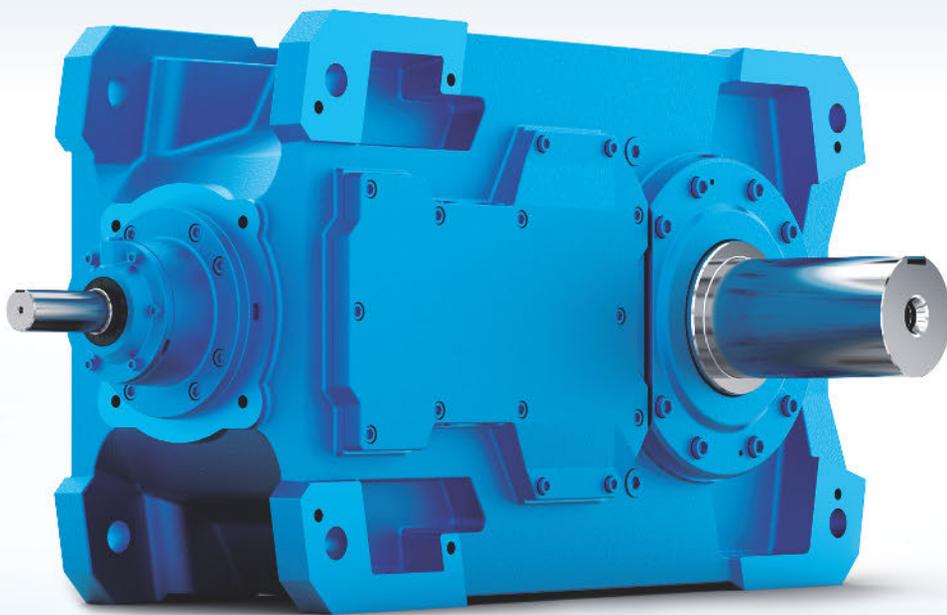


BONENG



H&B Heavy Duty Gear Units

08 / 2014

BONENG Heavy Duty Gear Units

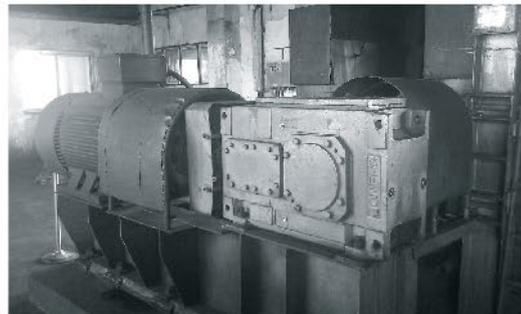
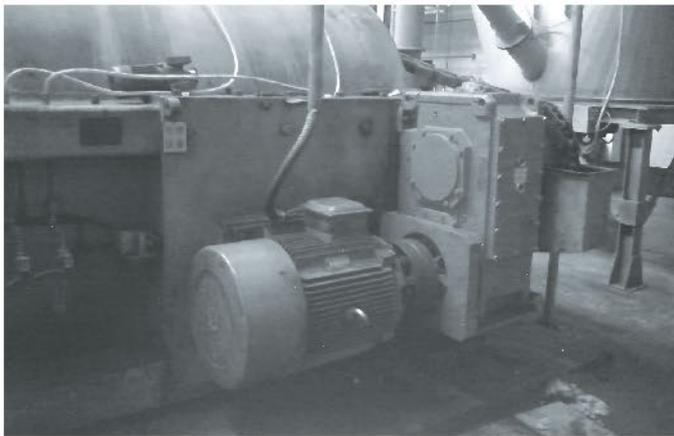
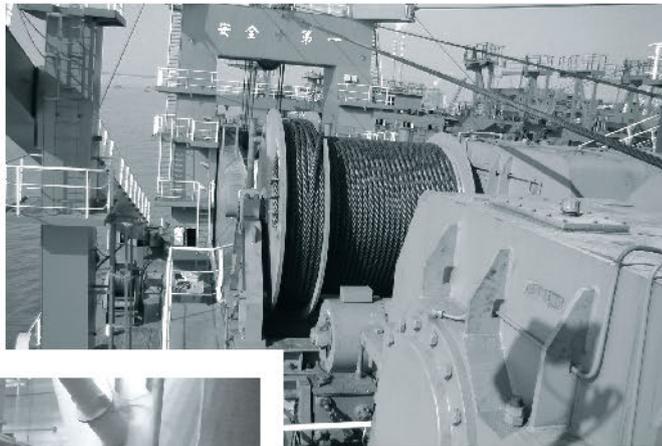


On the basis of summarizing gear units design and manufacturing experiences in the past twenty years, analyzing and absorbing advanced technology of international heavy duty gear units production, Boneng transmission makes innovative development, pushing forward the new type H&B heavy duty gear unit to better satisfy customer requirements.

Compared with internationally advanced gear units and the original H&B industrial gear units of Boneng, the new type H&B heavy duty gear units have the following characteristics:

- ◆ 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 Boneng Transmission, it owns intellectual property rights.
- ◆ Frame type load-carrying structure design, the whole structure is stronger, footing is more fastened.
- ◆ Improved cooling fan and cooling coil design can effectively reduce the temperature during gear unit running.
- ◆ Output shaft sealing applies double oil sealing, the sealing is more reliable, the applications are wider.
- ◆ Fluororubber sealing piece, it has good high-temperature resistant, anti-aging and anti-abrasion performance. It is safer and has longer lifespan under complex and bad working environment.

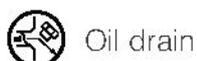
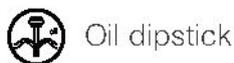
For coal, electric power, petroleum, metallurgy, cement, shipping, port, hoisting and conveying industries, the high-quality and long lifespan new type gear units of Boneng Transmission can satisfy your requirements.



Note: you must conform to the following instructions!

- ◆ 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.
- ◆ Gear unit 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 gear units.
- ◆ You can only apply lubrication oil of internationally famous brand.

