**98.3**	18.3	7600	16	15		—
HDO 71 4	**114.1**	15.8	7290	13	—		—
HDO 71 4	**118.5**	15.2	6810	12	—		—
HDO 71 4	**154.4**	11.7	8190	11	—		—
HDO 71 4	**179.3**	10.0	7860	9	—		—
HDO 71 4	**197.0**	9.1	8040	8	—		—
HDO 71 4	**228.2**	7.9	8180	7	—		—
HDO 71 4	**237.7**	7.6	7650	7	—		—
HDO 71 4	**308.9**	5.8	8260	5	—		—
HDO 71 4	**394.1**	4.6	7960	4	—		—
HDO 71 4	**457.5**	3.9	8750	4	—		—
HDO 71 4	**475.4**	3.8	8620	4	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

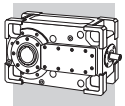


HDO 71 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 71 2	**5.6**	268	4150	121	*	55	52
HDO 71 2	**6.5**	231	4820	121	*	52	50
HDO 71 2	**6.8**	222	5010	121	*	53	50
HDO 71 2	**7.9**	190	4630	96	*	56	54
HDO 71 2	**9.1**	164	5380	96	*	53	51
HDO 71 2	**9.5**	158	5590	96	*	54	51
HDO 71 2	**11.1**	135	5400	79	*	49	47
HDO 71 2	**12.1**	124	5370	73	*	49	47
HDO 71 2	**14.0**	107	6200	72	*	46	45
HDO 71 2	**14.6**	103	6410	72	*	47	45
HDO 71 3	**15.9**	94	5960	62	*	41	40
HDO 71 3	**18.5**	81	6910	62	*	40	38
HDO 71 3	**19.8**	76	6620	56	*	39	38
HDO 71 3	**23.0**	65	7270	53	*	38	36
HDO 71 3	**24.0**	62	7130	50	*	37	36
HDO 71 3	**27.9**	54	7240	43	18	36	35
HDO 71 3	**30.7**	49	7530	41	17	35	34
HDO 71 3	**35.6**	42	7210	34	17	33	32
HDO 71 3	**38.5**	39	7500	33	16	—	32
HDO 71 3	**44.7**	34	7180	27	16	—	—
HDO 71 3	**46.7**	32	7470	27	16	—	—
HDO 71 3	**54.2**	27.7	7160	22	15	—	—
HDO 71 3	**59.6**	25.2	7450	21	15	—	—
HDO 71 3	**69.2**	21.7	7140	17	14	—	—
HDO 71 4	**77.0**	19.5	7530	17	16	●	—
HDO 71 4	**89.4**	16.8	7220	14	—		—
HDO 71 4	**98.3**	15.3	7830	14	—		—
HDO 71 4	**114.1**	13.1	7510	11	—		—
HDO 71 4	**118.5**	12.7	7010	10	—		—
HDO 71 4	**154.4**	9.7	8260	9	—		—
HDO 71 4	**179.3**	8.4	8100	8	—		—
HDO 71 4	**197.0**	7.6	8010	7	—		—
HDO 71 4	**228.2**	6.6	8430	6	—		—
HDO 71 4	**237.7**	6.3	7890	6	—		—
HDO 71 4	**308.9**	4.9	8260	5	—		—
HDO 71 4	**394.1**	3.8	8150	4	—		—
HDO 71 4	**457.5**	3.3	8990	3	—		—
HDO 71 4	**475.4**	3.2	8890	3	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

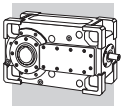


HDO 71 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 71 2	**5.6**	214	4440	104	*	63	66
HDO 71 2	**6.5**	184	5160	104	*	60	62
HDO 71 2	**6.8**	178	5360	104	*	60	63
HDO 71 2	**7.9**	152	4950	82	*	62	65
HDO 71 2	**9.1**	131	5750	82	*	58	61
HDO 71 2	**9.5**	126	5970	82	*	58	61
HDO 71 2	**11.1**	108	5770	68	*	53	55
HDO 71 2	**12.1**	99	5740	62	27	52	54
HDO 71 2	**14.0**	85	6630	62	26	49	51
HDO 71 2	**14.6**	82	6830	61	26	49	51
HDO 71 3	**15.9**	75	6370	53	22	41	42
HDO 71 3	**18.5**	65	7270	52	22	39	41
HDO 71 3	**19.8**	61	7080	48	21	39	40
HDO 71 3	**23.0**	52	7240	42	21	37	39
HDO 71 3	**24.0**	50	7530	42	20	37	38
HDO 71 3	**27.9**	43	7210	34	20	—	—
HDO 71 3	**30.7**	39	7500	33	19	—	—
HDO 71 3	**35.6**	34	7180	27	19	—	—
HDO 71 3	**38.5**	31	7470	26	18	—	—
HDO 71 3	**44.7**	26.9	7160	21	18	—	—
HDO 71 3	**46.7**	25.7	7450	21	18	—	—
HDO 71 3	**54.2**	22.1	7140	18	17	—	—
HDO 71 3	**59.6**	20.1	7490	17	—	—	—
HDO 71 3	**69.2**	17.4	7180	14	—	—	—
HDO 71 4	**77.0**	15.6	7810	14	—	⊖	—
HDO 71 4	**89.4**	13.4	7490	11	—		—
HDO 71 4	**98.3**	12.2	8080	11	—		—
HDO 71 4	**114.1**	10.5	7800	9	—		—
HDO 71 4	**118.5**	10.1	7280	8	—		—
HDO 71 4	**154.4**	7.8	8260	7	—		—
HDO 71 4	**179.3**	6.7	8410	6	—		—
HDO 71 4	**197.0**	6.1	7990	6	—		—
HDO 71 4	**228.2**	5.3	8430	5	—		—
HDO 71 4	**237.7**	5.0	8200	5	—		—
HDO 71 4	**308.9**	3.9	8260	4	—		—
HDO 71 4	**394.1**	3.0	8380	3	—		—
HDO 71 4	**457.5**	2.6	9160	3	—		—
HDO 71 4	**475.4**	2.5	9250	3	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

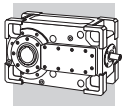


HDO 71 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 71 2	**5.6**	178	4690	91	38	68	74
HDO 71 2	**6.5**	154	5450	91	36	64	70
HDO 71 2	**6.8**	148	5660	91	36	64	70
HDO 71 2	**7.9**	127	5230	72	37	65	70
HDO 71 2	**9.1**	109	6070	72	35	60	66
HDO 71 2	**9.5**	105	6310	72	35	61	66
HDO 71 2	**11.1**	90	6100	60	32	54	59
HDO 71 2	**12.1**	83	5960	54	31	53	—
HDO 71 2	**14.0**	71	6920	54	30	50	—
HDO 71 2	**14.6**	69	6800	51	30	50	—
HDO 71 3	**15.9**	63	6730	47	24	40	44
HDO 71 3	**18.5**	54	7240	44	23	38	42
HDO 71 3	**19.8**	50	7480	42	23	38	41
HDO 71 3	**23.0**	43	7210	35	22	—	—
HDO 71 3	**24.0**	42	7500	35	22	—	—
HDO 71 3	**27.9**	36	7190	29	21	—	—
HDO 71 3	**30.7**	33	7470	27	20	—	—
HDO 71 3	**35.6**	28.1	7160	22	20	—	—
HDO 71 3	**38.5**	26.0	7450	22	19	—	—
HDO 71 3	**44.7**	22.4	7140	18	—	—	—
HDO 71 3	**46.7**	21.4	7430	18	—	—	—
HDO 71 3	**54.2**	18.4	7120	15	—	—	—
HDO 71 3	**59.6**	16.8	7710	14	—	—	—
HDO 71 3	**69.2**	14.5	7400	12	—	—	—
HDO 71 4	**77.0**	13.0	8050	12	—	⊖	—
HDO 71 4	**89.4**	11.2	7720	10	—		—
HDO 71 4	**98.3**	10.2	8050	9	—		—
HDO 71 4	**114.1**	8.8	8040	8	—		—
HDO 71 4	**118.5**	8.4	7510	7	—		—
HDO 71 4	**154.4**	6.5	8260	6	—		—
HDO 71 4	**179.3**	5.6	8430	5	—		—
HDO 71 4	**197.0**	5.1	7970	5	—		—
HDO 71 4	**228.2**	4.4	8600	4	—		—
HDO 71 4	**237.7**	4.2	8460	4	—		—
HDO 71 4	**308.9**	3.2	8260	3	—		—
HDO 71 4	**394.1**	2.5	8380	2	—		—
HDO 71 4	**457.5**	2.2	9160	2	—		—
HDO 71 4	**475.4**	2.1	9480	2	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

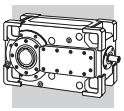


HDO 81 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 81 2	**5.5**	324	8600	304	*	*	*
HDO 81 2	**6.4**	279	8940	272	*	*	*
HDO 81 2	**6.7**	269	8980	263	*	*	*
HDO 81 2	**7.9**	229	9270	231	*	*	*
HDO 81 2	**9.1**	197	9670	208	*	*	*
HDO 81 2	**9.6**	188	9630	197	*	*	*
HDO 81 2	**11.1**	162	10060	177	*	*	*
HDO 81 2	**12.2**	147	10170	164	*	*	*
HDO 81 2	**14.2**	127	10640	147	*	*	*
HDO 81 2	**14.7**	122	10710	143	*	*	*
HDO 81 3	**15.5**	116	6570	85	*	41	44
HDO 81 3	**18.0**	100	7630	85	*	39	42
HDO 81 3	**19.9**	90	7430	75	*	40	43
HDO 81 3	**23.1**	78	8630	75	*	38	41
HDO 81 3	**24.5**	74	8770	72	*	39	41
HDO 81 3	**28.4**	63	10180	72	*	37	40
HDO 81 3	**30.7**	59	10030	65	*	37	40
HDO 81 3	**35.6**	51	11640	65	*	36	38
HDO 81 3	**38.6**	47	8290	43	*	34	36
HDO 81 3	**44.9**	40	9620	43	*	32	34
HDO 81 3	**47.5**	38	9810	41	*	32	34
HDO 81 3	**55.1**	33	11390	41	*	31	33
HDO 81 3	**59.6**	30	11300	38	*	32	34
HDO 81 3	**69.2**	26.0	12360	36	*	30	32
HDO 81 4	**78.3**	23.0	11530	30	21	⊖	—
HDO 81 4	**94.5**	19.0	12300	27	20		—
HDO 81 4	**98.2**	18.3	11500	24	21		—
HDO 81 4	**105.6**	17.0	11790	23	19		—
HDO 81 4	**127.4**	14.1	11900	19	18		—
HDO 81 4	**132.6**	13.6	13000	20	18		—
HDO 81 4	**159.9**	11.3	12060	15	—		—
HDO 81 4	**181.4**	9.9	13570	15	—		—
HDO 81 4	**196.5**	9.2	12070	13	—		—
HDO 81 4	**227.8**	7.9	14100	13	—		—
HDO 81 4	**254.8**	7.1	12070	10	—		—
HDO 81 4	**265.1**	6.8	13000	10	—		—
HDO 81 4	**312.6**	5.8	11980	8	—		—
HDO 81 4	**362.9**	5.0	13910	8	—		—
HDO 81 4	**392.4**	4.6	13190	7	—		—
HDO 81 4	**455.5**	4.0	14740	7	—		—
HDO 81 4	**473.3**	3.8	12610	5	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

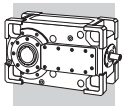


HDO 81 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 81 2	**5.5**	270	9090	268	*	*	*
HDO 81 2	**6.4**	233	9440	240	*	*	*
HDO 81 2	**6.7**	224	9490	232	*	*	*
HDO 81 2	**7.9**	190	9800	204	*	*	*
HDO 81 2	**9.1**	164	10210	183	*	*	*
HDO 81 2	**9.6**	156	10170	173	*	*	*
HDO 81 2	**11.1**	135	10630	156	*	*	63
HDO 81 2	**12.2**	123	10220	137	*	*	57
HDO 81 2	**14.2**	106	11240	130	*	*	54
HDO 81 2	**14.7**	102	11310	126	*	*	55
HDO 81 3	**15.5**	97	6570	71	*	45	52
HDO 81 3	**18.0**	83	7630	71	*	43	49
HDO 81 3	**19.9**	75	7850	66	*	43	49
HDO 81 3	**23.1**	65	9120	66	*	41	46
HDO 81 3	**24.5**	61	9270	63	*	42	47
HDO 81 3	**28.4**	53	10760	63	*	40	45
HDO 81 3	**30.7**	49	10590	58	*	40	45
HDO 81 3	**35.6**	42	12300	58	*	38	43
HDO 81 3	**38.6**	39	8750	38	19	36	—
HDO 81 3	**44.9**	33	10160	38	19	—	—
HDO 81 3	**47.5**	32	10360	36	19	34	—
HDO 81 3	**55.1**	27.2	12030	36	18	—	—
HDO 81 3	**59.6**	25.2	11940	33	19	33	—
HDO 81 3	**69.2**	21.7	12330	30	18	—	—
HDO 81 4	**78.3**	19.2	11500	25	23	●	—
HDO 81 4	**94.5**	15.9	12570	23	22		—
HDO 81 4	**98.2**	15.3	11750	20	—		—
HDO 81 4	**105.6**	14.2	11790	19	—		—
HDO 81 4	**127.4**	11.8	12060	16	—		—
HDO 81 4	**132.6**	11.3	13000	17	—		—
HDO 81 4	**159.9**	9.4	12070	13	—		—
HDO 81 4	**181.4**	8.3	13910	13	—		—
HDO 81 4	**196.5**	7.6	12070	10	—		—
HDO 81 4	**227.8**	6.6	14530	11	—		—
HDO 81 4	**254.8**	5.9	12070	8	—		—
HDO 81 4	**265.1**	5.7	13000	8	—		—
HDO 81 4	**312.6**	4.8	11980	7	—		—
HDO 81 4	**362.9**	4.1	13910	7	—		—
HDO 81 4	**392.4**	3.8	13190	6	—		—
HDO 81 4	**455.5**	3.3	14740	6	—		—
HDO 81 4	**473.3**	3.2	12990	5	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

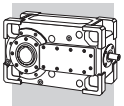


HDO 81 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 81 2	**5.5**	216	9710	229	*	*	*
HDO 81 2	**6.4**	186	10090	205	*	*	*
HDO 81 2	**6.7**	179	10140	198	*	*	84
HDO 81 2	**7.9**	152	10470	174	*	*	82
HDO 81 2	**9.1**	131	10920	156	*	63	76
HDO 81 2	**9.6**	125	10880	148	*	69	83
HDO 81 2	**11.1**	108	11360	133	*	64	76
HDO 81 2	**12.2**	98	10150	109	*	57	68
HDO 81 2	**14.2**	85	11780	109	*	53	64
HDO 81 2	**14.7**	81	11820	105	*	55	65
HDO 81 3	**15.5**	77	6570	56	29	49	—
HDO 81 3	**18.0**	67	7630	56	28	46	54
HDO 81 3	**19.9**	60	8390	56	28	45	54
HDO 81 3	**23.1**	52	9750	56	27	43	51
HDO 81 3	**24.5**	49	9910	54	27	44	51
HDO 81 3	**28.4**	42	11500	54	26	41	49
HDO 81 3	**30.7**	39	11330	49	26	42	49
HDO 81 3	**35.6**	34	12410	46	25	39	—
HDO 81 3	**38.6**	31	9360	32	23	—	—
HDO 81 3	**44.9**	26.7	10860	32	22	—	—
HDO 81 3	**47.5**	25.3	11080	31	22	—	—
HDO 81 3	**55.1**	21.8	12330	30	22	—	—
HDO 81 3	**59.6**	20.1	12770	29	22	—	—
HDO 81 3	**69.2**	17.3	12400	24	21	—	—
HDO 81 4	**78.3**	15.3	11740	20	—	⊖	—
HDO 81 4	**94.5**	12.7	13040	19	—		—
HDO 81 4	**98.2**	12.2	12060	17	—		—
HDO 81 4	**105.6**	11.4	11790	15	—		—
HDO 81 4	**127.4**	9.4	12070	13	—		—
HDO 81 4	**132.6**	9.1	13000	13	—		—
HDO 81 4	**159.9**	7.5	12070	10	—		—
HDO 81 4	**181.4**	6.6	13910	10	—		—
HDO 81 4	**196.5**	6.1	12070	8	—		—
HDO 81 4	**227.8**	5.3	14740	9	—		—
HDO 81 4	**254.8**	4.7	12180	7	—		—
HDO 81 4	**265.1**	4.5	13000	7	—		—
HDO 81 4	**312.6**	3.8	11980	5	—		—
HDO 81 4	**362.9**	3.3	13910	5	—		—
HDO 81 4	**392.4**	3.1	13190	5	—		—
HDO 81 4	**455.5**	2.6	14740	4	—		—
HDO 81 4	**473.3**	2.5	13470	4	—		—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

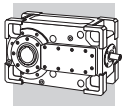


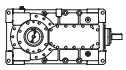
HDO 81 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 81 2	**5.5**	180	10260	202	*	81	101
HDO 81 2	**6.4**	155	10660	180	*	75	93
HDO 81 2	**6.7**	149	10710	174	*	77	96
HDO 81 2	**7.9**	127	11060	153	*	74	91
HDO 81 2	**9.1**	109	11530	138	*	69	84
HDO 81 2	**9.6**	104	11060	126	*	74	91
HDO 81 2	**11.1**	90	12000	117	*	68	83
HDO 81 2	**12.2**	82	10090	90	40	61	74
HDO 81 2	**14.2**	71	11720	90	38	56	69
HDO 81 2	**14.7**	68	11770	87	39	58	70
HDO 81 3	**15.5**	64	6570	47	33	—	—
HDO 81 3	**18.0**	55	7630	47	31	47	—
HDO 81 3	**19.9**	50	8870	50	31	46	—
HDO 81 3	**23.1**	43	10290	50	30	44	—
HDO 81 3	**24.5**	41	10460	48	30	44	—
HDO 81 3	**28.4**	35	12150	48	28	42	—
HDO 81 3	**30.7**	33	11960	43	29	42	—
HDO 81 3	**35.6**	28.1	12370	39	27	—	—
HDO 81 3	**38.6**	25.9	9880	28	25	—	—
HDO 81 3	**44.9**	22.3	11480	28	24	—	—
HDO 81 3	**47.5**	21.1	11710	27	24	—	—
HDO 81 3	**55.1**	18.1	12310	25	23	—	—
HDO 81 3	**59.6**	16.8	13220	25	24	—	—
HDO 81 3	**69.2**	14.4	12760	21	—	—	—
HDO 81 4	**78.3**	12.8	12060	17	—	●	—
HDO 81 4	**94.5**	10.6	13430	16	—		—
HDO 81 4	**98.2**	10.2	12070	14	—		—
HDO 81 4	**105.6**	9.5	11790	13	—		—
HDO 81 4	**127.4**	7.9	12070	11	—		—
HDO 81 4	**132.6**	7.5	13000	11	—		—
HDO 81 4	**159.9**	6.3	12070	9	—		—
HDO 81 4	**181.4**	5.5	13910	9	—		—
HDO 81 4	**196.5**	5.1	12070	7	—		—
HDO 81 4	**227.8**	4.4	14740	7	—		—
HDO 81 4	**254.8**	3.9	12550	6	—		—
HDO 81 4	**265.1**	3.8	13000	6	—		—
HDO 81 4	**312.6**	3.2	11980	4	—		—
HDO 81 4	**362.9**	2.8	13910	4	—		—
HDO 81 4	**392.4**	2.5	13190	4	—		—
HDO 81 4	**455.5**	2.2	14740	4	—		—
HDO 81 4	**473.3**	2.1	13870	3	—		—

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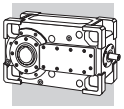
— Thermal verification not necessary



HDO 91							n_1 = 1800 min^{-1}
					t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 91 2	**7.4**	242	11720	309	*	*	*
HDO 91 2	**8.3**	217	12750	302	*	*	*
HDO 91 2	**9.0**	200	13390	292	*	*	*
HDO 91 2	**10.3**	175	12380	236	*	*	*
HDO 91 2	**11.5**	157	13610	233	*	*	*
HDO 91 2	**12.5**	144	14300	225	*	*	*
HDO 91 2	**14.6**	124	14470	195	*	*	*
HDO 91 2	**15.9**	114	15200	188	*	*	*
HDO 91 3	**18.6**	97	15070	162	*	67	*
HDO 91 3	**20.7**	87	16780	162	*	67	*
HDO 91 3	**22.5**	80	16770	149	*	61	*
HDO 91 3	**24.1**	75	16660	139	*	64	56
HDO 91 3	**29.1**	62	16660	114	*	59	51
HDO 91 3	**30.6**	59	17820	117	*	61	53
HDO 91 3	**36.9**	49	17580	95	*	57	50
HDO 91 3	**40.2**	45	16540	82	*	53	46
HDO 91 3	**42.9**	42	18100	84	*	54	47
HDO 91 3	**52.0**	35	16450	63	*	53	47
HDO 91 3	**54.5**	33	18020	66	*	53	47
HDO 91 3	**60.7**	30	17410	57	25	53	47
HDO 91 3	**66.1**	27.2	16380	50	24	49	44
HDO 91 4	**82.0**	22.0	15940	40	29	—	—
HDO 91 4	**91.3**	19.7	17300	39	29	—	—
HDO 91 4	**95.3**	18.9	17290	37	30	—	—
HDO 91 4	**118.1**	15.2	17810	31	28	—	—
HDO 91 4	**128.5**	14.0	16760	27	26	—	—
HDO 91 4	**137.1**	13.1	16620	25	—	—	—
HDO 91 4	**159.3**	11.3	19310	25	—	—	—
HDO 91 4	**177.4**	10.1	19020	22	—	—	—
HDO 91 4	**202.5**	8.9	20370	21	—	—	—
HDO 91 4	**225.4**	8.0	19250	17	—	—	—
HDO 91 4	**256.3**	7.0	18780	15	—	—	—
HDO 91 4	**268.8**	6.7	20270	15	—	—	—
HDO 91 4	**317.8**	5.7	19020	12	—	—	—
HDO 91 4	**353.8**	5.1	19260	11	—	—	—
HDO 91 4	**403.8**	4.5	20150	10	—	—	—
HDO 91 4	**449.6**	4.0	19910	9	—	—	—
HDO 91 4	**489.3**	3.7	20950	9	—	—	—

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— Thermal verification not necessary

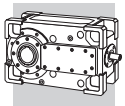


HDO 91 — n_1 = 1500 min^{-1}

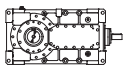
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 91 2	**7.4**	202	12380	272	*	*	*
HDO 91 2	**8.3**	181	13470	266	*	*	*
HDO 91 2	**9.0**	167	14150	257	*	*	*
HDO 91 2	**10.3**	146	13070	208	*	91	85
HDO 91 2	**11.5**	131	14370	205	*	91	85
HDO 91 2	**12.5**	120	15100	198	*	82	76
HDO 91 2	**14.6**	103	15280	172	*	83	78
HDO 91 2	**15.9**	95	16060	166	*	75	70
HDO 91 3	**18.6**	81	15920	143	*	71	67
HDO 91 3	**20.7**	72	17720	143	*	71	67
HDO 91 3	**22.5**	67	16690	124	*	65	61
HDO 91 3	**24.1**	62	17600	122	*	68	64
HDO 91 3	**29.1**	51	16590	95	*	62	58
HDO 91 3	**30.6**	49	18160	99	*	63	60
HDO 91 3	**36.9**	41	17520	79	*	60	56
HDO 91 3	**40.2**	37	16480	68	29	55	52
HDO 91 3	**42.9**	35	18030	70	29	56	53
HDO 91 3	**52.0**	28.9	16400	53	29	—	51
HDO 91 3	**54.5**	27.5	17960	55	29	—	51
HDO 91 3	**60.7**	24.7	17360	48	29	—	—
HDO 91 3	**66.1**	22.7	16330	41	27	—	—
HDO 91 4	**82.0**	18.3	16840	35	31	—	—
HDO 91 4	**91.3**	16.4	17590	33	31	—	—
HDO 91 4	**95.3**	15.7	17710	32	—	—	—
HDO 91 4	**118.1**	12.7	18340	26	—	—	—
HDO 91 4	**128.5**	11.7	17260	23	—	—	—
HDO 91 4	**137.1**	10.9	16540	21	—	—	—
HDO 91 4	**159.3**	9.4	19230	21	—	—	—
HDO 91 4	**177.4**	8.5	19250	18	—	—	—
HDO 91 4	**202.5**	7.4	20310	17	—	—	—
HDO 91 4	**225.4**	6.7	19250	15	—	—	—
HDO 91 4	**256.3**	5.9	19360	13	—	—	—
HDO 91 4	**268.8**	5.6	20210	13	—	—	—
HDO 91 4	**317.8**	4.7	18950	10	—	—	—
HDO 91 4	**353.8**	4.2	19740	10	—	—	—
HDO 91 4	**403.8**	3.7	20550	9	—	—	—
HDO 91 4	**449.6**	3.3	20460	8	—	—	—
HDO 91 4	**489.3**	3.1	21610	8	—	—	—

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— Thermal verification not necessary

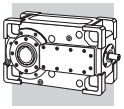


HDO 91 — n_1 = 1200 min^{-1}

					t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 91 2	**7.4**	161	13240	233	*	108	109
HDO 91 2	**8.3**	145	14400	228	*	108	110
HDO 91 2	**9.0**	133	15130	220	*	96	97
HDO 91 2	**10.3**	117	13980	178	*	103	104
HDO 91 2	**11.5**	105	15370	176	*	103	104
HDO 91 2	**12.5**	96	16150	170	*	91	92
HDO 91 2	**14.6**	82	16340	147	*	91	92
HDO 91 2	**15.9**	76	16750	138	*	81	82
HDO 91 3	**18.6**	65	16760	120	*	74	75
HDO 91 3	**20.7**	58	17650	114	*	74	75
HDO 91 3	**22.5**	53	16600	98	*	67	68
HDO 91 3	**24.1**	50	18170	101	41	69	70
HDO 91 3	**29.1**	41	16510	76	37	64	64
HDO 91 3	**30.6**	39	18080	79	38	64	65
HDO 91 3	**36.9**	33	17440	63	36	61	61
HDO 91 3	**40.2**	30	16410	55	33	—	—
HDO 91 3	**42.9**	28.0	17960	56	34	—	—
HDO 91 3	**52.0**	23.1	16340	42	33	—	—
HDO 91 3	**54.5**	22.0	17890	44	33	—	—
HDO 91 3	**60.7**	19.8	17300	38	33	—	—
HDO 91 3	**66.1**	18.2	16280	33	31	—	—
HDO 91 4	**82.0**	14.6	18000	30	—	—	—
HDO 91 4	**91.3**	13.1	18230	27	—	—	—
HDO 91 4	**95.3**	12.6	18360	26	—	—	—
HDO 91 4	**118.1**	10.2	19010	22	—	—	—
HDO 91 4	**128.5**	9.3	17910	19	—	—	—
HDO 91 4	**137.1**	8.8	16460	16	—	—	—
HDO 91 4	**159.3**	7.5	19130	16	—	—	—
HDO 91 4	**177.4**	6.8	19250	15	—	—	—
HDO 91 4	**202.5**	5.9	20230	14	—	—	—
HDO 91 4	**225.4**	5.3	19260	12	—	—	—
HDO 91 4	**256.3**	4.7	20110	11	—	—	—
HDO 91 4	**268.8**	4.5	20150	10	—	—	—
HDO 91 4	**317.8**	3.8	18870	8	—	—	—
HDO 91 4	**353.8**	3.4	20410	8	—	—	—
HDO 91 4	**403.8**	3.0	21440	7	—	—	—
HDO 91 4	**449.6**	2.7	21160	6	—	—	—
HDO 91 4	**489.3**	2.5	22350	6	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

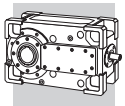


HDO 91 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 91 2	**7.4**	135	13980	205	*	116	124
HDO 91 2	**8.3**	121	15210	200	*	117	124
HDO 91 2	**9.0**	111	15980	193	*	102	109
HDO 91 2	**10.3**	97	14770	157	66	108	114
HDO 91 2	**11.5**	87	16230	155	66	108	114
HDO 91 2	**12.5**	80	16770	147	59	94	100
HDO 91 2	**14.6**	69	17260	129	58	94	100
HDO 91 2	**15.9**	63	16670	115	52	83	88
HDO 91 3	**18.6**	54	16760	100	47	74	78
HDO 91 3	**20.7**	48	17580	95	47	75	79
HDO 91 3	**22.5**	44	16540	82	43	68	72
HDO 91 3	**24.1**	42	18100	84	44	69	73
HDO 91 3	**29.1**	34	16450	63	41	—	—
HDO 91 3	**30.6**	33	18010	66	41	—	—
HDO 91 3	**36.9**	27.1	17390	52	39	—	—
HDO 91 3	**40.2**	24.9	16360	45	36	—	—
HDO 91 3	**42.9**	23.3	17910	46	37	—	—
HDO 91 3	**52.0**	19.2	16290	35	—	—	—
HDO 91 3	**54.5**	18.3	18180	37	—	—	—
HDO 91 3	**60.7**	16.5	17590	32	—	—	—
HDO 91 3	**66.1**	15.1	16550	28	—	—	—
HDO 91 4	**82.0**	12.2	19010	26	—	—	—
HDO 91 4	**91.3**	11.0	18780	23	—	—	—
HDO 91 4	**95.3**	10.5	18910	23	—	—	—
HDO 91 4	**118.1**	8.5	19250	19	—	—	—
HDO 91 4	**128.5**	7.8	18460	16	—	—	—
HDO 91 4	**137.1**	7.3	16400	14	—	—	—
HDO 91 4	**159.3**	6.3	19060	14	—	—	—
HDO 91 4	**177.4**	5.6	19260	12	—	—	—
HDO 91 4	**202.5**	4.9	20180	11	—	—	—
HDO 91 4	**225.4**	4.4	19610	10	—	—	—
HDO 91 4	**256.3**	3.9	20740	9	—	—	—
HDO 91 4	**268.8**	3.7	20550	9	—	—	—
HDO 91 4	**317.8**	3.1	18820	7	—	—	—
HDO 91 4	**353.8**	2.8	20950	7	—	—	—
HDO 91 4	**403.8**	2.5	22190	6	—	—	—
HDO 91 4	**449.6**	2.2	21750	5	—	—	—
HDO 91 4	**489.3**	2.0	22820	5	—	—	—

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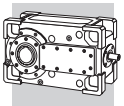


HDO 95 — n_1 = 1800 min^{-1}

					t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 95 3	**21.2**	85	17710	167	*	77	*
HDO 95 3	**22.5**	80	18290	163	*	78	*
HDO 95 3	**24.7**	73	18900	154	*	74	62
HDO 95 3	**27.5**	66	19580	143	*	74	62
HDO 95 3	**31.9**	56	19290	121	*	72	61
HDO 95 3	**34.9**	52	20940	120	*	69	59
HDO 95 3	**40.5**	44	19180	95	*	67	57
HDO 95 3	**44.0**	41	19150	87	*	63	54
HDO 95 3	**49.0**	37	20680	85	*	65	56
HDO 95 3	**56.9**	32	19050	67	31	63	54
HDO 95 3	**62.2**	28.9	20940	67	30	60	52
HDO 95 3	**72.3**	24.9	18960	53	29	—	50
HDO 95 4	**81.6**	22.0	20650	52	37	—	—
HDO 95 4	**93.6**	19.2	18190	40	34	—	—
HDO 95 4	**103.7**	17.4	21200	42	35	—	—
HDO 95 4	**113.5**	15.9	18830	34	—	—	—
HDO 95 4	**128.7**	14.0	21370	34	—	—	—
HDO 95 4	**140.7**	12.8	19400	28	—	—	—
HDO 95 4	**163.5**	11.0	21370	27	—	—	—
HDO 95 4	**181.9**	9.9	20680	23	—	—	—
HDO 95 4	**211.3**	8.5	20730	20	—	—	—
HDO 95 4	**231.1**	7.8	20940	19	—	—	—
HDO 95 4	**256.6**	7.0	21370	17	—	—	—
HDO 95 4	**280.6**	6.4	21730	16	—	—	—
HDO 95 4	**325.7**	5.5	19490	12	—	—	—
HDO 95 4	**362.7**	5.0	20680	12	—	—	—
HDO 95 4	**421.4**	4.3	23200	11	—	—	—
HDO 95 4	**460.9**	3.9	20940	9	—	—	—
HDO 95 4	**489.7**	3.7	21940	9	—	—	—

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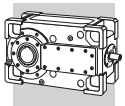
HDO 95 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C		
					P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 95 3	**21.2**	71	18710	147	*	82	75
HDO 95 3	**22.5**	67	19320	143	*	83	76
HDO 95 3	**24.7**	61	19320	131	*	78	72
HDO 95 3	**27.5**	55	20680	126	*	77	71
HDO 95 3	**31.9**	47	19200	100	*	75	69
HDO 95 3	**34.9**	43	20940	100	*	72	66
HDO 95 3	**40.5**	37	19110	79	37	69	64
HDO 95 3	**44.0**	34	19070	72	35	65	60
HDO 95 3	**49.0**	31	20680	70	37	66	61
HDO 95 3	**56.9**	26.4	18980	56	36	—	—
HDO 95 3	**62.2**	24.1	20940	56	35	—	—
HDO 95 3	**72.3**	20.7	18910	44	33	—	—
HDO 95 4	**81.6**	18.4	21220	44	40	—	—
HDO 95 4	**93.6**	16.0	19220	35	—	—	—
HDO 95 4	**103.7**	14.5	21370	35	—	—	—
HDO 95 4	**113.5**	13.2	19300	29	—	—	—
HDO 95 4	**128.7**	11.7	21370	28	—	—	—
HDO 95 4	**140.7**	10.7	19980	24	—	—	—
HDO 95 4	**163.5**	9.2	21370	22	—	—	—
HDO 95 4	**181.9**	8.2	20680	19	—	—	—
HDO 95 4	**211.3**	7.1	21370	17	—	—	—
HDO 95 4	**231.1**	6.5	20940	15	—	—	—
HDO 95 4	**256.6**	5.8	21370	14	—	—	—
HDO 95 4	**280.6**	5.3	22400	14	—	—	—
HDO 95 4	**325.7**	4.6	19420	10	—	—	—
HDO 95 4	**362.7**	4.1	20680	10	—	—	—
HDO 95 4	**421.4**	3.6	23200	9	—	—	—
HDO 95 4	**460.9**	3.3	20940	8	—	—	—
HDO 95 4	**489.7**	3.1	21940	8	—	—	—

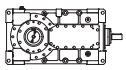
HDO

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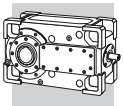


HDO 95 — n_1 = 1200 min^{-1}

					t_a = 40°C		
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 95 3	**21.2**	57	20000	126	51	85	83
HDO 95 3	**22.5**	53	20660	122	51	85	84
HDO 95 3	**24.7**	49	19220	104	48	80	79
HDO 95 3	**27.5**	44	20680	101	48	79	78
HDO 95 3	**31.9**	38	19110	80	47	76	75
HDO 95 3	**34.9**	34	20940	80	45	73	72
HDO 95 3	**40.5**	30	19020	63	43	—	—
HDO 95 3	**44.0**	27.3	19000	58	41	—	—
HDO 95 3	**49.0**	24.5	20680	56	42	—	—
HDO 95 3	**56.9**	21.1	18910	44	40	—	—
HDO 95 3	**62.2**	19.3	20940	45	39	—	—
HDO 95 3	**72.3**	16.6	18840	35	—	—	—
HDO 95 4	**81.6**	14.7	21370	36	—	—	—
HDO 95 4	**93.6**	12.8	20330	30	—	—	—
HDO 95 4	**103.7**	11.6	21370	28	—	—	—
HDO 95 4	**113.5**	10.6	20010	24	—	—	—
HDO 95 4	**128.7**	9.3	21370	23	—	—	—
HDO 95 4	**140.7**	8.5	20730	20	—	—	—
HDO 95 4	**163.5**	7.3	21370	18	—	—	—
HDO 95 4	**181.9**	6.6	20680	15	—	—	—
HDO 95 4	**211.3**	5.7	22180	14	—	—	—
HDO 95 4	**231.1**	5.2	20940	12	—	—	—
HDO 95 4	**256.6**	4.7	21610	11	—	—	—
HDO 95 4	**280.6**	4.3	23200	11	—	—	—
HDO 95 4	**325.7**	3.7	19340	8	—	—	—
HDO 95 4	**362.7**	3.3	20680	8	—	—	—
HDO 95 4	**421.4**	2.8	23200	8	—	—	—
HDO 95 4	**460.9**	2.6	20940	6	—	—	—
HDO 95 4	**489.7**	2.5	21940	6	—	—	—

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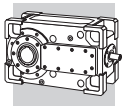


HDO 95 — n_1 = 1000 min^{-1}

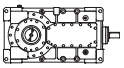
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C P_T [kW]	P_{TFAN} [kW]	P_{TSR} [kW]
HDO 95 3	**21.2**	47	20040	105	56	85	87
HDO 95 3	**22.5**	44	21290	105	56	86	88
HDO 95 3	**24.7**	41	19140	86	53	81	83
HDO 95 3	**27.5**	36	20680	84	52	79	81
HDO 95 3	**31.9**	31	19040	66	50	—	—
HDO 95 3	**34.9**	28.7	20940	67	48	—	—
HDO 95 3	**40.5**	24.7	18960	52	46	—	—
HDO 95 3	**44.0**	22.7	18940	48	43	—	—
HDO 95 3	**49.0**	20.4	20680	47	44	—	—
HDO 95 3	**56.9**	17.6	18860	37	—	—	—
HDO 95 3	**62.2**	16.1	20940	37	—	—	—
HDO 95 3	**72.3**	13.8	19160	29	—	—	—
HDO 95 4	**81.6**	12.2	21370	30	—	—	—
HDO 95 4	**93.6**	10.7	20330	25	—	—	—
HDO 95 4	**103.7**	9.6	21370	23	—	—	—
HDO 95 4	**113.5**	8.8	20620	21	—	—	—
HDO 95 4	**128.7**	7.8	21370	19	—	—	—
HDO 95 4	**140.7**	7.1	21360	17	—	—	—
HDO 95 4	**163.5**	6.1	21370	15	—	—	—
HDO 95 4	**181.9**	5.5	20680	13	—	—	—
HDO 95 4	**211.3**	4.7	22870	12	—	—	—
HDO 95 4	**231.1**	4.3	20940	10	—	—	—
HDO 95 4	**256.6**	3.9	21700	10	—	—	—
HDO 95 4	**280.6**	3.6	23200	9	—	—	—
HDO 95 4	**325.7**	3.1	19290	7	—	—	—
HDO 95 4	**362.7**	2.8	20680	6	—	—	—
HDO 95 4	**421.4**	2.4	23200	6	—	—	—
HDO 95 4	**460.9**	2.2	20940	5	—	—	—
HDO 95 4	**489.7**	2.0	21940	5	—	—	—

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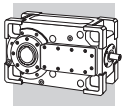


HDO 100 — n_1 = 1800 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	310	14190	479	*	249	282	360	195	223	317
HDO 100 2	**6.5**	279	16170	491	*	253	286	364	199	227	321
HDO 100 2	**7.0**	256	16790	468	*	255	288	366	201	229	323
HDO 100 2	**8.0**	225	16440	403	*	261	294	372	207	235	329
HDO 100 2	**8.7**	207	17000	383	*	263	296	374	209	237	331
HDO 100 2	**10.0**	180	16640	327	*	272	305	383	218	246	340
HDO 100 2	**10.9**	165	17250	311	132	274	307	385	220	248	342
HDO 100 2	**12.4**	145	17020	269	138	280	313	—	226	254	348
HDO 100 2	**13.5**	133	17680	257	139	281	314	—	227	255	349
HDO 100 3	**14.0**	128	19080	273	*	187	216	273	152	173	241
HDO 100 3	**15.6**	116	20950	270	*	188	217	274	153	174	242
HDO 100 3	**17.3**	104	20070	232	94	192	221	278	157	178	246
HDO 100 3	**20.2**	89	22110	219	101	199	228	—	164	185	253
HDO 100 3	**22.5**	80	21720	193	104	202	231	—	167	188	256
HDO 100 3	**25.0**	72	24090	193	104	202	231	—	167	188	256
HDO 100 3	**28.3**	64	22710	161	107	205	234	—	170	191	—
HDO 100 3	**31.5**	57	23480	149	107	205	234	—	170	191	—
HDO 100 3	**36.0**	50	23760	132	109	207	236	—	172	193	—
HDO 100 3	**40.0**	45	23480	118	110	208	237	—	173	194	—
HDO 100 3	**43.9**	41	24090	110	—	—	—	—	—	—	—
HDO 100 3	**48.8**	37	23480	96	—	—	—	—	—	—	—
HDO 100 3	**55.8**	32	25730	92	—	—	—	—	—	—	—
HDO 100 3	**62.0**	29.0	23480	76	—	—	—	—	—	—	—
HDO 100 3	**67.5**	26.7	22050	65	—	—	—	—	—	—	—
HDO 100 4	**70.8**	25.4	25620	74	—	—	—	—	—	—	—
HDO 100 4	**78.7**	22.9	23480	61	—	—	—	—	—	—	—
HDO 100 4	**90.0**	20.0	26160	59	—	—	—	—	—	—	—
HDO 100 4	**100.0**	18.0	23480	48	—	—	—	—	—	—	—
HDO 100 4	**111.4**	16.2	26450	49	—	—	—	—	—	—	—
HDO 100 4	**123.8**	14.5	23480	39	—	—	—	—	—	—	—
HDO 100 4	**139.8**	12.9	26450	39	—	—	—	—	—	—	—
HDO 100 4	**160.0**	11.3	23480	30	—	—	—	—	—	—	—
HDO 100 4	**178.2**	10.1	26450	30	—	—	—	—	—	—	—
HDO 100 4	**198.0**	9.1	23480	24	—	—	—	—	—	—	—
HDO 100 4	**223.7**	8.0	26450	24	—	—	—	—	—	—	—
HDO 100 4	**248.6**	7.2	24880	20	—	—	—	—	—	—	—
HDO 100 4	**284.4**	6.3	28210	20	—	—	—	—	—	—	—
HDO 100 4	**316.0**	5.7	24880	16.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	5.2	23870	14.2	—	—	—	—	—	—	—

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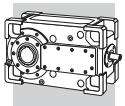


HDO 100 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	310	14190	479	*	*	*	204	*	*	273
HDO 100 2	**6.5**	279	16170	491	*	*	*	207	*	*	276
HDO 100 2	**7.0**	256	16790	468	*	*	*	210	*	*	279
HDO 100 2	**8.0**	225	16440	403	*	178	171	215	162	190	284
HDO 100 2	**8.7**	207	17000	383	*	180	173	217	164	192	286
HDO 100 2	**10.0**	180	16640	327	*	190	183	227	174	202	296
HDO 100 2	**10.9**	165	17250	311	*	191	184	228	175	203	297
HDO 100 2	**12.4**	145	17020	269	*	198	191	235	182	210	304
HDO 100 2	**13.5**	133	17680	257	*	199	192	236	183	211	305
HDO 100 3	**14.0**	128	19080	273	*	127	126	157	118	139	207
HDO 100 3	**15.6**	116	20950	270	*	128	127	158	119	140	208
HDO 100 3	**17.3**	104	20070	232	*	132	131	162	123	144	212
HDO 100 3	**20.2**	89	22110	219	*	139	138	169	130	151	219
HDO 100 3	**22.5**	80	21720	193	*	142	141	172	133	154	222
HDO 100 3	**25.0**	72	24090	193	*	142	141	172	133	154	222
HDO 100 3	**28.3**	64	22710	161	73	145	144	175	136	157	225
HDO 100 3	**31.5**	57	23480	149	73	145	144	175	136	157	—
HDO 100 3	**36.0**	50	23760	132	75	147	146	—	138	159	—
HDO 100 3	**40.0**	45	23480	118	76	148	147	—	139	160	—
HDO 100 3	**43.9**	41	24090	110	81	153	152	—	144	165	—
HDO 100 3	**48.8**	37	23480	96	81	153	152	—	144	165	—
HDO 100 3	**55.8**	32	25730	92	82	154	153	—	145	166	—
HDO 100 3	**62.0**	29.0	23480	76	—	—	—	—	—	—	—
HDO 100 3	**67.5**	26.7	22050	65	—	—	—	—	—	—	—
HDO 100 4	**70.8**	25.4	25620	74	60	114	115	—	108	126	—
HDO 100 4	**78.7**	22.9	23480	61	60	114	115	—	108	126	—
HDO 100 4	**90.0**	20.0	26160	59	—	—	—	—	—	—	—
HDO 100 4	**100.0**	18.0	23480	48	—	—	—	—	—	—	—
HDO 100 4	**111.4**	16.2	26450	49	—	—	—	—	—	—	—
HDO 100 4	**123.8**	14.5	23480	39	—	—	—	—	—	—	—
HDO 100 4	**139.8**	12.9	26450	39	—	—	—	—	—	—	—
HDO 100 4	**160.0**	11.3	23480	30	—	—	—	—	—	—	—
HDO 100 4	**178.2**	10.1	26450	30	—	—	—	—	—	—	—
HDO 100 4	**198.0**	9.1	23480	24	—	—	—	—	—	—	—
HDO 100 4	**223.7**	8.0	26450	24	—	—	—	—	—	—	—
HDO 100 4	**248.6**	7.2	24880	20	—	—	—	—	—	—	—
HDO 100 4	**284.4**	6.3	28210	20	—	—	—	—	—	—	—
HDO 100 4	**316.0**	5.7	24880	16.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	5.2	23870	14.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

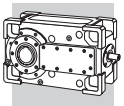


HDO 100 — n_1 = 1500 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	258	14990	422	*	244	295	373	208	236	330
HDO 100 2	**6.5**	232	17080	432	*	247	298	376	211	239	333
HDO 100 2	**7.0**	213	17740	412	*	249	300	378	213	241	335
HDO 100 2	**8.0**	188	17370	355	*	253	304	382	217	245	339
HDO 100 2	**8.7**	172	17950	337	*	255	306	384	219	247	341
HDO 100 2	**10.0**	150	17580	288	138	262	313	—	226	254	348
HDO 100 2	**10.9**	138	18220	274	139	263	314	—	227	255	349
HDO 100 2	**12.4**	121	17980	237	144	268	319	—	232	260	—
HDO 100 2	**13.5**	111	18670	226	145	269	320	—	233	261	—
HDO 100 3	**14.0**	107	20240	241	98	183	225	282	161	182	250
HDO 100 3	**15.6**	96	22210	238	98	183	225	282	161	182	250
HDO 100 3	**17.3**	87	21300	205	102	187	229	—	165	186	254
HDO 100 3	**20.2**	74	23650	195	107	192	234	—	170	191	259
HDO 100 3	**22.5**	67	23040	171	109	194	236	—	172	193	—
HDO 100 3	**25.0**	60	24270	162	109	194	236	—	172	193	—
HDO 100 3	**28.3**	53	24080	142	111	196	238	—	174	195	—
HDO 100 3	**31.5**	48	24140	128	112	197	239	—	175	196	—
HDO 100 3	**36.0**	42	25230	117	113	198	240	—	176	197	—
HDO 100 3	**40.0**	38	24020	100	—	—	—	—	—	—	—
HDO 100 3	**43.9**	34	25580	97	—	—	—	—	—	—	—
HDO 100 3	**48.8**	31	23930	82	—	—	—	—	—	—	—
HDO 100 3	**55.8**	26.9	25640	77	—	—	—	—	—	—	—
HDO 100 3	**62.0**	24.2	23830	64	—	—	—	—	—	—	—
HDO 100 3	**67.5**	22.2	22260	55	—	—	—	—	—	—	—
HDO 100 4	**70.8**	21.2	25930	62	—	—	—	—	—	—	—
HDO 100 4	**78.7**	19.1	24100	52	—	—	—	—	—	—	—
HDO 100 4	**90.0**	16.7	26910	51	—	—	—	—	—	—	—
HDO 100 4	**100.0**	15.0	24880	42	—	—	—	—	—	—	—
HDO 100 4	**111.4**	13.5	27820	43	—	—	—	—	—	—	—
HDO 100 4	**123.8**	12.1	24880	34	—	—	—	—	—	—	—
HDO 100 4	**139.8**	10.7	28210	34	—	—	—	—	—	—	—
HDO 100 4	**160.0**	9.4	24880	26	—	—	—	—	—	—	—
HDO 100 4	**178.2**	8.4	28210	27	—	—	—	—	—	—	—
HDO 100 4	**198.0**	7.6	24880	21	—	—	—	—	—	—	—
HDO 100 4	**223.7**	6.7	28210	21	—	—	—	—	—	—	—
HDO 100 4	**248.6**	6.0	24880	17.0	—	—	—	—	—	—	—
HDO 100 4	**284.4**	5.3	28210	16.9	—	—	—	—	—	—	—
HDO 100 4	**316.0**	4.7	25080	13.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	4.4	23870	11.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

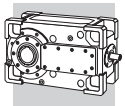


HDO 100 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	258	14990	422	*	*	173	217	*	192	286
HDO 100 2	**6.5**	232	17080	432	*	*	176	220	*	195	289
HDO 100 2	**7.0**	213	17740	412	*	172	178	222	169	197	291
HDO 100 2	**8.0**	188	17370	355	*	176	182	226	173	201	295
HDO 100 2	**8.7**	172	17950	337	*	177	183	227	174	202	296
HDO 100 2	**10.0**	150	17580	288	*	185	191	235	182	210	304
HDO 100 2	**10.9**	138	18220	274	*	186	192	236	183	211	305
HDO 100 2	**12.4**	121	17980	237	100	191	197	241	188	216	310
HDO 100 2	**13.5**	111	18670	226	101	192	198	242	189	217	311
HDO 100 3	**14.0**	107	20240	241	*	126	135	166	127	148	216
HDO 100 3	**15.6**	96	22210	238	*	126	135	166	127	148	216
HDO 100 3	**17.3**	87	21300	205	*	130	139	170	131	152	220
HDO 100 3	**20.2**	74	23650	195	*	135	144	175	136	157	225
HDO 100 3	**22.5**	67	23040	171	75	137	146	177	138	159	227
HDO 100 3	**25.0**	60	24270	162	75	137	146	177	138	159	227
HDO 100 3	**28.3**	53	24080	142	77	139	148	—	140	161	—
HDO 100 3	**31.5**	48	24140	128	78	140	149	—	141	162	—
HDO 100 3	**36.0**	42	25230	117	79	141	150	—	142	163	—
HDO 100 3	**40.0**	38	24020	100	79	141	150	—	142	163	—
HDO 100 3	**43.9**	34	25580	97	83	145	154	—	146	167	—
HDO 100 3	**48.8**	31	23930	82	—	—	—	—	—	—	—
HDO 100 3	**55.8**	26.9	25640	77	—	—	—	—	—	—	—
HDO 100 3	**62.0**	24.2	23830	64	—	—	—	—	—	—	—
HDO 100 3	**67.5**	22.2	22260	55	—	—	—	—	—	—	—
HDO 100 4	**70.8**	21.2	25930	62	62	109	117	—	110	128	—
HDO 100 4	**78.7**	19.1	24100	52	—	—	—	—	—	—	—
HDO 100 4	**90.0**	16.7	26910	51	—	—	—	—	—	—	—
HDO 100 4	**100.0**	15.0	24880	42	—	—	—	—	—	—	—
HDO 100 4	**111.4**	13.5	27820	43	—	—	—	—	—	—	—
HDO 100 4	**123.8**	12.1	24880	34	—	—	—	—	—	—	—
HDO 100 4	**139.8**	10.7	28210	34	—	—	—	—	—	—	—
HDO 100 4	**160.0**	9.4	24880	26	—	—	—	—	—	—	—
HDO 100 4	**178.2**	8.4	28210	27	—	—	—	—	—	—	—
HDO 100 4	**198.0**	7.6	24880	21	—	—	—	—	—	—	—
HDO 100 4	**223.7**	6.7	28210	21	—	—	—	—	—	—	—
HDO 100 4	**248.6**	6.0	24880	17.0	—	—	—	—	—	—	—
HDO 100 4	**284.4**	5.3	28210	16.9	—	—	—	—	—	—	—
HDO 100 4	**316.0**	4.7	25080	13.5	—	—	—	—	—	—	—
HDO 100 4	**344.2**	4.4	23870	11.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

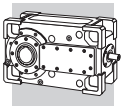


HDO 100 — n_1 = 1200 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	206	16030	361	*	241	305	383	218	246	340
HDO 100 2	**6.5**	186	18260	370	*	243	307	385	220	248	342
HDO 100 2	**7.0**	170	18970	353	*	245	309	387	222	250	344
HDO 100 2	**8.0**	150	18570	304	137	248	312	—	225	253	347
HDO 100 2	**8.7**	138	19200	288	138	249	313	—	226	254	348
HDO 100 2	**10.0**	120	18800	246	144	255	319	—	232	260	—
HDO 100 2	**10.9**	110	19490	234	145	256	320	—	233	261	—
HDO 100 2	**12.4**	97	19220	203	148	259	323	—	236	264	—
HDO 100 2	**13.5**	89	19970	193	149	260	324	—	237	265	—
HDO 100 3	**14.0**	86	21640	206	104	180	231	—	167	188	256
HDO 100 3	**15.6**	77	23750	204	105	181	232	—	168	189	257
HDO 100 3	**17.3**	69	22770	176	107	183	234	—	170	191	—
HDO 100 3	**20.2**	59	23650	156	111	187	238	—	174	195	—
HDO 100 3	**22.5**	53	24640	146	113	189	240	—	176	197	—
HDO 100 3	**25.0**	48	24140	129	113	189	240	—	176	197	—
HDO 100 3	**28.3**	42	25740	121	115	191	242	—	178	199	—
HDO 100 3	**31.5**	38	24030	102	—	—	—	—	—	—	—
HDO 100 3	**36.0**	33	25740	95	—	—	—	—	—	—	—
HDO 100 3	**40.0**	30	23920	80	—	—	—	—	—	—	—
HDO 100 3	**43.9**	27.3	25650	78	—	—	—	—	—	—	—
HDO 100 3	**48.8**	24.6	23830	65	—	—	—	—	—	—	—
HDO 100 3	**55.8**	21.5	25870	62	—	—	—	—	—	—	—
HDO 100 3	**62.0**	19.4	24040	52	—	—	—	—	—	—	—
HDO 100 3	**67.5**	17.8	22460	44	—	—	—	—	—	—	—
HDO 100 4	**70.8**	16.9	26840	52	—	—	—	—	—	—	—
HDO 100 4	**78.7**	15.3	24880	43	—	—	—	—	—	—	—
HDO 100 4	**90.0**	13.3	27860	42	—	—	—	—	—	—	—
HDO 100 4	**100.0**	12.0	24880	34	—	—	—	—	—	—	—
HDO 100 4	**111.4**	10.8	28210	35	—	—	—	—	—	—	—
HDO 100 4	**123.8**	9.7	24880	27	—	—	—	—	—	—	—
HDO 100 4	**139.8**	8.6	28210	27	—	—	—	—	—	—	—
HDO 100 4	**160.0**	7.5	24880	21	—	—	—	—	—	—	—
HDO 100 4	**178.2**	6.7	28210	22	—	—	—	—	—	—	—
HDO 100 4	**198.0**	6.1	24880	17.1	—	—	—	—	—	—	—
HDO 100 4	**223.7**	5.4	28210	17.2	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.8	25020	13.7	—	—	—	—	—	—	—
HDO 100 4	**284.4**	4.2	28210	13.5	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.8	25410	11.0	—	—	—	—	—	—	—
HDO 100 4	**344.2**	3.5	23870	9.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

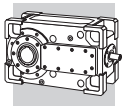


HDO 100 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	206	16030	361	*	168	183	227	174	202	296
HDO 100 2	**6.5**	186	18260	370	*	170	185	229	176	204	298
HDO 100 2	**7.0**	170	18970	353	*	171	186	230	177	205	299
HDO 100 2	**8.0**	150	18570	304	*	175	190	234	181	209	303
HDO 100 2	**8.7**	138	19200	288	*	176	191	235	182	210	304
HDO 100 2	**10.0**	120	18800	246	99	181	196	240	187	215	309
HDO 100 2	**10.9**	110	19490	234	100	182	197	241	188	216	310
HDO 100 2	**12.4**	97	19220	203	104	186	201	245	192	220	—
HDO 100 2	**13.5**	89	19970	193	105	187	202	—	193	221	—
HDO 100 3	**14.0**	86	21640	206	*	126	141	172	133	154	222
HDO 100 3	**15.6**	77	23750	204	*	127	142	173	134	155	223
HDO 100 3	**17.3**	69	22770	176	73	129	144	175	136	157	225
HDO 100 3	**20.2**	59	23650	156	77	133	148	179	140	161	—
HDO 100 3	**22.5**	53	24640	146	79	135	150	—	142	163	—
HDO 100 3	**25.0**	48	24140	129	79	135	150	—	142	163	—
HDO 100 3	**28.3**	42	25740	121	81	137	152	—	144	165	—
HDO 100 3	**31.5**	38	24030	102	81	137	152	—	144	165	—
HDO 100 3	**36.0**	33	25740	95	82	138	153	—	145	166	—
HDO 100 3	**40.0**	30	23920	80	—	—	—	—	—	—	—
HDO 100 3	**43.9**	27.3	25650	78	—	—	—	—	—	—	—
HDO 100 3	**48.8**	24.6	23830	65	—	—	—	—	—	—	—
HDO 100 3	**55.8**	21.5	25870	62	—	—	—	—	—	—	—
HDO 100 3	**62.0**	19.4	24040	52	—	—	—	—	—	—	—
HDO 100 3	**67.5**	17.8	22460	44	—	—	—	—	—	—	—
HDO 100 4	**70.8**	16.9	26840	52	—	—	—	—	—	—	—
HDO 100 4	**78.7**	15.3	24880	43	—	—	—	—	—	—	—
HDO 100 4	**90.0**	13.3	27860	42	—	—	—	—	—	—	—
HDO 100 4	**100.0**	12.0	24880	34	—	—	—	—	—	—	—
HDO 100 4	**111.4**	10.8	28210	35	—	—	—	—	—	—	—
HDO 100 4	**123.8**	9.7	24880	27	—	—	—	—	—	—	—
HDO 100 4	**139.8**	8.6	28210	27	—	—	—	—	—	—	—
HDO 100 4	**160.0**	7.5	24880	21	—	—	—	—	—	—	—
HDO 100 4	**178.2**	6.7	28210	22	—	—	—	—	—	—	—
HDO 100 4	**198.0**	6.1	24880	17.1	—	—	—	—	—	—	—
HDO 100 4	**223.7**	5.4	28210	17.2	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.8	25020	13.7	—	—	—	—	—	—	—
HDO 100 4	**284.4**	4.2	28210	13.5	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.8	25410	11.0	—	—	—	—	—	—	—
HDO 100 4	**344.2**	3.5	23870	9.4	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

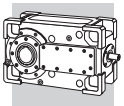


HDO 100 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	172	16930	317	136	223	311	389	224	252	346
HDO 100 2	**6.5**	155	19290	325	138	225	313	391	226	254	348
HDO 100 2	**7.0**	142	20030	310	139	226	314	—	227	255	349
HDO 100 2	**8.0**	125	19610	267	142	229	317	—	230	258	352
HDO 100 2	**8.7**	115	20280	254	143	230	318	—	231	259	—
HDO 100 2	**10.0**	100	19850	216	148	235	323	—	236	264	—
HDO 100 2	**10.9**	92	20580	206	148	235	323	—	236	264	—
HDO 100 2	**12.4**	81	20300	178	151	238	326	—	239	267	—
HDO 100 2	**13.5**	74	21090	170	152	239	327	—	240	268	—
HDO 100 3	**14.0**	71	22860	182	108	167	235	—	171	192	—
HDO 100 3	**15.6**	64	24310	174	109	168	236	—	172	193	—
HDO 100 3	**17.3**	58	24060	155	111	170	238	—	174	195	—
HDO 100 3	**20.2**	49	24160	133	114	173	241	—	177	198	—
HDO 100 3	**22.5**	44	25890	128	115	174	242	—	178	199	—
HDO 100 3	**25.0**	40	24050	107	—	—	—	—	—	—	—
HDO 100 3	**28.3**	35	25770	101	—	—	—	—	—	—	—
HDO 100 3	**31.5**	32	23940	85	—	—	—	—	—	—	—
HDO 100 3	**36.0**	27.8	25660	79	—	—	—	—	—	—	—
HDO 100 3	**40.0**	25.0	23840	66	—	—	—	—	—	—	—
HDO 100 3	**43.9**	22.8	25640	65	—	—	—	—	—	—	—
HDO 100 3	**48.8**	20.5	23830	54	—	—	—	—	—	—	—
HDO 100 3	**55.8**	17.9	26600	53	—	—	—	—	—	—	—
HDO 100 3	**62.0**	16.1	24740	44	—	—	—	—	—	—	—
HDO 100 3	**67.5**	14.8	23120	38	—	—	—	—	—	—	—
HDO 100 4	**70.8**	14.1	27610	44	—	—	—	—	—	—	—
HDO 100 4	**78.7**	12.7	24880	36	—	—	—	—	—	—	—
HDO 100 4	**90.0**	11.1	28210	36	—	—	—	—	—	—	—
HDO 100 4	**100.0**	10.0	24880	28	—	—	—	—	—	—	—
HDO 100 4	**111.4**	9.0	28210	29	—	—	—	—	—	—	—
HDO 100 4	**123.8**	8.1	24880	23	—	—	—	—	—	—	—
HDO 100 4	**139.8**	7.2	28210	23	—	—	—	—	—	—	—
HDO 100 4	**160.0**	6.3	24880	17.7	—	—	—	—	—	—	—
HDO 100 4	**178.2**	5.6	28210	18.0	—	—	—	—	—	—	—
HDO 100 4	**198.0**	5.0	24880	14.3	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.5	28210	14.3	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.0	25410	11.6	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.5	28210	11.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.2	25410	9.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	2.9	23870	7.9	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

