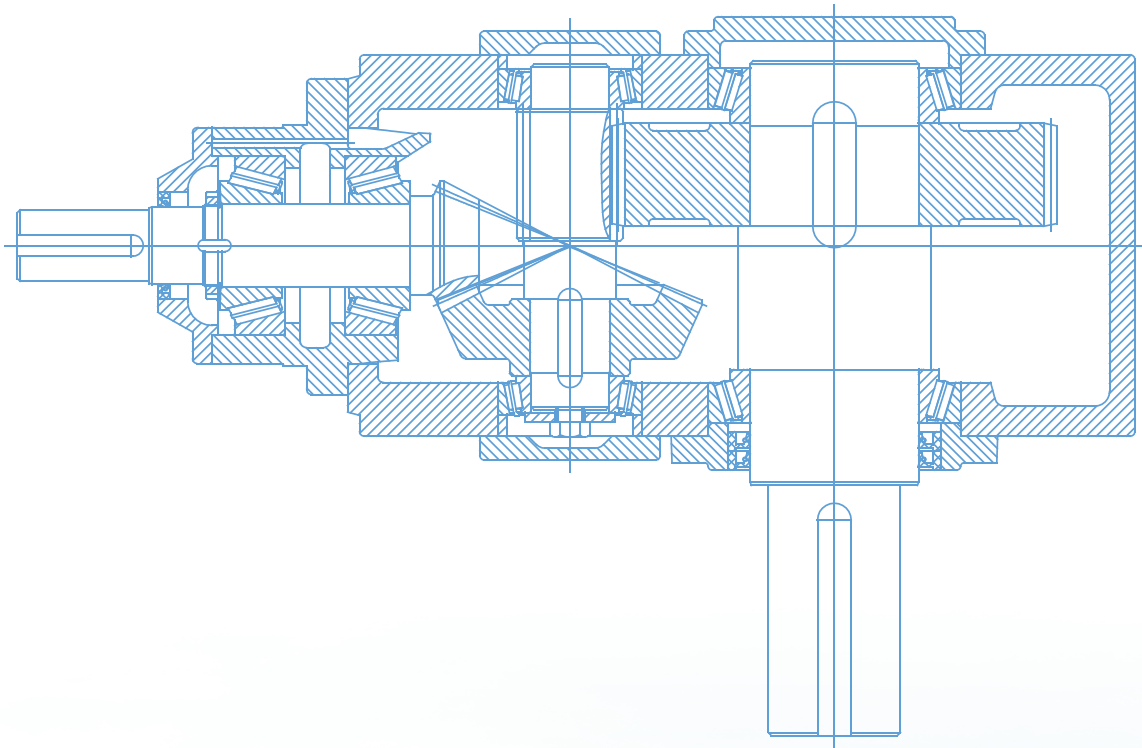


H Helical Gearbox & B Bevel Helical Gearbox

Size 4-12

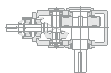
Modified date 05/2021



H Helical Gearbox & B Bevel-helical Gearbox Sizes 4-12

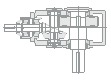
- » Unique modular design, general applications of components are maximized, which is convenient for international production. Storage quantity is small, supplement circle is short.
- » Unique modular design, allocation exchange degree of functional attachments flexibly satisfy various kinds of required structures, arrangement form and different working situations of customer equipment.
- » Transmission shaft is in line layout, under the same volume, transmission central distance is larger, bearing capacity is larger.
- » Wheel pair meshing contact ratio increases, transmission is more stable, noise is lower.
- » The appearance design shows world-wide product design idea of TGE Transmission, it owns intellectual property rights.
- » Frame type load-carrying structure design, the whole structure is stronger, footing is more fastened.
- » Improved cooling fan design can effectively reduce the temperature during gearbox running.
- » Output shaft sealing applies double oil sealing, the sealing is more reliable, the applications are wider.





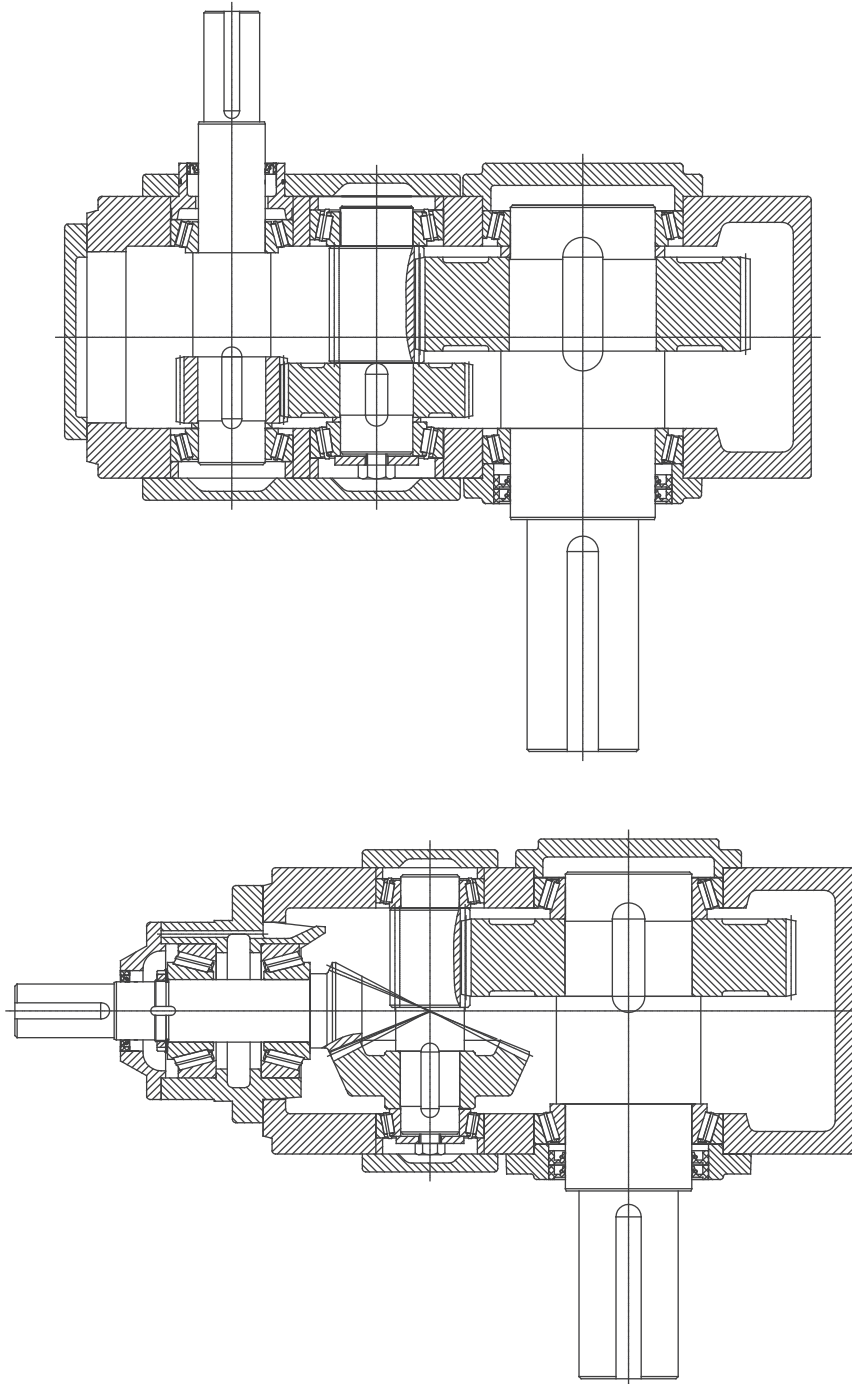
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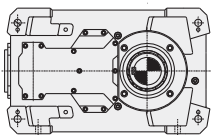
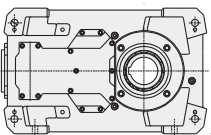
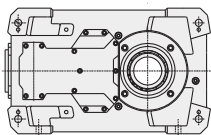
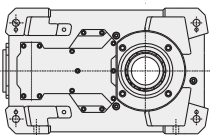
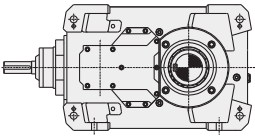
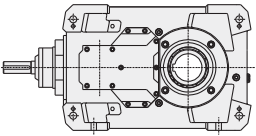
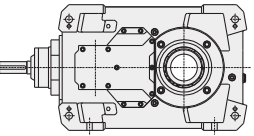
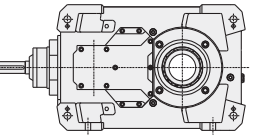
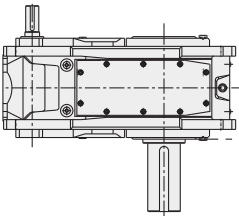
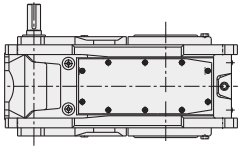
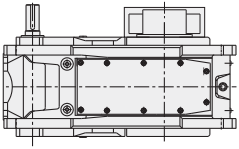
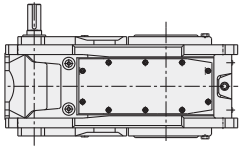
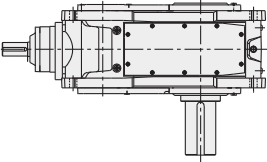
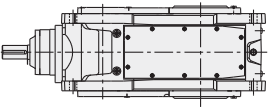
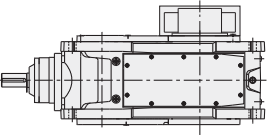
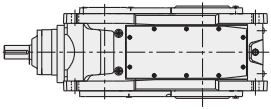


1 Structure scheme

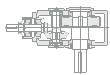
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2 Mounting mode

Horizontal mounting				
	Solid shaft	Hollow shaft	Hollow shaft with shrink disk	Hollow shaft with involute spline
H series 6.3-450	 H...HS	 H...HH	 H...HD	 H...HK
B series 6.3-400	 B...HS	 B...HH	 B...HD	 B...HK
Vertical mounting				
	Solid shaft	Hollow shaft	Hollow shaft with shrink disk	Hollow shaft with involute spline
H series iN= 6.3 - 450	 H...VS	 H...VH	 H...VD	 H...VK
B series iN= 6.3 - 400	 B...VS	 B...VH	 B...VD	 B...VK

HB



3 Selection

HB

Serial	Definition	Symbol	Parameter calculation					
1	Driven equipment factor	f1	Refer to page5 f1 table					
2	Prime mover factor	f2	Prime mover facto		f2			
			Motor, hydraulic motor, turbine		1.0			
			4-6 Cylinder piston engine, cyclic variation 1:100 to 1: 200		1.25			
			1-3 Cylinder piston engine, cyclic variation 1:100		1.5			
3	Gear unit safety factor	SF	Refer to page4 sf table					
4	Relation between input and output shafts	H, B	Parallel shaft select H series, right angle, select B series					
5	Transmission efficiency of gear unit	η	2-stage:96%, 3-stage:94%, 4-stage:92%					
6	Input speed	n1	$\leq 1800r/min$ For higher speed, please consult us.					
7	Determination of ratio	i	$i=n1/n2$					
8	Confirm gear unit input power with torque or power needed by driven equipment.	P1	$P1=T2 \cdot n1/(9550 \cdot i \cdot \eta)$ or $P1=P2/\eta$					
9	According to calculation, check transmission capacity table to determine gear unit size	T2N, P1N	$T2N \geq T2 \cdot f1 \cdot f2 \cdot SF$ or $P1N \geq P1 \cdot f1 \cdot f2 \cdot SF$ If it doesn't satisfy conditions: $3.33 \cdot P1 \geq P1N$, Please consult us.					
10	Peak torque verification *	TA	$P1N \geq TA \cdot n1 \cdot f3/9550$	Load peaks per hour				
				Single direction loading	1-5	6-30	31-100	> 100
					0.5	0.65	0.7	0.85
		Alternate loading		0.7	0.95	1.10	1.25	
11	After selecting connection mounting and accessories, check allowable strength of the shaft	Fr1/Fr2 Fa1/Fa2	Radial load need to be checked when radial load imposed by belt pulley, chain sprocket and gear are present. (See page 32)					
12	Determine lubrication method, select lubrication oil		Horizontal mounting		Vertical mounting			
			Lubrication methods for selection: 1) Splash lubrication 2) Dip-in lubrication 3) Forced lubrication Shaft end pump lubrication Motor oil pump lubrication Oil station lubrication		Lubrication methods for selection: 1) Dip-in lubrication 2) Forced lubrication Shaft end pump lubrication Motor oil pump lubrication Oil station lubrication			
13	Determine cooling method		1) If it satisfies the following condition, the gear unit will not be equipped with auxiliary cooling device. $P1 \leq PGA \times f4 \times f8$ 2) If it satisfies the following condition, the gear unit will be equipped with cooling fan. $P1 \leq PGB \times f4 \times f8$ 3) If it satisfies the following condition, the gear unit will be equipped with water-oil cooler. $P1 \leq PGD \times f5 \times f8$ 4) Gear unit can be equipped with other cooling devices : air-oil cooler, water-oil cooler, users can equip petrol station by themselves to provide circulated cooling oil. (Refer to page 4 for f4, f5, f8) .					
14	Determine each item according to type designation		Refer to page 4.					

* Peak torque: maximum loading torque means the maximum torque caused by starting, braking or maximum pulse loading. (Under common working conditions, peak torque is the maximum torque may occur when a machine starts or brakes)

Gearbox safety factor		SF
For ordinary equipment, only single machine stops production when gear unit fails. easy to replace spare parts and minor loss occurred.		1.0 ≤ SF ≤ 1.3
For important equipment, the production line or the whole plant will stop production, when gear unit fails, great loss occurred, stopping accident loss is large.		1.3 < SF ≤ 1.5
High reliability requirement, it may cause heavy production stop accident, when gear unit fails, causing large economic loss and even may cause human life accident.		1.5 < SF

Thermal factor f4					
Gear unit without cooling or with fan					
Ambient temperature	Operating cycle per hour				
	100	80	60	40	20
10°C	1.11	1.31	1.60	2.14	3.64
20°C	1.00	1.18	1.44	1.93	3.28
30°C	0.88	1.04	1.27	1.70	2.89
40°C	0.75	0.89	1.08	1.45	2.46
50°C	0.63	0.74	0.91	1.22	2.07

Thermal factor f5					
Gear unit with water-oil cooler					
Ambient temperature	Operating cycle per hour				
	100	80	60	40	20
10°C	1.05	1.23	1.50	2.03	3.41
20°C	1.00	1.17	1.43	1.93	3.25
30°C	0.93	1.09	1.33	1.79	3.02
40°C	0.87	1.02	1.24	1.68	2.83
50°C	0.81	0.95	1.16	1.56	2.63

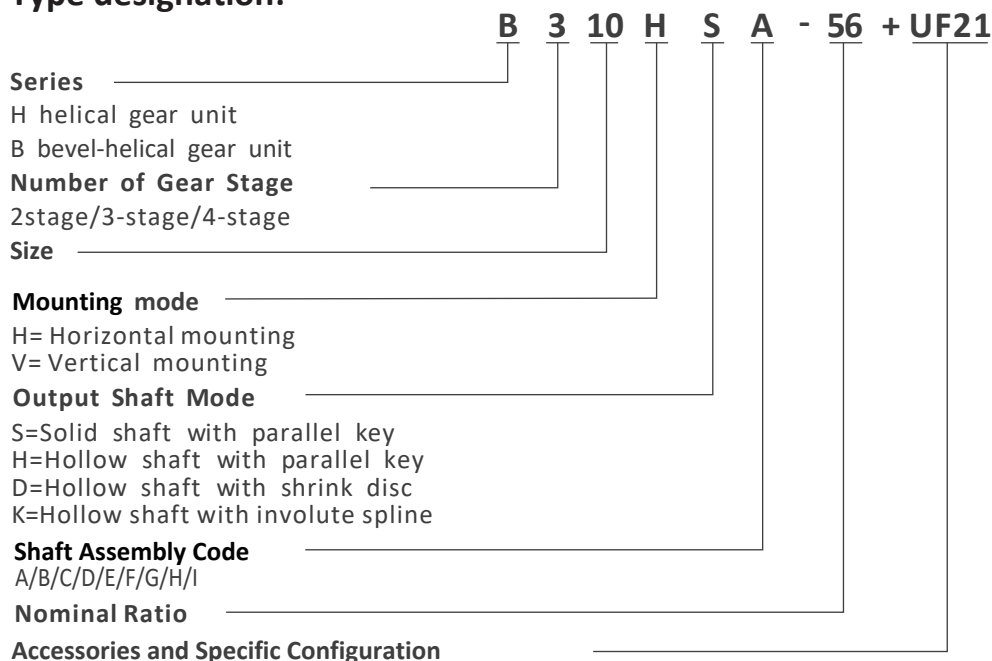
Note: Operating cycle ED : $ED = \frac{tf}{tf+tr} \cdot 100\%$ tf: Working time with loading; tr: Stop time.

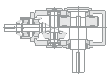


Vertical mounted gear unit oil supply factor. For horizontally mounted gear unit f8=1.0 When forced lubrication applied, f8=1.05						f8
Gear unit type	Oil supply method	Without auxiliary cooling device	With cooling fan	With cooling coil	With fan and cooling coil	
H2..V, H3..V H4..V	Dip-inlubrication	0.95	*	0.95	*	
	Forced lubrication	1.15	*	1.05	*	
B2..V, B3..V B4..V	Dip-inlubrication	0.95	0.95	0.95	0.95	
	Forced lubrication	1.15	1.10	1.10	1.10	

* Please consult us.

Type designation:






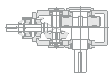
4 Service factor

Driven equipment factor							f1
Driven equipment	Daily operating time with load (hour)			Driven equipment	Daily operating time with load (hour)		
	≤2	>2-10	>10		≤2	>2-10	>10
Sewage treatment				Conveying machine			
Concentrator (Central Transmission)	-	-	1.2	Bucket conveyor	-	1.4	1.5
Compressed filter	1.0	1.3	1.5	Winch	1.4	1.6	1.6
Flocculator	0.8	1.0	1.3	Hoist	-	1.5	1.8
Aerator	-	1.8	2.0	Belt conveyor ≤150kW	1.0	1.2	1.3
Collector	1.0	1.2	1.3	Belt conveyor ≥150kW	1.1	1.3	1.4
Vertical, rotary group				Elevators for goods*	-	1.2	1.5
Blended collector				Elevators for customers*	-	1.5	1.8
Concentrator	1.0	1.3	1.5	Scraper conveyor	-	1.2	1.5
Screw pump	-	1.1	1.3	Automatic ladder	1.0	1.2	1.4
Water wheel machine	-	1.3	1.5	Rail traveling mechanism	-	1.5	-
Pump	-	-	2.0				
Centrifugal pump				Various frequency device	-	1.8	2.0
Volume-down pump							
1Piston	1.0	1.2	1.3				
>1Piston	1.3	1.4	1.8				
	1.2	1.4	1.5				
Dredge				Reciprocating compressor	-	1.8	1.9
Bucket conveyor	-	1.6	1.6				
Unloading device	-	1.3	1.5	Hoisting mechanism**			
Caterpillar travelling mechanism	1.2	1.6	1.8	Rotary mechanism*		1.4	1.8
Bucket digger				Pitching mechanism		1.1	1.4
Be used for picking up	-	1.7	1.7	Traveling mechanism		1.6	2.0
Be used for rough materials	-	2.2	2.2	Lifting mechanism		1.1	1.4
Chopper	-	2.2	2.2	Jibcrane		1.2	1.6
Traveling mechanism*	-	1.4	1.8				
Plate blender	-	1.0	1.0	Cooling tower			
				Cooling tower fan	-	-	2.0
Chemical industry				Fan (Shaft flow and centrifugal type)	-	1.4	1.5
Extruder	-	-	1.6				
Paste mixer	-	1.8	1.8	Food industry			
Rubber calendar	-	1.5	1.5	Sugar production	-	-	1.7
Cooling cylinder	-	1.3	1.4	Sugar-cane cutter*			
Material mixer, be used for				Sugar crane mill	-	-	1.7
Uniform medium	1.0	1.3	1.4	Beet sugar production			
Non-uniform medium	1.4	1.6	1.7	Beet masher	-	-	1.2
Blender, be used for				Squeezemachine, mechanical refrigerator,			
Uniform density medium				Cooking machine	-	-	1.4
Un-uniformed medium	1.0	1.3	1.5	Beet cleaner			
Un-uniformed gas absorption	1.2	1.4	1.6	Beet chopper	-	-	1.5
Oven	1.4	1.6	1.8				
Centrifugal machine	1.0	1.3	1.5				
	1.0	1.2	1.3				
Metal processing equipment				Paper-making machinery			
Plate turnover	1.0	1.0	1.2	Various kinds***	-	1.8	2.0
Steel pushing device	1.0	1.2	1.2	Pulper driving device	Supply goods according to customer requirements		
Winding machine	-	1.6	1.6				
Cooling bed transverse frame	-	1.5	1.5	Centrifugal compressor	-	1.4	1.5
Roller leveler	-	1.6	1.6				
Roller path				Rope way cable car			
Continuous	-	1.5	1.5	Delivery ropeway	-	1.3	1.4
Interval	-	2.0	2.0	Cableway of shuttle system	-	1.6	1.8
Reversing mill	-	1.8	1.8	T rod elevator	-	1.3	1.4
Cutter				Continuous cableway	-	1.4	1.6
Continuous*	-	1.5	1.5				
Crank type*	1.0	1.0	1.0	Cement industry			
Continuous casting driving device	-	1.4	1.4	Concrete blender	-	1.5	1.5
Rolling mill				Crusher**	-	1.2	1.4
Reversing cogging mill	-	2.5	2.5	Rotary kiln	-	-	2.0
Reversing plate slab mill	-	2.5	2.5	Tubemill	-	-	2.0
Reversing wire mill	-	1.8	1.8	Powder concentrator	-	1.6	1.6
Reversing thin plate mill	-	2.0	2.0	Roller press	-	-	2.0
Reversing middle thickness plate mill	-	1.8	1.8				
Roll gap adjusting and driving device	0.9	1.0	-				

Driven equipment factor							f1
Driven equipment	Daily operating time with load (hour)			Driven equipment	Daily operating time with load (hour)		
	≤2	>2-10	>10		≤2	>2-10	>10
Wood industry				Plastics industry			
Barking machine				Miller, compound grinding,			
Feed drive	1.25	1.25	1.50	Coating,fil,m	1.25	1.25	1.25
Main drive	1.75	1.75	1.75	Conveyingpipe,Pullingrod,thintype			
Conveyor				Pipetype,Piledrawer	1.25	1.25	1.50
Burner,repeating saw,	1.25	1.25	1.50	Continuousmixer,Calender,	1.50	1.50	1.50
Rotarytower,transittransport				Blowfilm,toplasticizing	1.75	1.75	1.75
Mainloading,heavyloading	1.50	1.50	1.50	Batchmixer			
Mainoriginalwood,landbase	1.75	1.75	2.00				
Conveyingchain				Rubber industry			
Floor	1.50	1.50	1.50	Continuous strong inner mixer,Mix roller,	1.50	1.50	1.50
Green-wood	1.50	1.50	1.75	Batch feeding mixer(except for double sticks)			
Cutting Chain				Refiner,calender			
Sawtransmission,traction	1.50	1.50	1.75	Double roller clamp feeding and mixed miller			
Peeling barrel	1.75	1.75	2.00	Batch strong inner mixer,Double stick single groove grainstick	1.25	1.25	1.50
Feed drive				Miller heater,double sticks			
Edging,woodtrimmer,				Batch feeding mixer	1.75	1.75	1.75
Planerfeed,assortingtable,	1.25	1.25	1.50	Grinder,Crusherheater,double			
Automaticinclinelifting				Rolls,Batch charing grinder	2.00	2.00	2.00
Multi-shaftfeed,rawwood	1.75	1.75	1.75	Waveroll crusher			
Transportationandrotation							
Transportation				Generator and exciter	1.00	1.00	1.25
Charging tray,				Hammer crusher	1.75	1.75	2.00
Plywoodlathedriv,	1.50	1.50	1.75	Sand miller	1.25	1.25	1.50
Conveyingchain,Lifting							

HB

-  Note: 1. Determine required power P2 of the driven equipment;
- *) Determine rated power according to maximum torque
 - **) The actual service factor should be selected according to accurate loading classification, for specific information, please consult us.
 - ***) It is necessary to check thermal capacity.
2. The factors are experience value. The premise of using these factors is that the above mechanical equipment should conform to common design regulation and loading conditions. If there is special situation, please consult us.
3. For machines that are not listed in this table, please consult us.



5 Key to symbols

Symbols	Instruction	Unit
i	Actual ratio	/
i_N	Nominal ratio	
i_{ex}	Exact ratio	
T_2	Output torque	N·m
T_{2N}	Reted output torque	
T_A	Max.Torque occurring on input shaft, e.g.Peak operating,starting or braking torque	
$T_{n2atmax}$	Nominal output torque at highest speed	
$T_{n2atmin}$	Nominal output torque at lowest speed	
P_{1N}	Rated input power	kW
P_{GA}	Nominal thermal capacity of gearbox without auxiliary cooling equipment	
P_{GB}	Nominal thermal capacity gearbox with cooling fan	
P_{GD}	Normal thermal capacity of gearbox with water-oil cooler	
P_1	Input power	
P_2	Required power of driven machine	
f_1	Driven machine factor	/
f_2	Prime mover factor	
f_3	Peak load factor	
f_4	Thermal factor(Without auxiliary cooling,or witho fan cooling)	
f_5	Thermal factor(with water-oil cooler)	
f_8	Oil supply factor for vertical gearbox	
S_F	Safety factor of gearbox	
n_1	Input speed	r/min
n_2	Output speed	
n_{2N}	Nominal output speed	
η	Efficiency	/
f	Motor frequency	Hz
U_m	Motor voltage	V
ED	Operating cycle per hour	%

6 Selection to example

Known conditions:

Prime mover:

Motor power: 90kW
 Motor speed: $n_1=1450\text{r/min}$
 Maximum starting torque: $T_A=860\text{N.m}$
 (This value is usually provided by the users. If not, normal torque $\times 1.6$ preails)

Driven equipment (working machine):

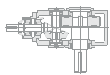
Type: Belt conveyor
 Speed: $n_2=33\text{r/min}$
 Required power: $P_2=72\text{kW}$
 Duty: 12 hours/day
 Starts per hour: 7
 Operating cycle per hour: 100%
 Ambient temperature: 40
 Place of installation: Outdoor mounting
 Altitude: 500m

Gear box:

Bevel-helical gear unit, horizontal mounting, with parallel key
 solid shaft output
 Shaft arrangement form C
 Output shaft direction of rotation: run clockwise to output shaft
 With backstop (accessory code UB11)

Selection procedure:

1. Calculation of ratio:
 $i=n_1/n_2=1450/33=43.9$ $i_N=45$
2. Determine rated power of gear box
 $P_1=P_2/\eta=72/(94\%)=76.6\text{kW}$
 $P_{1N} \geq P_1 \cdot f_1 \cdot f_2 \cdot SF=76.6 \times 1.3 \times 1 \times 1.4=139.4\text{kW}$
 Refer to transmission capacity table B3, select size 10 $P_{1N}=146\text{kW}$
 $3.33 \cdot P_1=3.33 \times 76.6=255.1\text{kW} \geq P_{1N}$ Satisfy requirements
3. Peak torque verification
 $P_{1N} \geq T_A \cdot n_1 \cdot f_3 / 9550 = 860 \times 1450 \times 0.65 / 9550 = 84.9\text{kW}$
 $P_{1N}=146\text{kW} \geq 84.9\text{kW}$ Satisfy requirements
4. Verify thermal capacity:
 $PGA \cdot f_4 \cdot f_8 = 80.8 \times 0.75 \times 1 = 60.6\text{kW} \leq P_1 = 76.6\text{kW}$
 Thermal capacity not sufficient
 $PGB \cdot f_4 \cdot f_8 = 180 \times 0.75 \times 1 = 135\text{kW} \geq P_1 = 76.6\text{kW}$
 Thermal capacity is sufficient
 When gear unit with cooling fan, thermal capacity is sufficient.
 Fan accessory code is UF 21
5. Determine gear unit type: B310HSC-45+UF21+UB11



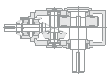
7 Transmission capacity table

7.1 H2 (iN=6.3-22.4):

i _N	n ₁ (r/min)	n _{2N} (r/min)	H204			H205			H206			H207			H208		
			T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)
6.3	1740	276	6.7	6.33	187	11.2	6.08	15.2	6.24	442	20.3	6.27	586	27.5	6.19	780	
	1450	230			156					260			368			488	650
	1150	183			124					206			292			387	515
	960	152			103					172			244			323	430
7.1	1740	245	6.7	6.93	166	11.2	6.81	15.2	6.98	398	20.3	7.02	520	27.5	6.92	703	
	1450	204			138					239			332			433	585
	1150	162			109					190			263			343	464
	960	135			91					158			220			287	388
8	1740	218	6.7	8.19	152	11.2	8.02	15.2	8.23	341	20.3	7.81	463	27.5	7.70	636	
	1450	181			127					213			284			386	530
	1150	144			101					169			226			306	420
	960	120			84					141			188			256	351
9	1740	193	6.7	9.18	136	11.2	8.71	15.2	8.93	316	20.3	8.79	410	27.5	8.68	569	
	1450	161			113					189			264			342	475
	1150	128			89					150			209			271	376
	960	107			74					125			174			226	314
10	1740	174	6.7	9.80	118	11.2	10.2	15.2	10.4	274	20.3	10.1	368	27.5	10.0	499	
	1450	145			98					165			228			307	416
	1150	115			77					131			181			243	330
	960	96.0			65					109			151			203	275
11.2	1740	155	6.7	11.2	106	11.2	11.3	15.2	11.6	249	20.3	11.2	330	27.5	11.0	435	
	1450	129			88					148			207			275	362
	1150	103			70					117			164			218	287
	960	85.7			58					98			137			182	240
12.5	1740	139	6.7	12.5	97	11.2	11.9	16.5	12.3	235	20.3	12.4	294	27.5	12.2	395	
	1450	116			81					135			196			245	329
	1150	92.0			64					107			155			194	261
	960	76.8			53					89			130			162	218
14	1740	124	6.7	14.1	87	11.2	13.6	16.5	13.9	209	20.3	13.8	263	27.5	13.6	358	
	1450	104			72					121			174			219	298
	1150	82.1			57					96			138			174	236
	960	68.6			48					80			115			145	197
16	1740	109	6.7	15.8	75	11.2	15.2	16.5	15.6	188	20.3	15.6	230	27.5	15.4	318	
	1450	90.6			62					106			156			192	265
	1150	71.9			50					84			124			152	210
	960	60.0			41.6					70			104			127	175
18	1740	96.7	6.7	18.1	66	11.2	16.9	16.5	17.3	170	20.3	17.4	198	27.5	17.1	288	
	1450	80.6			55					91			142			165	240
	1150	63.9			43.6					72			112			131	190
	960	53.3			36.4					60			94			109	159
20	1740	87.0	6.7	19.3	59	11.2	19.8	16.5	20.3	147	20.3	19.7	178	27.5	19.5	255	
	1450	72.5			49.3					84			122			148	213
	1150	57.5			39.1					67			97			117	169
	960	48.0			32.6					56			81			98	141
22.4	1740	77.7	6.7	22.4	49	11.2	21.2	16.5	21.8	135	20.3	22.7	160	27.5	22.4	224	
	1450	64.7			37					62			88			113	187
	1150	51.3			28					46			64			90	148
	960	42.9			22					36			49			75	124

H209			H210			H211			H212			n _{2N} (r/min)	n ₁ (r/min)	i _N
T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)			
33.7	6.28	973	44.2	6.20	1279	60	6.09	1714	74	6.09	2140	276	1740	6.3
		811			1066			1428			1783	230	1450	
		643			845			1133			1414	183	1150	
		537			706			945			1180	152	960	
33.7	7.08	863	44.2	6.99	1144	60	6.91	1519	74	6.92	1898	245	1740	7.1
		719			954			1266			1582	204	1450	
		570			756			1004			1255	162	1150	
		476			631			838			1047	135	960	
33.7	8.18	769	44.2	8.08	1001	60	7.87	1354	74	7.88	1685	218	1740	8
		641			834			1128			1404	181	1450	
		508			662			895			1114	144	1150	
		424			552			747			930	120	960	
33.7	9.33	683	44.2	9.22	886	60	8.61	1201	74	8.62	1496	193	1740	9
		569			738			1001			1247	161	1450	
		451			585			794			989	128	1150	
		377			489			663			826	107	960	
33.7	10.0	613	44.2	9.88	831	60	9.60	1080	74	9.61	1344	174	1740	10
		511			692			900			1120	145	1450	
		405			549			714			888	115	1150	
		338			458			596			742	96.0	960	
33.7	10.8	547	46.5	10.7	773	60	10.9	965	74	10.9	1201	155	1740	11.2
		456			644			804			1001	129	1450	
		362			511			638			794	103	1150	
		302			426			532			663	85.7	960	
33.7	12.5	491	46.5	12.3	675	60	12.3	864	74	12.4	1075	139	1740	12.5
		409			562			720			896	116	1450	
		324			446			571			711	92.0	1150	
		271			372			477			593	76.8	960	
33.7	14.0	437	46.5	13.8	608	60	14.2	770	74	14.2	958	124	1740	14
		364			507			642			798	104	1450	
		289			402			509			633	82.1	1150	
		241			336			425			528	68.6	960	
33.7	15.7	384	46.5	15.5	544	60	16.2	677	74	16.2	842	109	1740	16
		320			453			564			702	90.6	1450	
		254			359			447			557	71.9	1150	
		212			300			373			465	60.0	960	
33.7	17.4	338	48.5	17.2	495	60	17.9	598	74	17.9	744	96.7	1740	18
		282			412			498			620	80.6	1450	
		224			327			395			492	63.9	1150	
		187			273			330			410	53.3	960	
33.7	19.6	306	48.5	19.3	443	60	20.1	540	74	20.1	672	87.0	1740	20
		255			370			450			560	72.5	1450	
		202			293			357			444	57.5	1150	
		169			245			298			371	48.0	960	
33.1	21.7	269	48.5	21.4	403	60	22.1	474	74	22.2	600	77.7	1740	22.4
		224			336			395			500	64.7	1450	
		178			266			313			397	51.3	1150	
		148			222			262			331	42.9	960	