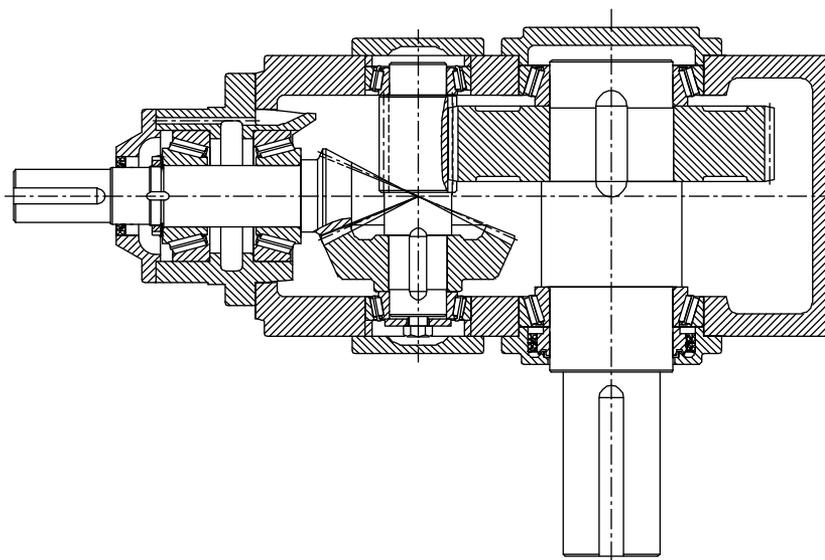
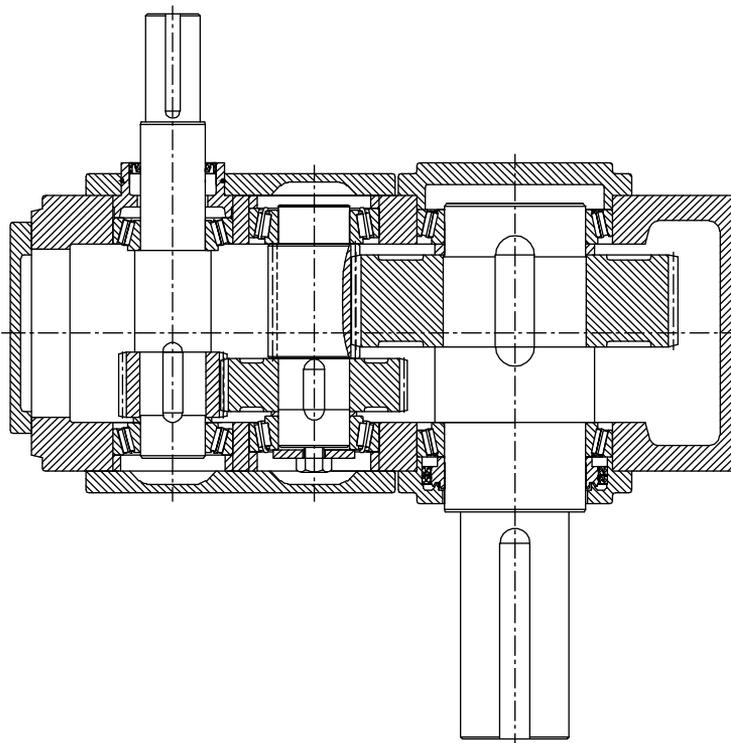
Product function mark



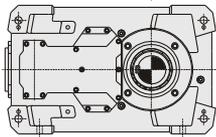
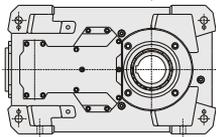
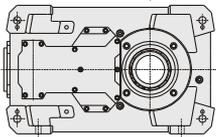
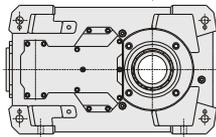
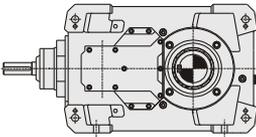
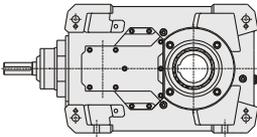
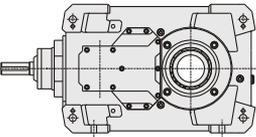
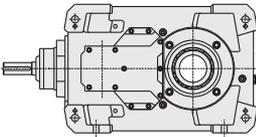
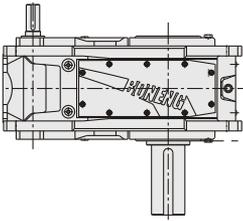
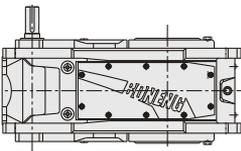
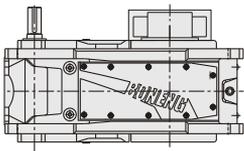
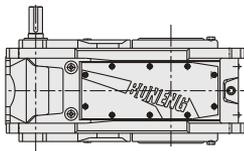
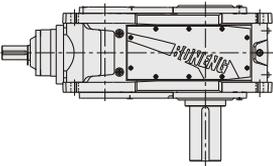
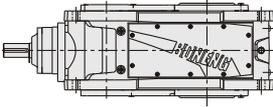
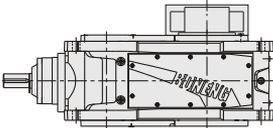
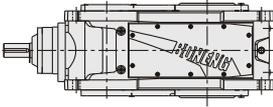
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1. Structure scheme:



2. Mounting positions:

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 i _N = 6.3 - 450	 H...VS	 H...VH	 H...VD	 H...VK
B series i _N = 6.3 - 400	 B...VS	 B...VH	 B...VD	 B...VK

3.Selection:

Serial number	Definition	Symbol	Parameter calculation						
1	Driven equipment factor	f_1	Refer to page5 f_1 table						
2	Prime mover factor	f_2	Prime mover factor		f_2				
			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	S_F	Refer to page4 s_f 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	n_1	$\leq 1800r/min$ For higher speed, please consult us.						
7	Determination of ratio	i	$i=n_1/n_2$						
8	Confirm gear unit input power with torque or power needed by driven equipment.	P_1	$P_1=T_2 \cdot n_1/(9550 \cdot i \cdot \eta)$ or $P_1=P_2/\eta$						
9	According to calculation, check transmission capacity table to determine gear unit size	T_{2N} 、 P_{1N}	$T_{2N} \geq T_2 \cdot f_1 \cdot f_2 \cdot S_F$ or $P_{1N} \geq P_1 \cdot f_1 \cdot f_2 \cdot S_F$ If it doesn't satisfy conditions: $3.33 \cdot P_1 \geq P_{1N}$, Please consult us.						
10	Peak torque verification *	T_A	$P_{1N} \geq T_A \cdot n_1 \cdot f_3/9550$	Load peaks per hour					
				f_3		1-5	6-30	31-100	>100
				Single direction loading	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	F_{r1}/F_{r2} F_{a1}/F_{a2}	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. $P_1 \leq P_{GA} \times f_4 \times f_8$ 2) If it satisfies the following condition, the gear unit will be equipped with cooling fan. $P_1 \leq P_{GB} \times f_4 \times f_8$ 3) If it satisfies the following condition, the gear unit will be equipped with cooling coil. $P_1 \leq P_{GC} \times f_5 \times f_8$ 4) If it satisfies the following condition, the gear unit will be equipped with cooling coil and fan. $P_1 \leq P_{GD} \times f_5 \times f_8$ 5) 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 page4 for f_4 、 f_5 、 f_8).						
14	Determine each item according to type designation		Refer to page4.						