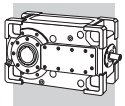


HDO 100 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 100 2	**5.8**	172	16930	317	*	156	189	233	180	208	302
HDO 100 2	**6.5**	155	19290	325	*	158	191	235	182	210	304
HDO 100 2	**7.0**	142	20030	310	*	159	192	236	183	211	305
HDO 100 2	**8.0**	125	19610	267	*	162	195	239	186	214	308
HDO 100 2	**8.7**	115	20280	254	*	163	196	240	187	215	309
HDO 100 2	**10.0**	100	19850	216	103	167	200	244	191	219	—
HDO 100 2	**10.9**	92	20580	206	104	168	201	245	192	220	—
HDO 100 2	**12.4**	81	20300	178	107	171	204	—	195	223	—
HDO 100 2	**13.5**	74	21090	170	108	172	205	—	196	224	—
HDO 100 3	**14.0**	71	22860	182	74	118	145	176	137	158	226
HDO 100 3	**15.6**	64	24310	174	75	119	146	177	138	159	227
HDO 100 3	**17.3**	58	24060	155	77	121	148	179	140	161	—
HDO 100 3	**20.2**	49	24160	133	80	124	151	—	143	164	—
HDO 100 3	**22.5**	44	25890	128	81	125	152	—	144	165	—
HDO 100 3	**25.0**	40	24050	107	81	125	152	—	144	165	—
HDO 100 3	**28.3**	35	25770	101	83	127	154	—	146	167	—
HDO 100 3	**31.5**	32	23940	85	83	127	154	—	146	167	—
HDO 100 3	**36.0**	27.8	25660	79	—	—	—	—	—	—	—
HDO 100 3	**40.0**	25.0	23840	66	—	—	—	—	—	—	—
HDO 100 3	**43.9**	22.8	25640	65	—	—	—	—	—	—	—
HDO 100 3	**48.8**	20.5	23830	54	—	—	—	—	—	—	—
HDO 100 3	**55.8**	17.9	26600	53	—	—	—	—	—	—	—
HDO 100 3	**62.0**	16.1	24740	44	—	—	—	—	—	—	—
HDO 100 3	**67.5**	14.8	23120	38	—	—	—	—	—	—	—
HDO 100 4	**70.8**	14.1	27610	44	—	—	—	—	—	—	—
HDO 100 4	**78.7**	12.7	24880	36	—	—	—	—	—	—	—
HDO 100 4	**90.0**	11.1	28210	36	—	—	—	—	—	—	—
HDO 100 4	**100.0**	10.0	24880	28	—	—	—	—	—	—	—
HDO 100 4	**111.4**	9.0	28210	29	—	—	—	—	—	—	—
HDO 100 4	**123.8**	8.1	24880	23	—	—	—	—	—	—	—
HDO 100 4	**139.8**	7.2	28210	23	—	—	—	—	—	—	—
HDO 100 4	**160.0**	6.3	24880	17.7	—	—	—	—	—	—	—
HDO 100 4	**178.2**	5.6	28210	18.0	—	—	—	—	—	—	—
HDO 100 4	**198.0**	5.0	24880	14.3	—	—	—	—	—	—	—
HDO 100 4	**223.7**	4.5	28210	14.3	—	—	—	—	—	—	—
HDO 100 4	**248.6**	4.0	25410	11.6	—	—	—	—	—	—	—
HDO 100 4	**284.4**	3.5	28210	11.3	—	—	—	—	—	—	—
HDO 100 4	**316.0**	3.2	25410	9.1	—	—	—	—	—	—	—
HDO 100 4	**344.2**	2.9	23870	7.9	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

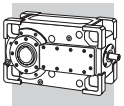


HDO 110 — n_1 = 1800 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	283	19920	615	*	*	254	332	*	*	289
HDO 110 2	**7.0**	256	20970	585	*	*	258	336	*	*	293
HDO 110 2	**8.1**	223	22600	549	*	230	263	341	*	*	298
HDO 110 2	**8.7**	207	22470	506	*	234	267	345	*	208	302
HDO 110 2	**10.0**	180	24220	475	*	238	271	349	*	212	306
HDO 110 2	**10.9**	165	23040	415	*	250	283	361	196	224	318
HDO 110 2	**12.5**	144	25180	395	*	253	286	364	199	227	321
HDO 110 2	**13.5**	133	21820	317	*	262	295	373	208	236	330
HDO 110 2	**15.5**	116	23570	298	122	264	297	375	210	238	332
HDO 110 3	**18.9**	95	23370	247	*	191	220	277	156	177	245
HDO 110 3	**20.9**	86	24470	234	94	192	221	278	157	178	246
HDO 110 3	**22.0**	82	24090	219	100	198	227	—	163	184	252
HDO 110 3	**24.6**	73	24360	198	103	201	230	—	166	187	255
HDO 110 3	**27.2**	66	26510	195	103	201	230	—	166	187	255
HDO 110 3	**30.9**	58	26450	171	106	204	233	—	169	190	—
HDO 110 3	**34.3**	53	28210	165	107	205	234	—	170	191	—
HDO 110 3	**39.3**	46	27660	141	109	207	236	—	172	193	—
HDO 110 3	**43.6**	41	29500	136	109	207	236	—	172	193	—
HDO 110 3	**48.0**	38	30190	126	114	212	241	—	177	198	—
HDO 110 3	**53.1**	34	29040	109	—	—	—	—	—	—	—
HDO 110 3	**61.0**	29.5	29090	96	—	—	—	—	—	—	—
HDO 110 3	**67.5**	26.7	29040	86	—	—	—	—	—	—	—
HDO 110 3	**77.5**	23.2	26010	67	—	—	—	—	—	—	—
HDO 110 4	**77.4**	23.3	29530	78	—	—	—	—	—	—	—
HDO 110 4	**85.7**	21.0	29040	69	—	—	—	—	—	—	—
HDO 110 4	**96.7**	18.6	28930	61	—	—	—	—	—	—	—
HDO 110 4	**108.9**	16.5	29040	54	—	—	—	—	—	—	—
HDO 110 4	**121.7**	14.8	30300	51	—	—	—	—	—	—	—
HDO 110 4	**137.1**	13.1	28650	43	—	—	—	—	—	—	—
HDO 110 4	**154.7**	11.6	30850	41	—	—	—	—	—	—	—
HDO 110 4	**174.3**	10.3	29040	34	—	—	—	—	—	—	—
HDO 110 4	**194.7**	9.2	31570	33	—	—	—	—	—	—	—
HDO 110 4	**215.7**	8.3	29040	28	—	—	—	—	—	—	—
HDO 110 4	**244.4**	7.4	31570	26	—	—	—	—	—	—	—
HDO 110 4	**274.2**	6.6	29040	22	—	—	—	—	—	—	—
HDO 110 4	**310.7**	5.8	29090	19.1	—	—	—	—	—	—	—
HDO 110 4	**344.2**	5.2	31790	18.9	—	—	—	—	—	—	—
HDO 110 4	**395.0**	4.6	28490	14.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

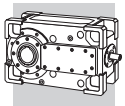


HDO 110 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	283	19920	615	*	*	*	*	*	*	*
HDO 110 2	**7.0**	256	20970	585	*	*	*	*	*	*	249
HDO 110 2	**8.1**	223	22600	549	*	*	*	*	*	*	254
HDO 110 2	**8.7**	207	22470	506	*	*	*	*	*	*	257
HDO 110 2	**10.0**	180	24220	475	*	*	*	192	*	*	261
HDO 110 2	**10.9**	165	23040	415	*	168	*	205	*	180	274
HDO 110 2	**12.5**	144	25180	395	*	171	164	208	*	183	277
HDO 110 2	**13.5**	133	21820	317	*	180	173	217	164	192	286
HDO 110 2	**15.5**	116	23570	298	*	182	175	219	166	194	288
HDO 110 3	**18.9**	95	23370	247	*	131	130	161	122	143	211
HDO 110 3	**20.9**	86	24470	234	*	132	131	162	123	144	212
HDO 110 3	**22.0**	82	24090	219	*	138	137	168	129	150	218
HDO 110 3	**24.6**	73	24360	198	*	141	140	171	132	153	221
HDO 110 3	**27.2**	66	26510	195	*	141	140	171	132	153	221
HDO 110 3	**30.9**	58	26450	171	72	144	143	174	135	156	224
HDO 110 3	**34.3**	53	28210	165	73	145	144	175	136	157	225
HDO 110 3	**39.3**	46	27660	141	75	147	146	—	138	159	—
HDO 110 3	**43.6**	41	29500	136	75	147	146	—	138	159	—
HDO 110 3	**48.0**	38	30190	126	80	152	151	—	143	164	—
HDO 110 3	**53.1**	34	29040	109	80	152	151	—	143	164	—
HDO 110 3	**61.0**	29.5	29090	96	82	154	153	—	145	166	—
HDO 110 3	**67.5**	26.7	29040	86	82	154	153	—	145	166	—
HDO 110 3	**77.5**	23.2	26010	67	—	—	—	—	—	—	—
HDO 110 4	**77.4**	23.3	29530	78	60	114	115	—	108	126	—
HDO 110 4	**85.7**	21.0	29040	69	60	114	115	—	108	126	—
HDO 110 4	**96.7**	18.6	28930	61	—	—	—	—	—	—	—
HDO 110 4	**108.9**	16.5	29040	54	—	—	—	—	—	—	—
HDO 110 4	**121.7**	14.8	30300	51	—	—	—	—	—	—	—
HDO 110 4	**137.1**	13.1	28650	43	—	—	—	—	—	—	—
HDO 110 4	**154.7**	11.6	30850	41	—	—	—	—	—	—	—
HDO 110 4	**174.3**	10.3	29040	34	—	—	—	—	—	—	—
HDO 110 4	**194.7**	9.2	31570	33	—	—	—	—	—	—	—
HDO 110 4	**215.7**	8.3	29040	28	—	—	—	—	—	—	—
HDO 110 4	**244.4**	7.4	31570	26	—	—	—	—	—	—	—
HDO 110 4	**274.2**	6.6	29040	22	—	—	—	—	—	—	—
HDO 110 4	**310.7**	5.8	29090	19.1	—	—	—	—	—	—	—
HDO 110 4	**344.2**	5.2	31790	18.9	—	—	—	—	—	—	—
HDO 110 4	**395.0**	4.6	28490	14.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

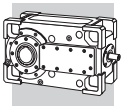


HDO 110 — n_1 = 1500 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	236	21050	542	*	222	273	351	*	*	308
HDO 110 2	**7.0**	213	22150	515	*	226	277	355	*	218	312
HDO 110 2	**8.1**	186	23880	484	*	230	281	359	194	222	316
HDO 110 2	**8.7**	172	23730	445	*	232	283	361	196	224	318
HDO 110 2	**10.0**	150	25580	418	*	235	286	364	199	227	321
HDO 110 2	**10.9**	138	23040	346	*	245	296	374	209	237	331
HDO 110 2	**12.5**	120	25180	329	*	247	298	376	211	239	333
HDO 110 2	**13.5**	111	22480	272	130	254	305	—	218	246	340
HDO 110 2	**15.5**	97	24600	260	132	256	307	—	220	248	342
HDO 110 3	**18.9**	79	24850	219	101	186	228	—	164	185	253
HDO 110 3	**20.9**	72	25980	207	101	186	228	—	164	185	253
HDO 110 3	**22.0**	68	25740	195	106	191	233	—	169	190	258
HDO 110 3	**24.6**	61	26070	177	108	193	235	—	171	192	—
HDO 110 3	**27.2**	55	28100	172	109	194	236	—	172	193	—
HDO 110 3	**30.9**	48	28060	151	111	196	238	—	174	195	—
HDO 110 3	**34.3**	44	29540	144	111	196	238	—	174	195	—
HDO 110 3	**39.3**	38	29350	125	113	198	240	—	176	197	—
HDO 110 3	**43.6**	34	29390	113	—	—	—	—	—	—	—
HDO 110 3	**48.0**	31	31120	108	—	—	—	—	—	—	—
HDO 110 3	**53.1**	28.2	29280	92	—	—	—	—	—	—	—
HDO 110 3	**61.0**	24.6	30990	85	—	—	—	—	—	—	—
HDO 110 3	**67.5**	22.2	29160	72	—	—	—	—	—	—	—
HDO 110 3	**77.5**	19.4	26350	57	—	—	—	—	—	—	—
HDO 110 4	**77.4**	19.4	31130	69	—	—	—	—	—	—	—
HDO 110 4	**85.7**	17.5	29490	59	—	—	—	—	—	—	—
HDO 110 4	**96.7**	15.5	30690	54	—	—	—	—	—	—	—
HDO 110 4	**108.9**	13.8	30610	48	—	—	—	—	—	—	—
HDO 110 4	**121.7**	12.3	31130	44	—	—	—	—	—	—	—
HDO 110 4	**137.1**	10.9	30410	38	—	—	—	—	—	—	—
HDO 110 4	**154.7**	9.7	31350	35	—	—	—	—	—	—	—
HDO 110 4	**174.3**	8.6	31790	31	—	—	—	—	—	—	—
HDO 110 4	**194.7**	7.7	31570	28	—	—	—	—	—	—	—
HDO 110 4	**215.7**	7.0	31790	25	—	—	—	—	—	—	—
HDO 110 4	**244.4**	6.1	31570	22	—	—	—	—	—	—	—
HDO 110 4	**274.2**	5.5	31790	19.7	—	—	—	—	—	—	—
HDO 110 4	**310.7**	4.8	31570	17.3	—	—	—	—	—	—	—
HDO 110 4	**344.2**	4.4	31790	15.7	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.8	28490	12.3	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

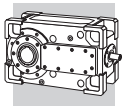


HDO 110 — n_1 = 1500 min^{-1}

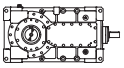
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	236	21050	542	*	*	*	*	*	*	264
HDO 110 2	**7.0**	213	22150	515	*	*	*	*	*	*	267
HDO 110 2	**8.1**	186	23880	484	*	*	*	202	*	*	271
HDO 110 2	**8.7**	172	23730	445	*	*	*	205	*	180	274
HDO 110 2	**10.0**	150	25580	418	*	*	*	208	*	183	277
HDO 110 2	**10.9**	138	23040	346	*	168	174	218	165	193	287
HDO 110 2	**12.5**	120	25180	329	*	170	176	220	167	195	289
HDO 110 2	**13.5**	111	22480	272	*	177	183	227	174	202	296
HDO 110 2	**15.5**	97	24600	260	*	179	185	229	176	204	298
HDO 110 3	**18.9**	79	24850	219	*	129	138	169	130	151	219
HDO 110 3	**20.9**	72	25980	207	*	129	138	169	130	151	219
HDO 110 3	**22.0**	68	25740	195	*	134	143	174	135	156	224
HDO 110 3	**24.6**	61	26070	177	74	136	145	176	137	158	226
HDO 110 3	**27.2**	55	28100	172	75	137	146	177	138	159	227
HDO 110 3	**30.9**	48	28060	151	77	139	148	179	140	161	—
HDO 110 3	**34.3**	44	29540	144	77	139	148	—	140	161	—
HDO 110 3	**39.3**	38	29350	125	79	141	150	—	142	163	—
HDO 110 3	**43.6**	34	29390	113	79	141	150	—	142	163	—
HDO 110 3	**48.0**	31	31120	108	83	145	154	—	146	167	—
HDO 110 3	**53.1**	28.2	29280	92	83	145	154	—	146	167	—
HDO 110 3	**61.0**	24.6	30990	85	84	146	155	—	147	168	—
HDO 110 3	**67.5**	22.2	29160	72	—	—	—	—	—	—	—
HDO 110 3	**77.5**	19.4	26350	57	—	—	—	—	—	—	—
HDO 110 4	**77.4**	19.4	31130	69	62	109	117	—	110	128	—
HDO 110 4	**85.7**	17.5	29490	59	—	—	—	—	—	—	—
HDO 110 4	**96.7**	15.5	30690	54	—	—	—	—	—	—	—
HDO 110 4	**108.9**	13.8	30610	48	—	—	—	—	—	—	—
HDO 110 4	**121.7**	12.3	31130	44	—	—	—	—	—	—	—
HDO 110 4	**137.1**	10.9	30410	38	—	—	—	—	—	—	—
HDO 110 4	**154.7**	9.7	31350	35	—	—	—	—	—	—	—
HDO 110 4	**174.3**	8.6	31790	31	—	—	—	—	—	—	—
HDO 110 4	**194.7**	7.7	31570	28	—	—	—	—	—	—	—
HDO 110 4	**215.7**	7.0	31790	25	—	—	—	—	—	—	—
HDO 110 4	**244.4**	6.1	31570	22	—	—	—	—	—	—	—
HDO 110 4	**274.2**	5.5	31790	19.7	—	—	—	—	—	—	—
HDO 110 4	**310.7**	4.8	31570	17.3	—	—	—	—	—	—	—
HDO 110 4	**344.2**	4.4	31790	15.7	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.8	28490	12.3	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

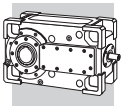


HDO 110 — n_1 = 1200 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	189	22220	458	*	224	288	366	201	229	323
HDO 110 2	**7.0**	170	23580	438	*	226	290	368	203	231	325
HDO 110 2	**8.1**	149	25530	414	*	229	293	371	206	234	328
HDO 110 2	**8.7**	138	23790	357	*	232	296	374	209	237	331
HDO 110 2	**10.0**	120	25960	340	*	234	298	376	211	239	333
HDO 110 2	**10.9**	110	23040	277	130	241	305	—	218	246	340
HDO 110 2	**12.5**	96	25180	264	132	243	307	—	220	248	342
HDO 110 2	**13.5**	89	22480	218	138	249	313	—	226	254	—
HDO 110 2	**15.5**	77	24600	208	139	250	314	—	227	255	—
HDO 110 3	**18.9**	63	26570	188	106	182	233	—	169	190	—
HDO 110 3	**20.9**	57	27780	177	107	183	234	—	170	191	—
HDO 110 3	**22.0**	54	27660	168	110	186	237	—	173	194	—
HDO 110 3	**24.6**	49	27990	152	112	188	239	—	175	196	—
HDO 110 3	**27.2**	44	29540	145	112	188	239	—	175	196	—
HDO 110 3	**30.9**	39	30000	129	114	190	241	—	177	198	—
HDO 110 3	**34.3**	35	29400	115	114	190	241	—	177	198	—
HDO 110 3	**39.3**	31	31100	106	—	—	—	—	—	—	—
HDO 110 3	**43.6**	27.5	29270	90	—	—	—	—	—	—	—
HDO 110 3	**48.0**	25.0	30990	86	—	—	—	—	—	—	—
HDO 110 3	**53.1**	22.6	29160	73	—	—	—	—	—	—	—
HDO 110 3	**61.0**	19.7	31260	68	—	—	—	—	—	—	—
HDO 110 3	**67.5**	17.8	29420	58	—	—	—	—	—	—	—
HDO 110 3	**77.5**	15.5	26590	46	—	—	—	—	—	—	—
HDO 110 4	**77.4**	15.5	31130	55	—	—	—	—	—	—	—
HDO 110 4	**85.7**	14.0	30530	49	—	—	—	—	—	—	—
HDO 110 4	**96.7**	12.4	30740	43	—	—	—	—	—	—	—
HDO 110 4	**108.9**	11.0	31710	40	—	—	—	—	—	—	—
HDO 110 4	**121.7**	9.9	31130	35	—	—	—	—	—	—	—
HDO 110 4	**137.1**	8.8	31790	32	—	—	—	—	—	—	—
HDO 110 4	**154.7**	7.8	31350	28	—	—	—	—	—	—	—
HDO 110 4	**174.3**	6.9	31790	25	—	—	—	—	—	—	—
HDO 110 4	**194.7**	6.2	31570	22	—	—	—	—	—	—	—
HDO 110 4	**215.7**	5.6	31790	20	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.9	31570	17.6	—	—	—	—	—	—	—
HDO 110 4	**274.2**	4.4	31790	15.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.9	31570	13.8	—	—	—	—	—	—	—
HDO 110 4	**344.2**	3.5	31790	12.6	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.0	28490	9.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

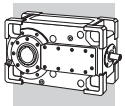


HDO 110 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	189	22220	458	*	*	*	210	*	185	279
HDO 110 2	**7.0**	170	23580	438	*	*	*	212	*	187	281
HDO 110 2	**8.1**	149	25530	414	*	*	171	215	*	190	284
HDO 110 2	**8.7**	138	23790	357	*	158	173	217	164	192	286
HDO 110 2	**10.0**	120	25960	340	*	161	176	220	167	195	289
HDO 110 2	**10.9**	110	23040	277	*	168	183	227	174	202	296
HDO 110 2	**12.5**	96	25180	264	*	170	185	229	176	204	298
HDO 110 2	**13.5**	89	22480	218	93	175	190	234	181	209	303
HDO 110 2	**15.5**	77	24600	208	95	177	192	236	183	211	—
HDO 110 3	**18.9**	63	26570	188	*	128	143	174	135	156	224
HDO 110 3	**20.9**	57	27780	177	73	129	144	175	136	157	225
HDO 110 3	**22.0**	54	27660	168	76	132	147	178	139	160	228
HDO 110 3	**24.6**	49	27990	152	78	134	149	180	141	162	—
HDO 110 3	**27.2**	44	29540	145	78	134	149	—	141	162	—
HDO 110 3	**30.9**	39	30000	129	80	136	151	—	143	164	—
HDO 110 3	**34.3**	35	29400	115	80	136	151	—	143	164	—
HDO 110 3	**39.3**	31	31100	106	82	138	153	—	145	166	—
HDO 110 3	**43.6**	27.5	29270	90	82	138	153	—	145	166	—
HDO 110 3	**48.0**	25.0	30990	86	85	141	156	—	148	169	—
HDO 110 3	**53.1**	22.6	29160	73	—	—	—	—	—	—	—
HDO 110 3	**61.0**	19.7	31260	68	—	—	—	—	—	—	—
HDO 110 3	**67.5**	17.8	29420	58	—	—	—	—	—	—	—
HDO 110 3	**77.5**	15.5	26590	46	—	—	—	—	—	—	—
HDO 110 4	**77.4**	15.5	31130	55	—	—	—	—	—	—	—
HDO 110 4	**85.7**	14.0	30530	49	—	—	—	—	—	—	—
HDO 110 4	**96.7**	12.4	30740	43	—	—	—	—	—	—	—
HDO 110 4	**108.9**	11.0	31710	40	—	—	—	—	—	—	—
HDO 110 4	**121.7**	9.9	31130	35	—	—	—	—	—	—	—
HDO 110 4	**137.1**	8.8	31790	32	—	—	—	—	—	—	—
HDO 110 4	**154.7**	7.8	31350	28	—	—	—	—	—	—	—
HDO 110 4	**174.3**	6.9	31790	25	—	—	—	—	—	—	—
HDO 110 4	**194.7**	6.2	31570	22	—	—	—	—	—	—	—
HDO 110 4	**215.7**	5.6	31790	20	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.9	31570	17.6	—	—	—	—	—	—	—
HDO 110 4	**274.2**	4.4	31790	15.8	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.9	31570	13.8	—	—	—	—	—	—	—
HDO 110 4	**344.2**	3.5	31790	12.6	—	—	—	—	—	—	—
HDO 110 4	**395.0**	3.0	28490	9.8	—	—	—	—	—	—	—

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— Thermal verification not necessary

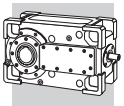


HDO 110 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	157	22220	381	*	210	298	376	211	239	333
HDO 110 2	**7.0**	142	23580	365	*	212	300	378	213	241	335
HDO 110 2	**8.1**	124	25740	347	*	214	302	380	215	243	337
HDO 110 2	**8.7**	115	23790	298	129	216	304	—	217	245	339
HDO 110 2	**10.0**	100	25960	283	131	218	306	—	219	247	341
HDO 110 2	**10.9**	92	23040	231	137	224	312	—	225	253	—
HDO 110 2	**12.5**	80	25180	220	138	225	313	—	226	254	—
HDO 110 2	**13.5**	74	22480	181	143	230	318	—	231	259	—
HDO 110 2	**15.5**	65	24600	173	144	231	319	—	232	260	—
HDO 110 3	**18.9**	53	28060	165	110	169	237	—	173	194	—
HDO 110 3	**20.9**	48	29340	156	110	169	237	—	173	194	—
HDO 110 3	**22.0**	45	29370	148	113	172	240	—	176	197	—
HDO 110 3	**24.6**	41	29750	135	115	174	242	—	178	199	—
HDO 110 3	**27.2**	37	29430	120	115	174	242	—	178	199	—
HDO 110 3	**30.9**	32	31130	112	—	—	—	—	—	—	—
HDO 110 3	**34.3**	29.2	29300	95	—	—	—	—	—	—	—
HDO 110 3	**39.3**	25.4	31000	88	—	—	—	—	—	—	—
HDO 110 3	**43.6**	23.0	29170	74	—	—	—	—	—	—	—
HDO 110 3	**48.0**	20.9	30980	72	—	—	—	—	—	—	—
HDO 110 3	**53.1**	18.8	29160	61	—	—	—	—	—	—	—
HDO 110 3	**61.0**	16.4	31460	57	—	—	—	—	—	—	—
HDO 110 3	**67.5**	14.8	30260	50	—	—	—	—	—	—	—
HDO 110 3	**77.5**	12.9	27370	39	—	—	—	—	—	—	—
HDO 110 4	**77.4**	12.9	31130	46	—	—	—	—	—	—	—
HDO 110 4	**85.7**	11.7	31420	42	—	—	—	—	—	—	—
HDO 110 4	**96.7**	10.3	30740	36	—	—	—	—	—	—	—
HDO 110 4	**108.9**	9.2	31790	33	—	—	—	—	—	—	—
HDO 110 4	**121.7**	8.2	31130	29	—	—	—	—	—	—	—
HDO 110 4	**137.1**	7.3	31790	26	—	—	—	—	—	—	—
HDO 110 4	**154.7**	6.5	31350	23	—	—	—	—	—	—	—
HDO 110 4	**174.3**	5.7	31790	21	—	—	—	—	—	—	—
HDO 110 4	**194.7**	5.1	31570	18.4	—	—	—	—	—	—	—
HDO 110 4	**215.7**	4.6	31790	16.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.1	31570	14.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	3.6	31790	13.2	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.2	31570	11.5	—	—	—	—	—	—	—
HDO 110 4	**344.2**	2.9	31790	10.5	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.5	28490	8.2	—	—	—	—	—	—	—

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— Thermal verification not necessary

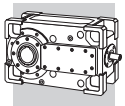


HDO 110 — n_1 = 1000 min^{-1}

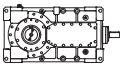
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 110 2	**6.4**	157	22220	381	*	*	175	219	166	194	288
HDO 110 2	**7.0**	142	23580	365	*	*	178	222	169	197	291
HDO 110 2	**8.1**	124	25740	347	*	147	180	224	171	199	293
HDO 110 2	**8.7**	115	23790	298	*	149	182	226	173	201	295
HDO 110 2	**10.0**	100	25960	283	*	151	184	228	175	203	297
HDO 110 2	**10.9**	92	23040	231	93	157	190	234	181	209	303
HDO 110 2	**12.5**	80	25180	220	94	158	191	235	182	210	304
HDO 110 2	**13.5**	74	22480	181	98	162	195	—	186	214	—
HDO 110 2	**15.5**	65	24600	173	99	163	196	—	187	215	—
HDO 110 3	**18.9**	53	28060	165	76	120	147	178	139	160	228
HDO 110 3	**20.9**	48	29340	156	76	120	147	178	139	160	—
HDO 110 3	**22.0**	45	29370	148	79	123	150	—	142	163	—
HDO 110 3	**24.6**	41	29750	135	81	125	152	—	144	165	—
HDO 110 3	**27.2**	37	29430	120	81	125	152	—	144	165	—
HDO 110 3	**30.9**	32	31130	112	82	126	153	—	145	166	—
HDO 110 3	**34.3**	29.2	29300	95	83	127	154	—	146	167	—
HDO 110 3	**39.3**	25.4	31000	88	84	128	155	—	147	168	—
HDO 110 3	**43.6**	23.0	29170	74	—	—	—	—	—	—	—
HDO 110 3	**48.0**	20.9	30980	72	—	—	—	—	—	—	—
HDO 110 3	**53.1**	18.8	29160	61	—	—	—	—	—	—	—
HDO 110 3	**61.0**	16.4	31460	57	—	—	—	—	—	—	—
HDO 110 3	**67.5**	14.8	30260	50	—	—	—	—	—	—	—
HDO 110 3	**77.5**	12.9	27370	39	—	—	—	—	—	—	—
HDO 110 4	**77.4**	12.9	31130	46	—	—	—	—	—	—	—
HDO 110 4	**85.7**	11.7	31420	42	—	—	—	—	—	—	—
HDO 110 4	**96.7**	10.3	30740	36	—	—	—	—	—	—	—
HDO 110 4	**108.9**	9.2	31790	33	—	—	—	—	—	—	—
HDO 110 4	**121.7**	8.2	31130	29	—	—	—	—	—	—	—
HDO 110 4	**137.1**	7.3	31790	26	—	—	—	—	—	—	—
HDO 110 4	**154.7**	6.5	31350	23	—	—	—	—	—	—	—
HDO 110 4	**174.3**	5.7	31790	21	—	—	—	—	—	—	—
HDO 110 4	**194.7**	5.1	31570	18.4	—	—	—	—	—	—	—
HDO 110 4	**215.7**	4.6	31790	16.7	—	—	—	—	—	—	—
HDO 110 4	**244.4**	4.1	31570	14.7	—	—	—	—	—	—	—
HDO 110 4	**274.2**	3.6	31790	13.2	—	—	—	—	—	—	—
HDO 110 4	**310.7**	3.2	31570	11.5	—	—	—	—	—	—	—
HDO 110 4	**344.2**	2.9	31790	10.5	—	—	—	—	—	—	—
HDO 110 4	**395.0**	2.5	28490	8.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

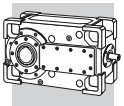


HDO 120 — n_1 = 1800 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	274	26000	777	*	*	*	347	*	*	*
HDO 120 2	**7.2**	252	28310	777	*	*	*	352	*	*	*
HDO 120 2	**8.1**	223	31120	756	*	*	*	358	*	*	315
HDO 120 2	**8.9**	203	32170	713	*	*	*	343	*	*	300
HDO 120 2	**10.0**	180	33950	666	*	*	269	347	*	*	304
HDO 120 2	**11.1**	163	33350	591	*	287	293	371	*	*	328
HDO 120 2	**12.5**	144	35500	557	*	290	296	374	*	237	331
HDO 120 2	**13.7**	131	32500	465	*	304	310	388	223	251	345
HDO 120 2	**15.5**	116	34640	439	*	307	313	391	226	254	348
HDO 120 3	**17.3**	104	29590	343	*	225	236	293	172	193	261
HDO 120 3	**19.5**	92	32780	337	*	226	237	294	173	194	262
HDO 120 3	**21.8**	83	31460	289	117	233	244	301	180	201	269
HDO 120 3	**24.6**	73	32560	265	121	237	248	305	184	205	273
HDO 120 3	**28.3**	64	31840	225	128	244	255	—	191	212	280
HDO 120 3	**32.0**	56	35200	221	131	247	258	—	194	215	283
HDO 120 3	**34.8**	52	35750	206	132	248	259	—	195	216	—
HDO 120 3	**41.2**	44	37510	182	135	251	262	—	198	219	—
HDO 120 3	**44.9**	40	38110	170	135	251	262	—	198	219	—
HDO 120 3	**49.5**	36	34480	139	—	—	—	—	—	—	—
HDO 120 3	**53.9**	33	37560	139	—	—	—	—	—	—	—
HDO 120 3	**63.9**	28.2	38880	122	—	—	—	—	—	—	—
HDO 120 3	**69.6**	25.9	38500	111	—	—	—	—	—	—	—
HDO 120 3	**78.6**	22.9	34920	89	—	—	—	—	—	—	—
HDO 120 4	**87.0**	20.7	33220	78	—	—	—	—	—	—	—
HDO 120 4	**103.1**	17.5	35970	71	—	—	—	—	—	—	—
HDO 120 4	**112.3**	16.0	38500	70	—	—	—	—	—	—	—
HDO 120 4	**125.7**	14.3	36240	59	—	—	—	—	—	—	—
HDO 120 4	**136.9**	13.2	38500	57	—	—	—	—	—	—	—
HDO 120 4	**162.2**	11.1	38880	49	—	—	—	—	—	—	—
HDO 120 4	**179.7**	10.0	37560	43	—	—	—	—	—	—	—
HDO 120 4	**201.1**	9.0	38880	40	—	—	—	—	—	—	—
HDO 120 4	**219.0**	8.2	38500	36	—	—	—	—	—	—	—
HDO 120 4	**252.4**	7.1	38880	31	—	—	—	—	—	—	—
HDO 120 4	**282.7**	6.4	38500	28	—	—	—	—	—	—	—
HDO 120 4	**325.9**	5.5	38880	24	—	—	—	—	—	—	—
HDO 120 4	**354.9**	5.1	40920	24	—	—	—	—	—	—	—
HDO 120 4	**400.6**	4.5	37730	19.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

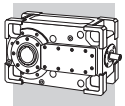


HDO 120 — n_1 = 1800 min^{-1}

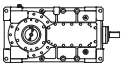
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	274	26000	777	*	*	*	*	*	*	*
HDO 120 2	**7.2**	252	28310	777	*	*	*	*	*	*	*
HDO 120 2	**8.1**	223	31120	756	*	*	*	*	*	*	*
HDO 120 2	**8.9**	203	32170	713	*	*	*	*	*	*	*
HDO 120 2	**10.0**	180	33950	666	*	*	*	*	*	*	*
HDO 120 2	**11.1**	163	33350	591	*	*	*	*	*	*	273
HDO 120 2	**12.5**	144	35500	557	*	*	*	*	*	*	276
HDO 120 2	**13.7**	131	32500	465	*	205	*	222	*	197	291
HDO 120 2	**15.5**	116	34640	439	*	207	180	224	*	199	293
HDO 120 3	**17.3**	104	29590	343	*	152	138	169	*	151	219
HDO 120 3	**19.5**	92	32780	337	*	154	140	171	*	153	221
HDO 120 3	**21.8**	83	31460	289	*	160	146	177	138	159	227
HDO 120 3	**24.6**	73	32560	265	*	164	150	181	142	163	231
HDO 120 3	**28.3**	64	31840	225	*	171	157	188	149	170	238
HDO 120 3	**32.0**	56	35200	221	89	174	160	191	152	173	241
HDO 120 3	**34.8**	52	35750	206	90	175	161	192	153	174	242
HDO 120 3	**41.2**	44	37510	182	93	178	164	195	156	177	245
HDO 120 3	**44.9**	40	38110	170	94	179	165	196	157	178	—
HDO 120 3	**49.5**	36	34480	139	99	184	170	—	162	183	—
HDO 120 3	**53.9**	33	37560	139	99	184	170	—	162	183	—
HDO 120 3	**63.9**	28.2	38880	122	101	186	172	—	164	185	—
HDO 120 3	**69.6**	25.9	38500	111	101	186	172	—	164	185	—
HDO 120 3	**78.6**	22.9	34920	89	—	—	—	—	—	—	—
HDO 120 4	**87.0**	20.7	33220	78	75	140	130	—	123	141	—
HDO 120 4	**103.1**	17.5	35970	71	—	—	—	—	—	—	—
HDO 120 4	**112.3**	16.0	38500	70	—	—	—	—	—	—	—
HDO 120 4	**125.7**	14.3	36240	59	—	—	—	—	—	—	—
HDO 120 4	**136.9**	13.2	38500	57	—	—	—	—	—	—	—
HDO 120 4	**162.2**	11.1	38880	49	—	—	—	—	—	—	—
HDO 120 4	**179.7**	10.0	37560	43	—	—	—	—	—	—	—
HDO 120 4	**201.1**	9.0	38880	40	—	—	—	—	—	—	—
HDO 120 4	**219.0**	8.2	38500	36	—	—	—	—	—	—	—
HDO 120 4	**252.4**	7.1	38880	31	—	—	—	—	—	—	—
HDO 120 4	**282.7**	6.4	38500	28	—	—	—	—	—	—	—
HDO 120 4	**325.9**	5.5	38880	24	—	—	—	—	—	—	—
HDO 120 4	**354.9**	5.1	40920	24	—	—	—	—	—	—	—
HDO 120 4	**400.6**	4.5	37730	19.2	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

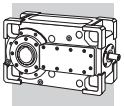


HDO 120 — n_1 = 1500 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	228	27460	684	*	*	294	372	*	*	329
HDO 120 2	**7.2**	210	29900	684	*	*	298	376	*	*	333
HDO 120 2	**8.1**	186	32870	666	*	274	302	380	*	*	337
HDO 120 2	**8.9**	169	33980	627	*	263	291	369	*	*	326
HDO 120 2	**10.0**	150	35860	586	*	266	294	372	*	235	329
HDO 120 2	**11.1**	135	33350	493	*	284	312	390	225	253	347
HDO 120 2	**12.5**	120	35500	464	*	287	315	393	228	256	350
HDO 120 2	**13.7**	109	32500	387	*	298	326	404	239	267	361
HDO 120 2	**15.5**	97	34640	365	153	300	328	406	241	269	363
HDO 120 3	**17.3**	87	31620	306	*	221	247	304	183	204	272
HDO 120 3	**19.5**	77	34750	298	121	222	248	305	184	205	273
HDO 120 3	**21.8**	69	33390	256	126	227	253	310	189	210	278
HDO 120 3	**24.6**	61	34510	234	129	230	256	—	192	213	281
HDO 120 3	**28.3**	53	33780	199	134	235	261	—	197	218	—
HDO 120 3	**32.0**	47	37340	195	137	238	264	—	200	221	—
HDO 120 3	**34.8**	43	37920	182	137	238	264	—	200	221	—
HDO 120 3	**41.2**	36	39780	161	140	241	267	—	203	224	—
HDO 120 3	**44.9**	33	39130	145	140	241	267	—	203	224	—
HDO 120 3	**49.5**	30	36900	124	—	—	—	—	—	—	—
HDO 120 3	**53.9**	27.8	38990	121	—	—	—	—	—	—	—
HDO 120 3	**63.9**	23.5	40250	105	—	—	—	—	—	—	—
HDO 120 3	**69.6**	21.5	38800	93	—	—	—	—	—	—	—
HDO 120 3	**78.6**	19.1	35760	76	—	—	—	—	—	—	—
HDO 120 4	**87.0**	17.2	35210	69	—	—	—	—	—	—	—
HDO 120 4	**103.1**	14.5	38150	63	—	—	—	—	—	—	—
HDO 120 4	**112.3**	13.4	40820	62	—	—	—	—	—	—	—
HDO 120 4	**125.7**	11.9	38460	52	—	—	—	—	—	—	—
HDO 120 4	**136.9**	11.0	40920	51	—	—	—	—	—	—	—
HDO 120 4	**162.2**	9.2	41250	43	—	—	—	—	—	—	—
HDO 120 4	**179.7**	8.3	39850	38	—	—	—	—	—	—	—
HDO 120 4	**201.1**	7.5	41250	35	—	—	—	—	—	—	—
HDO 120 4	**219.0**	6.8	40920	32	—	—	—	—	—	—	—
HDO 120 4	**252.4**	5.9	41250	28	—	—	—	—	—	—	—
HDO 120 4	**282.7**	5.3	40920	25	—	—	—	—	—	—	—
HDO 120 4	**325.9**	4.6	41250	22	—	—	—	—	—	—	—
HDO 120 4	**354.9**	4.2	40920	19.6	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.7	37730	16.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

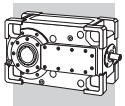


HDO 120 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	228	27460	684	*	*	*	*	*	*	275
HDO 120 2	**7.2**	210	29900	684	*	*	*	*	*	*	278
HDO 120 2	**8.1**	186	32870	666	*	*	*	*	*	*	283
HDO 120 2	**8.9**	169	33980	627	*	*	*	*	*	*	271
HDO 120 2	**10.0**	150	35860	586	*	*	*	*	*	*	274
HDO 120 2	**11.1**	135	33350	493	*	*	*	224	*	199	293
HDO 120 2	**12.5**	120	35500	464	*	193	*	226	*	201	295
HDO 120 2	**13.7**	109	32500	387	*	204	193	237	184	212	306
HDO 120 2	**15.5**	97	34640	365	*	206	195	239	186	214	308
HDO 120 3	**17.3**	87	31620	306	*	152	149	180	141	162	230
HDO 120 3	**19.5**	77	34750	298	*	153	150	181	142	163	231
HDO 120 3	**21.8**	69	33390	256	*	158	155	186	147	168	236
HDO 120 3	**24.6**	61	34510	234	*	161	158	189	150	171	239
HDO 120 3	**28.3**	53	33780	199	92	166	163	194	155	176	244
HDO 120 3	**32.0**	47	37340	195	95	169	166	197	158	179	247
HDO 120 3	**34.8**	43	37920	182	95	169	166	197	158	179	247
HDO 120 3	**41.2**	36	39780	161	98	172	169	—	161	182	—
HDO 120 3	**44.9**	33	39130	145	98	172	169	—	161	182	—
HDO 120 3	**49.5**	30	36900	124	102	176	173	—	165	186	—
HDO 120 3	**53.9**	27.8	38990	121	102	176	173	—	165	186	—
HDO 120 3	**63.9**	23.5	40250	105	104	178	175	—	167	188	—
HDO 120 3	**69.6**	21.5	38800	93	—	—	—	—	—	—	—
HDO 120 3	**78.6**	19.1	35760	76	—	—	—	—	—	—	—
HDO 120 4	**87.0**	17.2	35210	69	—	—	—	—	—	—	—
HDO 120 4	**103.1**	14.5	38150	63	—	—	—	—	—	—	—
HDO 120 4	**112.3**	13.4	40820	62	—	—	—	—	—	—	—
HDO 120 4	**125.7**	11.9	38460	52	—	—	—	—	—	—	—
HDO 120 4	**136.9**	11.0	40920	51	—	—	—	—	—	—	—
HDO 120 4	**162.2**	9.2	41250	43	—	—	—	—	—	—	—
HDO 120 4	**179.7**	8.3	39850	38	—	—	—	—	—	—	—
HDO 120 4	**201.1**	7.5	41250	35	—	—	—	—	—	—	—
HDO 120 4	**219.0**	6.8	40920	32	—	—	—	—	—	—	—
HDO 120 4	**252.4**	5.9	41250	28	—	—	—	—	—	—	—
HDO 120 4	**282.7**	5.3	40920	25	—	—	—	—	—	—	—
HDO 120 4	**325.9**	4.6	41250	22	—	—	—	—	—	—	—
HDO 120 4	**354.9**	4.2	40920	19.6	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.7	37730	16.0	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

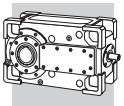


HDO 120 — n_1 = 1200 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	183	29360	585	*	269	312	390	*	253	347
HDO 120 2	**7.2**	168	31970	585	*	272	315	393	*	256	350
HDO 120 2	**8.1**	149	35120	569	*	276	319	397	232	260	354
HDO 120 2	**8.9**	135	34440	509	*	267	310	388	223	251	345
HDO 120 2	**10.0**	120	36600	479	*	269	312	390	225	253	347
HDO 120 2	**11.1**	108	33350	394	*	283	326	404	239	267	361
HDO 120 2	**12.5**	96	35500	372	153	285	328	406	241	269	363
HDO 120 2	**13.7**	87	32500	310	162	294	337	—	250	278	372
HDO 120 2	**15.5**	77	34640	292	163	295	338	—	251	279	373
HDO 120 3	**17.3**	70	32720	253	127	218	254	—	190	211	279
HDO 120 3	**19.5**	62	35370	242	128	219	255	—	191	212	280
HDO 120 3	**21.8**	55	35700	219	132	223	259	—	195	216	284
HDO 120 3	**24.6**	49	36900	200	135	226	262	—	198	219	—
HDO 120 3	**28.3**	42	36120	170	139	230	266	—	202	223	—
HDO 120 3	**32.0**	38	38110	159	141	232	268	—	204	225	—
HDO 120 3	**34.8**	34	39150	150	141	232	268	—	204	225	—
HDO 120 3	**41.2**	29.1	40410	131	—	—	—	—	—	—	—
HDO 120 3	**44.9**	26.7	38960	116	—	—	—	—	—	—	—
HDO 120 3	**49.5**	24.2	37620	101	—	—	—	—	—	—	—
HDO 120 3	**53.9**	22.2	38830	96	—	—	—	—	—	—	—
HDO 120 3	**63.9**	18.8	40680	85	—	—	—	—	—	—	—
HDO 120 3	**69.6**	17.2	39240	75	—	—	—	—	—	—	—
HDO 120 3	**78.6**	15.3	36170	61	—	—	—	—	—	—	—
HDO 120 4	**87.0**	13.8	37650	59	—	—	—	—	—	—	—
HDO 120 4	**103.1**	11.6	38940	51	—	—	—	—	—	—	—
HDO 120 4	**112.3**	10.7	38720	47	—	—	—	—	—	—	—
HDO 120 4	**125.7**	9.5	40970	44	—	—	—	—	—	—	—
HDO 120 4	**136.9**	8.8	40920	41	—	—	—	—	—	—	—
HDO 120 4	**162.2**	7.4	41250	35	—	—	—	—	—	—	—
HDO 120 4	**179.7**	6.7	40200	30	—	—	—	—	—	—	—
HDO 120 4	**201.1**	6.0	41250	28	—	—	—	—	—	—	—
HDO 120 4	**219.0**	5.5	40920	25	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.8	41250	22	—	—	—	—	—	—	—
HDO 120 4	**282.7**	4.2	40920	19.7	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.7	41250	17.2	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.4	40920	15.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.0	37730	12.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

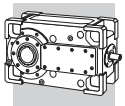


HDO 120 — n_1 = 1200 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	183	29360	585	*	*	*	*	*	*	293
HDO 120 2	**7.2**	168	31970	585	*	*	*	*	*	*	296
HDO 120 2	**8.1**	149	35120	569	*	*	*	230	*	*	299
HDO 120 2	**8.9**	135	34440	509	*	*	*	221	*	*	290
HDO 120 2	**10.0**	120	36600	479	*	*	*	224	*	199	293
HDO 120 2	**11.1**	108	33350	394	*	194	194	238	185	213	307
HDO 120 2	**12.5**	96	35500	372	*	196	196	240	187	215	309
HDO 120 2	**13.7**	87	32500	310	*	204	204	248	195	223	317
HDO 120 2	**15.5**	77	34640	292	*	206	206	250	197	225	319
HDO 120 3	**17.3**	70	32720	253	*	153	157	188	149	170	238
HDO 120 3	**19.5**	62	35370	242	*	153	157	188	149	170	238
HDO 120 3	**21.8**	55	35700	219	90	157	161	192	153	174	242
HDO 120 3	**24.6**	49	36900	200	93	160	164	195	156	177	245
HDO 120 3	**28.3**	42	36120	170	97	164	168	199	160	181	—
HDO 120 3	**32.0**	38	38110	159	99	166	170	—	162	183	—
HDO 120 3	**34.8**	34	39150	150	99	166	170	—	162	183	—
HDO 120 3	**41.2**	29.1	40410	131	101	168	172	—	164	185	—
HDO 120 3	**44.9**	26.7	38960	116	101	168	172	—	164	185	—
HDO 120 3	**49.5**	24.2	37620	101	—	—	—	—	—	—	—
HDO 120 3	**53.9**	22.2	38830	96	—	—	—	—	—	—	—
HDO 120 3	**63.9**	18.8	40680	85	—	—	—	—	—	—	—
HDO 120 3	**69.6**	17.2	39240	75	—	—	—	—	—	—	—
HDO 120 3	**78.6**	15.3	36170	61	—	—	—	—	—	—	—
HDO 120 4	**87.0**	13.8	37650	59	—	—	—	—	—	—	—
HDO 120 4	**103.1**	11.6	38940	51	—	—	—	—	—	—	—
HDO 120 4	**112.3**	10.7	38720	47	—	—	—	—	—	—	—
HDO 120 4	**125.7**	9.5	40970	44	—	—	—	—	—	—	—
HDO 120 4	**136.9**	8.8	40920	41	—	—	—	—	—	—	—
HDO 120 4	**162.2**	7.4	41250	35	—	—	—	—	—	—	—
HDO 120 4	**179.7**	6.7	40200	30	—	—	—	—	—	—	—
HDO 120 4	**201.1**	6.0	41250	28	—	—	—	—	—	—	—
HDO 120 4	**219.0**	5.5	40920	25	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.8	41250	22	—	—	—	—	—	—	—
HDO 120 4	**282.7**	4.2	40920	19.7	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.7	41250	17.2	—	—	—	—	—	—	—
HDO 120 4	**354.9**	3.4	40920	15.7	—	—	—	—	—	—	—
HDO 120 4	**400.6**	3.0	37730	12.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

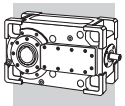


HDO 120 — n_1 = 1000 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	152	31010	515	*	253	325	403	238	266	360
HDO 120 2	**7.2**	140	32970	502	*	255	327	405	240	268	362
HDO 120 2	**8.1**	124	35120	474	*	258	330	408	243	271	365
HDO 120 2	**8.9**	113	34450	424	*	251	323	401	236	264	358
HDO 120 2	**10.0**	100	36600	399	*	253	325	403	238	266	360
HDO 120 2	**11.1**	90	33350	328	161	264	336	—	249	277	371
HDO 120 2	**12.5**	80	35500	310	163	266	338	—	251	279	373
HDO 120 2	**13.7**	73	32500	258	170	273	345	—	258	286	—
HDO 120 2	**15.5**	65	34640	244	171	274	346	—	259	287	—
HDO 120 3	**17.3**	58	32720	211	133	204	260	—	196	217	—
HDO 120 3	**19.5**	51	35200	201	133	204	260	—	196	217	—
HDO 120 3	**21.8**	46	37700	192	136	207	263	—	199	220	—
HDO 120 3	**24.6**	41	38980	176	139	210	266	—	202	223	—
HDO 120 3	**28.3**	35	36250	142	142	213	269	—	205	226	—
HDO 120 3	**32.0**	31	38110	133	—	—	—	—	—	—	—
HDO 120 3	**34.8**	28.7	39010	125	—	—	—	—	—	—	—
HDO 120 3	**41.2**	24.2	40270	109	—	—	—	—	—	—	—
HDO 120 3	**44.9**	22.3	38830	96	—	—	—	—	—	—	—
HDO 120 3	**49.5**	20.2	37620	85	—	—	—	—	—	—	—
HDO 120 3	**53.9**	18.5	38800	80	—	—	—	—	—	—	—
HDO 120 3	**63.9**	15.6	41250	72	—	—	—	—	—	—	—
HDO 120 3	**69.6**	14.4	40360	64	—	—	—	—	—	—	—
HDO 120 3	**78.6**	12.7	37220	53	—	—	—	—	—	—	—
HDO 120 4	**87.0**	11.5	39760	52	—	—	—	—	—	—	—
HDO 120 4	**103.1**	9.7	41250	45	—	—	—	—	—	—	—
HDO 120 4	**112.3**	8.9	40920	41	—	—	—	—	—	—	—
HDO 120 4	**125.7**	8.0	41250	37	—	—	—	—	—	—	—
HDO 120 4	**136.9**	7.3	40920	34	—	—	—	—	—	—	—
HDO 120 4	**162.2**	6.2	41250	29	—	—	—	—	—	—	—
HDO 120 4	**179.7**	5.6	40920	26	—	—	—	—	—	—	—
HDO 120 4	**201.1**	5.0	41250	23	—	—	—	—	—	—	—
HDO 120 4	**219.0**	4.6	40920	21	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.0	41250	18.6	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.5	40920	16.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.1	41250	14.4	—	—	—	—	—	—	—
HDO 120 4	**354.9**	2.8	40920	13.1	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.5	37730	10.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

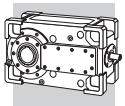


HDO 120 — n_1 = 1000 min^{-1}

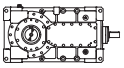
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 120 2	**6.6**	152	31010	515	*	*	*	236	*	211	305
HDO 120 2	**7.2**	140	32970	502	*	*	*	239	*	214	308
HDO 120 2	**8.1**	124	35120	474	*	*	197	241	*	216	310
HDO 120 2	**8.9**	113	34450	424	*	*	190	234	181	209	303
HDO 120 2	**10.0**	100	36600	399	*	170	192	236	183	211	305
HDO 120 2	**11.1**	90	33350	328	*	182	204	248	195	223	317
HDO 120 2	**12.5**	80	35500	310	*	183	205	249	196	224	318
HDO 120 2	**13.7**	73	32500	258	115	190	212	256	203	231	325
HDO 120 2	**15.5**	65	34640	244	116	191	213	257	204	232	326
HDO 120 3	**17.3**	58	32720	211	91	143	162	193	154	175	243
HDO 120 3	**19.5**	51	35200	201	92	144	163	194	155	176	244
HDO 120 3	**21.8**	46	37700	192	95	147	166	197	158	179	247
HDO 120 3	**24.6**	41	38980	176	97	149	168	199	160	181	—
HDO 120 3	**28.3**	35	36250	142	100	152	171	—	163	184	—
HDO 120 3	**32.0**	31	38110	133	102	154	173	—	165	186	—
HDO 120 3	**34.8**	28.7	39010	125	102	154	173	—	165	186	—
HDO 120 3	**41.2**	24.2	40270	109	103	155	174	—	166	187	—
HDO 120 3	**44.9**	22.3	38830	96	—	—	—	—	—	—	—
HDO 120 3	**49.5**	20.2	37620	85	—	—	—	—	—	—	—
HDO 120 3	**53.9**	18.5	38800	80	—	—	—	—	—	—	—
HDO 120 3	**63.9**	15.6	41250	72	—	—	—	—	—	—	—
HDO 120 3	**69.6**	14.4	40360	64	—	—	—	—	—	—	—
HDO 120 3	**78.6**	12.7	37220	53	—	—	—	—	—	—	—
HDO 120 4	**87.0**	11.5	39760	52	—	—	—	—	—	—	—
HDO 120 4	**103.1**	9.7	41250	45	—	—	—	—	—	—	—
HDO 120 4	**112.3**	8.9	40920	41	—	—	—	—	—	—	—
HDO 120 4	**125.7**	8.0	41250	37	—	—	—	—	—	—	—
HDO 120 4	**136.9**	7.3	40920	34	—	—	—	—	—	—	—
HDO 120 4	**162.2**	6.2	41250	29	—	—	—	—	—	—	—
HDO 120 4	**179.7**	5.6	40920	26	—	—	—	—	—	—	—
HDO 120 4	**201.1**	5.0	41250	23	—	—	—	—	—	—	—
HDO 120 4	**219.0**	4.6	40920	21	—	—	—	—	—	—	—
HDO 120 4	**252.4**	4.0	41250	18.6	—	—	—	—	—	—	—
HDO 120 4	**282.7**	3.5	40920	16.4	—	—	—	—	—	—	—
HDO 120 4	**325.9**	3.1	41250	14.4	—	—	—	—	—	—	—
HDO 120 4	**354.9**	2.8	40920	13.1	—	—	—	—	—	—	—
HDO 120 4	**400.6**	2.5	37730	10.7	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

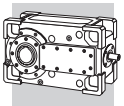


HDO 125 — n_1 = 1800 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	243	29330	777	*	330	336	414	*	*	371
HDO 125 2	**8.0**	226	31560	777	*	334	340	418	*	*	375
HDO 125 2	**8.8**	204	34940	776	*	338	344	422	*	*	379
HDO 125 2	**9.9**	182	36250	720	*	339	345	423	*	*	380
HDO 125 2	**11.5**	157	35910	614	*	353	359	437	272	300	394
HDO 125 2	**12.3**	146	37300	593	*	356	362	440	275	303	397
HDO 125 2	**14.2**	127	34960	482	*	342	348	426	261	289	383
HDO 125 2	**15.3**	118	36350	466	*	343	349	427	262	290	384
HDO 125 2	**16.9**	106	38880	450	190	359	365	443	278	306	400
HDO 125 3	**19.2**	94	33640	350	*	254	265	322	201	222	290
HDO 125 3	**22.6**	80	35190	312	144	260	271	328	207	228	296
HDO 125 3	**24.3**	74	37860	312	148	264	275	332	211	232	300
HDO 125 3	**27.7**	65	38150	275	155	271	282	—	218	239	307
HDO 125 3	**33.0**	54	41240	250	159	275	286	—	222	243	311
HDO 125 3	**35.8**	50	41760	234	159	275	286	—	222	243	—
HDO 125 3	**38.8**	46	43250	223	160	276	287	—	223	244	—
HDO 125 3	**43.0**	42	44620	208	160	276	287	—	223	244	—
HDO 125 3	**50.1**	36	46050	184	163	279	290	—	226	247	—
HDO 125 3	**55.4**	32	46570	168	163	279	290	—	226	247	—
HDO 125 3	**60.1**	29.9	42420	141	—	—	—	—	—	—	—
HDO 125 3	**72.1**	25.0	47620	132	—	—	—	—	—	—	—
HDO 125 3	**77.6**	23.2	49240	127	—	—	—	—	—	—	—
HDO 125 3	**85.9**	20.9	46160	108	—	—	—	—	—	—	—
HDO 125 4	**97.0**	18.6	37170	78	—	—	—	—	—	—	—
HDO 125 4	**116.3**	15.5	44590	78	—	—	—	—	—	—	—
HDO 125 4	**125.2**	14.4	47980	78	—	—	—	—	—	—	—
HDO 125 4	**141.8**	12.7	42600	61	—	—	—	—	—	—	—
HDO 125 4	**152.6**	11.8	45850	61	—	—	—	—	—	—	—
HDO 125 4	**178.0**	10.1	46190	53	—	—	—	—	—	—	—
HDO 125 4	**200.3**	9.0	42070	43	—	—	—	—	—	—	—
HDO 125 4	**226.9**	7.9	47230	43	—	—	—	—	—	—	—
HDO 125 4	**244.1**	7.4	48720	41	—	—	—	—	—	—	—
HDO 125 4	**284.8**	6.3	47230	34	—	—	—	—	—	—	—
HDO 125 4	**315.2**	5.7	49240	32	—	—	—	—	—	—	—
HDO 125 4	**367.6**	4.9	47750	27	—	—	—	—	—	—	—
HDO 125 4	**395.6**	4.5	49240	25	—	—	—	—	—	—	—
HDO 125 4	**438.0**	4.1	49240	23	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

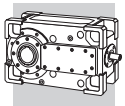


HDO 125 — n_1 = 1800 min^{-1}

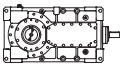
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	243	29330	777	*	*	*	*	*	*	*
HDO 125 2	**8.0**	226	31560	777	*	*	*	*	*	*	*
HDO 125 2	**8.8**	204	34940	776	*	*	*	*	*	*	314
HDO 125 2	**9.9**	182	36250	720	*	*	*	*	*	*	316
HDO 125 2	**11.5**	157	35910	614	*	*	*	261	*	*	330
HDO 125 2	**12.3**	146	37300	593	*	246	*	263	*	238	332
HDO 125 2	**14.2**	127	34960	482	*	232	205	249	196	224	318
HDO 125 2	**15.3**	118	36350	466	*	233	206	250	197	225	319
HDO 125 2	**16.9**	106	38880	450	*	250	223	267	214	242	336
HDO 125 3	**19.2**	94	33640	350	*	174	160	191	152	173	241
HDO 125 3	**22.6**	80	35190	312	*	180	166	197	158	179	247
HDO 125 3	**24.3**	74	37860	312	*	184	170	201	162	183	251
HDO 125 3	**27.7**	65	38150	275	*	191	177	208	169	190	258
HDO 125 3	**33.0**	54	41240	250	109	194	180	211	172	193	261
HDO 125 3	**35.8**	50	41760	234	109	194	180	211	172	193	261
HDO 125 3	**38.8**	46	43250	223	111	196	182	213	174	195	263
HDO 125 3	**43.0**	42	44620	208	111	196	182	213	174	195	263
HDO 125 3	**50.1**	36	46050	184	113	198	184	—	176	197	—
HDO 125 3	**55.4**	32	46570	168	113	198	184	—	176	197	—
HDO 125 3	**60.1**	29.9	42420	141	119	204	190	—	182	203	—
HDO 125 3	**72.1**	25.0	47620	132	119	204	190	—	182	203	—
HDO 125 3	**77.6**	23.2	49240	127	121	206	192	—	184	205	—
HDO 125 3	**85.9**	20.9	46160	108	—	—	—	—	—	—	—
HDO 125 4	**97.0**	18.6	37170	78	—	—	—	—	—	—	—
HDO 125 4	**116.3**	15.5	44590	78	—	—	—	—	—	—	—
HDO 125 4	**125.2**	14.4	47980	78	—	—	—	—	—	—	—
HDO 125 4	**141.8**	12.7	42600	61	—	—	—	—	—	—	—
HDO 125 4	**152.6**	11.8	45850	61	—	—	—	—	—	—	—
HDO 125 4	**178.0**	10.1	46190	53	—	—	—	—	—	—	—
HDO 125 4	**200.3**	9.0	42070	43	—	—	—	—	—	—	—
HDO 125 4	**226.9**	7.9	47230	43	—	—	—	—	—	—	—
HDO 125 4	**244.1**	7.4	48720	41	—	—	—	—	—	—	—
HDO 125 4	**284.8**	6.3	47230	34	—	—	—	—	—	—	—
HDO 125 4	**315.2**	5.7	49240	32	—	—	—	—	—	—	—
HDO 125 4	**367.6**	4.9	47750	27	—	—	—	—	—	—	—
HDO 125 4	**395.6**	4.5	49240	25	—	—	—	—	—	—	—
HDO 125 4	**438.0**	4.1	49240	23	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

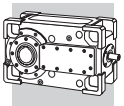


HDO 125 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	202	30980	684	*	326	354	432	*	295	389
HDO 125 2	**8.0**	188	33330	683	*	329	357	435	*	298	392
HDO 125 2	**8.8**	170	36910	684	*	332	360	438	*	301	395
HDO 125 2	**9.9**	152	38280	634	*	333	361	439	274	302	396
HDO 125 2	**11.5**	131	35910	512	*	344	372	450	285	313	407
HDO 125 2	**12.3**	122	37300	494	199	346	374	452	287	315	409
HDO 125 2	**14.2**	105	34970	402	188	335	363	441	276	304	398
HDO 125 2	**15.3**	98	36350	388	189	336	364	442	277	305	399
HDO 125 2	**16.9**	89	38880	375	201	348	376	—	289	317	411
HDO 125 3	**19.2**	78	35530	308	148	249	275	332	211	232	300
HDO 125 3	**22.6**	66	37160	275	153	254	280	—	216	237	305
HDO 125 3	**24.3**	62	39990	275	156	257	283	—	219	240	308
HDO 125 3	**27.7**	54	40300	243	161	262	288	—	224	245	—
HDO 125 3	**33.0**	45	43560	220	164	265	291	—	227	248	—
HDO 125 3	**35.8**	42	44100	206	164	265	291	—	227	248	—
HDO 125 3	**38.8**	39	45680	197	165	266	292	—	228	249	—
HDO 125 3	**43.0**	35	46650	181	165	266	292	—	228	249	—
HDO 125 3	**50.1**	30	48640	162	—	—	—	—	—	—	—
HDO 125 3	**55.4**	27.1	46390	140	—	—	—	—	—	—	—
HDO 125 3	**60.1**	24.9	44800	124	—	—	—	—	—	—	—
HDO 125 3	**72.1**	20.8	47750	110	—	—	—	—	—	—	—
HDO 125 3	**77.6**	19.3	49240	106	—	—	—	—	—	—	—
HDO 125 3	**85.9**	17.5	46010	89	—	—	—	—	—	—	—
HDO 125 4	**97.0**	15.5	39260	69	—	—	—	—	—	—	—
HDO 125 4	**116.3**	12.9	47090	69	—	—	—	—	—	—	—
HDO 125 4	**125.2**	12.0	49240	67	—	—	—	—	—	—	—
HDO 125 4	**141.8**	10.6	45000	54	—	—	—	—	—	—	—
HDO 125 4	**152.6**	9.8	48420	54	—	—	—	—	—	—	—
HDO 125 4	**178.0**	8.4	47230	45	—	—	—	—	—	—	—
HDO 125 4	**200.3**	7.5	44430	38	—	—	—	—	—	—	—
HDO 125 4	**226.9**	6.6	47230	35	—	—	—	—	—	—	—
HDO 125 4	**244.1**	6.1	48720	34	—	—	—	—	—	—	—
HDO 125 4	**284.8**	5.3	47230	28	—	—	—	—	—	—	—
HDO 125 4	**315.2**	4.8	49240	27	—	—	—	—	—	—	—
HDO 125 4	**367.6**	4.1	47750	22	—	—	—	—	—	—	—
HDO 125 4	**395.6**	3.8	49240	21	—	—	—	—	—	—	—
HDO 125 4	**438.0**	3.4	49240	19.1	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