HB



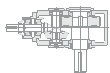
7.2 H3(iN=16-100)

HB

iN	n1 (r/min)	n2N (r/min)	H305			H306			H307			H308		
			T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)
16	1740	109.0	11.6	15.0	131	17.5	15.4	21.7	15.5	246	29.0	15.3	328	
	1450	90.6			109					202			205	273
	1150	71.9			87					169			162	217
	960	60.0			72					134			136	181
18	1740	96.7	11.6	17.1	117	17.5	17.5	21.7	16.9	218	29.0	16.7	301	
	1450	80.6			97					150			182	251
	1150	63.9			77					119			144	199
	960	53.3			64					99			120	166
20	1740	87.0	11.6	19.8	105	17.5	20.3	21.7	20.0	197	29.0	19.8	257	
	1450	72.5			88					130			164	214
	1150	57.5			69					103			130	170
	960	48.0			58					86			108	142
22.4	1740	77.7	11.6	21.6	94	17.5	22.1	21.7	22.4	175	29.0	22.2	231	
	1450	64.7			78					120			146	192
	1150	51.3			62					95			116	153
	960	42.9			52					79			97	127
25	1740	69.6	11.6	24.3	84	17.5	24.9	21.7	24.0	157	29.0	23.7	217	
	1450	58.0			70					107			131	181
	1150	46.0			56					85			104	143
	960	38.4			46.3					71			87	120
28	1740	62.1	11.6	26.7	76	17.5	27.4	21.7	27.4	142	29.0	27.1	191	
	1450	51.8			63					97			118	159
	1150	41.1			50					77			94	126
	960	34.3			41.7					64			78	105
31.5	1740	55.2	11.6	30.3	67	17.5	31.1	21.7	31.0	126	29.0	30.6	170	
	1450	46.0			56					86			105	142
	1150	36.5			44.4					68			83	113
	960	30.5			37.1					57			70	94
35.5	1740	49.0	11.6	35.2	59	17.5	36.1	21.7	36.6	110	29.0	36.2	145	
	1450	40.8			49.0					75			92	121
	1150	32.4			38.9					59			73	96
	960	27.0			32.4					49			61	80
40	1740	43.5	11.6	38.3	53	18.5	39.3	21.7	41.1	100	29.0	40.5	131	
	1450	36.3			44.0					69			83	109
	1150	28.8			34.9					55			66	86
	960	24.0			29.1					45.6			55	72
45	1740	38.7	11.6	43.1	46.8	18.5	44.2	21.7	43.8	86	30.0	43.3	122	
	1450	32.2			39.0					62			72	102
	1150	25.6			30.9					48.9			57	81
	960	21.3			25.8					40.8			47.7	68
50	1740	34.8	11.6	47.3	42.0	18.5	48.5	21.7	50.2	79	30.0	49.5	108	
	1450	29.0			35.0					56			66	90
	1150	23.0			27.8					44.8			52	71
	960	19.2			23.2					37.4			43.7	60
56	1740	31.1	11.6	54.6	37.2	18.5	56.0	21.7	55.8	71	30.0	55.0	97	
	1450	25.9			31.0					49.3			59	81
	1150	20.5			24.6					39.1			47	64
	960	17.1			20.5					32.6			39.1	54
63	1740	27.6	11.6	58.2	33.6	18.5	59.7	21.7	63.2	62	30.0	62.4	86	
	1450	23.0			28.0					46.4			52	72
	1150	18.3			22.2					36.8			41.2	57
	960	15.2			18.5					30.7			34.4	47.7
71	1740	24.5	11.6	67.2	28.8	18.5	69.0	21.7	70.9	54	30.0	69.9	78	
	1450	20.4			24.0					40.4			45.0	65
	1150	16.2			19.0					32.1			35.7	52
	960	13.5			15.9					26.8			29.8	43.0
80	1740	21.8	11.6	76.4	26.4	18.5	78.4	21.7	80.9	49.2	30.0	79.8	68	
	1450	18.1			22.0					35.8			41.0	57
	1150	14.4			17.4					28.4			32.5	45.2
	960	12.0			14.6					23.7			27.1	37.7
90	1740	19.3	11.6	84.9	22.8	18.5	87.1	21.7	86.2	44.4	30.0	85.1	62.4	
	1450	16.1			19.0					32.4			37.0	52.0
	1150	12.8			15.1					25.7			29.3	41.2
	960	10.7			12.6					21.4			24.5	34.4
100	1740	17.4												
	1450	14.5												
	1150	11.5												
	960	9.6												

H309			H310			H311			H312			n _{2N} (r/min)	n ₁ (r/min)	i _N
T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)			
35.7	15.4	407	47	15.2	535	64	15.3	724	78	15.3	888	109.0	1740	16
		339			446			603			740	90.6	1450	
		269			354			478			587	71.9	1150	
		224			295			399			490	60.0	960	
35.7	17.2	362	47	17.0	476	64	17.1	643	78	17.1	789	96.7	1740	18
		301			396			536			658	80.6	1450	
		239			314			425			522	63.9	1150	
		200			262			355			435	53.3	960	
35.7	20.3	325	47	20.1	428	64	19.0	579	78	19.0	710	87.0	1740	20
		271			357			482			592	72.5	1450	
		215			283			383			470	57.5	1150	
		180			236			319			392	48.0	960	
35.7	22.0	291	47	21.8	382	64	21.4	517	78	21.5	634	77.7	1740	22.4
		242			319			431			529	64.7	1450	
		192			253			342			419	51.3	1150	
		160			211			285			350	42.9	960	
35.7	25.7	260	47	25.4	343	64	24.7	462	78	24.7	568	69.6	1740	25
		217			285			385			474	58.0	1450	
		172			226			305			376	46.0	1150	
		144			189			255			314	38.4	960	
35.7	28.5	233	47	28.2	306	64	27.2	416	78	27.3	507	62.1	1740	28
		194			255			347			423	51.8	1450	
		154			202			275			335	41.1	1150	
		128			169			230			280	34.3	960	
35.7	29.9	208	47	29.5	272	64	32.0	370	78	32.1	450	55.2	1740	31.5
		173			227			308			375	46.0	1450	
		137			180			244			297	36.5	1150	
		115			150			204			248	30.5	960	
35.7	35.2	182	47	34.8	241	64	35.6	324	78	35.7	394	49.0	1740	35.5
		152			201			270			328	40.8	1450	
		121			159			214			260	32.4	1150	
		101			133			179			217	27.0	960	
35.7	38.2	164	47	37.7	214	64	40.1	293	78	40.2	356	43.5	1740	40
		137			178			244			297	36.3	1450	
		109			141			194			236	28.8	1150	
		91			118			162			197	24.0	960	
35.7	44.6	143	47	44.1	190	64	46.3	254	78	46.3	308	38.7	1740	45
		119			159			212			257	32.2	1450	
		94			126			168			204	25.6	1150	
		79			105			140			170	21.3	960	
35.7	49.4	130	47	48.8	171	64	51.0	230	78	51.1	281	34.8	1740	50
		108			143			192			234	29.0	1450	
		86			113			152			186	23.0	1150	
		72			94			127			155	19.2	960	
35.7	52.4	116	47	51.8	153	64	56.5	208	78	56.6	253	31.1	1740	56
		97			127			173			211	25.9	1450	
		77			101			137			167	20.5	1150	
		64			84			115			140	17.1	960	
35.7	59.6	103	47	58.8	136	64	62.9	185	78	63.0	226	27.6	1740	63
		86			113			154			188	23.0	1450	
		68			90			122			149	18.3	1150	
		57			75			102			124	15.2	960	
35.7	66.7	90	47	65.8	121	64	71.4	161	78	71.5	196	24.5	1740	71
		75			101			134			163	20.4	1450	
		59			80			106			129	16.2	1150	
		50			67			89			108	13.5	960	
35.7	74.0	82	47	73.1	107	64	79.3	145	78	79.40	175	21.8	1740	80
		68			89			121			146	18.1	1450	
		54			71			96			116	14.4	1150	
		45.0			59			80			97	12.0	960	
35.7	86.7	70	47	85.6	95	64	90.1	128	78	90.2	156	19.3	1740	90
		58			76			107			130	16.1	1450	
		46.0			63			85			103	12.8	1150	
		38.4			52			71			86	10.7	960	
35.7	93.2	63	47	92.0	86	64	103.4	115	78	103.5	140	17.4	1740	100
		52			71			96			117	14.5	1450	
		41.4			57			76			93	11.5	1150	
		34.6			47.2			64			77	9.6	960	

HB



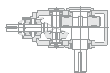
7.3 H4(iN=71-400)

HB

i _N	n ₁ (r/min)	n _{2N} (r/min)	H407			H408			H409		
			T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)
71	1740	24.5	21.7	71.2	56	28.5	70.3	71	35.7	65.9	91
	1450	20.4			46.5			59			76
	1150	16.2			36.9			46.8			60
	960	13.5			30.8			39.1			50
80	1740	21.8	21.7	81.1	48.7	28.5	80.0	62	35.7	74.9	81
	1450	18.1			40.6			52			67
	1150	14.4			32.2			41.2			53
	960	12.0			26.9			34.4			44.5
90	1740	19.3	21.7	89.9	43.3	28.5	88.7	56	35.7	86.8	72
	1450	16.1			36.1			47.0			60
	1150	12.8			28.6			37.3			47.4
	960	10.7			23.9			31.1			39.5
100	1740	17.4	21.7	103.1	39.6	28.5	101.8	50	35.7	94.6	65
	1450	14.5			33.0			42.0			54
	1150	11.5			26.2			33.3			42.8
	960	9.6			21.8			27.8			35.8
112	1740	15.5	21.7	116.0	34.8	28.5	114.5	44.6	35.7	106.4	58
	1450	12.9			29.0			37.2			48.0
	1150	10.3			23.0			29.5			38.1
	960	8.57			19.2			24.6			31.8
125	1740	13.9	21.7	126.6	31.2	28.5	125.0	40.9	35.7	117.1	52
	1450	11.6			26.0			34.1			43.0
	1150	9.20			20.6			27.0			34.1
	960	7.68			17.2			22.6			28.5
140	1740	12.4	21.7	144.1	27.6	28.5	142.2	36.2	35.7	133.1	45.6
	1450	10.4			23.0			30.2			38.0
	1150	8.21			18.2			24.0			30.1
	960	6.86			15.2			20.0			25.2
160	1740	10.9	21.7	159.8	24.0	28.5	157.7	32.4	35.7	154.3	40.8
	1450	9.06			20.0			27.0			34.0
	1150	7.19			15.9			21.4			27.0
	960	6.00			13.2			17.9			22.5
180	1740	9.67	21.7	183.3	21.6	28.5	180.9	28.8	35.7	168.2	36.0
	1450	8.06			18.0			24.0			30.0
	1150	6.39			14.3			19.0			23.8
	960	5.33			11.9			15.9			19.9
200	1740	8.70	21.7	206.2	19.2	28.5	203.5	25.7	35.7	189.2	32.4
	1450	7.25			16.0			21.4			27.0
	1150	5.75			12.7			17.0			21.4
	960	4.80			10.6			14.2			17.9
224	1740	7.77	21.7	230.5	18.0	28.5	227.4	23.2	35.7	207.4	28.8
	1450	6.47			15.0			19.3			24.0
	1150	5.13			11.9			15.3			19.0
	960	4.29			9.9			12.8			15.9
250	1740	6.96	21.7	256.6	15.6	28.5	253.3	20.9	35.7	239.6	25.2
	1450	5.80			13.0			17.4			21.0
	1150	4.60			10.3			13.8			16.7
	960	3.84			8.6			11.5			13.9
280	1740	6.21	21.7	281.2	14.4	28.5	277.5	18.0	35.7	255.5	22.8
	1450	5.18			12.0			15.0			19.0
	1150	4.11			9.5			11.9			15.1
	960	3.43			7.9			9.9			12.6
315	1740	5.52	21.7	305.8	12.0	28.5	301.8	16.8	35.7	295	20.4
	1450	4.60			10.0			14.0			17.0
	1150	3.65			7.9			11.1			13.5
	960	3.05			6.6			9.3			11.3
355	1740	4.90							35.7	335.4	18.0
	1450	4.08									15.0
	1150	3.24									11.9
	960	2.70									9.9
400	1740	4.35							35.7	372.7	16.0
	1450	3.63									13.3
	1150	2.88									10.6
	960	2.40									8.8

H410			H411			H412			n _{2N} (r/min)	n ₁ (r/min)	i _N
T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)			
47	65.0	121	62	70.7	157	78	70.8	201	24.5	1740	71
		101			131			167	20.4	1450	
		80			104			133	16.2	1150	
		67			87			111	13.5	960	
47	73.9	107	62	77.4	139	78	77.5	176	21.8	1740	80
		89			116			147	18.1	1450	
		71			92			117	14.4	1150	
		59			77			97	12.0	960	
47	85.7	95	62	91.5	123	78	91.6	156	19.3	1740	90
		79			103			130	16.1	1450	
		63			82			103	12.8	1150	
		52			68			86	10.7	960	
47	93.5	86	62	102.5	112	78	102.6	140	17.4	1740	100
		71			93			117	14.5	1450	
		57			74			93	11.5	1150	
		47.2			62			77	9.6	960	
47	105.1	76	62	109.4	100	78	109.6	126	15.5	1740	112
		64			83			105	12.9	1450	
		51			66			84	10.3	1150	
		42.2			55			70	8.57	960	
47	115.6	69	62	125.2	89	78	125.4	114	13.9	1740	125
		57			74			95	11.6	1450	
		45.3			59			75	9.20	1150	
		37.8			49.0			63	7.68	960	
47	131.4	61	62	141.5	80	78	141.7	101	12.4	1740	140
		51			67			84	10.4	1450	
		40.4			53			67	8.21	1150	
		33.7			44.4			56	6.86	960	
47	152.4	54	62	167.3	70	78	167.5	88	10.9	1740	160
		44.6			58			73	9.06	1450	
		35.4			46.0			58	7.19	1150	
		29.5			38.4			48.3	6.00	960	
47	166.1	47.6	62	187.4	61	78	187.7	78	9.67	1740	180
		39.6			51			65	8.06	1450	
		31.4			40.4			52	6.39	1150	
		26.2			33.8			43.0	5.33	960	
47	186.8	42.8	62	200.1	55	78	200.4	71	8.70	1740	200
		35.7			46.0			59	7.25	1450	
		28.3			36.5			46.8	5.75	1150	
		23.6			30.5			39.1	4.80	960	
47	204.8	38.2	62	229.0	50	78	229.3	62	7.77	1740	224
		31.9			42.0			52	6.47	1450	
		25.3			33.3			41.2	5.13	1150	
		21.1			27.8			34.4	4.29	960	
47	236.6	34.3	62	254.5	44.4	78	254.9	56	6.96	1740	250
		28.5			37.0			47.0	5.80	1450	
		22.6			29.3			37.3	4.60	1150	
		18.9			24.5			31.1	3.84	960	
47	252.3	30.6	62	288.7	39.6	78	289.1	52	6.21	1740	280
		25.5			33.0			43.0	5.18	1450	
		20.2			26.2			34.1	4.11	1150	
		16.9			21.8			28.5	3.43	960	
47	291.3	27.2	62	323.5	34.8	78	324.0	45.6	5.52	1740	315
		22.7			29.0			38.0	4.60	1450	
		18			23.0			30.1	3.65	1150	
		15			19.2			25.2	3.05	960	
47	331.2	24.1	62	369.3	31.2	78	369.8	39.6	4.90	1740	355
		20.1			26.0			33.0	4.08	1450	
		15.9			20.6			26.2	3.24	1150	
		13.3			17.2			21.8	2.70	960	
47	368	21.4	62	393.6	27.7	78	394.1	36.0	4.35	1740	400
		17.8			23.1			30.0	3.63	1450	
		14.1			18.3			23.8	2.88	1150	
		11.8			15.3			19.9	2.40	960	

HB



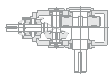
7.4 B2(iN=6.3-14)

i _N	n ₁ (r/min)	n _{2N} (r/min)	B204			B205			B206			B207		
			T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)
5	1740	348	6.2	4.94	238	9.4	4.97				19.0	4.93	702	
	1450	290			199								287	585
	1150	230			158								228	464
	960	192			131								190	387
5.6	1740	311	6.2	5.57	203	9.4	5.75				19.0	5.56	623	
	1450	259			169								248	519
	1150	205			134								197	412
	960	171			112								164	344
6.3	1740	276	6.2	6.33	178	9.4	6.22	12.0	6.44		19.0	6.33	547	
	1450	230			149								229	456
	1150	183			118								182	361
	960	152			99								152	302
7.1	1740	245	6.2	7.13	157	9.4	6.96	12.0	7.14		19.0	7.14	486	
	1450	204			131								200	405
	1150	162			104								159	321
	960	135			87								132	268
8	1740	218	6.2	8.26	142	9.4	8.06	12.0	8.27		19.0	8.27	434	
	1450	181			118								179	362
	1150	144			94								142	287
	960	120			78								119	240
9	1740	193	6.2	8.93	125	9.4	8.71	12.0	8.94		19.0	8.94	385	
	1450	161			104								159	321
	1150	128			82								126	255
	960	107			69								105	213
10	1740	174	6.2	10.1	113	9.4	9.88	12.0	10.1		19.0	10.1	346	
	1450	145			94								142	288
	1150	115			75								113	228
	960	96.0			62								94	191
11.2	1740	155	6.2	11.1	100	9.4	10.9	12.0	11.1		19.0	11.1	308	
	1450	129			83								127	257
	1150	103			66								101	204
	960	85.7			55								84	170
12.5	1740	139	6.2	12.9	89	9.4	12.5	12.0	12.9		19.0	12.9	276	
	1450	116			74								114	230
	1150	92.0			59								90	183
	960	76.8			49.2								75	152
14	1740	124	6.2	13.9	80	9.4	13.6	12.0	13.9		19.0	13.9	247	
	1450	104			66								102	206
	1150	82.1			53								81	163
	960	68.6			44.0								67	136

B208			B209			B210			B211			B212			n _{2N}	n ₁	i _N		
T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	(r/min)	(r/min)			
			29.9	4.93	1105				54	4.93	2007*				350	1740	5		
					921							1663						290	1450
					730							1319						230	1150
					610							1101						192	960
			29.9	5.56	980				54	5.56	1780*				313	1740	5.6		
					817							1475						259	1450
					648							1170						205	1150
					541							976						171	960
23.8	6.25	694	29.9	6.25	872	38.0	6.44	1075	54	6.17	1604*	63	6.18	1868*	276	1740	6.3		
		578			726			896			1329			1548	230	1450			
		459			576			711			1054			1228	183	1150			
		383			481			593			880			1025	152	960			
23.8	7.05	610	29.9	7.05	766	38.0	6.96	973	54	6.96	1342	63	6.97	1560	245	1740	7.1		
		508			638			811			1118			1300	204	1450			
		403			506			643			887			1031	162	1150			
		336			422			537			740			861	135	960			
23.8	8.16	542	29.9	8.16	682	38.0	8.06	868	54	8.06	1234	63	8.07	1441	218	1740	8		
		452			568			723			1028			1201	181	1450			
		358			450			573			815			953	144	1150			
		299			376			479			681			795	120	960			
23.8	8.82	482	29.9	8.82	606	38.0	8.71	770	54	8.71	1096	67	8.73	1322	193	1740	9		
		402			505			642			913			1102	161	1450			
		319			401			509			724			874	128	1150			
		266			334			425			604			730	107	960			
23.8	10.0	433	29.9	10.0	544	38.0	9.88	691	54	9.88	984	67	9.89	1207	174	1740	10		
		361			453			576			820			1006	145	1450			
		286			359			457			650			798	115	1150			
		239			300			381			543			666	96.0	960			
23.8	11.0	386	29.9	11.0	486	38.0	10.9	618	54	10.9	878	67	10.9	1079	155	1740	11.2		
		322			405			515			732			899	129	1450			
		255			321			408			581			713	103	1150			
		213			268			341			485			595	85.7	960			
23.8	12.7	347	29.9	12.7	435	38.0	12.5	553	54	12.5	787	67	12.6	966	139	1740	12.5		
		289			363			461			656			805	116	1450			
		229			288			366			520			638	92.0	1150			
		191			240			305			434			533	76.8	960			
23.8	13.8	308	29.9	13.8	389	38.0	13.6	493	54	13.6	703	67	13.6	860	124	1740	14		
		257			324			411			586			717	104	1450			
		204			257			326			464			569	82.1	1150			
		170			215			272			388			475	68.6	960			

***** Note: Forced lubrication required on horizontal gearbox.
On request.

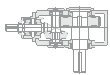
HB



7.5 B3(iN=16-90)

iN	n1 (r/min)	n2N (r/min)	B304			B305			B306			B307			
			T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	
16	1740	109.0	6.7	15.6	74	10.5	14.9	120	12.0	15.3	137	20.0	15.5	226	
	1450	90.6			62						100			114	188
	1150	71.9			49.2						79			90	149
	960	60.0			41.0						66			75	124
18	1740	96.7	6.7	17.6	67	11.6	16.8	114	12.6	17.3	126	21.7	17.5	212	
	1450	80.6			56			95			105			177	
	1150	63.9			44.4			75			83			140	
	960	53.3			37.1			63			70			117	
20	1740	87.0	6.7	18.7	60	11.6	17.9	106	13.2	18.4	120	21.7	20.2	197	
	1450	72.5			50			88			100			164	
	1150	57.5			39.7			70			79			130	
	960	48.0			33.1			58			66			109	
22.4	1740	77.7	6.7	22.0	54	11.6	21.1	94	14.2	21.6	115	21.7	21.9	176	
	1450	64.7			45.0			78			96			147	
	1150	51.3			35.7			62			76			117	
	960	42.9			29.8			52			64			97	
25	1740	69.6	6.7	24.9	49.2	11.6	23.9	84	15.5	24.5	113	21.7	24.8	157	
	1450	58.0			41.0			70			94			131	
	1150	46.0			32.5			56			75			104	
	960	38.4			27.1			46.3			62			87	
28	1740	62.1	6.7	27.7	43.2	11.6	26.5	76	15.5	27.2	101	21.7	28.3	142	
	1450	51.8			36.0			63			84			118	
	1150	41.1			28.6			50			67			94	
	960	34.3			23.8			41.7			56			78	
31.5	1740	55.2	6.7	31.2	38.4	11.6	29.9	67	15.5	30.7	89	21.7	31.9	126	
	1450	46.0			32.0			56			74			105	
	1150	36.5			25.4			44.4			59			83	
	960	30.5			21.2			37.1			49.0			70	
35.5	1740	49.0	6.7	33.2	33.6	11.6	31.8	59	15.5	32.7	79	21.7	37.0	110	
	1450	40.8			28.0			49.0			66			92	
	1150	32.4			22.2			38.9			52			73	
	960	27.0			18.5			32.4			43.7			61	
40	1740	43.5	6.7	39.1	30.0	11.6	37.5	53	15.5	38.4	71	21.7	40.0	100	
	1450	36.3			25.0			44.0			59			83	
	1150	28.8			19.8			34.9			46.8			66	
	960	24.0			16.6			29.1			39.1			55	
45	1740	38.7	6.7	44.3	26.4	11.6	42.5	46.8	15.5	43.6	61	21.7	45.3	86	
	1450	32.2			22.0			39.0			51			72	
	1150	25.6			17.4			30.9			40.4			57	
	960	21.3			14.6			25.8			33.8			47.7	
50	1740	34.8	6.7	48.7	24.0	11.6	46.7	42.0	15.5	47.9	55	21.7	49.8	79	
	1450	29.0			20.0			35.0			46.0			66	
	1150	23.0			15.9			27.8			36.5			52	
	960	19.2			13.2			23.2			30.5			43.7	
56	1740	31.1	6.7	56.2	21.6	11.6	53.9	37.2	15.5	55.3	50	21.7	57.5	71	
	1450	25.9			18.0			31.0			42.0			59	
	1150	20.5			14.3			24.6			33.3			46.8	
	960	17.1			11.9			20.5			27.8			39.1	
63	1740	27.6	6.7	60.9	19.2	11.6	58.4	32.4	15.5	59.9	44.4	21.7	62.3	61	
	1450	23.0			16.0			27.0			37.0			51	
	1150	18.3			12.7			21.4			29.3			40.4	
	960	15.2			10.6			17.9			24.5			33.8	
71	1740	24.5	6.7	68.7	16.8	11.6	65.8	28.8	15.5	67.5	39.6	20.0	70.2	50	
	1450	20.4			14.0			24.0			33.0			42.0	
	1150	16.2			11.1			19.0			26.2			33.3	
	960	13.5			9.3			15.9			21.8			27.8	
80	1740	21.8	6.7	78.8	14.9	11.6	75.5	25.2	15.5	77.5	34.8	20.0	80.5	44.7	
	1450	18.1			12			21.0			29.0			37	
	1150	14.4			9.9			16.7			23.0			29.6	
	960	12.0			8.2			13.9			19.2			24.7	
90	1740	19.3	6.7	85.8	13.3	11.6	82.3	22.8	15.5	84.4	31.2	20.0	87.8	39.8	
	1450	16.1			11.0			19.0			26.0			33	
	1150	12.8			8.8			15.1			20.6			26.3	
	960	10.7			7.3			12.6			17.2			21.9	

B308			B309			B310			B311			B312			n _{2N} (r/min)	n ₁ (r/min)	i _N
T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)			
21.5	15.3	245	31.0	15.6	354	35.6	15.4	406	60	15.4	683	67	15.5	756	109.0	1740	16
		204			295			338			569			630	90.6	1450	
		162			234			268			451			500	71.9	1150	
		135			195			224			377			417	60.0	960	
23.1	17.2	232	34.0	17.6	341	37.5	17.4	377	62	17.4	624	70	17.4	701	96.7	1740	18
		193			284			314			520			584	80.6	1450	
		153			225			249			412			463	63.9	1150	
		128			188			208			344			387	53.3	960	
25.0	19.9	227	35.7	20.4	325	39.3	20.1	358	64	20.1	577	73	20.2	661	87.0	1740	20
		189			271			298			481			551	72.5	1450	
		150			215			236			381			437	57.5	1150	
		125			179			197			318			365	48.0	960	
27.2	21.6	215	35.7	22.1	290	43.8	21.8	340	64	21.8	516	78	21.8	614	77.7	1740	22.4
		179			242			283			430			512	64.7	1450	
		142			192			224			341			406	51.3	1150	
		119			160			187			285			339	42.9	960	
27.2	24.4	197	35.7	25.0	260	43.8	24.7	319	64	24.7	462	78	24.7	563	69.6	1740	25
		164			217			266			385			469	58.0	1450	
		130			172			211			305			372	46.0	1150	
		109			144			176			255			311	38.4	960	
27.2	27.9	178	35.7	27.1	233	43.8	26.7	287	64	28.9	416	78	29.0	505	62.1	1740	28
		148			194			239			347			421	51.8	1450	
		117			154			190			275			334	41.1	1150	
		98			128			158			230			279	34.3	960	
27.2	31.5	157	35.7	30.5	208	43.8	30.1	256	64	32.6	370	78	32.6	450	55.2	1740	31.5
		131			173			213			308			375	46.0	1450	
		104			137			169			244			297	36.5	1150	
		87			115			141			204			248	30.5	960	
27.2	36.5	138	35.7	35.4	182	43.8	34.9	223	64	37.7	324	78	37.8	394	49.0	1740	35.5
		115			152			186			270			328	40.8	1450	
		91			121			148			214			260	32.4	1150	
		76			101			123			179			217	27.0	960	
27.2	39.4	125	35.7	38.2	164	43.8	37.8	202	64	40.8	293	78	40.9	356	43.5	1740	40
		104			137			168			244			297	36.3	1450	
		82			109			133			194			236	28.8	1150	
		69			91			111			162			197	24.0	960	
27.2	44.7	108	35.7	43.3	143	43.8	42.8	175	64	46.3	254	78	46.3	308	38.7	1740	45
		90			119			146			212			257	32.2	1450	
		71			94			116			168			204	25.6	1150	
		60			79			97			140			170	21.3	960	
27.2	49.2	98	35.7	47.7	130	43.8	47.1	158	64	50.9	230	78	51.0	281	34.8	1740	50
		82			108			132			192			234	29.0	1450	
		65			86			105			152			186	23.0	1150	
		54			72			87			127			155	19.2	960	
27.2	56.7	88	35.7	55.0	116	43.8	54.3	143	64	58.7	208	78	58.8	253	31.1	1740	56
		73			97			119			173			211	25.9	1450	
		58			77			94			137			167	20.5	1150	
		48.3			64			79			115			140	17.1	960	
27.2	61.5	79	35.7	59.6	103	43.8	58.8	127	64	63.6	185	78	63.7	226	27.6	1740	63
		66			86			106			154			188	23.0	1450	
		52			68			84			122			149	18.3	1150	
		43.7			57			70			102			124	15.2	960	
27.2	69.3	68	34.0	67.2	86	43.8	66.3	112	60	71.7	152	78	71.8	196	24.5	1740	71
		57			72			93			127			163	20.4	1450	
		45.2			57			74			101			129	16.2	1150	
		37.7			47.7			62			84			108	13.5	960	
27.2	79.5	60	34.0	77.0	77	43.8	76.1	100	60	82.2	135	78	82.3	175	21.8	1740	80
		50			64			83			113			146	18.1	1450	
		39.7			51			66			89			116	14.4	1150	
		33.1			42.3			55			75			97	12.0	960	
25.2	86.6	52	34.0	84.0	68	43.8	82.9	88	60	89.6	120	78	89.7	152	19.3	1740	90
		43.0			57			73			100			127	16.1	1450	
		34.1			45.0			58			79			101	12.8	1150	
		28.5			37.6			48.3			66			84	10.7	960	

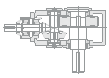


7.6 B4(iN=100-400)

iN	n1 (r/min)	n2N (r/min)	B405			B406			B407			B408		
			T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)
100	1740	17.4	11.6	96.3	20.9	15.5	98.9	27.8	22.0	98.4	39.6	27.5	97.1	49.2
	1450	14.5			17.4			23.2			33.0			41.0
	1150	11.5			13.8			18.4			26.2			32.5
	960	9.6			11.5			15.4			21.8			27.1
112	1740	15.5	11.6	109.2	18.6	15.5	112.0	24.4	22.0	111.5	34.8	27.5	110.0	44.4
	1450	12.9			15.5			20.3			29.0			37.0
	1150	10.3			12.3			16.1			23.0			29.3
	960	8.57			10.3			13.4			19.2			24.5
125	1740	13.9	11.6	119.4	16.2	15.5	122.6	22.1	22.0	123.9	31.2	27.5	122.2	39.6
	1450	11.6			13.5			18.4			26.0			33.0
	1150	9.20			10.7			14.6			20.6			26.2
	960	7.68			8.9			12.2			17.2			21.8
140	1740	12.4	11.6	134.6	14.5	15.5	138.1	19.7	22.0	139.6	27.6	27.5	137.8	34.8
	1450	10.4			12.1			16.4			23.0			29.0
	1150	8.21			9.6			13.0			18.2			23.0
	960	6.86			8.0			10.9			15.2			19.2
160	1740	10.9	11.6	143.3	12.7	15.5	147.1	17.4	22.0	148.6	24.0	27.5	146.7	30.0
	1450	9.06			10.6			14.5			20.0			25.0
	1150	7.19			8.4			11.5			15.9			19.8
	960	6.00			7.0			9.6			13.2			16.6
180	1740	9.67	11.6	168.6	11.6	15.5	173.0	15.1	22.0	174.9	21.6	27.5	172.6	27.6
	1450	8.06			9.7			12.6			18.0			23.0
	1150	6.39			7.7			10.0			14.3			18.2
	960	5.33			6.4			8.3			11.9			15.2
200	1740	8.70	11.6	191.1	10.6	15.5	196.1	13.9	22.0	198.2	19.2	27.5	195.6	24.0
	1450	7.25			8.8			11.6			16.0			20.0
	1150	5.75			7.0			9.2			12.7			15.9
	960	4.80			5.8			7.7			10.6			13.2
224	1740	7.77	11.6	210.2	9.4	15.5	215.7	12.4	22.0	218.0	18.0	27.5	215.1	21.6
	1450	6.47			7.8			10.3			15.0			18.0
	1150	5.13			6.2			8.2			11.9			14.3
	960	4.29			5.2			6.8			9.9			11.9
250	1740	6.96	11.6	242.5	8.4	15.5	248.9	11.3	22.0	251.6	15.6	27.5	248.2	19.2
	1450	5.80			7.0			9.4			13.0			16.0
	1150	4.60			5.6			7.5			10.3			12.7
	960	3.84			4.63			6.2			8.6			10.6
280	1740	6.21	11.6	262.7	7.6	15.5	269.6	10.1	22.0	272.5	14.4	27.5	268.9	18.0
	1450	5.18			6.3			8.4			12.0			15.0
	1150	4.11			5.0			6.7			9.5			11.9
	960	3.43			4.17			5.6			7.9			9.9
315	1740	5.52	11.2	296.2	6.5	15.5	303.9	8.9	20.5	307.2	12.0	27.5	303.2	15.6
	1450	4.60			5.4			7.4			10.0			13.0
	1150	3.65			4.28			5.9			7.9			10.3
	960	3.05			3.58			4.90			6.6			8.6
355	1740	4.90	11.2	339.7	5.6	15.5	348.6	7.9	20.5	352.3	10.6	26.5	347.7	13.2
	1450	4.08			4.70			6.6			9			11.0
	1150	3.24			3.73			5.2			7.0			8.7
	960	2.70			3.11			4.37			5.8			7.3
400	1740	4.35	11.2	370.2	5.0	14.5	379.9	6.6	20.5	384.0	9.4	26.5	379.0	12.0
	1450	3.63			4.20			5.5			8			10.0
	1150	2.88			3.33			4.36			6.2			7.9
	960	2.40			2.78			3.64			5.2			6.6