* 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)

Gear unit safety factor		S _F
For ordinary equipment, only single machine stops production when gear unit fails. easy to replace spare parts and minor loss occurred.		1.0 ≤ S _F ≤ 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 < S _F ≤ 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 < S _F

Thermal factor		f ₄				
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	

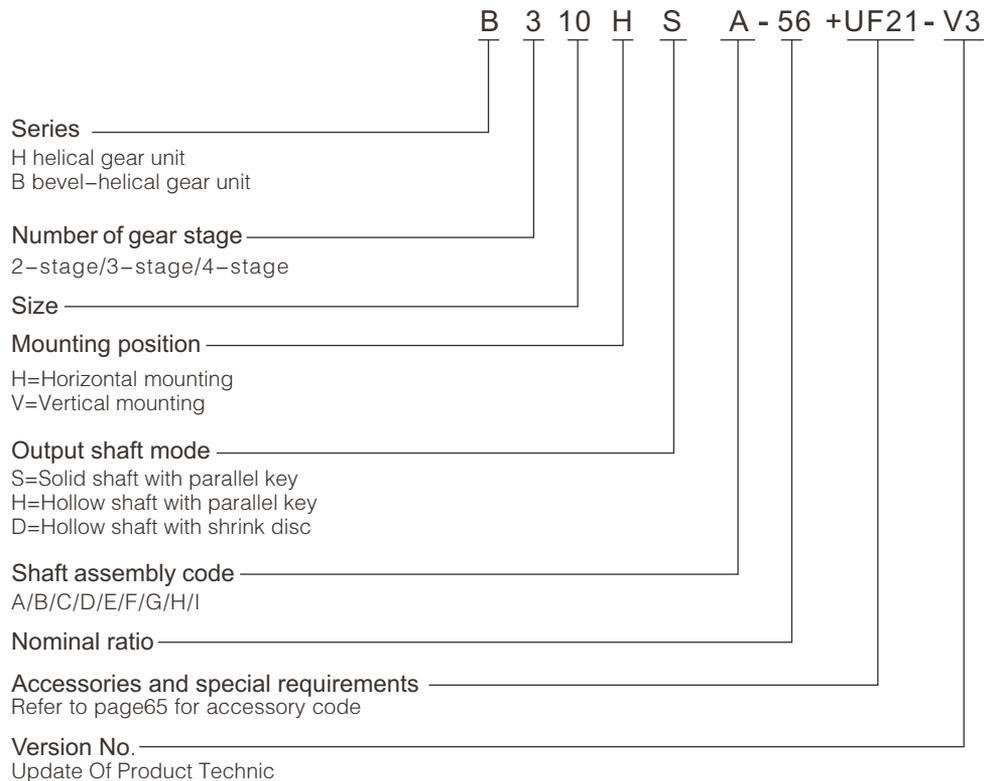
Thermal factor		f ₅				
Gear unit with cooling coil or with cooling coil and fan						
Ambient temperature	Operating cycle per hour					
	100	80	60	40	20	
10 °C	1.05	1.23	1.50	2.03	3.41	
20 °C	1.00	1.17	1.43	1.93	3.25	
30 °C	0.93	1.09	1.33	1.79	3.02	
40 °C	0.87	1.02	1.24	1.68	2.83	
50 °C	0.81	0.95	1.16	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 f ₈ =1.0						f ₈
When forced lubrication applied, f ₈ =1.05						
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-in lubrication	0.95	*	0.95	*	
	Forced lubrication	1.15	*	1.05	*	
B2..V, B3..V B4..V	Dip-in lubrication	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				f ₁			
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	1.0	1.3	1.5	Elevators for customers*	-	1.5	1.8
Concentrator	-	1.1	1.3	Scraper conveyor	-	1.2	1.5
Screw pump	-	1.3	1.5	Automatic ladder	1.0	1.2	1.4
Water wheel machine	-	-	2.0	Rail traveling mechanism	-	1.5	-
Pump				Various frequency device	-	1.8	2.0
Centrifugal pump	1.0	1.2	1.3	Reciprocating compressor	-	1.8	1.9
Volume-down pump				Hoisting mechanism**			
1Piston	1.3	1.4	1.8	Rotary mechanism*		1.4	1.8
>1Piston	1.2	1.4	1.5	Pitching mechanism		1.1	1.4
Dredge				Traveling mechanism		1.6	2.0
Bucket conveyor	-	1.6	1.6	Lifting mechanism		1.1	1.4
Unloading device	-	1.3	1.5	Jibcrane		1.2	1.6
Carterpillar traveling mechanism	1.2	1.6	1.8	Cooling tower			
Bucket digger				Cooling tower fan	-	-	2.0
Be used for picking up	-	1.7	1.7	Fan (Shaft flow and centrifugal type)	-	1.4	1.5
Be used for rough materials	-	2.2	2.2	Food industry			
Chopper	-	2.2	2.2	Sugar production			
Traveling mechanism*	-	1.4	1.8	Sugar-cane cutter*	-	-	1.7
Plate blender	-	1.0	1.0	Sugar crane mill			
Chemical industry				Beet sugar production			
Extruder	-	-	1.6	Beet masher			
Paste mixer	-	1.8	1.8	Squeeze machine, mechanical refrigerator, cooking machine	-	-	1.2
Rubber calendar	-	1.5	1.5	Beet cleaner	-	-	1.5
Cooling cylinder	-	1.3	1.4	Paper-making machinery			
Material mixer, be used for				Various kinds***	-	1.8	2.0
Uniform medium	1.0	1.3	1.4	Pulper driving device	Supply goods according to customer requirements		
Non-uniform medium	1.4	1.6	1.7	Centrifugal compressor	-	1.4	1.5
Blender, be used for				Rope way cable car			
Uniform density medium	1.0	1.3	1.5	Delivery ropeway	-	1.3	1.4
Un-uniformed medium	1.2	1.4	1.6	Cableway of shuttle system	-	1.6	1.8
Un-uniformed gas absorption	1.4	1.6	1.8	T rod elevator	-	1.3	1.4
Oven	1.0	1.3	1.5	Continuous cableway	-	1.4	1.6
Centrifugal machine	1.0	1.2	1.3	Cement industry			
Metal processing equipment				Concrete blender	-	1.5	1.5
Plate turnover	1.0	1.0	1.2	Crusher*	-	1.2	1.4
Steel pushing device	1.0	1.2	1.2	Rotary kiln	-	-	2.0
Winding machine	-	1.6	1.6	Tube mill	-	-	2.0
Cooling bed transverse frame	-	1.5	1.5	Powder concentrator	-	1.6	1.6
Roller leveler	-	1.6	1.6	Roller press	-	-	2.0
Roller path							
Continuous	-	1.5	1.5				
Interval	-	2.0	2.0				
Reversing mill	-	1.8	1.8				
Cutter							
Continuous*	-	1.5	1.5				
Crank type*	1.0	1.0	1.0				
Continuous casting driving device	-	1.4	1.4				
Rolling mill							
Reversing cogging mill	-	2.5	2.5				
Reversing plate slab mill	-	2.5	2.5				
Reversing wire mill	-	1.8	1.8				
Reversing thin plate mill	-	2.0	2.0				
Reversing middle thickness plate mill	-	1.8	1.8				
Roll gap adjusting and driving device	0.9	1.0	-				