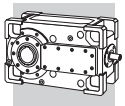


HDO 125 — n_1 = 1500 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	202	30980	684	*	*	*	*	*	*	324
HDO 125 2	**8.0**	188	33330	683	*	*	*	*	*	*	327
HDO 125 2	**8.8**	170	36910	684	*	*	*	*	*	*	330
HDO 125 2	**9.9**	152	38280	634	*	*	*	262	*	*	331
HDO 125 2	**11.5**	131	35910	512	*	240	229	273	220	248	342
HDO 125 2	**12.3**	122	37300	494	*	242	231	275	222	250	344
HDO 125 2	**14.2**	105	34970	402	*	231	220	264	211	239	333
HDO 125 2	**15.3**	98	36350	388	*	232	221	265	212	240	334
HDO 125 2	**16.9**	89	38880	375	*	245	234	278	225	253	347
HDO 125 3	**19.2**	78	35530	308	*	173	170	201	162	183	251
HDO 125 3	**22.6**	66	37160	275	*	178	175	206	167	188	256
HDO 125 3	**24.3**	62	39990	275	*	181	178	209	170	191	259
HDO 125 3	**27.7**	54	40300	243	112	186	183	214	175	196	264
HDO 125 3	**33.0**	45	43560	220	115	189	186	217	178	199	267
HDO 125 3	**35.8**	42	44100	206	115	189	186	217	178	199	267
HDO 125 3	**38.8**	39	45680	197	116	190	187	218	179	200	—
HDO 125 3	**43.0**	35	46650	181	116	190	187	—	179	200	—
HDO 125 3	**50.1**	30	48640	162	118	192	189	—	181	202	—
HDO 125 3	**55.4**	27.1	46390	140	118	192	189	—	181	202	—
HDO 125 3	**60.1**	24.9	44800	124	122	196	193	—	185	206	—
HDO 125 3	**72.1**	20.8	47750	110	—	—	—	—	—	—	—
HDO 125 3	**77.6**	19.3	49240	106	—	—	—	—	—	—	—
HDO 125 3	**85.9**	17.5	46010	89	—	—	—	—	—	—	—
HDO 125 4	**97.0**	15.5	39260	69	—	—	—	—	—	—	—
HDO 125 4	**116.3**	12.9	47090	69	—	—	—	—	—	—	—
HDO 125 4	**125.2**	12.0	49240	67	—	—	—	—	—	—	—
HDO 125 4	**141.8**	10.6	45000	54	—	—	—	—	—	—	—
HDO 125 4	**152.6**	9.8	48420	54	—	—	—	—	—	—	—
HDO 125 4	**178.0**	8.4	47230	45	—	—	—	—	—	—	—
HDO 125 4	**200.3**	7.5	44430	38	—	—	—	—	—	—	—
HDO 125 4	**226.9**	6.6	47230	35	—	—	—	—	—	—	—
HDO 125 4	**244.1**	6.1	48720	34	—	—	—	—	—	—	—
HDO 125 4	**284.8**	5.3	47230	28	—	—	—	—	—	—	—
HDO 125 4	**315.2**	4.8	49240	27	—	—	—	—	—	—	—
HDO 125 4	**367.6**	4.1	47750	22	—	—	—	—	—	—	—
HDO 125 4	**395.6**	3.8	49240	21	—	—	—	—	—	—	—
HDO 125 4	**438.0**	3.4	49240	19.1	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

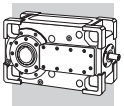


HDO 125 — n_1 = 1200 min^{-1}

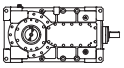
					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	162	33130	585	*	324	367	445	280	308	402
HDO 125 2	**8.0**	150	35650	585	*	327	370	448	283	311	405
HDO 125 2	**8.8**	136	39430	584	*	329	372	450	285	313	407
HDO 125 2	**9.9**	122	38520	510	*	330	373	451	286	314	408
HDO 125 2	**11.5**	105	35910	410	206	338	381	459	294	322	416
HDO 125 2	**12.3**	97	37300	395	208	340	383	461	296	324	418
HDO 125 2	**14.2**	84	34970	322	199	331	374	—	287	315	409
HDO 125 2	**15.3**	78	36350	311	200	332	375	—	288	316	—
HDO 125 2	**16.9**	71	38880	300	210	342	385	—	298	326	—
HDO 125 3	**19.2**	62	36480	253	156	247	283	—	219	240	308
HDO 125 3	**22.6**	53	39740	235	159	250	286	—	222	243	—
HDO 125 3	**24.3**	49	42760	235	162	253	289	—	225	246	—
HDO 125 3	**27.7**	43	43090	207	166	257	293	—	229	250	—
HDO 125 3	**33.0**	36	46570	188	168	259	295	—	231	252	—
HDO 125 3	**35.8**	34	47160	176	168	259	295	—	231	252	—
HDO 125 3	**38.8**	31	46270	159	—	—	—	—	—	—	—
HDO 125 3	**43.0**	27.9	46420	144	—	—	—	—	—	—	—
HDO 125 3	**50.1**	24.0	49240	131	—	—	—	—	—	—	—
HDO 125 3	**55.4**	21.6	46190	111	—	—	—	—	—	—	—
HDO 125 3	**60.1**	20.0	47910	106	—	—	—	—	—	—	—
HDO 125 3	**72.1**	16.6	47750	88	—	—	—	—	—	—	—
HDO 125 3	**77.6**	15.5	49240	85	—	—	—	—	—	—	—
HDO 125 3	**85.9**	14.0	46530	72	—	—	—	—	—	—	—
HDO 125 4	**97.0**	12.4	41970	59	—	—	—	—	—	—	—
HDO 125 4	**116.3**	10.3	47750	56	—	—	—	—	—	—	—
HDO 125 4	**125.2**	9.6	49240	54	—	—	—	—	—	—	—
HDO 125 4	**141.8**	8.5	47230	45	—	—	—	—	—	—	—
HDO 125 4	**152.6**	7.9	48720	43	—	—	—	—	—	—	—
HDO 125 4	**178.0**	6.7	47230	36	—	—	—	—	—	—	—
HDO 125 4	**200.3**	6.0	47510	32	—	—	—	—	—	—	—
HDO 125 4	**226.9**	5.3	47230	28	—	—	—	—	—	—	—
HDO 125 4	**244.1**	4.9	48720	27	—	—	—	—	—	—	—
HDO 125 4	**284.8**	4.2	47230	23	—	—	—	—	—	—	—
HDO 125 4	**315.2**	3.8	49240	21	—	—	—	—	—	—	—
HDO 125 4	**367.6**	3.3	47750	17.7	—	—	—	—	—	—	—
HDO 125 4	**395.6**	3.0	49240	17.0	—	—	—	—	—	—	—
HDO 125 4	**438.0**	2.7	49240	15.3	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



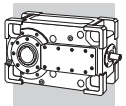
HDO 125 — n_1 = 1200 min^{-1}

					t_a = 40°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	162	33130	585	*	*	*	269	*	244	338
HDO 125 2	**8.0**	150	35650	585	*	*	*	271	*	246	340
HDO 125 2	**8.8**	136	39430	584	*	*	*	273	*	248	342
HDO 125 2	**9.9**	122	38520	510	*	230	230	274	221	249	343
HDO 125 2	**11.5**	105	35910	410	*	239	239	283	230	258	352
HDO 125 2	**12.3**	97	37300	395	*	240	240	284	231	259	353
HDO 125 2	**14.2**	84	34970	322	135	232	232	276	223	251	345
HDO 125 2	**15.3**	78	36350	311	135	232	232	276	223	251	345
HDO 125 2	**16.9**	71	38880	300	145	242	242	286	233	261	355
HDO 125 3	**19.2**	62	36480	253	106	173	177	208	169	190	258
HDO 125 3	**22.6**	53	39740	235	110	177	181	212	173	194	262
HDO 125 3	**24.3**	49	42760	235	113	180	184	215	176	197	265
HDO 125 3	**27.7**	43	43090	207	116	183	187	218	179	200	268
HDO 125 3	**33.0**	36	46570	188	119	186	190	—	182	203	—
HDO 125 3	**35.8**	34	47160	176	119	186	190	—	182	203	—
HDO 125 3	**38.8**	31	46270	159	120	187	191	—	183	204	—
HDO 125 3	**43.0**	27.9	46420	144	119	186	190	—	182	203	—
HDO 125 3	**50.1**	24.0	49240	131	121	188	192	—	184	205	—
HDO 125 3	**55.4**	21.6	46190	111	—	—	—	—	—	—	—
HDO 125 3	**60.1**	20.0	47910	106	—	—	—	—	—	—	—
HDO 125 3	**72.1**	16.6	47750	88	—	—	—	—	—	—	—
HDO 125 3	**77.6**	15.5	49240	85	—	—	—	—	—	—	—
HDO 125 3	**85.9**	14.0	46530	72	—	—	—	—	—	—	—
HDO 125 4	**97.0**	12.4	41970	59	—	—	—	—	—	—	—
HDO 125 4	**116.3**	10.3	47750	56	—	—	—	—	—	—	—
HDO 125 4	**125.2**	9.6	49240	54	—	—	—	—	—	—	—
HDO 125 4	**141.8**	8.5	47230	45	—	—	—	—	—	—	—
HDO 125 4	**152.6**	7.9	48720	43	—	—	—	—	—	—	—
HDO 125 4	**178.0**	6.7	47230	36	—	—	—	—	—	—	—
HDO 125 4	**200.3**	6.0	47510	32	—	—	—	—	—	—	—
HDO 125 4	**226.9**	5.3	47230	28	—	—	—	—	—	—	—
HDO 125 4	**244.1**	4.9	48720	27	—	—	—	—	—	—	—
HDO 125 4	**284.8**	4.2	47230	23	—	—	—	—	—	—	—
HDO 125 4	**315.2**	3.8	49240	21	—	—	—	—	—	—	—
HDO 125 4	**367.6**	3.3	47750	17.7	—	—	—	—	—	—	—
HDO 125 4	**395.6**	3.0	49240	17.0	—	—	—	—	—	—	—
HDO 125 4	**438.0**	2.7	49240	15.3	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

HDO

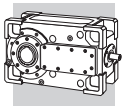


HDO 125 — n_1 = 1000 min^{-1}

					t_a = 20°C						
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	135	34990	515	*	304	376	454	289	317	411
HDO 125 2	**8.0**	125	36890	504	203	306	378	456	291	319	413
HDO 125 2	**8.8**	113	39430	487	205	308	380	458	293	321	415
HDO 125 2	**9.9**	101	38520	425	206	309	381	459	294	322	416
HDO 125 2	**11.5**	87	35910	341	213	316	388	—	301	329	423
HDO 125 2	**12.3**	81	37300	329	214	317	389	—	302	330	—
HDO 125 2	**14.2**	70	34970	268	207	310	382	—	295	323	—
HDO 125 2	**15.3**	65	36350	259	208	311	383	—	296	324	—
HDO 125 2	**16.9**	59	38880	250	215	318	390	—	303	331	—
HDO 125 3	**19.2**	52	36480	211	161	232	288	—	224	245	—
HDO 125 3	**22.6**	44	39920	197	164	235	291	—	227	248	—
HDO 125 3	**24.3**	41	42960	197	166	237	293	—	229	250	—
HDO 125 3	**27.7**	36	45510	183	169	240	296	—	232	253	—
HDO 125 3	**33.0**	30	46500	157	—	—	—	—	—	—	—
HDO 125 3	**35.8**	27.9	47750	148	—	—	—	—	—	—	—
HDO 125 3	**38.8**	25.8	46270	133	—	—	—	—	—	—	—
HDO 125 3	**43.0**	23.3	46250	120	—	—	—	—	—	—	—
HDO 125 3	**50.1**	20.0	49240	109	—	—	—	—	—	—	—
HDO 125 3	**55.4**	18.0	46040	92	—	—	—	—	—	—	—
HDO 125 3	**60.1**	16.6	48720	90	—	—	—	—	—	—	—
HDO 125 3	**72.1**	13.9	47750	74	—	—	—	—	—	—	—
HDO 125 3	**77.6**	12.9	49240	71	—	—	—	—	—	—	—
HDO 125 3	**85.9**	11.6	47860	62	—	—	—	—	—	—	—
HDO 125 4	**97.0**	10.3	44330	52	—	—	—	—	—	—	—
HDO 125 4	**116.3**	8.6	47750	47	—	—	—	—	—	—	—
HDO 125 4	**125.2**	8.0	49240	45	—	—	—	—	—	—	—
HDO 125 4	**141.8**	7.1	47230	38	—	—	—	—	—	—	—
HDO 125 4	**152.6**	6.6	49210	37	—	—	—	—	—	—	—
HDO 125 4	**178.0**	5.6	47230	30	—	—	—	—	—	—	—
HDO 125 4	**200.3**	5.0	49240	28	—	—	—	—	—	—	—
HDO 125 4	**226.9**	4.4	47230	24	—	—	—	—	—	—	—
HDO 125 4	**244.1**	4.1	48720	23	—	—	—	—	—	—	—
HDO 125 4	**284.8**	3.5	47230	18.8	—	—	—	—	—	—	—
HDO 125 4	**315.2**	3.2	49240	17.7	—	—	—	—	—	—	—
HDO 125 4	**367.6**	2.7	47750	14.7	—	—	—	—	—	—	—
HDO 125 4	**395.6**	2.5	49730	14.3	—	—	—	—	—	—	—
HDO 125 4	**438.0**	2.3	49240	12.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

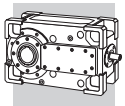


HDO 125 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C						
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]
HDO 125 2	**7.4**	135	34990	515	*	212	234	278	225	253	347
HDO 125 2	**8.0**	125	36890	504	*	214	236	280	227	255	349
HDO 125 2	**8.8**	113	39430	487	*	215	237	281	228	256	350
HDO 125 2	**9.9**	101	38520	425	*	216	238	282	229	257	351
HDO 125 2	**11.5**	87	35910	341	148	223	245	289	236	264	358
HDO 125 2	**12.3**	81	37300	329	149	224	246	290	237	265	359
HDO 125 2	**14.2**	70	34970	268	142	217	239	283	230	258	352
HDO 125 2	**15.3**	65	36350	259	143	218	240	284	231	259	—
HDO 125 2	**16.9**	59	38880	250	151	226	248	292	239	267	—
HDO 125 3	**19.2**	52	36480	211	112	164	183	214	175	196	264
HDO 125 3	**22.6**	44	39920	197	115	167	186	217	178	199	—
HDO 125 3	**24.3**	41	42960	197	116	168	187	218	179	200	—
HDO 125 3	**27.7**	36	45510	183	120	172	191	—	183	204	—
HDO 125 3	**33.0**	30	46500	157	122	174	193	—	185	206	—
HDO 125 3	**35.8**	27.9	47750	148	122	174	193	—	185	206	—
HDO 125 3	**38.8**	25.8	46270	133	122	174	193	—	185	206	—
HDO 125 3	**43.0**	23.3	46250	120	—	—	—	—	—	—	—
HDO 125 3	**50.1**	20.0	49240	109	—	—	—	—	—	—	—
HDO 125 3	**55.4**	18.0	46040	92	—	—	—	—	—	—	—
HDO 125 3	**60.1**	16.6	48720	90	—	—	—	—	—	—	—
HDO 125 3	**72.1**	13.9	47750	74	—	—	—	—	—	—	—
HDO 125 3	**77.6**	12.9	49240	71	—	—	—	—	—	—	—
HDO 125 3	**85.9**	11.6	47860	62	—	—	—	—	—	—	—
HDO 125 4	**97.0**	10.3	44330	52	—	—	—	—	—	—	—
HDO 125 4	**116.3**	8.6	47750	47	—	—	—	—	—	—	—
HDO 125 4	**125.2**	8.0	49240	45	—	—	—	—	—	—	—
HDO 125 4	**141.8**	7.1	47230	38	—	—	—	—	—	—	—
HDO 125 4	**152.6**	6.6	49210	37	—	—	—	—	—	—	—
HDO 125 4	**178.0**	5.6	47230	30	—	—	—	—	—	—	—
HDO 125 4	**200.3**	5.0	49240	28	—	—	—	—	—	—	—
HDO 125 4	**226.9**	4.4	47230	24	—	—	—	—	—	—	—
HDO 125 4	**244.1**	4.1	48720	23	—	—	—	—	—	—	—
HDO 125 4	**284.8**	3.5	47230	18.8	—	—	—	—	—	—	—
HDO 125 4	**315.2**	3.2	49240	17.7	—	—	—	—	—	—	—
HDO 125 4	**367.6**	2.7	47750	14.7	—	—	—	—	—	—	—
HDO 125 4	**395.6**	2.5	49730	14.3	—	—	—	—	—	—	—
HDO 125 4	**438.0**	2.3	49240	12.8	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

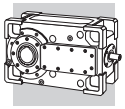


HDO 130 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	315	41480	1426	*	*	*	*	592	●	*	*	*	*	●
HDO 130 2	**6.2**	289	42950	1353	*	*	*	*	601		*	*	*	*	
HDO 130 2	**7.1**	254	44500	1232	*	*	*	*	612		*	*	*	*	
HDO 130 2	**7.7**	233	46060	1172	*	*	*	*	617		*	*	*	491	
HDO 130 2	**8.8**	205	47690	1066	*	*	*	*	625		*	*	*	499	
HDO 130 2	**9.6**	187	48330	984	*	447	*	421	664		*	*	*	538	
HDO 130 2	**11.0**	164	50120	896	*	454	*	428	671		*	*	385	545	
HDO 130 2	**12.0**	151	50800	834	*	479	375	453	696		*	*	410	570	
HDO 130 2	**13.6**	132	52750	761	*	484	380	458	701		312	321	415	575	
HDO 130 3	**15.2**	119	55160	727	*	*	*	*	411	537	*	*	*	319	541
HDO 130 3	**18.3**	99	56980	625	*	310	*	303	479	605	*	*	271	387	609
HDO 130 3	**19.9**	90	62200	625	*	312	*	305	481	607	*	*	273	389	611
HDO 130 3	**22.6**	80	59950	531	*	339	275	332	508	634	250	232	300	416	638
HDO 130 3	**24.7**	73	62590	508	*	341	277	334	510	—	252	234	302	418	640
HDO 130 3	**28.3**	64	65230	462	*	352	288	345	521	—	263	245	313	429	651
HDO 130 3	**30.9**	58	62590	406	*	353	289	346	522	—	264	246	314	430	—
HDO 130 3	**34.9**	52	64510	371	170	361	297	354	530	—	272	254	322	438	—
HDO 130 3	**38.3**	47	62590	328	193	384	320	377	—	—	295	277	345	—	—
HDO 130 3	**43.8**	41	64790	296	200	391	327	—	—	—	302	284	352	—	—
HDO 130 3	**47.8**	38	62590	262	200	391	327	—	—	—	302	284	—	—	—
HDO 130 3	**54.0**	33	61210	227	205	396	332	—	—	—	307	289	—	—	—
HDO 130 3	**59.0**	31	62330	212	206	397	333	—	—	—	308	290	—	—	—
HDO 130 3	**67.1**	26.8	58960	176	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	25.2	64720	185	159	305	259	—	—	—	237	225	—	—	—
HDO 130 4	**78.1**	23.1	61990	162	159	305	259	—	—	—	237	225	—	—	—
HDO 130 4	**88.2**	20.4	64510	149	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	18.7	62590	133	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	16.2	65230	120	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	14.8	62590	105	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	12.7	65230	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	11.7	66770	88	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	10.3	69570	82	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	9.5	66770	72	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	8.2	65230	61	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	7.5	66770	57	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	6.7	69570	53	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	6.1	66770	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	5.4	63140	38	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

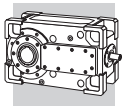


HDO 130 — n_1 = 1800 min^{-1}

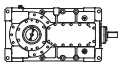
	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	315	41480	1426	*	*	*	*	*	❶	*	*	*	*	❶
HDO 130 2	**6.2**	289	42950	1353	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	254	44500	1232	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.7**	233	46060	1172	*	*	*	*	*		*	*	*	*	
HDO 130 2	**8.8**	205	47690	1066	*	*	*	*	*		*	*	*	*	
HDO 130 2	**9.6**	187	48330	984	*	*	*	*	*		*	*	*	456	
HDO 130 2	**11.0**	164	50120	896	*	*	*	*	369		*	*	*	463	
HDO 130 2	**12.0**	151	50800	834	*	*	*	*	394		*	*	*	488	
HDO 130 2	**13.6**	132	52750	761	*	328	*	*	399		*	*	333	493	
HDO 130 3	**15.2**	119	55160	727	*	*	*	*	*	*	*	*	*	*	477
HDO 130 3	**18.3**	99	56980	625	*	*	*	*	255	325	*	*	*	323	545
HDO 130 3	**19.9**	90	62200	625	*	*	*	*	257	327	*	*	*	325	547
HDO 130 3	**22.6**	80	59950	531	*	224	*	*	284	354	*	*	236	352	574
HDO 130 3	**24.7**	73	62590	508	*	225	*	*	285	355	*	*	237	353	575
HDO 130 3	**28.3**	64	65230	462	*	237	*	199	297	367	199	*	249	365	587
HDO 130 3	**30.9**	58	62590	406	*	238	169	200	298	368	200	182	250	366	588
HDO 130 3	**34.9**	52	64510	371	*	246	177	208	306	376	208	190	258	374	—
HDO 130 3	**38.3**	47	62590	328	*	268	199	230	328	—	230	212	280	396	—
HDO 130 3	**43.8**	41	64790	296	135	275	206	237	335	—	237	219	287	403	—
HDO 130 3	**47.8**	38	62590	262	136	276	207	238	336	—	238	220	288	—	—
HDO 130 3	**54.0**	33	61210	227	141	281	212	243	—	—	243	225	293	—	—
HDO 130 3	**59.0**	31	62330	212	142	282	213	—	—	—	244	226	—	—	—
HDO 130 3	**67.1**	26.8	58960	176	142	282	213	—	—	—	244	226	—	—	—
HDO 130 4	**71.5**	25.2	64720	185	110	217	165	190	—	—	188	176	229	—	—
HDO 130 4	**78.1**	23.1	61990	162	110	217	165	—	—	—	188	176	—	—	—
HDO 130 4	**88.2**	20.4	64510	149	111	218	166	—	—	—	189	177	—	—	—
HDO 130 4	**96.3**	18.7	62590	133	112	219	167	—	—	—	190	178	—	—	—
HDO 130 4	**111.2**	16.2	65230	120	116	223	171	—	—	—	194	182	—	—	—
HDO 130 4	**121.4**	14.8	62590	105	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	12.7	65230	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	11.7	66770	88	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	10.3	69570	82	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	9.5	66770	72	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	8.2	65230	61	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	7.5	66770	57	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	6.7	69570	53	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	6.1	66770	46	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	5.4	63140	38	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

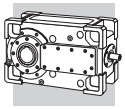


HDO 130 — n_1 = 1500 min^{-1}

					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	263	43810	1255	*	*	*	*	640		*	*	*	514	
HDO 130 2	**6.2**	241	45370	1191	*	*	*	*	647		*	*	*	521	
HDO 130 2	**7.1**	212	47000	1084	*	*	*	*	656		*	*	*	530	
HDO 130 2	**7.7**	194	48650	1031	*	*	*	416	659		*	*	*	533	
HDO 130 2	**8.8**	171	50380	939	*	413	*	423	666	●	*	*	380	540	●
HDO 130 2	**9.6**	156	51050	866	*	443	375	453	696		*	*	410	570	
HDO 130 2	**11.0**	137	52950	789	*	448	380	458	701		*	321	415	575	
HDO 130 2	**12.0**	125	53660	734	*	467	399	477	720		331	340	434	594	
HDO 130 2	**13.6**	110	55730	670	*	471	403	481	724		335	344	438	598	
HDO 130 3	**15.2**	99	58470	642	*	260	*	278	454	580	*	*	*	362	584
HDO 130 3	**18.3**	82	60430	552	*	313	274	331	507	633	249	231	299	415	637
HDO 130 3	**19.9**	75	63770	534	*	314	275	332	508	634	250	232	300	416	638
HDO 130 3	**22.6**	66	63570	469	*	335	296	353	529	—	271	253	321	437	659
HDO 130 3	**24.7**	61	63380	428	*	336	297	354	530	—	272	254	322	438	—
HDO 130 3	**28.3**	53	65810	389	179	345	306	363	539	—	281	263	331	447	—
HDO 130 3	**30.9**	49	63010	341	179	345	306	363	—	—	281	263	331	447	—
HDO 130 3	**34.9**	43	65470	313	186	352	313	370	—	—	288	270	338	—	—
HDO 130 3	**38.3**	39	62680	273	203	369	330	—	—	—	305	287	—	—	—
HDO 130 3	**43.8**	34	65130	248	208	374	335	—	—	—	310	292	—	—	—
HDO 130 3	**47.8**	31	62370	218	209	375	336	—	—	—	311	293	—	—	—
HDO 130 3	**54.0**	27.8	64840	200	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	25.4	62100	176	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	22.3	62420	155	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	21.0	65760	157	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	19.2	63000	137	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	17.0	67870	131	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	15.6	65030	115	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	13.5	69570	107	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	12.4	66770	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	10.6	69570	84	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	9.7	66770	74	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	8.6	69570	68	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	7.9	66770	60	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	6.8	69570	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	5.6	69570	44	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	5.1	66770	39	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	4.5	63140	32	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

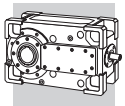


HDO 130 — n_1 = 1500 min^{-1}

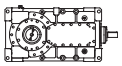
	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	263	43810	1255	*	*	*	*	*	❶	*	*	*	*	❶
HDO 130 2	**6.2**	241	45370	1191	*	*	*	*	*		*	*	*	*	
HDO 130 2	**7.1**	212	47000	1084	*	*	*	*	*		*	*	*	448	
HDO 130 2	**7.7**	194	48650	1031	*	*	*	*	*		*	*	*	451	
HDO 130 2	**8.8**	171	50380	939	*	*	*	*	*		*	*	*	458	
HDO 130 2	**9.6**	156	51050	866	*	*	*	*	394		*	*	*	488	
HDO 130 2	**11.0**	137	52950	789	*	*	*	*	399		*	*	333	493	
HDO 130 2	**12.0**	125	53660	734	*	320	*	*	418		*	*	352	512	
HDO 130 2	**13.6**	110	55730	670	*	324	*	287	422		*	*	356	516	
HDO 130 3	**15.2**	99	58470	642	*	*	*	*	*	300	*	*	*	298	520
HDO 130 3	**18.3**	82	60430	552	*	*	*	*	283	353	*	*	235	351	573
HDO 130 3	**19.9**	75	63770	534	*	*	*	*	284	354	*	*	236	352	574
HDO 130 3	**22.6**	66	63570	469	*	227	*	207	305	375	207	189	257	373	595
HDO 130 3	**24.7**	61	63380	428	*	228	177	208	306	376	208	190	258	374	596
HDO 130 3	**28.3**	53	65810	389	*	236	185	216	314	384	216	198	266	382	604
HDO 130 3	**30.9**	49	63010	341	*	237	186	217	315	385	217	199	267	383	—
HDO 130 3	**34.9**	43	65470	313	*	244	193	224	322	—	224	206	274	390	—
HDO 130 3	**38.3**	39	62680	273	139	261	210	241	339	—	241	223	291	—	—
HDO 130 3	**43.8**	34	65130	248	144	266	215	246	344	—	246	228	296	—	—
HDO 130 3	**47.8**	31	62370	218	145	267	216	247	—	—	247	229	—	—	—
HDO 130 3	**54.0**	27.8	64840	200	149	271	220	—	—	—	251	233	—	—	—
HDO 130 3	**59.0**	25.4	62100	176	149	271	220	—	—	—	251	233	—	—	—
HDO 130 3	**67.1**	22.3	62420	155	149	271	220	—	—	—	251	233	—	—	—
HDO 130 4	**71.5**	21.0	65760	157	115	208	170	—	—	—	193	181	—	—	—
HDO 130 4	**78.1**	19.2	63000	137	115	208	170	—	—	—	193	181	—	—	—
HDO 130 4	**88.2**	17.0	67870	131	116	209	171	—	—	—	194	182	—	—	—
HDO 130 4	**96.3**	15.6	65030	115	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	13.5	69570	107	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	12.4	66770	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	10.6	69570	84	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	9.7	66770	74	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	8.6	69570	68	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	7.9	66770	60	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	6.8	69570	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	5.6	69570	44	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	5.1	66770	39	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	4.5	63140	32	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

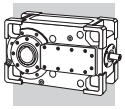


HDO 130 — n_1 = 1200 min^{-1}

					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	210	46840	1074	*	*	*	432	675		*	*	*	549	
HDO 130 2	**6.2**	193	48520	1019	*	*	*	438	681		*	*	*	555	
HDO 130 2	**7.1**	169	50250	927	*	410	*	445	688		*	*	402	562	
HDO 130 2	**7.7**	156	52030	882	*	412	369	447	690		*	*	404	564	
HDO 130 2	**8.8**	137	53860	803	*	418	375	453	696	●	*	*	410	570	●
HDO 130 2	**9.6**	124	54590	741	*	441	398	476	719		330	339	433	593	
HDO 130 2	**11.0**	109	56600	675	*	445	402	480	723		334	343	437	597	
HDO 130 2	**12.0**	100	57380	628	*	460	417	495	738		349	358	452	612	
HDO 130 2	**13.6**	88	59580	573	245	463	420	498	741		352	361	455	615	
HDO 130 3	**15.2**	79	58850	517	*	276	253	310	486	612	228	210	278	394	616
HDO 130 3	**18.3**	66	64610	472	*	317	294	351	527	—	269	251	319	435	657
HDO 130 3	**19.9**	60	63370	424	*	318	295	352	528	—	270	252	320	436	—
HDO 130 3	**22.6**	53	65610	387	184	334	311	368	544	—	286	268	336	452	—
HDO 130 3	**24.7**	49	63010	341	185	335	312	369	—	—	287	269	337	453	—
HDO 130 3	**28.3**	42	65450	309	192	342	319	—	—	—	294	276	344	—	—
HDO 130 3	**30.9**	39	62670	271	192	342	319	—	—	—	294	276	—	—	—
HDO 130 3	**34.9**	34	65130	249	197	347	324	—	—	—	299	281	—	—	—
HDO 130 3	**38.3**	31	62370	218	211	361	338	—	—	—	313	295	—	—	—
HDO 130 3	**43.8**	27.4	64820	198	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**47.8**	25.1	62090	173	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	22.2	65210	161	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	20.3	62470	141	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	17.9	62800	125	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	16.8	68000	130	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	15.4	65160	114	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	13.6	69570	107	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	12.5	66770	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	10.8	69570	85	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	8.5	69570	67	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	7.8	66770	59	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	6.9	69570	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	4.4	69570	35	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	4.1	66770	31	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.6	63140	26	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

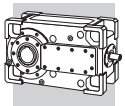


HDO 130 — n_1 = 1200 min^{-1}

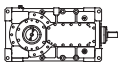
	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	210	46840	1074	*	*	*	*	*	❶	*	*	*	467	❶
HDO 130 2	**6.2**	193	48520	1019	*	*	*	*	*		*	*	*	472	
HDO 130 2	**7.1**	169	50250	927	*	*	*	*	385		*	*	*	479	
HDO 130 2	**7.7**	156	52030	882	*	*	*	*	388		*	*	*	482	
HDO 130 2	**8.8**	137	53860	803	*	*	*	*	393		*	*	327	487	
HDO 130 2	**9.6**	124	54590	741	*	301	*	*	417		*	*	351	511	
HDO 130 2	**11.0**	109	56600	675	*	305	*	286	421		*	*	355	515	
HDO 130 2	**12.0**	100	57380	628	*	320	257	301	436		267	276	370	530	
HDO 130 2	**13.6**	88	59580	573	*	323	260	304	439		270	279	373	533	
HDO 130 3	**15.2**	79	58850	517	*	*	*	*	261	331	*	*	213	329	551
HDO 130 3	**18.3**	66	64610	472	*	213	*	205	303	373	205	*	255	371	593
HDO 130 3	**19.9**	60	63370	424	*	214	175	206	304	374	206	188	256	372	594
HDO 130 3	**22.6**	53	65610	387	*	230	191	222	320	390	222	204	272	388	—
HDO 130 3	**24.7**	49	63010	341	*	231	192	223	321	391	223	205	273	389	—
HDO 130 3	**28.3**	42	65450	309	127	237	198	229	327	—	229	211	279	395	—
HDO 130 3	**30.9**	39	62670	271	128	238	199	230	328	—	230	212	280	—	—
HDO 130 3	**34.9**	34	65130	249	133	243	204	235	333	—	235	217	285	—	—
HDO 130 3	**38.3**	31	62370	218	147	257	218	249	—	—	249	231	—	—	—
HDO 130 3	**43.8**	27.4	64820	198	151	261	222	—	—	—	253	235	—	—	—
HDO 130 3	**47.8**	25.1	62090	173	151	261	222	—	—	—	253	235	—	—	—
HDO 130 3	**54.0**	22.2	65210	161	154	264	225	—	—	—	256	238	—	—	—
HDO 130 3	**59.0**	20.3	62470	141	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	17.9	62800	125	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	16.8	68000	130	119	203	174	—	—	—	197	185	—	—	—
HDO 130 4	**78.1**	15.4	65160	114	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	13.6	69570	107	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	12.5	66770	94	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	10.8	69570	85	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	9.9	66770	75	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	8.5	69570	67	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	7.8	66770	59	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	6.9	69570	54	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	6.3	66770	48	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	5.5	69570	43	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	5.0	66770	38	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	4.4	69570	35	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	4.1	66770	31	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.6	63140	26	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

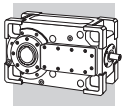


HDO 130 — n_1 = 1000 min^{-1}

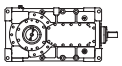
					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 130 2	**5.7**	175	49480	945	*	*	378	456	699		*	*	413	573	
HDO 130 2	**6.2**	160	51240	897	*	378	383	461	704		*	*	418	578	
HDO 130 2	**7.1**	141	53080	816	*	384	389	467	710		*	330	424	584	
HDO 130 2	**7.7**	130	54940	776	*	386	391	469	712		323	332	426	586	
HDO 130 2	**8.8**	114	56890	707	*	390	395	473	716	●	327	336	430	590	●
HDO 130 2	**9.6**	104	57650	652	*	409	414	492	735		346	355	449	609	
HDO 130 2	**11.0**	91	59790	594	242	412	417	495	738		349	358	452	612	
HDO 130 2	**12.0**	84	59760	545	254	424	429	507	750		361	370	464	624	
HDO 130 2	**13.6**	73	62940	504	257	427	432	510	—		364	373	467	627	
HDO 130 3	**15.2**	66	58850	431	*	263	274	331	507	—	249	231	299	415	637
HDO 130 3	**18.3**	55	65100	397	181	297	308	365	541	—	283	265	333	449	—
HDO 130 3	**19.9**	50	63060	352	181	297	308	365	—	—	283	265	333	449	—
HDO 130 3	**22.6**	44	65510	322	195	311	322	379	—	—	297	279	347	—	—
HDO 130 3	**24.7**	41	62730	283	195	311	322	—	—	—	297	279	347	—	—
HDO 130 3	**28.3**	35	65170	257	201	317	328	—	—	—	303	285	—	—	—
HDO 130 3	**30.9**	32	62410	225	201	317	328	—	—	—	303	285	—	—	—
HDO 130 3	**34.9**	28.7	64880	207	205	321	332	—	—	—	307	289	—	—	—
HDO 130 3	**38.3**	26.1	62140	181	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**43.8**	22.8	64950	165	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**47.8**	20.9	62210	145	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	18.5	67010	138	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	17.0	64200	121	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	14.9	63140	105	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	14.0	69570	110	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	12.8	66770	97	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	11.3	69570	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	10.4	66770	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	9.0	69570	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	8.2	66770	62	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	7.1	69570	56	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	6.5	66770	49	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	5.7	69570	45	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	5.3	66770	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	4.6	69570	36	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	4.2	66770	32	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	3.7	69570	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.4	66770	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.0	63140	21	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

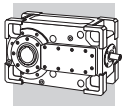


HDO 130 — n_1 = 1000 min^{-1}

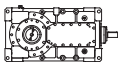
	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 130 2	**5.7**	175	49480	945	*	*	*	*	397	❶	*	*	*	491	❶
HDO 130 2	**6.2**	160	51240	897	*	*	*	*	402		*	*	*	496	
HDO 130 2	**7.1**	141	53080	816	*	*	*	*	407		*	*	341	501	
HDO 130 2	**7.7**	130	54940	776	*	*	*	*	409		*	*	343	503	
HDO 130 2	**8.8**	114	56890	707	*	*	*	*	414		*	*	348	508	
HDO 130 2	**9.6**	104	57650	652	*	281	*	297	432		263	272	366	526	
HDO 130 2	**11.0**	91	59790	594	*	285	257	301	436		267	276	370	530	
HDO 130 2	**12.0**	84	59760	545	*	297	269	313	448		279	288	382	542	
HDO 130 2	**13.6**	73	62940	504	*	299	271	315	450		281	290	384	544	
HDO 130 3	**15.2**	66	58850	431	*	*	*	185	283	353	185	*	235	351	573
HDO 130 3	**18.3**	55	65100	397	*	201	187	218	316	386	218	200	268	384	606
HDO 130 3	**19.9**	50	63060	352	*	202	188	219	317	387	219	201	269	385	—
HDO 130 3	**22.6**	44	65510	322	130	215	201	232	330	—	232	214	282	398	—
HDO 130 3	**24.7**	41	62730	283	131	216	202	233	331	—	233	215	283	—	—
HDO 130 3	**28.3**	35	65170	257	136	221	207	238	336	—	238	220	288	—	—
HDO 130 3	**30.9**	32	62410	225	137	222	208	239	—	—	239	221	289	—	—
HDO 130 3	**34.9**	28.7	64880	207	141	226	212	—	—	—	243	225	—	—	—
HDO 130 3	**38.3**	26.1	62140	181	152	237	223	—	—	—	254	236	—	—	—
HDO 130 3	**43.8**	22.8	64950	165	155	240	226	—	—	—	257	239	—	—	—
HDO 130 3	**47.8**	20.9	62210	145	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**54.0**	18.5	67010	138	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**59.0**	17.0	64200	121	—	—	—	—	—	—	—	—	—	—	—
HDO 130 3	**67.1**	14.9	63140	105	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**71.5**	14.0	69570	110	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**78.1**	12.8	66770	97	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**88.2**	11.3	69570	90	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**96.3**	10.4	66770	79	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**111.2**	9.0	69570	71	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**121.4**	8.2	66770	62	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**141.3**	7.1	69570	56	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**154.3**	6.5	66770	49	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**174.3**	5.7	69570	45	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**190.3**	5.3	66770	40	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**219.1**	4.6	69570	36	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**239.1**	4.2	66770	32	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**270.2**	3.7	69570	29	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**294.9**	3.4	66770	26	—	—	—	—	—	—	—	—	—	—	—
HDO 130 4	**335.6**	3.0	63140	21	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

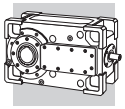


HDO 140 — n_1 = 1800 min^{-1}

					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	274	49490	1478	*	*	*	*	*	●	*	*	*	*	●
HDO 140 2	**7.3**	248	54750	1478	*	*	*	*	600		*	*	*	*	
HDO 140 2	**8.2**	220	61300	1473	*	*	*	*	613		*	*	*	*	
HDO 140 2	**9.0**	200	64270	1401	*	*	*	*	620		*	*	*	*	
HDO 140 2	**10.1**	178	65720	1276	*	*	*	*	629		*	*	*	*	
HDO 140 2	**11.3**	160	67420	1176	*	*	*	*	670		*	*	*	544	
HDO 140 2	**12.6**	142	69060	1072	*	460	*	434	677		*	*	*	551	
HDO 140 2	**14.0**	129	66760	939	*	487	383	461	704		*	*	418	578	
HDO 140 2	**15.7**	115	72680	910	*	492	388	466	709		*	*	423	583	
HDO 140 3	**17.7**	102	64350	727	*	*	*	*	404	530	*	*	*	312	534
HDO 140 3	**19.9**	90	72270	727	*	*	*	*	407	533	*	*	*	315	537
HDO 140 3	**23.3**	77	72600	625	*	310	*	303	479	605	*	*	271	387	609
HDO 140 3	**26.0**	69	69020	531	*	337	273	330	506	632	248	230	298	414	636
HDO 140 3	**28.8**	63	76390	531	*	339	275	332	508	634	250	232	300	416	638
HDO 140 3	**32.5**	55	76280	470	*	352	288	345	521	—	263	245	313	429	651
HDO 140 3	**36.0**	50	80850	450	*	354	290	347	523	—	265	247	315	431	653
HDO 140 3	**40.1**	45	74300	371	172	363	299	356	532	—	274	256	324	440	—
HDO 140 3	**44.4**	41	80850	365	173	364	300	357	533	—	275	257	325	441	—
HDO 140 3	**50.4**	36	81510	324	203	394	330	—	—	—	305	287	355	—	—
HDO 140 3	**55.8**	32	80850	290	204	395	331	—	—	—	306	288	356	—	—
HDO 140 3	**62.2**	28.9	74300	239	210	401	337	—	—	—	312	294	—	—	—
HDO 140 3	**68.8**	26.2	80850	235	211	402	338	—	—	—	313	295	—	—	—
HDO 140 3	**77.3**	23.3	73920	191	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	21.9	76010	189	164	310	264	—	—	—	242	230	—	—	—
HDO 140 4	**91.1**	19.8	80850	181	165	311	265	—	—	—	243	231	—	—	—
HDO 140 4	**101.5**	17.7	74300	150	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	16.0	80850	147	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	14.1	81510	130	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	12.7	80850	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	11.1	81510	102	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	10.0	80850	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	9.1	81510	84	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	8.2	80850	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	7.1	81510	66	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	6.5	87060	64	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	5.8	81180	53	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	5.2	87060	52	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	4.7	78870	42	—	—	—	—	—	—	—	—	—	—	—

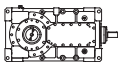
* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDO 140

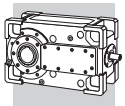
n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	274	49490	1478	*	*	*	*	*	❶	*	*	*	*	❶
HDO 140 2	**7.3**	248	54750	1478	*	*	*	*	*		*	*	*	*	
HDO 140 2	**8.2**	220	61300	1473	*	*	*	*	*		*	*	*	*	
HDO 140 2	**9.0**	200	64270	1401	*	*	*	*	*		*	*	*	*	
HDO 140 2	**10.1**	178	65720	1276	*	*	*	*	*		*	*	*	*	
HDO 140 2	**11.3**	160	67420	1176	*	*	*	*	*		*	*	*	*	
HDO 140 2	**12.6**	142	69060	1072	*	*	*	*	*		*	*	*	465	
HDO 140 2	**14.0**	129	66760	939	*	*	*	*	398		*	*	*	492	
HDO 140 2	**15.7**	115	72680	910	*	*	*	*	403		*	*	*	497	
HDO 140 3	**17.7**	102	64350	727	*	*	*	*	*	*	*	*	*	*	467
HDO 140 3	**19.9**	90	72270	727	*	*	*	*	*	*	*	*	*	*	471
HDO 140 3	**23.3**	77	72600	625	*	*	*	*	252	322	*	*	*	320	542
HDO 140 3	**26.0**	69	69020	531	*	220	*	*	280	350	*	*	232	348	570
HDO 140 3	**28.8**	63	76390	531	*	221	*	*	281	351	*	*	233	349	571
HDO 140 3	**32.5**	55	76280	470	*	235	*	197	295	365	197	*	247	363	585
HDO 140 3	**36.0**	50	80850	450	*	236	*	198	296	366	198	*	248	364	586
HDO 140 3	**40.1**	45	74300	371	*	246	177	208	306	376	208	190	258	374	—
HDO 140 3	**44.4**	41	80850	365	*	247	178	209	307	377	209	191	259	375	—
HDO 140 3	**50.4**	36	81510	324	137	277	208	239	337	—	239	221	289	405	—
HDO 140 3	**55.8**	32	80850	290	137	277	208	239	337	—	239	221	289	405	—
HDO 140 3	**62.2**	28.9	74300	239	143	283	214	245	—	—	245	227	295	—	—
HDO 140 3	**68.8**	26.2	80850	235	144	284	215	246	—	—	246	228	296	—	—
HDO 140 3	**77.3**	23.3	73920	191	145	285	216	—	—	—	247	229	—	—	—
HDO 140 4	**82.3**	21.9	76010	189	114	221	169	194	—	—	192	180	233	—	—
HDO 140 4	**91.1**	19.8	80850	181	114	221	169	194	—	—	192	180	233	—	—
HDO 140 4	**101.5**	17.7	74300	150	115	222	170	—	—	—	193	181	—	—	—
HDO 140 4	**112.3**	16.0	80850	147	116	223	171	—	—	—	194	182	—	—	—
HDO 140 4	**128.0**	14.1	81510	130	120	227	175	—	—	—	198	186	—	—	—
HDO 140 4	**141.6**	12.7	80850	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	11.1	81510	102	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	10.0	80850	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	9.1	81510	84	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	8.2	80850	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	7.1	81510	66	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	6.5	87060	64	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	5.8	81180	53	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	5.2	87060	52	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	4.7	78870	42	—	—	—	—	—	—	—	—	—	—	—

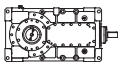
* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

HDO

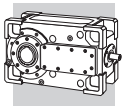


HDO 140 — n_1 = 1500 min^{-1}

					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	228	52260	1301	*	*	*	*	640		*	*	*	*	
HDO 140 2	**7.3**	206	57840	1301	*	*	*	*	650		*	*	*	524	
HDO 140 2	**8.2**	184	64740	1296	*	*	*	*	659		*	*	*	533	
HDO 140 2	**9.0**	167	67890	1234	*	*	*	*	665		*	*	*	539	
HDO 140 2	**10.1**	148	69410	1123	*	*	*	*	672	❶	*	*	*	546	❶
HDO 140 2	**11.3**	133	71210	1035	*	450	*	460	703		*	*	417	577	
HDO 140 2	**12.6**	119	72940	944	*	456	388	466	709		*	*	423	583	
HDO 140 2	**14.0**	108	69190	811	*	476	408	486	729		340	349	443	603	
HDO 140 2	**15.7**	96	76770	801	*	480	412	490	733		344	353	447	607	
HDO 140 3	**17.7**	85	68210	642	*	*	*	275	451	577	*	*	*	359	581
HDO 140 3	**19.9**	75	76630	642	*	259	*	277	453	579	*	*	*	361	583
HDO 140 3	**23.3**	64	76960	552	*	314	275	332	508	634	250	232	300	416	638
HDO 140 3	**26.0**	58	73170	469	*	336	297	354	530	—	272	254	322	438	660
HDO 140 3	**28.8**	52	80970	469	*	337	298	355	531	—	273	255	323	439	661
HDO 140 3	**32.5**	46	80860	415	181	347	308	365	541	—	283	265	333	449	—
HDO 140 3	**36.0**	42	82360	382	182	348	309	366	542	—	284	266	334	450	—
HDO 140 3	**40.1**	37	79400	330	190	356	317	374	—	—	292	274	342	—	—
HDO 140 3	**44.4**	34	81940	308	190	356	317	—	—	—	292	274	342	—	—
HDO 140 3	**50.4**	29.7	82500	273	213	379	340	—	—	—	315	297	—	—	—
HDO 140 3	**55.8**	26.9	81520	244	214	380	341	—	—	—	316	298	—	—	—
HDO 140 3	**62.2**	24.1	82170	220	219	385	346	—	—	—	321	303	—	—	—
HDO 140 3	**68.8**	21.8	81170	197	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	19.4	78870	170	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	18.2	80550	167	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	16.5	82350	154	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	14.8	82170	138	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	13.4	85000	129	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	11.7	84810	113	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	10.6	87060	105	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	9.2	84810	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	8.3	87060	82	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	7.6	84810	73	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	6.8	87060	68	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	5.9	84810	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	5.4	87060	53	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	4.8	80940	44	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	4.4	87060	43	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.9	78870	35	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



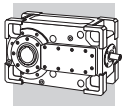
HDO 140

n_1 = 1500 min^{-1}

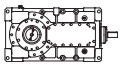
	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	228	52260	1301	*	*	*	*	*	❶	*	*	*	*	❶
HDO 140 2	**7.3**	206	57840	1301	*	*	*	*	*		*	*	*	*	
HDO 140 2	**8.2**	184	64740	1296	*	*	*	*	*		*	*	*	*	
HDO 140 2	**9.0**	167	67890	1234	*	*	*	*	*		*	*	*	*	
HDO 140 2	**10.1**	148	69410	1123	*	*	*	*	*		*	*	*	460	
HDO 140 2	**11.3**	133	71210	1035	*	*	*	*	*		*	*	*	491	
HDO 140 2	**12.6**	119	72940	944	*	*	*	*	403		*	*	*	497	
HDO 140 2	**14.0**	108	69190	811	*	325	*	*	423		*	*	357	517	
HDO 140 2	**15.7**	96	76770	801	*	329	*	*	427		*	*	361	521	
HDO 140 3	**17.7**	85	68210	642	*	*	*	*	*	294	*	*	*	292	514
HDO 140 3	**19.9**	75	76630	642	*	*	*	*	*	297	*	*	*	295	517
HDO 140 3	**23.3**	64	76960	552	*	*	*	*	282	352	*	*	234	350	572
HDO 140 3	**26.0**	58	73170	469	*	225	*	205	303	373	205	*	255	371	593
HDO 140 3	**28.8**	52	80970	469	*	226	*	206	304	374	206	188	256	372	594
HDO 140 3	**32.5**	46	80860	415	*	236	185	216	314	384	216	198	266	382	604
HDO 140 3	**36.0**	42	82360	382	*	237	186	217	315	385	217	199	267	383	—
HDO 140 3	**40.1**	37	79400	330	*	245	194	225	323	393	225	207	275	391	—
HDO 140 3	**44.4**	34	81940	308	124	246	195	226	324	—	226	208	276	392	—
HDO 140 3	**50.4**	29.7	82500	273	147	269	218	249	347	—	249	231	299	—	—
HDO 140 3	**55.8**	26.9	81520	244	147	269	218	249	—	—	249	231	299	—	—
HDO 140 3	**62.2**	24.1	82170	220	152	274	223	—	—	—	254	236	—	—	—
HDO 140 3	**68.8**	21.8	81170	197	152	274	223	—	—	—	254	236	—	—	—
HDO 140 3	**77.3**	19.4	78870	170	153	275	224	—	—	—	255	237	—	—	—
HDO 140 4	**82.3**	18.2	80550	167	119	212	174	—	—	—	197	185	—	—	—
HDO 140 4	**91.1**	16.5	82350	154	119	212	174	—	—	—	197	185	—	—	—
HDO 140 4	**101.5**	14.8	82170	138	120	213	175	—	—	—	198	186	—	—	—
HDO 140 4	**112.3**	13.4	85000	129	121	214	176	—	—	—	199	187	—	—	—
HDO 140 4	**128.0**	11.7	84810	113	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	10.6	87060	105	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	9.2	84810	89	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	8.3	87060	82	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	7.6	84810	73	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	6.8	87060	68	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	5.9	84810	57	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	5.4	87060	53	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	4.8	80940	44	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	4.4	87060	43	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.9	78870	35	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

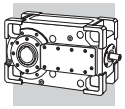


HDO 140 — n_1 = 1200 min^{-1}

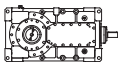
					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	183	55900	1113	*	*	*	*	678		*	*	*	552	
HDO 140 2	**7.3**	165	61830	1113	*	*	*	*	686		*	*	*	560	
HDO 140 2	**8.2**	147	69240	1109	*	*	*	450	693		*	*	*	567	
HDO 140 2	**9.0**	133	72580	1055	*	*	*	455	698		*	*	*	572	
HDO 140 2	**10.1**	119	74230	961	*	425	*	460	703	●	*	*	417	577	●
HDO 140 2	**11.3**	107	73570	856	*	450	407	485	728		*	348	442	602	
HDO 140 2	**12.6**	95	78000	807	*	454	411	489	732		343	352	446	606	
HDO 140 2	**14.0**	86	69510	652	*	470	427	505	748		359	368	462	622	
HDO 140 2	**15.7**	77	78080	652	*	473	430	508	751		362	371	465	625	
HDO 140 3	**17.7**	68	68660	517	*	275	252	309	485	611	227	209	277	393	615
HDO 140 3	**19.9**	60	77140	517	*	277	254	311	487	613	229	211	279	395	617
HDO 140 3	**23.3**	52	82290	472	*	320	297	354	530	—	272	254	322	438	660
HDO 140 3	**26.0**	46	75510	387	187	337	314	371	547	—	289	271	339	455	—
HDO 140 3	**28.8**	42	82360	382	188	338	315	372	548	—	290	272	340	456	—
HDO 140 3	**32.5**	37	84810	348	196	346	323	380	—	—	298	280	348	464	—
HDO 140 3	**36.0**	33	81910	304	196	346	323	—	—	—	298	280	348	—	—
HDO 140 3	**40.1**	29.9	82170	273	202	352	329	—	—	—	304	286	—	—	—
HDO 140 3	**44.4**	27.0	81530	245	203	353	330	—	—	—	305	287	—	—	—
HDO 140 3	**50.4**	23.8	82500	218	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**55.8**	21.5	81150	194	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**62.2**	19.3	82170	176	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	17.4	81650	158	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	15.5	78870	136	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	14.6	84810	140	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	13.2	85170	127	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	11.8	82170	110	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	10.7	87060	106	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	9.4	84810	90	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	8.5	87060	84	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	7.4	84810	71	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	6.7	87060	66	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	6.1	84810	58	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	5.5	87060	54	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.8	84810	46	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	4.3	87060	43	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.9	81700	36	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	3.5	87060	34	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.1	78870	28	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

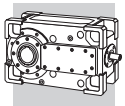


HDO 140 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	183	55900	1113	*	*	*	*	*		*	*	*	466	
HDO 140 2	**7.3**	165	61830	1113	*	*	*	*	*		*	*	*	474	
HDO 140 2	**8.2**	147	69240	1109	*	*	*	*	*		*	*	*	482	
HDO 140 2	**9.0**	133	72580	1055	*	*	*	*	*		*	*	*	486	
HDO 140 2	**10.1**	119	74230	961	*	*	*	*	397	❶	*	*	*	491	❶
HDO 140 2	**11.3**	107	73570	856	*	*	*	*	422		*	*	356	516	
HDO 140 2	**12.6**	95	78000	807	*	*	*	*	426		*	*	360	520	
HDO 140 2	**14.0**	86	69510	652	*	326	263	307	442		273	282	376	536	
HDO 140 2	**15.7**	77	78080	652	*	329	266	310	445		276	285	379	539	
HDO 140 3	**17.7**	68	68660	517	*	*	*	*	259	329	*	*	211	327	549
HDO 140 3	**19.9**	60	77140	517	*	*	*	*	260	330	*	*	212	328	550
HDO 140 3	**23.3**	52	82290	472	*	213	*	205	303	373	205	*	255	371	593
HDO 140 3	**26.0**	46	75510	387	*	230	191	222	320	390	222	204	272	388	—
HDO 140 3	**28.8**	42	82360	382	*	231	192	223	321	391	223	205	273	389	—
HDO 140 3	**32.5**	37	84810	348	*	239	200	231	329	399	231	213	281	397	—
HDO 140 3	**36.0**	33	81910	304	130	240	201	232	330	—	232	214	282	398	—
HDO 140 3	**40.1**	29.9	82170	273	135	245	206	237	335	—	237	219	287	—	—
HDO 140 3	**44.4**	27.0	81530	245	136	246	207	238	336	—	238	220	288	—	—
HDO 140 3	**50.4**	23.8	82500	218	154	264	225	—	—	—	256	238	—	—	—
HDO 140 3	**55.8**	21.5	81150	194	154	264	225	—	—	—	256	238	—	—	—
HDO 140 3	**62.2**	19.3	82170	176	158	268	229	—	—	—	260	242	—	—	—
HDO 140 3	**68.8**	17.4	81650	158	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	15.5	78870	136	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	14.6	84810	140	123	207	178	—	—	—	201	189	—	—	—
HDO 140 4	**91.1**	13.2	85170	127	123	207	178	—	—	—	201	189	—	—	—
HDO 140 4	**101.5**	11.8	82170	110	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	10.7	87060	106	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	9.4	84810	90	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	8.5	87060	84	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	7.4	84810	71	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	6.7	87060	66	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	6.1	84810	58	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	5.5	87060	54	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.8	84810	46	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	4.3	87060	43	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.9	81700	36	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	3.5	87060	34	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	3.1	78870	28	—	—	—	—	—	—	—	—	—	—	—

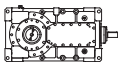
* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



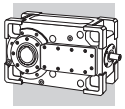
HDO 140

n_1 = 1000 min^{-1}

					t_a = 20°C										
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	P_{TSR} [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]
HDO 140 2	**6.6**	152	59030	980	*	*	*	461	704		*	*	418	578	
HDO 140 2	**7.3**	138	65330	980	*	*	*	467	710		*	*	424	584	
HDO 140 2	**8.2**	122	73120	976	*	391	396	474	717		*	*	431	591	
HDO 140 2	**9.0**	111	76670	929	*	394	399	477	720		*	*	434	594	
HDO 140 2	**10.1**	99	78400	845	*	398	403	481	724	●	*	344	438	598	●
HDO 140 2	**11.3**	89	73880	716	*	418	423	501	744		355	364	458	618	
HDO 140 2	**12.6**	79	80740	697	*	422	427	505	748		359	368	462	622	
HDO 140 2	**14.0**	72	69720	545	265	435	440	518	761		372	381	475	635	
HDO 140 2	**15.7**	64	78320	545	267	437	442	520	763		374	383	477	637	
HDO 140 3	**17.7**	56	68660	431	*	265	276	333	509	—	251	233	301	417	639
HDO 140 3	**19.9**	50	77140	431	*	266	277	334	510	—	252	234	302	418	640
HDO 140 3	**23.3**	43	82420	394	185	301	312	369	545	—	287	269	337	453	—
HDO 140 3	**26.0**	38	75510	323	198	314	325	—	—	—	300	282	350	—	—
HDO 140 3	**28.8**	35	81990	317	199	315	326	—	—	—	301	283	351	—	—
HDO 140 3	**32.5**	31	84810	290	205	321	332	—	—	—	307	289	357	—	—
HDO 140 3	**36.0**	27.8	81580	252	206	322	333	—	—	—	308	290	—	—	—
HDO 140 3	**40.1**	24.9	82170	228	211	327	338	—	—	—	313	295	—	—	—
HDO 140 3	**44.4**	22.5	81220	204	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**50.4**	19.8	82500	182	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**55.8**	17.9	81320	162	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**62.2**	16.1	82170	147	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	14.5	83920	136	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	12.9	78870	113	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	12.2	84810	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	11.0	87060	109	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	9.9	82000	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	8.9	87060	88	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	7.8	84810	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	7.1	87060	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	6.1	84810	59	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	5.6	87060	55	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	5.0	84810	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	4.6	87060	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.0	84810	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.6	87060	35	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.2	82170	30	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	2.9	87060	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.6	78870	23	—	—	—	—	—	—	—	—	—	—	—

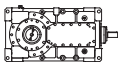
* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



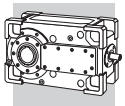
HDO 140

n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C										
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	P_{TSR}	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 140 2	**6.6**	152	59030	980	*	*	*	*	398		*	*	*	492	
HDO 140 2	**7.3**	138	65330	980	*	*	*	*	405		*	*	*	499	
HDO 140 2	**8.2**	122	73120	976	*	*	*	*	411		*	*	*	505	
HDO 140 2	**9.0**	111	76670	929	*	*	*	*	414		*	*	*	508	
HDO 140 2	**10.1**	99	78400	845	*	*	*	*	419	❶	*	*	353	513	❶
HDO 140 2	**11.3**	89	73880	716	*	287	*	303	438		*	*	372	532	
HDO 140 2	**12.6**	79	80740	697	*	291	*	307	442		*	282	376	536	
HDO 140 2	**14.0**	72	69720	545	*	304	276	320	455		286	295	389	549	
HDO 140 2	**15.7**	64	78320	545	*	306	278	322	457		288	297	391	551	
HDO 140 3	**17.7**	56	68660	431	*	*	*	184	282	352	184	*	234	350	572
HDO 140 3	**19.9**	50	77140	431	*	*	*	186	284	354	186	*	236	352	574
HDO 140 3	**23.3**	43	82420	394	*	203	189	220	318	388	220	202	270	386	608
HDO 140 3	**26.0**	38	75510	323	132	217	203	234	332	—	234	216	284	400	—
HDO 140 3	**28.8**	35	81990	317	132	217	203	234	332	—	234	216	284	400	—
HDO 140 3	**32.5**	31	84810	290	139	224	210	241	339	—	241	223	291	—	—
HDO 140 3	**36.0**	27.8	81580	252	139	224	210	241	339	—	241	223	291	—	—
HDO 140 3	**40.1**	24.9	82170	228	144	229	215	246	—	—	246	228	—	—	—
HDO 140 3	**44.4**	22.5	81220	204	145	230	216	—	—	—	247	229	—	—	—
HDO 140 3	**50.4**	19.8	82500	182	159	244	230	—	—	—	261	243	—	—	—
HDO 140 3	**55.8**	17.9	81320	162	159	244	230	—	—	—	261	243	—	—	—
HDO 140 3	**62.2**	16.1	82170	147	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**68.8**	14.5	83920	136	—	—	—	—	—	—	—	—	—	—	—
HDO 140 3	**77.3**	12.9	78870	113	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**82.3**	12.2	84810	117	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**91.1**	11.0	87060	109	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**101.5**	9.9	82000	92	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**112.3**	8.9	87060	88	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**128.0**	7.8	84810	75	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**141.6**	7.1	87060	70	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**162.7**	6.1	84810	59	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**180.0**	5.6	87060	55	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**198.3**	5.0	84810	49	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**219.5**	4.6	87060	45	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**252.1**	4.0	84810	38	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**279.0**	3.6	87060	35	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**311.0**	3.2	82170	30	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**344.1**	2.9	87060	29	—	—	—	—	—	—	—	—	—	—	—
HDO 140 4	**386.6**	2.6	78870	23	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