B409			B410			B411			B412			n _{2N} (r/min)	n ₁ (r/min)	i _N
T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)	T2N (kN·m)	i _{ex}	P1N (kW)			
36.0	104.8	65	44.5	103.5	80	62	99.8	112	78	99.9	142	17.4	1740	100
		54			67			93			118	14.5	1450	
		42.8			53			74			94	11.5	1150	
		35.8			44.4			62			78	9.6	960	
36.0	116.5	58	44.5	115.0	72	62	113.1	100	78	113.2	126	15.5	1740	112
		48.0			60			83			105	12.9	1450	
		38.1			47.6			66			83	10.3	1150	
		31.8			39.7			55			70	8.57	960	
36.0	131.3	52	44.5	129.6	64	62	129.2	89	78	129.4	114	13.9	1740	125
		43.0			53			74			95	11.6	1450	
		34.1			42.0			59			75	9.20	1150	
		28.5			35.1			49			63	7.68	960	
36.0	139.8	45.6	44.5	138.0	56	62	145.7	80	78	145.9	101	12.4	1740	140
		38.0			47.0			67			84	10.4	1450	
		30.1			37.3			53			67	8.21	1150	
		25.2			31.1			44.4			56	6.86	960	
36.0	164.4	40.8	44.5	162.4	50	62	168.7	70	78	168.9	88	10.9	1740	160
		34.0			42.0			58			73	9.06	1450	
		27.0			33.3			46.0			58	7.19	1150	
		22.5			27.8			38.4			48.3	6.00	960	
36.0	186.3	36.0	44.5	184.0	44.4	62	182.5	61	78	182.7	78	9.67	1740	180
		30.0			37.0			51			65	8.06	1450	
		23.8			29.3			40.4			52	6.39	1150	
		19.9			24.5			33.8			43.0	5.33	960	
36.0	205.0	32.4	44.5	202.4	39.6	62	206.8	55	78	207.1	71	8.70	1740	200
		27.0			33.0			46.0			59	7.25	1450	
		21.4			26.2			36.5			46.8	5.75	1150	
		17.9			21.8			30.5			39.1	4.80	960	
36.0	236.5	28.8	44.5	233.5	36.0	62	227.5	50	78	227.8	62	7.77	1740	224
		24.0			30.0			42.0			52	6.47	1450	
		19.0			23.8			33.3			41.2	5.13	1150	
		15.9			19.9			27.8			34.4	4.29	960	
36.0	256.2	25.2	44.5	253.0	31.2	62	262.5	44.4	78	262.8	56	6.96	1740	250
		21.0			26.0			37.0			47.0	5.80	1450	
		16.7			20.6			29.3			37.3	4.60	1150	
		13.9			17.2			24.5			31.1	3.84	960	
36.0	288.8	22.8	44.5	285.2	27.6	62	284.3	39.6	78	284.7	52	6.21	1740	280
		19.0			23.0			33.0			43.0	5.18	1450	
		15.1			18.2			26.2			34.1	4.11	1150	
		12.6			15.2			21.8			28.5	3.43	960	
34.0	331.3	19.2	44.5	327.1	25.2	62	320.5	34.8	78	321.0	45.6	5.52	1740	315
		16.0			21.0			29.0			38.0	4.60	1450	
		12.7			16.7			23.0			30.1	3.65	1150	
		10.6			13.9			19.2			25.2	3.05	960	
34.0	361.0	16.8	44.5	356.5	22.8	60	327.6	30.8	78	368.2	39.6	4.90	1740	355
		14.0			19.0			26			33.0	4.08	1450	
		11.1			15.1			20.4			26.2	3.24	1150	
		9.3			12.6			17.0			21.8	2.70	960	
						60	400.7	27.4	74	401.2	33.6	4.35	1740	400
								23			28.0	3.63	1450	
								18.1			22.2	2.88	1150	
								15.1			18.5	2.40	960	

HB



8 Rated thermal capacity (kW)

8.1 H2 (kW)

HB

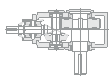
iN		H204				H205				H206				H207			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
6.3	PGA	46	42	41	35	57	46	41	*	74	50	43	*	77	57	*	*
	PGB	106	112	132	144	143	146	172	181	158	159	186	185	221	220	256	263
	PGC	96	101	117	126	152	157	181	191	165	170	194	193	244	249	286	298
	PGD	162	176	210	236	256	276	327	361	278	290	352	367	417	445	525	574
7.1	PGA	48	44	44	38	59	50	46	*	64	53	48	*	76	60	*	*
	PGB	109	116	137	150	146	151	177	189	161	164	193	194	214	215	252	262
	PGC	97	102	118	127	151	157	181	193	164	170	194	197	230	235	270	284
	PGD	165	180	214	240	256	276	327	363	278	299	352	371	394	422	499	548
8	PGA	46	43	44	39	58	51	48	*	63	54	50	*	76	62	55	*
	PGB	104	111	132	145	142	149	175	188	157	162	191	204	208	212	249	262
	PGC	92	97	112	122	146	151	175	187	158	163	189	201	218	225	258	274
	PGD	155	170	202	228	245	266	316	352	266	288	341	379	376	404	479	529
9	PGA	45	43	45	41	58	52	51	43	66	59	58	46	76	66	62	*
	PGB	101	109	129	143	139	147	174	189	159	167	198	214	202	210	248	266
	PGC	87	93	108	117	139	146	169	182	158	165	190	205	207	215	249	266
	PGD	150	164	196	221	234	255	303	340	266	289	344	384	357	386	458	510
10	PGA	43	42	44	41	*	52	52	46	66	61	60	52	75	68	66	54
	PGB	95.7	103	123	136	131	140	165	181	156	166	196	214	193	204	241	261
	PGC	82	86	101	110	128	135	157	169	151	158	184	198	194	204	236	254
	PGD	139	153	182	207	217	237	282	318	255	278	331	372	337	367	436	489
11.2	PGA	42	41	43	41	54	51	52	47	65	61	61	55	77	71	71	61
	PGB	91.7	100	118	132	126	135	160	177	151	161	191	210	196	208	246	269
	PGC	78	82	96	104	121	127	148	160	144	152	177	191	193	203	235	254
	PGD	132	145	174	197	205	225	268	303	245	268	319	359	336	366	436	490
12.5	PGA	41	40	42	41	54	51	53	49	61	59	60	55	77	72	73	65
	PGB	87.6	95.8	113	127	123	133	157	174	142	153	181	200	191	204	242	266
	PGC	75	80	93	101	119	126	146	159	132	140	163	177	189	199	231	250
	PGD	126	139	166	189	201	220	263	297	226	248	295	333	327	357	425	480
14	PGA	39	38	40	40	51	49	51	48	59	57	59	55	71	68	69	64
	PGB	82.9	90.9	108	120	116	126	150	166	135	147	174	193	175	189	224	247
	PGC	70	75	86	94	110	118	137	149	125	133	154	167	169	178	207	225
	PGD	118	130	155	177	186	204	243	276	213	234	279	316	294	322	384	434
16	PGA	36	35	37	37	48	47	49	47	59	57	59	56	67	65	67	63
	PGB	75.7	83.1	98.9	110	108	118	140	155	131	143	169	188	163	177	210	232
	PGC	63	67	78	86	101	108	126	137	123	131	153	166	155	165	191	208
	PGD	107	118	141	160	171	189	225	256	208	229	273	310	269	295	352	399
18	PGA	34	34	36	36	46	46	48	46	56	55	57	55	65	63	66	63
	PGB	72.1	79.3	94.4	105	103	113	134	150	124	136	162	180	157	170	202	225
	PGC	59	63	74	81	95	102	118	129	114	122	142	154	148	157	183	199
	PGD	100	111	132	151	162	179	213	242	194	214	255	290	257	283	338	383
20	PGA	33	34	36	36	43	43	45	44	52	52	54	53	61	59	62	60
	PGB	70.2	77.4	92.1	103	96.8	106	126	140	115	126	150	168	145	158	188	210
	PGC	57	61	72	78	89	94	110	120	105	112	130	142	135	144	167	182
	PGD	97.4	107	128	146	150	166	198	225	179	197	235	268	236	260	310	352
22.4	PGA					40	40	42	41	50	50	52	51	58	57	60	58
	PGB					89.4	98	116	130	111	121	144	161	139	152	181	202
	PGC					81	86	100	109	99	106	124	135	129	138	160	174
	PGD					137	151	181	205	169	187	223	253	224	247	295	335

*On request.

H208				H209				H210				H211				H212				iN	
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
86	61	*	*	99	*	*	*	100	*	*	*	114	*	*	*	121	*	*	*	PGA	6.3
250	245	283	275	293	279	322	319	304	286	328	324	450	382	428	366	510	412	456	414	PGB	
280	282	324	328	380	380	434	446	422	420	477	486	557	532	597	586	762	714	797	715	PGC	
474	504	594	637	626	658	774	832	689	718	844	896	951	966	1124	1154	1243	1243	1443	1365	PGD	
85	63	*	*	99	*	*	*	101	*	*	*	123	*	*	*	131	*	*	*	PGA	7.1
242	239	279	281	286	278	323	325	297	285	329	328	454	400	453	408	515	432	483	431	PGB	
263	267	307	318	358	361	413	429	397	398	454	470	542	525	592	590	741	705	790	738	PGC	
448	478	565	616	589	624	735	797	648	681	802	866	931	956	1117	1163	1217	1231	1434	1405	PGD	
84	66	*	*	100	75	*	*	102	*	*	*	129	*	*	*	137	*	*	*	PGA	8
235	236	276	287	279	276	322	330	290	283	328	332	449	410	469	441	509	443	501	444	PGB	
250	255	294	309	340	346	397	415	378	382	436	454	517	508	576	582	707	682	769	763	PGC	
428	458	542	595	562	599	707	772	618	654	772	837	895	929	1088	1149	1170	1197	1397	1449	PGD	
85	72	66	*	102	83	73	*	105	83	*	*	136	*	*	*	155	*	*	*	PGA	9
228	234	275	293	272	277	324	341	283	285	333	347	437	419	484	481	520	482	553	530	PGB	
235	244	282	299	322	332	382	404	354	362	417	438	479	481	549	566	689	682	774	788	PGC	
405	437	518	574	536	576	682	753	582	622	736	809	833	878	1033	1113	1149	1197	1405	1494	PGD	
85	75	72	55	101	87	82	*	106	88	81	*	139	103	*	*	164	*	*	*	PGA	10
222	232	273	294	262	272	320	342	278	285	335	355	424	420	489	501	516	498	577	577	PGB	
224	234	270	289	302	314	362	386	338	349	402	427	451	458	526	550	657	660	754	780	PGC	
386	419	498	555	505	546	648	720	556	599	710	787	786	836	987	1077	1106	1167	1375	1485	PGD	
84	76	75	62	99	88	85	67	105	92	88	*	147	117	101	*	166	122	*	*	PGA	11.2
214	226	267	290	249	262	309	333	270	281	331	355	430	435	509	533	495	491	572	587	PGB	
211	222	257	276	282	295	342	366	318	331	383	410	448	460	530	558	605	615	706	738	PGC	
367	400	475	533	473	514	610	682	528	572	679	756	784	841	995	1095	1020	1086	1283	1401	PGD	
81	75	75	65	99	89	88	74	104	93	90	74	151	127	115	*	165	131	*	*	PGA	12.5
205	218	258	282	244	258	305	332	259	273	322	348	425	436	512	543	475	480	562	587	PGB	
200	210	244	263	274	286	332	358	300	314	363	390	439	454	524	556	568	582	670	706	PGC	
346	378	450	506	455	496	589	661	498	542	644	720	766	825	978	1083	960	1029	1218	1340	PGD	
83	78	79	71	97	90	90	80	101	93	92	79	147	128	121	*	172	144	130	*	PGA	14
207	222	263	289	236	252	298	326	247	262	310	338	403	420	494	530	483	496	583	618	PGB	
198	210	243	263	258	271	314	339	279	294	340	366	407	423	489	522	564	583	673	714	PGC	
345	377	449	507	432	472	562	632	465	507	603	677	711	770	914	1018	958	1032	1223	1355	PGD	
82	79	81	74	92	87	88	80	99	93	94	83	141	126	122	99	175	152	144	*	PGA	16
201	216	257	283	221	237	281	309	240	256	303	333	377	397	469	507	476	496	583	625	PGB	
194	205	238	258	236	250	290	314	271	286	331	358	371	388	449	482	550	573	662	706	PGC	
336	368	438	496	397	435	518	584	449	491	584	658	650	706	839	939	932	1009	1197	1333	PGD	
76	74	76	72	88	84	86	80	97	93	94	87	133	122	122	104	170	153	149	121	PGA	18
184	200	237	263	208	225	266	295	231	249	296	326	352	375	443	483	450	474	560	606	PGB	
174	185	214	234	221	234	271	294	255	270	314	339	346	364	422	454	508	531	615	660	PGC	
301	331	395	447	371	407	486	550	425	465	555	627	609	664	790	887	864	938	1115	1249	PGD	
72	70	73	70	85	83	85	80	93	88	91	85	129	121	121	106	161	146	145	122	PGA	20
172	187	222	246	200	217	257	285	217	235	278	308	339	362	428	469	419	444	525	571	PGB	
159	170	198	214	211	224	261	283	234	249	290	314	326	344	399	431	462	485	562	604	PGC	
276	304	363	411	355	390	465	527	392	430	512	580	575	628	747	842	789	856	1019	1143	PGD	
69	67	70	67	78	76	79	74	87	84	86	80	121	113	113	100	149	136	135	115	PGA	22.4
165	179	213	237	185	201	239	265	203	220	261	289	314	336	397	436	390	414	489	533	PGB	
152	162	188	205	190	202	234	255	218	232	270	293	297	314	363	393	432	454	526	566	PGC	
263	290	346	392	320	352	420	476	366	401	478	541	524	573	682	768	736	802	954	1071	PGD	

HB

*On request.



8.2 H3 (kW)

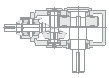
iN		H305				H306				H307				H308			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
16	PGA	58.3	57.2	59.4	58.4	68.5	65.6	68.7	67.5	70.8	68.3	70.7	68.1	75.6	71.8	73.8	69.9
	PGB	85.3	90.4	105	114	99.3	105	123	136	102	110	130	139	112	121	137	151
	PGC	103	117	130	144	122	135	156	166	142	147	170	185	149	158	186	197
	PGD	157	170	199	224	181	194	236	255	205	221	261	292	212	227	268	301
18	PGA	56.1	55.3	57.6	57	65.8	63.6	66.7	65.8	71.4	69.4	72	69.9	76.2	72.9	75.2	71.9
	PGB	82.1	87.4	102	111	95.5	101	118	131	104	112	132	141	113	122	138	152
	PGC	98	110	122	136	116	127	146	156	140	146	169	184	146	156	184	195
	PGD	149	161	190	213	171	185	223	243	204	221	261	292	211	227	268	301
20	PGA	53.9	53.4	55.9	55.6	63.3	61.6	64.7	64.3	72.1	70.4	73.4	71.8	76.7	74	76.7	74
	PGB	79.1	84.6	98.7	107	91.8	98	114	127	106	114	134	144	114	123	140	154
	PGC	93	102	116	128	110	120	138	148	138	146	168	183	145	154	181	194
	PGD	140	153	180	202	162	176	211	232	203	221	261	292	210	227	268	301
22.4	PGA	51.9	51.6	54.2	54.2	60.8	59.6	62.8	62.7	72.8	71.5	74.7	73.7	77.3	75.1	78.2	76.1
	PGB	76.2	81.8	95.5	104	88.3	94.6	111	122	108	116	136	147	115	124	142	156
	PGC	89	96	110	121	103	113	130	140	137	145	167	182	143	153	178	192
	PGD	132	145	171	192	153	167	200	221	202	221	261	292	209	227	268	301
25	PGA	49.9	49.8	52.5	52.9	58.5	57.8	61	61.2	73.5	72.6	76.1	75.6	77.9	76.3	79.7	78.3
	PGB	73.4	79.1	92.4	101	85	91.4	107	117	110	118	138	150	116	125	144	158
	PGC	84	90	104	114	98	106	122	132	135	144	166	182	142	151	176	190
	PGD	125	138	163	183	145	159	190	210	201	221	261	292	208	227	268	301
28	PGA	48	48.1	50.9	51.6	56.2	56	59.2	59.7	74.2	73.7	77.5	77.6	78.5	77.4	81.2	80.6
	PGB	70.7	76.5	89.4	97.9	81.7	88.3	103	113	112	120	140	153	117	126	146	160
	PGC	80	85	98	108	*	*	*	*	134	143	166	181	140	150	174	189
	PGD	118	131	155	174	*	*	*	*	200	221	261	292	207	227	268	301
31.5	PGA	46.7	47.1	49.9	50.9	54	54.2	57.4	58.3	71.4	71.3	75.3	76	79.1	78.6	82.8	82.9
	PGB	68.5	74.4	86.9	95.5	78.6	85.3	99.6	109	107	115	135	147	118	127	148	162
	PGC	76	82	94	104	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	114	126	149	168	*	*	*	*	*	*	*	*	*	*	*	*
35.5	PGA	45.2	45.7	48.6	49.8	51.9	52.5	55.7	56.9	69.4	69.7	73.9	75.1	79.7	79.8	84.4	85.3
	PGB	66.2	72.2	84.3	92.9	75.6	82.4	96.2	105	104	113	132	145	119	128	150	164
	PGC	73	79	90	99	82	88	102	112	121	130	150	165	137	146	169	186
	PGD	109	121	143	161	123	137	161	182	183	202	239	268	205	227	268	301
40	PGA	42.7	43.3	46.1	47.3	50.4	51.1	54.3	55.7	66	66.5	70.6	72	76.6	76.9	81.4	82.7
	PGB	62.3	68.1	79.5	87.7	73.3	80	93.4	102	98.9	107	125	138	113	123	144	158
	PGC	68	73	84	93	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	101	112	133	149	*	*	*	*	*	*	*	*	*	*	*	*
45	PGA	40.8	41.5	44.2	45.5	48.7	49.4	52.5	53.9	63.6	64.2	68.2	69.7	74.3	74.7	79.2	80.6
	PGB	59.6	65.2	76.1	84	70.7	77.3	90.2	99.5	95	103	120	132	110	120	140	154
	PGC	64	69	80	87	76	81	94	103	107	115	134	146	124	133	154	169
	PGD	96	106	126	141	113	125	148	166	162	180	212	239	186	206	243	273
50	PGA	39.6	40.4	43.2	44.7	46.1	47	50.1	51.9	60.1	61.2	65.2	67.3	70.9	71.9	76.6	78.7
	PGB	57.5	63.2	73.8	81.7	66.7	73.2	85.5	94.6	89.6	98.2	114	126	104	114	133	147
	PGC	62	67	77	85	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	92.8	103	122	137	*	*	*	*	*	*	*	*	*	*	*	*
56	PGA	37.6	38.5	41.2	42.9	44.3	45.3	48.5	50.4	57.5	58.7	62.7	65	68.4	69.7	74.4	77
	PGB	54.5	60.1	70.1	77.7	63.9	70.4	82.2	91.1	85.2	93.7	109	121	100	110	129	143
	PGC	58	63	72	80	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	86.7	96.9	114	129	99.7	111	131	148	143	160	188	212	166	185	218	246
63	PGA	35.5	36.4	39.1	40.8	42.7	43.9	47	49	53.7	55.1	59	61.5	64.7	66.4	71	73.9
	PGB	51.2	56.6	66.1	73.4	61.4	67.9	79.2	88	79.4	87.6	102	113	95.1	105	122	135
	PGC	54	58	67	74	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	80.6	90.2	106	120	*	*	*	*	*	*	*	*	*	*	*	*
71	PGA	35.1	36.1	38.7	40.4	40.5	41.6	44.6	46.6	52.1	53.5	57.3	59.8	61.6	63.2	67.7	70.5
	PGB	50.6	56	65.3	72.6	58.1	64.3	75	83.3	76.7	84.8	98.9	109	90.4	99.8	116	129
	PGC	53	58	66	73	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	79.7	89.2	105	118	*	*	*	*	*	*	*	*	*	*	*	*
80	PGA	33.3	34.3	36.8	38.4	38.2	39.2	42.1	44	50.9	52.3	56	58.5	57.6	59.1	63.3	66
	PGB	47.9	53	61.9	68.8	54.5	60.3	70.3	78.2	74.9	82.8	96.6	107	84.1	92.9	108	120
	PGC	49	54	62	68	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	74.2	83	97.9	110	*	*	*	*	*	*	*	*	*	*	*	*
90	PGA	32.9	33.9	36.3	38	37.8	38.9	41.8	43.6	48.1	49.5	53.1	55.4	55.7	57.2	61.4	64
	PGB	47.3	52.4	61.1	67.9	54.1	59.8	69.8	77.6	70.7	78.3	94.3	101	81.1	89.7	104	116
	PGC	48	52	60	66	*	*	*	*	*	*	*	*	*	*	*	*
	PGD	72.3	81	95.5	107	*	*	*	*	*	*	*	*	*	*	*	*
100	PGA																
	PGB																
	PGC																
	PGD																

*On request.

H309				H310				H311				H312				in	
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
960				960				960				960				PGA	16
101	94.6	96.1	89.7	101	94.9	90.8	84.7	158	144	142	115	197	175	165	132	PGB	
160	164	191	197	164	167	200	210	265	261	305	306	316	302	361	359	PGB	
226	234	269	290	271	286	329	354	438	448	518	553	516	525	604	635	PGC	
332	353	421	463	392	424	504	554	622	650	777	844	724	752	889	962	PGD	
100	95.1	97.1	91.7	101	95.5	92.6	87.2	154	142	141	117	191	172	164	135	PGA	18
158	163	190	198	161	166	198	209	256	254	297	301	305	295	351	353	PGB	
218	227	262	283	264	278	321	346	410	422	487	522	482	494	568	600	PGC	
322	344	410	452	382	414	491	541	587	617	736	802	682	713	843	916	PGD	20
100	95.6	98	93.6	101	96	94.4	89.8	151	140	140	120	186	169	163	138	PGA	
156	162	189	199	159	165	196	208	247	247	290	297	294	288	342	348	PGB	
211	222	255	277	256	271	312	338	383	397	458	492	451	464	534	567	PGC	
312	336	399	442	372	403	479	529	553	585	698	762	644	677	801	873	PGD	22.4
100	96.1	99	95.6	101	96.6	96.2	92.5	148	138	139	123	180	165	162	140	PGA	
154	161	188	200	157	164	194	207	238	241	282	293	284	282	333	342	PGB	
204	215	248	270	249	264	304	330	358	374	431	464	422	437	502	536	PGC	
302	327	388	431	362	393	467	517	522	555	661	725	607	642	760	831	PGD	25
99.3	96.6	100	97.7	100	97.2	98.1	95.3	145	136	138	126	174	162	161	143	PGA	
152	160	187	201	155	163	192	206	230	235	275	289	274	275	325	337	PGB	
198	210	242	263	242	258	297	322	335	351	406	438	394	410	473	506	PGC	
293	319	378	421	352	384	455	505	492	527	626	689	572	610	721	792	PGD	28
99	97.1	101	99.8	100	97.8	100	98.1	142	134	137	129	169	159	160	146	PGA	
150	159	186	202	153	162	190	205	222	229	268	285	264	269	316	332	PGB	
191	204	235	257	235	250	289	314	314	330	382	413	369	386	445	479	PGC	
284	311	368	411	342	374	443	493	464	500	593	655	540	579	685	755	PGD	31.5
96.9	95.8	100	100	100	98.4	102	101	138	132	137	131	164	156	159	149	PGA	
146	157	183	199	151	165	199	215	225	263	281	255	263	308	327	327	PGB	
184	196	226	247	*	*	*	*	299	317	366	397	345	363	418	453	PGC	
273	300	355	397	*	*	*	*	443	481	570	632	509	549	650	719	PGD	35.5
93.9	93.6	98.7	99.2	99.8	99	104	104	134	130	135	132	159	153	158	152	PGA	
142	153	178	195	149	160	186	203	208	220	257	277	246	257	300	322	PGB	
175	187	217	237	*	*	*	*	283	301	347	378	322	342	394	428	PGC	
262	289	342	383	*	*	*	*	422	460	544	606	480	521	617	685	PGD	40
88.9	88.9	93.9	94.9	96.5	96.2	101	101	129	126	132	130	155	150	156	151	PGA	
134	145	170	186	145	156	182	199	199	212	248	268	238	251	293	315	PGB	
163	175	202	222	*	*	*	*	266	284	328	358	307	326	376	409	PGC	
244	270	319	357	*	*	*	*	397	434	514	573	457	497	589	655	PGD	45
85.6	85.9	90.8	92	94	93.9	99.1	99.9	128	126	132	131	149	145	151	147	PGA	
128	139	162	178	141	152	177	194	199	212	247	268	229	242	283	305	PGB	
154	166	191	210	*	*	*	*	261	278	321	350	291	310	358	390	PGC	
232	256	303	340	*	*	*	*	389	427	505	563	434	474	561	624	PGD	50
84.2	85.2	90.6	92.9	89.4	90.3	95.9	98	127	127	134	135	145	144	151	152	PGA	
126	137	160	177	133	145	169	186	195	210	246	269	222	238	278	303	PGB	
151	162	188	206	*	*	*	*	255	274	316	346	275	294	340	372	PGC	
225	250	295	332	*	*	*	*	381	421	497	558	411	452	534	598	PGD	56
80.4	81.8	87.3	90.1	86.2	87.7	93.4	96.2	118	119	127	129	145	146	154	157	PGA	
120	131	153	169	128	140	164	181	181	197	230	253	221	240	280	307	PGB	
141	152	175	193	*	*	*	*	231	249	287	316	270	289	334	366	PGC	
212	236	278	314	*	*	*	*	345	383	452	508	403	446	527	592	PGD	63
76.2	78	83.5	86.8	84.6	86.5	92.5	96	113	115	122	126	143	145	154	159	PGA	
112	124	145	160	124	137	160	177	171	188	219	242	216	236	276	304	PGB	
130	141	163	180	*	*	*	*	214	231	267	294	264	285	329	362	PGC	
197	220	259	293	*	*	*	*	321	357	421	475	395	439	518	584	PGD	71
74.6	76.4	81.8	85.1	80.5	82.4	88.2	91.6	110	112	120	124	133	135	144	149	PGA	
110	122	142	158	119	131	153	170	166	182	213	235	200	219	256	283	PGB	
128	138	160	176	*	*	*	*	206	223	258	284	238	257	297	326	PGC	
191	214	252	285	*	*	*	*	309	345	407	458	357	398	469	529	PGD	80
70.6	72.4	77.6	80.8	76.1	78	83.5	86.8	104	106	113	118	125	128	136	141	PGA	
104	114	134	148	111	123	143	159	156	172	201	222	188	207	241	267	PGB	
118	128	148	163	*	*	*	*	190	206	238	262	222	238	276	304	PGC	
179	200	236	266	*	*	*	*	286	319	377	425	332	370	437	492	PGD	90
67.1	68.8	73.8	76.9	74.3	76.2	81.6	85	100	103	110	114	123	125	134	139	PGA	
98.8	109	127	141	108	119	140	155	151	166	194	215	183	201	235	260	PGB	
110	119	138	152	*	*	*	*	182	198	228	251	214	230	266	294	PGC	
166	186	219	247	*	*	*	*	275	307	362	409	321	358	422	476	PGD	100
63.8	66	70.1	73.8	70.7	72.7	78	81.6	94.3	98	105	109	116	119	128	133	PGA	
94.2	104	121	135	103	114	133	148	143	158	184	204	173	191	223	247	PGB	
102	111	128	142	*	*	*	*	169	182	211	233	198	214	246	272	PGC	
155	174	204	230	*	*	*	*	254	285	336	380	297	332	392	442	PGD	

HB

*On request.

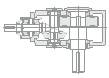


8.3 H4 (kW)

iN		H407				H408				H409			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
71	PGA	48.7	49.5	53.2	56.7	56.9	76.1	82.4	84.2	70.7	72.5	75	77.3
80	PGA	47.1	48.7	51.1	54.8	55.2	56.9	78.6	82.4	67.6	70.7	72.5	75
90	PGA	45.4	47.1	49.5	53.2	52.5	55.2	76.1	78.6	65.1	67.6	70.7	72.5
100	PGA	43.6	45.4	48.7	51.1	50.5	52.5	56.9	76.1	60.8	65.1	67.6	70.7
112	PGA	42	43.9	47.1	49.5	49	50.5	55.2	56.9	58.2	60.6	65.1	68.2
125	PGA	40.8	42.7	45.8	48.1	46.8	49	52.5	55.2	56.4	58.8	63.1	66.3
140	PGA	38.7	40.6	43.5	45.9	44.9	47.1	50.5	53.2	54.6	57.1	61.3	64.5
160	PGA	37.2	39.1	41.9	44.2	43.6	45.7	49.1	51.7	51.6	54.1	58	61.1
180	PGA	35.8	37.7	40.4	42.7	41.4	43.6	46.7	49.4	49.4	52	55.8	58.9
200	PGA	34.4	36.3	38.9	41.2	39.9	42	45.1	47.7	47.8	50.3	54	57.1
224	PGA	32.4	34.2	36.7	38.9	38.2	40.3	43.2	45.7	45.9	48.4	52	55
250	PGA	31	32.7	35.1	37.1	37	39	41.9	44.3	43.8	46.2	49.6	52.5
280	PGA	30.1	31.7	34	36	34.7	36.6	39.3	41.6	42.5	44.9	48.2	51
315	PGA	29.4	31.1	33.3	35.3	33.3	35.1	37.6	39.8	40.5	42.8	45.9	48.6
355	PGA									39.8	42	45.1	47.7
400	PGA									37.9	40	43	45.5

H410				H411				H412					iN
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
73.5	76.4	81.5	83.9	95.5	99.1	105.1	113.1	110	115	127	135	PGA	71
71.7	73.5	78.7	81.5	92.4	99.1	102	108.7	110	115	122	131	PGA	80
68.3	71.7	76.4	78.7	92.4	95.5	103	105.1	106	110	119	127	PGA	90
65.6	68.3	73.5	76.4	90.1	92.4	99.1	102	103	110	115	122	PGA	100
63.7	65.6	71.7	73.5	89.4	92.4	99.1	103	102	106	115	119	PGA	112
61.1	63.7	68.3	71.7	85.8	89	95.5	99.8	99.7	103	110	115	PGA	125
58.5	61.1	65.6	69	83	86.5	92.8	97.3	98.9	102	110	115	PGA	140
56.7	59.4	63.7	67.1	79	82.5	88.5	93	95.3	99.4	106	111	PGA	160
54.9	57.7	61.9	65.3	76.2	80	85.8	90.4	91.8	96.2	103	108	PGA	180
51.8	54.5	58.5	61.9	72	75.7	81.3	85.8	87.6	92.1	98.9	104	PGA	200
49.6	52.4	56.2	59.5	69	72.8	78.1	82.7	84.4	89	95.5	101	PGA	224
48.2	50.8	54.5	57.7	65.6	69.2	74.2	78.5	79.7	84	90.2	95.4	PGA	250
46.2	48.7	52.3	55.3	63.1	66.6	71.4	75.6	76.7	80.9	86.8	91.8	PGA	280
44.1	46.5	49.9	52.8	61.6	64.9	69.7	73.7	72.7	76.7	82.2	87	PGA	315
42.8	45.2	48.5	51.3	58.6	61.8	66.3	70.1	69.9	73.8	79.2	83.8	PGA	355
40.8	43.1	46.2	48.9	55.9	58.9	63.2	66.8	68.3	72	77.3	81.8	PGA	400

HB



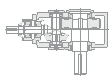
8.4 B2 (kW)

iN		B204				B205				B206				B207				B208			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
5	PGA	41	40	30	*	50	45	*	*					66	56	*	*				
	PGB	113	132	139	149	145	178	184	193					246	276	283	283				
	PGC	110	122	127	136	148	182	190	184					255	282	294	306				
	PGD	194	228	249	276	263	338	336	376					468	538	581	630				
5.6	PGA	41	40	33	*	49	48	37	*					67	60	*	*				
	PGB	109	128	135	147	137	177	169	185					232	265	274	282				
	PGC	106	118	123	131	137	178	159	185					234	261	272	285				
	PGD	187	221	241	268	243	330	313	359					432	501	543	593				
6.3	PGA	40	40	34	26	50	50	*	*	58	55	*	*	64	60	*	*	76	69	*	*
	PGB	105	125	132	144	145	145	178	193	170	197	215	232	216	249	261	279	261	298	314	332
	PGC	101	113	118	126	148	165	174	184	211	234	260	275	213	236	248	262	310	345	362	380
	PGD	179	212	231	258	263	308	339	376	359	419	484	536	393	458	500	553	548	636	695	765
7.1	PGA	38	39	35	29	49	48	37	*	59	57	43	*	63	61	*	*	76	71	*	*
	PGB	99	117	125	136	137	161	169	182	166	194	204	219	203	237	248	263	246	285	298	313
	PGC	93	103	108	116	137	152	159	170	206	229	238	254	195	218	227	241	286	318	331	350
	PGD	164	194	213	238	243	286	313	347	349	410	447	495	362	424	462	511	506	590	642	707
8	PGA	36	37	34	30	47	47	38	*	57	57	45	*	61	60	45	*	73	71	*	*
	PGB	92.9	110	117	129	128	151	160	173	157	185	195	211	192	225	236	253	229	267	280	298
	PGC	86	95	99	106	126	140	146	156	190	211	221	235	181	202	210	223	258	287	300	318
	PGD	152	181	198	222	225	265	290	323	324	382	417	464	336	395	430	477	459	539	586	649
9	PGA	35	36	33	30	45	45	39	31	55	55	46	*	60	59	47	*	70	69	52	*
	PGB	87.8	105	111	123	121	144	153	166	148	176	186	202	182	214	226	244	215	253	266	285
	PGC	79	88	92	98	115	129	134	144	174	194	202	217	170	189	197	210	238	265	277	294
	PGD	141	167	183	206	206	244	267	298	299	353	386	430	316	373	407	453	424	498	543	603
10	PGA	29	30	29	26	42	43	37	31	52	53	45	37	56	57	47	*	67	67	53	*
	PGB	72.8	87.1	92.8	102	111	132	140	154	138	164	174	190	169	199	211	229	202	238	251	271
	PGC	63	70	74	79	103	115	120	129	160	179	186	200	154	171	179	191	219	244	254	271
	PGD	112	134	147	164	185	219	240	268	276	326	356	398	288	340	372	414	392	462	505	561
11.2	PGA	28	30	28	26	38	39	34	29	50	50	44	37	51	51	43	34	65	65	53	49
	PGB	70.3	84.3	89.8	99	99.5	118	125	137	131	155	165	180	150	177	188	204	192	227	240	259
	PGC	60	67	70	75	90	101	105	113	146	163	170	183	134	150	156	167	206	229	238	255
	PGD	107	128	140	157	162	192	210	235	252	298	327	365	252	298	326	363	368	434	474	528
12.5	PGA	26	27	26	24	36	37	34	29	46	47	43	37	47	48	42	34	61	62	52	41
	PGB	63	75.4	80.2	88.1	94	112	118.5	130	119	142	151	166	136	162	172	188	179	212	224	244
	PGC	53	59	61	66	82	92	96	103	130	146	151	162	120	134	138	148	187	209	218	233
	PGD	93.7	112	123	138	148	176	192.9	216	225	267	292	327	225	267	291	325	337	398	435	485
14	PGA	24	26	25	24	34	35	32	29	42	43	39	34	43	43	38	31	55	56	49	40
	PGB	59.8	71.2	76	83.4	85.8	102	108	120	106	127	135	149	121	145	154	169	159	189	200	218
	PGC	48	54	56	60	74	82	85	91	114	127	133	142	105	117	122	130	164	182	190	204
	PGD	85.6	102.6	113	126	132	157	172	193	196	232	255	285	196	232	254	283	293	347	380	424

*On request.