Driven equipment factor							f ₁			
Driven equipment	Daily running time with load(hour)			Driven equipment	Daily running 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, film	1.25	1.25	1.25			
Main drive	1.75	1.75	1.75	Conveying pipe, Pulling rod, thin type						
Conveyor				Pipe type, Pile drawer	1.25	1.25	1.50			
Burner, repeating saw	1.25	1.25	1.50	Continuous mixer, Calender	1.50	1.50	1.50			
Rotary tower, transit transport	1.50	1.50	1.50	Blow film, to plasticizing						
Main loading, heavy loading	1.75	1.75	2.00	Batch mixer	1.75	1.75	1.75			
Main original wood, land base				Rubber industry						
Conveying chain				Continuous strong inner mixer, Mix roller,						
Floor	1.50	1.50	1.50	Batch feeding mixer (except for double sticks)	1.50	1.50	1.50			
Green-wood	1.50	1.50	1.75	Refiner, calender						
Cutting Chain				Double roller clamp feeding and mixed miller	1.25	1.25	1.50			
Saw transmission, traction	1.50	1.50	1.75	Batch strong inner mixer,						
Peeling barrel	1.75	1.75	2.00	Double stick single groove grain stick	1.75	1.75	1.75			
Feed drive				Miller heater, double sticks						
Edging, wood trimmer	1.25	1.25	1.50	Batch feeding mixer						
Planer feed, assorting table,				Wave stick miller	2.00	2.00	2.00			
Automatic incline lifting	1.75	1.75	1.75	Generator and exciter	1.00	1.00	1.25			
Multi-shaft feed, raw wood				Hammer crusher	1.75	1.75	2.00			
Transportation and rotation				Sand miller	1.25	1.25	1.50			
Transportation										
Charging tray										
Plywood lathe drive	1.50	1.50	1.75							
Conveying chain, Lifting										

-  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}	Rated output torque	
T_A	Peak torque	
$T_{n2atmax}$	Rated output torque under highest speed	
$T_{n2atmin}$	Rated output torque under lowest speed	
P_{1N}	Rated input power of gear unit	kW
P_{GA}	Rated thermal capacity of gear unit without auxiliary cooling	
P_{GB}	Rated thermal capacity of gear unit with cooling fan	
P_{GC}	Rated thermal capacity of gear unit with cooling coil	
P_{GD}	Rated thermal capacity of gear unit with cooling coil and fan	
P_1	Input power	
P_2	Power of driven equipment	
f_1	Driven equipment factor	/
f_2	Prime mover factor	
f_3	Peak torque factor	
f_4	Thermal factor	
f_5	Thermal factor	
f_8	Vertical mounting gear unit oil supply factor	
S_F	Gear unit safety factor	
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	Duty cycle per hour	%

6 Selection example

Known conditions:

Prime mover:

Motor power: 90kW
Motor speed: $n_1=1450\text{r/min}$
Maximum starting torque: $T_A=860\text{N.m}$
(Calculate max starting by multiplying rated torque of motor by 1.6)

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°C
Place of installation: Outdoor mounting
Altitude: 500m

Gear unit:

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:

$$i = n_1/n_2 = 1450/33 = 43.9 \quad i_N = 45$$

2. Determine rated power of gear unit:

$$P_1 = P_2 / \eta = 72 / (94\%) = 76.6\text{kW}$$

$$P_{1N} \geq P_1 \cdot f_1 \cdot f_2 \cdot S_F = 76.6 \times 1.3 \times 1 \times 1.4 = 139.4\text{kW}$$

Refer to transmission capacity table B3, select size 10 $P_{1N} = 146\text{kW}$

$$3.33 \cdot P_1 = 3.33 \times 76.6 = 255.1\text{kW} \geq P_{1N} \quad \text{Satisfy requirements}$$

3. Peak torque verification

$$P_{1N} \geq T_A \cdot n_1 \cdot f_3 / 9550 = 860 \times 1450 \times 0.65 / 9550 = 84.9\text{kW}$$

$$P_{1N} = 146\text{kW} \geq 84.9\text{kW} \quad \text{Satisfy requirements}$$

4. Verify thermal capacity:

$$P_{GA} \cdot f_4 \cdot f_8 = 80.8 \times 0.75 \times 1 = 60.6\text{kW} \leq P_1 = 76.6\text{kW} \quad \text{Thermal capacity not sufficient}$$

$$P_{GB} \cdot f_4 \cdot f_8 = 180 \times 0.75 \times 1 = 135\text{kW} \geq P_1 = 76.6\text{kW} \quad \text{Thermal capacity is sufficient}$$

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 :

H2 (iN=6.3–22.4):

iN	n ₁ (r/min)	n _{2N} (r/min)	H204			H205			H206			H207			H208						
			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)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)				
6.3	1740	276	6.7	6.33	187	11.2	6.08	312	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	287	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	256	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	227	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	198	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	178	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	162	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	145	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	127	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	109	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	101	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				21.2		89	16.5	21.8	135	20.3	22.7	160	27.5	22.4	224				
	1450	64.7																74	113	133	187
	1150	51.3																59	90	105	148
	960	42.9																49.0	75	88	124

H209			H210			H211			H212			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)	T _{2N} (kN·m)	i _{ex}	P _{1N} (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	