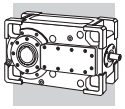


HDO 150 — n_1 = 1800 min^{-1}

					t_a = 20°C											
	i	n_2	Mn_2	Pn_1	P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	327	64090	2282	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	279	75090	2282	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	256	77410	2160	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	221	79760	1925	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.9**	203	82270	1823	*	*	*	*	*	749	●	*	*	*	754	●
HDO 150 2	**10.0**	180	83380	1635	*	*	*	*	*	827		*	*	*	832	
HDO 150 2	**10.9**	165	86080	1550	*	*	*	*	660	835		*	*	*	840	
HDO 150 2	**12.6**	143	87980	1370	*	622	*	*	719	894		*	*	593	899	
HDO 150 2	**13.7**	131	90900	1299	*	628	*	*	725	900		*	*	599	905	
HDO 150 3	**15.6**	115	85410	1095	*	*	*	*	501	627	691	*	*	*	631	841
HDO 150 3	**18.3**	98	96850	1060	*	*	*	*	506	632	696	*	*	*	636	846
HDO 150 3	**19.9**	90	99110	996	*	421	*	*	508	634	698	*	*	416	638	848
HDO 150 3	**21.7**	83	98890	913	*	440	*	*	527	653	717	*	*	435	657	867
HDO 150 3	**25.4**	71	107800	849	*	444	*	355	531	657	721	*	*	439	661	871
HDO 150 3	**28.2**	64	99160	703	*	509	363	420	596	722	—	320	388	504	726	—
HDO 150 3	**30.7**	59	93720	611	248	521	375	432	608	734	—	332	400	516	738	—
HDO 150 3	**36.0**	50	109830	611	250	523	377	434	610	736	—	334	402	518	740	—
HDO 150 3	**40.2**	45	94980	473	268	541	395	452	628	—	—	352	420	536	—	—
HDO 150 3	**43.8**	41	103400	473	269	542	396	453	629	—	—	353	421	537	—	—
HDO 150 3	**47.6**	38	104500	439	276	549	403	460	—	—	—	360	428	544	—	—
HDO 150 3	**55.8**	32	111230	399	278	551	405	—	—	—	—	362	430	—	—	—
HDO 150 3	**60.8**	29.6	107330	354	278	551	405	—	—	—	—	362	—	—	—	—
HDO 150 4	**66.9**	26.9	89590	274	190	398	290	—	—	—	—	256	309	—	—	—
HDO 150 4	**78.3**	23.0	104990	274	191	399	291	—	—	—	—	257	310	—	—	—
HDO 150 4	**92.9**	19.4	117200	258	199	407	299	—	—	—	—	265	—	—	—	—
HDO 150 4	**101.8**	17.7	111430	224	204	412	304	—	—	—	—	270	—	—	—	—
HDO 150 4	**110.9**	16.2	108670	200	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	14.9	117200	198	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	12.7	117090	169	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	11.4	107360	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	10.5	114780	136	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	9.6	117200	128	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	8.2	117090	109	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	7.5	114780	98	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



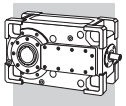
HDO 150 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	327	64090	2282	*	*	*	*	*	*	❶	*	*	*	*	❶
HDO 150 2	**6.5**	279	75090	2282	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	256	77410	2160	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	221	79760	1925	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.9**	203	82270	1823	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**10.0**	180	83380	1635	*	*	*	*	*	*		*	*	*	721	
HDO 150 2	**10.9**	165	86080	1550	*	*	*	*	*	*		*	*	*	729	
HDO 150 2	**12.6**	143	87980	1370	*	*	*	*	*	*		*	*	*	789	
HDO 150 2	**13.7**	131	90900	1299	*	*	*	*	*	*		*	*	*	794	
HDO 150 3	**15.6**	115	85410	1095	*	*	*	*	*	*	*	*	*	*	546	756
HDO 150 3	**18.3**	98	96850	1060	*	*	*	*	*	*	*	*	*	*	551	761
HDO 150 3	**19.9**	90	99110	996	*	*	*	*	*	*	*	*	*	*	554	764
HDO 150 3	**21.7**	83	98890	913	*	*	*	*	*	*	383	*	*	*	573	783
HDO 150 3	**25.4**	71	107800	849	*	*	*	*	*	356	386	*	*	354	576	786
HDO 150 3	**28.2**	64	99160	703	*	352	*	*	351	421	451	*	303	419	641	851
HDO 150 3	**30.7**	59	93720	611	*	364	*	265	363	433	463	247	315	431	653	—
HDO 150 3	**36.0**	50	109830	611	*	366	*	267	365	435	465	249	317	433	655	—
HDO 150 3	**40.2**	45	94980	473	*	384	254	285	383	453	483	267	335	451	673	—
HDO 150 3	**43.8**	41	103400	473	*	385	255	286	384	454	484	268	336	452	674	—
HDO 150 3	**47.6**	38	104500	439	191	392	262	293	391	461	—	275	343	459	—	—
HDO 150 3	**55.8**	32	111230	399	193	394	264	295	393	463	—	277	345	461	—	—
HDO 150 3	**60.8**	29.6	107330	354	194	395	265	296	394	—	—	278	346	462	—	—
HDO 150 4	**66.9**	26.9	89590	274	126	279	181	206	283	—	—	192	245	336	—	—
HDO 150 4	**78.3**	23.0	104990	274	127	280	182	207	284	—	—	193	246	337	—	—
HDO 150 4	**92.9**	19.4	117200	258	134	287	189	214	291	—	—	200	253	344	—	—
HDO 150 4	**101.8**	17.7	111430	224	140	293	195	220	297	—	—	206	259	—	—	—
HDO 150 4	**110.9**	16.2	108670	200	140	293	195	220	—	—	—	206	—	—	—	—
HDO 150 4	**120.8**	14.9	117200	198	145	298	200	—	—	—	—	211	—	—	—	—
HDO 150 4	**141.5**	12.7	117090	169	146	299	201	—	—	—	—	212	—	—	—	—
HDO 150 4	**157.9**	11.4	107360	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	10.5	114780	136	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	9.6	117200	128	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	8.2	117090	109	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	7.5	114780	98	—	—	—	—	—	—	—	—	—	—	—	—

HDO

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

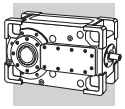


HDO 150 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	272	67710	2009	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	232	79310	2008	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	213	81770	1901	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	184	84250	1694	*	*	*	*	*	817		*	*	*	822	
HDO 150 2	**8.9**	169	86910	1605	*	*	*	*	650	825	●	*	*	*	830	●
HDO 150 2	**10.0**	150	88070	1439	*	*	*	*	710	885		*	*	584	890	
HDO 150 2	**10.9**	138	90930	1364	*	568	*	*	717	892		*	*	591	897	
HDO 150 2	**12.6**	119	92930	1206	*	613	*	519	762	937		*	*	636	942	
HDO 150 2	**13.7**	109	96020	1144	*	618	*	524	767	942		*	481	641	947	
HDO 150 3	**15.6**	96	90530	967	*	419	*	*	541	667	731	*	*	449	671	881
HDO 150 3	**18.3**	82	102670	936	*	423	*	*	545	671	735	*	*	453	675	885
HDO 150 3	**19.9**	75	105070	880	*	425	*	371	547	673	737	*	*	455	677	887
HDO 150 3	**21.7**	69	104840	806	*	439	328	385	561	687	751	*	353	469	691	901
HDO 150 3	**25.4**	59	113000	742	*	442	331	388	564	690	754	*	356	472	694	904
HDO 150 3	**28.2**	53	105090	621	254	492	381	438	614	740	—	338	406	522	744	—
HDO 150 3	**30.7**	49	99350	539	263	501	390	447	623	—	—	347	415	531	753	—
HDO 150 3	**36.0**	42	111930	519	265	503	392	449	625	—	—	349	417	533	—	—
HDO 150 3	**40.2**	37	100660	418	279	517	406	463	—	—	—	363	431	—	—	—
HDO 150 3	**43.8**	34	107700	411	280	518	407	464	—	—	—	364	432	—	—	—
HDO 150 3	**47.6**	31	110750	388	285	523	412	—	—	—	—	369	437	—	—	—
HDO 150 3	**55.8**	26.9	110770	331	286	524	413	—	—	—	—	370	—	—	—	—
HDO 150 3	**60.8**	24.7	106900	293	287	525	414	—	—	—	—	371	—	—	—	—
HDO 150 4	**66.9**	22.4	94970	242	202	383	302	—	—	—	—	268	—	—	—	—
HDO 150 4	**78.3**	19.1	111250	242	202	383	302	—	—	—	—	268	—	—	—	—
HDO 150 4	**92.9**	16.1	117200	215	208	389	308	—	—	—	—	274	—	—	—	—
HDO 150 4	**101.8**	14.7	111630	187	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	13.5	111670	171	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	12.4	117200	165	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	10.6	117090	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	9.5	113780	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	8.7	114780	114	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	8.0	117200	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	6.8	117090	91	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	6.3	114780	82	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDO 150

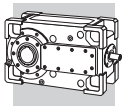
n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	272	67710	2009	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**6.5**	232	79310	2008	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**7.0**	213	81770	1901	*	*	*	*	*	*		*	*	*	*	
HDO 150 2	**8.1**	184	84250	1694	*	*	*	*	*	*		*	*	*	711	
HDO 150 2	**8.9**	169	86910	1605	*	*	*	*	*	*	❶	*	*	*	720	❶
HDO 150 2	**10.0**	150	88070	1439	*	*	*	*	*	*		*	*	*	780	
HDO 150 2	**10.9**	138	90930	1364	*	*	*	*	*	*		*	*	*	786	
HDO 150 2	**12.6**	119	92930	1206	*	*	*	*	*	529		*	*	526	832	
HDO 150 2	**13.7**	109	96020	1144	*	*	*	*	*	533		*	*	530	836	
HDO 150 3	**15.6**	96	90530	967	*	*	*	*	*	*	396	*	*	*	586	796
HDO 150 3	**18.3**	82	102670	936	*	*	*	*	*	*	400	*	*	*	590	800
HDO 150 3	**19.9**	75	105070	880	*	*	*	*	*	372	402	*	*	370	592	802
HDO 150 3	**21.7**	69	104840	806	*	*	*	*	*	386	416	*	*	384	606	816
HDO 150 3	**25.4**	59	113000	742	*	*	*	*	319	389	419	*	*	387	609	819
HDO 150 3	**28.2**	53	105090	621	*	343	*	271	369	439	469	253	321	437	659	—
HDO 150 3	**30.7**	49	99350	539	*	352	249	280	378	448	478	262	330	446	668	—
HDO 150 3	**36.0**	42	111930	519	*	354	251	282	380	450	480	264	332	448	670	—
HDO 150 3	**40.2**	37	100660	418	194	368	265	296	394	464	—	278	346	462	—	—
HDO 150 3	**43.8**	34	107700	411	195	369	266	297	395	465	—	279	347	463	—	—
HDO 150 3	**47.6**	31	110750	388	200	374	271	302	400	—	—	284	352	468	—	—
HDO 150 3	**55.8**	26.9	110770	331	201	375	272	303	401	—	—	285	353	—	—	—
HDO 150 3	**60.8**	24.7	106900	293	202	376	273	304	—	—	—	286	354	—	—	—
HDO 150 4	**66.9**	22.4	94970	242	137	270	192	217	294	—	—	203	256	—	—	—
HDO 150 4	**78.3**	19.1	111250	242	138	271	193	218	295	—	—	204	257	—	—	—
HDO 150 4	**92.9**	16.1	117200	215	143	276	198	223	—	—	—	209	262	—	—	—
HDO 150 4	**101.8**	14.7	111630	187	148	281	203	—	—	—	—	214	—	—	—	—
HDO 150 4	**110.9**	13.5	111670	171	148	281	203	—	—	—	—	214	—	—	—	—
HDO 150 4	**120.8**	12.4	117200	165	152	285	207	—	—	—	—	218	—	—	—	—
HDO 150 4	**141.5**	10.6	117090	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	9.5	113780	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	8.7	114780	114	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	8.0	117200	107	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	6.8	117090	91	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	6.3	114780	82	—	—	—	—	—	—	—	—	—	—	—	—

HDO

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

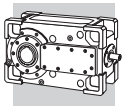


HDO 150 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	218	72390	1718	*	*	*	*	*	797		*	*	*	802	
HDO 150 2	**6.5**	186	84810	1718	*	*	*	*	*	817		*	*	*	822	
HDO 150 2	**7.0**	171	87430	1626	*	*	*	*	651	826		*	*	*	831	
HDO 150 2	**8.1**	148	90090	1449	*	*	*	*	700	875		*	*	*	880	
HDO 150 2	**8.9**	135	92910	1372	*	*	*	*	707	882	●	*	*	581	887	●
HDO 150 2	**10.0**	120	94180	1231	*	570	*	511	754	929		*	*	628	934	
HDO 150 2	**10.9**	110	97220	1167	*	574	*	515	758	933		*	472	632	938	
HDO 150 2	**12.6**	95	99370	1031	*	610	473	551	794	969		414	508	668	974	
HDO 150 2	**13.7**	87	102660	978	*	614	477	555	798	973		418	512	672	978	
HDO 150 3	**15.6**	77	96800	827	*	424	337	394	570	696	760	*	362	478	700	910
HDO 150 3	**18.3**	66	109780	801	*	427	340	397	573	699	763	*	365	481	703	913
HDO 150 3	**19.9**	60	109340	732	*	429	342	399	575	701	765	299	367	483	705	915
HDO 150 3	**21.7**	55	112090	690	*	440	353	410	586	712	—	310	378	494	716	—
HDO 150 3	**25.4**	47	112300	590	*	442	355	412	588	714	—	312	380	496	718	—
HDO 150 3	**28.2**	43	108280	512	267	481	394	451	627	—	—	351	419	535	—	—
HDO 150 3	**30.7**	39	106230	461	274	488	401	458	634	—	—	358	426	542	—	—
HDO 150 3	**36.0**	33	111310	413	276	490	403	460	—	—	—	360	428	—	—	—
HDO 150 3	**40.2**	29.9	107250	356	287	501	414	—	—	—	—	371	—	—	—	—
HDO 150 3	**43.8**	27.4	107150	327	287	501	414	—	—	—	—	371	—	—	—	—
HDO 150 3	**47.6**	25.2	114010	319	291	505	418	—	—	—	—	375	—	—	—	—
HDO 150 3	**55.8**	21.5	110260	264	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**60.8**	19.7	106420	234	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	17.9	101540	207	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	15.3	114980	200	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	12.9	117200	172	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	11.8	112750	151	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	10.8	114780	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	9.9	117200	132	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	8.5	117090	113	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	7.6	116600	101	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	7.0	114780	91	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	6.4	117200	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	5.5	117090	73	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	5.0	114780	65	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



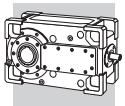
HDO 150 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	218	72390	1718	*	*	*	*	*	*	❶	*	*	*	691	❶
HDO 150 2	**6.5**	186	84810	1718	*	*	*	*	*	*		*	*	*	711	
HDO 150 2	**7.0**	171	87430	1626	*	*	*	*	*	*		*	*	*	720	
HDO 150 2	**8.1**	148	90090	1449	*	*	*	*	*	*		*	*	*	769	
HDO 150 2	**8.9**	135	92910	1372	*	*	*	*	*	*		*	*	*	776	
HDO 150 2	**10.0**	120	94180	1231	*	*	*	*	*	520		*	*	517	823	
HDO 150 2	**10.9**	110	97220	1167	*	*	*	*	*	525		*	*	522	828	
HDO 150 2	**12.6**	95	99370	1031	*	416	*	*	463	560		*	*	557	863	
HDO 150 2	**13.7**	87	102660	978	*	420	*	*	467	564		*	401	561	867	
HDO 150 3	**15.6**	77	96800	827	*	*	*	*	*	395	425	*	*	393	615	825
HDO 150 3	**18.3**	66	109780	801	*	*	*	*	328	398	428	*	*	396	618	828
HDO 150 3	**19.9**	60	109340	732	*	*	*	*	330	400	430	*	*	398	620	830
HDO 150 3	**21.7**	55	112090	690	*	298	*	*	341	411	441	*	293	409	631	841
HDO 150 3	**25.4**	47	112300	590	*	300	*	245	343	413	443	*	295	411	633	—
HDO 150 3	**28.2**	43	108280	512	*	339	253	284	382	452	482	266	334	450	672	—
HDO 150 3	**30.7**	39	106230	461	189	346	260	291	389	459	489	273	341	457	679	—
HDO 150 3	**36.0**	33	111310	413	191	348	262	293	391	461	—	275	343	459	—	—
HDO 150 3	**40.2**	29.9	107250	356	202	359	273	304	402	—	—	286	354	470	—	—
HDO 150 3	**43.8**	27.4	107150	327	202	359	273	304	402	—	—	286	354	—	—	—
HDO 150 3	**47.6**	25.2	114010	319	207	364	278	309	407	—	—	291	359	—	—	—
HDO 150 3	**55.8**	21.5	110260	264	207	364	278	—	—	—	—	291	—	—	—	—
HDO 150 3	**60.8**	19.7	106420	234	208	365	279	—	—	—	—	292	—	—	—	—
HDO 150 4	**66.9**	17.9	101540	207	145	264	200	225	—	—	—	211	—	—	—	—
HDO 150 4	**78.3**	15.3	114980	200	146	265	201	—	—	—	—	212	—	—	—	—
HDO 150 4	**92.9**	12.9	117200	172	150	269	205	—	—	—	—	216	—	—	—	—
HDO 150 4	**101.8**	11.8	112750	151	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	10.8	114780	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	9.9	117200	132	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	8.5	117090	113	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	7.6	116600	101	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	7.0	114780	91	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	6.4	117200	85	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	5.5	117090	73	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	5.0	114780	65	—	—	—	—	—	—	—	—	—	—	—	—

❶ * BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

HDO

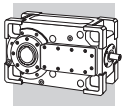


HDO 150 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 20°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	181	76470	1513	*	*	*	*	677	852		*	*	*	857	
HDO 150 2	**6.5**	155	89570	1512	*	*	*	*	693	868		*	*	*	873	
HDO 150 2	**7.0**	142	92350	1432	*	*	*	*	700	875		*	*	574	880	
HDO 150 2	**8.1**	123	95150	1276	*	*	*	*	740	915		*	*	614	920	
HDO 150 2	**8.9**	113	98150	1208	*	492	*	502	745	920	ⓘ	*	*	619	925	ⓘ
HDO 150 2	**10.0**	100	99460	1083	*	530	462	540	783	958		*	497	657	963	
HDO 150 2	**10.9**	92	102690	1027	*	534	466	544	787	962		*	501	661	967	
HDO 150 2	**12.6**	79	104950	908	*	563	495	573	816	991		436	530	690	996	
HDO 150 2	**13.7**	73	108440	861	*	565	497	575	818	993		438	532	692	998	
HDO 150 3	**15.6**	64	98480	702	*	396	357	414	590	716	—	314	382	498	720	—
HDO 150 3	**18.3**	55	112750	685	*	399	360	417	593	719	—	317	385	501	723	—
HDO 150 3	**19.9**	50	108770	607	*	400	361	418	594	720	—	318	386	502	724	—
HDO 150 3	**21.7**	46	117200	601	243	409	370	427	603	—	—	327	395	511	733	—
HDO 150 3	**25.4**	39	111770	489	245	411	372	429	605	—	—	329	397	513	—	—
HDO 150 3	**28.2**	35	107790	425	276	442	403	460	—	—	—	360	428	—	—	—
HDO 150 3	**30.7**	33	112200	406	282	448	409	—	—	—	—	366	434	—	—	—
HDO 150 3	**36.0**	27.8	110850	342	283	449	410	—	—	—	—	367	—	—	—	—
HDO 150 3	**40.2**	24.9	107250	297	292	458	419	—	—	—	—	376	—	—	—	—
HDO 150 3	**43.8**	22.9	106730	271	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**47.6**	21.0	114010	266	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**55.8**	17.9	112350	224	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 3	**60.8**	16.4	108450	198	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	15.0	107250	182	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**78.3**	12.8	117090	170	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**92.9**	10.8	117200	143	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	9.8	111630	124	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	9.0	114780	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	8.3	117200	110	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	7.1	117090	94	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	6.3	116600	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	5.8	114780	76	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	5.3	117200	71	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	4.6	117090	61	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	4.2	114780	55	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



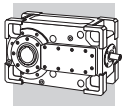
HDO 150 — n_1 = 1000 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 150 2	**5.5**	181	76470	1513	*	*	*	*	*	*		*	*	*	746	
HDO 150 2	**6.5**	155	89570	1512	*	*	*	*	*	*		*	*	*	762	
HDO 150 2	**7.0**	142	92350	1432	*	*	*	*	*	*		*	*	*	769	
HDO 150 2	**8.1**	123	95150	1276	*	*	*	*	*	*		*	*	*	809	
HDO 150 2	**8.9**	113	98150	1208	*	*	*	*	*	511	❶	*	*	508	814	❶
HDO 150 2	**10.0**	100	99460	1083	*	*	*	*	452	549		*	*	546	852	
HDO 150 2	**10.9**	92	102690	1027	*	*	*	*	456	553		*	*	550	856	
HDO 150 2	**12.6**	79	104950	908	*	387	*	*	485	582		*	419	579	885	
HDO 150 2	**13.7**	73	108440	861	*	390	*	353	488	585		*	422	582	888	
HDO 150 3	**15.6**	64	98480	702	*	*	*	*	345	415	445	*	297	413	635	845
HDO 150 3	**18.3**	55	112750	685	*	*	*	*	348	418	448	*	300	416	638	848
HDO 150 3	**19.9**	50	108770	607	*	271	*	251	349	419	449	*	301	417	639	—
HDO 150 3	**21.7**	46	117200	601	*	280	*	260	358	428	458	242	310	426	648	—
HDO 150 3	**25.4**	39	111770	489	*	282	231	262	360	430	460	244	312	428	650	—
HDO 150 3	**28.2**	35	107790	425	191	313	262	293	391	461	—	275	343	459	—	—
HDO 150 3	**30.7**	33	112200	406	197	319	268	299	397	467	—	281	349	465	—	—
HDO 150 3	**36.0**	27.8	110850	342	198	320	269	300	398	—	—	282	350	—	—	—
HDO 150 3	**40.2**	24.9	107250	297	207	329	278	309	—	—	—	291	359	—	—	—
HDO 150 3	**43.8**	22.9	106730	271	208	330	279	—	—	—	—	292	—	—	—	—
HDO 150 3	**47.6**	21.0	114010	266	211	333	282	—	—	—	—	295	—	—	—	—
HDO 150 3	**55.8**	17.9	112350	224	212	334	283	—	—	—	—	296	—	—	—	—
HDO 150 3	**60.8**	16.4	108450	198	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**66.9**	15.0	107250	182	151	244	206	—	—	—	—	217	—	—	—	—
HDO 150 4	**78.3**	12.8	117090	170	151	244	206	—	—	—	—	217	—	—	—	—
HDO 150 4	**92.9**	10.8	117200	143	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**101.8**	9.8	111630	124	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**110.9**	9.0	114780	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**120.8**	8.3	117200	110	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**141.5**	7.1	117090	94	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**157.9**	6.3	116600	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**171.9**	5.8	114780	76	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**187.2**	5.3	117200	71	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**219.3**	4.6	117090	61	—	—	—	—	—	—	—	—	—	—	—	—
HDO 150 4	**238.8**	4.2	114780	55	—	—	—	—	—	—	—	—	—	—	—	—

HDO

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

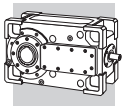


HDO 160 — n_1 = 1800 min^{-1}

					t_a = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	246	84950	2282	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDO 160 2	**7.9**	227	89700	2217	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	201	90600	1990	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**10.4**	173	97920	1843	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**11.3**	159	100750	1745	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**12.2**	148	92930	1501	*	*	*	*	638	813		*	*	*	818	
HDO 160 2	**14.2**	127	104970	1452	*	*	*	*	653	828		*	*	*	833	
HDO 160 2	**15.4**	117	108140	1377	*	564	*	*	661	836		*	*	*	841	
HDO 160 3	**17.7**	101	97020	1096	*	*	*	*	512	638	702	*	*	*	642	852
HDO 160 3	**20.7**	87	113190	1095	*	*	*	*	518	644	708	*	*	*	648	858
HDO 160 3	**22.5**	80	123030	1095	*	*	*	*	521	647	711	*	*	*	651	861
HDO 160 3	**24.6**	73	112310	913	*	454	*	*	541	667	731	*	*	449	671	881
HDO 160 3	**28.8**	63	131120	913	*	458	*	369	545	671	735	*	*	453	675	885
HDO 160 3	**31.3**	58	138760	889	*	460	*	371	547	673	737	*	*	455	677	887
HDO 160 3	**34.9**	52	110880	636	262	535	389	446	622	748	—	346	414	530	752	—
HDO 160 3	**40.7**	44	129410	636	265	538	392	449	625	751	—	349	417	533	755	—
HDO 160 3	**44.3**	41	134530	608	267	540	394	451	627	—	—	351	419	535	757	—
HDO 160 3	**49.4**	36	116760	473	285	558	412	469	645	—	—	369	437	553	—	—
HDO 160 3	**54.1**	33	118630	439	292	565	419	476	—	—	—	376	444	—	—	—
HDO 160 3	**63.2**	28.5	138490	439	294	567	421	478	—	—	—	378	446	—	—	—
HDO 160 3	**68.6**	26.2	137580	401	295	568	422	—	—	—	—	379	447	—	—	—
HDO 160 4	**75.9**	23.7	101750	274	203	411	303	—	—	—	—	269	322	—	—	—
HDO 160 4	**88.6**	20.3	118740	274	204	412	304	—	—	—	—	270	323	—	—	—
HDO 160 4	**96.3**	18.7	129080	274	205	413	305	—	—	—	—	271	324	—	—	—
HDO 160 4	**115.2**	15.6	126060	224	217	425	317	—	—	—	—	283	—	—	—	—
HDO 160 4	**125.2**	14.4	137000	224	218	426	318	—	—	—	—	284	—	—	—	—
HDO 160 4	**137.1**	13.1	143080	213	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	11.2	146300	187	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	10.3	146330	172	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	9.3	132000	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	8.5	141660	136	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	7.3	146300	121	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	6.7	147070	111	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

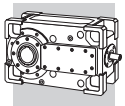


HDO 160 — n_1 = 1800 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 160 2	**7.3**	246	84950	2282	*	*	*	*	*	*	●	*	*	*	*	●
HDO 160 2	**7.9**	227	89700	2217	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	201	90600	1990	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**10.4**	173	97920	1843	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**11.3**	159	100750	1745	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**12.2**	148	92930	1501	*	*	*	*	*	*		*	*	*	700	
HDO 160 2	**14.2**	127	104970	1452	*	*	*	*	*	*		*	*	*	715	
HDO 160 2	**15.4**	117	108140	1377	*	*	*	*	*	*		*	*	*	723	
HDO 160 3	**17.7**	101	97020	1096	*	*	*	*	*	*	*	*	*	*	552	762
HDO 160 3	**20.7**	87	113190	1095	*	*	*	*	*	*	*	*	*	*	558	768
HDO 160 3	**22.5**	80	123030	1095	*	*	*	*	*	*	*	*	*	*	561	771
HDO 160 3	**24.6**	73	112310	913	*	*	*	*	*	*	391	*	*	*	581	791
HDO 160 3	**28.8**	63	131120	913	*	*	*	*	*	*	395	*	*	*	585	795
HDO 160 3	**31.3**	58	138760	889	*	*	*	*	*	367	397	*	*	365	587	797
HDO 160 3	**34.9**	52	110880	636	*	374	*	275	373	443	473	257	325	441	663	—
HDO 160 3	**40.7**	44	129410	636	*	377	*	278	376	446	476	260	328	444	666	—
HDO 160 3	**44.3**	41	134530	608	*	378	248	279	377	447	477	261	329	445	667	—
HDO 160 3	**49.4**	36	116760	473	195	396	266	297	395	465	495	279	347	463	685	—
HDO 160 3	**54.1**	33	118630	439	203	404	274	305	403	473	—	287	355	471	—	—
HDO 160 3	**63.2**	28.5	138490	439	204	405	275	306	404	474	—	288	356	472	—	—
HDO 160 3	**68.6**	26.2	137580	401	205	406	276	307	405	—	—	289	357	473	—	—
HDO 160 4	**75.9**	23.7	101750	274	135	288	190	215	292	—	—	201	254	345	—	—
HDO 160 4	**88.6**	20.3	118740	274	136	289	191	216	293	—	—	202	255	346	—	—
HDO 160 4	**96.3**	18.7	129080	274	137	290	192	217	294	—	—	203	256	347	—	—
HDO 160 4	**115.2**	15.6	126060	224	149	302	204	229	—	—	—	215	268	—	—	—
HDO 160 4	**125.2**	14.4	137000	224	149	302	204	229	—	—	—	215	268	—	—	—
HDO 160 4	**137.1**	13.1	143080	213	155	308	210	235	—	—	—	221	—	—	—	—
HDO 160 4	**160.1**	11.2	146300	187	155	308	210	—	—	—	—	221	—	—	—	—
HDO 160 4	**174.0**	10.3	146330	172	156	309	211	—	—	—	—	222	—	—	—	—
HDO 160 4	**194.1**	9.3	132000	139	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	8.5	141660	136	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	7.3	146300	121	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	6.7	147070	111	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

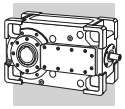


HDO 160 — n_1 = 1500 min^{-1}

					t_a = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	205	89730	2009	*	*	*	*	*	*	⊖	*	*	*	*	⊖
HDO 160 2	**7.9**	189	94750	1951	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	168	95690	1752	*	*	*	*	*	755		*	*	*	760	
HDO 160 2	**10.4**	144	103430	1622	*	*	*	*	*	773		*	*	*	778	
HDO 160 2	**11.3**	132	106410	1536	*	*	*	*	*	781		*	*	*	786	
HDO 160 2	**12.2**	123	98150	1321	*	557	*	*	706	881		*	*	580	886	
HDO 160 2	**14.2**	106	110890	1279	*	569	*	*	718	893		*	*	592	898	
HDO 160 2	**15.4**	97	114230	1212	*	574	*	*	723	898		*	*	597	903	
HDO 160 3	**17.7**	85	102810	967	*	431	*	*	553	679	743	*	*	461	683	893
HDO 160 3	**20.7**	72	119990	967	*	436	*	*	558	684	748	*	*	466	688	898
HDO 160 3	**22.5**	67	130430	967	*	438	*	*	560	686	750	*	*	468	690	900
HDO 160 3	**24.6**	61	119050	806	*	454	343	400	576	702	766	*	368	484	706	916
HDO 160 3	**28.8**	52	138950	806	*	457	346	403	579	705	769	*	371	487	709	919
HDO 160 3	**31.3**	48	139750	746	*	458	347	404	580	706	770	304	372	488	710	920
HDO 160 3	**34.9**	43	118520	567	278	516	405	462	638	—	—	362	430	546	768	—
HDO 160 3	**40.7**	37	138380	567	281	519	408	465	641	—	—	365	433	549	771	—
HDO 160 3	**44.3**	34	138440	522	282	520	409	466	642	—	—	366	434	550	—	—
HDO 160 3	**49.4**	30	123770	418	296	534	423	—	—	—	—	380	448	—	—	—
HDO 160 3	**54.1**	27.7	125770	388	301	539	428	—	—	—	—	385	453	—	—	—
HDO 160 3	**63.2**	23.8	144850	383	303	541	430	—	—	—	—	387	—	—	—	—
HDO 160 3	**68.6**	21.9	137030	333	303	541	430	—	—	—	—	387	—	—	—	—
HDO 160 4	**75.9**	19.8	107850	242	215	396	315	—	—	—	—	281	—	—	—	—
HDO 160 4	**88.6**	16.9	125870	242	216	397	316	—	—	—	—	282	—	—	—	—
HDO 160 4	**96.3**	15.6	136820	242	216	397	316	—	—	—	—	282	—	—	—	—
HDO 160 4	**115.2**	13.0	126280	187	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	12.0	138630	189	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	10.9	142460	177	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	9.4	146300	156	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	8.6	147070	144	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	7.7	139890	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	7.1	141140	113	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	6.0	146300	100	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	5.6	147070	93	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

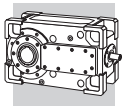


HDO 160 — n_1 = 1500 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 160 2	**7.3**	205	89730	2009	*	*	*	*	*	*	●	*	*	*	*	●
HDO 160 2	**7.9**	189	94750	1951	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**8.9**	168	95690	1752	*	*	*	*	*	*		*	*	*	*	
HDO 160 2	**10.4**	144	103430	1622	*	*	*	*	*	*		*	*	*	660	
HDO 160 2	**11.3**	132	106410	1536	*	*	*	*	*	*		*	*	*	668	
HDO 160 2	**12.2**	123	98150	1321	*	*	*	*	*	*		*	*	*	768	
HDO 160 2	**14.2**	106	110890	1279	*	*	*	*	*	*		*	*	*	780	
HDO 160 2	**15.4**	97	114230	1212	*	*	*	*	*	*		*	*	*	785	
HDO 160 3	**17.7**	85	102810	967	*	*	*	*	*	*	404	*	*	*	594	804
HDO 160 3	**20.7**	72	119990	967	*	*	*	*	*	*	408	*	*	*	598	808
HDO 160 3	**22.5**	67	130430	967	*	*	*	*	*	*	411	*	*	*	601	811
HDO 160 3	**24.6**	61	119050	806	*	*	*	*	326	396	426	*	*	394	616	826
HDO 160 3	**28.8**	52	138950	806	*	*	*	*	329	399	429	*	*	397	619	829
HDO 160 3	**31.3**	48	139750	746	*	305	*	*	331	401	431	*	*	399	621	831
HDO 160 3	**34.9**	43	118520	567	*	363	260	291	389	459	489	273	341	457	679	—
HDO 160 3	**40.7**	37	138380	567	*	365	262	293	391	461	491	275	343	459	681	—
HDO 160 3	**44.3**	34	138440	522	*	366	263	294	392	462	492	276	344	460	682	—
HDO 160 3	**49.4**	30	123770	418	206	380	277	308	406	476	—	290	358	474	—	—
HDO 160 3	**54.1**	27.7	125770	388	212	386	283	314	412	—	—	296	364	480	—	—
HDO 160 3	**63.2**	23.8	144850	383	213	387	284	315	413	—	—	297	365	481	—	—
HDO 160 3	**68.6**	21.9	137030	333	214	388	285	316	414	—	—	298	366	—	—	—
HDO 160 4	**75.9**	19.8	107850	242	147	280	202	227	304	—	—	213	266	—	—	—
HDO 160 4	**88.6**	16.9	125870	242	147	280	202	227	304	—	—	213	266	—	—	—
HDO 160 4	**96.3**	15.6	136820	242	148	281	203	228	305	—	—	214	267	—	—	—
HDO 160 4	**115.2**	13.0	126280	187	157	290	212	—	—	—	—	223	—	—	—	—
HDO 160 4	**125.2**	12.0	138630	189	158	291	213	—	—	—	—	224	—	—	—	—
HDO 160 4	**137.1**	10.9	142460	177	162	295	217	—	—	—	—	228	—	—	—	—
HDO 160 4	**160.1**	9.4	146300	156	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	8.6	147070	144	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	7.7	139890	123	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	7.1	141140	113	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	6.0	146300	100	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	5.6	147070	93	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

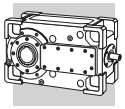


HDO 160 — n_1 = 1200 min^{-1}

					t_a = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	164	95950	1718	*	*	*	*	*	822	●	*	*	*	827	●
HDO 160 2	**7.9**	151	101300	1669	*	*	*	*	*	833		*	*	*	838	
HDO 160 2	**8.9**	134	102330	1499	*	*	*	*	657	832		*	*	*	837	
HDO 160 2	**10.4**	115	110590	1388	*	*	*	*	672	847		*	*	*	852	
HDO 160 2	**11.3**	106	113790	1314	*	*	*	*	678	853		*	*	552	858	
HDO 160 2	**12.2**	99	104960	1130	*	572	*	513	756	931		*	470	630	936	
HDO 160 2	**14.2**	85	118570	1094	*	581	444	522	765	940		*	479	639	945	
HDO 160 2	**15.4**	78	122130	1036	*	586	449	527	770	945		*	484	644	950	
HDO 160 3	**17.7**	68	109930	828	*	438	351	408	584	710	774	*	376	492	714	924
HDO 160 3	**20.7**	58	128300	827	*	442	355	412	588	714	778	*	380	496	718	928
HDO 160 3	**22.5**	53	139460	827	*	443	356	413	589	715	779	*	381	497	719	929
HDO 160 3	**24.6**	49	127290	690	*	455	368	425	601	727	—	325	393	509	731	—
HDO 160 3	**28.8**	42	146300	679	*	458	371	428	604	730	—	328	396	512	734	—
HDO 160 3	**31.3**	38	138890	593	245	459	372	429	605	—	—	329	397	513	735	—
HDO 160 3	**34.9**	34	127430	487	290	504	417	474	650	—	—	374	442	558	—	—
HDO 160 3	**40.7**	29.5	145570	477	292	506	419	476	652	—	—	376	444	560	—	—
HDO 160 3	**44.3**	27.1	137690	415	293	507	420	—	—	—	—	377	445	—	—	—
HDO 160 3	**49.4**	24.3	131890	356	304	518	431	—	—	—	—	388	—	—	—	—
HDO 160 3	**54.1**	22.2	129470	319	308	522	435	—	—	—	—	392	—	—	—	—
HDO 160 3	**63.2**	19.0	144180	305	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**68.6**	17.5	136410	265	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	15.8	115310	207	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	13.5	134500	207	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	12.5	142280	201	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	10.4	126280	149	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	9.6	137260	149	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	8.8	141760	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	7.5	146300	125	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	6.9	147070	115	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	6.2	143330	101	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	5.6	140570	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.8	146300	80	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	4.4	147070	74	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

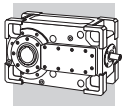


HDO 160 — n_1 = 1200 min^{-1}

	i	n_2	Mn_2	Pn_1	t_a = 40°C											
					P_T	P_{TFAN}	P_{TMCRA5}	P_{TMCRA9}	$P_{TMCRA21}$	$P_{TMCRA34}$	$P_{TMCRA51}$	P_{TMCRW5}	P_{TMCRW9}	$P_{TMCRW21}$	$P_{TMCRW34}$	$P_{TMCRW51}$
		[min^{-1}]	[Nm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
HDO 160 2	**7.3**	164	95950	1718	*	*	*	*	*	*	●	*	*	*	709	●
HDO 160 2	**7.9**	151	101300	1669	*	*	*	*	*	*		*	*	*	720	
HDO 160 2	**8.9**	134	102330	1499	*	*	*	*	*	*		*	*	*	719	
HDO 160 2	**10.4**	115	110590	1388	*	*	*	*	*	*		*	*	*	734	
HDO 160 2	**11.3**	106	113790	1314	*	*	*	*	*	*		*	*	*	740	
HDO 160 2	**12.2**	99	104960	1130	*	*	*	*	*	515		*	*	512	818	
HDO 160 2	**14.2**	85	118570	1094	*	*	*	*	*	524		*	*	521	827	
HDO 160 2	**15.4**	78	122130	1036	*	*	*	*	432	529		*	*	526	832	
HDO 160 3	**17.7**	68	109930	828	*	*	*	*	334	404	434	*	*	402	624	834
HDO 160 3	**20.7**	58	128300	827	*	*	*	*	338	408	438	*	*	406	628	838
HDO 160 3	**22.5**	53	139460	827	*	*	*	*	340	410	440	*	*	408	630	840
HDO 160 3	**24.6**	49	127290	690	*	308	*	*	351	421	451	*	303	419	641	851
HDO 160 3	**28.8**	42	146300	679	*	311	*	*	354	424	454	*	306	422	644	854
HDO 160 3	**31.3**	38	138890	593	*	312	*	257	355	425	455	239	307	423	645	—
HDO 160 3	**34.9**	34	127430	487	201	358	272	303	401	471	501	285	353	469	691	—
HDO 160 3	**40.7**	29.5	145570	477	202	359	273	304	402	472	502	286	354	470	692	—
HDO 160 3	**44.3**	27.1	137690	415	203	360	274	305	403	473	—	287	355	471	—	—
HDO 160 3	**49.4**	24.3	131890	356	214	371	285	316	414	—	—	298	366	—	—	—
HDO 160 3	**54.1**	22.2	129470	319	218	375	289	320	—	—	—	302	370	—	—	—
HDO 160 3	**63.2**	19.0	144180	305	220	377	291	322	—	—	—	304	372	—	—	—
HDO 160 3	**68.6**	17.5	136410	265	220	377	291	—	—	—	—	304	—	—	—	—
HDO 160 4	**75.9**	15.8	115310	207	155	274	210	—	—	—	—	221	—	—	—	—
HDO 160 4	**88.6**	13.5	134500	207	156	275	211	—	—	—	—	222	—	—	—	—
HDO 160 4	**96.3**	12.5	142280	201	156	275	211	—	—	—	—	222	—	—	—	—
HDO 160 4	**115.2**	10.4	126280	149	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	9.6	137260	149	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	8.8	141760	141	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	7.5	146300	125	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	6.9	147070	115	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	6.2	143330	101	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	5.6	140570	90	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.8	146300	80	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	4.4	147070	74	—	—	—	—	—	—	—	—	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

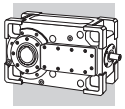


HDO 160 — n_1 = 1000 min^{-1}

					t_a = 20°C											
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	137	101350	1513	*	*	*	*	702	877	●	*	*	*	882	●
HDO 160 2	**7.9**	126	107010	1469	*	*	*	*	711	886		*	*	*	891	
HDO 160 2	**8.9**	112	108070	1319	*	*	*	*	710	885		*	*	584	890	
HDO 160 2	**10.4**	96	116810	1221	*	*	*	*	722	897		*	*	596	902	
HDO 160 2	**11.3**	88	120180	1156	*	474	*	484	727	902		*	*	601	907	
HDO 160 2	**12.2**	82	110850	995	*	537	469	547	790	965		410	504	664	970	
HDO 160 2	**14.2**	71	125230	963	*	545	477	555	798	973		418	512	672	978	
HDO 160 2	**15.4**	65	129010	912	*	548	480	558	801	976		421	515	675	981	
HDO 160 3	**17.7**	56	111830	702	*	411	372	429	605	731	—	329	397	513	735	—
HDO 160 3	**20.7**	48	130520	701	*	414	375	432	608	734	—	332	400	516	738	—
HDO 160 3	**22.5**	44	139450	690	*	415	376	433	609	735	—	333	401	517	739	—
HDO 160 3	**24.6**	41	134450	607	259	425	386	443	619	—	—	343	411	527	749	—
HDO 160 3	**28.8**	35	146160	565	261	427	388	445	621	—	—	345	413	529	751	—
HDO 160 3	**31.3**	32	138240	492	262	428	389	446	622	—	—	346	414	530	—	—
HDO 160 3	**34.9**	28.6	132770	423	298	464	425	—	—	—	—	382	450	—	—	—
HDO 160 3	**40.7**	24.5	144960	396	300	466	427	—	—	—	—	384	452	—	—	—
HDO 160 3	**44.3**	22.6	137130	344	300	466	427	—	—	—	—	384	—	—	—	—
HDO 160 3	**49.4**	20.2	131890	297	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**54.1**	18.5	129470	266	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**63.2**	15.8	146300	258	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 3	**68.6**	14.6	139010	225	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**75.9**	13.2	121800	182	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**88.6**	11.3	134500	172	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**96.3**	10.4	146200	172	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**115.2**	8.7	126280	124	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	8.0	138630	126	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	7.3	141230	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	6.2	146300	104	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	5.7	147070	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	5.2	143330	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	4.7	140490	75	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.0	146300	67	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	3.7	147070	62	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

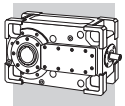


HDO 160 — n_1 = 1000 min^{-1}

	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 40°C											
					P_T [kW]	P_{TFAN} [kW]	P_{TMCRA5} [kW]	P_{TMCRA9} [kW]	$P_{TMCRA21}$ [kW]	$P_{TMCRA34}$ [kW]	$P_{TMCRA51}$ [kW]	P_{TMCRW5} [kW]	P_{TMCRW9} [kW]	$P_{TMCRW21}$ [kW]	$P_{TMCRW34}$ [kW]	$P_{TMCRW51}$ [kW]
HDO 160 2	**7.3**	137	101350	1513	*	*	*	*	*	*	●	*	*	*	764	●
HDO 160 2	**7.9**	126	107010	1469	*	*	*	*	*	*		*	*	*	773	
HDO 160 2	**8.9**	112	108070	1319	*	*	*	*	*	*		*	*	*	772	
HDO 160 2	**10.4**	96	116810	1221	*	*	*	*	*	*		*	*	*	784	
HDO 160 2	**11.3**	88	120180	1156	*	*	*	*	*	486		*	*	483	789	
HDO 160 2	**12.2**	82	110850	995	*	*	*	*	452	549		*	*	546	852	
HDO 160 2	**14.2**	71	125230	963	*	*	*	*	460	557		*	394	554	860	
HDO 160 2	**15.4**	65	129010	912	*	365	*	*	463	560		*	397	557	863	
HDO 160 3	**17.7**	56	111830	702	*	*	*	*	355	425	455	*	307	423	645	855
HDO 160 3	**20.7**	48	130520	701	*	*	*	*	358	428	458	*	310	426	648	858
HDO 160 3	**22.5**	44	139450	690	*	281	*	*	359	429	459	*	311	427	649	859
HDO 160 3	**24.6**	41	134450	607	*	291	*	271	369	439	469	253	321	437	659	—
HDO 160 3	**28.8**	35	146160	565	*	293	242	273	371	441	471	255	323	439	661	—
HDO 160 3	**31.3**	32	138240	492	*	294	243	274	372	442	472	256	324	440	662	—
HDO 160 3	**34.9**	28.6	132770	423	209	331	280	311	409	479	—	293	361	477	—	—
HDO 160 3	**40.7**	24.5	144960	396	210	332	281	312	410	—	—	294	362	478	—	—
HDO 160 3	**44.3**	22.6	137130	344	211	333	282	313	411	—	—	295	363	—	—	—
HDO 160 3	**49.4**	20.2	131890	297	220	342	291	322	—	—	—	304	—	—	—	—
HDO 160 3	**54.1**	18.5	129470	266	223	345	294	—	—	—	—	307	—	—	—	—
HDO 160 3	**63.2**	15.8	146300	258	224	346	295	—	—	—	—	308	—	—	—	—
HDO 160 3	**68.6**	14.6	139010	225	224	346	295	—	—	—	—	308	—	—	—	—
HDO 160 4	**75.9**	13.2	121800	182	161	254	216	—	—	—	—	227	—	—	—	—
HDO 160 4	**88.6**	11.3	134500	172	161	254	216	—	—	—	—	227	—	—	—	—
HDO 160 4	**96.3**	10.4	146200	172	161	254	216	—	—	—	—	227	—	—	—	—
HDO 160 4	**115.2**	8.7	126280	124	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**125.2**	8.0	138630	126	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**137.1**	7.3	141230	117	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**160.1**	6.2	146300	104	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**174.0**	5.7	147070	96	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**194.1**	5.2	143330	84	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**212.6**	4.7	140490	75	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**248.1**	4.0	146300	67	—	—	—	—	—	—	—	—	—	—	—	—
HDO 160 4	**269.7**	3.7	147070	62	—	—	—	—	—	—	—	—	—	—	—	—

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— Thermal verification not necessary

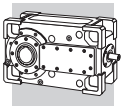


HDO 170 — n_1 = 1500 min^{-1}

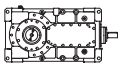
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	t_a = 20°C		t_a = 40°C	
					P_T [kW]	P_{TFAN} [kW]	P_T [kW]	P_{TFAN} [kW]
HDO 170 3	**15.9**	94	130010	1364	*	*	*	*
HDO 170 3	**18.5**	81	150910	1364	*	*	*	*
HDO 170 3	**20.0**	75	163440	1364	*	*	*	*
HDO 170 3	**21.7**	69	146900	1132	*	469	*	*
HDO 170 3	**26.2**	57	165080	1052	*	554	*	*
HDO 170 3	**28.4**	53	178800	1052	*	556	*	*
HDO 170 3	**30.7**	49	158700	862	*	570	*	396
HDO 170 3	**35.7**	42	184210	862	*	572	*	398
HDO 170 3	**38.6**	37	183140	753	322	596	*	422
HDO 170 3	**44.0**	34	181730	690	323	597	*	423
HDO 170 3	**47.6**	31	176740	619	331	605	*	431
HDO 170 3	**55.3**	27.1	189370	572	333	607	232	433
HDO 170 3	**59.9**	25.1	180390	503	334	608	232	433
HDO 170 4	**72.9**	20.6	172210	402	251	450	171	317
HDO 170 4	**84.6**	17.7	190190	383	264	463	184	330
HDO 170 4	**91.6**	16.4	182320	339	265	464	184	330
HDO 170 4	**99.3**	15.1	188900	324	258	457	178	324
HDO 170 4	**115.2**	13.0	190190	281	268	467	187	333
HDO 170 4	**124.8**	12.0	182320	249	—	—	187	333
HDO 170 4	**139.8**	10.7	183700	224	—	—	195	341
HDO 170 4	**162.3**	9.2	190190	200	—	—	—	—
HDO 170 4	**175.8**	8.5	182320	177	—	—	—	—
HDO 170 4	**190.5**	7.9	188900	169	—	—	—	—
HDO 170 4	**221.1**	6.8	190190	146	—	—	—	—
HDO 170 4	**239.5**	6.3	182320	130	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary



HDO 180 — n_1 = 1500 min^{-1}

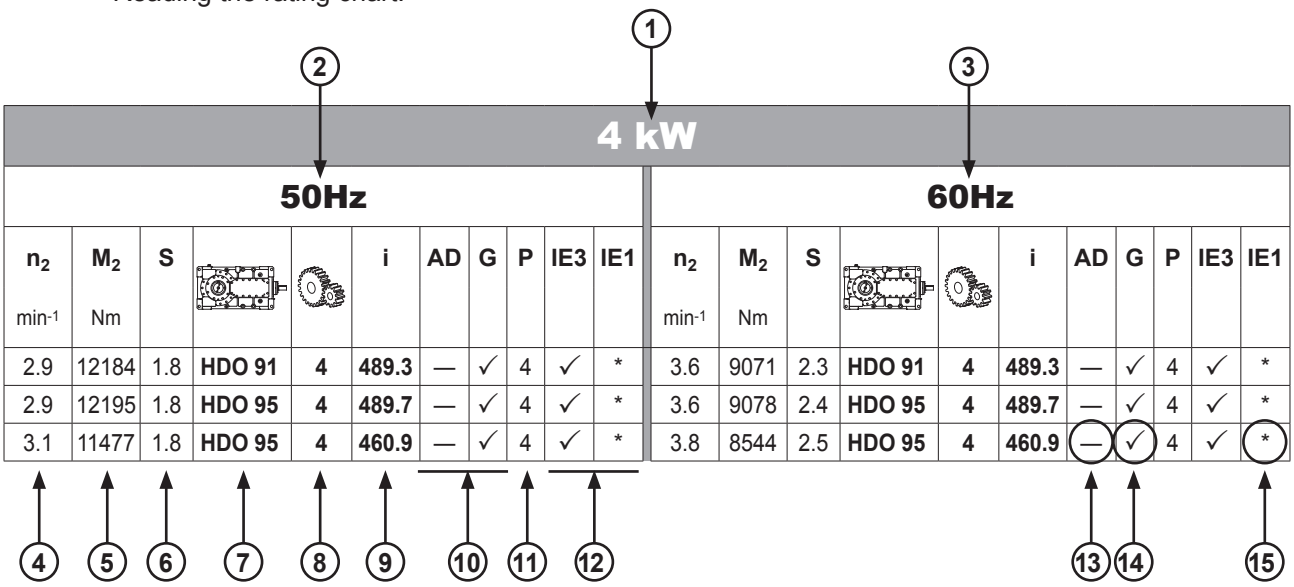
					t_a = 20°C		t_a = 40°C	
	i	n_2 [min^{-1}]	Mn_2 [Nm]	Pn_1 [kW]	P_T [kW]	P_{TFAN} [kW]	P_T [kW]	P_{TFAN} [kW]
HDO 180 3	**17.7**	85	144460	1363	*	*	*	*
HDO 180 3	**20.5**	73	167160	1363	*	*	*	*
HDO 180 3	**22.1**	68	180780	1363	*	*	*	*
HDO 180 3	**24.1**	62	163220	1130	*	498	*	*
HDO 180 3	**27.9**	54	188870	1130	*	502	*	*
HDO 180 3	**31.4**	48	197760	1052	*	585	*	*
HDO 180 3	**34.1**	44	176340	862	*	598	*	417
HDO 180 3	**39.5**	38	202450	855	*	601	*	419
HDO 180 3	**42.7**	35	198560	776	324	602	*	420
HDO 180 3	**48.6**	31	197890	679	348	626	*	444
HDO 180 3	**52.9**	28.3	196380	619	355	633	248	452
HDO 180 3	**61.2**	24.5	202450	552	357	635	249	453
HDO 180 3	**66.2**	22.7	196430	495	358	636	250	454
HD0 180 4	**81.0**	18.5	191340	402	270	472	184	332
HD0 180 4	**93.7**	16.0	202450	368	283	485	197	345
HD0 180 4	**101.3**	14.8	199380	335	283	485	197	345
HD0 180 4	**110.3**	13.6	209900	324	277	479	191	339
HD0 180 4	**127.6**	11.8	202450	270	—	—	201	349
HD0 180 4	**138.0**	10.9	207020	255	—	—	201	349
HD0 180 4	**155.4**	9.7	204100	224	—	—	208	356
HD0 180 4	**179.8**	8.3	202450	192	—	—	—	—
HD0 180 4	**194.5**	7.7	205480	180	—	—	—	—
HD0 180 4	**211.6**	7.1	209900	169	—	—	—	—
HD0 180 4	**244.9**	6.1	202450	141	—	—	—	—

* BONFIGLIOLI TECHNICAL SERVICE

— Thermal verification not necessary

28.1 GEARMOTOR RATING CHARTS

Reading the rating chart.



1	Motor Power coupled with the gearbox
2	50 Hz section
3	60 Hz section
4	Gearbox output speed
5	Torque delivered at the output shaft
6	Service factor
7	Gearbox size
8	Gearbox stages
9	Gearbox ratio
10	Availability for direct motor mounting (AD) / coupling through bell housing and flexible coupling (G)
11	Number of motor poles
12	Efficiency motor availability
13	Symbol for not available variant
14	Symbol for available variant
15	Contact Bonfiglioli Technical Support

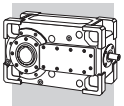
For the complete gearmotor desingation see motor correlation tables

POLE		**4**	
Efficiency class		**IE1**	**IE3**
Pn [kW]	**4**	BN 112M 4	BX 112M 4
	5.5	BN 132S 4	BX 132SB 4
	7.5	BN 132MA 4	BX 132MA 4
	9.2	BN 132MB 4	BX 160MA 4
	11	BN 160MR 4	BX 160MB 4
	15	BN 160L 4	BX 160L 4
	18.5	BN 180M 4	BX 180M 4
	22	BN 180L 4	BX 180L 4
	30	BN 200L 4	BX 200LAK 4
	37	—	BX 225SAK 4
	45	—	BX 225SBK 4
	55	—	BX 250MAK 4
	75	—	BX 280SAK 4
	90	—	BX 280SBK 4

For more information on Bonfiglioli electric motors, as available options, performances, dimensions, etc. ... see the specific catalogue.

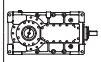
Example of complete gearmotor designation: **HDO 81 3 59.6 AD 180 BX 180M 4**

For Thermal Power validation take in consideration the appropriate catalogue section.