B209				B210				B211				B212				iN
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	
74	*	*	*					*	*	*	*					PGA
297	325	328	313					487	500	478	392					PGB
318	353	367	376					542	595	619	612					PGC
578	657	705	753					984	1085	1144	1174					PGD
77	64	*	*					102	*	*	*					PGA
282	316	322	321					481	512	504	453					PGB
294	325	339	351					514	567	590	595					PGC
535	614	662	716					943	1058	1126	1182					PGD
76	67	*	*	84	71	*	*	104	*	*	*	121	*	*	*	PGA
265	301	315	330	300	337	354	367	441	480	479	514	556	591	581	606	PGB
266	296	309	323	368	408	426	445	453	500	521	565	781	861	896	954	PGC
489	566	617	676	643	740	809	884	834	944	1010	1161	1340	1500	1596	1795	PGD
76	70	*	*	84	76	*	*	112	92	*	*	134	*	*	*	PGA
250	288	299	311	284	325	336	346	436	485	493	485	546	598	601	572	PGB
245	272	283	298	338	374	390	410	436	483	503	520	745	823	858	878	PGC
451	525	570	625	594	689	747	817	808	925	996	1073	1278	1451	1556	1659	PGD
74	71	*	*	83	78	*	*	110	95	*	*	132	108	*	*	PGA
237	274	287	302	267	308	321	336	400	451	463	467	498	555	564	556	PGB
226	252	262	278	306	341	355	374	386	428	446	464	654	723	754	778	PGC
419	490	533	588	541	631	686	754	719	830	896	973	1129	1293	1392	1500	PGD
73	71	51	*	81	77	*	*	110	99	*	*	138	119	*	*	PGA
226	264	277	295	251	292	306	324	383	437	452	465	490	554	568	574	PGB
214	238	248	263	282	314	327	346	363	404	421	441	633	702	732	762	PGC
396	465	507	561	500	585	637	703	679	788	853	933	1094	1261	1363	1480	PGD
70	68	52	*	78	76	54	*	106	98	*	*	130	116	*	*	PGA
212	249	261	280	237	277	291	310	359	413	429	447	447	508	525	537	PGB
195	218	227	242	260	290	302	320	334	370	386	406	560	622	648	678	PGC
363	426	465	516	462	542	591	654	626	729	791	868	972	1126	1218	1329	PGD
63	63	49	55	76	74	55	*	97	90	*	*	128	116	*	*	PGA
187	220	232	250	226	265	279	299	318	367	382	401	426	488	506	522	PGB
170	189	197	210	246	273	285	303	289	321	334	353	527	586	611	641	PGC
316	372	406	451	438	514	561	622	543	633	688	757	918	1066	1156	1265	PGD
60	60	49	46	72	72	57	*	93	88	*	*	123	115	*	*	PGA
174	205	217	200	212	250	264	284	298	346	405	381	400	462	481	503	PGB
154	172	180	191	224	250	261	278	263	294	306	323	483	538	561	590	PGC
289	341	373	414	401	472	515	573	497	581	632	697	845	985	1070	1176	PGD
54	54	46	45	65	65	54	*	84	80	*	*	111	106	*	*	PGA
155	183	194	179	189	223	236	255	266	309	362	342	353	409	428	451	PGB
135	150	158	167	194	217	226	242	229	255	266	282	418	464	484	512	PGC
251	297	326	362	348	411	449	500	431	506	551	608	733	856	931	1027	PGD

*On request.

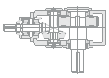


8.5 B3 (kW)

iN		B304				B305				B306				B307				B308			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
16	PGA	35.2	37	36.8	36.8	47.9	49.5	48.3	46.7	55.4	57	55.4	53.1	74	75.7	72.9	68.5	86.2	87.5	83.3	76.8
	PGB	61.3	70	78.6	86.9	87.5	99.5	110	121	100	113	126	138	137	156	172	187	158	178	196	212
	PGC	57	63	70	77	92	102	113	123	102	114	126	137	160	178	195	213	178	198	218	236
	PGD	92.2	105	121	136	149	171	195	218	165	190	216	241	257	294	334	372	285	326	369	410
18	PGA	34.3	36	35.9	35.9	46.5	48.1	47.2	45.9	53.7	55.5	54.1	52.2	71.7	73.6	71.1	67.4	83.2	84.8	81.1	75.5
	PGB	59.5	67.9	76.4	84.5	84.8	96.5	107	118	97.1	110	122	134	133	151	167	182	153	173	191	207
	PGC	55	61	68	74	89	98	109	119	98	109	120	131	154	171	188	205	174	193	212	230
	PGD	89.5	102	117	132	144	166	189	212	159	183	208	233	247	284	322	360	277	317	359	400
20	PGA	32.4	34	34	34.1	44.6	46.4	45.6	44.5	51.9	53.7	52.6	51	68.9	70.9	68.8	65.7	79.4	81.2	78	73.3
	PGB	56.1	64.1	72.1	79.9	81.3	92.6	103	113	93.5	106	118	129	127	145	161	175	145	165	182	198
	PGC	52	58	64	70	86	95	105	114	94	106	116	127	147	164	180	197	163	182	199	217
	PGD	84.3	96.9	111	125	138	159	181	203	154	176	201	225	236	270	307	344	261	300	340	379
22.4	PGA	31.6	33.3	33.3	33.6	44	45.8	45.1	44.3	50.4	52.3	51.4	50.1	66.8	68.9	67.2	64.6	77.4	79.4	76.7	72.7
	PGB	54.6	62.4	70.3	77.9	80	91.1	101	112	90.7	103	115	126	123	140	155	170	141	160	177	193
	PGC	50	56	62	69	84	94	104	114	92	102	114	124	142	158	174	190	158	176	194	210
	PGD	82.2	94.5	108	122	137	158	180	202	149	171	195	219	226	260	296	331	253	290	330	368
25	PGA	30.1	31.8	31.9	32.3	41.8	43.7	43.3	43	48.6	50.6	50.1	49.4	65	67.4	66.2	64.6	74.7	77.1	75.2	72.5
	PGB	51.7	59.1	66.7	74.1	75.5	86.2	96.6	106	86.9	99	110	122	119	135	151	165	134	153	170	186
	PGC	48	53	59	65	80	88	98	107	88	98	108	118	135	150	166	182	151	169	186	203
	PGD	77.4	89	102	115	128	147	168	189	142	163	186	209	217	249	284	319	243	279	317	355
28	PGA	29	30.7	30.9	31.4	40.6	42.6	42.5	42.6	48	50.3	50	49.9	62.1	64.8	64.1	63.4	72.7	75.5	74.4	72.9
	PGB	49.4	56.6	63.9	71.1	72.7	83	93.3	103	85.5	97.5	109	121	112	127	143	157	130	148	165	182
	PGC	45	50	56	61	75	83	93	102	87	97	107	118	125	139	154	169	146	163	180	197
	PGD	73.1	84.2	96.7	109	121	139	159	179	141	162	185	209	201	231	264	296	234	268	306	344
31.5	PGA	27.5	29.1	29.4	30.1	38.6	40.6	40.7	41	45.5	47.8	47.8	48	59.2	62	61.7	61.6	70.3	73.4	72.7	72
	PGB	46.8	53.7	60.7	67.6	68.7	78.5	88.5	98.1	80.6	92.1	103	114	106	121	136	150	125	143	160	177
	PGC	42	47	52	57	70	78	86	95	82	91	101	111	117	130	144	158	139	155	172	189
	PGD	68.6	78.9	90.8	102	113	130	149	169	133	153	175	197	188	216	247	278	222	255	292	328
35.5	PGA	25.9	27.5	27.8	28.5	36.4	38.4	38.6	39.1	44	46.3	46.4	46.9	56.4	59.2	59.1	59.4	67	70.2	69.8	69.7
	PGB	43.8	50.2	56.8	63.3	64.3	73.6	83	92.1	77.5	88.6	99.8	110	100	114	129	142	119	136	152	168
	PGC	39	43	48	53	64	71	79	87	77	86	95	105	108	121	134	147	130	144	160	175
	PGD	63.1	72.7	83.7	94.6	104	120	138	155	126	144	166	187	174	200	229	258	207	238	272	306
40	PGA	22.6	24	24.3	25	31.7	33.5	33.7	34.2	41.8	44.1	44.3	44.9	49.4	52	52	52.4	64.1	67.3	67.1	67.2
	PGB	38.1	43.7	49.4	55.1	55.5	63.5	71.6	79.6	73.3	83.8	94.6	105	87.1	99.6	112	124	112	128	144	160
	PGC	33	36	40	45	53	59	66	73	72	80	89	98	90	100	110	122	121	134	150	164
	PGD	53.2	61.3	70.6	79.8	87	100	115	129	117	135	155	175	144	166	191	215	193	222	254	286
45	PGA	22.1	23.5	23.8	24.5	30.9	32.7	32.9	33.5	39.3	41.5	41.8	42.5	48	50.6	50.8	51.3	60.9	64	64	64.4
	PGB	37.2	42.6	48.3	53.9	54	61.8	69.8	77.7	68.5	78.4	88.5	98.4	84.1	96.1	108	120	106	121	137	151
	PGC	32	35	39	43	51	57	64	70	66	74	82	90	86	96	106	118	111	124	138	152
	PGD	51.8	59.7	68.7	77.7	84	96.7	111	125	107	124	142	161	139	159	183	206	179	205	236	265
50	PGA	22.4	23.8	24.2	24.9	30.8	32.7	33	33.9	34.4	36.4	36.8	37.7	47.6	50.3	50.7	51.7	53.6	56.6	56.9	57.8
	PGB	37.4	42.9	48.7	54.4	53.3	61.1	69.2	77.1	59.4	68	76.9	85.7	82.5	94.5	106	118	92.5	105	119	132
	PGC	32	35	39	43	50	56	62	69	55	62	69	76	83	93	103	114	93	103	115	126
	PGD	51.6	59.4	68.5	77.5	81.9	94.3	108	122	90.3	103	119	135	134	154	177	200	149	172	197	223
56	PGA	20.7	22	22.4	23.1	28.5	30.2	30.7	31.6	33.6	35.7	36.2	37.2	44.3	47	47.5	48.7	52.1	55.2	55.7	57
	PGB	34.4	39.4	44.8	50	49.3	56.5	64	71.4	57.8	66.3	75.1	83.7	76.7	87.9	99.5	110	89.6	102	116	129
	PGC	28	32	35	39	45	50	56	62	53	59	66	73	76	84	94	103	89	98	110	122
	PGD	46.8	53.9	62.1	70.3	74.1	85.4	98.3	111	87.2	100	115	130	122	141	162	183	143	165	190	215
63	PGA	19.9	21.2	21.6	22.3	27.4	29.1	29.5	30.4	33.4	35.5	36	37.1	42.8	45.5	46.1	47.3	51.5	54.6	55.2	56.6
	PGB	33.1	38	43.2	48.3	47.3	54.3	61.6	68.7	57.1	65.5	74.2	82.9	74.1	84.9	96.2	107	88.1	100	114	127
	PGC	27	30	34	37	43	47	53	58	52	58	65	71	72	80	89	98	86	96	107	118
	PGD	44.3	51	58.9	66.7	70.1	80.8	93	105	85.1	98	112	127	116	134	154	174	140	161	185	210
71	PGA	18.4	19.6	20	20.7	26.1	27.7	28.2	29.1	30.8	32.8	33.3	34.3	40.8	43.3	43.9	45.2	47.8	50.8	51.4	52.7
	PGB	30.7	35.3	40	44.8	44.9	51.6	58.5	65.3	52.6	60.3	68.4	76.3	70.5	80.9	91.7	102	81.7	93.6	106	118
	PGC	24	27	30	34	39	44	49	54	47	52	58	64	66	74	82	90	79	87	98	107
	PGD	40.4	46.6	53.7	60.8	65.2	75.1	86.5	97.9	77.1	88.8	102	115	108	125	143	162	127	146	168	190
80	PGA	20.7	22	19.2	19.9	30.1	32.1	27	27.9	29.5	31.4	31.9	32.9	39.1	41.5	42.1	43.4	46.2	49.1	49.7	51.1
	PGB	34.6	39.7	38.5	43.2	51.9	59.6	56.4	63	50.6	58.1	65.9	73.6	67.8	77.9	88	98.4	79	90.5	102	114
	PGC	28	32	29	32	48	54	46	51	44	49	55	61	63	70	78	86	75	82	92	102
	PGD	46.7	53.8	50.9	57.6	79.1	91.6	82	92.8	72.8	83.9	96.7	109	102	118	136	154	121	139	160	182
90	PGA	19.9	21.2	18.3	19	28.3	30	25.8	26.7	28.2	30	30.5	31.5	37.4	39.6	40.3	41.6	44	46.8	47.4	48.8
	PGB	33	37.9	36.7	41.1	48.7	55.8	53.6	59.9	48.1	55.2	62.7	70	64.5	74.1	83.7	93.6	75.1	86.1	97.6	108
	PGC	27	30	27	29	44	49	43	47	41	46	51	56	58	65	72	79	69	77	86	94
	PGD	44.3	51	47.4	53.9	72.3	83.7	76.4	86.8	67.9	78.2	90.1	102	95.1	110	127	144	112	129	149	168

HB

B309				B210				B211				B212				i N	
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
99.4	100	94.3	85.1	110	110	103	90.8	133	129	114	89.8	155	147	125	*	PGA	16
193	218	239	258	214	240	262	281	300	334	358	375	347	384	407	419	PGB	
243	270	295	319	274	306	332	358	340	378	406	434	446	496	530	561	PGC	
388	444	500	555	434	496	558	618	569	648	719	787	724	823	907	986	PGD	18
96.5	97.7	92.5	84.4	102	102	96.3	86.1	132	129	115	93.1	156	149	129	*	PGA	
187	211	232	250	197	222	243	261	293	328	353	371	347	386	411	426	PGB	
234	261	286	309	252	281	306	331	333	370	399	427	446	497	532	565	PGC	20
375	429	485	539	399	457	514	570	558	635	707	776	726	825	913	995	PGD	
92.8	94.3	89.8	82.9	105	106	100	90.8	126	124	112	93.3	147	141	124	96	PGA	
179	202	223	241	203	228	251	270	280	314	339	358	323	360	385	401	PGB	22.4
224	250	274	297	258	287	314	340	317	353	381	409	413	459	493	526	PGC	
360	412	466	519	410	469	529	588	531	605	676	743	672	764	848	926	PGD	
90.7	92.5	88.6	82.7	97.5	98.9	93.9	86.2	122	120	110	93.7	148	144	128	102	PGA	25
175	198	218	237	186	210	231	250	266	298	324	343	324	361	388	407	PGB	
218	242	266	289	236	263	288	312	294	327	354	381	412	458	494	527	PGC	
348	399	452	504	375	429	485	539	495	565	632	697	671	764	850	932	PGD	28
87.3	89.7	86.9	82.8	94.3	96.4	92.8	87.2	117	117	109	97.2	144	142	130	110	PGA	
166	188	209	228	178	202	223	243	250	281	307	329	309	346	375	398	PGB	
202	226	248	270	227	253	278	302	270	300	326	352	391	436	472	507	PGC	31.5
324	371	422	471	359	411	466	520	454	519	584	647	640	730	817	901	PGD	
83.9	86.8	85	82.5	92.7	95.6	93.1	89.4	113	114	109	100	140	140	131	117	PGA	
157	179	199	218	174	197	220	240	238	269	296	320	295	332	363	390	PGB	35.5
188	209	230	252	219	244	269	294	250	279	306	331	365	406	443	478	PGC	
302	346	395	442	349	400	455	509	424	486	549	611	596	682	767	851	PGD	
80.6	83.9	82.7	81.3	89.1	92.4	90.7	88.4	108	111	106	100	133	135	129	118	PGA	40
149	170	190	209	165	188	210	230	225	254	282	306	276	312	344	371	PGB	
176	196	217	238	203	226	250	273	233	259	285	310	334	371	406	441	PGC	
282	324	370	415	324	372	424	476	395	453	514	573	548	627	709	788	PGD	45
76.9	80.3	79.6	78.9	85.3	88.8	87.7	86.3	105	108	105	100	128	131	125	118	PGA	
141	161	181	199	156	178	199	219	215	244	271	296	262	296	328	356	PGB	
161	179	198	218	190	211	234	256	221	246	270	295	311	346	380	413	PGC	50
260	298	341	384	302	347	396	445	373	428	487	544	509	584	661	738	PGD	
72.1	75.4	75	74.7	81.6	85.2	84.4	83.6	99.6	102	100	97	122	125	121	115	PGA	
131	150	168	186	149	170	191	211	201	229	255	279	246	279	310	337	PGB	56
146	162	179	197	178	198	219	240	202	226	248	271	288	321	352	384	PGC	
235	270	309	348	283	325	372	418	344	395	449	503	473	542	616	688	PGD	
66.4	69.6	69.4	69.5	77.7	81.3	80.8	80.4	91.6	95	93.2	90.8	117	121	118	113	PGA	63
120	137	154	170	140	160	180	199	184	210	234	257	236	268	298	326	PGB	
131	146	162	178	162	181	201	220	182	202	224	245	272	302	334	363	PGC	
211	243	279	314	260	299	342	384	311	357	407	457	449	515	585	655	PGD	71
65.5	69.1	69.3	70.2	73.1	77	77	77.7	92.4	96.6	95.8	95.2	112	116	115	113	PGA	
117	133	151	167	131	150	169	188	181	207	232	256	221	251	281	310	PGB	
125	139	155	170	147	164	182	200	178	198	219	240	250	278	307	337	PGC	80
203	234	269	303	236	272	312	352	301	346	396	445	411	472	539	606	PGD	
60.7	64.3	64.8	66.1	67.7	71.5	72	73.2	84.5	88.9	88.9	89.4	103	108	108	108	PGA	
108	124	140	156	120	137	155	173	164	188	211	234	203	232	260	288	PGB	89
112	125	139	154	133	148	165	182	158	175	194	214	223	249	276	303	PGC	
182	210	241	272	213	245	281	318	268	308	354	398	370	426	488	549	PGD	
58.7	62.2	62.8	64.2	66.5	70.4	71	72.5	81.7	86.1	86.3	87.3	103	108	108	108	PGA	90
104	119	135	150	117	134	151	168	158	180	203	226	198	227	255	283	PGB	
106	118	131	145	127	142	158	174	148	165	183	202	217	242	268	294	PGC	
173	199	229	259	203	234	269	304	253	291	334	377	358	411	471	531	PGD	90
55	58.3	59	60.4	61.7	65.3	65.9	67.4	75.7	79.9	80.2	81.3	94.8	99.8	99.9	100	PGA	
97.8	112	126	141	108	124	140	156	146	167	189	210	180	206	232	257	PGB	
95	106	118	130	114	127	142	156	133	148	165	181	192	214	238	262	PGC	
157	181	209	236	183	211	243	275	228	262	301	340	319	367	411	474	PGD	
53.2	56.3	57	58.6	59.6	63.1	63.8	65.3	73.1	77.2	77.6	78.8	90.7	95.5	95.8	96.9	PGA	90
94.6	108	121	136	105	120	136	151	142	162	184	203	173	198	224	248	PGB	
90	101	112	123	107	119	134	147	125	138	155	170	179	200	222	244	PGC	
150	172	199	226	174	200	231	261	217	248	286	323	300	345	396	447	PGD	
50.6	53.7	54.4	56	55.9	59.3	60	61.5	68.6	72.6	73	74.2	84.5	89.2	89.6	90.9	PGA	
89.9	103	116	129	98.4	112	127	142	133	151	171	191	161	184	208	231	PGB	
83	94	104	114	97	108	121	133	112	126	141	154	161	179	199	219	PGC	
138	160	185	209	159	183	210	238	198	227	260	295	271	311	357	403	PGD	



8.6 B4 (kW)

iN		B405				B406				B407				B408			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
100	PGA	26.6	28.5	29.6	30.9	30.6	32.7	34	35.4	38.8	41.4	43.1	44.8	45.3	48.2	50.2	52
112	PGA	25.6	27.5	28.6	29.8	29.9	32	33.3	34.7	37.4	39.9	41.5	43.2	44	46.9	48.8	50.6
125	PGA	24.5	26.3	27.4	28.5	28.6	30.6	31.8	33.2	35.7	38.2	39.7	41.4	41.6	44.4	46.2	48
140	PGA	23.4	25.1	26.1	27.3	27.5	29.5	30.7	32	33.9	36.3	37.8	39.4	40.1	42.9	44.6	46.5
160	PGA	21.5	23.1	24.1	25.2	26.3	28.2	29.4	30.7	30.9	33.2	34.5	36.1	38.2	41	42.7	44.5
180	PGA	21.1	22.7	23.6	24.7	25.1	27	28.1	29.4	30.1	32.4	33.7	35.2	36.4	39	40.7	42.5
200	PGA	20.4	21.9	22.8	23.9	23.1	24.9	25.9	27.1	29.9	32.1	33.5	35	33.2	35.7	37.2	38.9
224	PGA	19	20.4	21.3	22.3	22.7	24.4	25.4	26.7	27.8	30	31.2	32.7	32.4	34.9	36.4	38.1
250	PGA	18.5	20	20.8	21.8	21.8	23.5	24.5	25.7	26.9	29	30.2	31.7	32.1	34.6	36	37.8
280	PGA	17.6	19	19.8	20.9	20.4	22	22.9	24.1	25.2	27.2	28.4	29.8	30	32.3	33.7	35.4
315	PGA	16.5	17.8	18.6	19.5	19.8	21.4	22.3	23.5	23.6	25.5	26.6	27.9	28.8	31.1	32.4	34.1
355	PGA	16.0	17.3	18.1	19.0	19	20.5	21.3	22.4	22.7	24.4	25.4	26.6	27.1	29.2	30.4	32
400	PGA	15.4	16.6	17.3	18.1	17.7	19.1	19.9	21	21.2	22.7	23.7	24.9	25.4	27.4	28.6	30

iN		B409				B410				B411				B412			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
100	PGA	55.6	59.1	61.5	63.6	60.4	64.1	66.7	68.8	84.4	88.9	92.4	94.7	101	106	110	112
112	PGA	53.5	56.9	59.2	61.4	59	62.7	65.3	67.5	80.4	84.9	88.3	90.7	97.6	102	106	109
125	PGA	51	54.4	56.6	58.8	56	59.7	62.1	64.3	77	81.5	84.8	87.3	93.2	98.4	102	105
140	PGA	48.1	51.4	53.5	55.6	53.9	57.5	59.9	62.2	72.8	77.3	80.4	83.1	88.8	94.1	97.8	100
160	PGA	44	47	49	51	51.3	54.9	57.2	59.5	66.4	70.7	73.6	76.2	85.1	90.4	94.1	97.2
180	PGA	42.9	46	47.9	50	48.7	52.2	54.3	56.6	64.6	69	71.8	74.6	80.6	85.9	89.3	92.6
200	PGA	42	45.1	47	49.1	44.6	47.8	49.8	52	63.2	67.7	70.5	73.4	73.6	78.7	81.9	85.2
224	PGA	39.3	42.3	44	46.1	43.4	46.7	48.6	50.9	59.4	63.8	66.5	69.5	71.8	77	80.2	83.7
250	PGA	37.9	40.8	42.5	44.6	42.5	45.8	47.8	50.1	57.5	61.9	64.5	67.6	70.1	75.4	78.6	82.3
280	PGA	36.1	39	40.6	42.7	39.8	43	44.8	47.1	55	59.3	61.8	65	65.8	71	74	77.7
315	PGA	33.9	36.6	38.2	40.1	38.4	41.5	43.2	45.4	51.3	55.4	57.8	60.7	63.7	68.7	71.6	75.2
355	PGA	31.9	34.4	35.8	37.6	36.6	39.6	41.2	43.3	48.9	52.9	55.1	57.9	60.8	65.6	68.4	71.8
400	PGA									46.6	52.9	52.5	55.2	56.7	61.2	63.8	67

9 Permissible additional radial force on output shaft

9.1 Permissible additional radial force on output shaft d:

Permissible additional radial force FR2 (kN), applied at midpoint of extension of output shaft.											
	Type	Arrangement	04	05	06	07	08	09	10	11	12
	H2..HS	A+B+G+H		10	22	22	30	30	30	45	64
C+D			10	13	13	18	18	20	28	35	35
H3..HS	A+B+G+H			29	29	40	40	40	60	85	85
	C+D			18	18	26	26	30	40	50	50
H4..HS	C+D					40	40	40	60	85	85
	A+B+G+H			18	18	26	26	30	40	50	50
B2..HS	A+C		13	27	27	37	37	38	55	78	78
	B+D		12	15	15	17	17	20	30	35	38
B3..HS	A+C		14	29	29	40	40	40	60	85	85
	B+D			18	18	26	26	30	40	50	50
B4..HS	A+C			29	29	40	40	40	60	85	85
	B+D			18	18	26	26	30	40	50	50

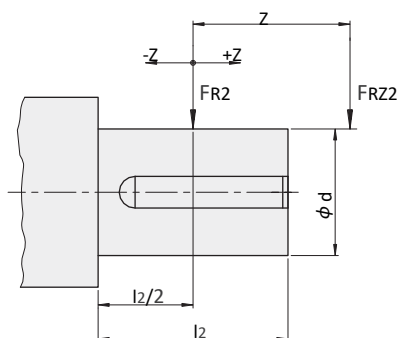
- Note:
1. If the angle of applied force and the direction of rotation are given, higher additional force can mostly allowed. Please consult us.
 2. When the force is not applied at mid point of shaft, please refer to 9.2.
 3. Lowest performance level of foundation bolt is 8.8. The foundation should be dry and grease free. If customers have requirements, radial force is allowed to be applied at input shaft d1. Please consult us.

9.2 Additional radial force allowed on output shaft d:

Applied force factor k													
Size	Distance z (mm)												
	-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
04			1.17	1.08	1	0.86	0.76	0.68		0.52	0.44		
05/06		1.22	1.14	1.06	1	0.88	0.79	0.72	0.66	0.62	0.52	0.44	
07/08		1.19	1.12	1.06	1	0.89	0.81	0.74	0.68	0.58	0.51	0.46	0.41
09/10	1.22	1.15	1.1	1.05	1	0.9	0.82	0.76	0.7	0.61	0.54	0.48	0.44
11/12	1.18	1.13	1.08	1.04	1	0.91	0.84	0.78	0.73	0.64	0.57	0.51	0.47

Force is not applied at midpoint of shaft extension of output shaft

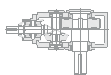
$$FRZ2 = FR2 \times k$$



FRZ2 Permissible external radial force

FR2 Permissible additional radial force Determine d according to table 9.1

k Applied force factor should be determined according to the following table



10 Shaft assemblies

10.1 H series shaft assemblies

10.1.1 H Shaft assemblies

HB

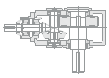
Parallel key solid shaft H...HS H...VS											
Parallel key hollow shaft H...HH H...VH											
Hollow shaft with involute spline H...HD H...VD											
H...HK H...VK											
Size Type iN	04	05	06	07	08	09	10	11	12		
H2	6.3-14										
H3	/	16-63									
H4	/	/	/	71-200			71-280				

Note: *Shaft assemblies G/H/I is available when nominal ratio is within the range of value showed in right table.

10.1.2 Direction of rotation

H2..H					
H2..V					
H3..H					
H3..V					
H4..H					
H4..V					

Note: Direction of rotation is reversible, "□" is shaft end oil pump.



10.2 B series shaft assemblies

10.2.1 B Shaft assemblies

HB

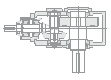
<p>Parallel key solid shaft B...HS B...VS</p>	
<p>Parallel key hollow shaft B...HH B...VH</p>	
<p>Hollow shaft with shrink disc B...HD B...VD</p>	
<p>Hollow shaft with involute spline B...HK B...VK</p>	

10.2.1 Direction of rotation

B2..H	
B2..V	
B3..H	
B3..V	
B4..H	
B4..V	

Note:1.Direction of rotation is reversible, "☐" is shaft end oil pump.

2.Two stage reduction B series gear unit is not equipped with backstop and shaft end oil pump when solid and hollow output shaft assemblies is B/D/E/F, please consult us if shaft end oil pump and backstop are needed.



10.3 Backstop assemblies and direction of shaft rotation direction:

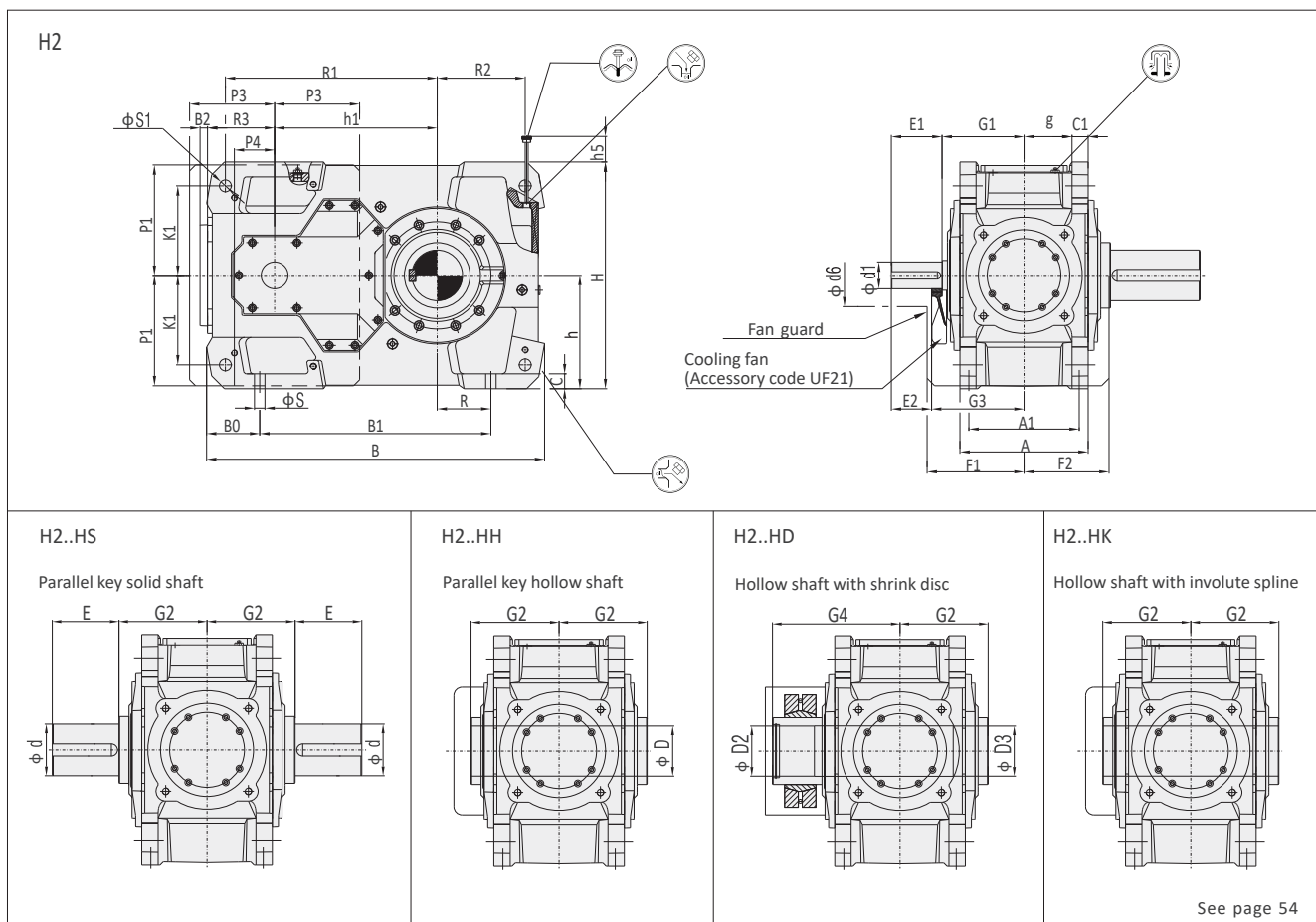
HB

H3...S H3...H H3...D H3...K	A 	B 	C 	D 	E 	F
H4...S H4...H H4...D H4...K	A 	B 	C 	D 	E 	F
B2...S B2...H B2...D B2...K	A 	/	C 	/	/	/
B3...S B3...H B3...D B3...K	A 	B 	C 	D 	E 	F
B4...S B4...H B4...D B4...K	A 	B 	C 	D 	E 	F

Note:1.Gearbox with backstop only makes unidirectional rotation. Output shaft rotation direction has to be indicated when being ordered.
 2.H2 series doesn't have backstop.
 3.Shaft end oil pump can not be installed with backstop for all HB series, please consult us if both shaft end oil pump and backstop needed to be installed.