7 Transmission Capacity table:

H3(in=16-100):

iN	n ₁ (r/min)	n _{2N} (r/min)	H305			H306			H307			H308			
			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)	
16	1740	109.0	11.6	15.0	131	17.5	15.4	202	21.7	15.5	246	29.0	15.3	328	
	1450	90.6			109						169			205	273
	1150	71.9			87						134			162	217
	960	60.0			72						112			136	181
18	1740	96.7	11.6	17.1	117	17.5	17.5	179	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	156	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	144	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	129	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	116	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	103	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	90	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	83	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	74	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	68	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	59	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	56	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	48.5	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	42.9	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	38.8	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
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)			
35.7	15.4	407	51	15.2	566	64	15.3	724	78	15.3	888	109.0	1740	16
		339			472			603			740	90.6	1450	
		269			374			478			587	71.9	1150	
		224			312			399			490	60.0	960	
35.7	17.2	362	51	17.0	510	64	17.1	643	78	17.1	789	96.7	1740	18
		301			425			536			658	80.6	1450	
		239			337			425			522	63.9	1150	
		200			281			355			435	53.3	960	
35.7	20.3	325	51	20.1	450	64	19.0	579	78	19.0	710	87.0	1740	20
		271			375			482			592	72.5	1450	
		215			297			383			470	57.5	1150	
		180			248			319			392	48.0	960	
35.7	22.0	291	51	21.8	404	64	21.4	517	78	21.5	634	77.7	1740	22.4
		242			337			431			529	64.7	1450	
		192			267			342			419	51.3	1150	
		160			223			285			350	42.9	960	
35.7	25.7	260	51	25.4	378	64	24.7	462	78	24.7	568	69.6	1740	25
		217			315			385			474	58.0	1450	
		172			250			305			376	46.0	1150	
		144			209			255			314	38.4	960	
35.7	28.5	233	51	28.2	325	64	27.2	416	78	27.3	507	62.1	1740	28
		194			271			347			423	51.8	1450	
		154			215			275			335	41.1	1150	
		128			179			230			280	34.3	960	
35.7	29.9	208	51	29.5	304	64	30.6	370	78	30.7	450	55.2	1740	31.5
		173			253			308			375	46.0	1450	
		137			201			244			297	36.5	1150	
		115			168			204			248	30.5	960	
35.7	35.2	182	51	34.8	260	64	34.1	324	78	34.1	394	49.0	1740	35.5
		152			217			270			328	40.8	1450	
		121			172			214			260	32.4	1150	
		101			144			179			217	27.0	960	
35.7	38.2	164	51	37.7	241	64	38.4	293	78	38.4	356	43.5	1740	40
		137			201			244			297	36.3	1450	
		109			159			194			236	28.8	1150	
		91			133			162			197	24.0	960	
35.7	44.6	143	51	44.1	208	64	44.2	254	78	44.3	308	38.7	1740	45
		119			173			212			257	32.2	1450	
		94			137			168			204	25.6	1150	
		79			115			140			170	21.3	960	
35.7	49.4	130	51	48.8	188	64	48.8	230	78	48.9	281	34.8	1740	50
		108			157			192			234	29.0	1450	
		86			125			152			186	23.0	1150	
		72			104			127			155	19.2	960	
35.7	52.4	116	54	51.8	179	64	54.1	208	78	54.1	253	31.1	1740	56
		97			149			173			211	25.9	1450	
		77			118			137			167	20.5	1150	
		64			99			115			140	17.1	960	
35.7	59.6	103	54	58.8	158	64	60.2	185	78	60.3	226	27.6	1740	63
		86			132			154			188	23.0	1450	
		68			105			122			149	18.3	1150	
		57			87			102			124	15.2	960	
35.7	66.7	90	54	65.8	143	64	68.3	161	78	68.4	196	24.5	1740	71
		75			119			134			163	20.4	1450	
		59			94			106			129	16.2	1150	
		50			79			89			108	13.5	960	
35.7	74.0	82	54	73.1	121	64	75.8	145	78	75.9	175	21.8	1740	80
		68			101			121			146	18.1	1450	
		54			80			96			116	14.4	1150	
		45.0			67			80			97	12.0	960	
35.7	86.7	70	54	85.6	110	64	86.2	128	78	86.3	156	19.3	1740	90
		58			92			107			130	16.1	1450	
		46.0			73			85			103	12.8	1150	
		38.4			61			71			86	10.7	960	
35.7	93.2	63	54	92.0	98	64	98.9	115	78	99.0	140	17.4	1740	100
		52			82			96			117	14.5	1450	
		41.4			65			76			93	11.5	1150	
		34.6			54			64			77	9.6	960	

7 Transmission Capacity table:

H4 (iN=71-400)

iN	n ₁ (r/min)	n _{2N} (r/min)	H407			H408			H409		
			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)
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)			
57	65.0	147	62	67.6	157	78	67.7	201	24.5	1740	71
		122			131			167	20.4	1450	
		97			104			133	16.2	1150	
		81			87			111	13.5	960	
57	73.9	130	62	74.0	139	78	74.1	176	21.8	1740	80
		108			116			147	18.1	1450	
		86			92			117	14.4	1150	
		72			77			97	12.0	960	
57	85.7	113	62	87.5	123	78	87.6	156	19.3	1740	90
		94			103			130	16.1	1450	
		75			82			103	12.8	1150	
		62			68			86	10.7	960	
57	93.5	104	62	98.0	112	78	98.1	140	17.4	1740	100
		87			93			117	14.5	1450	
		69			74			93	11.5	1150	
		57			62			77	9.6	960	
57	105.1	93	62	104.7	100	78	104.8	126	15.5	1740	112
		78			83			105	12.9	1450	
		62			66			84	10.3	1150	
		51			55			70	8.57	960	
57	115.6	84	62	119.7	89	78	119.9	114	13.9	1740	125
		70			74			95	11.6	1450	
		56			59			75	9.20	1150	
		46.4			49.0			63	7.68	960	
57	131.4	74	62	135.3	80	78	135.5	101	12.4	1740	140
		62			67			84	10.4	1450	
		49.2			53			67	8.21	1150	
		41.1			44.4			56	6.86	960	
57	152.4	65	62	160.0	70	78	160.2	88	10.9	1740	160
		54			58			73	9.06	1450	
		42.8			46.0			58	7.19	1150	
		35.7			38.4			48.3	6.00	960	
57	166.1	60	62	179.2	61	78	179.5	78	9.67	1740	180
		50			51			65	8.06	1450	
		39			40.4			52	6.39	1150	
		33			33.8			43.0	5.33	960	
57	186.8	53	62	191.4	55	78	191.7	71	8.70	1740	200
		44.4			46.0			59	7.25	1450	
		35.2			36.5			46.8	5.75	1150	
		29.4			30.5			39.1	4.80	960	
57	204.8	48.0	62	219.0	50	78	219.3	62	7.77	1740	224
		40.0			42.0			52	6.47	1450	
		31.7			33.3			41.2	5.13	1150	
		26.5			27.8			34.4	4.29	960	
57	236.6	42.5	62	243.4	44.4	78	243.8	56	6.96	1740	250
		35.4			37.0			47.0	5.80	1450	
		28.1			29.3			37.3	4.60	1150	
		23.5			24.5			31.1	3.84	960	
57	252.3	38.4	62	276.1	39.6	78	276.5	52	6.21	1740	280
		32.0			33.0			43.0	5.18	1450	
		25.4			26.2			34.1	4.11	1150	
		21.2			21.8			28.5	3.43	960	
57	291.3	33.6	62	309.4	34.8	78	309.9	45.6	5.52	1740	315
		28.0			29.0			38.0	4.60	1450	
		22.2			23.0			30.1	3.65	1150	
		18.5			19.2			25.2	3.05	960	
57	331.2	30.0	62	353.2	31.2	78	353.7	39.6	4.90	1740	355
		25.0			26.0			33.0	4.08	1450	
		19.8			20.6			26.2	3.24	1150	
		16.6			17.2			21.8	2.70	960	
57	368	26.4	62	376.4	27.7	78	376.9	36.0	4.35	1740	400
		22.0			23.1			30.0	3.63	1450	
		17.4			18.3			23.8	2.88	1150	
		14.6			15.3			19.9	2.40	960	