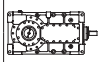


4 kW

50Hz

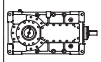
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
2.9	12184	1.8	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
2.9	12195	1.8	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*
3.1	11477	1.8	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.2	11196	1.8	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
3.4	10496	2.2	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
3.6	10056	2.0	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.0	9032	2.3	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
4.1	8811	2.2	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
4.4	8110	2.4	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
4.5	7913	2.4	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*

60Hz

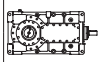
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.6	9071	2.3	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.6	9078	2.4	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*
3.8	8544	2.5	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.9	8335	2.4	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
4.2	7813	3.0	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
4.4	7486	2.7	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
5.0	6559	2.9	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*

5.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.0	16246	1.3	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.0	16259	1.3	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*
3.2	14929	1.4	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
3.2	15303	1.4	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.5	13994	1.7	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
3.6	13407	1.5	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.0	12043	1.7	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
4.1	11748	1.7	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
4.5	10814	1.8	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
4.6	10551	1.8	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*
5.2	9317	2.4	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
5.4	8927	2.3	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
5.7	8512	2.3	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*
5.7	8519	2.5	**HDO 95**	**4**	**256.6**	—	✓	4	✓	*
6.3	7674	2.7	**HDO 95**	**4**	**231.1**	—	✓	4	✓	*
6.5	7486	2.6	**HDO 91**	**4**	**225.4**	—	✓	4	✓	*

60Hz

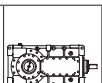
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.6	13403	1.6	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.6	13414	1.6	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*
3.8	12625	1.7	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.9	12316	1.6	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
4.2	11545	2.0	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
4.4	11061	1.8	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.9	9935	2.1	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
5.0	9692	2.0	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
5.4	8921	2.2	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
5.6	8705	2.2	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*
6.3	7687	2.8	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
6.6	7364	2.8	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
6.9	7022	2.7	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*

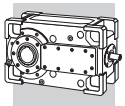
7.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.0	22112	1.0	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.0	22131	1.0	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.6	18276	1.1	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.6	18292	1.2	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*



7.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.2	20319	1.0	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
3.2	20829	1.0	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.5	19048	1.2	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
3.6	18249	1.1	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.0	16392	1.3	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
4.1	15991	1.2	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
4.5	14719	1.3	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
4.6	14361	1.3	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*
5.2	12682	1.8	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
5.4	12150	1.7	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
5.7	11586	1.7	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*
5.7	11596	1.8	**HDO 95**	**4**	**256.6**	—	✓	4	✓	*
6.3	10445	2.0	**HDO 95**	**4**	**231.1**	—	✓	4	✓	*
6.5	10189	1.9	**HDO 91**	**4**	**225.4**	—	✓	4	✓	*
6.9	9552	2.2	**HDO 95**	**4**	**211.3**	—	✓	4	✓	*
7.2	9151	2.2	**HDO 91**	**4**	**202.5**	—	✓	4	✓	*
8.0	8220	2.5	**HDO 95**	**4**	**181.9**	—	✓	4	✓	*
8.2	8019	2.4	**HDO 91**	**4**	**177.4**	—	✓	4	✓	*
8.9	7389	2.9	**HDO 95**	**4**	**163.5**	—	✓	4	✓	*
9.2	7202	2.7	**HDO 91**	**4**	**159.3**	—	✓	4	✓	*
10.6	6196	2.7	**HDO 91**	**4**	**137.1**	—	✓	4	✓	*
11.4	5810	3.0	**HDO 91**	**4**	**128.5**	—	✓	4	✓	*
21.1	3190	2.2	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
24.5	2747	2.7	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
26.9	2500	2.9	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.8	17216	1.2	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.9	16795	1.2	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
4.2	15743	1.5	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
4.4	15083	1.3	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.9	13548	1.5	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
5.0	13217	1.5	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
5.4	12165	1.6	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
5.6	11870	1.6	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*
6.3	10482	2.1	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
6.6	10042	2.0	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
6.9	9576	2.0	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*
6.9	9584	2.2	**HDO 95**	**4**	**256.6**	—	✓	4	✓	*
7.7	8633	2.4	**HDO 95**	**4**	**231.1**	—	✓	4	✓	*
7.9	8422	2.3	**HDO 91**	**4**	**225.4**	—	✓	4	✓	*
8.4	7895	2.6	**HDO 95**	**4**	**211.3**	—	✓	4	✓	*
8.7	7564	2.7	**HDO 91**	**4**	**202.5**	—	✓	4	✓	*
10.0	6628	2.9	**HDO 91**	**4**	**177.4**	—	✓	4	✓	*
25.6	2636	2.7	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*

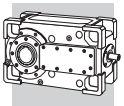
9.2 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.5	23324	1.0	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
3.6	22346	0.9	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.0	20072	1.0	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
4.1	19580	1.0	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
4.5	18023	1.1	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
4.6	17585	1.1	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*
5.2	15529	1.4	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
5.4	14878	1.4	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
5.7	14187	1.4	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*
5.7	14199	1.5	**HDO 95**	**4**	**256.6**	—	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
3.6	22383	0.9	**HDO 91**	**4**	**489.3**	—	✓	4	✓	*
3.6	22402	1.0	**HDO 95**	**4**	**489.7**	—	✓	4	✓	*
3.8	21084	1.0	**HDO 95**	**4**	**460.9**	—	✓	4	✓	*
3.9	20568	1.0	**HDO 91**	**4**	**449.6**	—	✓	4	✓	*
4.2	19281	1.2	**HDO 95**	**4**	**421.4**	—	✓	4	✓	*
4.4	18472	1.1	**HDO 91**	**4**	**403.8**	—	✓	4	✓	*
4.9	16592	1.2	**HDO 95**	**4**	**362.7**	—	✓	4	✓	*
5.0	16186	1.2	**HDO 91**	**4**	**353.8**	—	✓	4	✓	*
5.4	14899	1.3	**HDO 95**	**4**	**325.7**	—	✓	4	✓	*
5.6	14537	1.3	**HDO 91**	**4**	**317.8**	—	✓	4	✓	*



9.2 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
6.3	12790	1.6	**HDO 95**	**4**	**231.1**	—	✓	4	✓	*
6.5	12477	1.5	**HDO 91**	**4**	**225.4**	—	✓	4	✓	*
6.9	11696	1.8	**HDO 95**	**4**	**211.3**	—	✓	4	✓	*
7.2	11205	1.8	**HDO 91**	**4**	**202.5**	—	✓	4	✓	*
8.0	10065	2.1	**HDO 95**	**4**	**181.9**	—	✓	4	✓	*
8.2	9819	2.0	**HDO 91**	**4**	**177.4**	—	✓	4	✓	*
8.9	9048	2.4	**HDO 95**	**4**	**163.5**	—	✓	4	✓	*
9.2	8818	2.2	**HDO 91**	**4**	**159.3**	—	✓	4	✓	*
10.4	7787	2.6	**HDO 95**	**4**	**140.7**	—	✓	4	✓	*
10.6	7587	2.2	**HDO 91**	**4**	**137.1**	—	✓	4	✓	*
11.4	7114	2.4	**HDO 91**	**4**	**128.5**	—	✓	4	✓	*
12.4	6537	2.8	**HDO 91**	**4**	**118.1**	—	✓	4	✓	*
21.1	3906	1.8	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
24.5	3364	2.2	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
26.9	3061	2.3	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
31	2637	2.8	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
33	2523	2.8	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
6.3	12837	1.7	**HDO 95**	**4**	**280.6**	—	✓	4	✓	*
6.6	12299	1.6	**HDO 91**	**4**	**268.8**	—	✓	4	✓	*
6.9	11728	1.6	**HDO 91**	**4**	**256.3**	—	✓	4	✓	*
6.9	11738	1.8	**HDO 95**	**4**	**256.6**	—	✓	4	✓	*
7.7	10573	2.0	**HDO 95**	**4**	**231.1**	—	✓	4	✓	*
7.9	10314	1.9	**HDO 91**	**4**	**225.4**	—	✓	4	✓	*
8.4	9669	2.1	**HDO 95**	**4**	**211.3**	—	✓	4	✓	*
8.7	9263	2.2	**HDO 91**	**4**	**202.5**	—	✓	4	✓	*
9.7	8320	2.5	**HDO 95**	**4**	**181.9**	—	✓	4	✓	*
10.0	8117	2.3	**HDO 91**	**4**	**177.4**	—	✓	4	✓	*
10.8	7479	2.9	**HDO 95**	**4**	**163.5**	—	✓	4	✓	*
11.1	7290	2.6	**HDO 91**	**4**	**159.3**	—	✓	4	✓	*
12.9	6272	2.6	**HDO 91**	**4**	**137.1**	—	✓	4	✓	*
13.8	5881	2.8	**HDO 91**	**4**	**128.5**	—	✓	4	✓	*
25.6	3229	2.2	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
29.7	2781	2.7	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
33	2531	2.8	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*

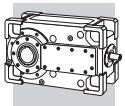
11 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
5.2	18635	1.2	**HDO 95**	**4**	**280.6**	✓	✓	4	✓	*
5.4	17853	1.1	**HDO 91**	**4**	**268.8**	✓	✓	4	✓	*
5.7	17024	1.1	**HDO 91**	**4**	**256.3**	✓	✓	4	✓	*
5.7	17039	1.3	**HDO 95**	**4**	**256.6**	✓	✓	4	✓	*
6.3	15348	1.4	**HDO 95**	**4**	**231.1**	✓	✓	4	✓	*
6.5	14972	1.3	**HDO 91**	**4**	**225.4**	✓	✓	4	✓	*
6.9	14035	1.5	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
7.2	13447	1.5	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
8.1	12078	1.7	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
8.3	11782	1.6	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
9.0	10857	2.0	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
9.2	10582	1.8	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
10.4	9344	2.1	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
10.7	9105	1.8	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
11.4	8537	2.0	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
11.4	8544	2.5	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
12.4	7845	2.3	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
12.9	7535	2.6	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
15.4	6326	2.8	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
4.2	23052	1.0	**HDO 95**	**4**	**421.4**	✓	✓	4	✓	*
4.4	22085	0.9	**HDO 91**	**4**	**403.8**	✓	✓	4	✓	*
4.9	19837	1.0	**HDO 95**	**4**	**362.7**	✓	✓	4	✓	*
5.0	19352	1.0	**HDO 91**	**4**	**353.8**	✓	✓	4	✓	*
5.4	17813	1.1	**HDO 95**	**4**	**325.7**	✓	✓	4	✓	*
5.6	17380	1.1	**HDO 91**	**4**	**317.8**	✓	✓	4	✓	*
6.3	15348	1.4	**HDO 95**	**4**	**280.6**	✓	✓	4	✓	*
6.6	14704	1.4	**HDO 91**	**4**	**268.8**	✓	✓	4	✓	*
6.9	14021	1.3	**HDO 91**	**4**	**256.3**	✓	✓	4	✓	*
6.9	14033	1.5	**HDO 95**	**4**	**256.6**	✓	✓	4	✓	*
7.7	12640	1.7	**HDO 95**	**4**	**231.1**	✓	✓	4	✓	*
7.9	12331	1.6	**HDO 91**	**4**	**225.4**	✓	✓	4	✓	*
8.4	11559	1.8	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
8.7	11075	1.8	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
9.7	9948	2.1	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
10.0	9704	2.0	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
10.8	8942	2.4	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
11.1	8715	2.2	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
12.6	7696	2.5	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*



HDO

11 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
16.0	6062	2.9	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
21.2	4687	1.5	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
21.2	4691	2.6	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
24.6	4037	1.8	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
24.6	4040	3.0	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
27.0	3673	1.9	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
31	3164	2.4	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
33	3028	2.4	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
38	2608	2.9	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
41	2413	3.0	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.9	7499	2.2	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
13.8	7031	2.4	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
15.0	6461	2.8	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
25.6	3860	1.9	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
29.7	3325	2.2	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
33	3025	2.4	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
38	2606	2.9	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
40	2494	2.9	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*

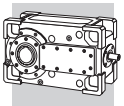
15 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
5.7	23191	0.9	**HDO 95**	**4**	**256.6**	✓	✓	4	✓	*
6.3	20890	1.0	**HDO 95**	**4**	**231.1**	✓	✓	4	✓	*
6.5	20379	0.9	**HDO 91**	**4**	**225.4**	✓	✓	4	✓	*
6.9	19103	1.1	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
7.2	18302	1.1	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
8.1	16440	1.3	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
8.3	16037	1.2	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
9.0	14778	1.4	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
9.2	14403	1.3	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
10.4	12719	1.6	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
10.7	12392	1.3	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
11.4	11620	1.5	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
11.4	11630	1.8	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
12.4	10678	1.7	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
12.9	10256	1.9	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
14.1	9378	2.3	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
15.4	8610	2.1	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
15.7	8458	2.3	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
16.0	8251	2.1	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
17.9	7410	2.3	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
17.9	7380	2.9	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*
20.3	6670	2.8	**HDO 95**	**3**	**72.3**	—	✓	4	✓	*
21.2	6379	1.1	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
21.2	6385	1.9	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
22.2	6093	2.7	**HDO 91**	**3**	**66.1**	—	✓	4	✓	*
24.6	5495	1.4	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
6.3	20938	1.0	**HDO 95**	**4**	**280.6**	✓	✓	4	✓	*
6.6	20060	1.0	**HDO 91**	**4**	**268.8**	✓	✓	4	✓	*
6.9	19129	1.0	**HDO 91**	**4**	**256.3**	✓	✓	4	✓	*
6.9	19145	1.1	**HDO 95**	**4**	**256.6**	✓	✓	4	✓	*
7.7	17245	1.2	**HDO 95**	**4**	**231.1**	✓	✓	4	✓	*
7.9	16823	1.1	**HDO 91**	**4**	**225.4**	✓	✓	4	✓	*
8.4	15770	1.3	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
8.7	15109	1.3	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
9.7	13571	1.5	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
10.0	13239	1.4	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
10.8	12199	1.8	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
11.1	11890	1.6	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
12.6	10500	1.8	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
12.9	10230	1.6	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
13.8	9592	1.7	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
13.8	9600	2.2	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
15.0	8814	2.0	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
15.6	8466	2.2	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
17.1	7741	2.7	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
18.6	7108	2.4	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
18.9	6982	2.6	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
19.4	6811	2.5	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
21.6	6117	2.6	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
25.6	5266	1.4	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
25.6	5271	2.3	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
29.7	4536	1.6	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*



15 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.6	5499	2.2	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
26.6	5086	2.4	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
27.0	5000	1.4	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
31	4381	2.4	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
31	4307	1.7	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
33	4138	2.5	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
33	4122	1.7	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
38	3564	2.5	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
38	3550	2.1	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
41	3284	2.2	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
48	2829	2.7	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
53	2574	2.8	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
29.7	4540	2.5	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
32	4199	2.7	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
33	4127	1.7	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
37	3616	2.7	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
38	3555	2.1	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
40	3416	2.8	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
40	3402	2.1	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
46	2942	2.8	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
46	2931	2.5	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
50	2711	2.7	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*

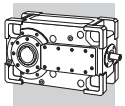
18.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
6.9	23587	0.9	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
8.1	20298	1.0	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
8.3	19801	1.0	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
9.0	18246	1.2	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
9.2	17784	1.1	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
10.4	15704	1.3	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
10.7	15301	1.1	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
11.4	14347	1.2	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
11.4	14359	1.5	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
12.4	13184	1.4	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
12.9	12663	1.5	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
14.1	11578	1.8	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
15.4	10631	1.7	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
15.7	10443	1.8	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
16.0	10187	1.7	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
17.9	9149	1.8	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
17.9	9112	2.3	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*
20.3	8235	2.3	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
21.2	7876	0.9	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
21.2	7883	1.6	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
22.2	7523	2.2	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
23.5	7087	3.0	**HDO 95**	**3**	**62.2**	✓	✓	4	✓	*
24.1	6913	2.5	**HDO 91**	**3**	**60.7**	✓	✓	4	✓	*
24.6	6784	1.1	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
6.9	23475	0.9	**HDO 95**	**4**	**256.6**	✓	✓	4	✓	*
7.7	21146	1.0	**HDO 95**	**4**	**231.1**	✓	✓	4	✓	*
7.9	20628	0.9	**HDO 91**	**4**	**225.4**	✓	✓	4	✓	*
8.4	19337	1.1	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
8.8	18526	1.1	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
9.8	16641	1.2	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
10.0	16234	1.2	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
10.9	14959	1.4	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
11.2	14580	1.3	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
12.7	12875	1.5	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
13.0	12544	1.3	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
13.8	11762	1.4	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
13.8	11772	1.8	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
15.1	10808	1.6	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
15.7	10382	1.8	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
17.2	9492	2.2	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
18.7	8715	2.0	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
19.0	8561	2.1	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
19.5	8352	2.1	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
21.7	7501	2.1	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
21.8	7470	2.8	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*
24.6	6751	2.8	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
25.7	6457	1.1	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
25.7	6463	1.9	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*



18.5 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.6	6790	1.8	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
25.7	6480	2.9	**HDO 95**	**3**	**56.9**	✓	✓	4	✓	*
26.6	6280	1.9	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
26.9	6209	2.9	**HDO 91**	**3**	**54.5**	✓	✓	4	✓	*
27.0	6173	1.2	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
28.2	5920	2.8	**HDO 91**	**3**	**52.0**	✓	✓	4	✓	*
31	5409	1.9	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
31	5317	1.4	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
33	5109	2.0	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
33	5089	1.4	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
38	4400	2.0	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
38	4383	1.7	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
41	4055	1.8	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
48	3493	2.2	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
53	3178	2.3	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*
61	2738	2.6	**HDO 71**	**3**	**24.0**	✓	✓	4	✓	*
64	2620	2.8	**HDO 71**	**3**	**23.0**	✓	✓	4	✓	*
74	2257	2.9	**HDO 71**	**3**	**19.8**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
26.9	6168	2.7	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
29.9	5562	1.3	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
29.9	5567	2.0	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
32	5148	2.2	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
33	5061	1.4	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
38	4434	2.2	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
38	4359	1.7	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
40	4188	2.3	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
40	4172	1.7	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
46	3608	2.3	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
46	3594	2.0	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
50	3325	2.2	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
58	2864	2.6	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
64	2606	2.8	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*

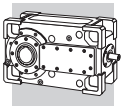
22 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
9.0	21563	1.0	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
9.2	21017	0.9	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
10.4	18559	1.1	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
10.7	18083	0.9	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
11.4	16955	1.0	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
11.4	16970	1.3	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
12.4	15581	1.2	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
12.9	14965	1.3	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
14.1	13684	1.6	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
15.4	12564	1.4	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
15.7	12342	1.6	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
16.0	12039	1.5	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
17.9	10813	1.6	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
17.9	10768	2.0	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*
20.3	9732	1.9	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
21.2	9316	1.3	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
22.2	8891	1.8	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
23.5	8375	2.5	**HDO 95**	**3**	**62.2**	✓	✓	4	✓	*

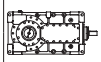
60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
8.4	23002	0.9	**HDO 95**	**4**	**211.3**	✓	✓	4	✓	*
8.8	22037	0.9	**HDO 91**	**4**	**202.5**	✓	✓	4	✓	*
9.8	19795	1.0	**HDO 95**	**4**	**181.9**	✓	✓	4	✓	*
10.0	19310	1.0	**HDO 91**	**4**	**177.4**	✓	✓	4	✓	*
10.9	17794	1.2	**HDO 95**	**4**	**163.5**	✓	✓	4	✓	*
11.1	17343	1.1	**HDO 91**	**4**	**159.3**	✓	✓	4	✓	*
12.6	15315	1.3	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
12.9	14921	1.1	**HDO 91**	**4**	**137.1**	✓	✓	4	✓	*
13.8	13991	1.2	**HDO 91**	**4**	**128.5**	✓	✓	4	✓	*
13.8	14003	1.5	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
15.0	12857	1.4	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
15.6	12349	1.5	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
17.1	11291	1.9	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
18.6	10367	1.7	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
19.0	10184	1.8	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
19.4	9935	1.7	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
21.7	8922	1.8	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
21.7	8886	2.3	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*

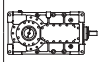


22 kW

50Hz

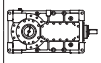
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.1	8170	2.1	**HDO 91**	**3**	**60.7**	✓	✓	4	✓	*
24.6	8018	0.9	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
24.6	8024	1.5	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
25.7	7659	2.5	**HDO 95**	**3**	**56.9**	✓	✓	4	✓	*
26.6	7422	1.6	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
26.9	7338	2.4	**HDO 91**	**3**	**54.5**	✓	✓	4	✓	*
27.0	7296	1.0	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
28.2	6997	2.3	**HDO 91**	**3**	**52.0**	✓	✓	4	✓	*
31	6392	1.6	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
31	6284	1.2	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
33	6038	1.7	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
33	6014	1.2	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
38	5201	1.7	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
38	5180	1.4	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
41	4793	1.5	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
41	4797	2.6	**HDO 81**	**3**	**35.6**	✓	✓	4	✓	*
48	4132	2.6	**HDO 81**	**3**	**30.7**	✓	✓	4	✓	*
48	4128	1.8	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
52	3821	2.8	**HDO 81**	**3**	**28.4**	✓	✓	4	✓	*
53	3756	1.9	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*
60	3291	2.8	**HDO 81**	**3**	**24.5**	✓	✓	4	✓	*
61	3235	2.2	**HDO 71**	**3**	**24.0**	✓	✓	4	✓	*
63	3109	2.9	**HDO 81**	**3**	**23.1**	✓	✓	4	✓	*
64	3097	2.3	**HDO 71**	**3**	**23.0**	✓	✓	4	✓	*
74	2678	2.9	**HDO 81**	**3**	**19.9**	✓	✓	4	✓	*
74	2667	2.5	**HDO 71**	**3**	**19.8**	✓	✓	4	✓	*
79	2489	2.8	**HDO 71**	**3**	**18.5**	✓	✓	4	✓	*
92	2144	2.8	**HDO 71**	**3**	**15.9**	✓	✓	4	✓	*

60Hz

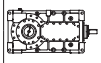
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
24.5	8031	2.4	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
25.6	7688	1.6	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
25.7	7681	0.9	**HDO 71**	**3**	**69.2**	✓	✓	4	✓	*
26.9	7337	2.2	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
29.2	6742	2.6	**HDO 91**	**3**	**60.7**	✓	✓	4	✓	*
29.8	6616	1.1	**HDO 71**	**3**	**59.6**	✓	✓	4	✓	*
29.8	6621	1.7	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
32	6124	1.9	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
33	6055	3.0	**HDO 91**	**3**	**54.5**	✓	✓	4	✓	*
33	6020	1.2	**HDO 71**	**3**	**54.2**	✓	✓	4	✓	*
34	5774	2.8	**HDO 91**	**3**	**52.0**	✓	✓	4	✓	*
37	5275	1.9	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
38	5185	1.4	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
40	4982	1.9	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
40	4963	1.5	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
46	4291	1.9	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
46	4275	1.7	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
50	3955	1.8	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
50	3958	2.9	**HDO 81**	**3**	**35.6**	✓	✓	4	✓	*
58	3409	2.9	**HDO 81**	**3**	**30.7**	✓	✓	4	✓	*
58	3406	2.2	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
64	3100	2.3	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*
74	2670	2.5	**HDO 71**	**3**	**24.0**	✓	✓	4	✓	*
77	2555	2.8	**HDO 71**	**3**	**23.0**	✓	✓	4	✓	*
90	2201	2.8	**HDO 71**	**3**	**19.8**	✓	✓	4	✓	*

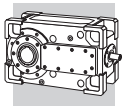
30 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
11.5	22927	0.9	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
13.1	20219	1.0	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
14.3	18487	1.2	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
15.6	16974	1.0	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
15.8	16674	1.2	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
16.2	16266	1.1	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*
18.1	14609	1.2	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
18.2	14549	1.5	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
12.7	20765	0.9	**HDO 95**	**4**	**140.7**	✓	✓	4	✓	*
13.9	18987	1.1	**HDO 95**	**4**	**128.7**	✓	✓	4	✓	*
15.1	17433	1.0	**HDO 91**	**4**	**118.1**	✓	✓	4	✓	*
15.7	16744	1.1	**HDO 95**	**4**	**113.5**	✓	✓	4	✓	*
17.2	15310	1.4	**HDO 95**	**4**	**103.7**	✓	✓	4	✓	*
18.8	14057	1.2	**HDO 91**	**4**	**95.3**	✓	✓	4	✓	*
19.1	13809	1.3	**HDO 95**	**4**	**93.6**	✓	✓	4	✓	*
19.6	13471	1.3	**HDO 91**	**4**	**91.3**	✓	✓	4	✓	*



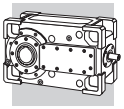
30 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
20.5	13148	1.4	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
21.4	12587	1.0	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
22.4	12012	1.4	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
23.8	11315	1.9	**HDO 95**	**3**	**62.2**	✓	✓	4	✓	*
24.4	11038	1.6	**HDO 91**	**3**	**60.7**	✓	✓	4	✓	*
24.9	10841	1.1	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
26.1	10347	1.8	**HDO 95**	**3**	**56.9**	✓	✓	4	✓	*
26.9	10027	1.2	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
27.2	9914	1.8	**HDO 91**	**3**	**54.5**	✓	✓	4	✓	*
28.5	9453	1.7	**HDO 91**	**3**	**52.0**	✓	✓	4	✓	*
30	8905	2.3	**HDO 95**	**3**	**49.0**	✓	✓	4	✓	*
31	8636	1.2	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
33	8157	1.2	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
34	7996	2.4	**HDO 95**	**3**	**44.0**	✓	✓	4	✓	*
35	7802	2.3	**HDO 91**	**3**	**42.9**	✓	✓	4	✓	*
37	7372	2.6	**HDO 95**	**3**	**40.5**	✓	✓	4	✓	*
37	7305	2.3	**HDO 91**	**3**	**40.2**	✓	✓	4	✓	*
38	7026	1.2	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
39	6999	1.1	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
40	6712	2.6	**HDO 91**	**3**	**36.9**	✓	✓	4	✓	*
42	6475	1.1	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
42	6481	1.9	**HDO 81**	**3**	**35.6**	✓	✓	4	✓	*
48	5582	1.9	**HDO 81**	**3**	**30.7**	✓	✓	4	✓	*
48	5577	1.4	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
52	5163	2.1	**HDO 81**	**3**	**28.4**	✓	✓	4	✓	*
53	5075	1.4	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*
61	4447	2.1	**HDO 81**	**3**	**24.5**	✓	✓	4	✓	*
62	4371	1.6	**HDO 71**	**3**	**24.0**	✓	✓	4	✓	*
64	4200	2.2	**HDO 81**	**3**	**23.1**	✓	✓	4	✓	*
65	4184	1.7	**HDO 71**	**3**	**23.0**	✓	✓	4	✓	*
75	3618	2.2	**HDO 81**	**3**	**19.9**	✓	✓	4	✓	*
75	3603	1.8	**HDO 71**	**3**	**19.8**	✓	✓	4	✓	*
80	3363	2.1	**HDO 71**	**3**	**18.5**	✓	✓	4	✓	*
82	3281	2.3	**HDO 81**	**3**	**18.0**	✓	✓	4	✓	*
93	2897	2.1	**HDO 71**	**3**	**15.9**	✓	✓	4	✓	*
95	2826	2.3	**HDO 81**	**3**	**15.5**	✓	✓	4	✓	*
102	2707	2.4	**HDO 71**	**2**	**14.6**	—	✓	4	✓	*
106	2605	2.4	**HDO 71**	**2**	**14.0**	—	✓	4	✓	*
123	2244	2.4	**HDO 71**	**2**	**12.1**	—	✓	4	✓	*
133	2068	2.6	**HDO 71**	**2**	**11.1**	—	✓	4	✓	*

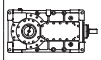
60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
21.8	12098	1.3	**HDO 91**	**4**	**82.0**	✓	✓	4	✓	*
21.9	12049	1.7	**HDO 95**	**4**	**81.6**	✓	✓	4	✓	*
24.7	10889	1.7	**HDO 95**	**3**	**72.3**	✓	✓	4	✓	*
25.8	10424	1.2	**HDO 81**	**3**	**69.2**	✓	✓	4	✓	*
27.0	9948	1.6	**HDO 91**	**3**	**66.1**	✓	✓	4	✓	*
28.7	9371	2.2	**HDO 95**	**3**	**62.2**	✓	✓	4	✓	*
29.4	9141	1.9	**HDO 91**	**3**	**60.7**	✓	✓	4	✓	*
30	8978	1.3	**HDO 81**	**3**	**59.6**	✓	✓	4	✓	*
31	8569	2.2	**HDO 95**	**3**	**56.9**	✓	✓	4	✓	*
32	8304	1.4	**HDO 81**	**3**	**55.1**	✓	✓	4	✓	*
33	8210	2.2	**HDO 91**	**3**	**54.5**	✓	✓	4	✓	*
34	7829	2.1	**HDO 91**	**3**	**52.0**	✓	✓	4	✓	*
37	7374	2.8	**HDO 95**	**3**	**49.0**	✓	✓	4	✓	*
38	7152	1.4	**HDO 81**	**3**	**47.5**	✓	✓	4	✓	*
38	7031	1.1	**HDO 71**	**3**	**46.7**	✓	✓	4	✓	*
40	6756	1.4	**HDO 81**	**3**	**44.9**	✓	✓	4	✓	*
40	6729	1.1	**HDO 71**	**3**	**44.7**	✓	✓	4	✓	*
41	6622	2.9	**HDO 95**	**3**	**44.0**	✓	✓	4	✓	*
42	6461	2.8	**HDO 91**	**3**	**42.9**	✓	✓	4	✓	*
45	6049	2.7	**HDO 91**	**3**	**40.2**	✓	✓	4	✓	*
46	5819	1.4	**HDO 81**	**3**	**38.6**	✓	✓	4	✓	*
46	5796	1.2	**HDO 71**	**3**	**38.5**	✓	✓	4	✓	*
50	5367	2.2	**HDO 81**	**3**	**35.6**	✓	✓	4	✓	*
50	5362	1.3	**HDO 71**	**3**	**35.6**	✓	✓	4	✓	*
58	4619	1.6	**HDO 71**	**3**	**30.7**	✓	✓	4	✓	*
58	4623	2.2	**HDO 81**	**3**	**30.7**	✓	✓	4	✓	*
63	4275	2.4	**HDO 81**	**3**	**28.4**	✓	✓	4	✓	*
64	4203	1.7	**HDO 71**	**3**	**27.9**	✓	✓	4	✓	*
73	3683	2.4	**HDO 81**	**3**	**24.5**	✓	✓	4	✓	*
74	3620	1.9	**HDO 71**	**3**	**24.0**	✓	✓	4	✓	*
77	3478	2.5	**HDO 81**	**3**	**23.1**	✓	✓	4	✓	*
78	3465	2.1	**HDO 71**	**3**	**23.0**	✓	✓	4	✓	*
90	2996	2.5	**HDO 81**	**3**	**19.9**	✓	✓	4	✓	*
90	2984	2.1	**HDO 71**	**3**	**19.8**	✓	✓	4	✓	*
97	2785	2.4	**HDO 71**	**3**	**18.5**	✓	✓	4	✓	*
99	2717	2.8	**HDO 81**	**3**	**18.0**	✓	✓	4	✓	*
112	2399	2.4	**HDO 71**	**3**	**15.9**	✓	✓	4	✓	*
115	2341	2.8	**HDO 81**	**3**	**15.5**	✓	✓	4	✓	*
122	2242	2.7	**HDO 71**	**2**	**14.6**	—	✓	4	✓	*
127	2158	2.7	**HDO 71**	**2**	**14.0**	—	✓	4	✓	*
148	1858	2.7	**HDO 71**	**2**	**12.1**	—	✓	4	✓	*
160	1712	3.0	**HDO 71**	**2**	**11.1**	—	✓	4	✓	*

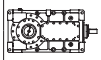


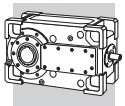
37 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
14.3	22832	0.9	**HDO 95**	**4**	**103.7**	—	✓	4	✓	—
15.8	20592	0.9	**HDO 95**	**4**	**93.6**	—	✓	4	✓	—
18.1	18041	0.9	**HDO 91**	**4**	**82.0**	—	✓	4	✓	—
18.2	17968	1.2	**HDO 95**	**4**	**81.6**	—	✓	4	✓	—
20.5	16238	1.2	**HDO 95**	**3**	**72.3**	—	✓	4	✓	—
22.4	14835	1.1	**HDO 91**	**3**	**66.1**	—	✓	4	✓	—
23.8	13974	1.5	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
24.4	13632	1.3	**HDO 91**	**3**	**60.7**	—	✓	4	✓	—
26.0	12779	1.5	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
26.9	12383	1.0	**HDO 81**	**3**	**55.1**	—	✓	4	✓	—
27.2	12243	1.5	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
28.5	11675	1.4	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
30	10997	1.9	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
31	10666	1.0	**HDO 81**	**3**	**47.5**	—	✓	4	✓	—
33	10074	1.0	**HDO 81**	**3**	**44.9**	—	✓	4	✓	—
34	9875	1.9	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
35	9635	1.9	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
37	9104	2.1	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
37	9021	1.8	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
38	8677	1.0	**HDO 81**	**3**	**38.6**	—	✓	4	✓	—
40	8290	2.1	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
42	7997	0.9	**HDO 71**	**3**	**35.6**	—	✓	4	✓	—
42	8003	1.5	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
43	7834	2.7	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
47	7164	2.7	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
48	6888	1.1	**HDO 71**	**3**	**30.7**	—	✓	4	✓	—
48	6894	1.5	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
49	6864	2.6	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
51	6545	2.5	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
52	6376	1.7	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
53	6268	1.2	**HDO 71**	**3**	**27.9**	—	✓	4	✓	—
61	5492	1.7	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
62	5399	1.3	**HDO 71**	**3**	**24.0**	—	✓	4	✓	—
64	5187	1.8	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
64	5167	1.4	**HDO 71**	**3**	**23.0**	—	✓	4	✓	—
75	4468	1.8	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
75	4450	1.5	**HDO 71**	**3**	**19.8**	—	✓	4	✓	—
80	4154	1.7	**HDO 71**	**3**	**18.5**	—	✓	4	✓	—
82	4052	1.9	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
93	3578	1.7	**HDO 71**	**3**	**15.9**	—	✓	4	✓	—
95	3490	1.9	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
102	3343	1.9	**HDO 71**	**2**	**14.6**	—	✓	4	✓	—
106	3217	1.9	**HDO 71**	**2**	**14.0**	—	✓	4	✓	—
123	2771	1.9	**HDO 71**	**2**	**12.1**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
13.9	23496	0.9	**HDO 95**	**4**	**128.7**	—	✓	4	✓	—
15.7	20721	0.9	**HDO 95**	**4**	**113.5**	—	✓	4	✓	—
17.2	18947	1.1	**HDO 95**	**4**	**103.7**	—	✓	4	✓	—
18.7	17396	1.0	**HDO 91**	**4**	**95.3**	—	✓	4	✓	—
19.1	17088	1.1	**HDO 95**	**4**	**93.6**	—	✓	4	✓	—
19.5	16670	1.0	**HDO 91**	**4**	**91.3**	—	✓	4	✓	—
21.8	14972	1.1	**HDO 91**	**4**	**82.0**	—	✓	4	✓	—
21.9	14910	1.4	**HDO 95**	**4**	**81.6**	—	✓	4	✓	—
24.7	13475	1.4	**HDO 95**	**3**	**72.3**	—	✓	4	✓	—
25.8	12899	1.0	**HDO 81**	**3**	**69.2**	—	✓	4	✓	—
27.0	12311	1.3	**HDO 91**	**3**	**66.1**	—	✓	4	✓	—
28.7	11596	1.8	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
29.4	11312	1.5	**HDO 91**	**3**	**60.7**	—	✓	4	✓	—
29.9	11111	1.0	**HDO 81**	**3**	**59.6**	—	✓	4	✓	—
31	10604	1.8	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
32	10276	1.1	**HDO 81**	**3**	**55.1**	—	✓	4	✓	—
33	10160	1.8	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
34	9688	1.7	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
36	9126	2.3	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
38	8851	1.1	**HDO 81**	**3**	**47.5**	—	✓	4	✓	—
40	8360	1.2	**HDO 81**	**3**	**44.9**	—	✓	4	✓	—
41	8194	2.3	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
42	7995	2.3	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
44	7555	2.5	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
44	7486	2.2	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
46	7201	1.2	**HDO 81**	**3**	**38.6**	—	✓	4	✓	—
46	7173	1.0	**HDO 71**	**3**	**38.5**	—	✓	4	✓	—
48	6879	2.6	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
50	6636	1.1	**HDO 71**	**3**	**35.6**	—	✓	4	✓	—
50	6642	1.8	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
58	5721	1.8	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
58	5716	1.3	**HDO 71**	**3**	**30.7**	—	✓	4	✓	—
63	5291	1.9	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
64	5201	1.4	**HDO 71**	**3**	**27.9**	—	✓	4	✓	—
73	4557	1.9	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
74	4480	1.5	**HDO 71**	**3**	**24.0**	—	✓	4	✓	—
77	4304	2.0	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
78	4288	1.7	**HDO 71**	**3**	**23.0**	—	✓	4	✓	—
90	3708	2.0	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
90	3693	1.7	**HDO 71**	**3**	**19.8**	—	✓	4	✓	—
97	3447	1.9	**HDO 71**	**3**	**18.5**	—	✓	4	✓	—
99	3363	2.3	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
112	2969	1.9	**HDO 71**	**3**	**15.9**	—	✓	4	✓	—
115	2896	2.3	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—



HDO

37 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
133	2553	2.1	**HDO 71**	**2**	**11.1**	—	✓	4	✓	—
156	2177	2.6	**HDO 71**	**2**	**9.5**	—	✓	4	✓	—
162	2095	2.6	**HDO 71**	**2**	**9.1**	—	✓	4	✓	—
188	1805	2.6	**HDO 71**	**2**	**7.9**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
122	2774	2.2	**HDO 71**	**2**	**14.6**	—	✓	4	✓	—
127	2670	2.2	**HDO 71**	**2**	**14.0**	—	✓	4	✓	—
148	2300	2.2	**HDO 71**	**2**	**12.1**	—	✓	4	✓	—
160	2119	2.4	**HDO 71**	**2**	**11.1**	—	✓	4	✓	—
188	1807	2.9	**HDO 71**	**2**	**9.5**	—	✓	4	✓	—
195	1739	2.9	**HDO 71**	**2**	**9.1**	—	✓	4	✓	—
227	1498	2.9	**HDO 71**	**2**	**7.9**	—	✓	4	✓	—

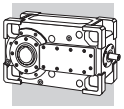
45 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
18.2	21838	1.0	**HDO 95**	**4**	**81.6**	—	✓	4	✓	—
20.5	19736	1.0	**HDO 95**	**3**	**72.3**	—	✓	4	✓	—
22.4	18031	0.9	**HDO 91**	**3**	**66.1**	—	✓	4	✓	—
23.8	16984	1.2	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
24.4	16569	1.0	**HDO 91**	**3**	**60.7**	—	✓	4	✓	—
26.0	15532	1.2	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
27.2	14881	1.2	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
28.5	14190	1.2	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
30	13366	1.5	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
34	12002	1.6	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
35	11710	1.5	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
37	11065	1.7	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
37	10965	1.5	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
40	10076	1.7	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
42	9728	1.3	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
43	9522	2.2	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
47	8708	2.2	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
48	8379	1.3	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
49	8343	2.2	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
51	7955	2.1	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
52	7749	1.4	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
53	7618	1.0	**HDO 71**	**3**	**27.9**	—	✓	4	✓	—
54	7494	2.8	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
60	6729	2.9	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
61	6675	1.4	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
62	6561	1.1	**HDO 71**	**3**	**24.0**	—	✓	4	✓	—
62	6565	2.7	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
64	6304	1.4	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
64	6280	1.2	**HDO 71**	**3**	**23.0**	—	✓	4	✓	—
66	6147	2.7	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
75	5430	1.4	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
75	5409	1.2	**HDO 71**	**3**	**19.8**	—	✓	4	✓	—

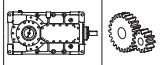
60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
17.2	22965	0.9	**HDO 95**	**4**	**103.7**	—	✓	4	✓	—
21.9	18073	1.1	**HDO 95**	**4**	**81.6**	—	✓	4	✓	—
24.7	16333	1.2	**HDO 95**	**3**	**72.3**	—	✓	4	✓	—
27.0	14922	1.1	**HDO 91**	**3**	**66.1**	—	✓	4	✓	—
28.7	14056	1.5	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
29.4	13712	1.3	**HDO 91**	**3**	**60.7**	—	✓	4	✓	—
31	12854	1.5	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
32	12456	0.9	**HDO 81**	**3**	**55.1**	—	✓	4	✓	—
33	12315	1.5	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
34	11743	1.4	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
37	11062	1.9	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
38	10728	0.9	**HDO 81**	**3**	**47.5**	—	✓	4	✓	—
40	10133	0.9	**HDO 81**	**3**	**44.9**	—	✓	4	✓	—
41	9933	1.9	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
42	9691	1.9	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
44	9157	2.1	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
44	9074	1.8	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
46	8728	0.9	**HDO 81**	**3**	**38.6**	—	✓	4	✓	—
48	8338	2.1	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
50	8050	1.4	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
51	7880	2.7	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
56	7206	2.7	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
58	6934	1.4	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
58	6928	1.1	**HDO 71**	**3**	**30.7**	—	✓	4	✓	—
58	6904	2.6	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
61	6584	2.5	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
63	6413	1.6	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
64	6304	1.2	**HDO 71**	**3**	**27.9**	—	✓	4	✓	—
73	5524	1.6	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
74	5430	1.2	**HDO 71**	**3**	**24.0**	—	✓	4	✓	—
77	5217	1.7	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
78	5197	1.4	**HDO 71**	**3**	**23.0**	—	✓	4	✓	—

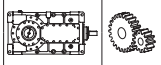


45 kW

50Hz

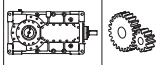
n_2 min^{-1}	M_2 Nm	S		i	AD	G	P	IE3	IE1
80	5048	1.4	**HDO 71**	**3**	**18.5**	—	✓	4	✓	—
82	4925	1.5	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
93	4348	1.4	**HDO 71**	**3**	**15.9**	—	✓	4	✓	—
95	4242	1.5	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
101	4101	2.8	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
102	4063	1.6	**HDO 71**	**2**	**14.6**	—	✓	4	✓	—
105	3947	2.8	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
106	3911	1.6	**HDO 71**	**2**	**14.0**	—	✓	4	✓	—
123	3368	1.6	**HDO 71**	**2**	**12.1**	—	✓	4	✓	—
133	3103	1.7	**HDO 71**	**2**	**11.1**	—	✓	4	✓	—
156	2646	2.1	**HDO 71**	**2**	**9.5**	—	✓	4	✓	—
162	2546	2.1	**HDO 71**	**2**	**9.1**	—	✓	4	✓	—
188	2193	2.1	**HDO 71**	**2**	**7.9**	—	✓	4	✓	—
219	1883	2.7	**HDO 71**	**2**	**6.8**	—	✓	4	✓	—
228	1812	2.7	**HDO 71**	**2**	**6.5**	—	✓	4	✓	—
265	1561	2.7	**HDO 71**	**2**	**5.6**	—	✓	4	✓	—

60Hz

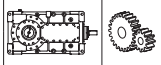
n_2 min^{-1}	M_2 Nm	S		i	AD	G	P	IE3	IE1
90	4494	1.7	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
90	4476	1.4	**HDO 71**	**3**	**19.8**	—	✓	4	✓	—
97	4178	1.6	**HDO 71**	**3**	**18.5**	—	✓	4	✓	—
99	4076	1.9	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
112	3599	1.6	**HDO 71**	**3**	**15.9**	—	✓	4	✓	—
115	3511	1.9	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
122	3363	1.8	**HDO 71**	**2**	**14.6**	—	✓	4	✓	—
127	3236	1.8	**HDO 71**	**2**	**14.0**	—	✓	4	✓	—
148	2788	1.8	**HDO 71**	**2**	**12.1**	—	✓	4	✓	—
160	2568	2.0	**HDO 71**	**2**	**11.1**	—	✓	4	✓	—
188	2190	2.4	**HDO 71**	**2**	**9.5**	—	✓	4	✓	—
195	2107	2.4	**HDO 71**	**2**	**9.1**	—	✓	4	✓	—
227	1815	2.4	**HDO 71**	**2**	**7.9**	—	✓	4	✓	—

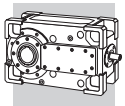
55 kW

50Hz

n_2 min^{-1}	M_2 Nm	S		i	AD	G	P	IE3	IE1
23.8	20744	1.0	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
26.0	18970	1.0	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
27.2	18175	1.0	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
28.5	17331	0.9	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
30	16325	1.3	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
34	14659	1.3	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
35	14303	1.3	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
37	13515	1.4	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
37	13392	1.2	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
40	12306	1.4	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
42	11881	1.0	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
43	11630	1.8	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
47	10635	1.8	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
48	10233	1.0	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
49	10190	1.8	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
51	9716	1.7	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
52	9465	1.1	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
54	9153	2.3	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
60	8218	2.4	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
61	8152	1.1	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
62	8019	2.2	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
64	7700	1.2	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
66	7514	2.6	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S		i	AD	G	P	IE3	IE1
24.7	19940	1.0	**HDO 95**	**3**	**72.3**	—	✓	4	✓	—
28.7	17160	1.2	**HDO 95**	**3**	**62.2**	—	✓	4	✓	—
29.4	16740	1.0	**HDO 91**	**3**	**60.7**	—	✓	4	✓	—
31	15692	1.2	**HDO 95**	**3**	**56.9**	—	✓	4	✓	—
33	15034	1.2	**HDO 91**	**3**	**54.5**	—	✓	4	✓	—
34	14336	1.1	**HDO 91**	**3**	**52.0**	—	✓	4	✓	—
37	13504	1.5	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
41	12126	1.6	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
42	11832	1.5	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
44	11179	1.7	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
45	11078	1.5	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
48	10180	1.7	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
50	9828	1.2	**HDO 81**	**3**	**35.6**	—	✓	4	✓	—
51	9621	2.2	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
56	8798	2.2	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
58	8465	1.2	**HDO 81**	**3**	**30.7**	—	✓	4	✓	—
59	8429	2.1	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
61	8038	2.1	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
63	7829	1.3	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
65	7571	2.6	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
73	6798	2.8	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
73	6744	1.3	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
74	6633	2.5	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—

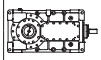


55 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
66	7508	2.2	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
70	7072	2.6	**HDO 95**	**3**	**21.2**	—	✓	4	✓	—
72	6899	2.6	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
75	6632	1.2	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
80	6196	2.6	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
82	6016	1.3	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
94	5394	3.0	**HDO 91**	**2**	**15.9**	—	✓	4	✓	—
95	5181	1.3	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
101	5009	2.3	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
105	4821	2.3	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
121	4152	2.5	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—
133	3791	2.8	**HDO 81**	**2**	**11.1**	—	✓	4	✓	—

60Hz

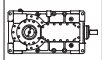
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
77	6370	1.4	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
79	6211	2.7	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
79	6216	2.9	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—
86	5707	2.9	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
90	5486	1.4	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
96	5126	2.9	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
99	4976	1.5	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
115	4286	1.5	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
121	4144	2.6	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
126	3988	2.7	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
146	3435	3.0	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—

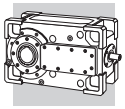
75 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
30	22261	0.9	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
34	19989	1	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
35	19504	0.9	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
37	18429	1	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
37	18262	0.9	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
40	16781	1	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
43	15859	1.3	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
47	14503	1.3	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
49	13895	1.3	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
51	13250	1.3	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
54	12481	1.7	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
60	11207	1.7	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
62	10935	1.6	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
66	10238	1.6	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
66	10247	1.9	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—
70	9644	1.9	**HDO 95**	**3**	**21.2**	—	✓	4	✓	—
72	9408	1.9	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
80	8450	1.9	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
82	8203	0.9	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
94	7356	2.2	**HDO 91**	**2**	**15.9**	—	✓	4	✓	—
96	7066	0.9	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
101	6831	1.7	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
102	6759	2.3	**HDO 91**	**2**	**14.6**	—	✓	4	✓	—
105	6574	1.7	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
119	5781	2.6	**HDO 91**	**2**	**12.5**	—	✓	4	✓	—
122	5662	1.8	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—
130	5313	2.7	**HDO 91**	**2**	**11.5**	—	✓	4	✓	—
133	5169	2.1	**HDO 81**	**2**	**11.1**	—	✓	4	✓	—

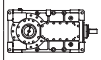
60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
37	18482	1.1	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
41	16596	1.2	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
42	16193	1.1	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
44	15300	1.3	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
45	15161	1.1	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
48	13932	1.3	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
51	13167	1.6	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
56	12041	1.6	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
59	11536	1.5	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
61	11000	1.5	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
63	10715	1	**HDO 81**	**3**	**28.4**	—	✓	4	✓	—
65	10362	1.9	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
73	9304	2	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
73	9229	1	**HDO 81**	**3**	**24.5**	—	✓	4	✓	—
74	9078	1.8	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
77	8718	1	**HDO 81**	**3**	**23.1**	—	✓	4	✓	—
79	8507	2.1	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—
79	8500	2.0	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
84	8007	2.2	**HDO 95**	**3**	**21.2**	—	✓	4	✓	—
86	7811	2.1	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
90	7509	1.0	**HDO 81**	**3**	**19.9**	—	✓	4	✓	—
96	7015	2.1	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
99	6811	1.1	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
113	6107	2.5	**HDO 91**	**2**	**15.9**	—	✓	4	✓	—
115	5866	1.1	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
121	5671	1.9	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
123	5612	2.6	**HDO 91**	**2**	**14.6**	—	✓	4	✓	—
126	5458	1.9	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—

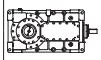


75 kW

50Hz

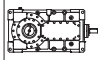
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
144	4771	2.7	**HDO 91**	**2**	**10.3**	—	✓	4	✓	—
155	4452	2.3	**HDO 81**	**2**	**9.6**	—	✓	4	✓	—
162	4241	2.4	**HDO 81**	**2**	**9.1**	—	✓	4	✓	—
189	3653	2.7	**HDO 81**	**2**	**7.9**	—	✓	4	✓	—

60Hz

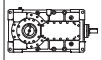
n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
144	4800	3.0	**HDO 91**	**2**	**12.5**	—	✓	4	✓	—
147	4701	2.2	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—
161	4291	2.3	**HDO 81**	**2**	**11.1**	—	✓	4	✓	—
186	3696	2.6	**HDO 81**	**2**	**9.6**	—	✓	4	✓	—
196	3521	2.7	**HDO 81**	**2**	**9.1**	—	✓	4	✓	—

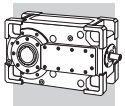
90 kW

50Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
43	18979	1.1	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
47	17355	1.1	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
49	16628	1.1	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
51	15856	1.0	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
54	14935	1.4	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
60	13411	1.4	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
62	13085	1.3	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
66	12252	1.4	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
66	12262	1.6	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—
70	11541	1.6	**HDO 95**	**3**	**21.2**	—	✓	4	✓	—
72	11259	1.6	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
80	10111	1.6	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
94	8802	1.8	**HDO 91**	**2**	**15.9**	—	✓	4	✓	—
101	8174	1.4	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
102	8089	1.9	**HDO 91**	**2**	**14.6**	—	✓	4	✓	—
105	7867	1.4	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
119	6918	2.2	**HDO 91**	**2**	**12.5**	—	✓	4	✓	—
122	6776	1.5	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—
130	6357	2.3	**HDO 91**	**2**	**11.5**	—	✓	4	✓	—
133	6186	1.7	**HDO 81**	**2**	**11.1**	—	✓	4	✓	—
144	5710	2.3	**HDO 91**	**2**	**10.3**	—	✓	4	✓	—
155	5328	1.9	**HDO 81**	**2**	**9.6**	—	✓	4	✓	—
162	5075	2.0	**HDO 81**	**2**	**9.1**	—	✓	4	✓	—
165	5001	2.8	**HDO 91**	**2**	**9.0**	—	✓	4	✓	—
179	4595	2.9	**HDO 91**	**2**	**8.3**	—	✓	4	✓	—
189	4372	2.2	**HDO 81**	**2**	**7.9**	—	✓	4	✓	—
200	4127	3.0	**HDO 91**	**2**	**7.4**	—	✓	4	✓	—
222	3715	2.6	**HDO 81**	**2**	**6.7**	—	✓	4	✓	—
231	3576	2.6	**HDO 81**	**2**	**6.4**	—	✓	4	✓	—
268	3080	3.0	**HDO 81**	**2**	**5.5**	—	✓	4	✓	—

60Hz

n_2 min^{-1}	M_2 Nm	S			i	AD	G	P	IE3	IE1
37	22169	0.9	**HDO 95**	**3**	**49.0**	—	✓	4	✓	—
41	19906	1.0	**HDO 95**	**3**	**44.0**	—	✓	4	✓	—
42	19423	0.9	**HDO 91**	**3**	**42.9**	—	✓	4	✓	—
44	18353	1.0	**HDO 95**	**3**	**40.5**	—	✓	4	✓	—
45	18186	0.9	**HDO 91**	**3**	**40.2**	—	✓	4	✓	—
48	16712	1.1	**HDO 91**	**3**	**36.9**	—	✓	4	✓	—
51	15794	1.3	**HDO 95**	**3**	**34.9**	—	✓	4	✓	—
56	14443	1.3	**HDO 95**	**3**	**31.9**	—	✓	4	✓	—
59	13837	1.3	**HDO 91**	**3**	**30.6**	—	✓	4	✓	—
61	13195	1.3	**HDO 91**	**3**	**29.1**	—	✓	4	✓	—
65	12429	1.6	**HDO 95**	**3**	**27.5**	—	✓	4	✓	—
73	11160	1.7	**HDO 95**	**3**	**24.7**	—	✓	4	✓	—
74	10889	1.5	**HDO 91**	**3**	**24.1**	—	✓	4	✓	—
79	10205	1.8	**HDO 95**	**3**	**22.5**	—	✓	4	✓	—
79	10196	1.6	**HDO 91**	**3**	**22.5**	—	✓	4	✓	—
84	9604	1.8	**HDO 95**	**3**	**21.2**	—	✓	4	✓	—
86	9369	1.8	**HDO 91**	**3**	**20.7**	—	✓	4	✓	—
96	8415	1.8	**HDO 91**	**3**	**18.6**	—	✓	4	✓	—
99	8169	0.9	**HDO 81**	**3**	**18.0**	—	✓	4	✓	—
113	7325	2.1	**HDO 91**	**2**	**15.9**	—	✓	4	✓	—
115	7036	0.9	**HDO 81**	**3**	**15.5**	—	✓	4	✓	—
121	6802	1.6	**HDO 81**	**2**	**14.7**	—	✓	4	✓	—
123	6731	2.1	**HDO 91**	**2**	**14.6**	—	✓	4	✓	—
126	6547	1.6	**HDO 81**	**2**	**14.2**	—	✓	4	✓	—
144	5757	2.5	**HDO 91**	**2**	**12.5**	—	✓	4	✓	—
147	5639	1.8	**HDO 81**	**2**	**12.2**	—	✓	4	✓	—
156	5291	2.6	**HDO 91**	**2**	**11.5**	—	✓	4	✓	—
161	5147	2.0	**HDO 81**	**2**	**11.1**	—	✓	4	✓	—
174	4752	2.6	**HDO 91**	**2**	**10.3**	—	✓	4	✓	—
186	4434	2.2	**HDO 81**	**2**	**9.6**	—	✓	4	✓	—
196	4224	2.3	**HDO 81**	**2**	**9.1**	—	✓	4	✓	—
227	3638	2.5	**HDO 81**	**2**	**7.9**	—	✓	4	✓	—
267	3092	2.9	**HDO 81**	**2**	**6.7**	—	✓	4	✓	—

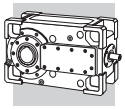


29 MASS MOMENT OF INERTIA

Moments of inertia listed refer to gearbox input shaft and apply exclusively for configurations with a single extension input and output shaft.

	i_N	$J \cdot 10^{-4}$ [kg m^2]													
		HDO 71	HDO 81	HDO 91	HDO 95	HDO 100	HDO 110	HDO 120	HDO 125	HDO 130	HDO 140	HDO 150	HDO 160	HDO 170	HDO 180
2x	5.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5.6	263	628	—	—	1862	—	—	—	8268	—	23425	—	—	—
	6.3	244	583	—	—	1780	1893	2869	—	7943	9161	21737	—	—	—
	7.1	238	566	970	—	1725	1803	2757	3116	10164	8677	20949	23848	—	—
	8.0	183	457	935	—	1578	1692	2592	2991	6959	8104	16297	22841	—	—
	9.0	174	434	913	—	1543	1566	2774	2922	8408	7438	15670	19669	—	—
	10.0	171	350	625	—	1204	1494	2666	2920	5207	7065	12076	18609	—	—
	11.2	142	335	607	—	1182	1168	2056	2206	6135	5514	12006	18114	—	—
	12.5	116	276	596	—	967	1121	1987	2154	4070	5275	9091	12785	—	—
	14.0	112	266	431	—	952	996	1572	1670	4673	4269	8884	12212	—	—
	16.0	111	263	424	—	—	966	1528	1636	—	4114	—	11945	—	—
	18.0	—	—	—	—	—	—	—	1617	—	—	—	—	—	—
3x	14.0	—	—	—	—	940	—	—	—	—	—	—	—		
	16.0	112	248	—	—	926	—	—	—	3156	—	9690	—		
	18.0	109	242	414	—	836	849	1233	—	2675	3280	9480	10012		
	20.0	99	216	408	419	540	839	1205	1273	2643	3184	9382	9743		
	22.4	97	212	405	416	487	550	1013	1052	1913	2716	8401	9618		
	25.0	92	197	374	411	481	494	917	1038	1893	1970	8292	8568		
	28.0	91	195	368	377	443	488	592	934	1728	1940	5067	8428		
	31.5	85	185	350	373	440	448	534	920	1714	1764	4578	8363		
	35.5	84	184	179	353	415	444	530	808	1612	1744	4524	4661		
	40.0	46	99	178	350	413	418	464	540	1137	1636	3114	4592		
	45.0	45	98	169	180	240	415	461	537	1069	1623	3093	4559		
	50.0	44	94	167	170	239	242	278	467	1063	1084	2890	3142		
	56.0	44	94	161	168	228	241	276	465	1021	1076	2867	2924		
	63.0	42	91	161	162	227	230	249	280	1017	1031	2857	2895		
	71.0	42	91	160	161	227	229	248	251	1042	1025	—	2882		
	80.0	—	—	—	—	—	227	246	250	—	1019	—	—		
	90.0	—	—	—	—	—	—	—	249	—	—	—	—		
4x	71.0	—	—	—	—	168	—	—	—	553	—	1023	—		
	80.0	17	44	66	76	167	169	—	—	551	558	1011	1040		
	90.0	17	43	66	66	163	168	182	—	535	555	952	1025		
	100.0	17	43	74	74	163	143	171	183	533	538	589	1019		
	112.0	17	38	65	74	139	163	171	172	447	536	586	597		
	125.0	17	38	64	65	139	140	145	172	446	449	554	593		
	140.0	—	38	61	65	132	70	145	146	410	448	550	559		
	160.0	14	38	60	64	68	60	141	146	410	412	301	555		
	180.0	14	36	60	60	59	68	71	136	406	411	300	553		
	200.0	14	20	60	60	59	59	61	72	405	243	287	303		
	224.0	8	36	60	60	56	59	61	62	227	242	285	289		
	250.0	14	19	30	30	56	56	58	62	226	227	284	287		
	280.0	—	19	30	30	56	58	60	58	225	227	—	286		
	315.0	7	18	29	29	56	56	57	58	225	225	—	—		
	355.0	—	18	29	29	56	56	57	57	226	225	—	—		
	400.0	7	18	29	29	—	56	56	57	—	225	—	—		
	450.0	7	18	29	29	—	—	—	57	—	—	—	—		
	500.0	7	18	29	29	—	—	—	—	—	—	—	—		

BONFIGLIOLI TECHNICAL SERVICE

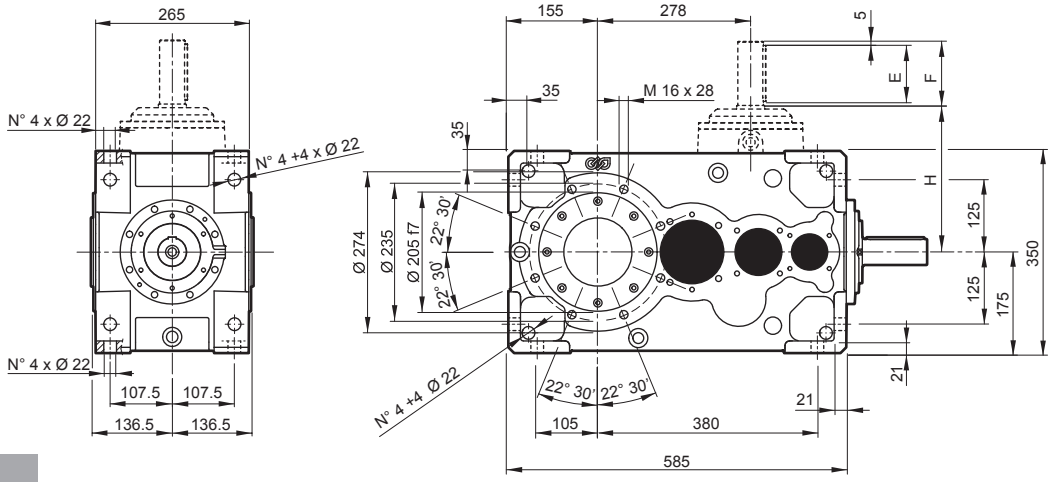


30 EXACT RATIOS

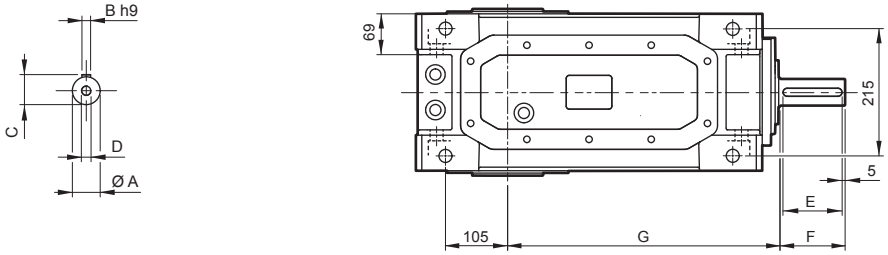
	i_N	i													
		HDO 71	HDO 81	HDO 91	HDO 95	HDO 100	HDO 110	HDO 120	HDO 125	HDO 130	HDO 140	HDO 150	HDO 160	HDO 170	HDO 180
2x	**5.0**	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5.6	5.603	5.548	—	—	5.815	—	—	—	5.708	—	5.512	—	—	—
	6.3	6.505	6.442	—	—	6.462	6.354	6.569	—	6.231	6.569	6.459	—	—	—
	7.1	6.760	6.693	7.435	—	7.038	7.038	7.154	7.412	7.090	7.269	7.034	7.306	—	—
	8.0	7.875	7.875	8.278	—	8.000	8.077	8.077	7.976	7.714	8.167	8.133	7.941	—	—
	9.0	9.143	9.143	9.009	—	8.714	8.714	8.857	8.831	8.778	9.000	8.857	8.933	—	—
	10.0	9.500	9.598	10.286	—	10.000	10.000	10.000	9.875	9.643	10.111	10.010	10.427	—	—
	11.2	11.143	11.143	11.453	—	10.893	10.893	11.071	11.471	10.972	11.250	10.901	11.333	—	—
	12.5	12.094	12.206	12.463	—	12.400	12.500	12.500	12.344	11.957	12.639	12.607	12.152	—	—
	14.0	14.041	14.171	14.571	—	13.507	13.507	13.729	14.224	13.606	13.950	13.729	14.183	—	—
	16.0	14.589	14.725	15.857	—	—	15.500	15.500	15.306	—	15.672	—	15.417	—	—
	18.0	—	—	—	—	—	—	—	16.947	—	—	—	—	—	—
3x	**14.0**	—	—	—	—	14.009	—	—	—	—	—	—	—	—	—
	16.0	15.931	15.543	—	—	15.566	—	—	—	15.188	—	15.618	—	15.902	—
	18.0	18.496	18.045	18.587	—	17.308	18.910	17.260	—	18.265	17.719	18.300	17.735	18.457	17.691
	20.0	19.817	19.895	20.696	21.215	20.235	20.948	19.487	19.244	19.938	19.906	19.929	20.700	19.991	20.471
	22.4	23.008	23.098	22.522	22.541	22.500	22.042	21.802	22.588	22.613	23.262	21.698	22.500	21.659	22.139
	25.0	24.039	24.454	24.054	24.652	25.000	24.583	24.579	24.308	24.686	26.027	25.425	24.641	26.181	24.096
	28.0	27.910	28.391	29.146	27.454	28.320	27.232	28.343	27.731	28.267	28.800	28.232	28.760	28.356	27.882
	31.5	30.671	30.697	30.565	31.903	31.467	30.942	31.952	33.040	30.857	32.533	30.739	31.261	30.722	31.363
	35.5	35.609	35.639	36.914	34.887	36.000	34.276	34.796	35.798	34.862	36.000	36.019	34.908	35.660	34.136
	40.0	38.489	38.640	40.171	40.539	40.000	39.333	41.248	38.795	38.263	40.124	40.184	40.743	38.622	39.500
	45.0	44.686	44.861	42.904	43.971	43.896	43.571	44.918	42.952	43.813	44.400	43.760	44.286	43.951	42.719
	50.0	46.690	47.495	51.987	48.970	48.773	47.960	49.526	50.080	47.829	50.427	47.646	49.406	47.619	48.613
	56.0	54.207	55.142	54.518	56.904	55.800	53.128	53.934	55.448	54.036	55.800	55.830	54.107	55.273	52.910
	63.0	59.570	59.620	60.703	62.226	62.000	60.967	63.934	60.132	58.989	62.193	60.798	63.151	59.864	61.225
	71.0	69.161	69.219	66.060	72.309	67.536	67.536	69.623	72.134	67.121	68.820	—	68.643	—	66.214
	80.0	—	—	—	—	—	77.500	78.607	77.625	—	77.316	—	—	—	—
	90.0	—	—	—	—	—	—	—	85.944	—	—	—	—	—	—
4x	**71.0**	—	—	—	—	70.800	—	—	—	71.498	—	66.861	—	72.872	—
	80.0	77.021	78.252	81.978	81.642	78.667	77.356	—	—	78.050	82.290	78.345	75.927	84.583	80.969
	90.0	89.421	94.536	91.278	93.568	90.000	85.690	86.990	—	88.181	91.059	92.894	88.620	91.610	93.692
	100.0	98.268	98.229	95.251	103.743	100.000	96.694	103.119	96.987	96.262	101.491	101.848	96.326	99.256	101.326
	112.0	114.089	105.597	118.125	113.461	111.392	108.929	112.296	116.345	111.182	112.306	110.912	115.205	115.208	110.285
	125.0	118.545	127.386	128.548	128.656	123.769	121.706	125.679	125.201	121.371	127.964	120.762	125.223	124.779	127.615
	140.0	—	132.555	137.096	140.708	139.830	137.105	136.864	141.798	141.333	141.600	141.503	137.137	139.844	138.014
	160.0	154.425	159.908	159.341	163.484	160.000	154.711	162.241	152.592	154.286	162.667	157.865	160.061	162.319	155.383
	180.0	179.287	181.444	177.418	181.869	178.227	174.286	179.673	177.999	174.311	180.000	171.914	173.980	175.804	179.800
	200.0	197.025	196.458	202.476	211.337	198.030	194.730	201.087	200.321	190.286	198.345	187.182	194.096	190.478	194.450
	224.0	228.177	227.766	225.447	231.102	223.728	215.711	218.982	226.877	219.067	219.480	219.330	212.562	221.090	211.642
	250.0	237.681	254.773	256.348	256.564	248.587	244.444	252.424	244.148	239.143	252.133	238.849	248.095	239.458	244.900
	280.0	—	265.110	268.832	280.597	284.400	274.210	282.686	284.798	270.182	279.000	—	269.668	—	—
	315.0	308.850	312.566	317.756	325.662	316.000	310.733	325.856	315.172	294.943	310.964	—	—	—	—
	355.0	—	362.888	353.805	362.681	344.214	344.214	354.855	367.649	335.604	344.100	—	—	—	—
	400.0	394.050	392.363	403.774	421.444	—	395.000	400.643	395.635	—	386.581	—	—	—	—
	450.0	457.491	455.532	449.583	460.861	—	—	—	438.036	—	—	—	—	—	—
	500.0	475.362	473.327	489.252	489.665	—	—	—	—	—	—	—	—	—	—

31 DIMENSIONS AND WEIGHT

HDO 71



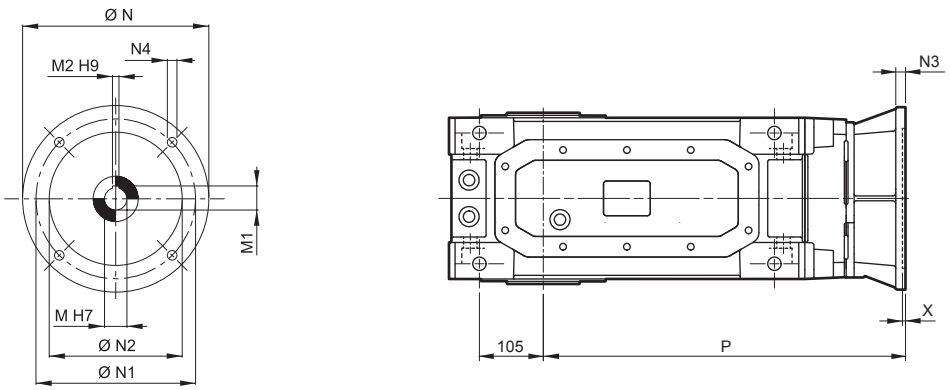
VP



Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 71 2	**5.6 … 14.6**	45 k6	14	48.5	M16x36	100	110	460	—	210
HDO 71 3	**15.9 … 69.2**	32 k6	10	35	M12x28	70	80	507	229	195
HDO 71 4	**77.0 … 475.4**	24 j6	8	27	M8x19	50	60	543	—	215

AD

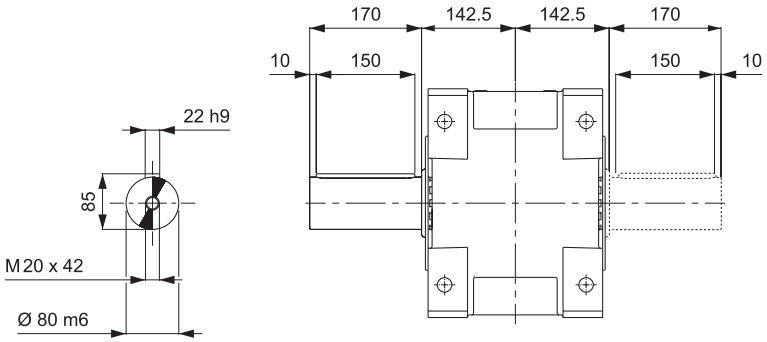


Dimensions are in [mm].