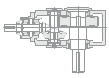
11 Outline dimension

11.1 H204H-H212H



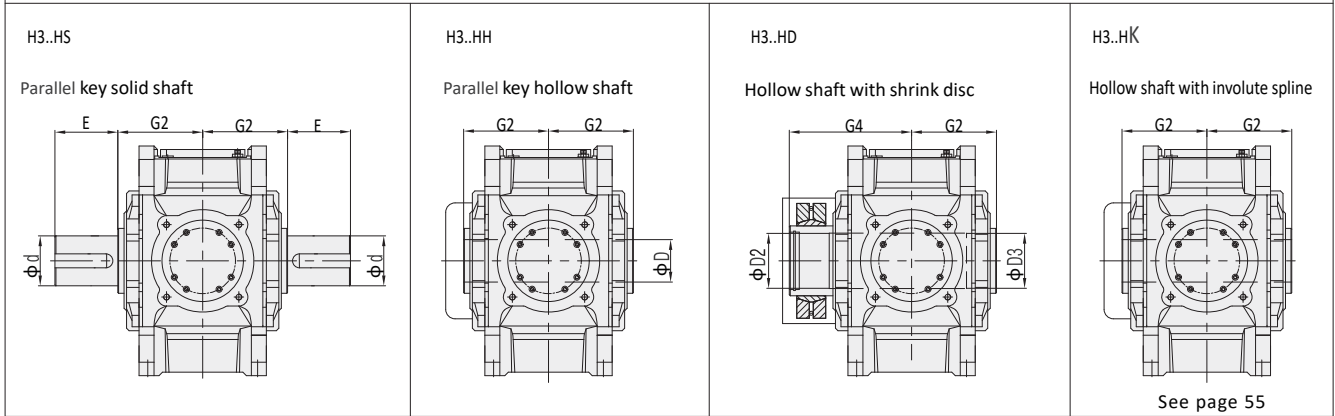
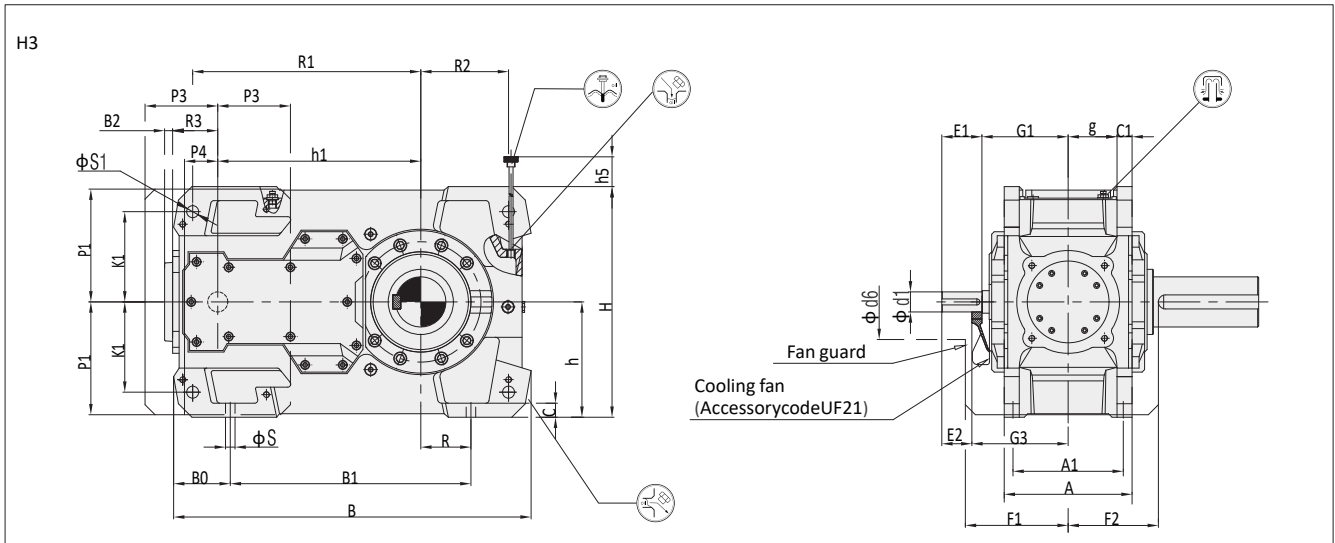
Size	iN≤11.2			iN≥12.5			A	A1	B	B0	B1	B2	C	C1	d	d6	D	D2	D3	E
	d1	E1	E2	d1	E1	E2														
04	45k6	110	90	32k6	80	60	215	180	586	112	355	16	28	30±1	80m6	140	80H7	85H7	85H7	170
05	50k6	110	90	38k6	80	60	255	220	667	113	430	16	28	30±1	100m6	150	95H7	100H7	100H7	210
06	50k6	110	90	38k6	80	60	255	220	743	113	510	16	28	30±1	110m6	150	105H7	110H7	110H7	210
07	60m6	140	110	50k6	110	80	300	260	816	131	545	20	35	36±1	120m6	200	115H7	120H7	120H7	210
08	60m6	140	110	50k6	110	80	300	260	920	131	650	20	35	36±1	130m6	200	125H7	130H7	130H7	250
09	75m6	140	110	60m6	140	110	370	320	957	156	635	20	40	45±1.5	140m6	210	135H7	140H7	140H7	250
10	75m6	140	110	60m6	140	110	370	320	1062	156	735	20	40	45±1.5	160m6	210	150H7	150H7	150H7	300
11	90m6	170	135	70m6	140	105	430	370	1132	178	775	25	50	54±1.5	170m6	220	165H7	165H7	165H7	300
12	90m6	170	135	70m6	140	105	430	370	1292	178	930	25	50	54±1.5	180m6	220	180H7	180H7	180H7	300

Size	F1	F2	G1	G2	G3	G4	g	H	h	h1	h5	K1	P1	P3	P4	R	R1	R2	R3	S	S1	weight (kg)
04	205	160	170	140	190	205	77.5	405	200	270	15	150	195	155	40	85	345	160	110	19	24H9	195
05	230	180	195	165	215	240	97.5	460	230	315	15	180	225	165	55	100	405	175	130	19	24H9	310
06	230	180	195	165	215	240	97.5	490	230	350	0	180	225	165	55	145	440	220	130	19	24H9	385
07	255	210	210	195	240	280	114	560	280	385	0	215	270	220	70	130	500	215	160	24	28H9	519
08	255	210	210	195	240	285	114	580	280	430	0	215	270	220	70	190	545	275	160	24	28H9	624
09	285	245	240	235	270	330	140	640	320	450	10	245	310	240	95	155	585	260	185	28	36H9	828
10	285	245	240	235	270	350	140	670	320	500	0	245	310	240	95	205	635	310	185	28	36H9	1044
11	325	285	275	270	310	400	161	760	380	545	30	300	370	285	125	180	710	295	225	35	40H9	1371
12	325	285	275	270	310	405	161	790	380	615	5	300	370	285	125	265	780	380	225	35	40H9	1644



11.2 H305H-H312H

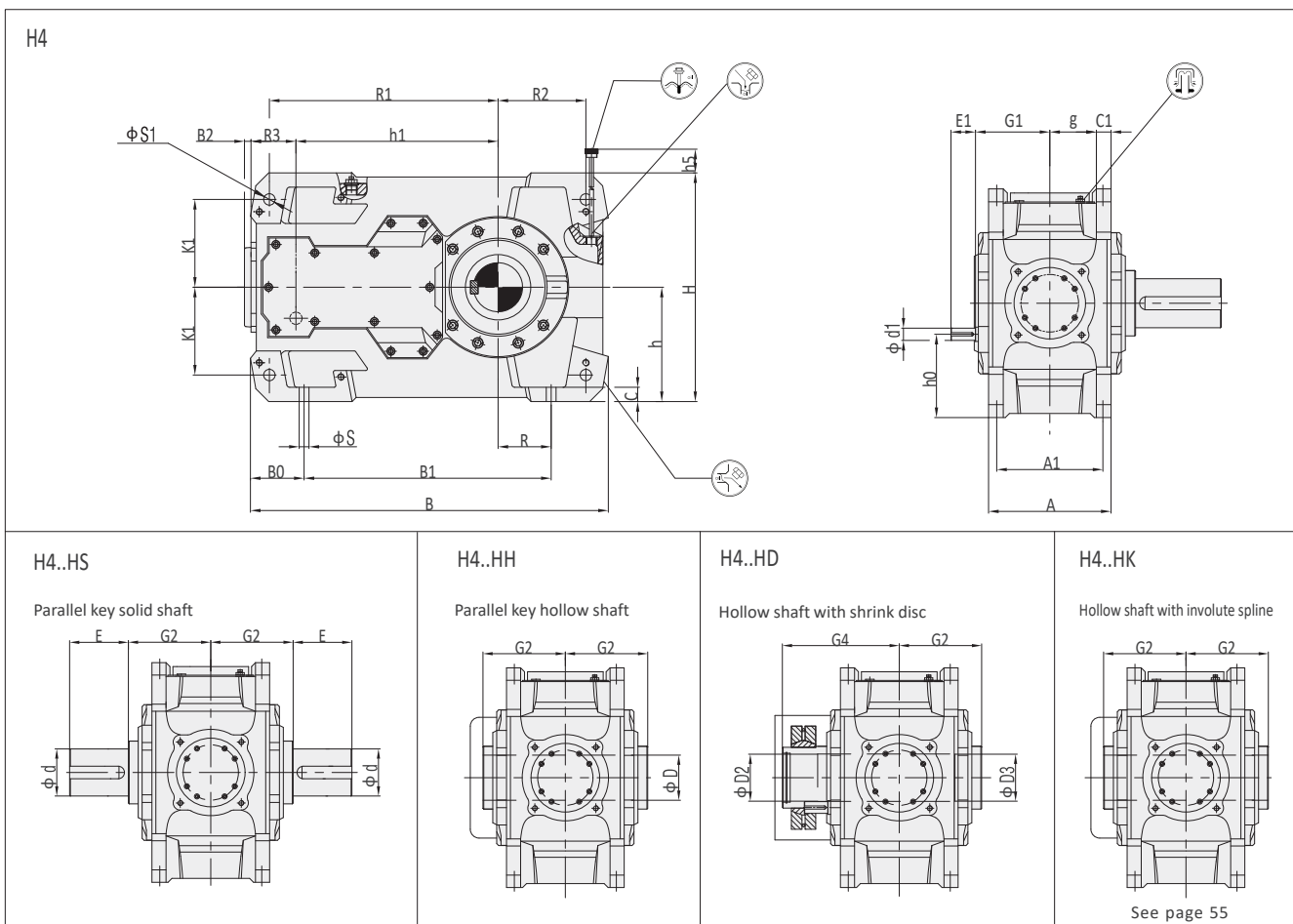
HB



Size	iN≤45			iN≤50			iN≥50			iN≥56			A	A1	B	B0	B1	B2	C	C1	d	d6	D	D2	D3
	d1	F1	F2	d1	F1	F2	d1	F1	F2	d1	F1	F2													
05	40k6	80	60				30k6	60	40				255	220	713	113	480	16	28	30±1	100m6	150	95H7	100H7	100H7
06	40k6	80	60				30k6	60	40				255	220	793	113	560	16	28	30±1	110m6	150	105H7	110H7	110H7
07				45k6	110	80				35k6	80	50	300	260	876	131	605	16	35	36±1	120m6	200	115H7	120H7	120H7
08				45k6	110	80				35k6	80	50	300	260	981	131	710	16	35	36±1	130m6	200	125H7	130H7	130H7
09				60m6	140	110				45k6	110	80	370	320	1033	156	710	20	40	45±1.5	140m6	210	135H7	140H7	140H7
10				60m6	140	110				45k6	110	80	370	320	1131	156	810	20	40	45±1.5	160m6	210	150H7	150H7	150H7
11				70m6	140	105				50k6	110	75	430	370	1227	178	870	20	50	54±1.5	170m6	220	165H7	165H7	165H7
12				70m6	140	105				50k6	110	75	430	370	1382	178	1025	20	50	54±1.5	180m6	220	180H7	180H7	180H7

Size	E	F1	F2	G1	G2	G3	G4	g	H	h	h1	h5	K1	P1	P3	P4	R	R1	R2	R3	S	S1	weight (kg)
05	210	205	180	170	165	190	240	97.5	460	230	405	40	180	225	145	55	100	455	175	90	19	24H9	324
06	210	205	180	170	165	190	240	97.5	490	230	440	10	180	225	145	55	145	490	220	90	19	24H9	403
07	210	255	210	210	195	240	280	114	560	280	495	0	215	270	220	70	130	560	215	110	24	28H9	558
08	250	255	210	210	195	240	285	114	580	280	540	0	215	270	220	70	190	605	275	110	24	28H9	663
09	250	285	245	240	235	270	330	140	640	320	580	15	245	310	240	95	155	660	260	130	28	36H9	899
10	300	285	245	240	235	270	350	140	670	320	630	0	245	310	240	95	205	710	310	130	28	36H9	1113
11	300	325	285	275	270	310	400	161	760	380	705	30	300	370	285	125	180	805	295	160	35	40H9	1481
12	300	325	285	275	270	310	405	161	790	380	775	5	300	370	285	125	265	875	380	160	35	40H9	1742

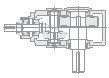
11.3 H407H-H412H



HB

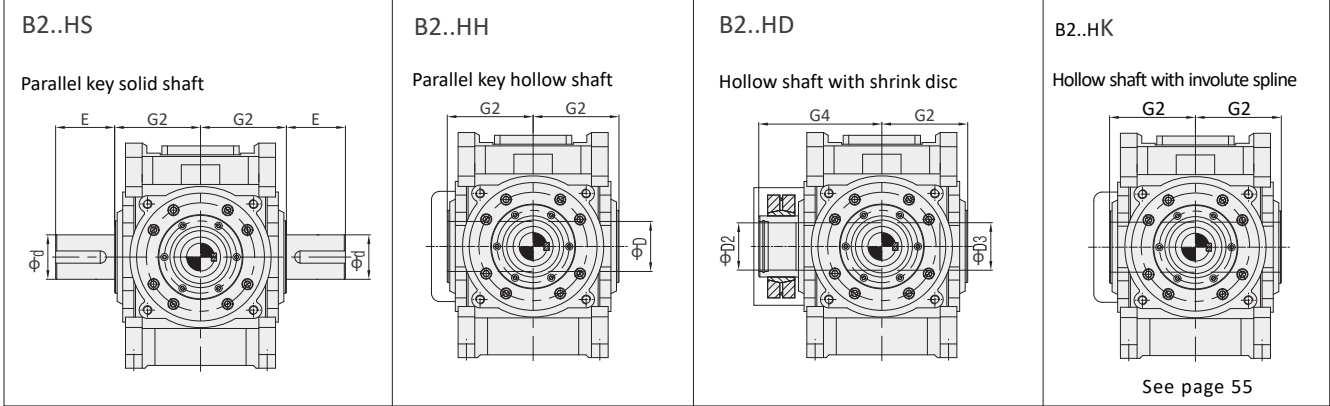
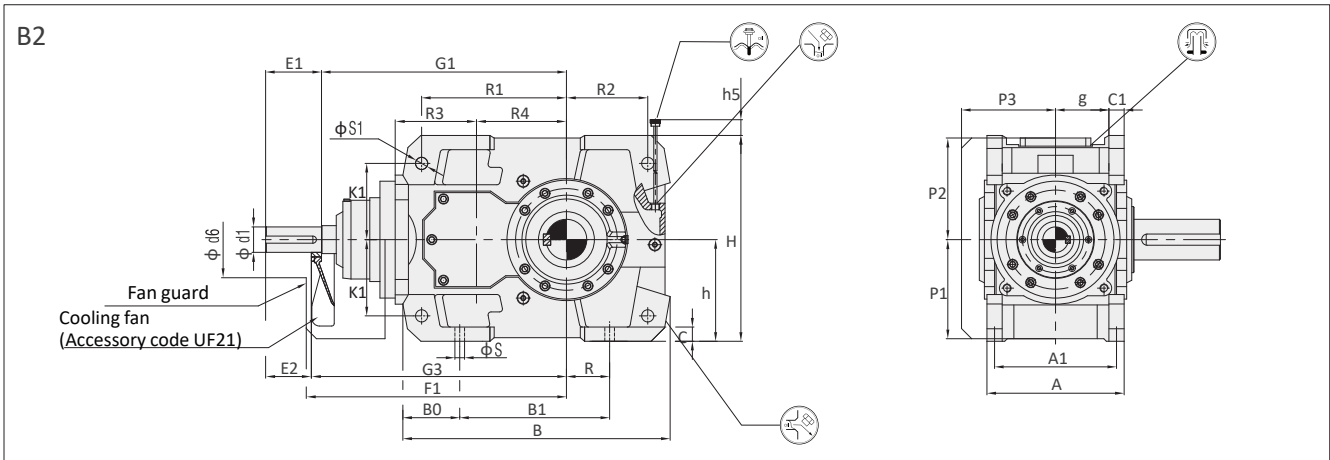
Size	iN≤200		iN≤224		iN≥224		iN≥250		A	A1	B	B0	B1	B2	C	C1	d	D	D2	D3
	d1	E1	d1	E1	d1	E1	d1	E1												
07	30k6	60			24k6	50			300	260	876	131	605	16	35	36±1	120m6	115H7	120H7	120H7
08	30k6	60			24k6	50			300	260	981	131	710	16	35	36±1	130m6	125H7	130H7	130H7
09	35k6	80			28k6	60			370	320	1033	156	710	20	40	45±1.5	140m6	135H7	140H7	140H7
10	35k6	80			28k6	60			370	320	1131	156	810	20	40	45±1.5	160m6	150H7	150H7	150H7
11			45k6	110			32k6	80	430	370	1227	178	870	20	50	54±1.5	170m6	165H7	165H7	165H7
12			45k6	110			32k6	80	430	370	1382	178	1025	20	50	54±1.5	180m6	180H7	180H7	180H7

Size	E	G1	G2	G4	g	H	h	h0	h1	h5	K1	R	R1	R2	R3	S	S1	weight (kg)
07	210	180	195	280	114	560	280	204	495	0	215	130	560	215	110	24	28H9	559
08	250	180	195	285	114	580	280	204	540	0	215	190	605	275	110	24	28H9	664
09	250	215	235	330	140	640	320	226.5	580	15	245	155	660	260	130	28	36H9	901
10	300	215	235	350	140	670	320	226.5	630	0	245	205	710	310	130	28	36H9	1115
11	300	250	270	400	161	760	380	260	705	30	300	180	805	295	160	35	40H9	1487
12	300	250	270	405	161	790	380	260	775	5	300	265	875	380	160	35	40H9	1747



11.4 B204H-B212H

HB

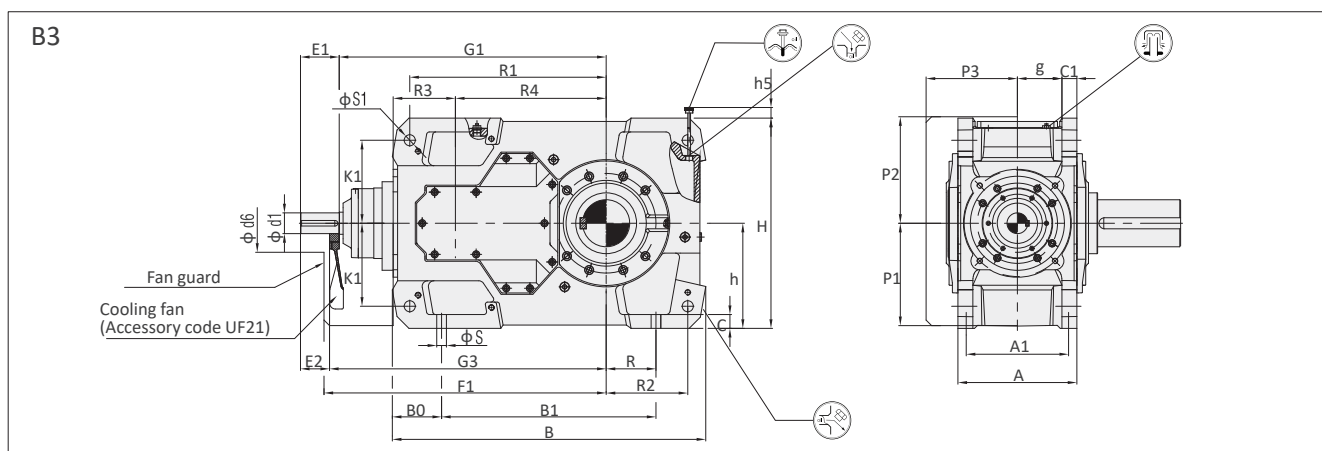


See page 55

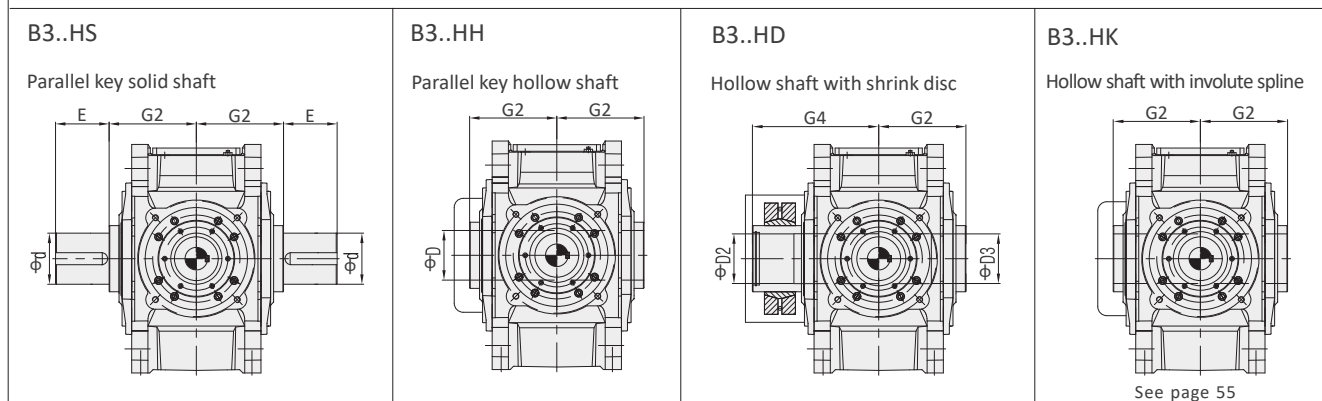
Size	iN≤14			A	A1	B	B0	B1	C	C1	d	d6	D	D2	D3	E	F1
	d1	E1	E2														
04	50k6	110	90	270	235	530	125	295	28	30±1	80m6	150	80H7	85H7	85H7	170	517
05	60m6	140	110	320	285	595	130	355	28	30±1	100m6	160	95H7	100H7	100H7	210	596
06	60m6	140	110	320	285	680	135	435	28	30±1	110m6	160	105H7	110H7	110H7	210	635
07	75m6	140	110	380	340	725	145	450	35	36±1	120m6	210	115H7	120H7	120H7	210	705
08	75m6	140	110	380	340	825	140	555	35	36±1	130m6	210	125H7	130H7	130H7	250	745
09	85m6	170	135	440	390	860	175	530	40	48±1.5	140m6	220	135H7	140H7	140H7	250	805
10	85m6	170	135	440	390	970	185	630	40	48±1.5	160m6	220	150H7	150H7	150H7	300	865
11	95m6	170	135	530	470	1030	205	645	50	54±1.5	170m6	250	165H7	165H7	165H7	300	1005
12	95m6	170	135	530	470	1165	185	800	50	54±1.5	180m6	250	180H7	180H7	180H7	300	1055

Size	G1	G2	G3	G4	g	H	h	h5	K1	P1	P2	P3	R	R1	R2	R3	R4	S	S1H9	weight (kg)
04	482	140	502	205	105	400	200	15	150	195	200	185	85	285	160	160	177	19	24H9	217
05	551	165	581	240	130	460	230	30	180	220	235	215	100	330	175	185	201	19	24H9	349
06	590	165	620	240	130	490	230	0	180	220	235	215	145	365	220	185	240	19	24H9	437
07	660	195	690	280	154	560	280	35	215	270	285	250	130	405	215	225	240	24	28H9	599
08	700	195	730	285	154	580	280	25	215	270	285	250	190	450	275	225	280	24	28H9	723
09	755	235	790	330	172	640	320	10	245	310	325	250	155	480	260	265	280	28	36H9	921
10	815	235	850	350	172	670	320	0	245	310	325	250	205	530	310	265	340	28	36H9	1158
11	945	270	980	400	211	760	380	55	300	370	385	330	180	580	295	320	340	35	40H9	1516
12	995	270	1030	405	211	790	380	30	300	370	385	330	265	650	380	320	390	35	40H9	1833

11.5 B304H-B312H

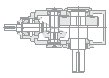


HB



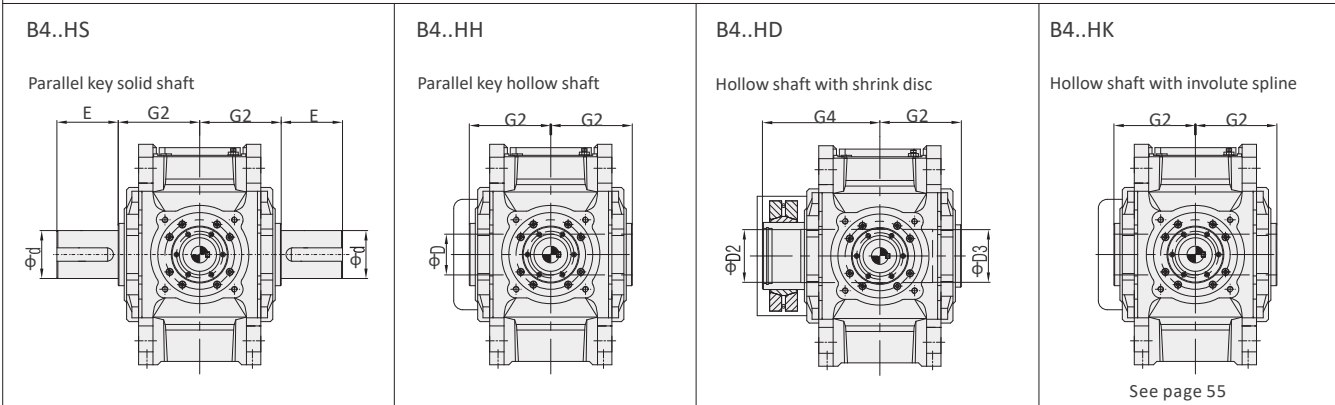
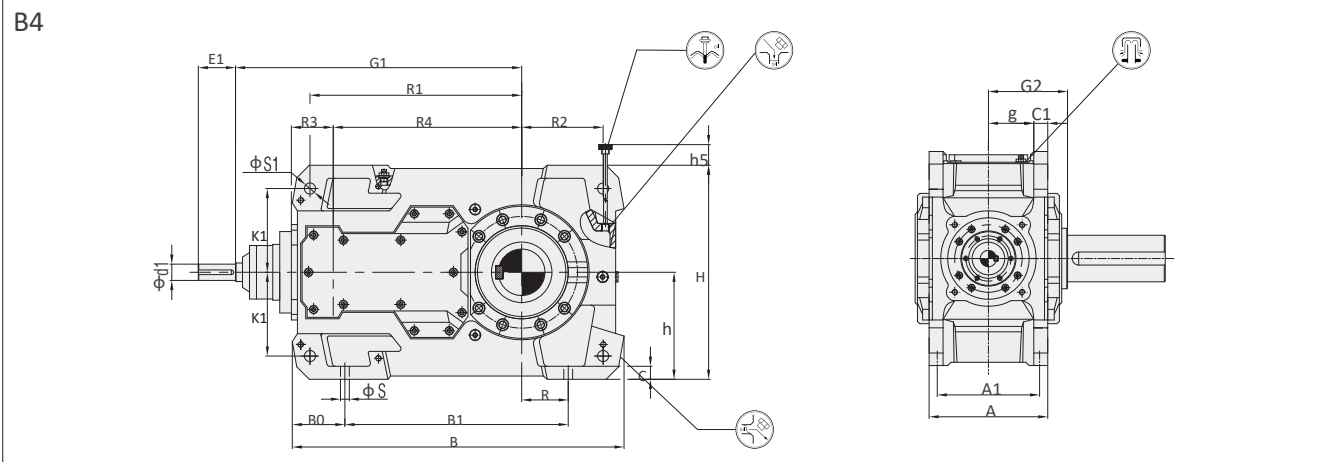
Size	iN≤63			iN≥71			A	A1	B	B0	B1	C	C1	d	d6	E	F1	D	D2	D3
	d1	E1	E2	d1	E1	E2														
04	35k6	80	60	30k6	60	40	215	180	586	112	355	28	30±1	80m6	150	170	540	80H7	85H7	85H7
05	45k6	110	80	35k6	80	50	255	220	667	113	430	28	30±1	100m6	160	210	630	95H7	100H7	100H7
06	45k6	110	80	35k6	80	50	255	220	743	113	510	28	30±1	110m6	160	210	665	105H7	110H7	110H7
07	50k6	110	90	40k6	80	60	300	260	816	131	545	35	36±1	120m6	210	210	735	115H7	120H7	120H7
08	50k6	110	90	40k6	80	60	300	260	920	131	650	35	36±1	130m6	210	250	780	125H7	130H7	130H7
09	60m6	140	110	50k6	110	80	370	320	957	156	635	40	45±1.5	140m6	220	250	860	135H7	140H7	140H7
10	60m6	140	110	50k6	110	80	370	320	1062	156	735	40	45±1.5	160m6	220	300	910	150H7	150H7	150H7
11	75m6	140	110	60m6	140	110	430	370	1132	178	775	50	54±1.5	170m6	210	300	1025	165H7	165H7	165H7
12	75m6	140	110	60m6	140	110	430	370	1292	178	930	50	54±1.5	180m6	210	300	1095	180H7	180H7	180H7

Size	G1	G2	G3	G4	g	H	h	h5	K1	P1	P2	P3	R	R1	R2	R3	R4	S	S1	weight (kg)
04	500	140	520	205	77.5	400	200	15	150	195	200	185	85	345	160	110	270	19	24H9	210
05	575	165	605	240	97.5	460	230	15	180	220	235	215	100	405	175	130	315	19	24H9	337
06	610	165	640	240	97.5	490	230	0	180	220	235	215	145	440	220	130	350	19	24H9	412
07	690	195	710	280	114	560	280	0	215	270	285	250	130	500	215	160	385	24	28H9	555
08	735	195	755	285	114	580	280	0	215	270	285	250	190	545	275	160	430	24	28H9	660
09	800	235	830	330	140	640	320	10	245	310	325	250	155	585	260	185	450	28	36H9	891
10	850	235	880	350	140	670	320	0	245	310	325	250	205	635	310	185	500	28	36H9	1106
11	965	270	995	400	161	760	380	30	300	370	385	330	180	710	295	225	545	35	40H9	1484
12	1035	270	1065	405	161	790	380	5	300	370	385	330	265	780	380	225	615	35	40H9	1757



11.6 B405H-B412H

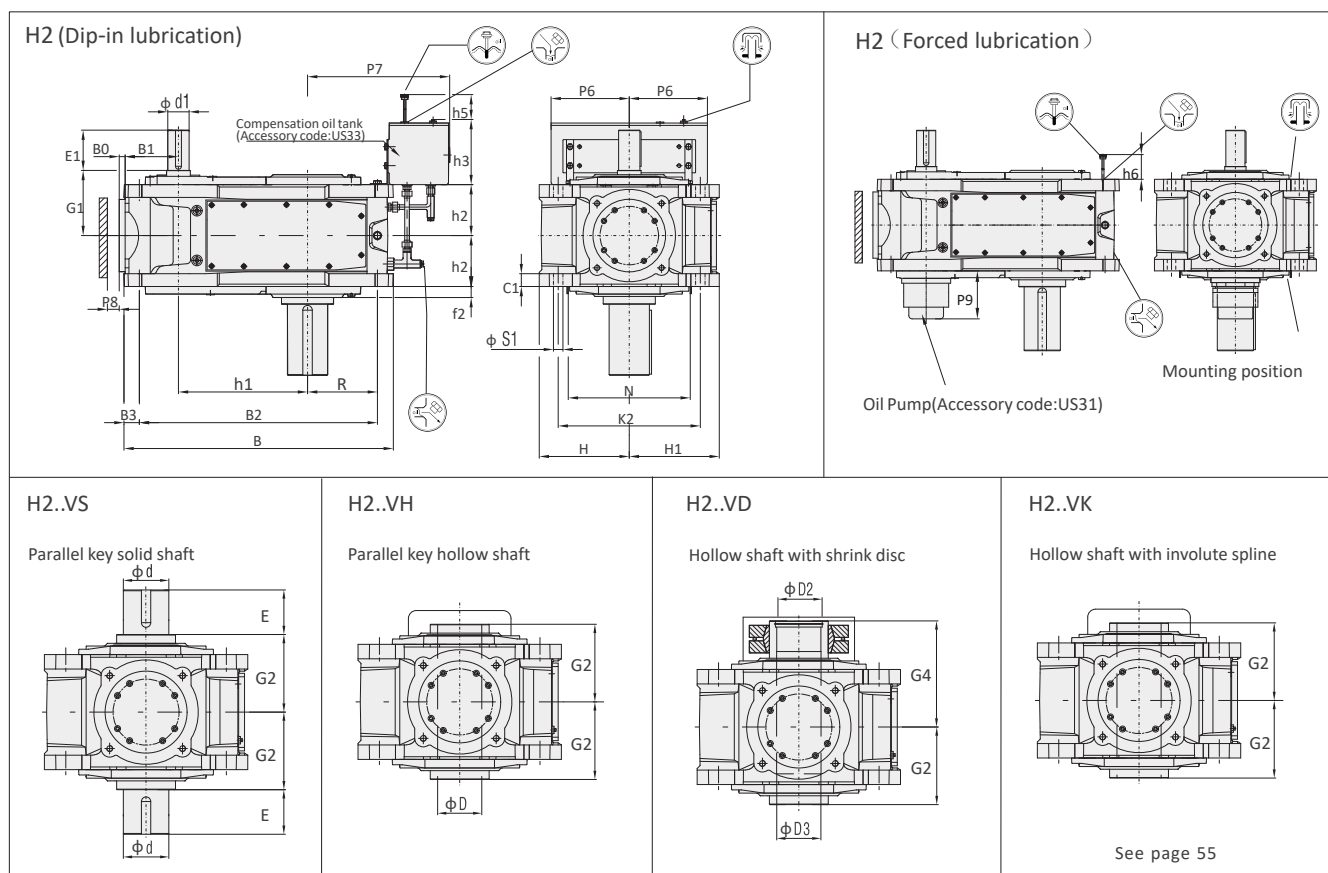
HB



Size	iN≤250		iN≤280		iN≥280		iN≥315		A	A1	B	B0	B1	C	C1	d	D
	d1	E1	d1	E1	d1	E1	d1	E1									
05			35k6	80			25k6	50	255	220	713	113	480	28	30±1	100m6	95H7
06			35k6	80			25k6	50	255	220	793	113	560	28	30±1	110m6	105H7
07			35k6	80			30k6	60	300	260	876	131	605	35	36±1	120m6	115H7
08			35k6	80			30k6	60	300	260	981	131	710	35	36±1	130m6	125H7
09	45k6	110			35k6	80			370	320	1033	156	710	40	45±1.5	140m6	135H7
10	45k6	110			35k6	80			370	320	1131	156	810	40	45±1.5	160m6	150H7
11			50k6	110			40k6	80	430	370	1227	178	870	50	54±1.5	170m6	165H7
12			50k6	110			40k6	80	430	370	1382	178	1025	50	54±1.5	180m6	180H7