7 Transmission Capacity table :

B2 (i_N=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)
6.3	1740	276	6.2	6.33	179									
	1450	230			149									
	1150	183			118									
	960	152			99									
7.1	1740	245	6.2	7.13	157	9.4	6.96	240	12.0	7.14	307	19.0	7.14	486
	1450	204			131			200			256			405
	1150	162			104			159			203			321
	960	135			87			132			169			268
8	1740	218	6.2	8.26	142	9.4	8.06	215	12.0	8.27	274	19.0	8.27	434
	1450	181			118			179			228			362
	1150	144			94			142			181			287
	960	120			78			119			151			240
9	1740	193	6.2	8.93	125	9.4	8.71	191	12.0	8.94	242	19.0	8.94	385
	1450	161			104			159			202			321
	1150	128			82			126			160			255
	960	107			69			105			134			213
10	1740	174	6.2	10.1	113	9.4	9.88	170	12.0	10.1	218	19.0	10.1	346
	1450	145			94			142			182			288
	1150	115			75			113			144			228
	960	96.0			62			94			120			191
11.2	1740	155	6.2	11.1	100	9.4	10.9	152	12.0	11.1	194	19.0	11.1	308
	1450	129			83			127			162			257
	1150	103			66			101			128			204
	960	85.7			55			84			107			170
12.5	1740	139	6.2	12.9	89	9.4	12.5	137	12.0	12.9	174	19.0	12.9	276
	1450	116			74			114			145			230
	1150	92.0			59			90			115			183
	960	76.8			49.2			75			96			152
14	1740	124	6.2	13.9	80	9.4	13.6	122	12.0	13.9	156	19.0	13.9	247
	1450	104			66			102			130			206
	1150	82.1			53			81			103			163
	960	68.6			44.0			67			86			136

B208			B209			B210			B211			B212			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)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)			
															276	1740	6.3
															230	1450	
															183	1150	
															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	

7 Transmission Capacity table :

B3 (iN=16-90)

iN	n ₁ (r/min)	n _{2N} (r/min)	B304			B305			B306			B307		
			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)
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}	n_1	iN
T_{2N} (kN·m)	i_{ex}	P_{1N} (kW)	(r/min)	(r/min)													
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	27.7	416	78	27.7	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	31.2	370	78	31.2	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	36.1	324	78	36.1	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	39.0	293	78	39.1	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	44.2	254	78	44.3	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	48.7	230	78	48.7	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	56.2	208	78	56.2	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	60.8	185	78	60.9	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	68.6	152	78	68.7	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	78.6	135	78	78.8	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	85.7	120	78	85.8	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 Transmission Capacity table :

B4($i_N=100-400$) :

i_N	n_1 (r/min)	n_{2N} (r/min)	B405			B406			B407			B408		
			T_{2N} (kN · m)	i_{ex}	P_{1N} (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
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)			
36.0	104.8	65	44.5	103.5	80	62	95.4	112	78	95.6	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	108.1	100	78	108.3	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	123.6	89	78	123.8	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	139.3	80	78	139.5	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	161.3	70	78	161.6	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	174.5	61	78	174.8	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	197.8	55	78	198.1	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	217.6	50	78	217.9	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	251.0	44.4	78	251.4	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	271.9	39.6	78	272.3	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	306.6	34.8	78	307.0	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	351.6	30.8	78	352.1	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	383.2	27.4	74	383.7	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	

8 Rated thermal capacity(kW)

H2 (kW)