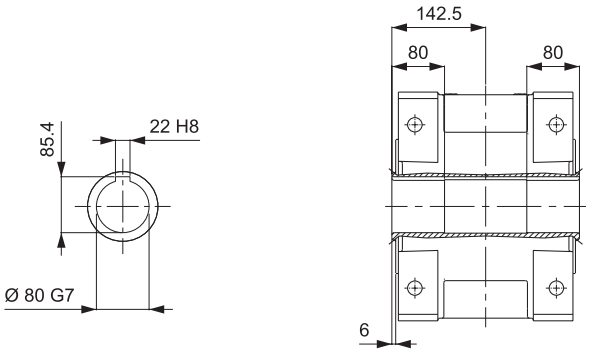
AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDO 71 3_ 132	38	41.3	10	300	265	230	16	14	5	595.5
HDO 71 3_ 160	42	45.3	12	350	300	250	23	18	6	626.5
HDO 71 3_ 180	48	51.8	14	350	300	250	23	18	6	626.5
HDO 71 3_ 200	55	59.3	16	400	350	300	—	M16x23	7	651.5

HDO 71

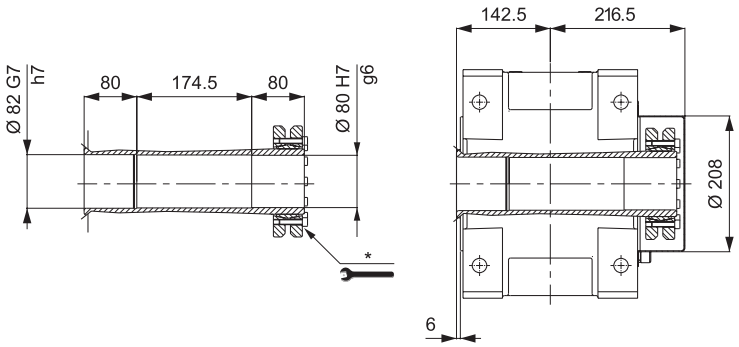
LP



H



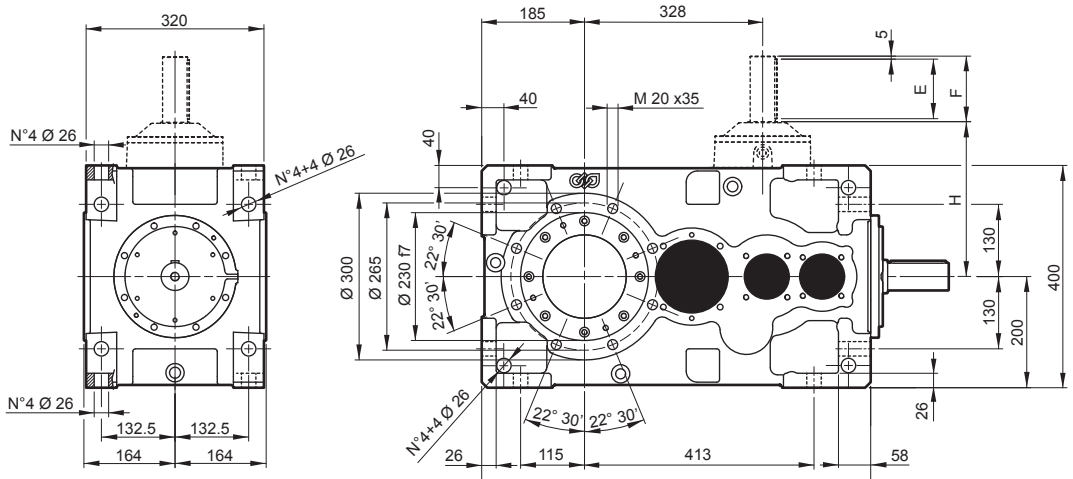
S



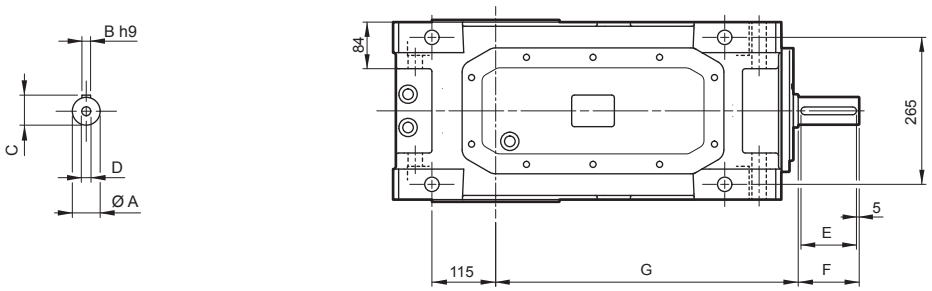
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDO 81



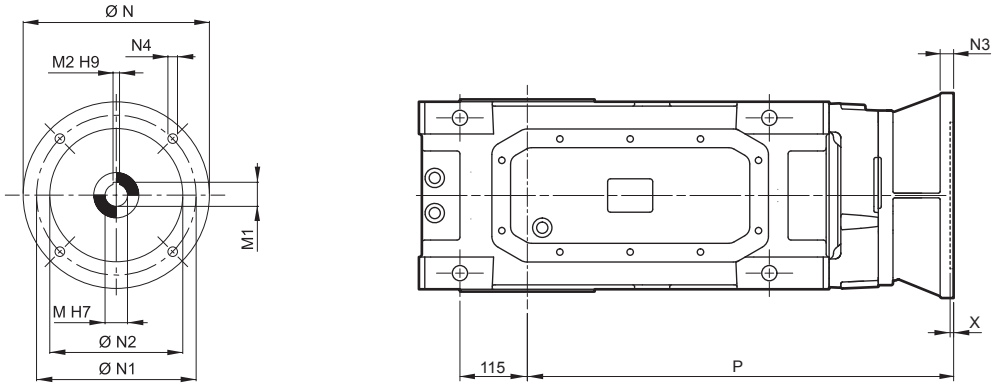
VP



Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 81 2	**5.5 … 14.7**	50 k6	14	53.5	M16x36	100	110	545.5	—	340
HDO 81 3	**15.5 … 69.2**	42 k6	12	45	M16x36	100	110	600	272	330
HDO 81 4	**78.3 … 473.3**	28 j6	8	31	M10x22	50	60	645	—	340

AD

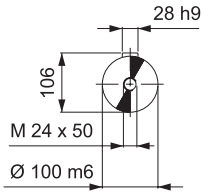


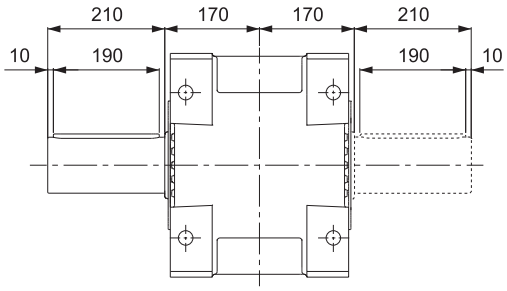
Dimensions are in [mm].

AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDO 81 3_ 160	42	45.3	12	350	300	250	23	18	6	727.5
HDO 81 3_ 180	48	51.8	14	350	300	250	23	18	6	727.5
HDO 81 3_ 200	55	59.3	16	400	350	300	—	M16x23	7	752.5

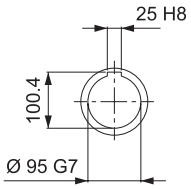
HDO 81

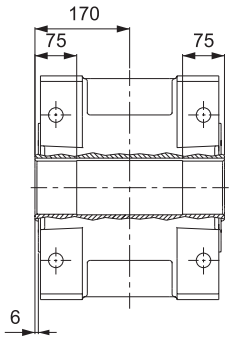
LP



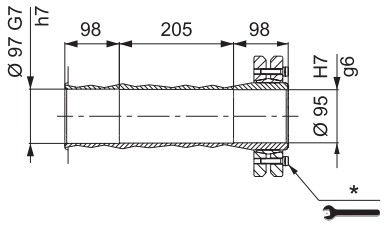


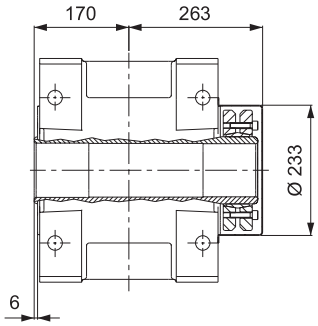
H





S

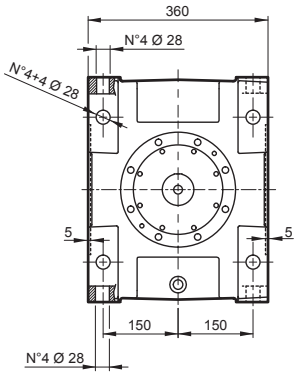


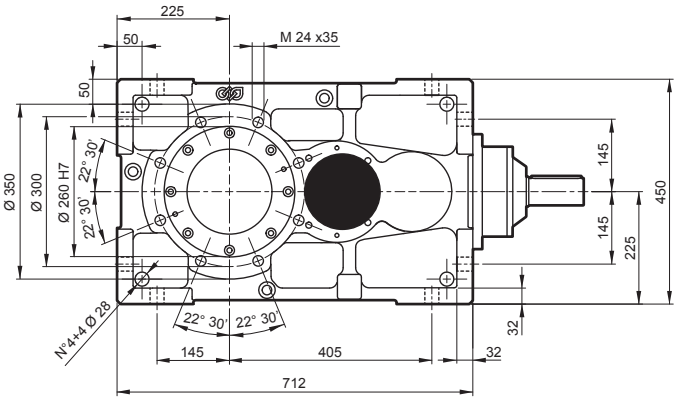


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

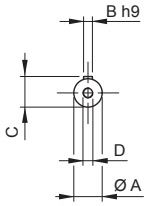
Dimensions are in [mm].

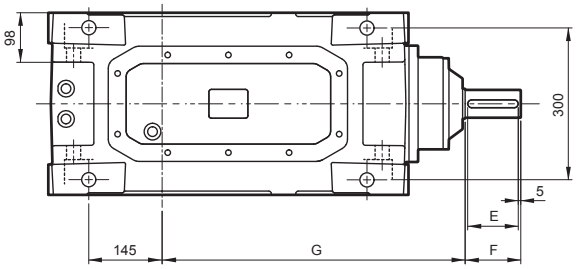
HDO 91

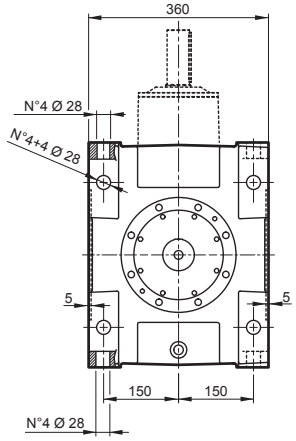


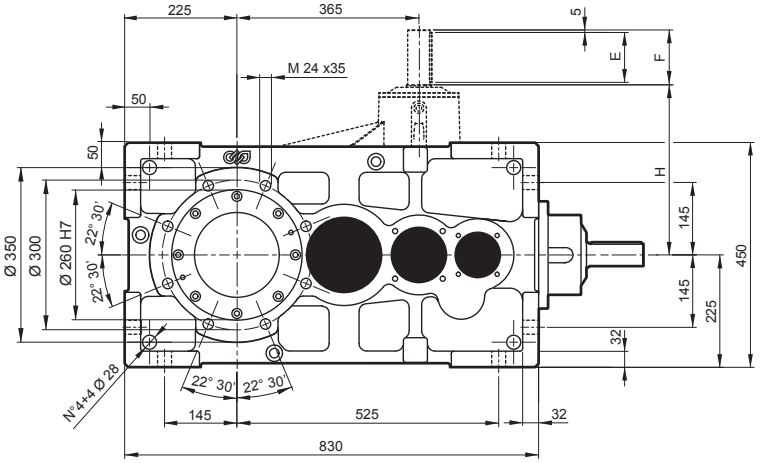


HDO 91 2

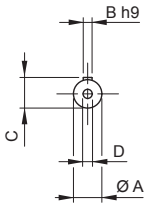


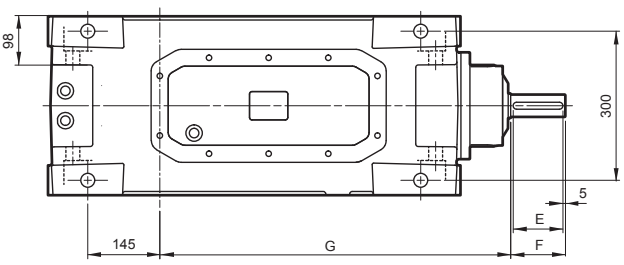






HDO 91 3
HDO 91 4



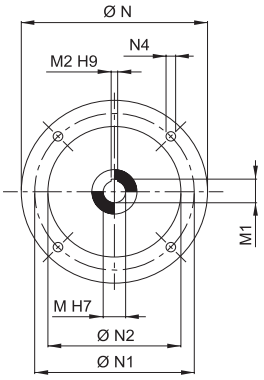


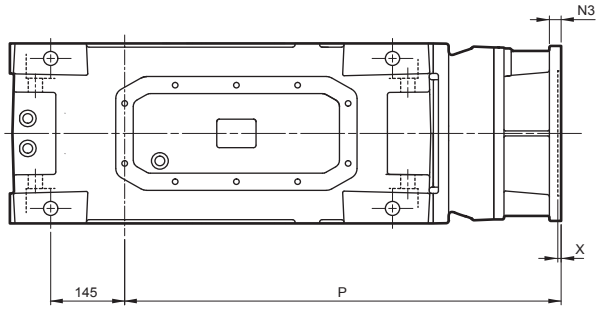
Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 91 2	**7.4 … 15.9**	55 m6	16	59	M20x42	100	110	599	—	430
HDO 91 3	**18.6 … 66.1**	45 k6	14	48.5	M16x36	100	110	706	341	490
HDO 91 4	**82 … 489.3**	32 k6	10	35	M12x28	70	80	711	—	495

HDO 91

AD

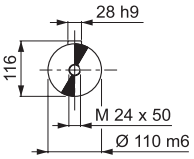


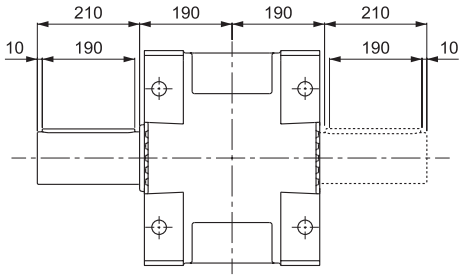


Dimensions are in [mm].

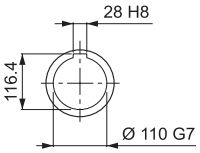
AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDO 91 3_ 180	48	51.8	14	350	300	250	23	18	6	855.5
HDO 91 3_ 200	55	59.3	16	400	350	300	—	M16x23	7	880.5
HDO 91 4_ 160	42	45.3	12	350	300	250	23	18	6	855.5
HDO 91 4_ 180	48	51.8	14	350	300	250	23	18	6	855.5
HDO 91 4_ 200	55	59.3	16	400	350	300	—	M16x23	7	880.5

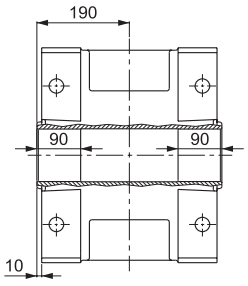
LP



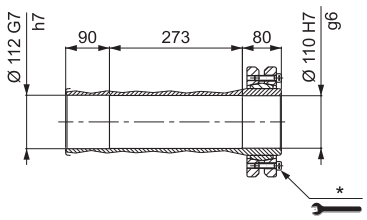


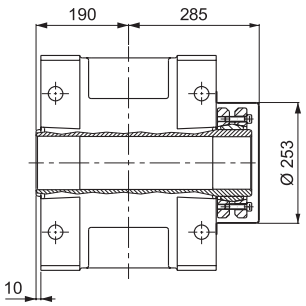
H





S



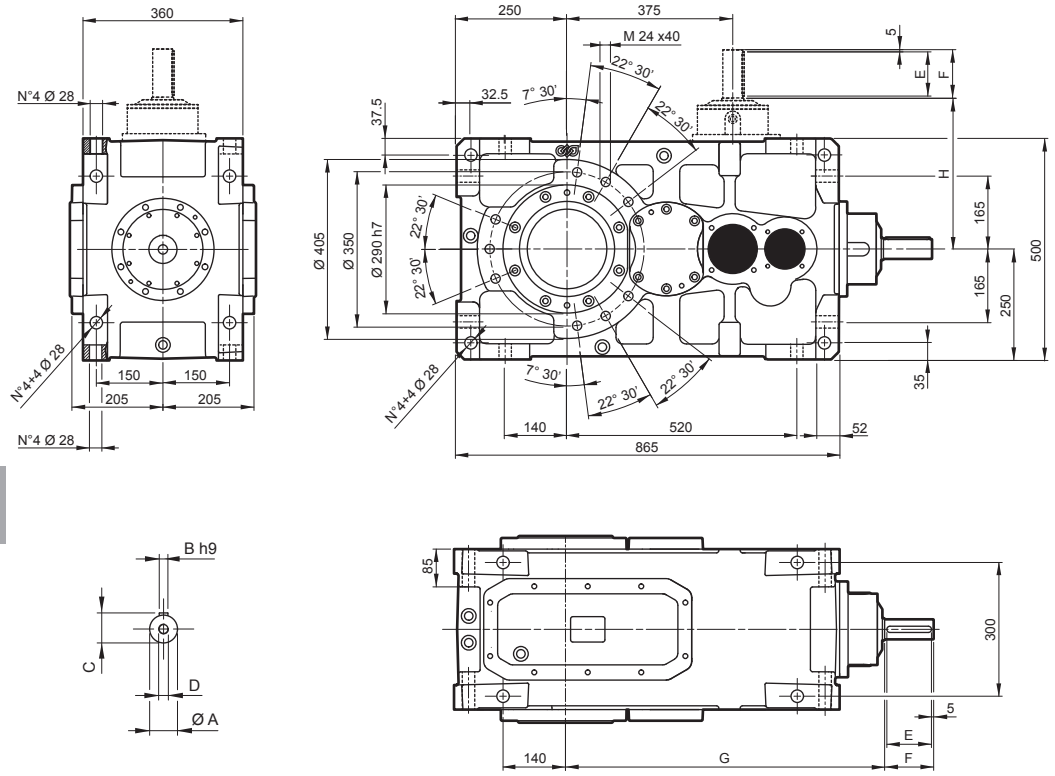


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDO 95

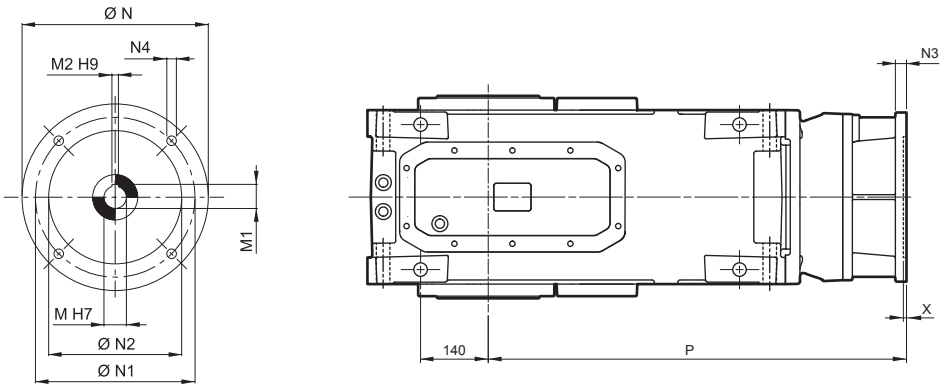
HDO 95 3
HDO 95 4



Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 95 3	**21.2 … 72.3**	45 k6	14	48.5	M16x36	100	110	716	341	560
HDO 95 4	**81.6 … 489.7**	32 k6	10	35	M12x28	70	80	711	—	565

AD

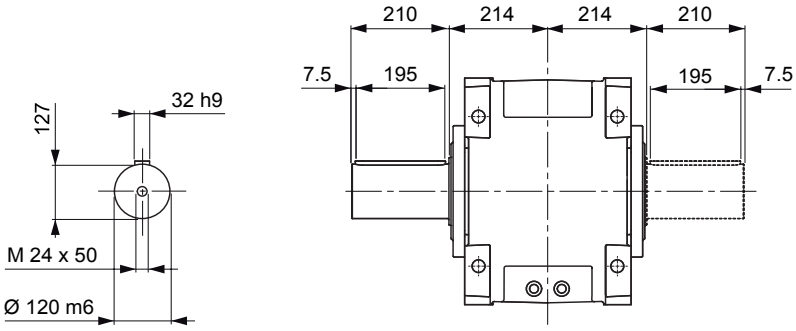


Dimensions are in [mm].

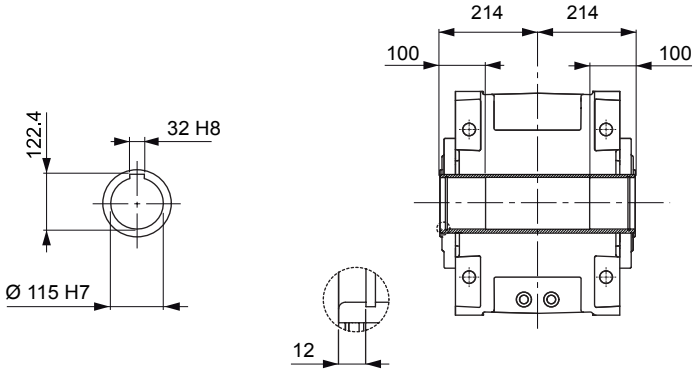
AD	M	M1	M2	N	N1	N2	N3	N4	X	P
HDO 95 3_ 180	48	51.8	14	350	300	250	23	18	6	865.5
HDO 95 3_ 200	55	59.3	16	400	350	300	—	M16x23	7	890.5
HDO 95 4_ 160	42	45.3	12	350	300	250	23	18	6	865.5
HDO 95 4_ 180	48	51.8	14	350	300	250	23	18	6	865.5
HDO 95 4_ 200	55	59.3	16	400	350	300	—	M16x23	7	890.5

HDO 95

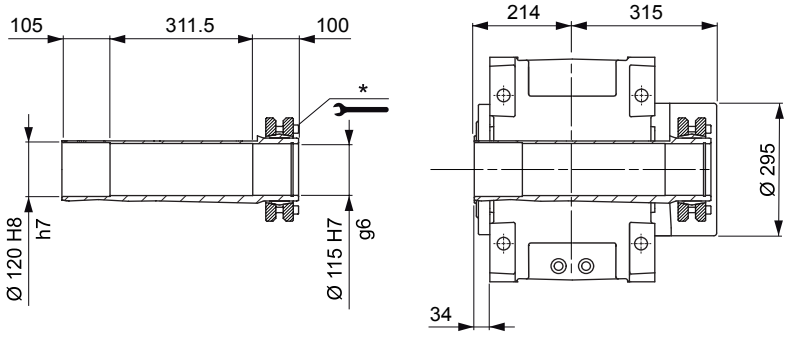
LP



H



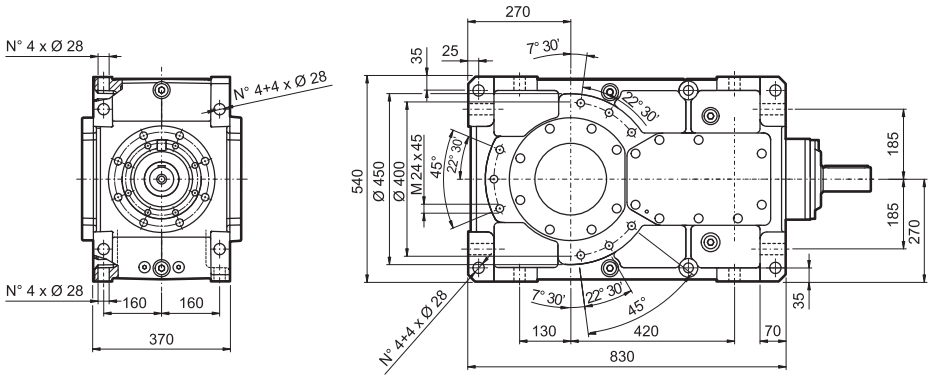
S



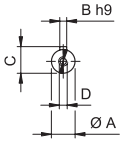
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

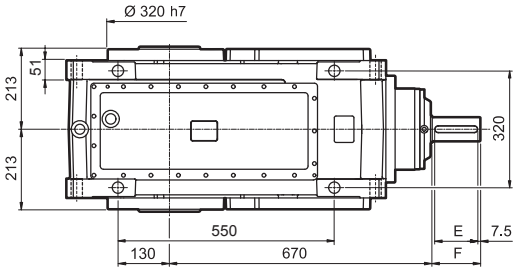
Dimensions are in [mm].

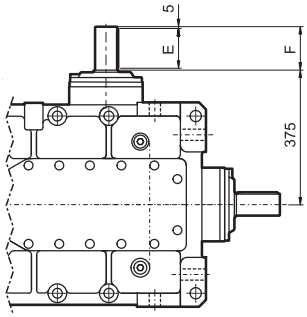
HDO 100

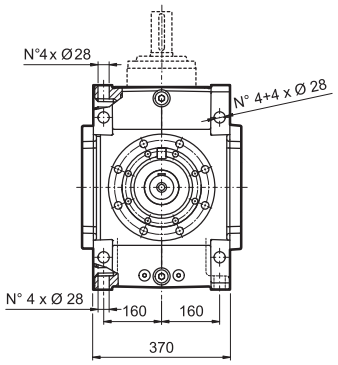


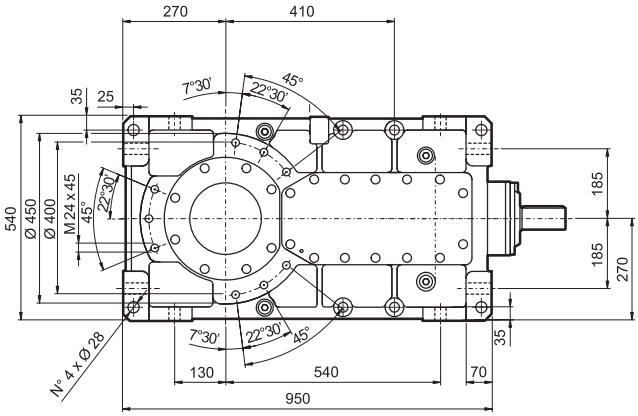
HDO 100 2



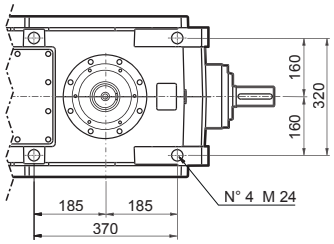


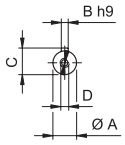


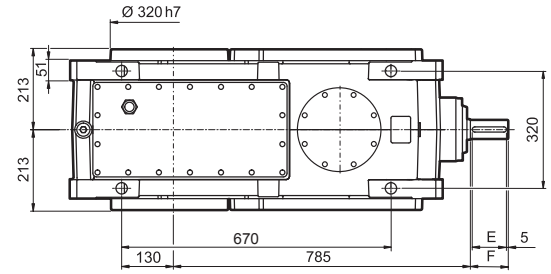




HDO 100 3
HDO 100 4





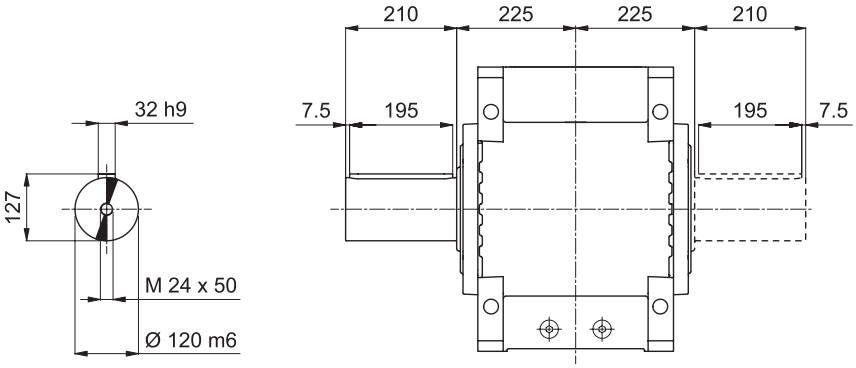


Dimensions are in [mm].

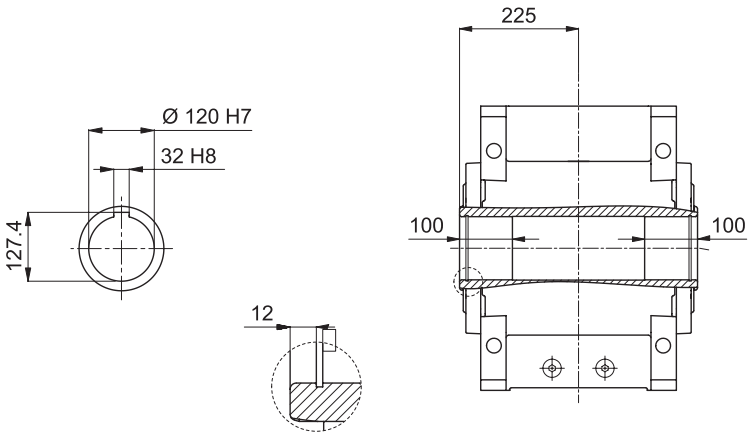
VP	i =	A	B	C	D	E	F	Kg LP
HDO 100 2	**5.8 … 13.5**	70 m6	20	74.5	M20x42	125	140	640
HDO 100 3	**14 … 17.3**	55 m6	16	59	M20x42	100	110	715
HDO 100 3	**20.2 … 67.5**	45 k6	14	48.5	M16x36	100	110	715
HDO 100 4	**70.8 … 139.8**	35 k6	10	38	M12x28	70	80	730
HDO 100 4	**160 … 344.2**	32 k6	10	35	M12x28	70	80	730

HDO 100

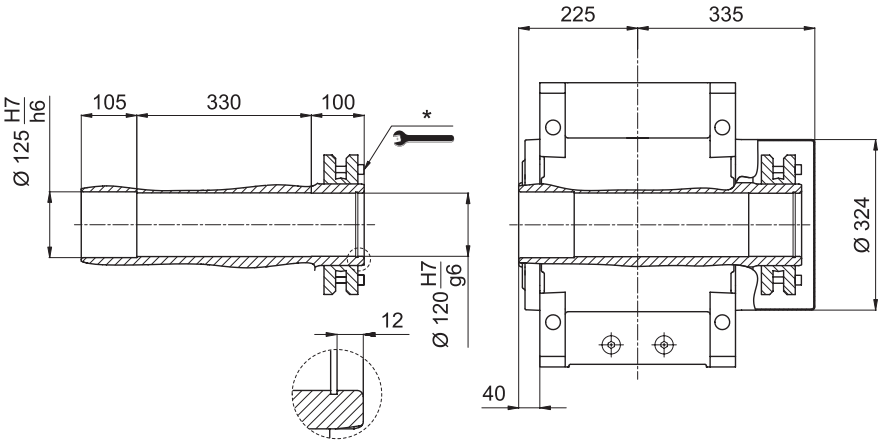
LP



H



S

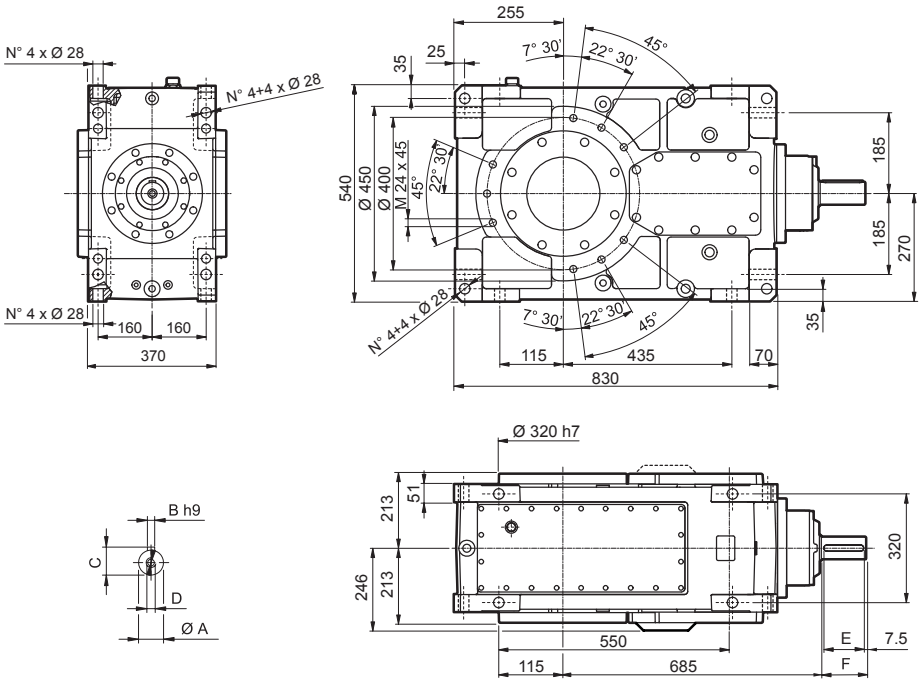


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

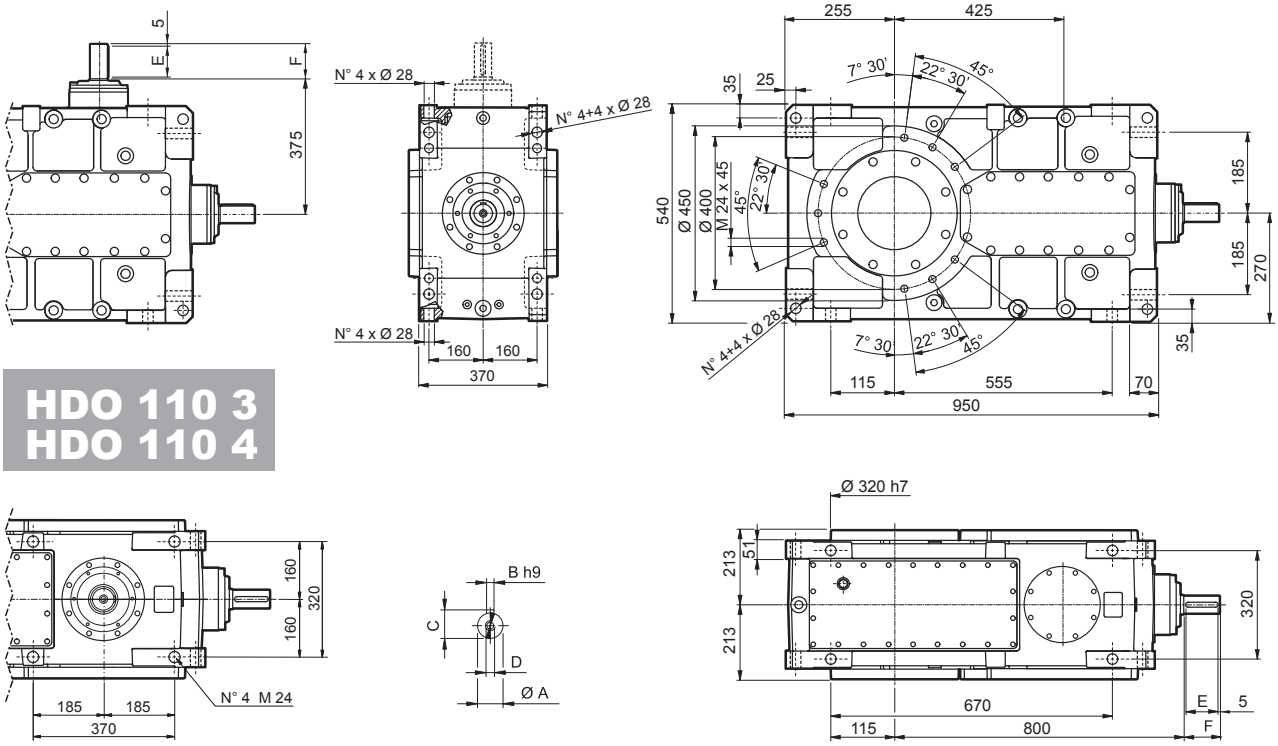
Dimensions are in [mm].

HDO 110

HDO 110 2



HDO 110 3
HDO 110 4

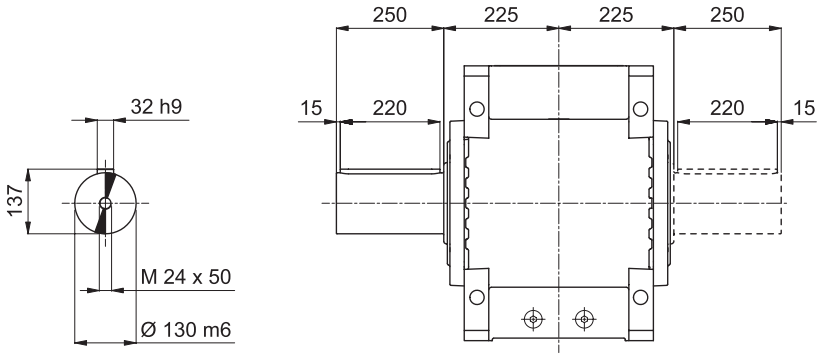


Dimensions are in [mm].

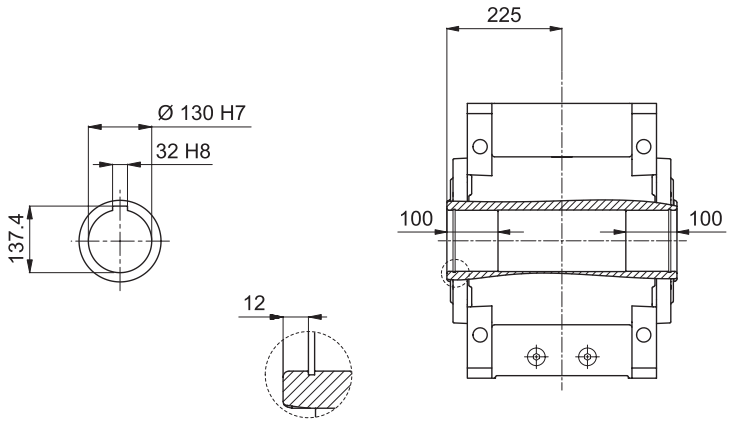
VP	i =	A	B	C	D	E	F	Kg LP
HDO 110 2	**6.4 … 15.5**	70 m6	20	74.5	M20x42	125	140	695
HDO 110 3	**18.9 … 20.9**	55 m6	16	59	M20x42	100	110	770
HDO 110 3	**22 … 77.5**	45 k6	14	48.5	M16x36	100	110	770
HDO 110 4	**77.4 … 121.7**	35 k6	10	38	M12x28	70	80	765
HDO 110 4	**137.1 … 395**	32 k6	10	35	M12x28	70	80	765

HDO 110

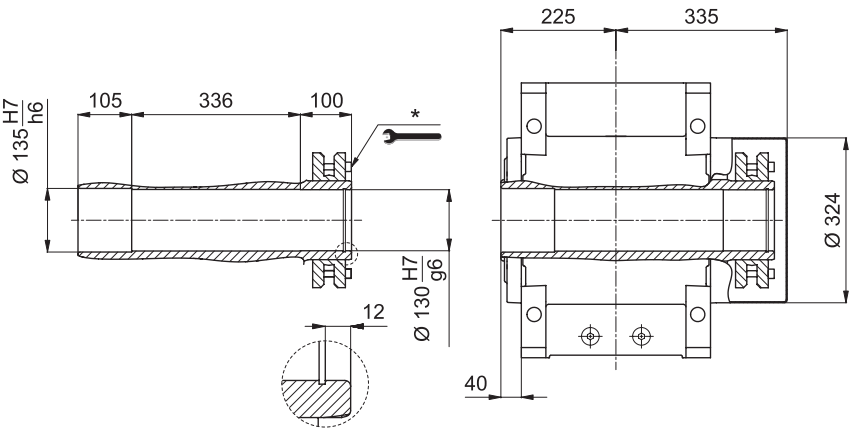
LP



H



S

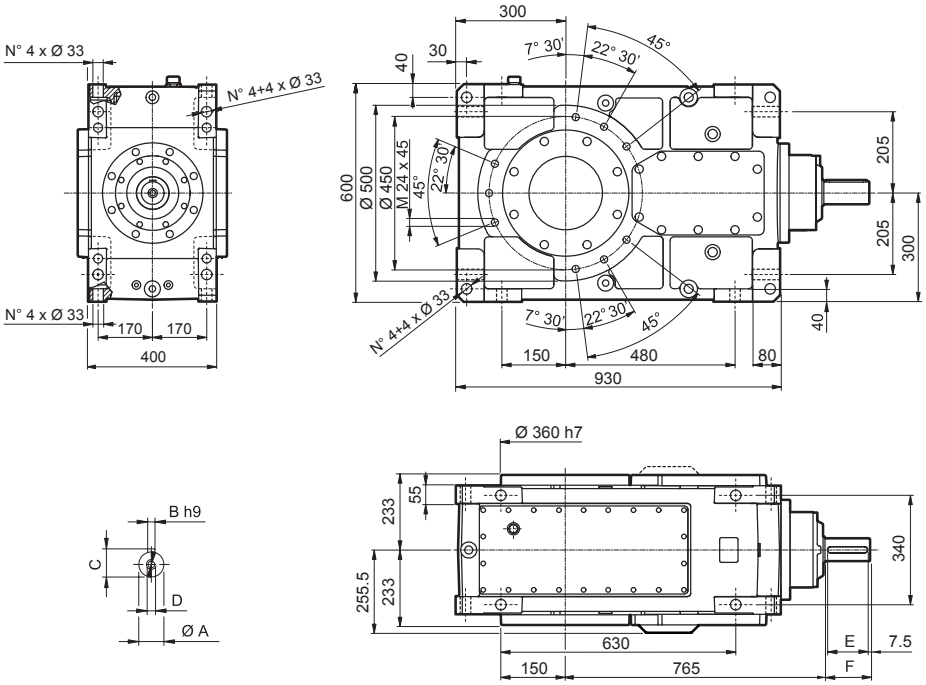


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

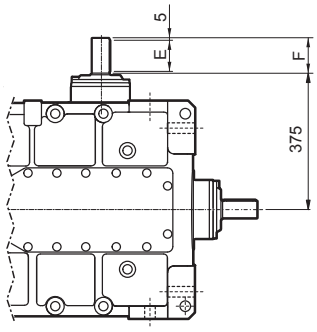
Dimensions are in [mm].

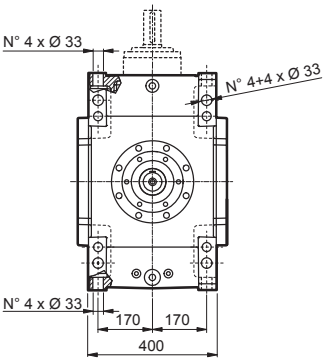
HDO 120

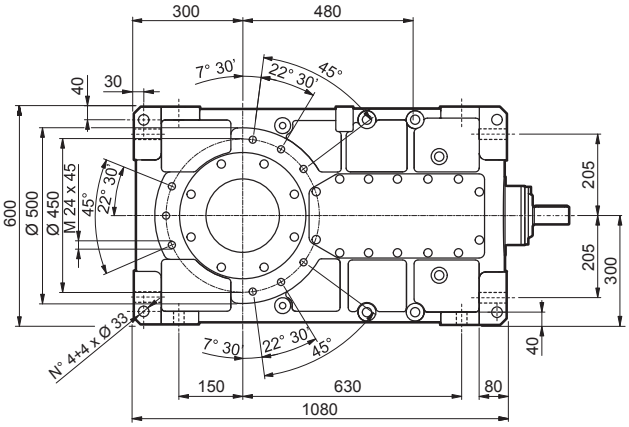
HDO 120 2

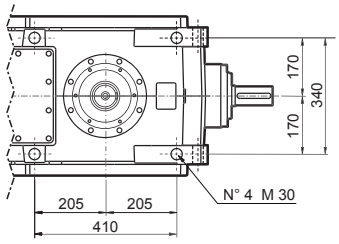


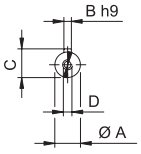
HDO 120 3
HDO 120 4

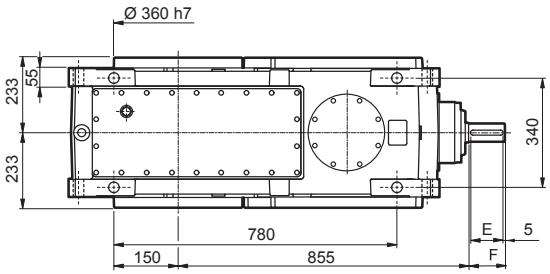










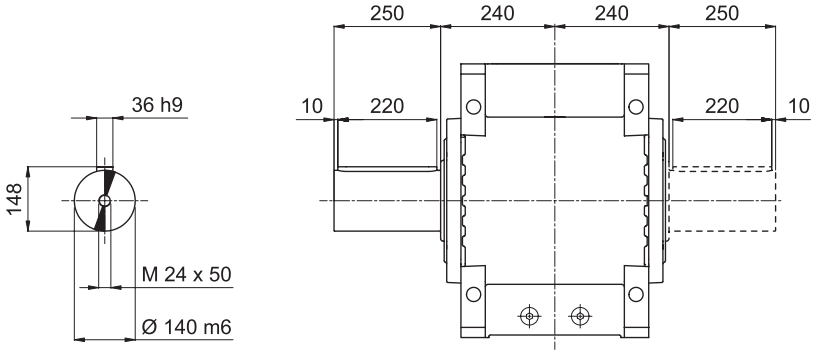


Dimensions are in [mm].

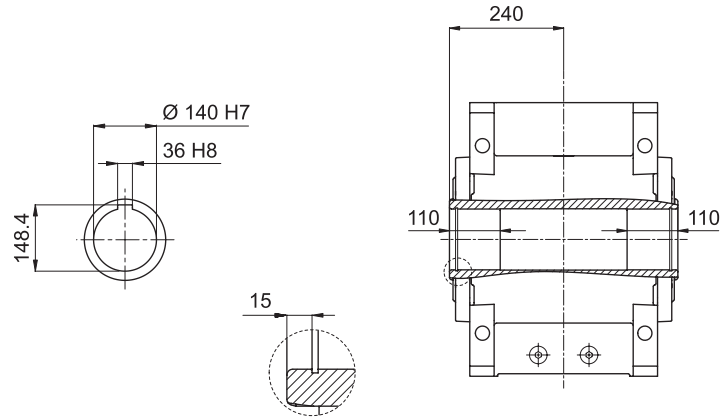
VP	i =	A	B	C	D	E	F	Kg LP
HDO 120 2	**6.6 … 15.5**	70 m6	20	74.5	M20x42	125	140	945
HDO 120 3	**17.3 … 24.6**	55 m6	16	59	M20x42	100	110	1025
HDO 120 3	**28.3 … 78.6**	45 k6	14	48.5	M16x36	100	110	1025
HDO 120 4	**87 … 162.2**	35 k6	10	38	M12x28	70	80	990
HDO 120 4	**179.7 … 400.6**	32 k6	10	35	M12x28	70	80	990

HDO 120

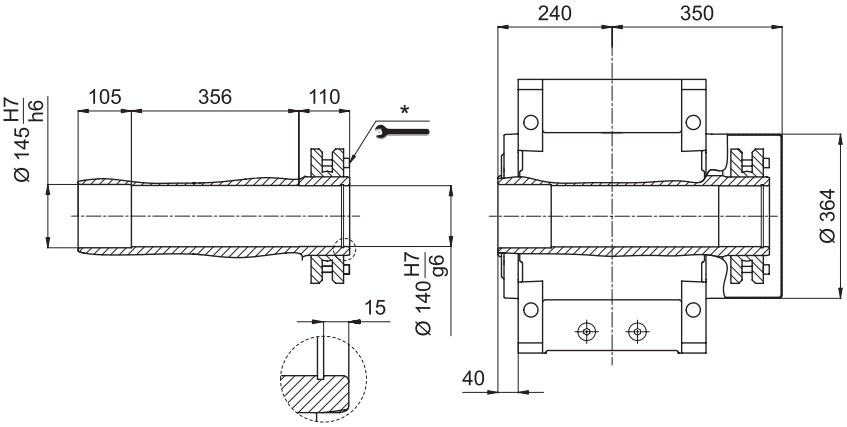
LP



H



S

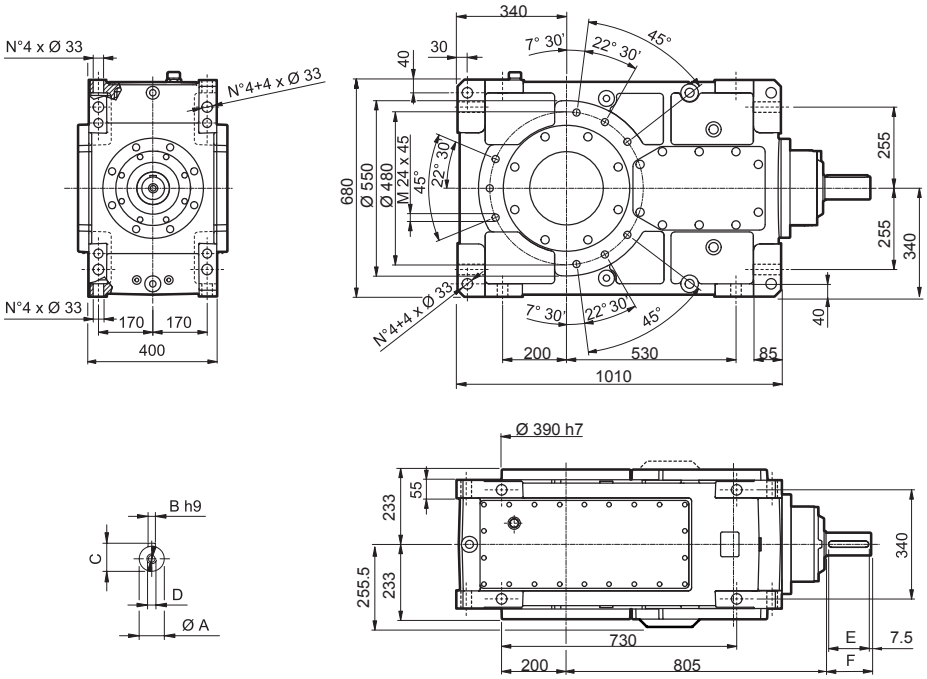


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

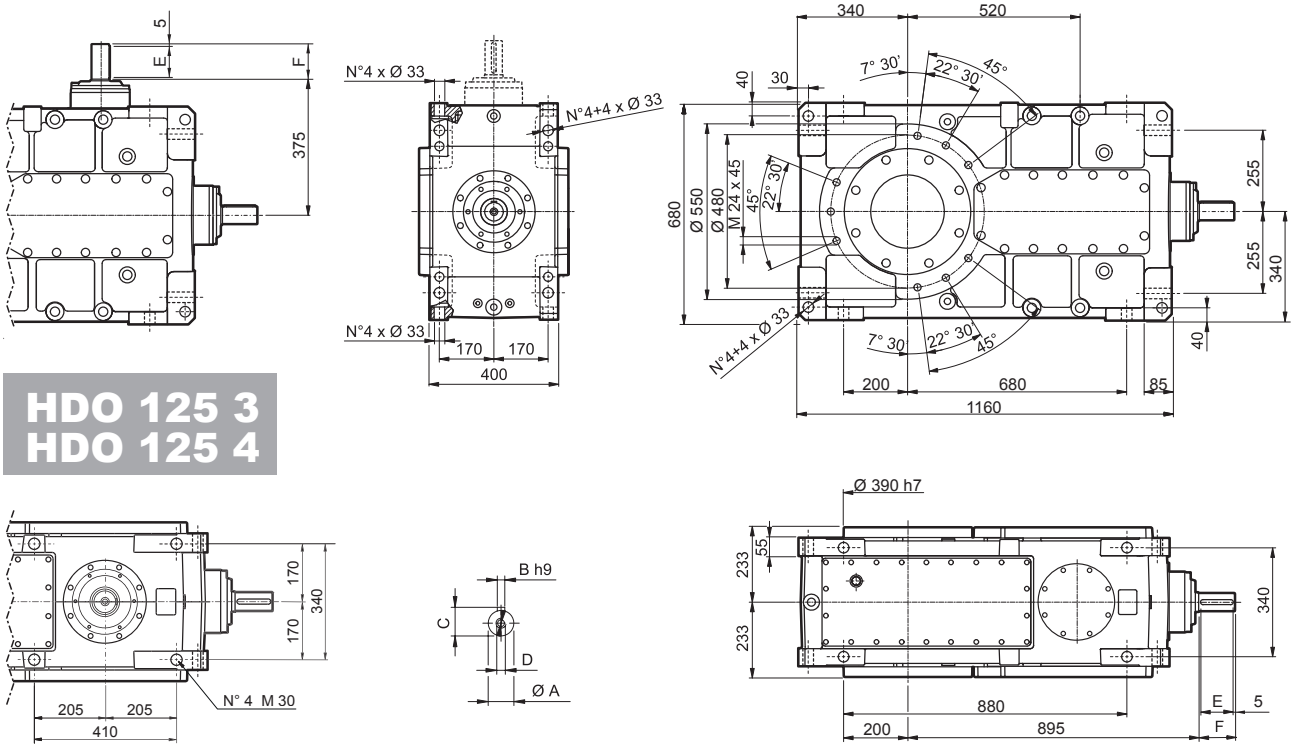
Dimensions are in [mm].

HDO 125

HDO 125 2



HDO 125 3
HDO 125 4

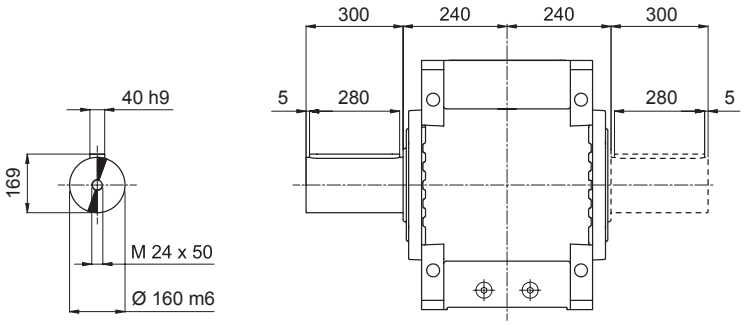


Dimensions are in [mm].

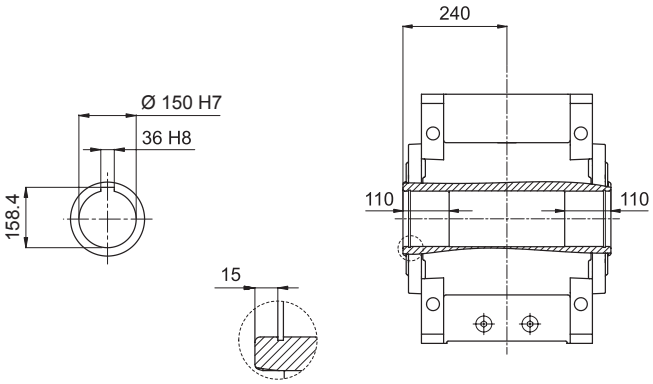
VP	i =	A	B	C	D	E	F	Kg LP
HDO 125 2	**7.4…17.0**	70 m6	20	74.5	M20x42	125	140	1130
HDO 125 3	**19.2...35.8**	55 m6	16	59	M20x43	100	110	1205
HDO 125 3	**38.8…85.9**	45 k6	14	48.5	M16x36	100	110	1205
HDO 125 4	**97.0…178.0**	35 k6	10	38	M12x28	70	80	1165
HDO 125 4	**200.3…438.0**	32 k6	10	35	M12x28	70	80	1165

HDO 125

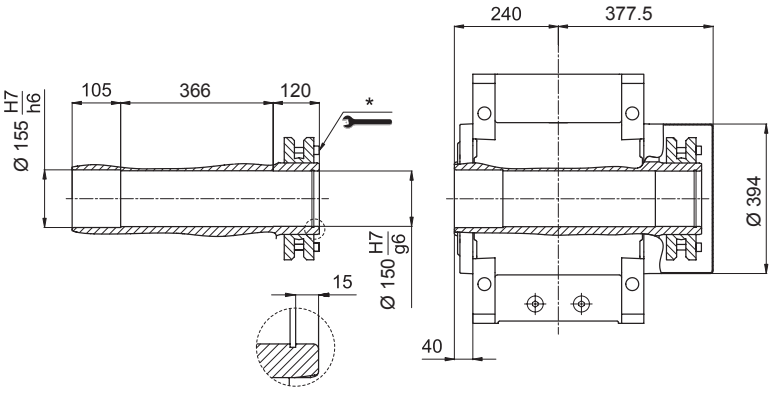
LP



H



S

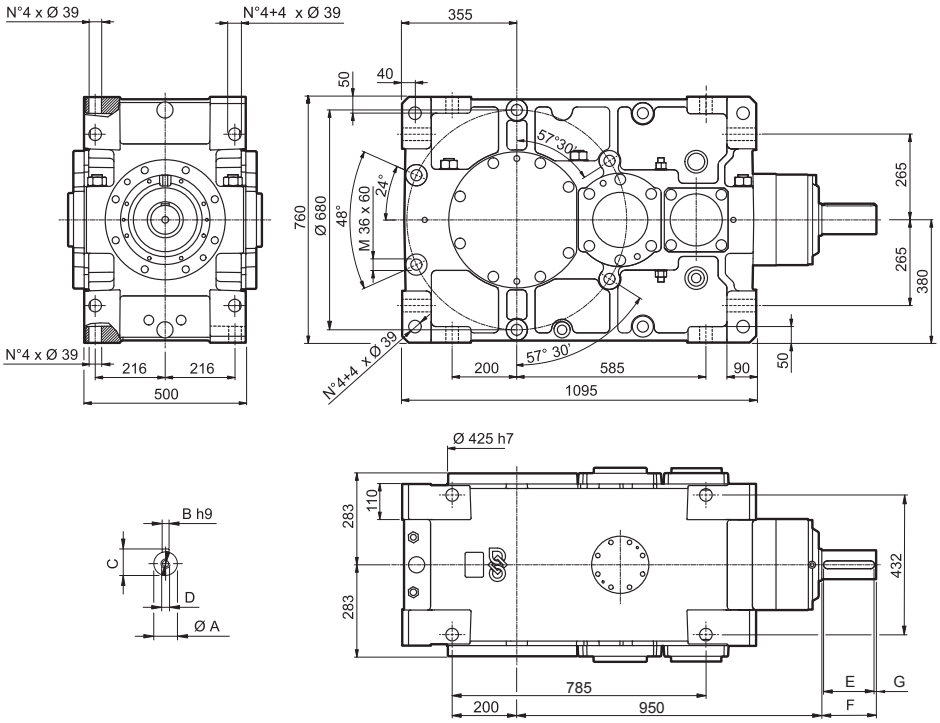


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

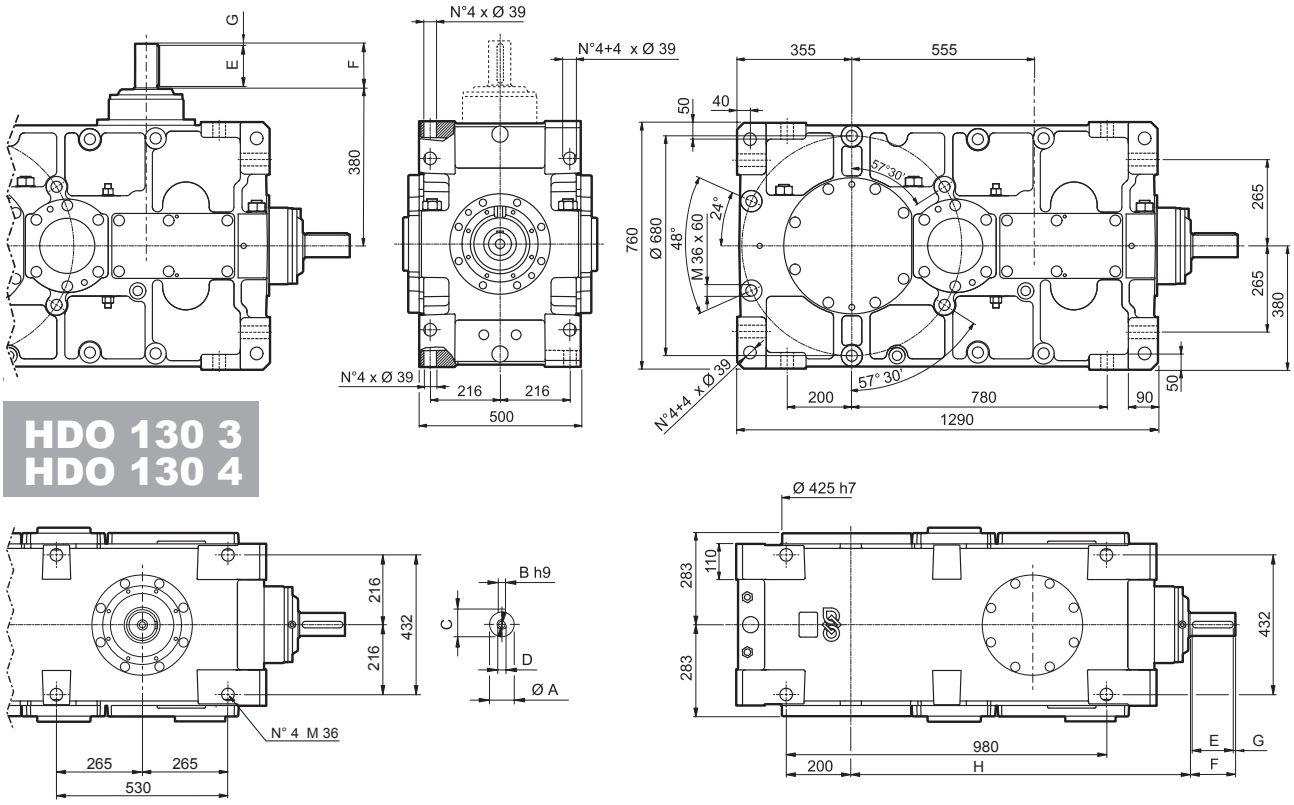
Dimensions are in [mm].