Size	D2	D3	E	G1	G2	G4	g	H	h	h5	K1	R	R1	R2	R3	R4	S	S1	weight (kg)
05	100H7	100H7	210	615	165	240	97.5	460	230	40	180	100	455	175	90	405	19	24H9	337
06	110H7	110H7	210	650	165	240	97.5	490	230	10	180	145	490	220	90	440	19	24H9	416
07	120H7	120H7	210	725	195	280	114	560	280	0	215	130	560	215	110	495	24	28H9	573
08	130H7	130H7	250	770	195	285	114	580	280	0	215	190	605	275	110	540	24	28H9	677
09	140H7	140H7	250	840	235	330	140	640	320	15	245	155	660	260	130	580	28	36H9	925
10	150H7	150H7	300	890	235	350	140	670	320	0	245	205	710	310	130	630	28	36H9	1139
11	165H7	165H7	300	1010	270	400	161	760	380	30	300	180	805	295	160	705	35	40H9	1514
12	180H7	180H7	300	1080	270	405	161	790	380	5	300	265	875	380	160	775	35	40H9	1775

11.7 H204V-H212V

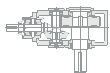


HB

Size	iN≤11.2		iN≥12.5		B	B0	B1	B2	B3	C1	d	D	D2	D3	E	f2
	d1	E1	d1	E1												
04	45k6	110	32k6	80	586	16	110	505	37	30±1	80m6	80H7	85H7	85H7	170	35
05	50k6	110	38k6	80	667	16	130	580	38	30±1	100m6	95H7	100H7	100H7	210	30
06	50k6	110	38k6	80	743	16	130	660	38	30±1	110m6	105H7	110H7	110H7	210	30
07	60m6	140	50k6	110	816	20	160	715	46	36±1	120m6	115H7	120H7	120H7	210	35
08	60m6	140	50k6	110	920	20	160	820	46	36±1	130m6	125H7	130H7	130H7	250	35
09	75m6	140	60m6	140	957	20	185	845	51	45±1.5	140m6	135H7	140H7	140H7	250	35
10	75m6	140	60m6	140	1062	20	185	945	51	45±1.5	160m6	150H7	150H7	150H7	300	35
11	90m6	170	70m6	140	1132	25	225	1005	63	54±1.5	170m6	165H7	165H7	165H7	300	42
12	90m6	170	70m6	140	1292	25	225	1160	63	54±1.5	180m6	180H7	180H7	180H7	300	42

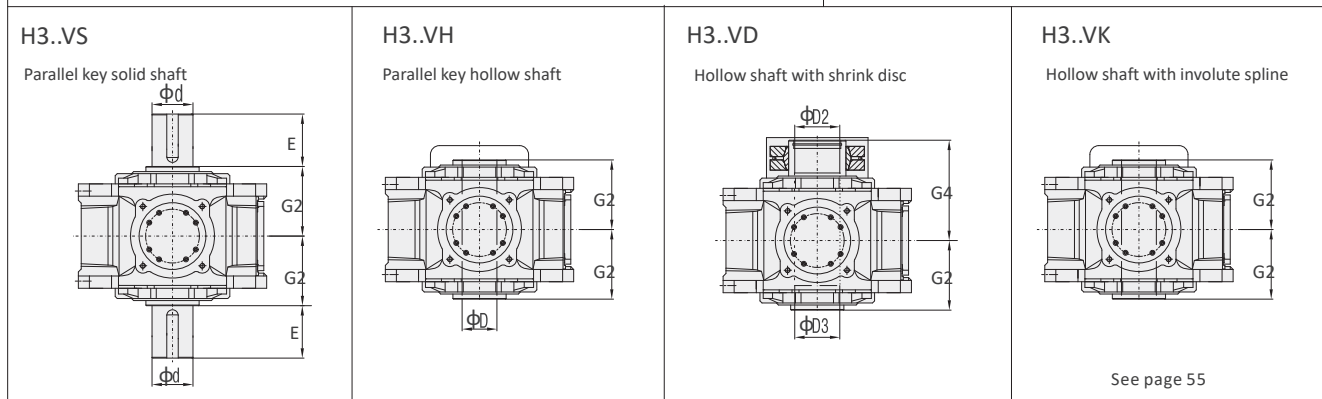
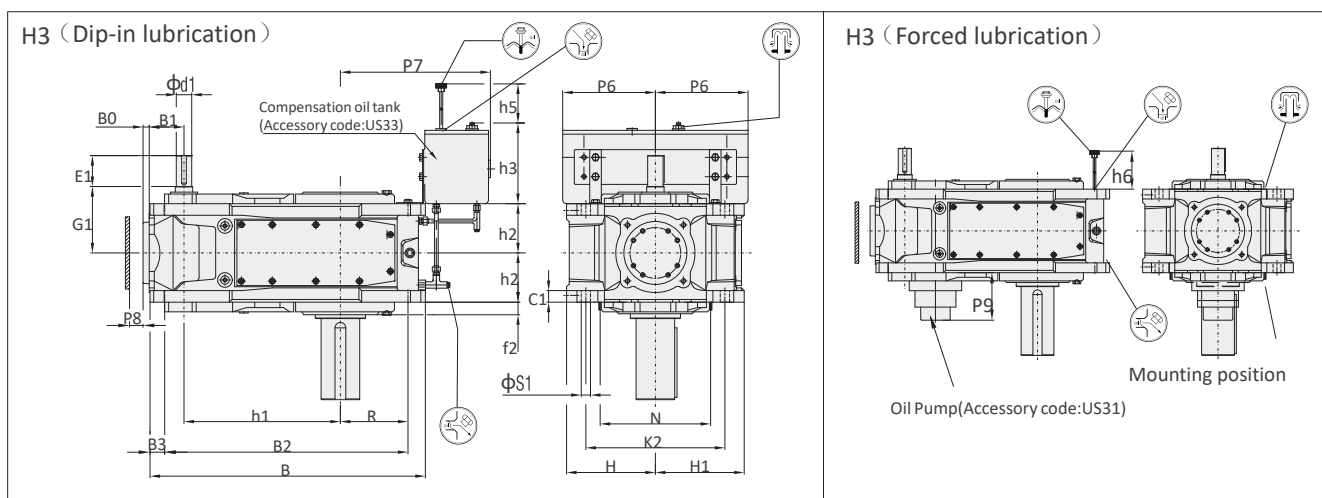
Size	G1	G2	G4	H	H1	h1	h2	h3	h5	h6	K2	N	P6	P7	P8	P9	R	S1	weight (kg)
04	170	140	205	200	200	270	107.5	175	140	85	300	250	150	340	35	132	160	24H9	195
05	195	165	240	230	230	315	127.5	210	160	105	360	310	240	405	35	145	175	24H9	310
06	195	165	240	230	260	350	127.5	210	160	105	360	310	240	450	35	145	220	24H9	385
07	210	195	280	280	280	385	150	210	160	120	430	360	240	445	35	143	215	28H9	519
08	210	195	285	280	310	430	150	210	160	120	430	360	240	505	35	143	275	28H9	624
09	240	235	330	320	320	450	185	285	200	155	490	410	330	585	40	135	260	36H9	828
10	240	235	350	320	350	500	185	285	200	155	490	430	330	635	40	135	310	36H9	1044
11	275	270	400	380	380	545	215	285	200	150	600	500	330	620	50	142	295	40H9	1371
12	275	270	405	380	410	615	215	285	200	150	600	500	330	705	50	142	380	40H9	1644

*The general mounting is up position, if down mounting position, please mention in the order.



11.8 H305V-H312V

HB

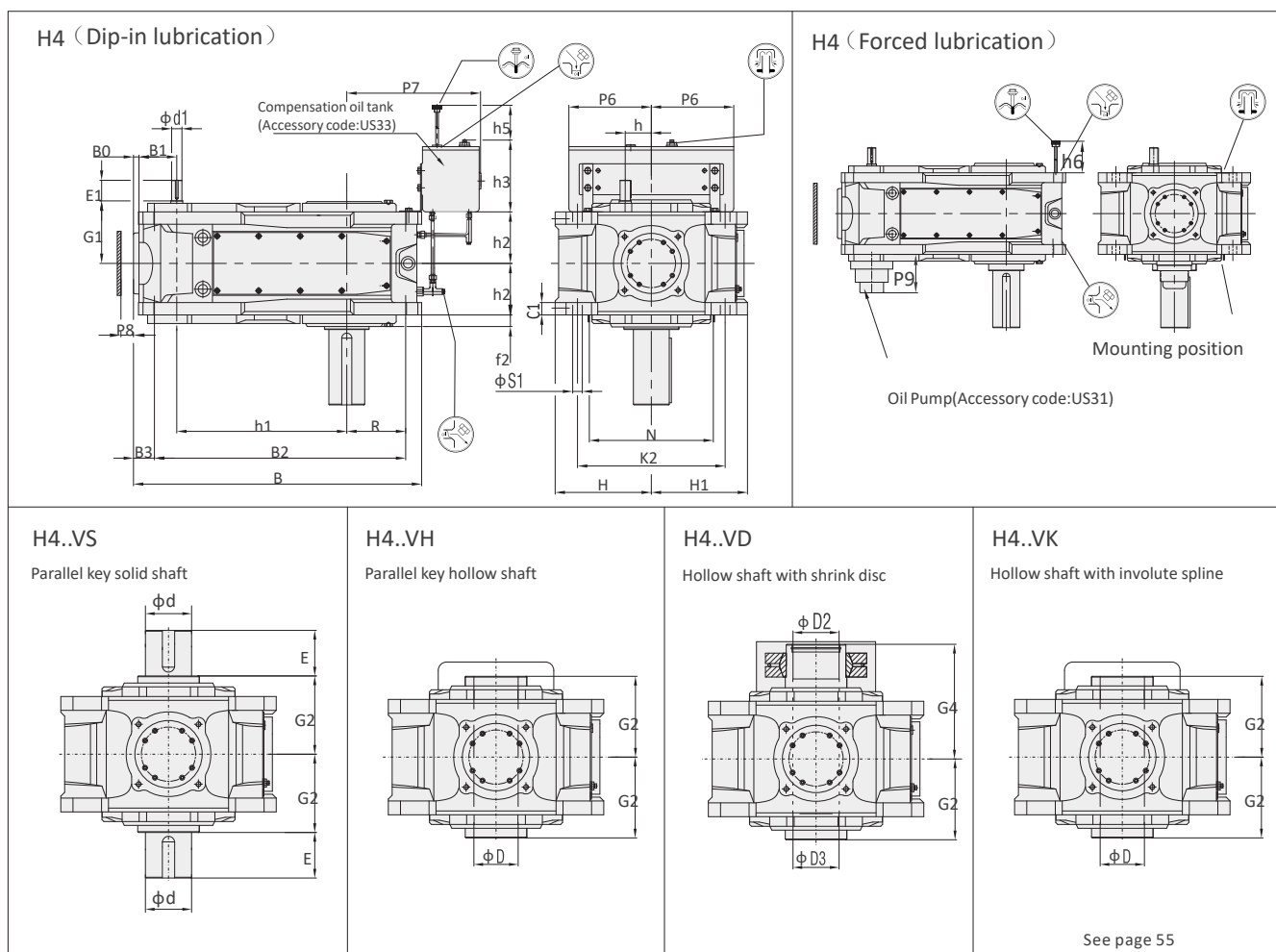


Size	iN≤45		iN≤50		iN≥50		iN≥56		B	B0	B1	B2	B3	C1	d	D	D2	D3
	d1	E1	d1	E1	d1	E1	d1	E1										
05	40k6	80			30k6	60			713	16	90	630	38	30±1	100m6	95H7	100H7	100H7
06	40k6	80			30k6	60			793	16	90	710	38	30±1	110m6	105H7	110H7	110H7
07			45k6	110			35k6	80	876	16	110	775	46	36±1	120m6	115H7	120H7	120H7
08			45k6	110			35k6	80	981	16	110	880	46	36±1	130m6	125H7	130H7	130H7
09			60m6	140			45k6	110	1033	20	130	920	51	45±1.5	140m6	135H7	140H7	140H7
10			60m6	140			45k6	110	1131	20	130	1020	51	45±1.5	160m6	150H7	150H7	150H7
11			70m6	140			50k6	110	1227	20	160	1100	63	54±1.5	170m6	165H7	165H7	165H7
12			70m6	140			50k6	110	1382	20	160	1255	63	54±1.5	180m6	180H7	180H7	180H7

Size	E	f2	G1	G2	G4	H	H1	h1	h2	h3	h5	h6	K2	N	P6	P7	P8	P9	R	S1	weight (kg)
05	210	30	170	165	240	230	230	405	127.5	210	160	105	360	310	240	405	35	145	175	24H9	324
06	210	30	170	165	240	230	260	440	127.5	210	160	105	360	310	240	450	35	145	220	24H9	403
07	210	35	210	195	280	280	280	495	150	210	160	120	430	360	240	445	35	143	215	28H9	558
08	250	35	210	195	285	280	310	540	150	210	160	120	430	360	240	505	35	143	275	28H9	663
09	250	35	240	235	330	320	320	580	185	285	200	155	490	420	330	585	40	155	260	36H9	899
10	300	35	240	235	350	320	350	630	185	285	200	155	490	430	330	635	40	155	310	36H9	1113
11	300	42	275	270	400	380	380	705	215	285	200	150	600	510	330	620	50	162	295	40H9	1481
12	300	42	275	270	405	380	410	775	215	285	200	150	600	510	330	705	50	162	380	40H9	1742

*The general mounting is up position, if down mounting position, please mention in the order.

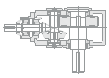
11.9 H407V-H412V



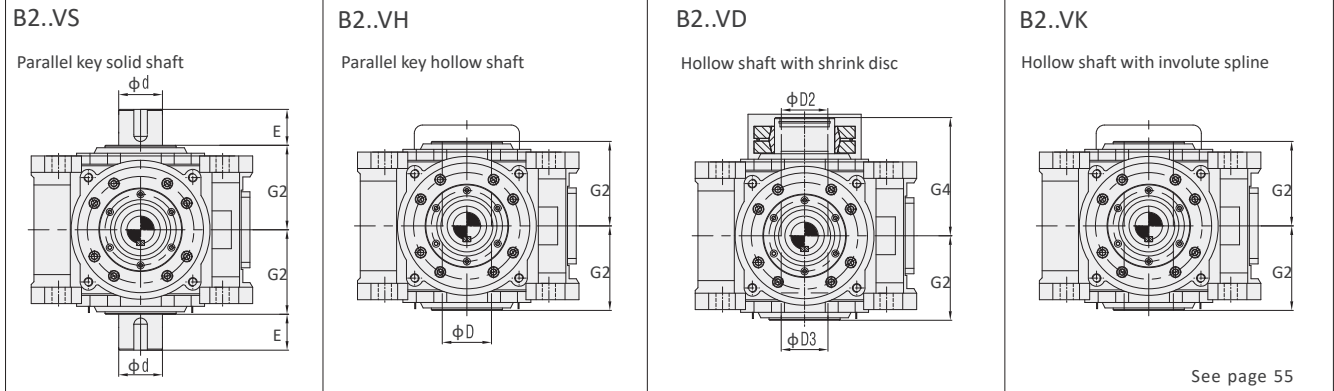
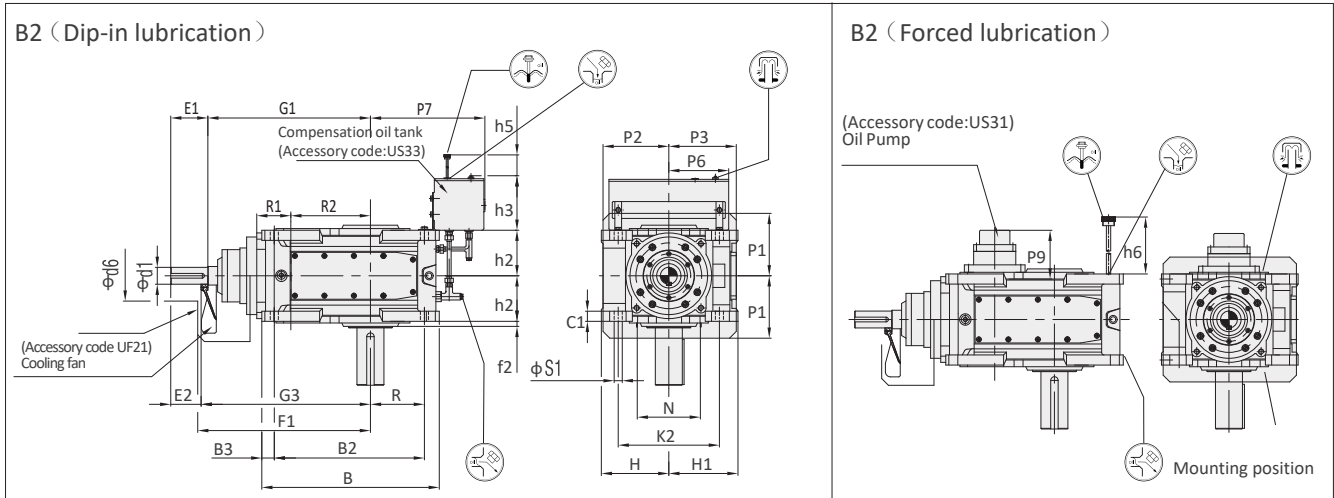
Size	iN≤200		iN≤224		iN≥224		iN≥250		B	B0	B1	B2	B3	C1	d	D	D2	D3	E
	d1	E1	d1	E1	d1	E1	d1	E1											
07	30k6	60			24k6	50			876	16	110	775	46	36±1	120m6	115H7	120H7	120H7	210
08	30k6	60			24k6	50			981	16	110	880	46	36±1	130m6	125H7	130H7	130H7	250
09	35k6	80			28k6	60			1033	20	130	920	51	45±1.5	140m6	135H7	140H7	140H7	250
10	35k6	80			28k6	60			1131	20	130	1020	51	45±1.5	160m6	150H7	150H7	150H7	300
11			45k6	110			32k6	80	1227	20	160	1100	63	54±1.5	170m6	165H7	165H7	165H7	300
12			45k6	110			32k6	80	1382	20	160	1255	63	54±1.5	180m6	180H7	180H7	180H7	300

Size	f2	G1	G2	G4	H	H1	h	h1	h2	h3	h5	h6	K2	N	P6	P7	P8	P9	R	S1	weight (kg)
07	35	180	195	280	280	280	76	495	150	210	160	120	430	360	240	445	35	102	215	28H9	559
08	35	180	195	285	280	310	76	540	150	210	160	120	430	360	240	505	35	102	275	28H9	664
09	35	215	235	330	320	320	93.5	580	185	285	200	155	490	420	330	585	40	125	260	36H9	901
10	35	215	235	350	320	350	93.5	630	185	285	200	155	490	430	330	635	40	125	310	36H9	1115
11	42	250	270	400	380	380	120	705	215	285	200	150	600	510	330	620	50	140	295	40H9	1487
12	42	250	270	405	380	410	120	775	215	285	200	150	600	510	330	705	50	140	380	40H9	1747

*The general mounting is up position, if down mounting position, please mention in the order.



11.10 B204V-B212V



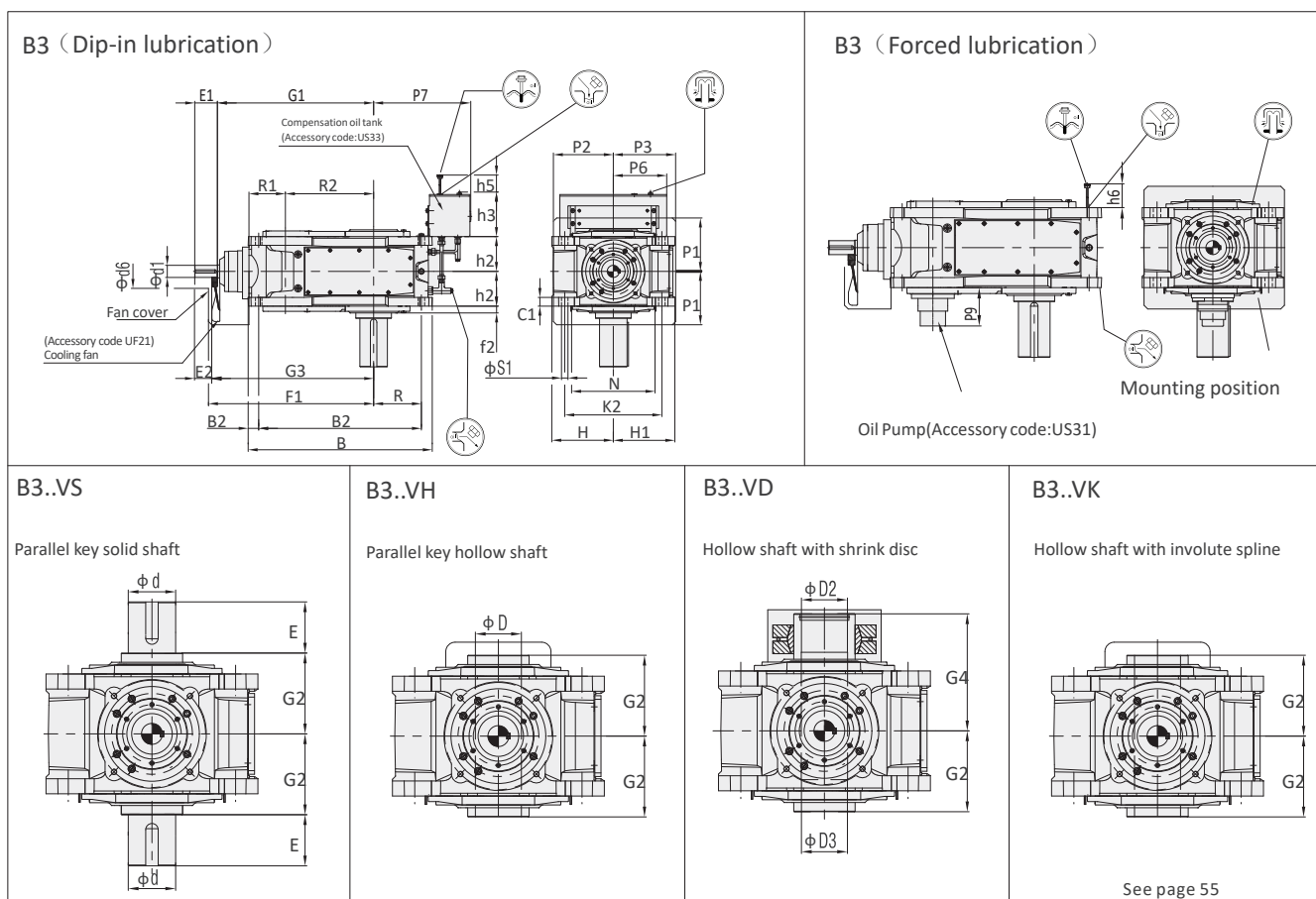
See page 55

Size	iN≤14			B	B2	B3	C1	d	d6	D	D2	D3	E	F1	f2	G1	G2
	d1	E1	E2														
04	50k6	110	90	530	445	50	30±1	80m6	150	80H7	85H7	85H7	170	517	20	482	140
05	60m6	140	110	595	505	55	30±1	100m6	160	95H7	100H7	100H7	210	596	10	551	165
06	60m6	140	110	680	585	60	30±1	110m6	160	105H7	110H7	110H7	210	635	10	590	165
07	75m6	140	110	725	620	60	36±1	120m6	210	115H7	120H7	120H7	210	705	15	660	195
08	75m6	140	110	825	725	55	36±1	130m6	210	125H7	130H7	130H7	250	745	15	700	195
09	85m6	170	135	860	740	70	48±1.5	140m6	220	135H7	140H7	140H7	250	805	20	755	235
10	85m6	170	135	970	840	80	48±1.5	160m6	220	150H7	150H7	150H7	300	865	20	815	235
11	95m6	170	135	1030	875	90	54±1.5	170m6	250	165H7	165H7	165H7	300	1005	15	945	270
12	95m6	170	135	1165	1030	70	54±1.5	180m6	250	180H7	180H7	180H7	300	1055	15	995	270

Size	G3	G4	H	H1	h2	h3	h5	h6	K2	N	P1	P2	P3	P6	P7	P9	R	R1	R2	S1	weight (kg)
04	502	205	200	200	135	175	140	130	300	250	185	195	200	150	340	140	160	160	177	24H9	217
05	581	240	230	230	160	210	160	145	360	310	215	220	235	240	405	132	175	185	201	24H9	349
06	620	240	230	260	160	210	160	145	360	310	215	220	235	240	450	132	220	185	240	24H9	437
07	690	280	280	280	190	210	160	180	430	360	250	270	285	240	445	150	215	225	240	28H9	599
08	730	285	280	310	190	210	160	180	430	360	250	270	285	240	505	150	275	225	280	28H9	723
09	790	330	320	320	220	285	200	165	490	390	250	310	325	330	585	160	260	265	280	36H9	921
10	850	350	320	350	220	285	200	165	490	430	250	310	325	330	635	160	310	265	340	36H9	1158
11	980	400	380	380	265	285	200	140	600	450	330	370	385	330	620	161	295	320	340	40H9	1516
12	1030	405	380	410	265	285	200	140	600	490	330	370	385	330	705	161	380	320	390	40H9	1833

*The general mounting is up position, if down mounting position, please mention in the order.

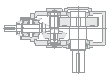
11.11 B304V-B312V



Size	iN≤63			iN≥71			B	B2	B3	C1	d	d6	E	F1	f2	D	D2	D3	G1
	d1	E1	E2	d1	E1	E2													
04	35k6	80	60	30k6	60	40	586	505	37	30±1	80m6	150	170	540	30	80H7	85H7	85H7	500
05	45k6	110	80	35k6	80	50	667	580	38	30±1	100m6	160	210	630	30	95H7	100H7	100H7	575
06	45k6	110	80	35k6	80	50	743	660	38	30±1	110m6	160	210	665	35	105H7	110H7	110H7	610
07	50k6	110	90	40k6	80	60	816	715	46	36±1	120m6	210	210	735	36	115H7	120H7	120H7	690
08	50k6	110	90	40k6	80	60	920	820	46	36±1	130m6	210	250	780	35	125H7	130H7	130H7	735
09	60m6	140	110	50k6	110	80	957	845	51	45±1.5	140m6	220	250	860	35	135H7	140H7	140H7	800
10	60m6	140	110	50k6	110	80	1062	945	51	45±1.5	160m6	220	300	910	35	150H7	150H7	150H7	850
11	75m6	140	110	60m6	140	110	1132	1005	63	54±1.5	170m6	210	300	1025	42	165H7	165H7	165H7	965
12	75m6	140	110	60m6	140	110	1292	1160	63	54±1.5	180m6	210	300	1095	42	180H7	180H7	180H7	1035

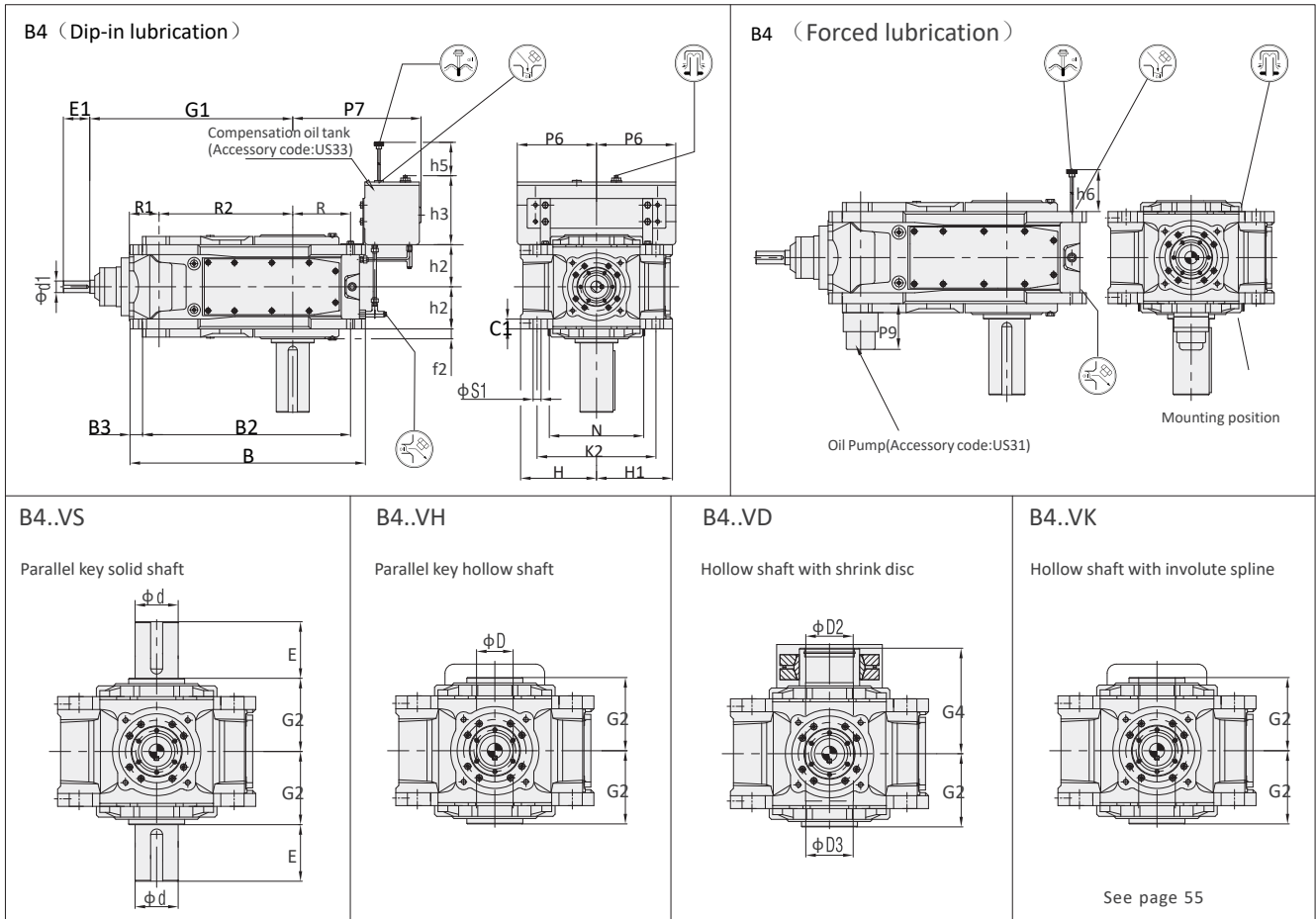
Size	G2	G3	G4	H	H1	h2	h3	h5	h6	K2	N	P1	P2	P3	P6	P7	P9	R	R1	R2	S1	weight (kg)
04	140	520	205	200	200	107.5	175	140	85	300	250	185	195	200	150	340	142	160	110	270	24H9	210
05	165	605	240	230	230	127.5	210	160	105	360	310	215	220	235	240	405	145	175	130	315	24H9	337
06	165	640	240	230	260	127.5	210	160	105	360	310	215	220	235	240	450	145	220	130	350	24H9	412
07	195	710	280	280	280	150	210	160	120	430	360	250	270	285	240	445	143	215	160	385	28H9	555
08	195	755	285	280	310	150	210	160	120	430	360	250	270	285	240	505	143	275	160	430	28H9	660
09	235	830	330	320	320	185	285	200	155	490	410	250	310	325	330	585	155	260	185	450	36H9	891
10	235	880	350	320	350	185	285	200	155	490	430	250	310	325	330	635	155	310	185	500	36H9	1106
11	270	995	400	380	380	215	285	200	150	600	500	330	370	385	330	620	162	295	225	545	40H9	1484
12	270	1065	405	380	410	215	285	200	150	600	500	330	370	385	330	705	162	380	225	615	40H9	1757

*The general mounting is up position, if down mounting position, please mention in the order.