iN		H204				H205				H206				H207			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
6.3	P _{GA}	54.1	49.2	48.5	40.6	66.5	54.6	48.8	*	87	58.3	51	*	90.3	67.4	*	*
	P _{GB}	106	112	132	144	143	146	172	181	158	159	186	185	221	220	256	263
	P _{GC}	120	126	146	157	190	196	226	239	206	212	243	241	305	311	357	373
	P _{GD}	162	176	210	236	256	276	327	361	278	290	352	367	417	445	525	574
7.1	P _{GA}	56.1	51.8	51.6	44.6	69	58.4	53.9	*	75	62.4	56.6	*	89.8	70.3	*	*
	P _{GB}	109	116	137	150	146	151	177	189	161	164	193	194	214	215	252	262
	P _{GC}	121	127	148	159	189	196	226	241	205	212	243	246	287	294	338	355
	P _{GD}	165	180	214	240	256	276	327	363	278	299	352	371	394	422	499	548
8	P _{GA}	54.4	50.9	51.4	45.7	68.3	59.5	56.4	*	74.5	63.6	59.2	*	89.1	72.9	64.9	*
	P _{GB}	104	111	132	145	142	149	175	188	157	162	191	204	208	212	249	262
	P _{GC}	115	121	140	152	182	189	219	234	197	204	236	251	272	281	323	342
	P _{GD}	155	170	202	228	245	266	316	352	266	288	341	379	376	404	479	529
9	P _{GA}	53.4	51.1	52.4	48.3	67.9	61.6	60.5	50.5	78.1	69.8	67.8	54.7	89.3	77.5	73.2	*
	P _{GB}	101	109	129	143	139	147	174	189	159	167	198	214	202	210	248	266
	P _{GC}	109	116	135	146	174	182	211	227	197	206	238	256	259	269	311	332
	P _{GD}	150	164	196	221	234	255	303	340	266	289	344	384	357	386	458	510
10	P _{GA}	51.1	49.5	51.4	48.5	65.4	60.9	61.1	53.7	77.4	71.3	70.9	61	88.3	79.5	77.7	63.7
	P _{GB}	95.7	103	123	136	131	140	165	181	156	166	196	214	193	204	241	261
	P _{GC}	102	108	126	137	160	169	196	211	189	198	230	248	243	255	295	317
	P _{GD}	139	153	182	207	217	237	282	318	255	278	331	372	337	367	436	489
11.2	P _{GA}	49.3	48.2	50.4	48.3	63.4	60.1	61.2	55.6	76	71.4	72.2	64.6	90.7	83.7	83.4	72.1
	P _{GB}	91.7	100	118	132	126	135	160	177	151	161	191	210	196	208	246	269
	P _{GC}	97	103	120	130	151	159	185	200	180	190	221	239	241	254	294	317
	P _{GD}	132	145	174	197	205	225	268	303	245	268	319	359	336	366	436	490
12.5	P _{GA}	47.8	47.1	49.5	47.9	63	60.4	62.1	57.7	72.3	68.9	70.5	64.6	90.2	84.6	85.6	76.5
	P _{GB}	87.6	95.8	113	127	123	133	157	174	142	153	181	200	191	204	242	266
	P _{GC}	93.6	99.8	116	126	149	158	183	199	165	175	204	221	236	249	289	313
	P _{GD}	126	139	166	189	201	220	263	297	226	248	295	333	327	357	425	480
14	P _{GA}	45.5	45.1	47.6	46.5	60	58.2	60.4	57	69.8	67.3	69.5	65	83.8	79.8	81.7	75
	P _{GB}	82.9	90.9	108	120	116	126	150	166	135	147	174	193	175	189	224	247
	P _{GC}	87.5	93.4	108	118	138	147	171	186	156	166	193	209	211	223	259	281
	P _{GD}	118	130	155	177	186	204	243	276	213	234	279	316	294	322	384	434
16	P _{GA}	41.8	41.7	44.1	43.5	56.6	55.4	57.8	55.4	68.9	67.1	69.8	66.4	79	76.1	78.6	73.6
	P _{GB}	75.7	83.1	98.9	110	108	118	140	155	131	143	169	188	163	177	210	232
	P _{GC}	78.8	84.3	98.1	107	126	135	157	171	154	164	191	207	194	206	239	260
	P _{GD}	107	118	141	160	171	189	225	256	208	229	273	310	269	295	352	399
18	P _{GA}	40.1	40.2	42.7	42.3	54.4	53.7	56.4	54.7	65.7	64.5	67.6	65.2	76.1	74.2	77.3	73.7
	P _{GB}	72.1	79.3	94.4	105	103	113	134	150	124	136	162	180	157	170	202	225
	P _{GC}	74.1	79.3	92.4	101	119	127	148	161	142	152	177	192	185	196	229	249
	P _{GD}	100	111	132	151	162	179	213	242	194	214	255	290	257	283	338	383
20	P _{GA}	39.3	39.5	42	41.8	51.1	50.6	53.3	52.1	61.7	60.9	64	62.2	71.3	69.9	73.1	70.2
	P _{GB}	70.2	77.4	92.1	103	96.8	106	126	140	115	126	150	168	145	158	188	210
	P _{GC}	71.7	76.7	89.4	97.8	111	118	138	150	131	140	162	177	169	180	209	228
	P _{GD}	97.4	107	128	146	150	166	198	225	179	197	235	268	236	260	310	352
22.4	P _{GA}					47.5	47.1	49.7	48.6	59	58.3	61.3	59.6	68.7	67.5	70.7	68
	P _{GB}					89.4	98	116	130	111	121	144	161	139	152	181	202
	P _{GC}					101	107	125	136	124	133	155	169	161	172	200	218
	P _{GD}					137	151	181	205	169	187	223	253	224	247	295	335

* Please consult.