HDO 130

HDO 130 2



HDO 130 3
HDO 130 4

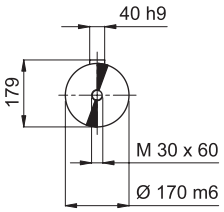


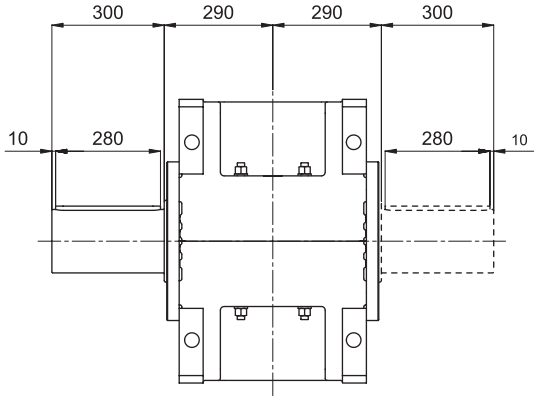
Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 130 2	**5.7 … 13.6**	90 m6	25	95	M24x50	160	170	5	—	1570
HDO 130 3	**15.2 … 67.1**	70 m6	20	74.5	M20x42	125	140	7.5	1040	1730
HDO 130 4	**71.5 … 335.6**	45 k6	14	48.5	M16x36	100	110	5	1105	1700

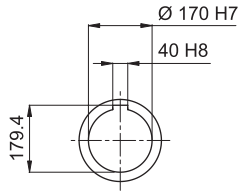
HDO 130

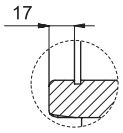
LP

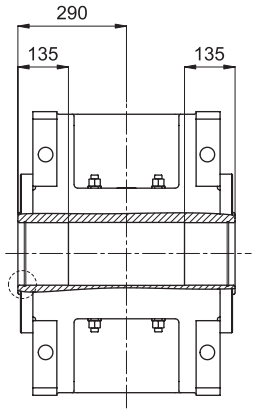




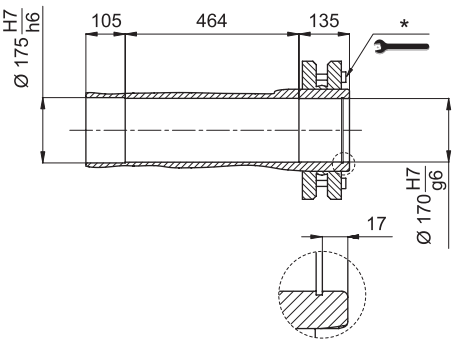
H

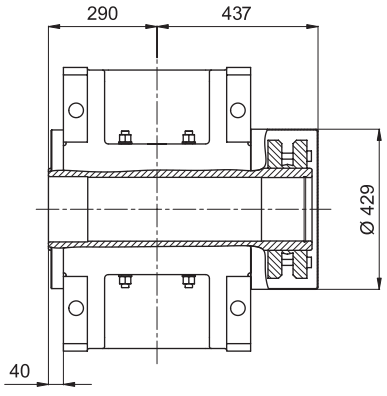






S



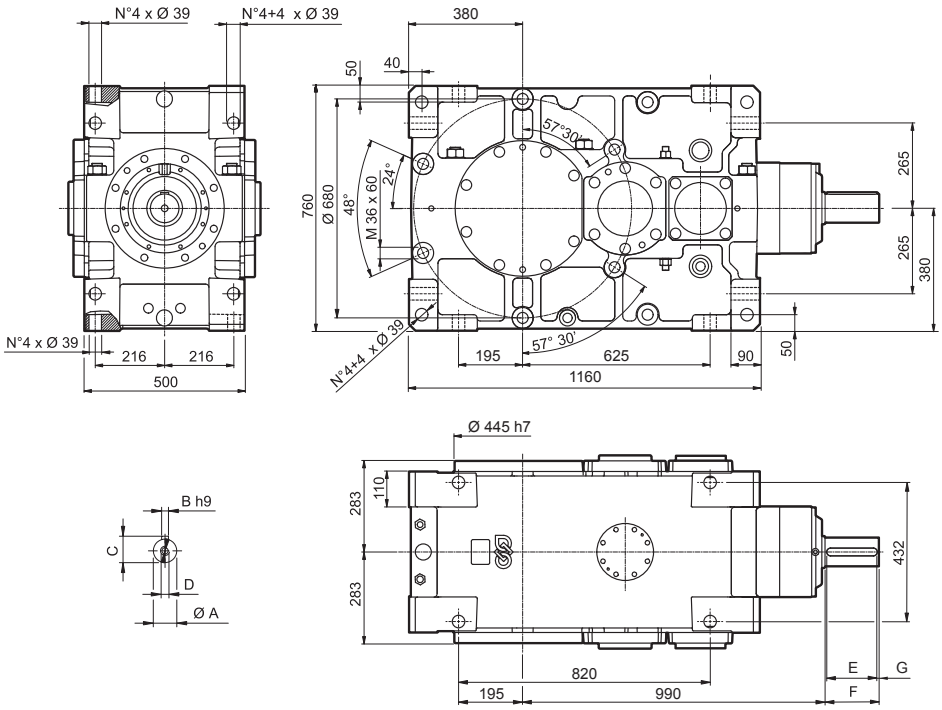


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

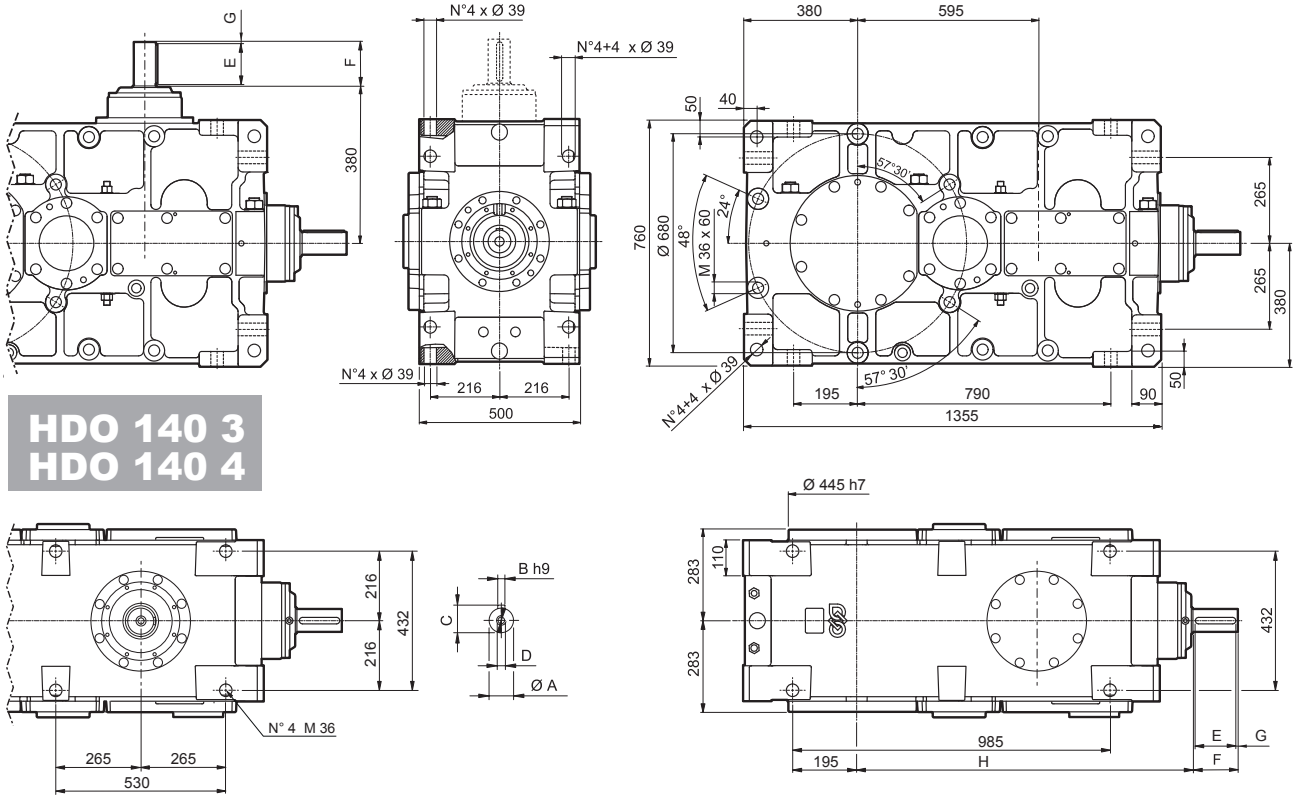
Dimensions are in [mm].

HDO 140

HDO 140 2



HDO 140 3
HDO 140 4

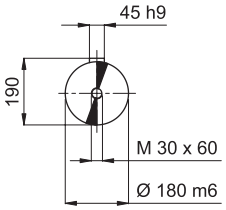


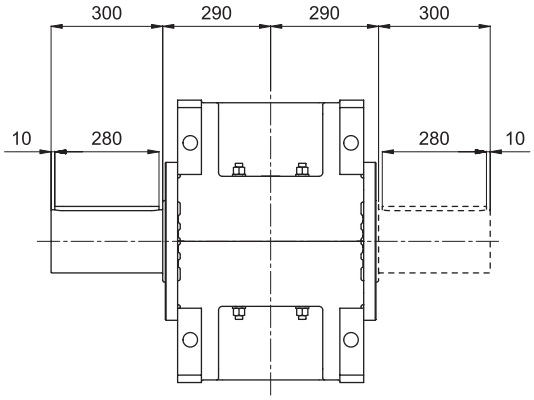
Dimensions are in [mm].

VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 140 2	**6.6 … 15.7**	90 m6	25	95	M24x50	160	170	5	—	1710
HDO 140 3	**17.7 … 77.3**	70 m6	20	74.5	M20x42	125	140	7.5	1080	1960
HDO 140 4	**82.3 … 386.6**	45 k6	14	48.5	M16x36	100	110	5	1145	1925

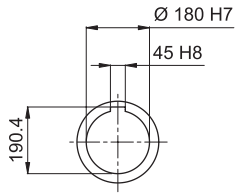
HDO 140

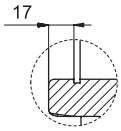
LP

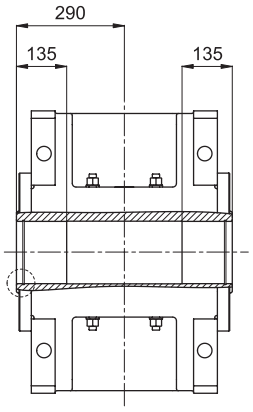




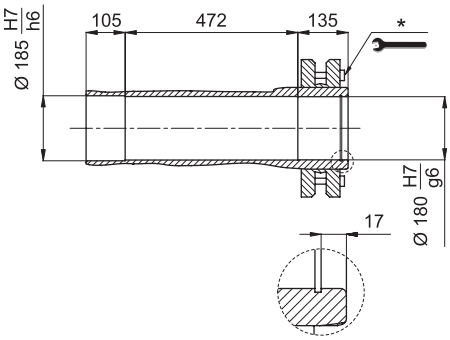
H

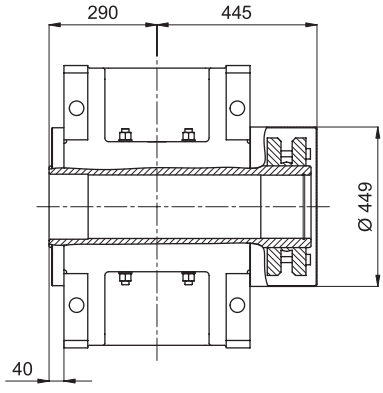






S



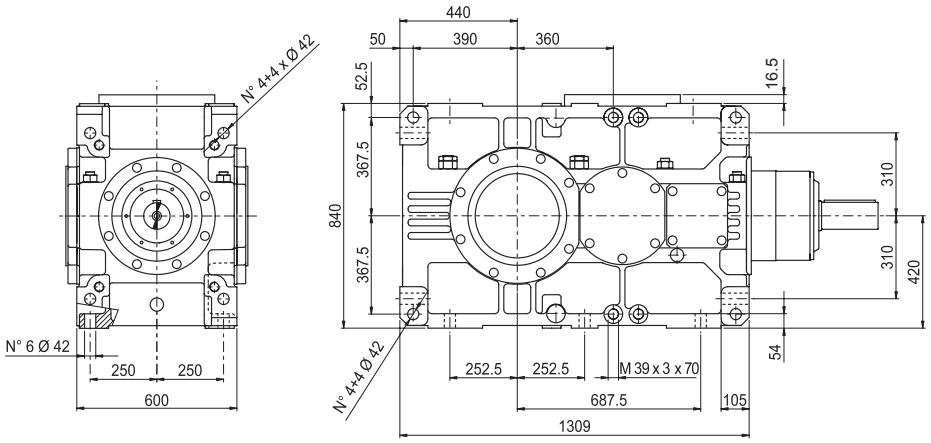


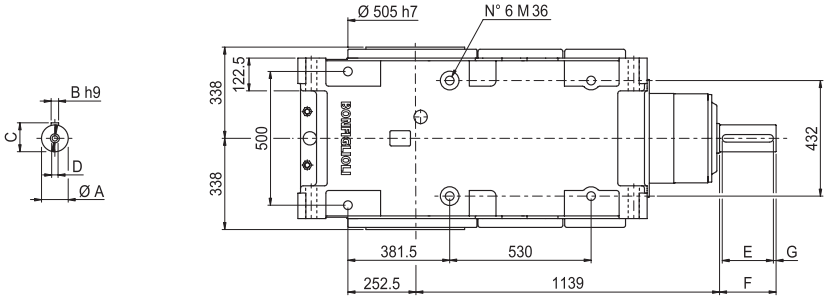
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

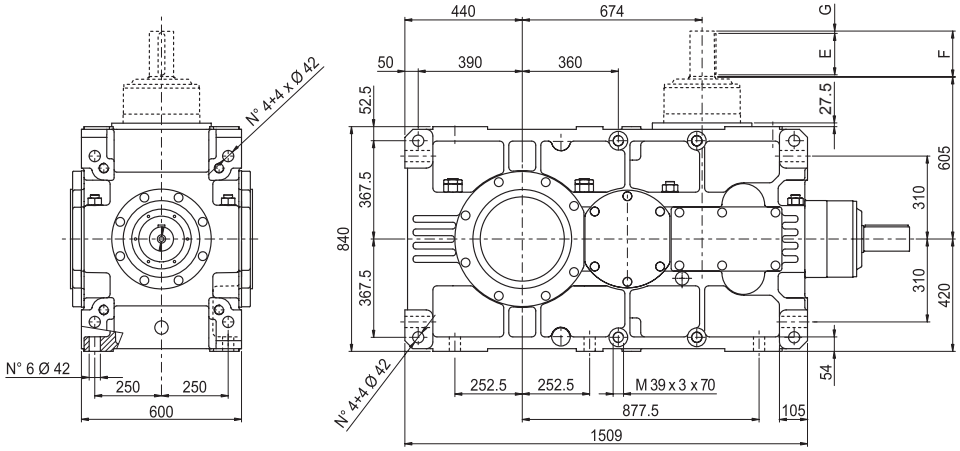
HDO 150

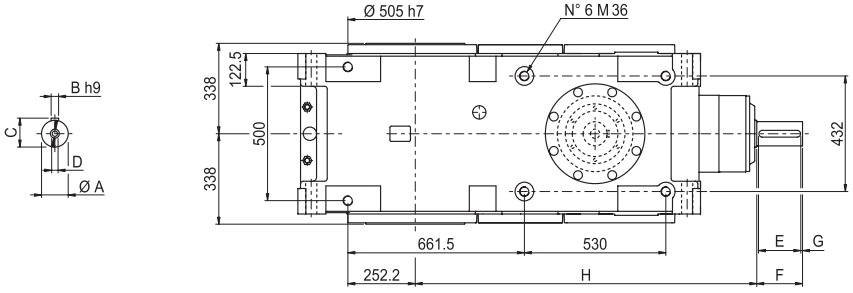
HDO 150 2





HDO 150 3
HDO 150 4



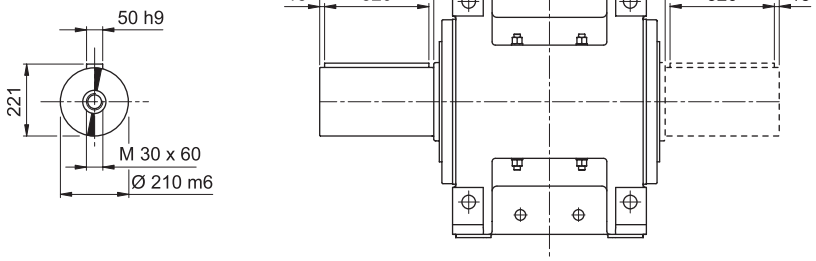


Dimensions are in [mm].

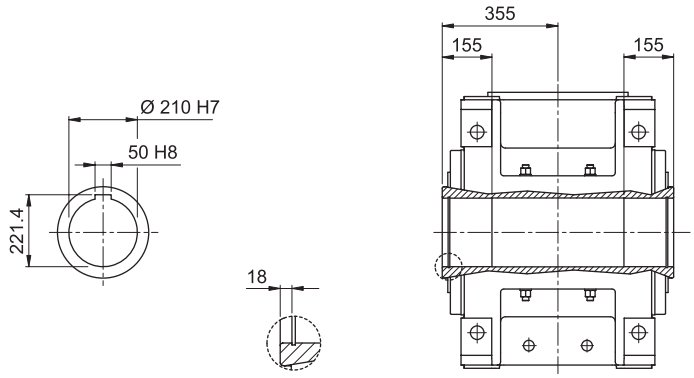
VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 150 2	**5.5 … 7.0**	110 m6	28	116	M24x50	190	210	10	—	2795
HDO 150 2	**8.1 … 13.7**	100 m6	28	106	M24x50	190	210	10	—	2795
HDO 150 3	**15.6 … 60.8**	90 m6	25	95	M24x50	160	170	5	1279	2895
HDO 150 4	**66.9 … 92.9**	55 m6	16	59	M20x42	90	110	5	1249	2875
HDO 150 4	**101.8 … 238.8**	45 k6	14	48.5	M16x36	100	110	5	1249	2875

HDO 150

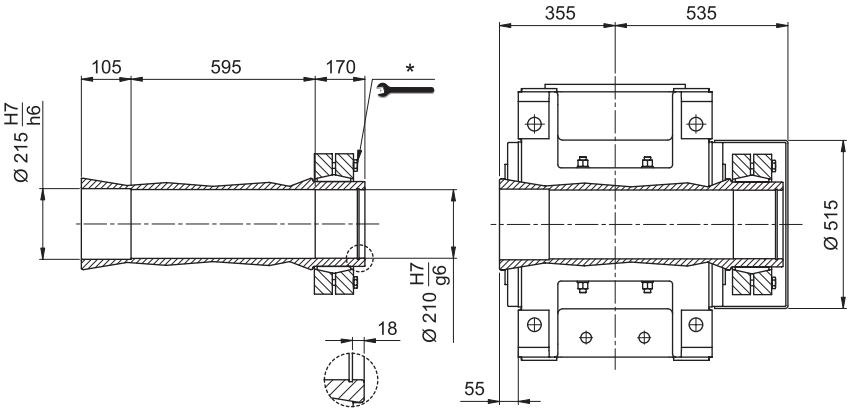
LP



H



S

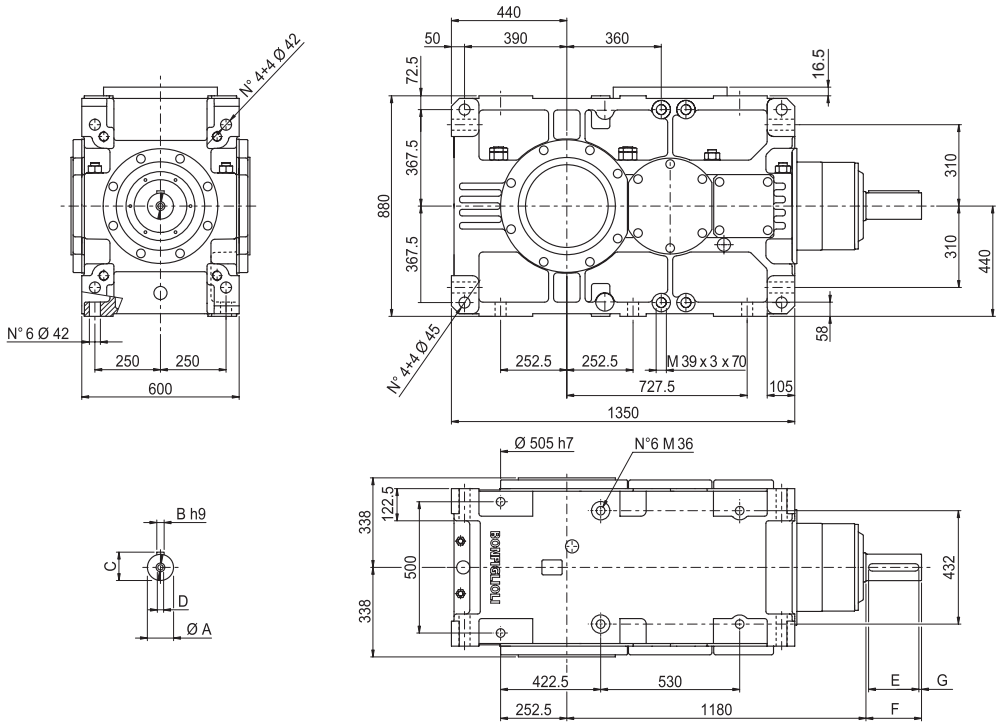


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

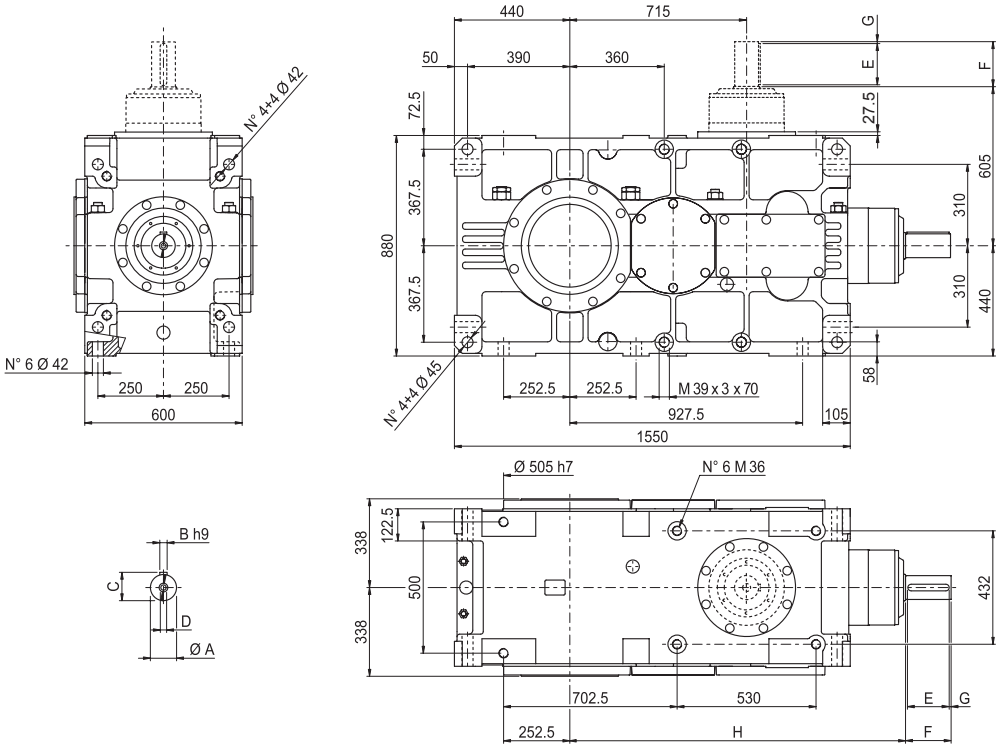
Dimensions are in [mm].

HDO 160

HDO 160 2



HDO 160 3
HDO 160 4

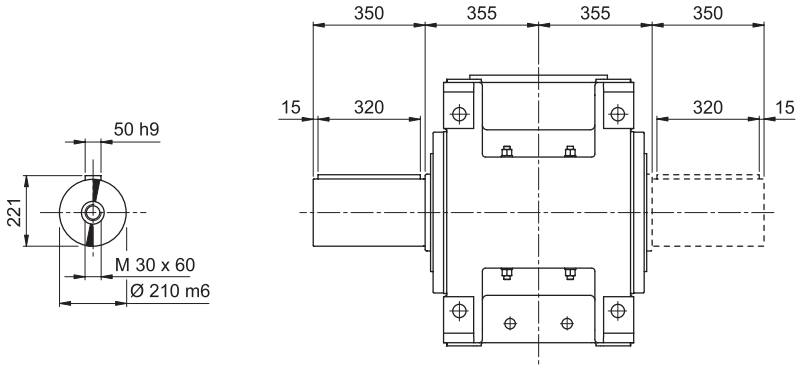


Dimensions are in [mm].

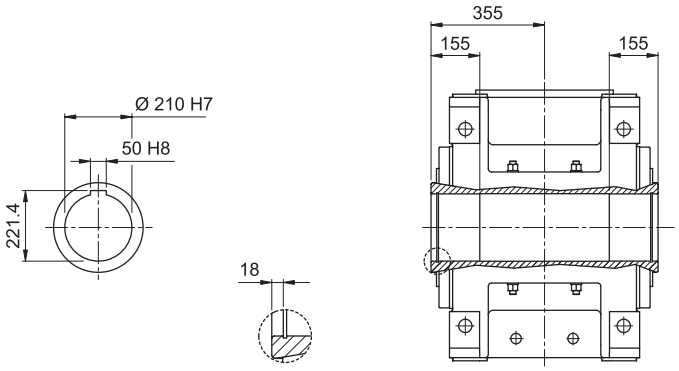
VP	i =	A	B	C	D	E	F	G	H	Kg LP
HDO 160 2	**7.3 … 7.9**	110 m6	28	116	M24x50	190	210	10	—	3075
HDO 160 2	**8.9 … 15.4**	100 m6	28	106	M24x50	190	210	10	—	3075
HDO 160 3	**17.7 … 68.6**	90 m6	25	95	M24x50	160	170	5	1320	3175
HDO 160 4	**75.9 … 96.3**	55 m6	16	59	M20x42	90	110	10	1290	3160
HDO 160 4	**115.2 … 269.7**	45 k6	14	48.5	M16x36	100	110	5	1290	3160

HDO 160

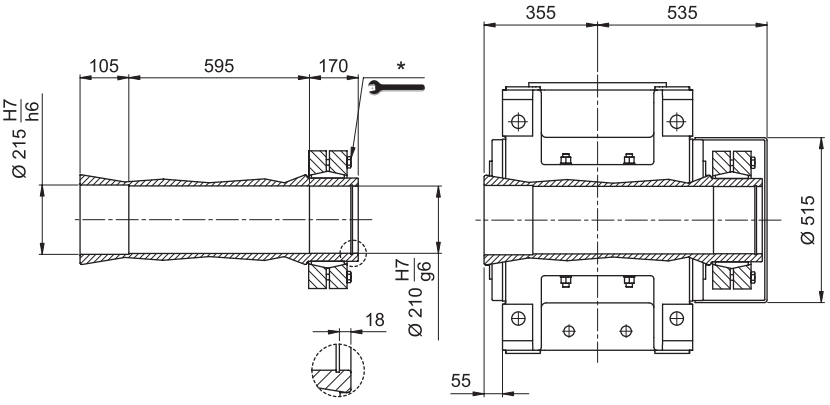
LP



H



S

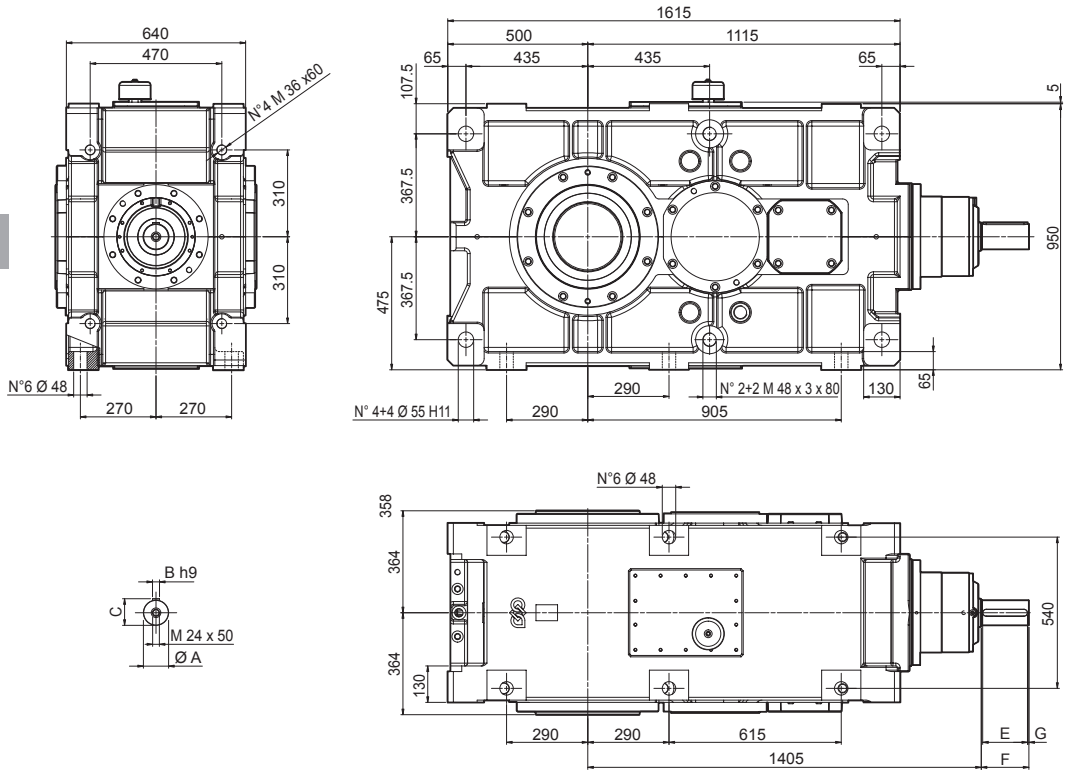


* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDO 170

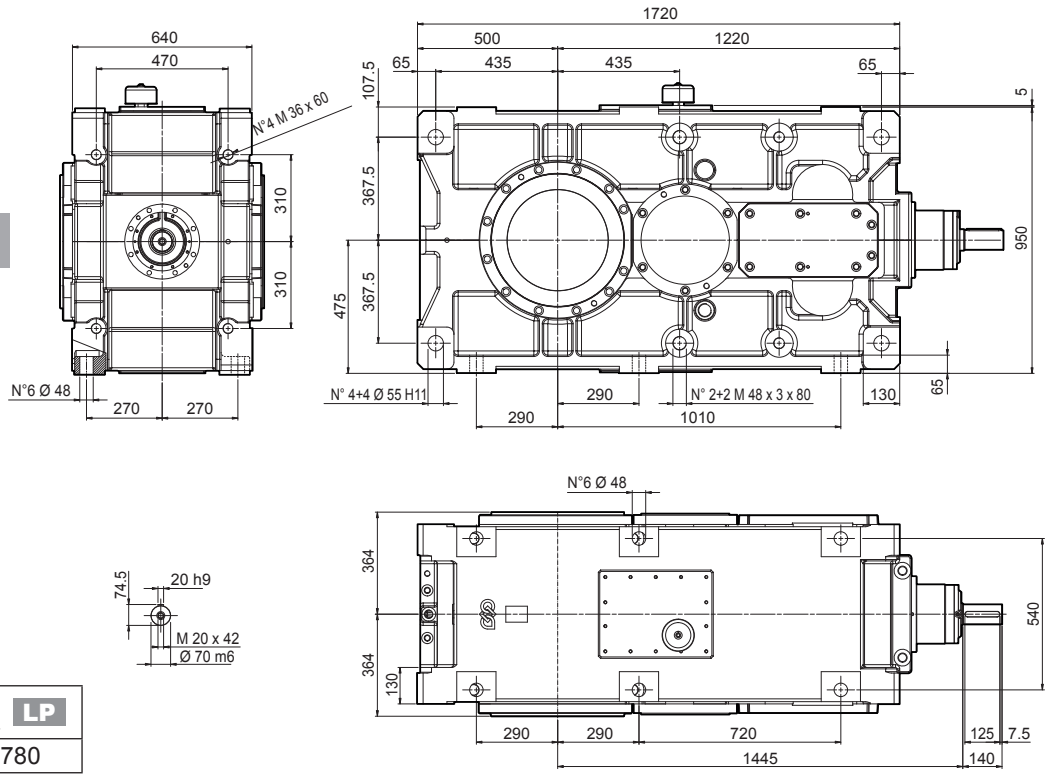
HDO 170 3



Dimensions are in [mm].

VP	i =	A	B	C	E	F	G	Kg LP
HDO 170 3	**15.9 ... 21.7**	100 m6	28	106	190	210	10	3675
HDO 170 3	**26.2 ... 59.9**	90 m6	25	95	160	170	5	3675

HDO 170 4

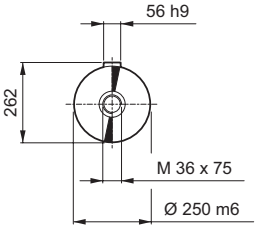


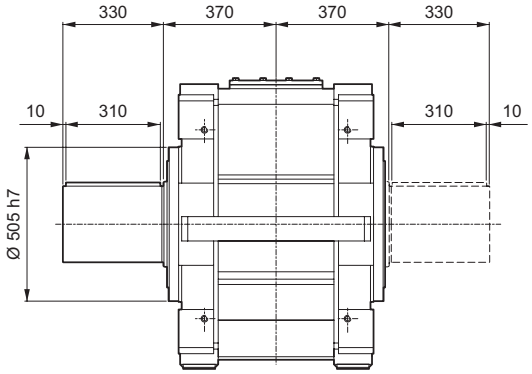
VP	Kg LP
HDO 170 4	3780

Bonfiglioli Riduttori

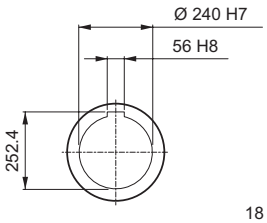
HDO 170

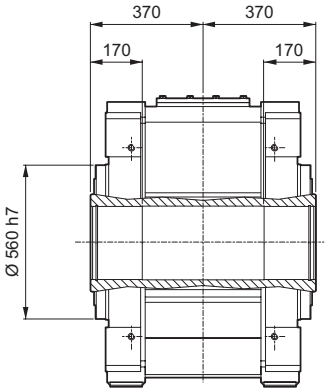
LP



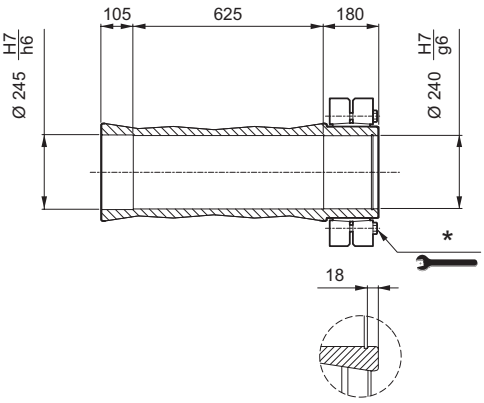


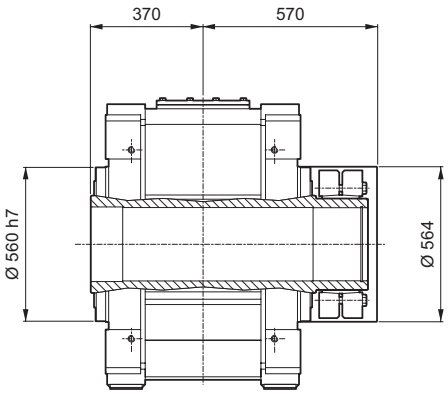
H





S





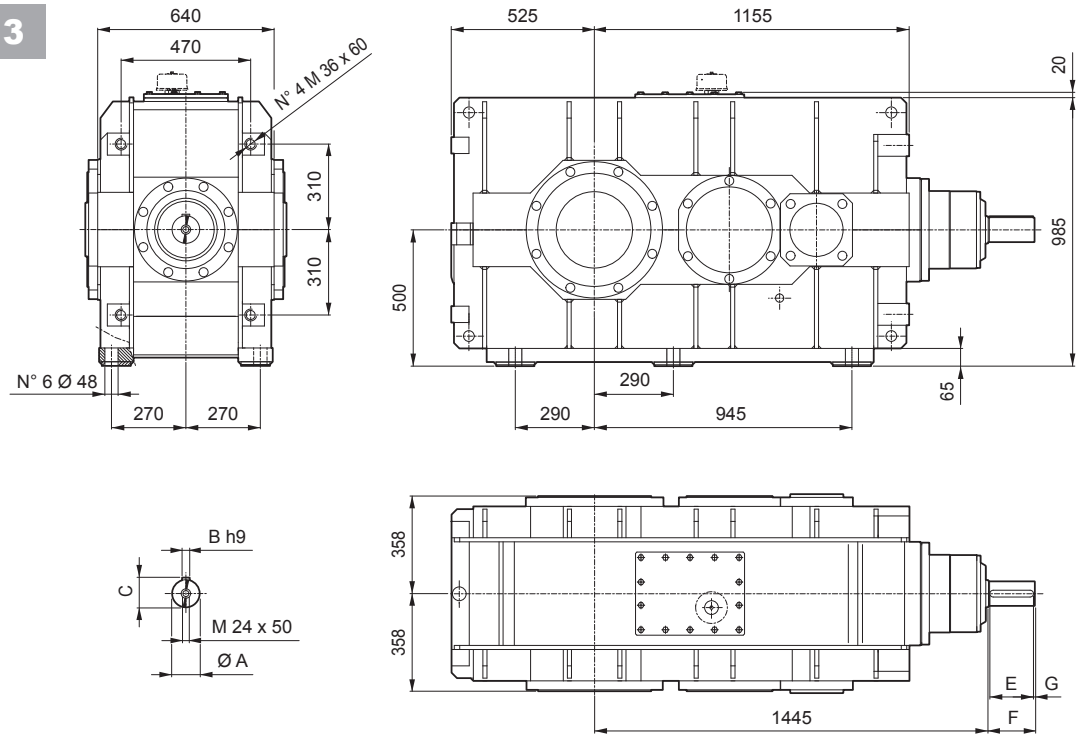
* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

Dimensions are in [mm].

HDO 180

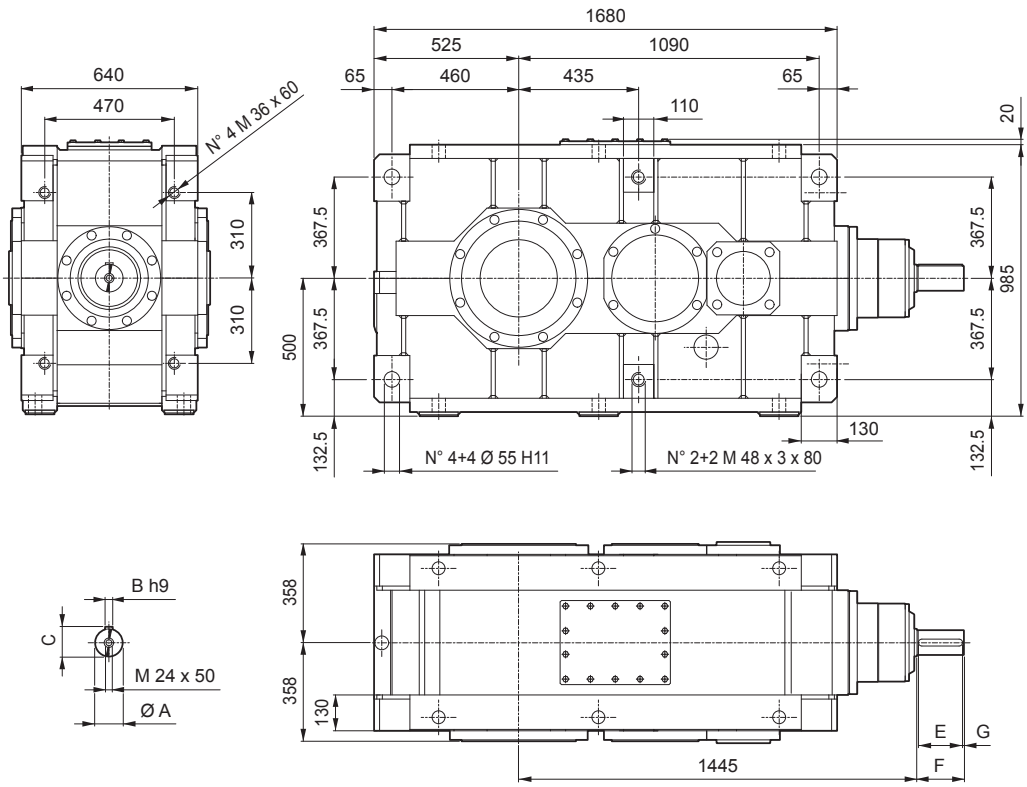
HDO 180 3

B3



HDO 180 3

V5



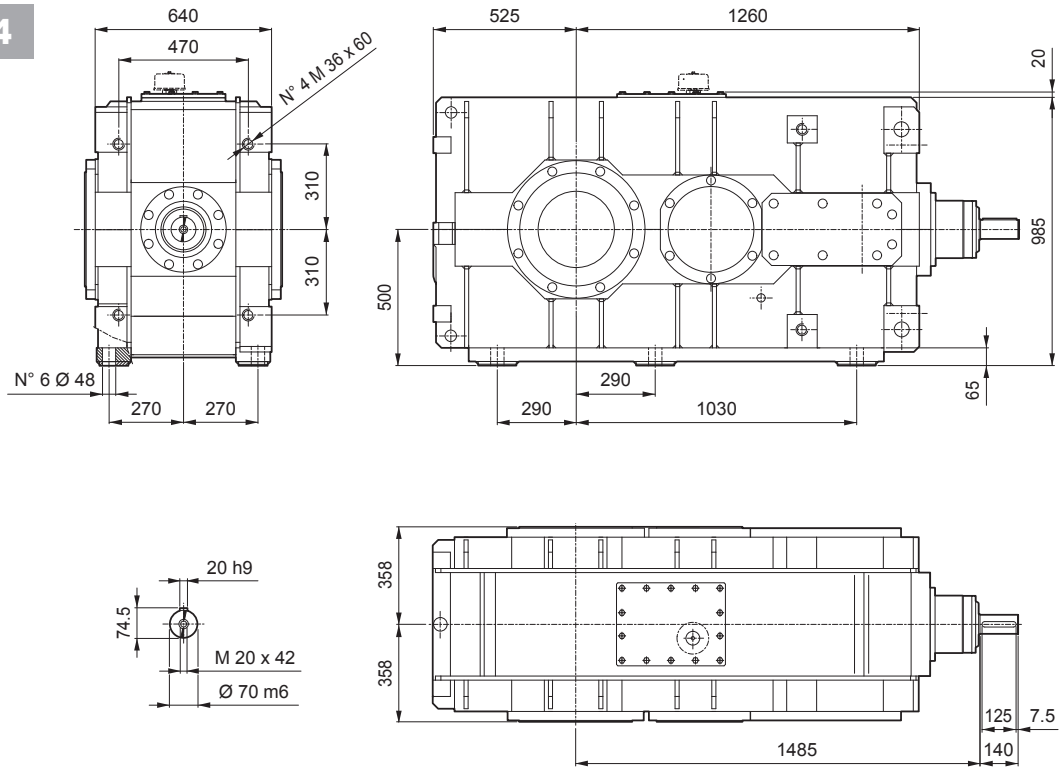
Dimensions are in [mm].

VP	i =	A	B	C	E	F	G	Kg LP
HDO 180 3	**17.7 ... 27.9**	100 m6	28	106	190	210	10	3820
HDO 180 3	**31.4 ... 66.2**	90 m6	25	95	160	170	5	3820

HDO 180

HDO 180 4

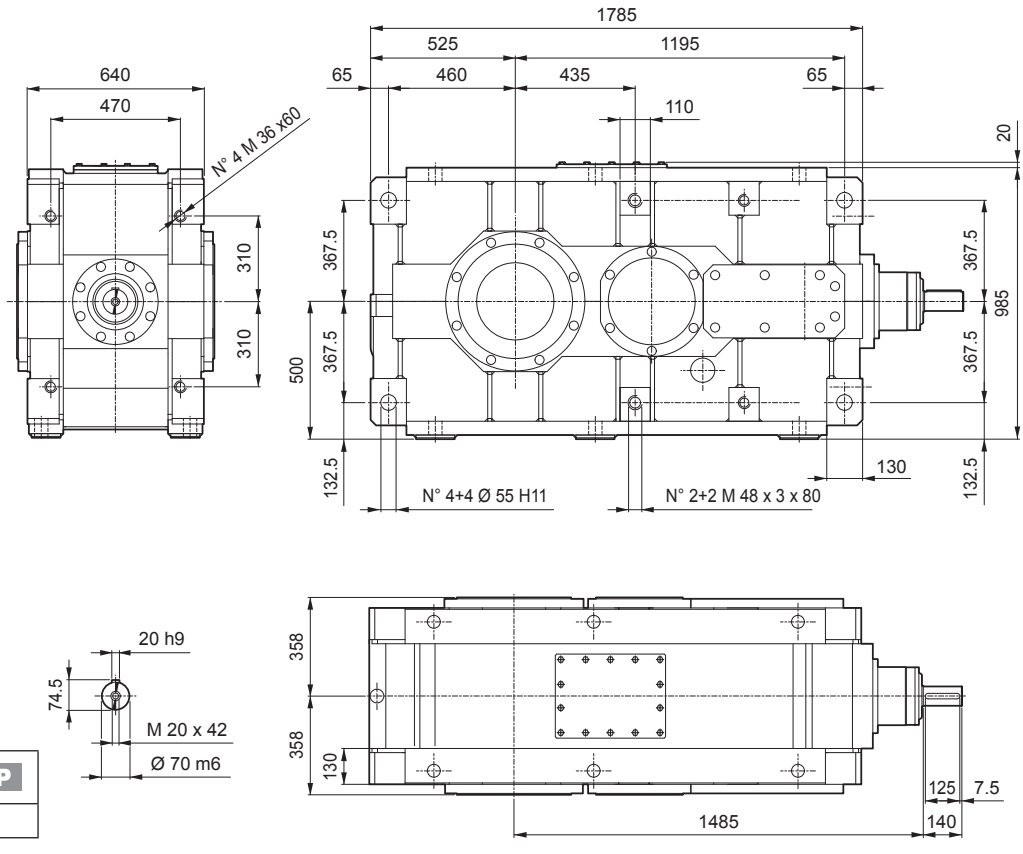
B3



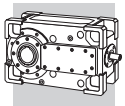
Dimensions are in [mm].

HDO 180 4

V5



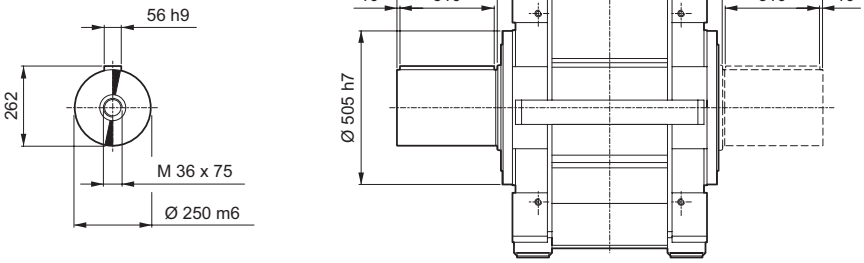
VP	Kg LP
HDO 180 4	3875



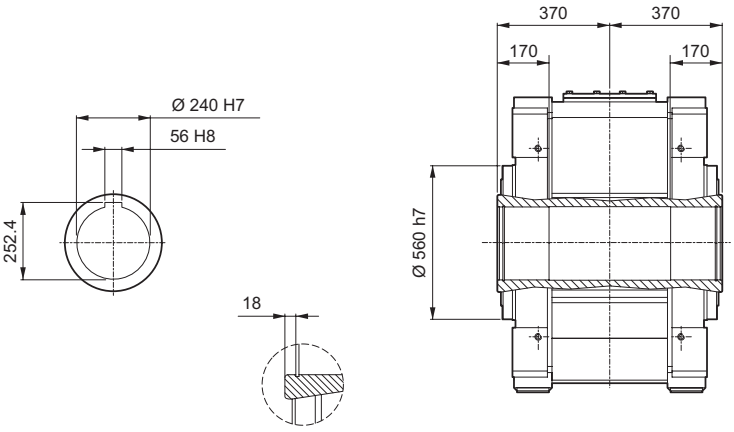
HDO 180

HDO

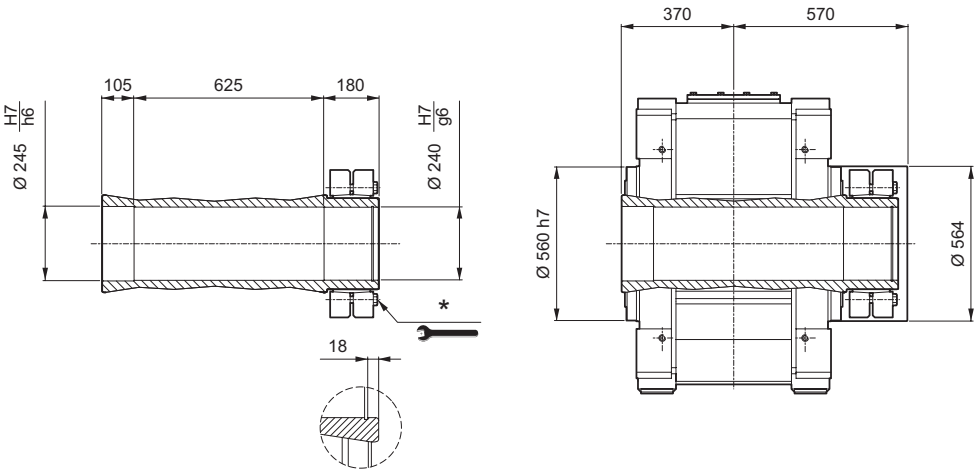
LP



H



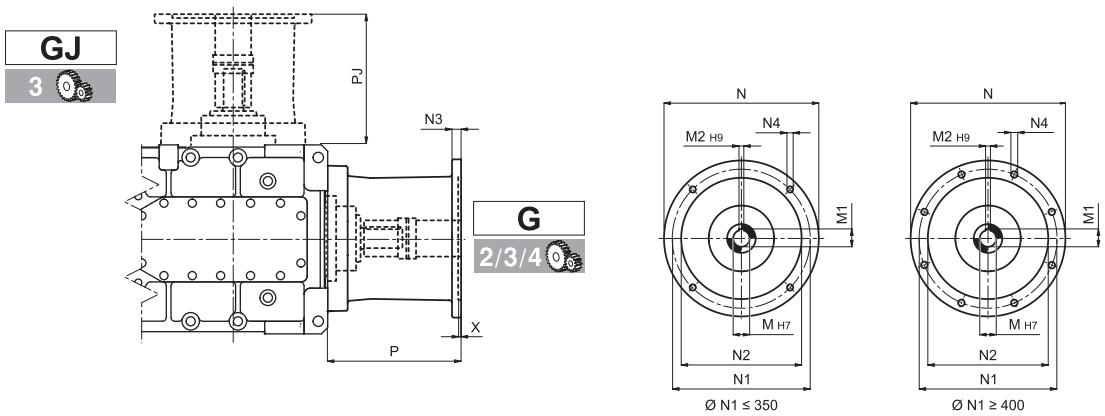
S



* For correct use, refer to the “OPERATION AND MAINTENANCE MANUAL”.

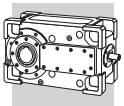
Dimensions are in [mm].

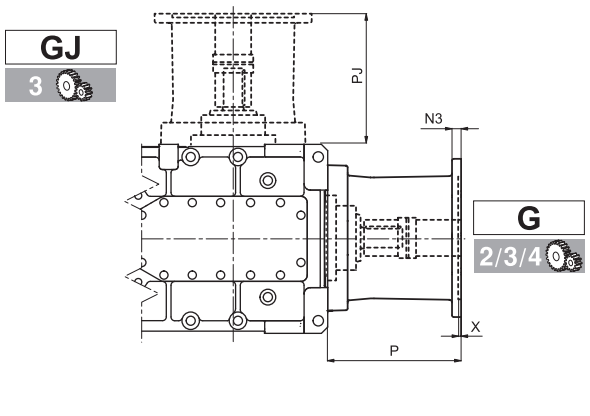
31.1 MOTOR MOUNTING WITH BELL HOUSING AND FLEXIBLE COUPLING

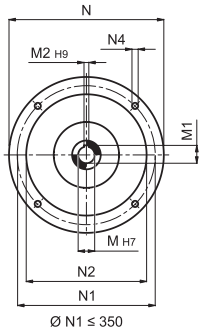


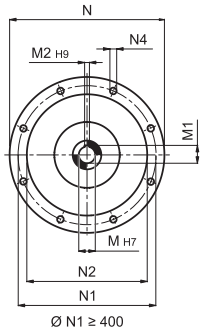
	M	M1	M2	N	N1	N2	N3	N4	X	P	PJ
HDO 71 3_132	38	41.3	10	300	265	230	16	M12x20	5	246.5	—
HDO 71 3_160	42	45.3	12	350	300	250	23	18	6	276.5	—
HDO 71 3_180	48	51.8	14	350	300	250	23	18	6	276.5	—
HDO 71 2/3_200	55	59.3	16	400	350	300	—	M16x23	7	301.5	—
HDO 71 2/3_225	60	64.4	18	450	400	350	25	18	7	309.5	—
HDO 81 3_160	42	45.3	12	350	300	250	48	18	7	320	—
HDO 81 3_180	48	51.8	14	350	300	250	48	18	7	320	—
HDO 81 2/3_200	55	59.3	16	400	350	300	—	M16x23	7	320	—
HDO 81 2/3_225	60	64.4	18	450	400	350	25	18	7	356	—
HDO 81 2/3_250	65	69.4	18	550	500	450	30	18	6	386	—
HDO 81 2/3_280	75	79.9	20	550	500	450	30	18	6	386	—
HDO 91 4_112	28	31.3	8	250	215	180	15	14	5	260	—
HDO 91 4_132	38	41.3	10	300	265	230	—	M12x20	6	280	—
HDO 91 3/4_160	42	45.3	12	350	300	250	23	18	6	346	—
HDO 91 3/4_180	48	51.8	14	350	300	250	23	18	6	346	—
HDO 91 2/3/4_200	55	59.3	16	400	350	300	—	M16x23	7	371	—
HDO 91 2/3/4_225	60	64.4	18	450	400	350	26	18	7	378	—
HDO 91 2/3_250	65	69.4	18	550	500	450	30	18	6	408	—
HDO 91 2/3_280	75	79.9	20	550	500	450	30	18	6	408	—
HDO 95 4_112	28	31.3	8	250	215	180	15	14	5	260	—
HDO 95 4_132	38	41.3	10	300	265	230	—	M12x20	6	280	—
HDO 95 3/4_160	42	45.3	12	350	300	250	23	18	6	346	—
HDO 95 3/4_180	48	51.8	14	350	300	250	23	18	6	346	—
HDO 95 3/4_200	55	59.3	16	400	350	300	—	M16x23	7	371	—
HDO 95 3/4_225	60	64.4	18	450	400	350	26	18	7	378	—
HDO 95 3_250	65	69.4	18	550	500	450	30	18	6	408	—
HDO 95 3_280	75	79.9	20	550	500	450	30	18	6	408	—
HDO 100 2_250	65	69.4	18	550	500	450	30	18	6	420.5	—
HDO 100 2_280	75	79.9	20	550	500	450	30	18	6	420.5	—
HDO 100 2_315	80	85.4	22	660	600	550	22	22	10	457	—
HDO 100 3_160	42	45.3	12	350	300	250	23	18	6	351	351
HDO 100 3_180	48	51.8	14	350	300	250	23	18	6	351	351
HDO 100 3_200	55	59.3	16	400	350	300	—	M16x23	7	376	376
HDO 100 3_225	60	64.4	18	450	400	350	26	18	7	383	383
HDO 100 3_250	65	69.4	18	550	500	450	30	18	6	413	413
HDO 100 3_280	75	79.9	20	550	500	450	30	18	6	413	413
HDO 100 3_315	80	85.4	22	660	600	550	22	22	10	449.5	449.5

Dimensions are in [mm].



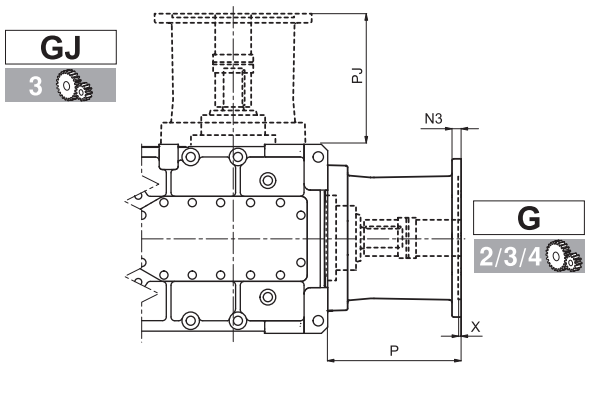


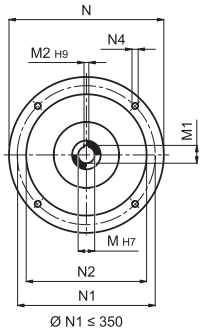


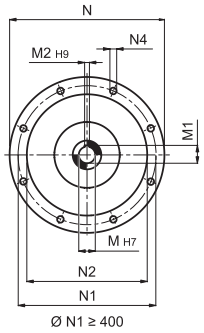


	M	M1	M2	N	N1	N2	N3	N4	X	P	PJ
HDO 100 4_112	28	31.3	8	250	215	180	15	14	5	265	—
HDO 100 4_132	38	41.3	10	300	265	230	—	M12x20	6	285	—
HDO 100 4_160	42	45.3	12	350	300	250	23	18	6	351	—
HDO 100 4_180	48	51.8	14	350	300	250	23	18	6	351	—
HDO 100 4_200	55	59.3	16	400	350	300	—	M16x23	7	376	—
HDO 100 4_225	60	64.4	18	450	400	350	26	18	7	383	—
HDO 110 2_280	75	79.9	20	550	500	450	30	18	6	420.5	—
HDO 110 2_315	80	85.4	22	660	600	550	22	22	10	457	—
HDO 110 3_160	42	45.3	12	350	300	250	23	18	6	351	351
HDO 110 3_180	48	51.8	14	350	300	250	23	18	6	351	351
HDO 110 3_200	55	59.3	16	400	350	300	—	M16x23	7	376	376
HDO 110 3_225	60	64.4	18	450	400	350	26	18	7	383	383
HDO 110 3_250	65	69.4	18	550	500	450	30	18	6	413	413
HDO 110 3_280	75	79.9	20	550	500	450	30	18	6	413	413
HDO 110 3_315	80	85.4	22	660	600	550	22	22	10	449.5	449.5
HDO 110 4_112	28	31.3	8	250	215	180	15	14	5	265	—
HDO 110 4_132	38	41.3	10	300	265	230	—	M12x20	6	285	—
HDO 110 4_160	42	45.3	12	350	300	250	23	18	6	351	—
HDO 110 4_180	48	51.8	14	350	300	250	23	18	6	351	—
HDO 110 4_200	55	59.3	16	400	350	300	—	M16x23	7	376	—
HDO 110 4_225	60	64.4	18	450	400	350	26	18	7	383	—
HDO 120 2_315	80	85.4	22	660	600	550	22	22	10	482	—
HDO 120 3_200	55	59.3	16	400	350	300	—	M16x23	7	346	—
HDO 120 3_225	60	64.4	18	450	400	350	26	18	7	353	353
HDO 120 3_250	65	69.4	18	550	500	450	30	18	6	383	383
HDO 120 3_280	75	79.9	20	550	500	450	30	18	6	383	383
HDO 120 3_315	80	85.4	22	660	600	550	22	22	10	419.5	419.5
HDO 120 4_132	38	41.3	10	300	265	230	—	M12x40	6	255	—
HDO 120 4_160	42	45.3	12	350	300	250	23	18	6	321	—
HDO 120 4_180	48	51.8	14	350	300	250	23	18	6	321	—
HDO 120 4_200	55	59.3	16	400	350	300	—	M16x23	7	346	—
HDO 120 4_225	60	64.4	18	450	400	350	26	18	7	353	—
HDO 125 2_315	80	85.4	22	660	600	550	22	22	10	482	—
HDO 125 3_200	55	59.3	16	400	350	300	—	M16x23	7	346	306
HDO 125 3_225	60	64.4	18	450	400	350	26	18	7	353	313
HDO 125 3_250	65	69.4	18	550	500	450	30	18	6	383	343
HDO 125 3_280	75	79.9	20	550	500	450	30	18	6	383	343
HDO 125 3_315	80	85.4	22	660	600	550	22	22	10	419.5	375.5
HDO 125 4_132	38	41.3	10	300	265	230	—	M12x40	6	255	—
HDO 125 4_160	42	45.3	12	350	300	250	23	18	6	321	—
HDO 125 4_180	48	51.8	14	350	300	250	23	18	6	321	—
HDO 125 4_200	55	59.3	16	400	350	300	—	M16x23	7	346	—
HDO 125 4_225	60	64.4	18	450	400	350	26	18	7	353	—

Dimensions are in [mm].

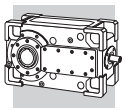




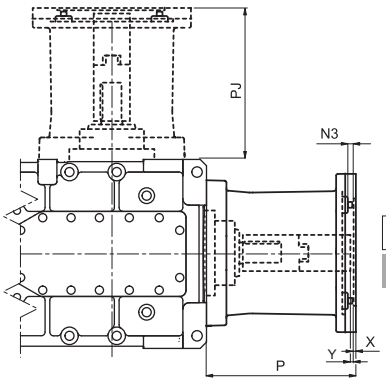


	M	M1	M2	N	N1	N2	N3	N4	X	P	PJ
HDO 130 2_315	80	85.4	22	660	600	550	22	22	10	590	—
HDO 130 3_250	65	69.4	18	550	500	450	30	18	6	415.5	413
HDO 130 3_280	75	79.9	20	550	500	450	30	18	6	415.5	413
HDO 130 3_315	80	85.4	22	660	600	550	22	22	10	452	449.5
HDO 130 4_160	42	45.3	12	350	300	250	23	18	6	416	—
HDO 130 4_180	48	51.8	14	350	300	250	23	18	6	416	—
HDO 130 4_200	55	59.3	16	400	350	300	—	M16x23	7	441	—
HDO 130 4_225	60	64.4	18	450	400	350	26	18	7	448	—
HDO 130 4_250	65	69.4	18	550	500	450	30	18	6	478	—
HDO 130 4_280	75	79.9	20	550	500	450	30	18	6	478	—
HDO 140 2_315	80	85.4	22	660	600	550	22	22	10	590	—
HDO 140 3_250	65	69.4	18	550	500	450	30	18	6	415.5	413
HDO 140 3_280	75	79.9	20	550	500	450	30	18	6	415.5	413
HDO 140 3_315	80	85.4	22	660	600	550	22	22	10	452	449.5
HDO 140 4_160	42	45.3	12	350	300	250	23	18	6	416	—
HDO 140 4_180	48	51.8	14	350	300	250	23	18	6	416	—
HDO 140 4_200	55	59.3	16	400	350	300	—	M16x23	7	441	—
HDO 140 4_225	60	64.4	18	450	400	350	26	18	7	448	—
HDO 140 4_250	65	69.4	18	550	500	450	30	18	6	478	—
HDO 140 4_280	75	79.9	20	550	500	450	30	18	6	478	—
HDO 150 3_280	75	79.9	20	550	500	450	30	18	6	553.5	528.5
HDO 150 3_315	80	85.4	22	660	600	550	22	22	10	590	565
HDO 150 4_180	48	51.8	14	350	300	250	23	18	6	426	—
HDO 150 4_200	55	59.3	16	400	350	300	—	M16x23	7	451	—
HDO 150 4_225	60	64.4	18	450	400	350	26	18	7	458	—
HDO 150 4_250	65	69.4	18	550	500	450	30	18	6	488	—
HDO 150 4_280	75	79.9	20	550	500	450	30	18	6	488	—
HDO 150 4_315	80	85.4	22	660	600	550	22	22	10	524.5	—
HDO 160 3_280	75	79.9	20	550	500	450	30	18	6	553.5	508.5
HDO 160 3_315	80	85.4	22	660	600	550	22	22	10	590	545
HDO 160 4_180	48	51.8	14	350	300	250	23	18	6	426	—
HDO 160 4_200	55	59.3	16	400	350	300	—	M16x23	7	451	—
HDO 160 4_225	60	64.4	18	450	400	350	26	18	7	458	—
HDO 160 4_250	65	69.4	18	550	500	450	30	18	6	488	—
HDO 160 4_280	75	79.9	20	550	500	450	30	18	6	488	—
HDO 160 4_315	80	85.4	22	660	600	550	22	22	10	524.5	—
HDO 170	BONFIGLIOLI TECHNICAL SERVICE										
HDO 180											

Dimensions are in [mm].