11.12 B405V-B412V

HB



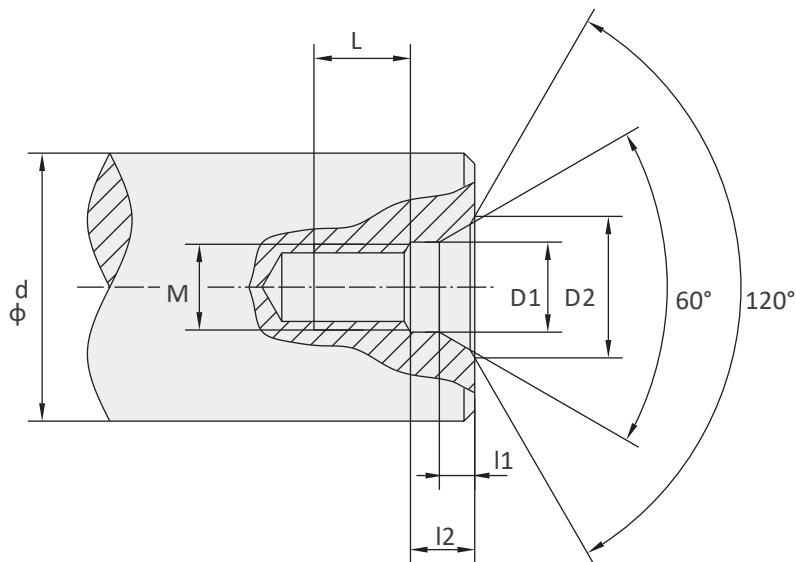
Size	iN≤250		iN≤280		iN≥280		iN≥315		B	B2	B3	C1	d	D	D2	D3	E	f2
	d1	E1	d1	E1	d1	E1	d1	E1										
05			35k6	80			25k6	50	713	630	38	30±1	100m6	95H7	100H7	100H7	210	30
06			35k6	80			25k6	50	793	710	38	30±1	110m6	105H7	110H7	110H7	210	30
07			35k6	80			30k6	60	876	775	46	36±1	120m6	115H7	120H7	120H7	210	35
08			35k6	80			30k6	60	981	880	46	36±1	130m6	125H7	130H7	130H7	250	35
09	45k6	110			35k6	80			1033	920	51	45±1.5	140m6	135H7	140H7	140H7	250	35
10	45k6	110			35k6	80			1131	1020	51	45±1.5	160m6	150H7	150H7	150H7	300	35
11			50k6	110			40k6	80	1227	1100	63	54±1.5	170m6	165H7	165H7	165H7	300	42
12			50k6	110			40k6	80	1382	1255	63	54±1.5	180m6	180H7	180H7	180H7	300	42

Size	G1	G2	G4	H	H1	h2	h3	h5	h6	K2	N	P6	P7	P9	R	R1	R2	S1	weight (kg)
05	615	165	240	230	230	127.5	210	160	105	360	310	240	405	120	175	90	405	24H9	337
06	650	165	240	230	260	127.5	210	160	105	360	310	240	450	120	220	90	440	24H9	416
07	725	195	280	280	280	150	210	160	120	430	360	240	445	102	215	110	495	28H9	573
08	770	195	285	280	310	150	210	160	120	430	360	240	505	102	275	110	540	28H9	677
09	840	235	330	320	320	185	285	200	155	490	420	330	585	125	260	130	580	36H9	925
10	890	235	350	320	350	185	285	200	155	490	430	330	635	125	310	130	630	36H9	1139
11	1010	270	400	380	380	215	285	200	150	600	510	330	620	140	295	160	705	40H9	1514
12	1080	270	405	380	410	215	285	200	150	600	510	330	705	140	380	160	775	40H9	1775

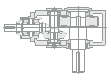
*The general mounting is up position, if down mounting position, please mention in the order.

12 Shaft end central hole

Shaft end C Type screw central hole

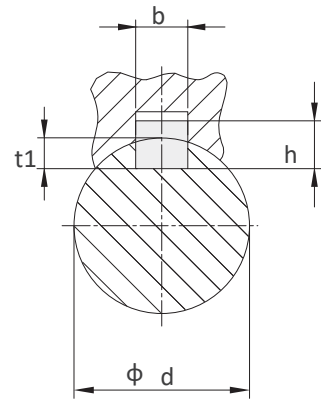
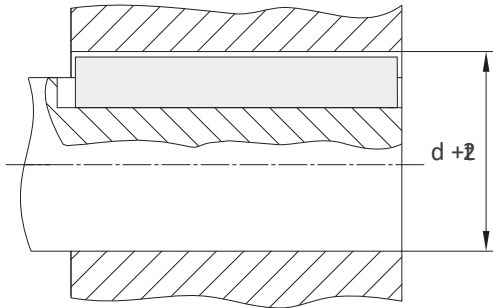


d	M	L	l2	l1	D1	D2
7<d≤10	M3	10	2.6	1.8	3.2	5.8
10<d≤13	M4	10	3.2	2.1	4.3	7.4
13<d≤16	M5	10	4	2.4	5.3	8.8
16<d≤21	M6	12	5	2.8	6.4	10.5
21<d≤24	M8	12	6	3.3	8.4	13.2
24<d≤30	M10	15	7.5	3.8	10.5	16.3
30<d≤38	M12	20	9.5	4.4	13	19.8
38<d≤50	M16	25	12	5.2	17	25.3
50<d≤85	M20	30	15	6.4	21	31.3
85<d≤130	M24	35	18	8	25	38
130<d≤225	M30	45	18	11	31	48



13 Dimension of parallel key and keyway:

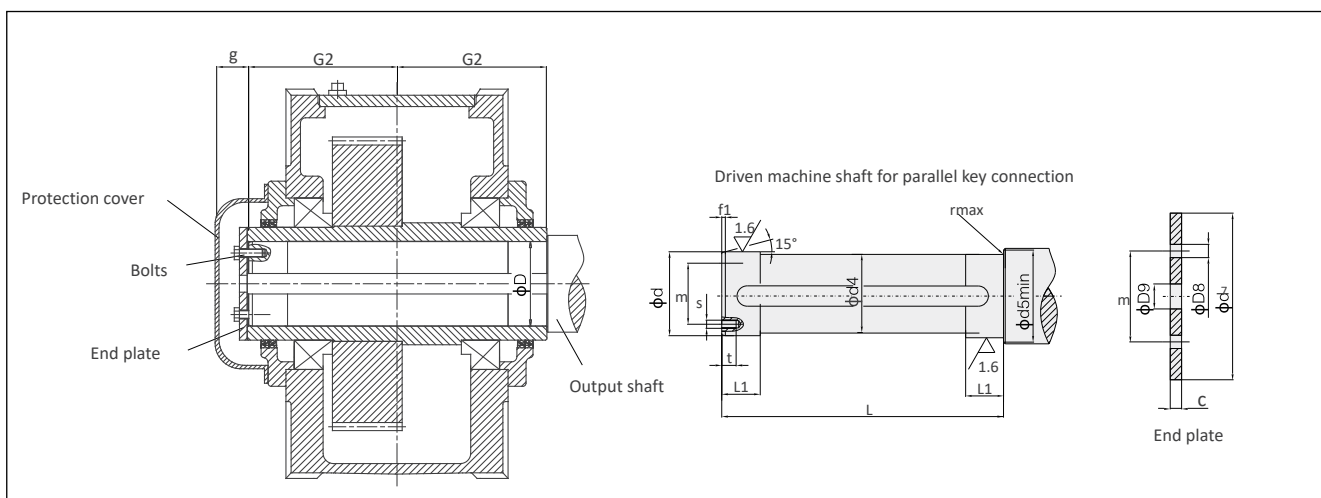
HB



d	b	h	t1	d + t2
8 <d≤ 10	3	3	1.8	d + 1.4
10 <d≤ 12	4	4	2.5	d + 1.8
12 <d≤ 17	5	5	3	d + 2.3
17 <d≤ 22	6	6	3.5	d + 2.8
22 <d≤ 30	8	7	4	d + 3.3
30 <d≤ 38	10	8	5	d + 3.3
38 <d≤ 44	12	8	5	d + 3.3
44 <d≤ 50	14	9	5.5	d + 3.8
50 <d≤ 58	16	10	6	d + 4.3
58 <d≤ 65	18	11	7	d + 4.4
65 <d≤ 75	20	12	7.5	d + 4.9
75 <d≤ 85	22	14	9	d + 5.4
85 <d≤ 95	25	14	9	d + 5.4
95 <d≤ 110	28	16	10	d + 6.4
110 <d≤ 130	32	18	11	d + 7.4
130 <d≤ 150	36	20	12	d + 8.4
150 <d≤ 170	40	22	13	d + 9.4
170 <d≤ 200	45	25	15	d + 10.4
200 <d≤ 230	50	28	17	d + 11.4
230 <d≤ 260	56	32	20	d + 12.4

14 Suggested output connection dimensions:

14.1 Hollow shaft with parallel key connection:



HB

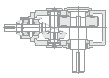
Type H2...H,H3...H,H4...H,B3...H,B4...H(Size 04-12)

Size	Driven equipment shaft									End plate					Bolt		Hollow shaft		
	d	d4	d5	f1	L	L1	r	s	t	c	D8	D9	d7	m	Size	Qty.	D	G2	g
04	80h6	79.5	88	4	278	35	1.2	M10	18	10	11	22	100	60	M10×25	2	80H7	140	30.5
05	95h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10×25	2	95H7	165	30.5
06	105h6	104.5	116	5	328	45	1.6	M10	18	10	11	26	120	70	M10×25	2	105H7	165	30.5
07	115h6	114.5	126	5	388	50	1.6	M12	20	12	13.5	26	140	80	M12×30	2	115H7	195	37
08	125h6	124.5	136	6	388	55	2.5	M12	20	12	13.5	26	150	85	M12×30	2	125H7	195	37
09	135h6	134.5	147	6	467	60	2.5	M12	20	12	13.5	33	160	90	M12×30	2	135H7	235	32
10	150h6	149.5	162	6	467	65	2.5	M12	20	12	13.5	33	185	110	M12×30	2	150H7	235	37
11	165h6	164.5	177	7	537	70	2.5	M16	28	15	17.5	33	195	120	M16×40	2	165H7	270	40
12	180h6	179.5	192	7	537	75	2.5	M16	28	15	17.5	33	220	130	M16×40	2	180H7	270	50

Type B2...H(Size 04-12)

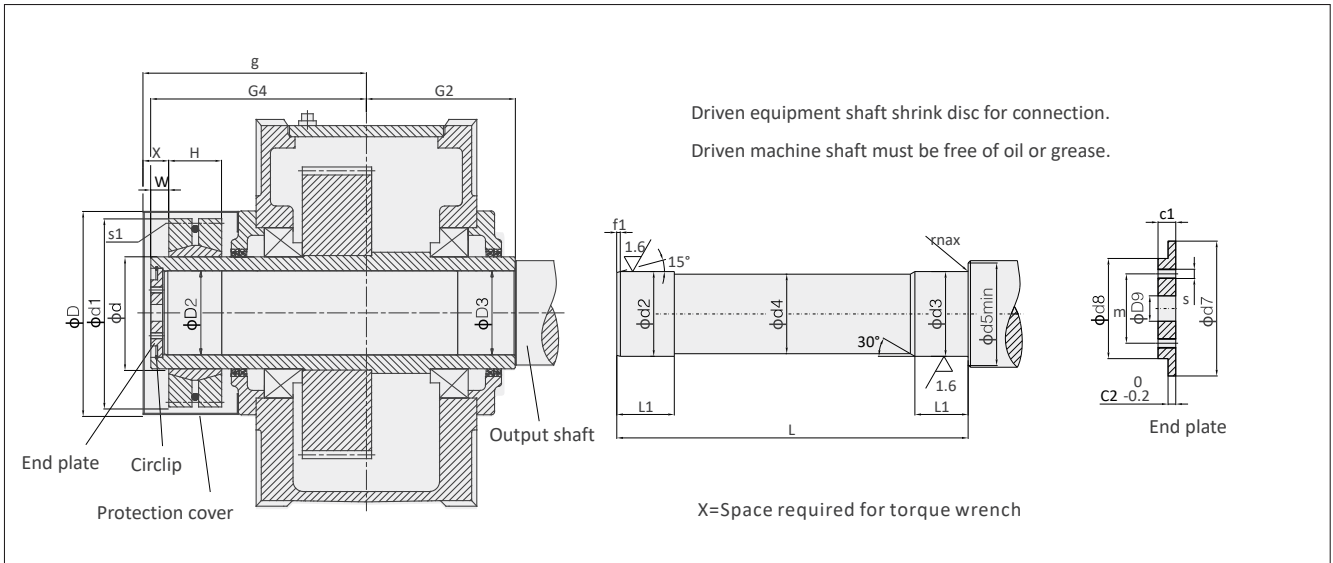
Size	Driven equipment shaft									End plate					Bolt		Hollow shaft		
	d	d4	d5	f1	L	L1	r	s	t	c	D8	D9	d7	m	Size	Qty.	D	G2	g
04	80h6	79.5	88	4	278	35	1.2	M10	18	10	11	22	100	60	M10×25	2	80H7	140	38
05	95h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10×25	2	95H7	165	43
06	105h6	104.5	116	5	328	45	1.6	M10	18	10	11	26	120	70	M10×25	2	105H7	165	43
07	115h6	114.5	126	5	388	50	1.6	M12	20	12	13.5	26	140	80	M12×30	2	115H7	195	52
08	125h6	124.5	136	6	388	55	2.5	M12	20	12	13.5	26	150	85	M12×30	2	125H7	195	52
09	135h6	134.5	147	6	467	60	2.5	M12	20	12	13.5	33	160	90	M12×30	2	135H7	235	52
10	150h6	149.5	162	6	467	65	2.5	M12	20	12	13.5	33	185	110	M12×30	2	150H7	235	57
11	165h6	164.5	177	7	537	70	2.5	M16	28	15	17.5	33	195	120	M16×40	2	165H7	270	55
12	180h6	179.5	192	7	537	75	2.5	M16	28	15	17.5	33	220	130	M16×40	2	180H7	270	65

Note: 1.Material of driven equipment shaft:40Cr or steel with higher strength.
 2.Shaft and parallel key of driven equipment are not within the scope of supply. Please order if required.
 3.Protection cover, end plate and bolts are supplied with gearbox as standard.



14.2 Hollow shaft for shrink discs

HB



Types H2...D,H3...D,H4...D,B3...D,B4...D (size 04-12)

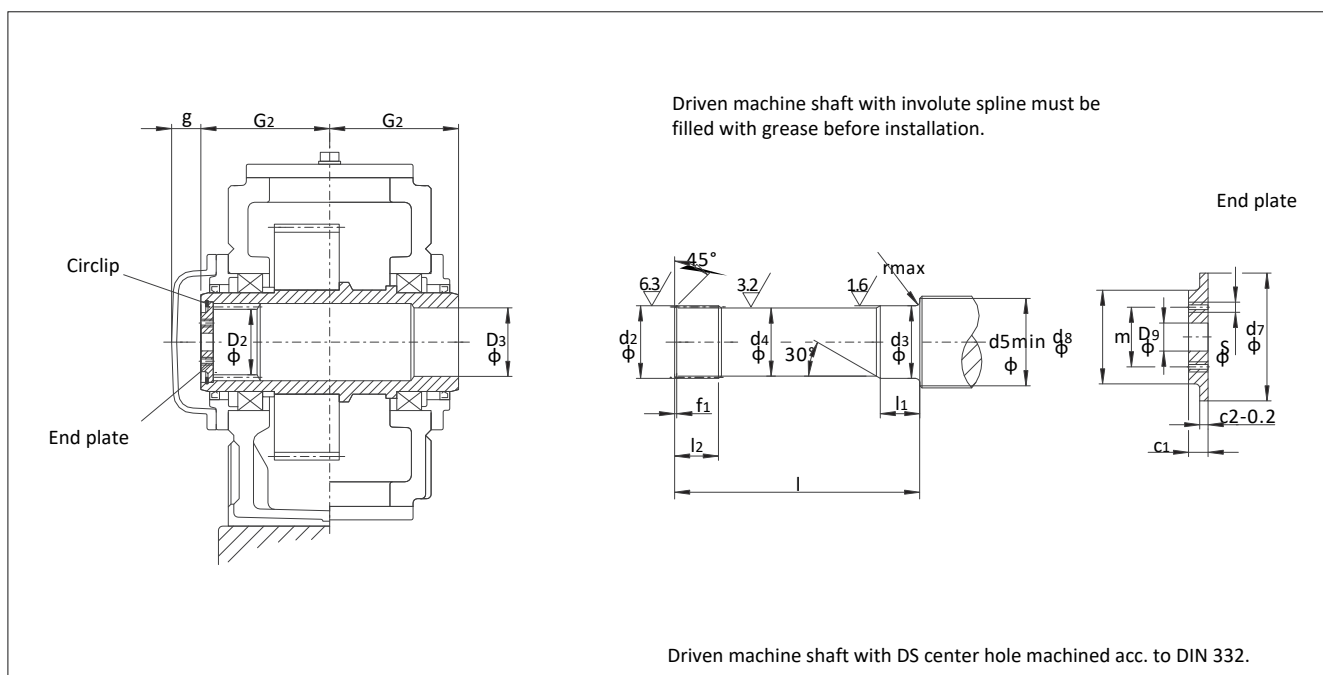
Size	Driven equipment shaft					End plate										Circlip	Hollow shaft				Shrink disc				Bolt	Cover Protection			
	d2	d3	d4	d5	f1	L	L1	r	c1	c2	d7	d8	d9	m	s		Number	D2	D3	G2	G4	Type	d	d1		H	W	s1	D
04	85g6	85h6	84.5	95	4	326	48	2	17	7	90	70	22	50	M8	2	90	85H7	85H7	140	205	SP2-110	110	185	49	15	M12	212	226
05	100g6	100h6	99.5	114	5	383	53	2	20	8	105	80	26	55	M10	2	105	100H7	100H7	165	240	SP2-125	125	215	53	17	M12	252	266
06	110g6	110h6	109.5	124	5	383	58	3	20	8	115	85	26	60	M10	2	115	110H7	110H7	165	240	SP2-140	140	230	58	17	M12	252	266
07	120g6	120h6	119.5	134	5	453	68	3	20	8	125	90	26	65	M12	2	125	120H7	120H7	195	280	SP2-155	155	263	62	23	M12	322	322
08	130g6	130h6	129.5	145	6	458	73	3	20	8	135	100	26	70	M12	2	135	130H7	130H7	195	285	SP2-165	165	290	68	23	M16	322	322
09	140g6	140h6	139.5	160	6	539	82	4	23	10	150	110	33	80	M12	2	150	140H7	140H7	235	330	SP2-175	175	300	68	28	M16	322	357
10	150g6	150h6	149.5	170	6	559	92	4	23	10	160	120	33	90	M12	2	160	150H7	150H7	235	350	SP2-185	185	330	85	28	M16	392	392
11	165f6	165g6	164.5	185	7	644	112	4	23	10	175	130	33	90	M12	2	175	165H7	165H7	270	400	SP2-220	220	370	103	30	M16	392	430
12	180f6	180g6	179.5	200	7	649	122	4	23	10	190	140	33	100	M16	2	190	180H7	180H7	270	405	SP2-240	240	405	107	30	M20	483	450

Type B2...D(Size 04-12)

Size	Driven equipment shaft					End plate										Circlip	Hollow shaft				Shrink disc				Bolt	Cover Protection			
	d2	d3	d4	d5	f1	L	L1	r	c1	c2	d7	d8	d9	m	s		Number	D2	D3	G2	G4	Type	d	d1		H	W	s1	D
04	85g6	85h6	84.5	95	4	326	48	2	17	7	90	70	22	50	M8	2	90	85H7	85H7	140	205	SP2-110	110	185	49	15	M12	212	233
05	100g6	100h6	99.5	114	5	383	53	2	20	8	105	80	26	55	M10	2	105	100H7	100H7	165	240	SP2-125	125	215	53	17	M12	252	278
06	110g6	110h6	109.5	124	5	383	58	3	20	8	115	85	26	60	M10	2	115	110H7	110H7	165	240	SP2-140	140	230	58	17	M12	252	278
07	120g6	120h6	119.5	134	5	453	68	3	20	8	125	90	26	65	M12	2	125	120H7	120H7	195	280	SP2-155	155	263	62	23	M12	322	337
08	130g6	130h6	129.5	145	6	458	73	3	20	8	135	100	26	70	M12	2	135	130H7	130H7	195	285	SP2-165	165	290	68	23	M16	322	337
09	140g6	140h6	139.5	160	6	539	82	4	23	10	150	110	33	80	M12	2	150	140H7	140H7	235	330	SP2-175	175	300	68	28	M16	322	377
10	150g6	150h6	149.5	170	6	559	92	4	23	10	160	120	33	90	M12	2	160	150H7	150H7	235	350	SP2-185	185	330	85	28	M16	392	412
11	165f6	165g6	164.5	185	7	644	112	4	23	10	175	130	33	90	M12	2	175	165H7	165H7	270	400	SP2-220	220	370	103	30	M16	392	445
12	180f6	180g6	179.5	200	7	649	122	4	23	10	190	140	33	100	M16	2	190	180H7	180H7	270	405	SP2-240	240	405	107	30	M20	483	465

- Note: 1. Material of driven equipment shaft: 40cr or steel with higher strength.
 2. Driven equipment shaft is not in scope of supply, please order if required.
 3. Shrink disc, protection cover, end plate and circlip are supplied with gearbox as standard.

14.3 Hollow shaft with involute spline

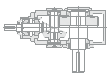


HB

Types H2...K, H3...K, H4...K, B2...K, B3...K, B4...K (size 05-12)

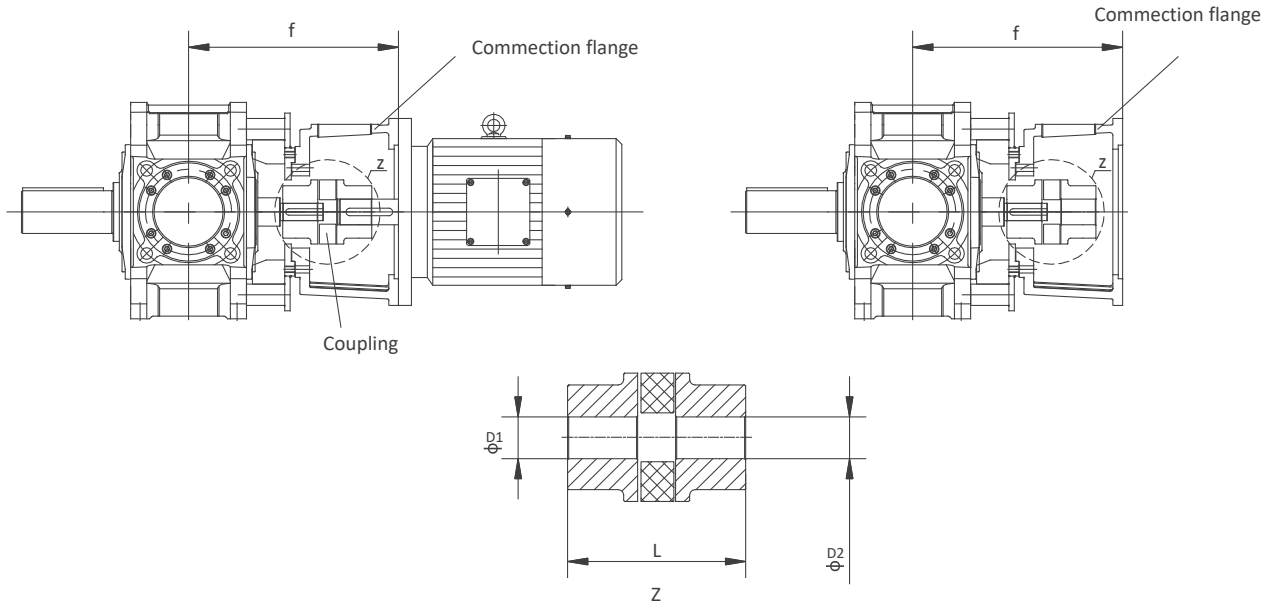
Size	Involute splines DIN5480	Driven equipment shaft										End plate							Hollow shaft				Bolt	
		d2	d3	d4	d5	f1	l	l1	l2	r	c1	c2	d7	d8	D9	m	s	Number	Circlip	D2	D3	G2		G
5	W95x3x30x30x8f	94.4h11	100h6	93	114	3	308	53	90	2	20	8	105d9	80	26	55	M10	2	105	89H11	100H7	165	31	M24
6	W95x3x30x30x8f	94.4h11	110h6	93	124	3	308	58	90	3	20	8	105d9	80	26	55	M10	2	105	89H11	110H7	165	31	M24
7	W120x3x30x38x8f	119.4h11	120h6	118	134	3	368	68	105	3	20	8	125d9	90	26	65	M12	2	125	114H11	120H7	195	37	M24
8	W120x3x30x38x8f	119.4h11	130h6	118	145	3	368	73	105	3	20	8	125d9	90	26	65	M12	2	125	114H11	130H7	195	37	M24
9	W140x3x30x45x8f	139.4h11	145h6	138	160	3	444	82	125	4	23	10	150d9	110	33	80	M12	2	150	134H11	145H7	235	32	M30
10	W140x3x30x45x8f	139.4h11	155h6	138	170	3	444	92	125	4	23	10	150d9	110	33	80	M12	2	150	134H11	155H7	235	37	M30
11	W170x5x30x32x8f	169h11	170g6	168	185	5	514	112	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	170H7	270	40	M30
12	W170x5x30x32x8f	169h11	185g6	168	200	5	514	122	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	185H7	270	50	M30

- Note: 1. Material of driven equipment shaft: 40cr or steel with higher strength.
 2. Driven equipment shaft is not in scope of supply, please order if required.
 3. Shrink disc, protection cover, end plate and circlip are supplied with gearbox as standard.



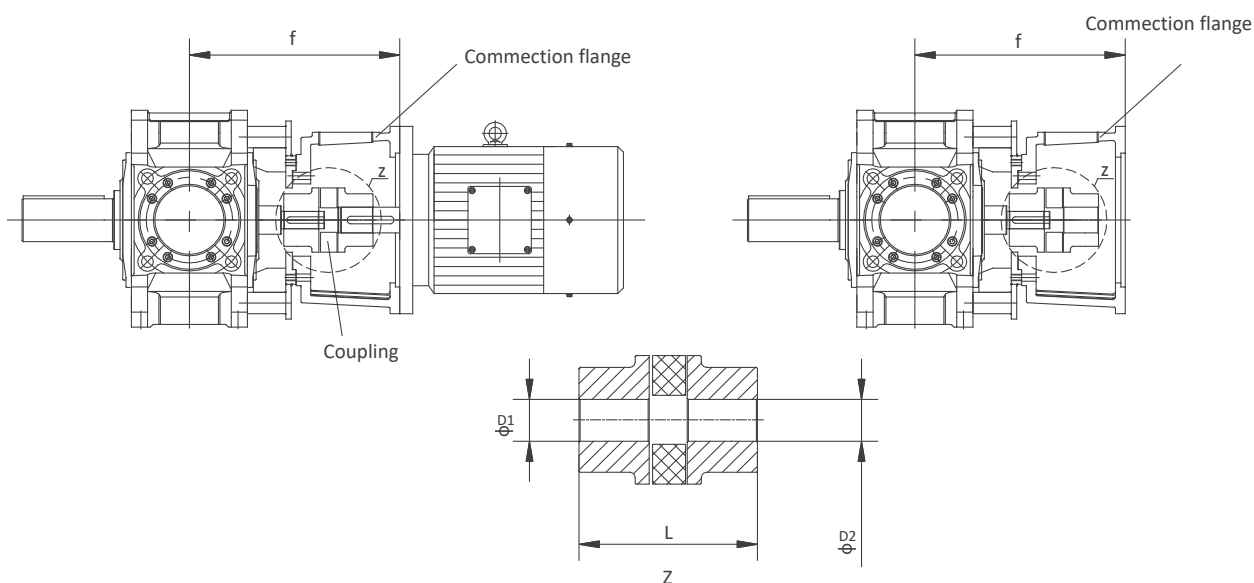
15 Input with motor and flange input(Accessory code:UF31)

H2



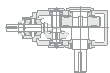
H2			i N≤11.2					i N≥12.5				
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
4	160							GA55	32	42	160	375
	180							GA55	32	48	160	375
	200							GA65	32	55	185	390
	225	GA65	45	60	185	425.5	GA65	32	60	185	425	
5/6	200							GA65	38	55	185	415
	225							GA65	38	60	185	445
	250	GA75	50	65	210	452.9	GA75	38	65	210	460	
	280	Ga75	50	75	210	452.9	GA75	38	75	210	460	

H3



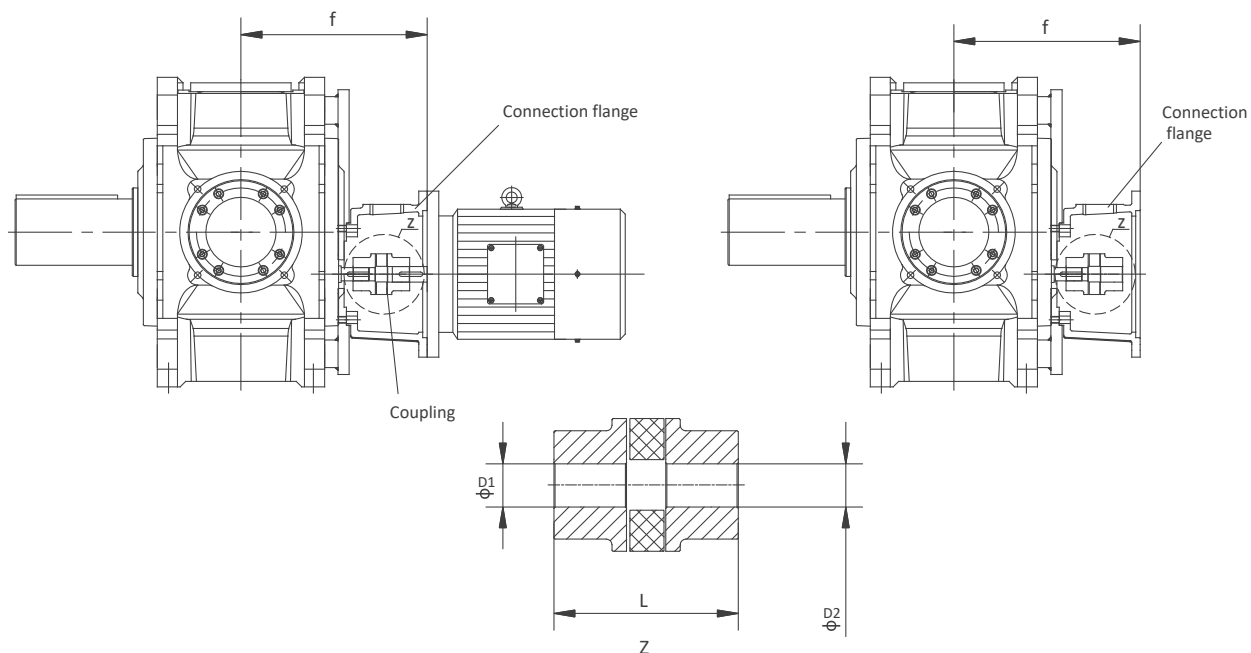
HB

H3			iN≤45 (Size: 5, 6) iN≤50 (Size: 7, 8, 9, 10, 11, 12)				iN≥50 (Size: 5, 6) iN≥56 (Size: 7, 8, 9, 10, 11, 12)					
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
5/6	132						GA42	30	38	126	325	
	160		GA55	40	42	160	375	GA55	30	42	160	375
	180		GA55	40	48	160	375	GA55	30	48	160	375
	200		GA65	40	55	185	390	GA65	30	55	185	390
	225		GA65	40	60	185	420	GA65	30	60	185	420
7/8	160						GA55	35	42	160	415	
	180						GA55	35	48	160	415	
	200		GA65	45	55	185	435	GA65	35	55	185	435
	225		GA65	45	60	185	465	GA65	35	60	185	465
	250		GA75	45	65	210	475	GA75	35	65	210	475
	280		GA75	45	75	210	475					
9/10	160						GA55	45	42	160	470	
	180						GA55	45	48	160	470	
	200		GA65	60	55	185	495	GA65	45	55	185	495
	225		GA65	60	60	185	530	GA65	45	60	185	530
	250		GA75	60	65	210	530	GA75	45	65	210	530
	280		GA75	60	75	210	530					
11/12	225						GA65	50	60	185	535	
	250						GA75	50	65	210	565	
	280		GA75	70	75	210	565	GA75	50	75	210	565



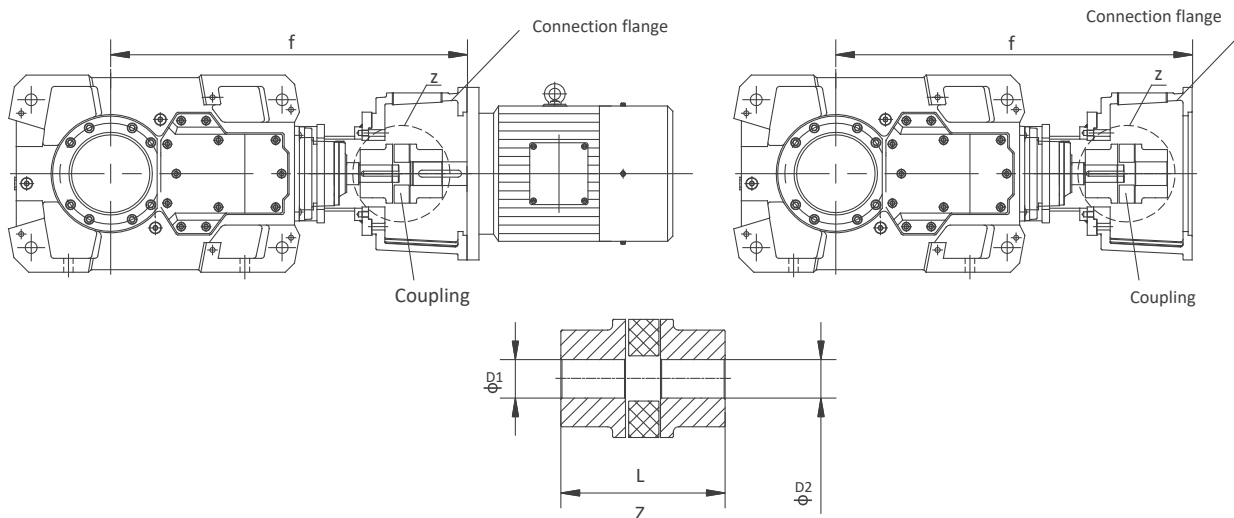
H4

HB



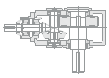
H4			iN≤200(Size : 7, 8, 9, 10) iN≤224(Size : 11, 12)				iN≥224(Size : 7, 8, 9, 10) iN≥250(Size : 11, 12)					
Size	Y Motor	F Flange	Coupling			f	Coupling				f	
			Type	D1	D2		L	Type	D1	D2		L
7/8	132		GA42	30	38	126	335	GA42	24	38	126	335
	160		GA55	30	42	160	385	GA55	24	42	160	385
	180		GA55	30	48	160	385	GA55	24	48	160	385
9/10	132							GA42	28	38	126	370
	160		GA55	35	42	160	420	GA55	28	42	160	420
	180		GA55	35	48	160	420	GA55	28	48	160	420
	200		GA65	35	55	185	435	GA65	28	55	185	435
	225		GA65	35	60	185	465	GA65	28	60	185	465
11/12	160							GA55	32	42	160	480
	180		GA55	45	48	160	480	GA55	32	48	160	480
	200		GA65	45	55	185	490	GA65	32	55	185	490
	225		GA65	45	60	185	510	GA65	32	60	185	510
	250		GA75	45	65	210	515					