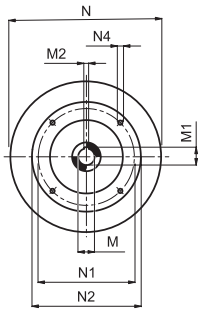


NGJ
3

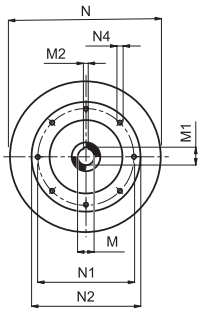


NG
2/3/4

N180TC ... N360TC

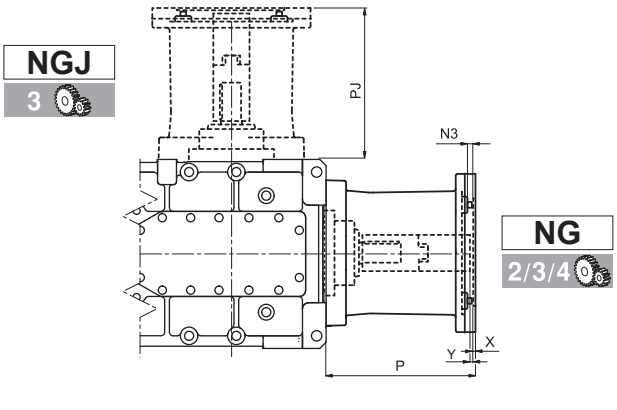


N400TC ... N440TC

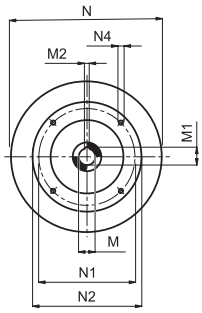


	M	M1	M2	N	N1	N2	N3	N4	X	Y	P	PJ
HDO 71 2/3_N320TC	2.125 +0.0022 +0.0010	2.35	0.5 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.079	13.228	—
	53.975 +0.055 +0.025	*59.690*	*12.7 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*336*	
HDO 71 2/3_N360TC	2.375 +0.0022 +0.0010	2.651	0.625 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.108	13.228	—
	60.325 +0.055 +0.025	*67.335*	*15.875 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*336*	
HDO 71 3_N210TC	1.375 +0.0014 +0.0006	1.518	0.312 +0.0014 0	11.811	7.25	8.520	0.413	0.551	0.217	0.128	10.472	—
	34.925 +0.035 +0.015	*38.557*	*7.925 +0.036 0*	*300*	*184.15*	*215.9*	*10.5*	*14*	*5.5*	*3.25*	*266*	
HDO 71 3_N250TC	1.625 +0.0018 +0.0008	1.796	0.375 +0.0014 0	13.78	7.25	8.5	0.65	0.551	0.217	0.09	11.654	—
	41.275 +0.045 +0.020	*45.618*	*9.525 +0.036 0*	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*296*	
HDO 71 3_N280TC	1.875 +0.0018 +0.0008	2.102	0.5 +0.0017 0	13.74	9	10.5	0.512	0.551	0.217	0.09	11.85	—
	47.625 +0.045 +0.020	*53.381*	*12.7 +0.043 0*	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*301*	
HDO 81 2/3_N320TC	2.125 +0.0022 +0.0010	2.35	0.5 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.079	15.059	—
	53.975 +0.055 +0.025	*59.690*	*12.7 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*382.5*	
HDO 81 2/3_N360TC	2.375 +0.0022 +0.0010	2.651	0.625 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.108	15.059	—
	60.325 +0.055 +0.025	*67.335*	*15.875 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*382.5*	
HDO 81 2/3_N400TC	2.875 +0.0022 +0.0010	3.205	0.75 +0.002 0	17.677	11	12.5	0.669	0.669	0.217	1.488	15.65	—
	73.025 +0.055 +0.025	*81.407*	*19.05 +0.05 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*397.5*	
HDO 81 3_N250TC	1.625 +0.0018 +0.0008	1.796	0.375 +0.0014 0	13.78	7.25	8.5	0.65	0.551	0.217	0.09	13.366	—
	41.275 +0.045 +0.020	*45.618*	*9.525 +0.036 0*	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*339.5*	
HDO 81 3_N280TC	1.875 +0.0018 +0.0008	2.102	0.5 +0.0017 0	13.74	9	10.5	0.512	0.551	0.217	0.09	13.366	—
	47.625 +0.045 +0.020	*53.381*	*12.7 +0.043 0*	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*344.5*	
HDO 91 2/3_N400TC	2.875 +0.0022 +0.0010	3.205	0.75 +0.002 0	17.677	11	12.5	0.669	0.669	0.217	1.488	16.516	—
	73.025 +0.055 +0.025	*81.407*	*19.05 +0.05 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*419.5*	
HDO 91 2/3/4_N320TC	2.125 +0.0022 +0.0010	2.35	0.5 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.079	15.925	—
	53.975 +0.055 +0.025	*59.690*	*12.7 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*404.5*	
HDO 91 2/3/4_N360TC	2.375 +0.0022 +0.0010	2.651	0.625 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.108	15.925	—
	60.325 +0.055 +0.025	*67.335*	*15.875 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*404.5*	
HDO 91 3/4_N250TC	1.625 +0.0018 +0.0008	1.796	0.375 +0.0014 0	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.39	—
	41.275 +0.045 +0.020	*45.618*	*9.525 +0.036 0*	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*365.5*	
HDO 91 3/4_N280TC	1.875 +0.0018 +0.0008	2.102	0.5 +0.0017 0	13.74	9	10.5	0.512	0.551	0.217	0.09	14.587	—
	47.625 +0.045 +0.020	*53.381*	*12.7 +0.043 0*	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*370.5*	
HDO 91 4_N180TC	1.125 +0.0014 +0.0006	1.241	0.25 +0.0014 0	9.843	7.25	8.5	0.453	0.551	0.217	0.061	11.22	—
	28.575 +0.035 +0.015	*31.521*	*6.35 +0.036 0*	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*285*	
HDO 91 4_N210TC	1.375 +0.0014 +0.0006	1.518	0.312 +0.0014 0	9.843	7.25	8.5	0.453	0.551	0.217	0.128	11.22	—
	34.925 +0.035 +0.015	*38.557*	*7.925 +0.036 0*	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*285*	
HDO 95 2/3_N400TC	2.875 +0.0022 +0.0010	3.205	0.75 +0.002 0	17.677	11	12.5	0.669	0.669	0.217	1.488	16.516	—
	73.025 +0.055 +0.025	*81.407*	*19.05 +0.05 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*419.5*	
HDO 95 2/3/4_N320TC	2.125 +0.0022 +0.0010	2.35	0.5 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.079	15.925	—
	53.975 +0.055 +0.025	*59.690*	*12.7 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*404.5*	
HDO 95 2/3/4_N360TC	2.375 +0.0022 +0.0010	2.651	0.625 +0.0017 0	17.677	11	12.5	0.669	0.669	0.217	0.108	15.925	—
	60.325 +0.055 +0.025	*67.335*	*15.875 +0.043 0*	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*404.5*	
HDO 95 3/4_N250TC	1.625 +0.0018 +0.0008	1.796	0.375 +0.0014 0	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.39	—
	41.275 +0.045 +0.020	*45.618*	*9.525 +0.036 0*	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*365.5*	
HDO 95 3/4_N280TC	1.875 +0.0018 +0.0008	2.102	0.5 +0.0017 0	13.74	9	10.5	0.512	0.551	0.217	0.09	14.587	—
	47.625 +0.045 +0.020	*53.381*	*12.7 +0.043 0*	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*370.5*	
HDO 95 4_N180TC	1.125 +0.0014 +0.0006	1.241	0.25 +0.0014 0	9.843	7.25	8.5	0.453	0.551	0.217	0.061	11.22	—
	28.575 +0.035 +0.015	*31.521*	*6.35 +0.036 0*	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*285*	
HDO 95 4_N210TC	1.375 +0.0014 +0.0006	1.518	0.312 +0.0014 0	9.843	7.25	8.5	0.453	0.551	0.217	0.128	11.22	—
	34.925 +0.035 +0.015	*38.557*	*7.925 +0.036 0*	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*285*	

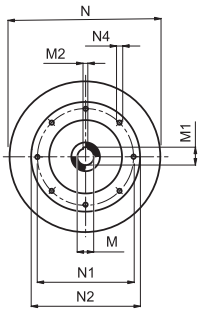
Dimensions are in Inch except when shown in *italic [mm]*



N180TC ... N360TC

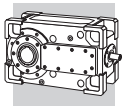


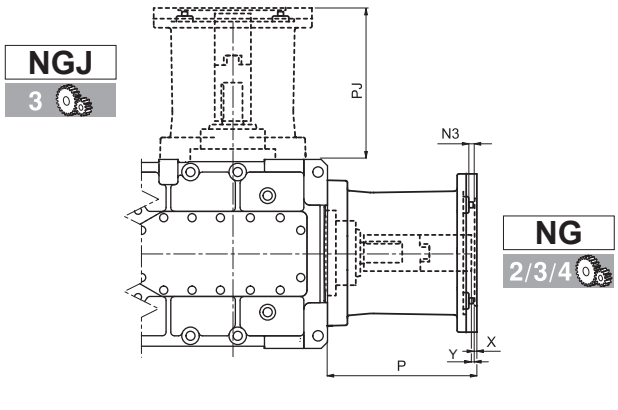
N400TC ... N440TC



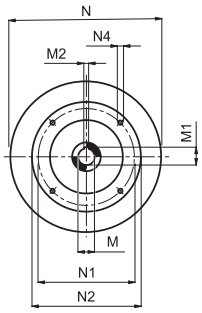
	M	M1	M2	N	N1	N2	N3	N4	X	Y	P	PJ
HDO 100 2_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.122	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*409.5*	
HDO 100 2_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	17.008	—
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*432*	
HDO 100 3_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.587	14.587
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*370.5*	*370.5*
HDO 100 3_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.783	14.783
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*375.5*	*375.5*
HDO 100 3_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	16.122	16.122
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*409.5*	*409.5*
HDO 100 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.122	16.122
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*409.5*	*409.5*
HDO 100 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	16.713	16.713
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*424.5*	*424.5*
HDO 100 4_N180TC	1.125 $^{+0.0014}_{+0.0006}$	1.241	0.25 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.061	11.417	—
	28.575 $^{+0.035}_{+0.015}$	*31.521*	*6.35* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*290*	
HDO 100 4_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	11.417	—
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*290*	
HDO 100 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.587	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*370.5*	
HDO 100 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.783	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*375.5*	
HDO 100 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	16.122	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*409.5*	
HDO 100 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.122	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*409.5*	
HDO 110 2_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	17.008	—
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*432*	
HDO 110 3_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.587	14.587
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*370.5*	*370.5*
HDO 110 3_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.783	14.783
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*375.5*	*375.5*
HDO 110 3_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	16.122	16.122
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*409.5*	*409.5*
HDO 110 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.122	16.122
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*409.5*	*409.5*
HDO 110 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	16.713	16.713
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*424.5*	*424.5*
HDO 110 4_N180TC	1.125 $^{+0.0014}_{+0.0006}$	1.241	0.25 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.061	11.417	—
	28.575 $^{+0.035}_{+0.015}$	*31.521*	*6.35* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*1.55*	*290*	
HDO 110 4_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	11.417	—
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*290*	
HDO 110 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	14.587	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*370.5*	
HDO 110 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	14.783	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*375.5*	
HDO 110 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	16.122	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*409.5*	
HDO 110 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.122	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*409.5*	

Dimensions are in Inch except when shown in *italic [mm]*

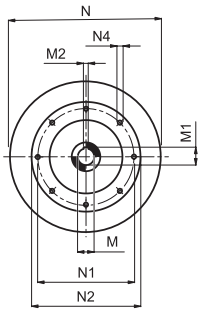




N180TC ... N360TC

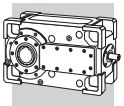


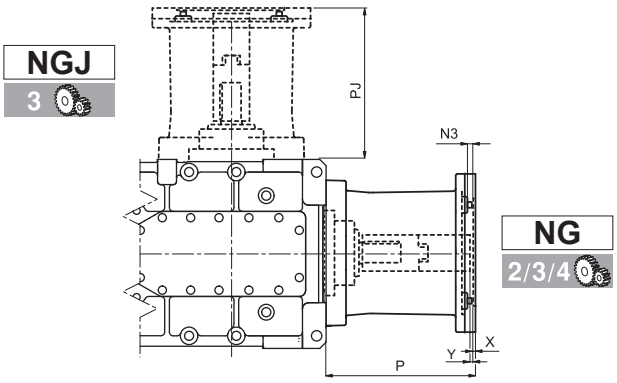
N400TC ... N440TC



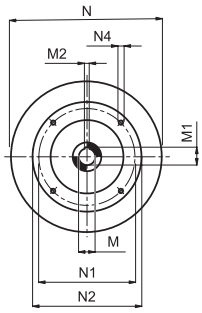
	M	M1	M2	N	N1	N2	N3	N4	X	Y	P	PJ
HDO 120 2_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	20.453	—
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.23* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*519.5*	
HDO 120 3_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	14.941	14.941
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*379.5*	*379.5*
HDO 120 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	14.941	14.941
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*379.5*	*379.5*
HDO 120 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	15.531	15.531
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*394.5*	*394.5*
HDO 120 3_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	17.992	17.992
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.23* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*457*	*457*
HDO 120 4_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	10.236	—
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*260*	
HDO 120 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	13.405	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*340.5*	
HDO 120 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	13.602	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*345.5*	
HDO 120 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	14.941	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*379.5*	
HDO 120 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	14.941	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*379.5*	
HDO 125 2_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	20.453	—
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.23* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*519.5*	
HDO 125 3_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	14.941	13.366
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*379.5*	*339.5*
HDO 125 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	14.941	13.366
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*379.5*	*339.5*
HDO 125 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	15.531	13.957
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*394.5*	*354.5*
HDO 125 3_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	17.992	16.417
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.23* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*457*	*417*
HDO 125 4_N210TC	1.375 $^{+0.0014}_{+0.0006}$	1.518	0.312 $^{+0.0014}_{0}$	9.843	7.25	8.5	0.453	0.551	0.217	0.128	10.236	—
	34.925 $^{+0.035}_{+0.015}$	*38.557*	*7.925* $^{+0.036}_{0}$	*250*	*184.15*	*215.9*	*11.5*	*14*	*5.5*	*3.25*	*260*	
HDO 125 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	13.405	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*340.5*	
HDO 125 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	13.602	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*345.5*	
HDO 125 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	14.941	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*379.5*	
HDO 125 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	14.941	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*379.5*	

Dimensions are in Inch except when shown in *italic [mm]*

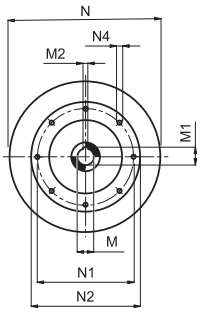




N180TC ... N360TC



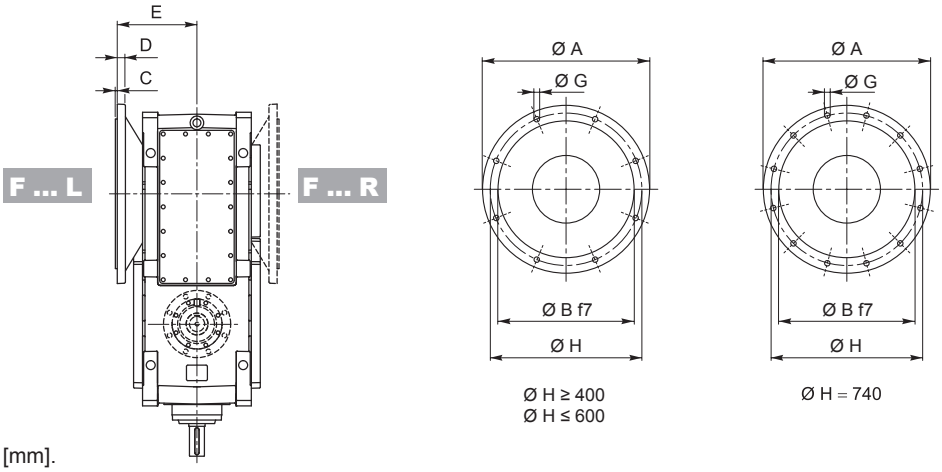
N400TC ... N440TC



	M	M1	M2	N	N1	N2	N3	N4	X	Y	P	PJ
HDO 130 2_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	24.705	—
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*627.5*	
HDO 130 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.220	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*412*	
HDO 130 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	16.811	16.811
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*427*	*427*
HDO 130 3_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	19.272	19.272
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*489.5*	*489.5*
HDO 130 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	17.146	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*435.5*	
HDO 130 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	17.343	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*440.5*	
HDO 130 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	18.681	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*474.5*	
HDO 130 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	18.681	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*474.5*	
HDO 130 4_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	19.272	—
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*489.5*	
HDO 140 2_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	24.705	—
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*627.5*	
HDO 140 3_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	16.220	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*412*	
HDO 140 3_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	16.811	16.811
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*427*	*427*
HDO 140 3_N440TC	3.375 $^{+0.0026}_{+0.0012}$	3.76	0.875 $^{+0.002}_{0}$	25.984	14	16	0.748	0.709	0.236	1.56	19.272	19.272
	85.725 $^{+0.065}_{+0.030}$	*95.504*	*22.225* $^{+0.05}_{0}$	*660*	*355.6*	*406.4*	*19*	*18*	*6*	*39.6*	*489.5*	*489.5*
HDO 140 4_N250TC	1.625 $^{+0.0018}_{+0.0008}$	1.796	0.375 $^{+0.0014}_{0}$	13.78	7.25	8.5	0.65	0.551	0.217	0.09	17.146	—
	41.275 $^{+0.045}_{+0.020}$	*45.618*	*9.525* $^{+0.036}_{0}$	*350*	*184.15*	*215.9*	*16.5*	*14*	*5.5*	*2.25*	*435.5*	
HDO 140 4_N280TC	1.875 $^{+0.0018}_{+0.0008}$	2.102	0.5 $^{+0.0017}_{0}$	13.74	9	10.5	0.512	0.551	0.217	0.09	17.343	—
	47.625 $^{+0.045}_{+0.020}$	*53.381*	*12.7* $^{+0.043}_{0}$	*349*	*228.6*	*266.7*	*13*	*14*	*5.5*	*2.25*	*440.5*	
HDO 140 4_N320TC	2.125 $^{+0.0022}_{+0.0010}$	2.35	0.5 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.079	18.681	—
	53.975 $^{+0.055}_{+0.025}$	*59.690*	*12.7* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2*	*474.5*	
HDO 140 4_N360TC	2.375 $^{+0.0022}_{+0.0010}$	2.651	0.625 $^{+0.0017}_{0}$	17.677	11	12.5	0.669	0.669	0.217	0.108	18.681	—
	60.325 $^{+0.055}_{+0.025}$	*67.335*	*15.875* $^{+0.043}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*2.75*	*474.5*	
HDO 140 4_N400TC	2.875 $^{+0.0022}_{+0.0010}$	3.205	0.75 $^{+0.002}_{0}$	17.677	11	12.5	0.669	0.669	0.217	1.488	19.272	—
	73.025 $^{+0.055}_{+0.025}$	*81.407*	*19.05* $^{+0.05}_{0}$	*449*	*279.4*	*317.5*	*17*	*17*	*5.5*	*37.8*	*489.5*	

Dimensions are in Inch except when shown in *italic [mm]*

31.2 MOUNTING FLANGE

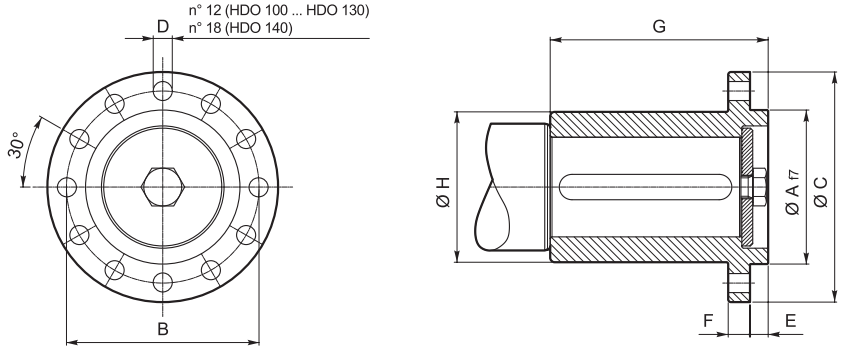


Dimensions are in [mm].

		A	B	C	D	E	G	H
HDO 71	F450	450	350	5	22	210	18	400
	F550	550	450	5	24	210	18	500
HDO 81	F450	450	350	5	22	240	18	400
	F550	550	450	5	24	240	18	500
HDO 91	F550	550	450	5	24	260	18	500
HDO 95	F550	550	450	5	24	315	18	500
HDO 100	F660	660	550	7	30	335	22	600
HDO 110	F660	660	550	7	30	335	22	600
HDO 120	F660	660	550	7	30	355	26	600
HDO 125	F730	730	580	7	35	360	26	660
HDO 130	F800	800	680	7	40	460	26	740
HDO 140	F800	800	680	7	40	460	26	740
HDO 150		BONFIGLIOLI TECHNICAL SERVICE						
HDO 160								
HDO 170								
HDO 180								

31.3 MANIFOLD FLANGE

Available for shaft arrangement: L, LJ, LD, R, RJ and RD, all featuring a single output shaft extension.

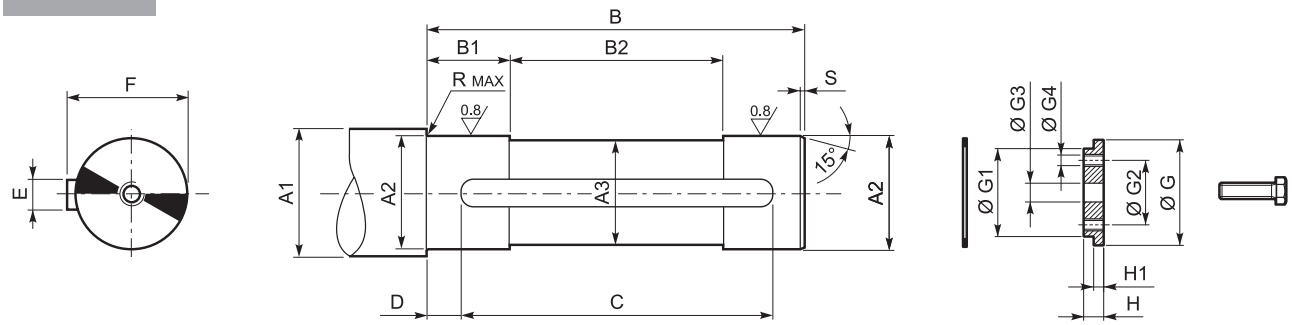


Dimensions are in [mm].

	A	B	C	D	E	F	G	H
HDO 71_ FM	125	175	208	19	14	21	195	135
HDO 81_ FM	170	212	254	21	20	24	240	166
HDO 91_ FM	170	212	254	21	20	24	240	166
HDO 95_ FM	200	260	309	25	19	31	244	200
HDO 100_ FM	200	260	309	25	19	31	244	200
HDO 110_ FM	200	260	309	25	19	31	289	200
HDO 120_ FM	200	260	309	25	19	31	289	200
HDO 125_ FM	220	320	384	32	19	31	344	240
HDO 130_ FM	220	320	384	32	19	31	344	250
HDO 140_ FM	250	380	450	32	19	40	344	310
HDO 150	BONFIGLIOLI TECHNICAL SERVICE							
HDO 160								
HDO 170								
HDO 180								

31.4 CUSTOMER'S SHAFT

H

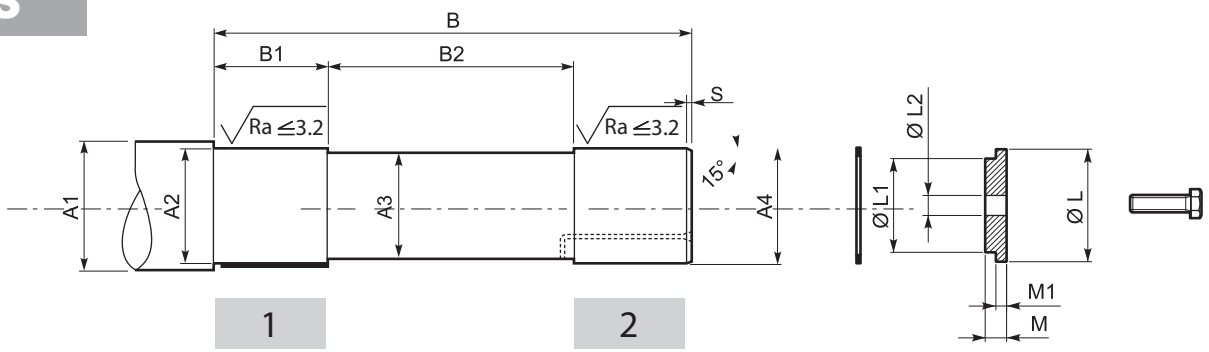


Dimensions are in [mm].

	A1	A2	A3	B	B1	B2	C	D	E	F	R	S	UNI6604
HDO 71	≥ 89	80 h6	79	283	78	127	220	30	22 h9	85	2.5	2.5	22x14x220A
HDO 81	≥ 104	95 h6	94	338	73	192	280	30	25 h9	100	2.5	2.5	25x14x280A
HDO 91	≥ 121	110 h6	109	378	88	202	320	30	28 h9	116	2.5	2.5	28x16x320A
HDO 95	≥ 128	115 h6	114	398	100	228	340	30	32 h9	122	2.5	2.5	32x18x340A
HDO 100	≥ 133	120 h6	119.5	420	100	250	360	30	32 h9	127	3	2.5	32x18x360A
HDO 110	≥ 143	130 h6	129.5	420	100	250	360	30	32 h9	137	3	2.5	32x18x360A
HDO 120	≥ 153	140 h6	139.5	444	110	260	400	40	36 h9	148	3	2.5	36x20x400A
HDO 125	≥ 163	150 h6	149.5	444	110	260	400	40	36 h9	158	3	2.5	36x20x400A
HDO 130	≥ 183	170 h6	169.5	540	135	310	400	80	40 h9	179	3	2.5	40x22x400A
HDO 140	≥ 193	180 h6	179.5	540	135	310	400	80	45 h9	190	3	2.5	45x25x400A
HDO 150	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDO 160	≥ 223	210 h6	209.5	667	155	400	500	100	50 h9	221	3	3	50x28x450B
HDO 170	≥ 255	240 h6	239.5	697	170	400	506	100	56 h9	252	3	3	56x32x450B
HDO 180	BONFIGLIOLI TECHNICAL SERVICE												

	Out of scope for supply								
	UNI7437	G	G1	G2	G3	G4	H	H1	UNI5739
HDO 71	—	100	80 d9	—	22	—	10	8.5	M20x50
HDO 81	—	115	95 d9	—	26	—	15	13.5	M24x60
HDO 91	—	130	110 d9	—	26	—	15	13.5	M24x60
HDO 95	115x4	115 d9	91	59	26	M16	24	12	M24x70
HDO 100	120x4	120 d9	96	64	26	M16	24	12	M24x70
HDO 110	130x4	130 d9	105	69	26	M20	24	12	M24x70
HDO 120	140x4	140 d9	115	79	26	M20	30	15	M24x80
HDO 125	150x4	150 d9	122	86	26	M20	30	15	M24x80
HDO 130	170x4	170 d9	142	102	33	M24	34	17	M30x90
HDO 140	180x4	180 d9	150	110	33	M24	34	17	M30x90
HDO 150	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDO 160	210x5	210 d9	178	140	33	M24	36	18	M30x100
HDO 170	240x5	240 d9	208	160	39	M24	36	18	M36x110
HDO 180	BONFIGLIOLI TECHNICAL SERVICE								

S



Dimensions are in [mm].

	A1	A2	A3	A4	B	B1	B2	R	S
HDO 71	≥ 104	82 h7	79	80 g6	332	77	174	2.5	2.5
HDO 81	≥ 119	97 h7	94	95 g6	398	95	205	2.5	2.5
HDO 91	≥ 128	112 h7	109	110 g6	440	87	273	2.5	2.5
HDO 95	≥ 133	120 h6	114.5	115 g6	498	104	309	2.5	2.5
HDO 100	≥ 138	125 h6	119.5	120 g6	517	104	328	3	2.5
HDO 110	≥ 148	135 h6	129.5	130 g6	523	104	334	3	2.5
HDO 120	≥ 158	145 h6	139.5	140 g6	550	104	354	3	2.5
HDO 125	≥ 168	155 h6	149.5	150 g6	570	104	363	3	2.5
HDO 130	≥ 188	175 h6	169.5	170 g6	681	104	462	3	2.5
HDO 140	≥ 198	185 h6	179.5	180 g6	689	104	470	3	2.5
HDO 150	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDO 160	≥ 228	215 h6	209.5	210 g6	839	104	593	3	3
HDO 170	BONFIGLIOLI TECHNICAL SERVICE								
HDO 180									

	Out of scope for supply						
	UNI7437	L	L1	L2	M	M1	UNI5739
HDO 71	—	100	80 d9	22	10	8.5	M20x50
HDO 81	—	115	95 d9	26	15	13.5	M24x60
HDO 91	—	130	110 d9	26	15	13.5	M24x60
HDO 95	115x4	115 d9	91	26	16	12	M24x65
HDO 100	120x4	120 d9	96	26	16	12	M24x65
HDO 110	130x4	130 d9	105	26	16	12	M24x65
HDO 120	140x4	140 d9	115	26	19	15	M24x70
HDO 125	150x4	150 d9	122	26	19	15	M24x70
HDO 130	170x4	170 d9	142	33	21	17	M30x80
HDO 140	180x4	180 d9	150	33	21	17	M30x80
HDO 150	210x5	210 d9	178	33	29	18	M30x90
HDO 160	210x5	210 d9	178	33	29	18	M30x90
HDO 170	BONFIGLIOLI TECHNICAL SERVICE						
HDO 180							

To facilitate part removal in the area of the cylindrical guide opposite the shrink disc, install a machine pivot to which a self-lubricating cylindrical bushing (1) can be fitted and/or with a hole big enough to allow application of a rust treatment (2).
In the presence of external thrust loads, vibration, safety problems, requirements for enhanced reliability, or unfavourable mounting positions (e.g. V5 mounting positions, output shaft directed downwards), install suitable devices to secure the shaft in an axial direction and prevent accidental decoupling.

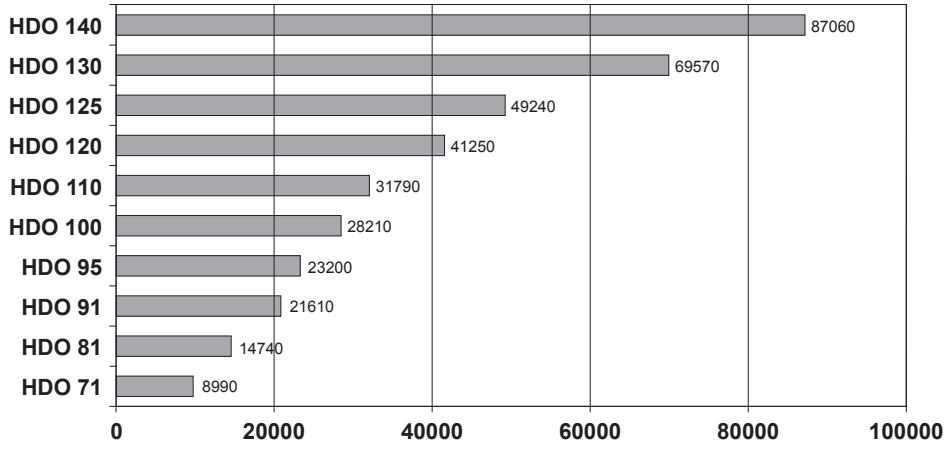
Selection of the the product must fit through the compilation of the selection form (see page 11). For a safe selection it is strongly recommended to rely on the long time experience of the Bonfiglioli Technical Service Dept.

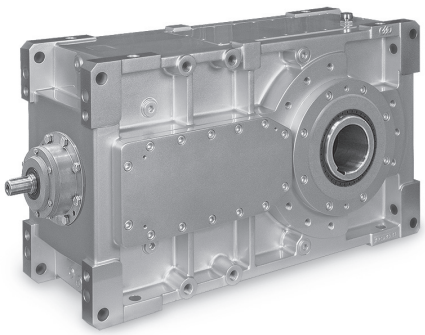
32 INSTALLATION, USE AND MAINTENANCE

All the instructions for installation, use and maintenance of the product are given in the unit's Manual. This can be downloaded from www.bonfiglioli.com where the manual is available in PDF format in a number of languages.
This document must be kept in a suitable place, in the vicinity of the installed gear unit, as a reference for all persons authorised to work with or on the product throughout its service life.

33 CONSTRUCTION OF ATEX-SPECIFIED EQUIPMENT

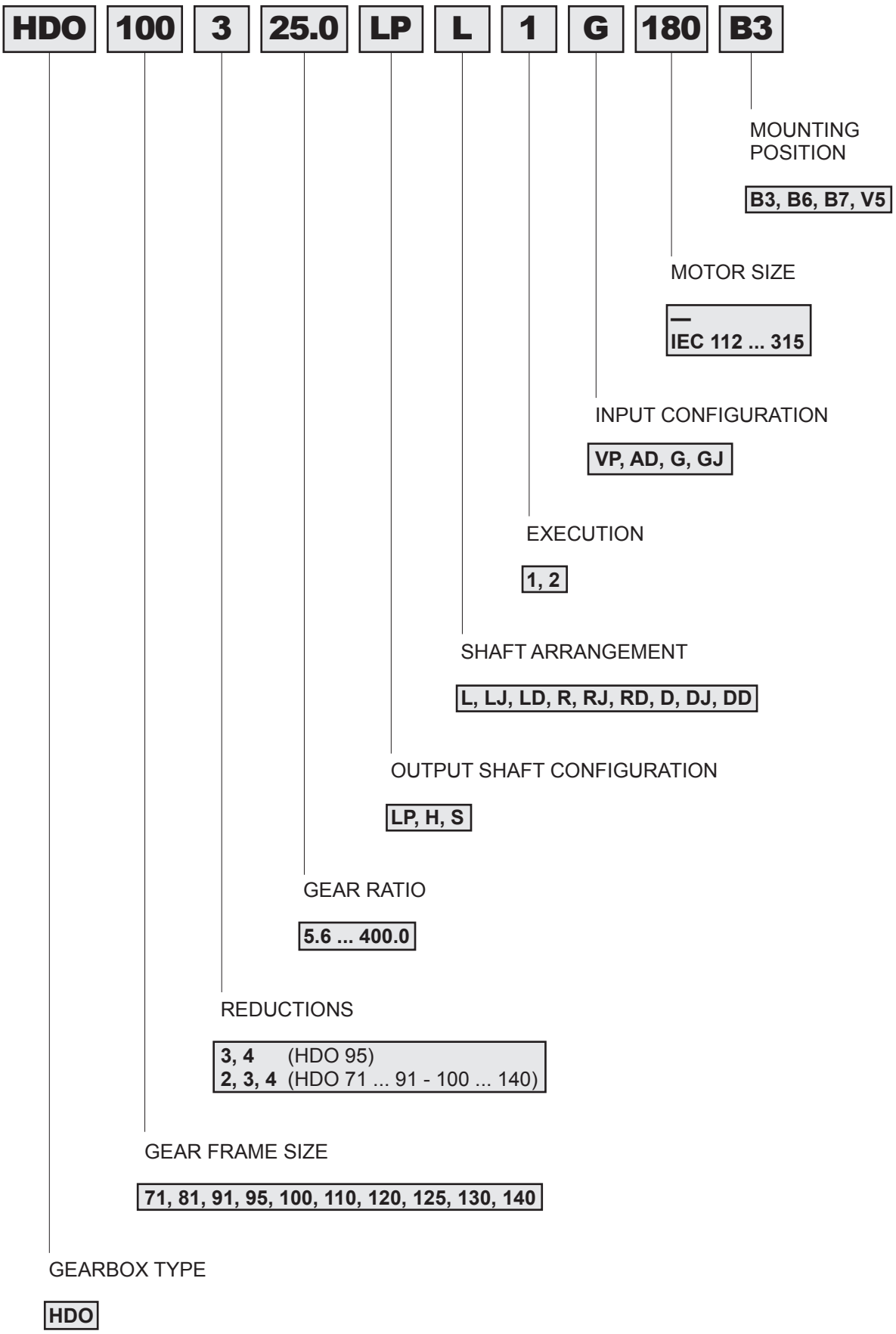
- Equipped with service plugs for periodic lubricant level checks.
- Equipped with vent caps with anti-intrusion valve.
- Fluoro elastomer seal rings as standard.
- No plastic component parts..
- Nameplate indication of the product category and type of protection.
- Components operable at above the operating temperature.
- Temperature indicator supplied along with each unit.



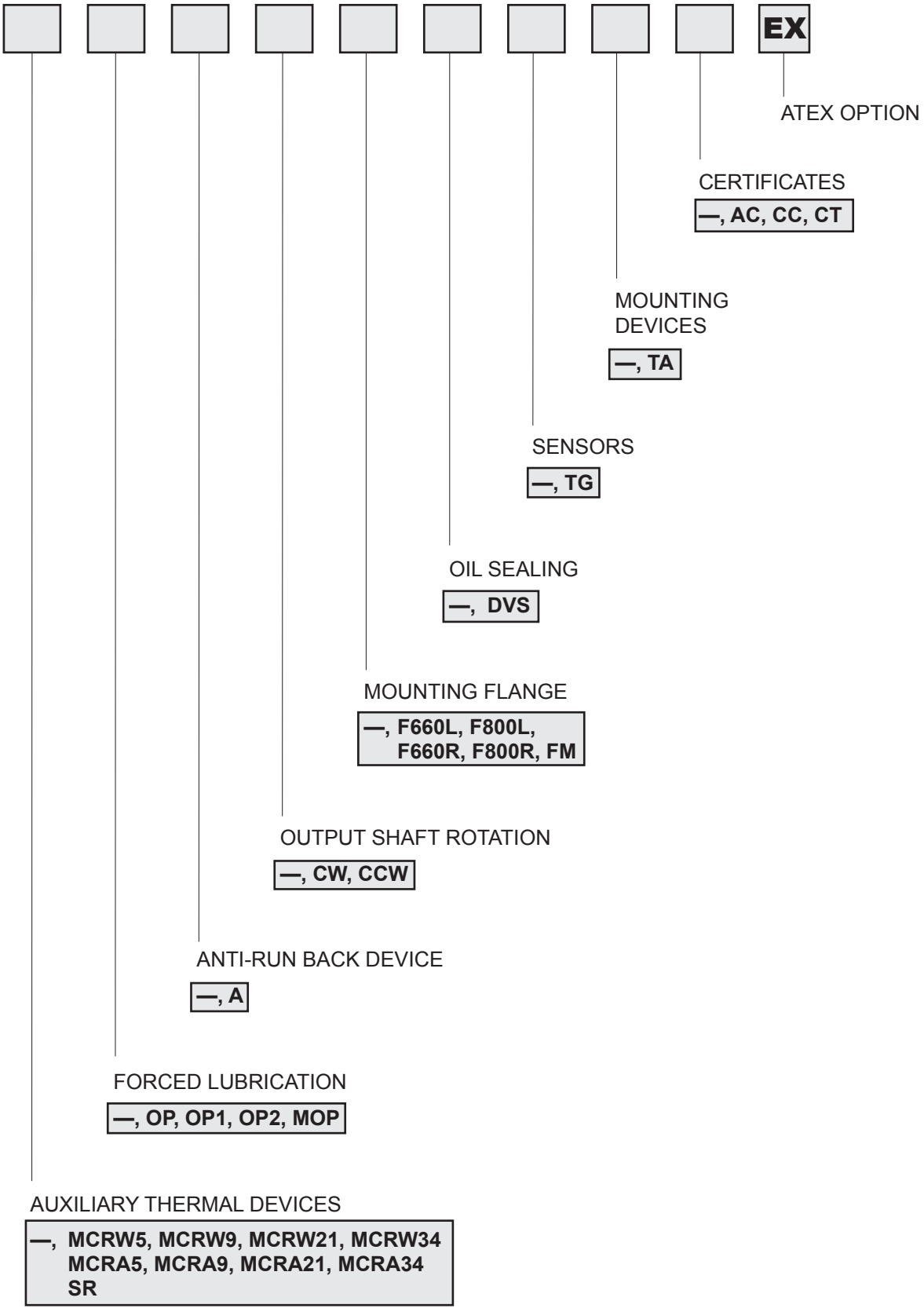


34 DESIGNATION

34.1 BASE VARIANTS



34.2 OPTIONAL VARIANTS



REMARK: The multiple selection of some of the variants may be subject to technical or dimensional constraints. Consult with the factory to have your selection approved.

34.3 AUXILIARY COOLING WITH AUTONOMOUS COOLING UNIT

Two types of cooling unit are available, each in a range of sizes providing different cooling capacities. The two types use different cooling media for the oil: MCRW…EX – water/oil heat exchanger and MCRA…EX – air/oil heat exchanger. If an autonomous cooling unit is installed on the advice of the Bonfiglioli Technical Service, no additional forced lubrication devices are required. See section 26.7.2. The following chart shows device availability according to gearbox size. Your selection must take into account the deficit in thermal power that must be made up by contribution P_{TMCRW} or P_{TMCRA} as shown in the chart in section 28.

	MCRW5_EX MCRA5_EX	MCRW9_EX MCRA9_EX	MCRW21_EX MCRA21_EX	MCRW34_EX MCRA34_EX
HDO 100_EX	**X**	**X**		
HDO 110_EX	**X**	**X**		
HDO 120_EX	**X**	**X**	**X (*)**	
HDO 125_EX	**X**	**X**	**X (**)**	
HDO 130_EX	**X**	**X**	**X**	**X (**)**
HDO 140_EX	**X**	**X**	**X**	**X (**)**

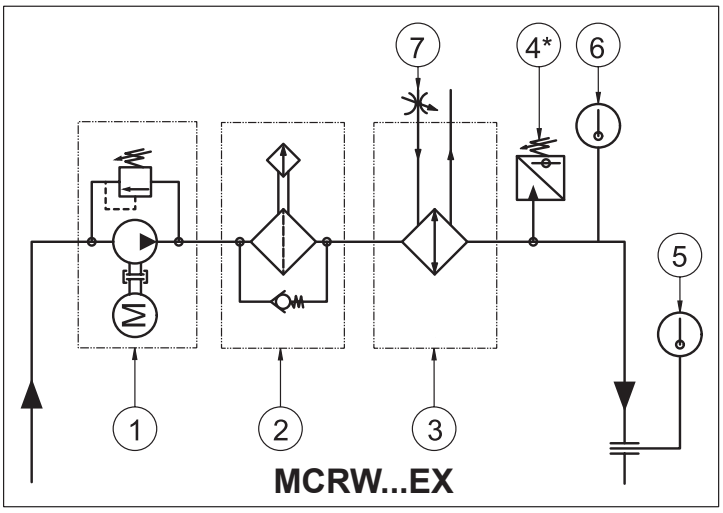
(*) not available for mounting position B3.

(**) not available for double reduction units in the mounting position B3.

The main components of the cooling units are as follows:

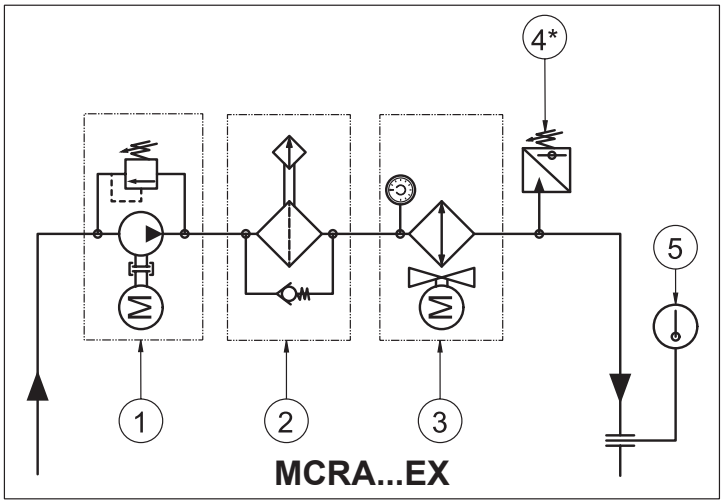
MCRW…EX

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) water/oil heat exchanger
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat
6) minimum temperature switch
7) electro-valve



MCRA…EX

1) motorpump complete with by-pass circuit
2) filter with clogging visual indicator
3) air/oil heat exchanger with thermostat
4) minimum pressure switch (only available in combination with forced lubrication)
5) maximum temperature thermostat



HDO

General warnings:

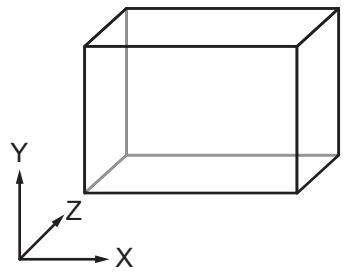
MCRW...EX : provide a water supply system that corresponds to the following specifications:

- max. pressure, 10 bar
- maximum delivery temperature, 20°C
- minimum flow rate Q_{H2O} as per the chart:

	MCRW5_EX	MCRW9_EX	MCRW21_EX	MCRW34_EX
Q_{H2O} [l/min]	10	18	31	56

MCRA...EX : leave sufficient space around the heat exchanger to ensure an unrestricted air flow.

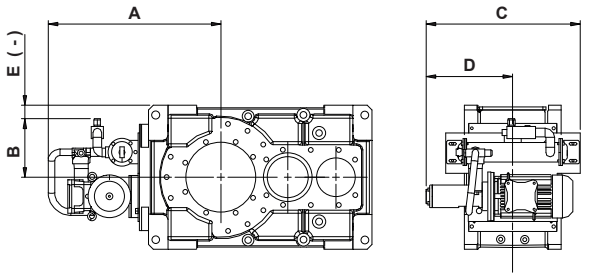
Cooling units maximum dimensions



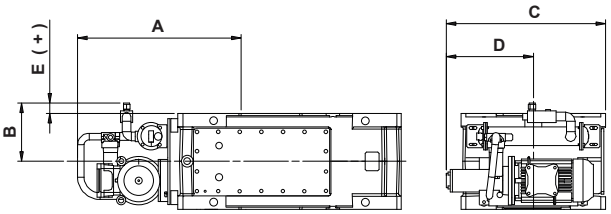
	X	Y	Z
MCRW5_EX	500	288	432
MCRW9_EX	565	328	409
MCRW21_EX	641	382	429
MCRW34_EX	811	430	551
MCRA5_EX	630	505	788
MCRA9_EX	808	605	648
MCRA21_EX	640	605	921
MCRA34_EX	921	605	699

MCRW...EX

B3



V5



B3 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	596	247	500	295	-23
	110	2x ; 3x ; 4x	581				-23
	120	2x ; 3x ; 4x	626				-53
	125	2x ; 3x ; 4x	666				-93
	130	2x ; 3x ; 4x	681				-133
	140	2x ; 3x ; 4x	706				-133

V5 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	596	247	500	295	62
	110	2x ; 3x ; 4x	581				62
	120	2x ; 3x ; 4x	626				47
	125	2x ; 3x ; 4x	666				47
	130	2x ; 3x ; 4x	681				-3
	140	2x ; 3x ; 4x	706				-3

B3 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	610.5	224	565	295	-46
	110	2x ; 3x ; 4x	595.5				-46
	120	2x ; 3x ; 4x	640.5				-76
	125	2x ; 3x ; 4x	680.5				-116
	130	2x ; 3x ; 4x	695.5				-156
	140	2x ; 3x ; 4x	720.5				-156

V5 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	610.5	224	565	295	39
	110	2x ; 3x ; 4x	595.5				39
	120	2x ; 3x ; 4x	640.5				24
	125	2x ; 3x ; 4x	680.5				24
	130	2x ; 3x ; 4x	695.5				-26
	140	2x ; 3x ; 4x	720.5				-26

B3 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x ; 3x ; 4x	—	—	—	—	—
	125	2x	—	—	—	—	—
		3x ; 4x	760	244	641.5	361.5	-96
	130	2x ; 3x ; 4x	775				-136
	140	2x ; 3x ; 4x	800				-136

V5 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x ; 3x ; 4x	720	244	641.5	361.5	44
	125	2x ; 3x ; 4x	760				44
	130	2x ; 3x ; 4x	775				-6
	140	2x ; 3x ; 4x	800				-6

B3 - MCRW34_EX

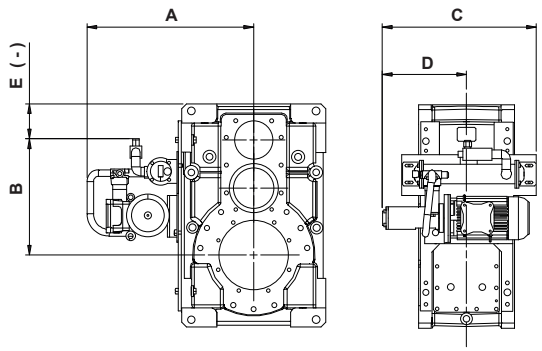
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	—	—	—	—	—
		3x ; 4x	823	366	811	431	-14
	140	2x	—	—	—	—	—
		3x ; 4x	848	366	811	431	-14

V5 - MCRW34_EX

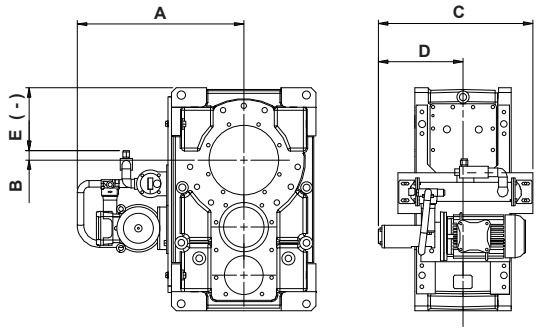
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x ; 3x ; 4x	823	366	811	431	116
	140	2x ; 3x ; 4x	848				116

MCRW...EX

B6



B7



B6 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	573	465	500	295	-95
		3x ; 4x	573	585			-95
	110	2x	573	480			-95
		3x ; 4x	573	600			-95
	120	2x	603	473			-157
		3x ; 4x	603	608			-172
	125	2x	643	473			-197
		3x ; 4x	643	608			-212
	130	2x	683	479.5			-260.5
		3x ; 4x	683	575.8			-359.3
	140	2x	683	501.5			-278.5
		3x ; 4x	683	585.8			-389.3

B7 - MCRW5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	573	29	500	295	-241
		3x ; 4x	573	-91			-361
	110	2x	573	14			-241
		3x ; 4x	573	-106			-361
	120	2x	603	21			-279
		3x ; 4x	603	-114			-414
	125	2x	643	21			-319
		3x ; 4x	643	-114			-454
	130	2x	683	14.5			-340.5
		3x ; 4x	683	-86			-441
	140	2x	683	-8.5			-388.5
		3x ; 4x	683	-91			-471

B6 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	587.5	442	565	295	-118
		3x ; 4x	587.5	562			-118
	110	2x	587.5	457			-118
		3x ; 4x	587.5	577			-118
	120	2x	617.5	450			-180
		3x ; 4x	617.5	585			-195
	125	2x	657.5	450			-220
		3x ; 4x	657.5	585			-235
	130	2x	697.5	456.5			-283.5
		3x ; 4x	697.5	552.8			-382.3
	140	2x	697.5	478.5			-301.5
		3x ; 4x	697.5	562.8			-412.3

B7 - MCRW9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	587.5	6	565	295	-264
		3x ; 4x	587.5	-114			-384
	110	2x	587.5	-9			-264
		3x ; 4x	587.5	-129			-384
	120	2x	617.5	-2			-302
		3x ; 4x	617.5	-137			-437
	125	2x	657.5	-2			-342
		3x ; 4x	657.5	-137			-477
	130	2x	697.5	-8.5			-363.5
		3x ; 4x	697.5	-109			-464
	140	2x	697.5	-31.5			-411.5
		3x ; 4x	697.5	-114			-494

B6 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x	697	470	641.2	361.2	-160
		3x ; 4x	697	605			-175
	125	2x	737	470			-200
		3x ; 4x	737	605			-215
	130	2x	777	476.5			263.5
		3x ; 4x	777	572.8			-362.3
	140	2x	777	498.5			-281.5
		3x ; 4x	777	582.8			-392.3

B7 - MCRW21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x	697	18	641.2	361.2	-282
		3x ; 4x	697	-117			-417
	125	2x	737	18			-322
		3x ; 4x	737	-117			-457
	130	2x	777	11.5			-343.5
		3x ; 4x	777	-89			-444
	140	2x	777	-11.5			-391.5
		3x ; 4x	777	-94			-474

B6 - MCRW34_EX

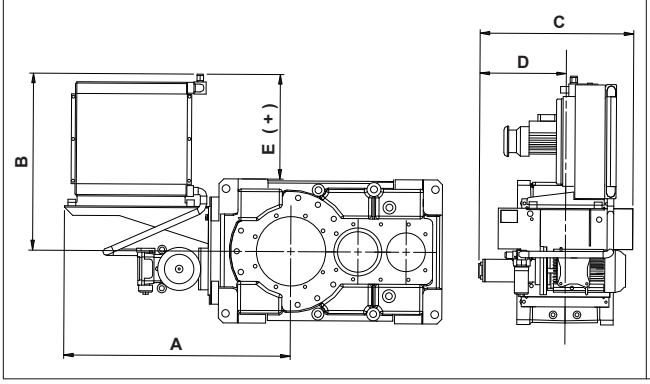
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	825	618.5	811	431	-121.5
		3x ; 4x	825	714.8			-220.3
	140	2x	825	640.5			-139.5
		3x ; 4x	825	724.8			-250.3

B7 - MCRW34_EX

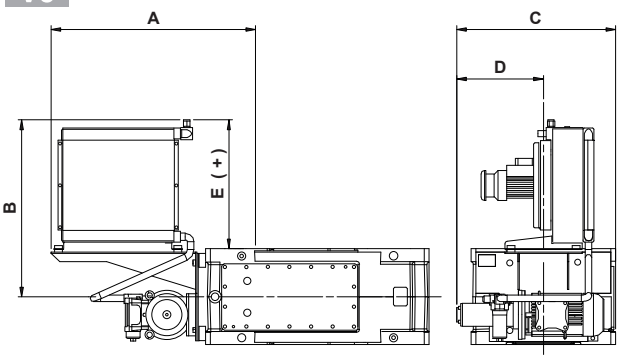
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	825	153.5	811	431	-201.5
		3x ; 4x	825	53			-302
	140	2x	825	130.5			-249.5
		3x ; 4x	825	48			-332

MCRA...EX

B3



V5



B3 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	813	603	642	430	333
	110	2x ; 3x ; 4x	798				333
	120	2x ; 3x ; 4x	843				303
	125	2x ; 3x ; 4x	883				263
	130	2x ; 3x ; 4x	898				223
	140	2x ; 3x ; 4x	923				223

V5 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	813	603	642	430	418
	110	2x ; 3x ; 4x	798				418
	120	2x ; 3x ; 4x	843				403
	125	2x ; 3x ; 4x	883				403
	130	2x ; 3x ; 4x	898				353
	140	2x ; 3x ; 4x	923				353

B3 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	913	623	678	295.5	353
	110	2x ; 3x ; 4x	898				353
	120	2x ; 3x ; 4x	943				323
	125	2x ; 3x ; 4x	983				283
	130	2x ; 3x ; 4x	998				243
	140	2x ; 3x ; 4x	1023				243

V5 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x ; 3x ; 4x	913	623	678	295.5	438
	110	2x ; 3x ; 4x	898				438
	120	2x ; 3x ; 4x	943				423
	125	2x ; 3x ; 4x	983				423
	130	2x ; 3x ; 4x	998				373
	140	2x ; 3x ; 4x	1023				373

B3 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x ; 3x ; 4x	—	—	—	—	—
	125	2x	—	—	—	—	—
		3x ; 4x	983	736	640.5	360.5	396
	130	2x ; 3x ; 4x	998				356
	140	2x ; 3x ; 4x	1023				356

V5 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x ; 3x ; 4x	943	736	640.5	360.5	536
	125	2x ; 3x ; 4x	983				536
	130	2x ; 3x ; 4x	998				486
	140	2x ; 3x ; 4x	1023				486

B3 - MCRA34_EX

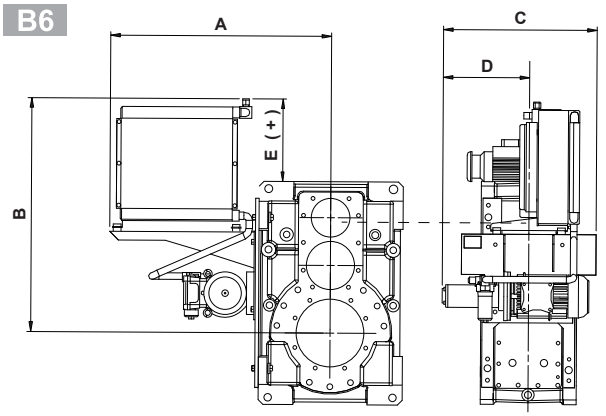
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	—	—	—	—	—
		3x ; 4x	998	736	701	416	356
	140	2x	—	—	—	—	—
		3x ; 4x	1023	736	701	416	356

V5 - MCRA34_EX

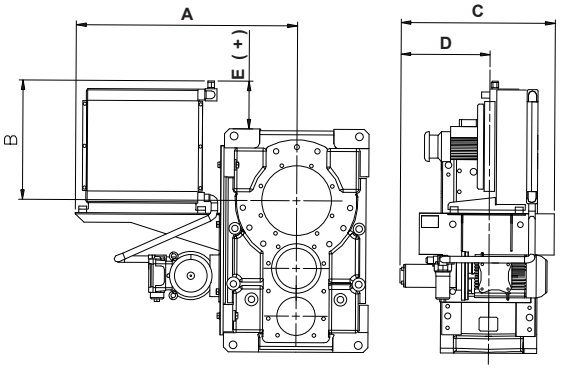
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x ; 3x ; 4x	998	736	701	416	486
	140	2x ; 3x ; 4x	1023				486

MCRA...EX

B6



B7



B6 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	790	820.5	641.7	430	260.5
		3x ; 4x	790	940.5			260.5
	110	2x	790	835.5			260.5
		3x ; 4x	790	955.5			260.5
	120	2x	820	828.5			198.5
		3x ; 4x	820	963.5			183.5
	125	2x	860	828.5			158.5
		3x ; 4x	860	963.5			143.5
	130	2x	900	835			95
		3x ; 4x	900	931.3			-3.8
	140	2x	900	857			77
		3x ; 4x	900	941.3			-33.8

B7 - MCRA5_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	790	384.5	641.7	430	114.5
		3x ; 4x	790	264.5			-5.5
	110	2x	790	369.5			114.5
		3x ; 4x	790	249.5			-5.5
	120	2x	820	376.5			76.5
		3x ; 4x	820	241.5			-58.5
	125	2x	860	376.5			36.5
		3x ; 4x	860	241.5			-98.5
	130	2x	900	370			15
		3x ; 4x	900	269.5			-85.5
	140	2x	900	347			-33
		3x ; 4x	900	264.5			-115.5

B6 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	890	840.5	680	295.2	280.5
		3x ; 4x	890	960.5			280.5
	110	2x	890	855.5			280.5
		3x ; 4x	890	975.5			280.5
	120	2x	920	848.5			218.5
		3x ; 4x	920	983.5			203.5
	125	2x	960	848.5			178.5
		3x ; 4x	960	983.5			163.5
	130	2x	1000	855			115
		3x ; 4x	1000	951.3			16.3
	140	2x	1000	877			97
		3x ; 4x	1000	961.3			-13.8

B7 - MCRA9_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	100	2x	890	404.5	680	295.2	134.5
		3x ; 4x	890	284.5			14.5
	110	2x	890	389.5			134.5
		3x ; 4x	890	269.5			14.5
	120	2x	920	396.5			96.5
		3x ; 4x	920	261.5			-38.5
	125	2x	960	396.5			56.5
		3x ; 4x	960	261.5			-78.5
	130	2x	1000	390			35
		3x ; 4x	1000	289.5			-65.5
	140	2x	1000	367			-13
		3x ; 4x	1000	284.5			-95.5

B6 - MCRA21_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x	920	962	640.2	360.2	332
		3x ; 4x	920	1097			317
	125	2x	960	962			292
		3x ; 4x	960	1097			277
	130	2x	1000	968.5			228.5
		3x ; 4x	1000	1064.8			129.8
	140	2x	1000	990.5			210.5
		3x ; 4x	1000	1074.8			99.8

B7 - MCRA21_EX

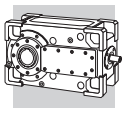
			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	120	2x	920	510	640.2	360.2	210
		3x ; 4x	920	375			75
	125	2x	960	510			170
		3x ; 4x	960	375			35
	130	2x	1000	503.5			148.5
		3x ; 4x	1000	403			48
	140	2x	1000	480.5			100.5
		3x ; 4x	1000	398			18

B6 - MCRA34_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	1000	966	701	416	226
		3x ; 4x	1000	1062.3			127.3
	140	2x	1000	988			208
		3x ; 4x	1000	1072.3			97.3

B7 - MCRA34_EX

			A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
HDO	130	2x	1000	501	701	416	146
		3x ; 4x	1000	400.5			45.5
	140	2x	1000	478			98
		3x ; 4x	1000	395.5			15.5



35 OTHER INFORMATION ABOUT GEARBOX AND GEARMOTOR

Mounting positions, technical data, motor availability,moments of inertia and dimensions of **HDO-EX (Atex)** series don’t change among equivalent **HDO** product series. All of these information can be obtained in the related chapters of this catalogue.

INDEX OF REVISIONS

BR_CAT_HDPO_IE3_ENG_R01_0	
	Description
162…172	Fixed some dimensions for HDP 100 … HDP 160 gearboxes.
362, 364	Fixed some dimensions for HDO 150 - HDO 160 gearboxes.

2020 12 30

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