B3



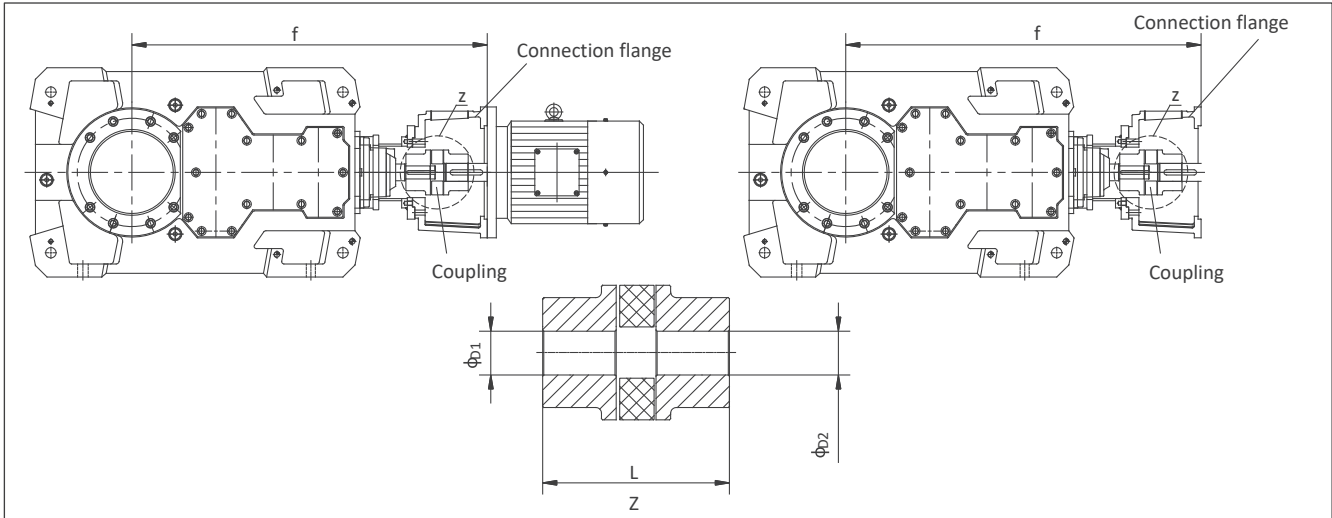
HB

B3		iN≤63					iN≥71					
Size	Y Motor	F Flange	Coupling			f	Coupling				f	
			Type	D1	D2		L	Type	D1	D2		L
4	132						GA42	30	38	126	664	
	160		GA55	35	42	160	718	GA55	30	42	160	718
	180		GA55	35	48	160	718	GA55	30	48	160	718
	200		GA65	35	55	185	724					
5	160		GA55	45	42	160	812	GA55	35	42	160	812
	180		GA55	45	48	160	812	GA55	35	48	160	812
	200		GA65	45	55	185	818	GA65	35	55	185	818
	225		GA65	45	60	185	848					
6	160		GA55	45	42	160	847	GA55	35	42	160	847
	180		GA55	45	48	160	847	GA55	35	48	160	847
	200		GA65	45	55	185	853	GA65	35	55	185	853
	225		GA65	45	60	185	883					
7	160							GA55	40	42	160	924
	180							GA55	40	48	160	924
	200		GA65	50	55	185	932	GA65	40	55	185	932
	225		GA65	50	60	185	962	GA65	40	60	185	962
	250		GA75	50	65	210	965	GA75	40	65	210	965
	280		GA75	50	75	210	965					
8	160							GA55	40	42	160	969
	180							GA55	40	48	160	969
	200		GA65	50	55	185	977	GA65	40	55	185	977
	225		GA65	50	60	185	1007	GA65	40	60	185	1007
	250		GA75	50	65	210	1010	GA75	40	65	210	1010
	280		GA75	50	75	210	1010					
9	200							GA65	50	55	185	1067
	225		GA65	60	60	185	1097	GA65	50	60	185	1097
	250		GA75	60	65	210	1100	GA75	50	65	210	1100
	280		GA75	60	75	210	1100	GA75	50	75	210	1100
10	200							GA65	50	55	185	1117
	225		GA65	60	60	185	1147	GA65	50	60	185	1147
	250		GA75	60	65	210	1150	GA75	50	65	210	1150
	280		GA75	60	75	210	1150	GA75	50	75	210	1150
11	225							GA65	60	60	185	1267
	250		GA75	75	65	210	1270	GA75	60	65	210	1270
	280		GA75	75	75	210	1270	GA75	60	75	210	1270
12	225							GA65	60	60	185	1337
	250		GA75	75	65	210	1340	GA75	60	65	210	1340
	280		GA75	75	75	210	1340	GA75	60	75	210	1340



HB

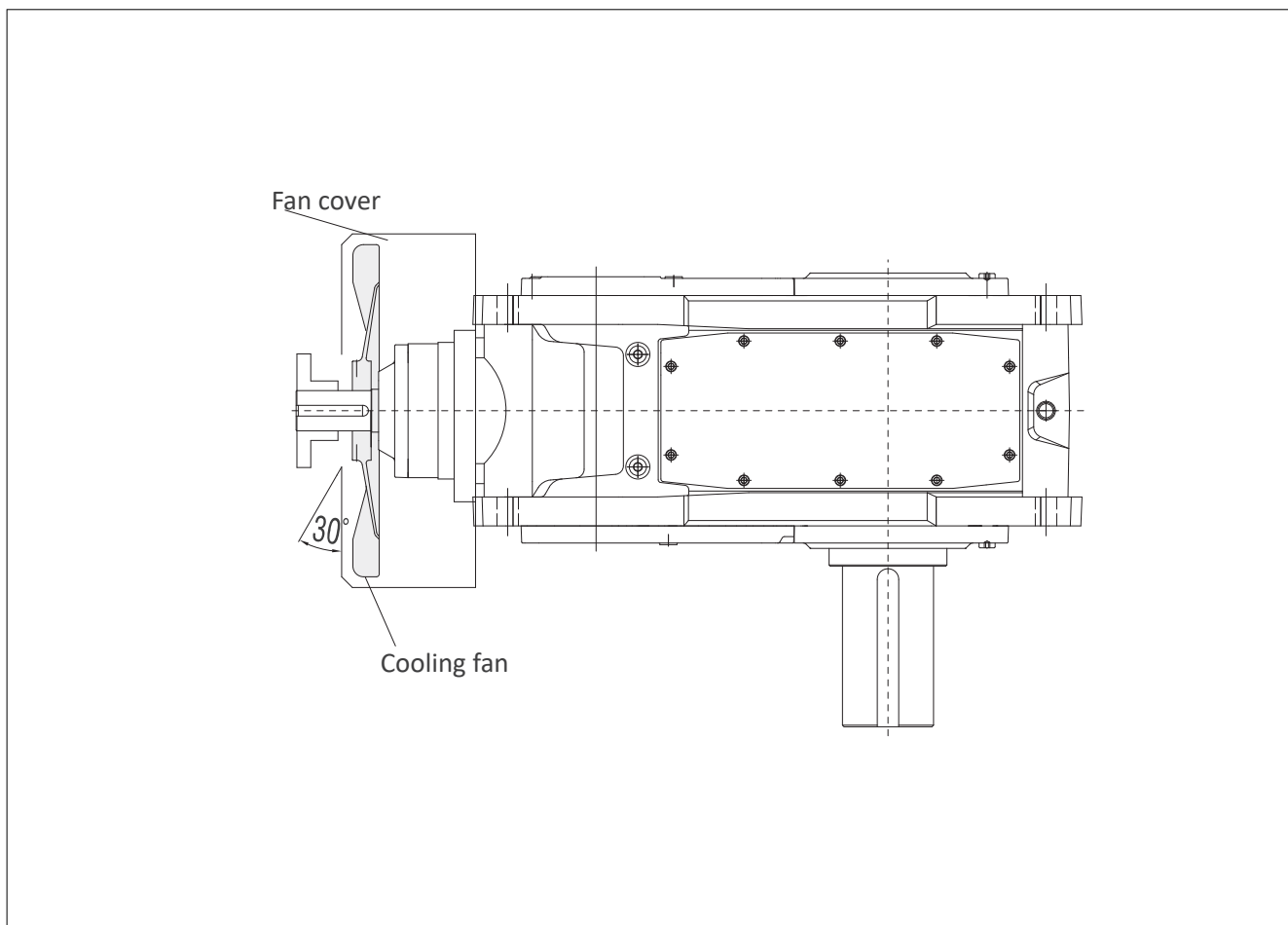
B4



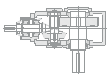
B4			iN≤250(Size: 9, 10) iN≤280(Size: 5, 6, 7, 8, 11, 12)					iN≥280(Size: 9, 10) iN≥315(Size: 5, 6, 7, 8, 11, 12)				
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
5	132		GA42	35	38	126	784	Ga42	25	38	126	784
	160		GA55	35	42	160	837					
6	132		GA42	35	38	126	817.5	GA42	25	38	126	817.5
	160		GA55	35	42	160	870.5					
7	132		GA42	35	38	126	889	GA42	30	38	126	889
	160		GA55	35	42	160	943	GA55	30	42	160	943
	180		GA55	35	48	160	943	GA55	30	48	160	943
	200		GA65	35	55	185	949					
8	132		GA42	35	38	126	934	GA42	30	38	126	934
	160		GA55	35	42	160	988	GA55	30	42	160	988
	180		GA55	35	48	160	988	GA55	30	48	160	988
	200		GA65	35	55	185	994					
9	132							GA42	35	38	126	1023
	160		GA55	45	42	160	1077	GA55	35	42	160	1077
	180		GA55	45	48	160	1077	GA55	35	48	160	1077
	200		GA65	45	55	185	1083					
	225		GA65	45	60	185	1113					
10	132							GA42	35	38	126	1073
	160		GA55	45	42	160	1127	GA55	35	42	160	1127
	180		GA55	45	48	160	1127	GA55	35	48	160	1127
	200		GA65	45	55	185	1133					
	225		GA65	45	60	185	1163					
11	160							GA55	40	42	160	1244
	180		GA55	50	48	160	1244	GA55	40	48	160	1244
	200		GA65	50	55	185	1252	GA65	40	55	185	1252
	225		GA65	50	60	185	1282	GA65	40	60	185	1282
	250		GA75	50	65	210	1285					
	280		GA75	50	75	210	1285					
12	160							GA55	40	42	160	1314
	180		GA55	50	48	160	1314	GA55	40	48	160	1314
	200		GA65	50	55	185	1322	GA65	40	55	185	1322
	225		GA65	50	60	185	1352	GA65	40	60	185	1352
	250		GA75	50	65	210	1355					
	280		GA75	50	75	210	1355					

16 Accessory

16.1 Cooling fan (Accessory code:UF21)



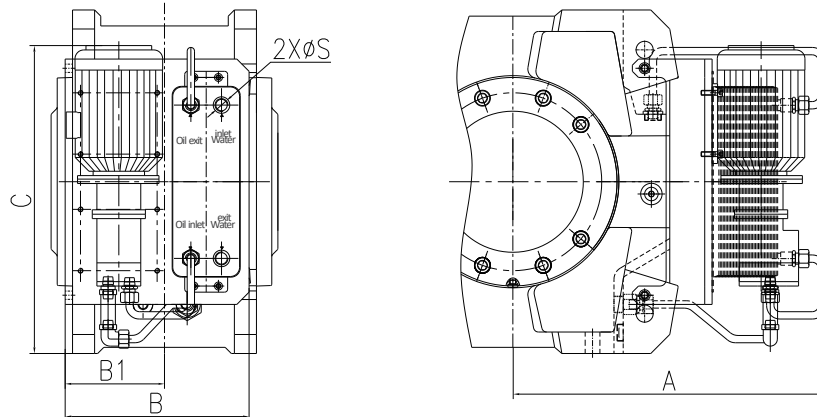
HB



16.2 Water oil cooler (Accessory code:UC22)

1) Horizontal mounting:

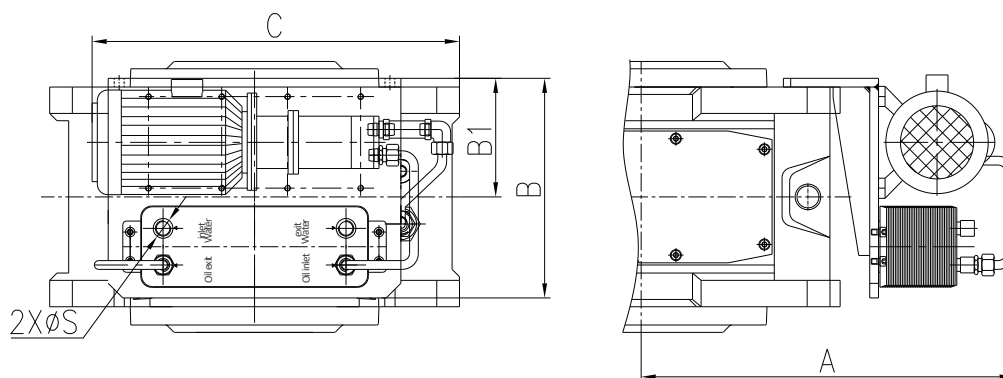
H2..H,H3..H,B2..H,B3..H



Size	A	B	B1	C	S	Water quantity (L/min)
04	435	225	117.5	429	G1/2	4
05	480	265	139.5	452	G1/2	4
06	525	265	139.5	452	G1/2	4
07	510	306	162	502	G1/2	4
08	580	306	162	502	G1/2	4
09	545	360	201	602	G1/2	4
10	595	360	201	602	G1/2	4
11	585	360	231	670	G1/2	4
12	670	360	231	670	G1/2	4

2) Vertical mounting:

H2..V,H3..V,B2..V,B3..V



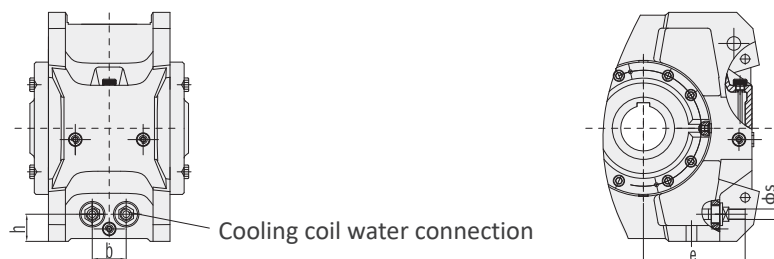
Size	A	B	B1	C	S	Water quantity (L/min)
04	435	225	117.5	429	G1/2	4
05	480	265	139.5	452	G1/2	4
06	525	265	139.5	452	G1/2	4
07	510	306	162	502	G1/2	4
08	580	306	162	502	G1/2	4
09	545	360	201	602	G1/2	4
10	595	360	201	602	G1/2	4
11	585	360	231	670	G1/2	4
12	670	360	231	670	G1/2	4

16.3 Cooling coil (Accessory code:UC21)

1) Horizontal mounting:

For exquisite vibrating applications the water-oil cooler is recommended (Accessory code:uc22)

H2..H, H3..H, B2..H, B3..H

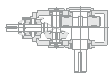


Cooling coil water connection

Size	H2..H / B3..H					H3..H					B2..H				
	b	e	h	s	Water quantity (l/min)	b	e	h	s	Water quantity (l/min)	b	e	h	s	Water quantity (l/min)
04	60	165	48	G1/2	4	-	-	-	-	-	60	170	48	G1/2	4
05	70	170	64	G1/2	4	70	170	64	G1/2	4	70	170	64	G1/2	8
06	70	225	55	G1/2	4	70	225	55	G1/2	4	70	225	55	G1/2	4
07	70	215	80	G1/2	4	70	215	80	G1/2	4	70	215	80	G1/2	8
08	70	275	75	G1/2	4	70	275	75	G1/2	4	70	275	75	G1/2	4
09	70	250	70	G1/2	8	70	250	70	G1/2	4	70	255	70	G1/2	8
10	70	300	70	G1/2	8	70	300	70	G1/2	4	70	305	70	G1/2	8
11	70	285	90	G1/2	8	70	285	90	G1/2	8	70	285	90	G1/2	8
12	70	370	90	G1/2	8	70	370	90	G1/2	8	70	370	90	G1/2	8

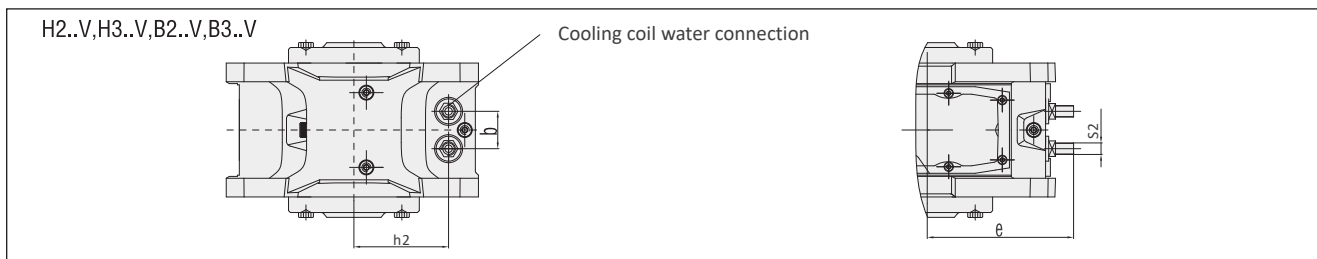
- ⚠ Note: 1. Cooling coil is appropriate for fresh water. Sea water and brackish water, maximum pressure of cooling water: 8 bar.
2. For H306 (iN>25), H307 (iN>28), H308 (iN>28), H310 (iN>28) there can be no cooling coil.

HB



2) Vertical mounting:

HB



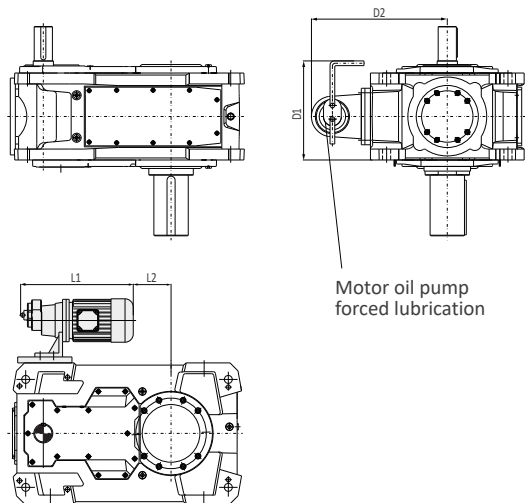
Size	H2..V / B3..V					H3..V					B2..V				
	b	e	h2	s2	Water quantity (l/min)	b	e	h2	s2	Water quantity (l/min)	b	e	h2	s2	Water quantity (l/min)
04	60	165	152	G1/2	4	-	-	-	-	-	60	165	152	G1/2	4
05	70	170	166	G1/2	4	70	170	166	G1/2	4	70	170	166	G1/2	8
06	70	225	175	G1/2	4	70	225	175	G1/2	4	70	225	175	G1/2	4
07	70	215	200	G1/2	4	70	215	200	G1/2	4	70	215	200	G1/2	8
08	70	275	205	G1/2	4	70	275	205	G1/2	4	70	275	205	G1/2	4
09	70	250	250	G1/2	8	70	250	250	G1/2	4	70	255	250	G1/2	8
10	70	300	250	G1/2	8	70	300	250	G1/2	4	70	305	250	G1/2	8
11	70	285	290	G1/2	8	70	285	290	G1/2	8	70	285	290	G1/2	8
12	70	370	290	G1/2	8	70	370	290	G1/2	8	70	370	290	G1/2	8

⚠ Note: 1. Cooling coil is appropriate for fresh water. Sea water and brackish water, maximum pressure of cooling water: 8 bar.
2. For H306 (iN>25), H307 (iN>28), H308 (iN>28), H310 (iN>28) there can be no cooling coil.

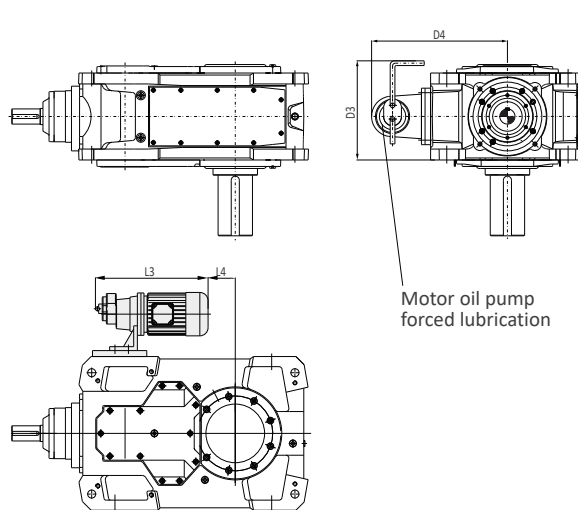
Type	Cooling coil is appropriate for			
	Size	Compensation oil tank dip-in lubrication	Flange pump forced lubrication	Motor oil pump forced lubrication
		Applicable shaft assemblies	Applicable shaft assemblies	Applicable shaft assemblies
H2..V	04 - 12	A+B+C+D+E+F+G+H+I	Please consult	
H3..V	05 - 12	A+B+C+D+E+F+G+H+I		
B2..V	04 - 12	A+B+C+D+E+F		
B3..V	04 - 12	A+B+C+D+E+F		

16.4 Motor oil pump forced lubrication(Accessory code:US32)

H3..V,H4..V



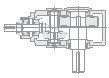
B2..V,B3..V,B4..V



HB

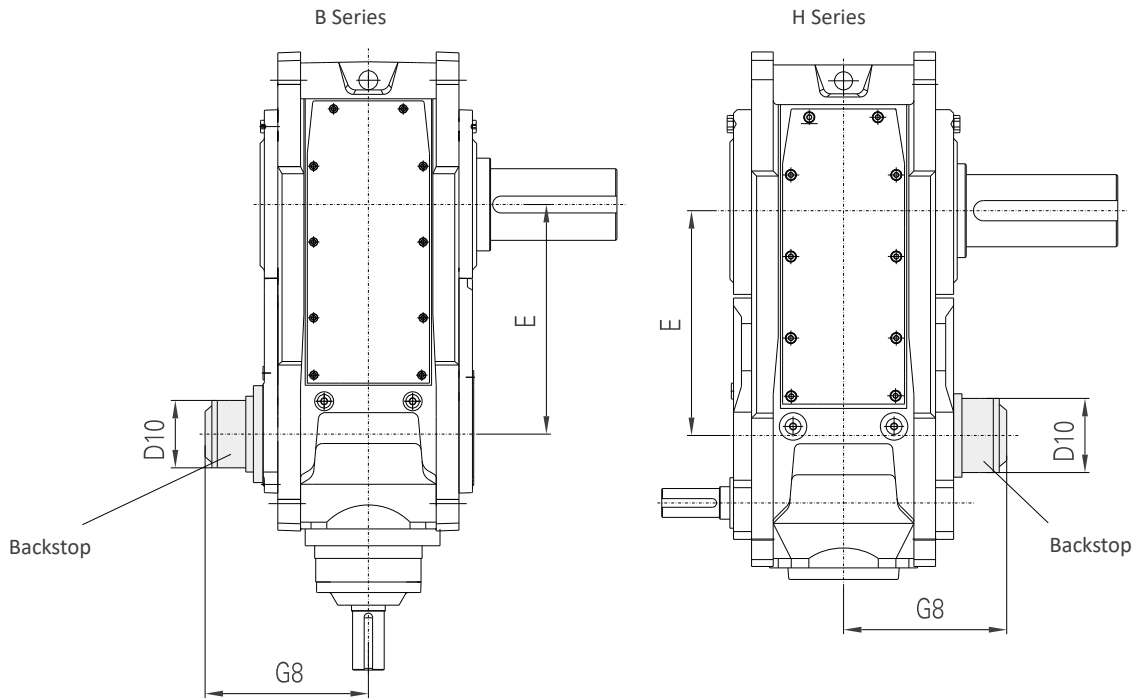
Mounting dimension						
Type	Size	Shaft assemblies	L2	L1	D2	D1
H3..V	05/06	A+B+C+D	-30/5	560	480	385
	07/08	A+B+C+D	55/100	585	550	430
	09/10	A+B+C+D	140/190	610	565	500
	11/12	A+B+C+D	375/445	530	625	560
H4..V	07/08	A+C	55/100	600	550	430
		B+D	0/45	680	550	430
	09/10	A+C	140/190	625	565	500
		B+D	85/135	705	565	500
	11/12	A+C	375/445	550	625	560
		B+D	320/390	635	625	560

Mounting dimension						
Type	Size	Shaft assemblies	L4	L3	D4	D3
B2..V	05/06	A+B+C+D	-160/-125	480	470	415
	07/08	A+B+C+D	5/50	480	525	510
	09/10	A+B+C+D	60/110	480	565	570
	11/12	A+B+C+D	150/220	480	625	660
B3..V	05/06	A+B+C+D	-85/-50	480	480	365
	07/08	A+B+C+D	-5/40	480	550	430
	09/10	A+B+C+D	65/115	480	565	500
	11/12	A+B+C+D	280/350	480	625	560
B4..V	05/06	A+B+C+D	-35/0	480	480	385
	07/08	A+B+C+D	55/100	480	550	430
	09/10	A+B+C+D	140/190	615	565	500
	11/12	A+B+C+D	375/445	530	625	560



16.5 Backstop (Accessory code Ub11)

HB



Size	04			05			06			07			08		
	D10	G8	E	D10	G8	E	D10	G8	E	D10	G8	E	D10	G8	E
B2	175	229	177	190	249	201	190	249	240	230	295	240	230	295	280
B3	125	193	270	150	217	315	150	217	350	175	262	385	175	262	430
B4/H4				95	208	405	95	208	440	125	245	495	125	245	540
H3				150	217	312	150	217	347	175	262	375	175	262	420

Size	09			10			11			12		
	D10	G8	E	D10	G8	E	D10	G8	E	D10	G8	E
B2	270	352	280	270	352	340	322	407	340	322	407	390
B3	190	297	450	190	297	500	230	347	545	230	347	615
B4/H4	125	273	580	125	273	630	150	314	705	150	314	775
H3	190	297	440	190	297	490	230	347	530	230	347	600

Note: The rotation direction is the direction of output shaft d while face the output shaft.

16.6 Oil compensation tank(Accessory code:US33) and shaft end oil pump (Accessory code:US31)

		Input speed limit	
Type	Size	US33	US31
		n1<	n1>
H2..V	04-12	1500	900
H3..V	05-12	1500	1200
H4..V	07-12	1800	1200
B2..V	04-12	1500	1200
B3..V	04-12	1500	1200
B4..V	05-12	1800	1200

HB

16.7 Lubrication Oil

16.7.1 Oil quantity

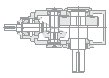
Oil Quantity Table (L)																		
Size	H2..H	H3..H	H4..H	B2..H	B3..H	B4..H	H2..V		H3..V		H4..V		B2..V		B3..V		B4..V	
	①	①	①	①	①	①	②	③	②	③	②	③	②	③	②	③	②	③
04	10	—	—	10	9	—	25	—	—	—	—	—	28	—	28	—	—	—
05	15	15	—	16	14	16	23	10	35	13	—	—	41	20	32	12	36	15
06	16	17	—	19	15	18	27	11	37	15	—	—	50	23	35	13	40	16
07	27	28	25	31	25	30	58	22	60	25	50	20	75	35	52	22	60	30
08	30	30	27	34	28	33	62	25	72	30	60	25	90	38	67	28	70	35
09	42	45	48	48	40	48	100	42	100	40	95	38	115	53	115	48	110	60
10	45	46	50	50	42	50	110	46	110	45	110	45	135	60	125	52	130	67
11	71	85	80	80	66	80	160	60	170	66	165	65	190	86	180	75	180	75
12	76	90	87	95	72	90	180	70	190	75	180	75	215	95	200	85	195	85

Note:1.① Oil tank splash lubrication ② Dip-in lubrication ③ Forced lubrication.
2.The above data are average values.

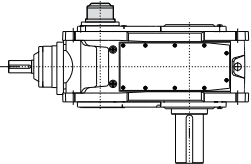
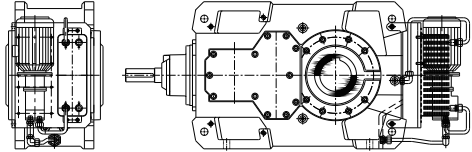
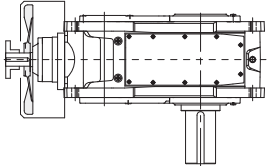
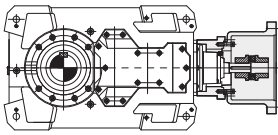
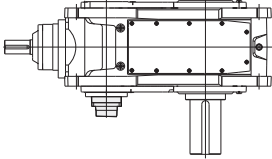
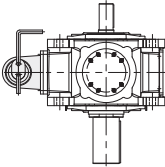
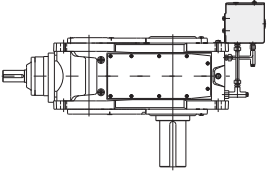
16.7.2 Lubrication oil (heavy-loading industrial gear oil) viscosity number selection[VG320(Accessory code:UV32);VG460(Accessory code:UV46)]

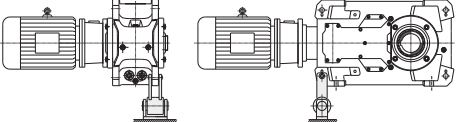
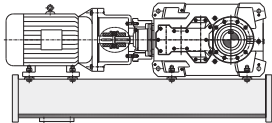
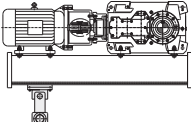
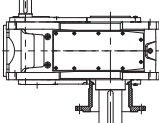
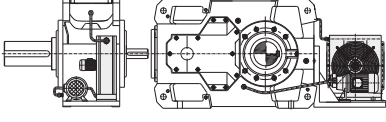
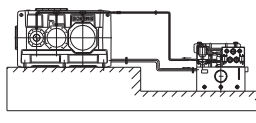
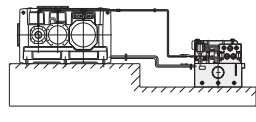
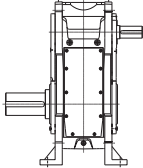

Ambient temperature °C	-20°C – +40°C	+30°C – +50°C
Viscosity number	VG320	VG460

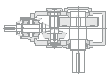
Note: 1.Viscosity in the above table is ISO-VG Viscosity under 40 °C
2.When ambient temperature is lower than -10 °C,synthetic oil must be used.
3.To ensure product lifespan, we suggest synthetic oil.
4.IF ambient temperature exceeds the above range, please consult.



16.8 Accessories code table:

Code	Accessories	Example
UB11	Backstop	
UC 22	Water-Oil cooler	
UF21	Cooling fan	
UF31	Input connection flange	
US31	Shaft end oil pump forced lubrication	
US32	Motor oil pump forced lubrication	
US33	Oil compensation tank dip-in oil lubrication	
UV32	Lubrication oil VG320	
UV46	Lubrication oil VG460	

Code	Accessories	Example
Please consult	Torque arm	
	Gear box swing base	
	Swing base with torque arm UT61	
	Mounting flange UF32	
	External wind air-oil cooler UC23	
	Pipeline(Customer build oil station)	
	Oil station	
	Upright mounting	
	Electric heater	
	Shaft sealing of other categories	



Note:

- ◆ The structure scheme, appearance diagram and other attached diagrams in sample are examples, there is no strict proportion requirement. (The unmarked dimension units are mm)
- ◆ The marked weight is average value, it has no constraint force.
- ◆ To prevent accidents, all the rotation parts are added with protective covers according to the safety regulations of the nation and region.
- ◆ Before debugging, you should carefully read instruction book.
- ◆ Gearbox is on running-permission status when delivered, you should add lubrication oil before putting it into running.
- ◆ The marked oil quantity in sample is only reference value, actual oil filling quantity should be the same with the mark on oil dipstick.
- ◆ Lubrication oil viscosity should be selected according to working situation and application environment temperature of gearbox.
- ◆ You can only apply lubrication oil of internationally famous brand.

Product Function Mark



Oil glass



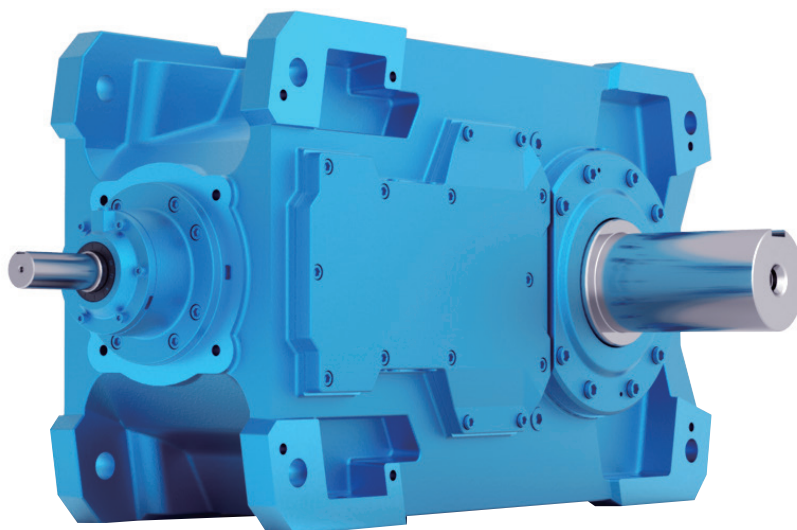
Oil filler



Breather



Oil drain





TGE Transmission s.r.o.

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268 01 Hořovice

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301 00 Plzeň
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Local dealer

A large, empty rounded rectangular box with a blue border, intended for the local dealer information.