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		
101	71.4	*	*	116	*	*	*	118	*	*	*	134	*	*	*	142	*	*	*	P _{GA}	6.3
250	245	283	275	293	279	322	319	304	286	328	324	450	382	428	366	510	412	456	414	P _{GB}	
350	353	405	410	475	475	542	558	527	525	596	607	696	665	746	732	952	893	996	894	P _{GC}	
474	504	594	637	626	658	774	832	689	718	844	896	951	966	1124	1154	1243	1243	1443	1365	P _{GD}	
100	74.5	*	*	117	*	*	*	119	*	*	*	145	*	*	*	154	*	*	*	P _{GA}	7.1
242	239	279	281	286	278	323	325	297	285	329	328	454	400	453	408	515	432	483	431	P _{GB}	
329	334	384	398	447	451	516	536	496	498	567	587	677	656	740	738	926	881	988	923	P _{GC}	
448	478	565	616	589	624	735	797	648	681	802	866	931	956	1117	1163	1217	1231	1434	1405	P _{GD}	
99	77.3	*	*	118	88	*	*	120	*	*	*	152	*	*	*	161	*	*	*	P _{GA}	8
235	236	276	287	279	276	322	330	290	283	328	332	449	410	469	441	509	443	501	444	P _{GB}	
312	319	367	386	425	432	496	519	472	477	545	567	646	635	720	728	884	853	961	954	P _{GC}	
428	458	542	595	562	599	707	772	618	654	772	837	895	929	1088	1149	1170	1197	1397	1449	P _{GD}	
100	84.3	77.2	*	120	97.8	86.3	*	124	97.3	*	*	160	*	*	*	182	*	*	*	P _{GA}	9
228	234	275	293	272	277	324	341	283	285	333	347	437	419	484	481	520	482	553	530	P _{GB}	
294	305	352	374	403	415	477	505	442	453	521	548	599	601	686	707	861	852	968	985	P _{GC}	
405	437	518	574	536	576	682	753	582	622	736	809	833	878	1033	1113	1149	1197	1405	1494	P _{GD}	
100	88.1	84.2	65.2	119	102	96	*	125	104	95.3	*	164	121	*	*	193	*	*	*	P _{GA}	10
222	232	273	294	262	272	320	342	278	285	335	355	424	420	489	501	516	498	577	577	P _{GB}	
280	292	338	361	378	392	453	483	422	436	503	534	564	573	657	687	821	825	943	975	P _{GC}	
386	419	498	555	505	546	648	720	556	599	710	787	786	836	987	1077	1106	1167	1375	1485	P _{GD}	
99	89.7	88	73.2	116	103	99.9	79.4	124	108	103	*	173	138	119	*	195	144	*	*	P _{GA}	11.2
214	226	267	290	249	262	309	333	270	281	331	355	430	435	509	533	495	491	572	587	P _{GB}	
264	277	321	345	353	369	427	457	398	414	479	512	560	575	662	698	756	769	882	923	P _{GC}	
367	400	475	533	473	514	610	682	528	572	679	756	784	841	995	1095	1020	1086	1283	1401	P _{GD}	
95.6	88.4	88.3	76.6	116	105	104	87.5	122	109	106	86.5	178	149	135	*	194	154	*	*	P _{GA}	12.5
205	218	258	282	244	258	305	332	259	273	322	348	425	436	512	543	475	480	562	587	P _{GB}	
250	263	305	329	342	358	415	447	375	393	454	487	549	568	655	695	710	728	837	883	P _{GC}	
346	378	450	506	455	496	589	661	498	542	644	720	766	825	978	1083	960	1029	1218	1340	P _{GD}	
97.7	92	93.2	83.7	114	106	106	93.7	119	109	108	92.7	173	151	142	*	202	169	153	*	P _{GA}	14
207	222	263	289	236	252	298	326	247	262	310	338	403	420	494	530	483	496	583	618	P _{GB}	
248	262	304	329	322	339	393	424	349	367	425	458	509	529	611	653	705	729	841	892	P _{GC}	
345	377	449	507	432	472	562	632	465	507	603	677	711	770	914	1018	958	1032	1223	1355	P _{GD}	
97	92.6	94.9	87.3	108	102	104	94.2	117	109	110	98	166	148	144	116	206	179	169	*	P _{GA}	16
201	216	257	283	221	237	281	309	240	256	303	333	377	397	469	507	476	496	583	625	P _{GB}	
242	256	297	322	295	312	362	392	339	357	414	448	464	485	561	602	688	716	827	882	P _{GC}	
336	368	438	496	397	435	518	584	449	491	584	658	650	706	839	939	932	1009	1197	1333	P _{GD}	
89.7	86.8	89.8	84.5	103	99	101	94.5	114	109	111	102	156	144	143	122	200	180	175	142	P _{GA}	18
184	200	237	263	208	225	266	295	231	249	296	326	352	375	443	483	450	474	560	606	P _{GB}	
217	231	268	292	276	292	339	368	319	337	392	424	432	455	527	567	635	664	769	825	P _{GC}	
301	331	395	447	371	407	486	550	425	465	555	627	609	664	790	887	864	938	1115	1249	P _{GD}	
85.2	82.9	86.3	82	100	97.1	100	94.4	109	104	107	99.9	152	142	142	125	189	172	170	144	P _{GA}	20
172	187	222	246	200	217	257	285	217	235	278	308	339	362	428	469	419	444	525	571	P _{GB}	
199	212	247	268	264	280	326	354	293	311	362	392	408	430	499	539	577	606	702	755	P _{GC}	
276	304	363	411	355	390	465	527	392	430	512	580	575	628	747	842	786	856	1019	1143	P _{GD}	
81.1	79.1	82.4	78.5	92.3	89.4	92.6	87.3	102	98.6	101	94.7	142	133	133	118	175	160	159	135	P _{GA}	22.4
165	179	213	237	185	201	239	265	203	220	261	289	314	336	397	436	390	414	489	533	P _{GB}	
190	202	235	256	238	252	293	319	273	290	337	366	371	392	454	491	540	567	657	708	P _{GC}	
263	290	346	392	320	352	420	476	366	401	478	541	524	573	682	768	736	802	954	1071	P _{GD}	

* Please consult.

8 Rated thermal capacity(kW)
H3 (kW)

iN		H305				H306				H307				H308			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
16	P _{GA}	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
	P _{GB}	85.3	90.4	105	114	99.3	105	123	136	102	110	130	139	112	121	137	151
	P _{GC}	129	146	162	180	153	169	195	207	177	184	212	231	186	197	233	246
	P _{GD}	157	170	199	224	181	194	236	255	205	221	261	292	212	227	268	301
18	P _{GA}	56.1	55.3	57.6	57.0	65.8	63.6	66.7	65.8	71.4	69.4	72.0	69.9	76.2	72.9	75.2	71.9
	P _{GB}	82.1	87.4	102	111	95.5	101	118	131	104	112	132	141	113	122	138	152
	P _{GC}	123	137	153	170	145	159	183	195	175	183	211	230	183	195	230	244
	P _{GD}	149	161	190	213	171	185	223	243	204	221	261	292	211	227	268	301
20	P _{GA}	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	74.0	76.7	74.0
	P _{GB}	79.1	84.6	98.7	107	91.8	98.0	114	127	106	114	134	144	114	123	140	154
	P _{GC}	116	128	145	160	137	150	172	185	173	182	210	229	181	193	226	242
	P _{GD}	140	153	180	202	162	176	211	232	203	221	261	292	210	227	268	301
22.4	P _{GA}	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
	P _{GB}	76.2	81.8	95.5	104	88.3	94.6	111	122	108	116	136	147	115	124	142	156
	P _{GC}	111	120	137	151	129	141	162	175	171	181	209	228	179	191	223	240
	P _{GD}	132	145	171	192	153	167	200	221	202	221	261	292	209	227	268	301
25	P _{GA}	49.9	49.8	52.5	52.9	58.5	57.8	61.0	61.2	73.5	72.6	76.1	75.6	77.9	76.3	79.7	78.3
	P _{GB}	73.4	79.1	92.4	101	85.0	91.4	107	117	110	118	138	150	116	125	144	158
	P _{GC}	105	113	130	143	122	132	153	165	169	180	208	227	177	189	220	238
	P _{GD}	125	138	163	183	145	159	190	210	201	221	261	292	208	227	268	301
28	P _{GA}	48	48.1	50.9	51.6	56.2	56.0	59.2	59.7	74.2	73.7	77.5	77.6	78.5	77.4	81.2	80.6
	P _{GB}	70.7	76.5	89.4	97.9	81.7	88.3	103	113	112	120	140	153	117	126	146	160
	P _{GC}	99.7	106	123	135	*	*	*	*	167	179	207	226	175	187	217	236
	P _{GD}	118	131	155	174	*	*	*	*	200	221	261	292	207	227	268	301
31.5	P _{GA}	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
	P _{GB}	68.5	74.4	86.9	95.5	78.6	85.3	99.6	109	107	115	135	147	118	127	148	162
	P _{GC}	95.6	102	118	130	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	114	126	149	168	*	*	*	*	*	*	*	*	*	*	*	*
35.5	P _{GA}	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
	P _{GB}	66.2	72.2	84.3	92.9	75.6	82.4	96.2	105	104	113	132	145	119	128	150	164
	P _{GC}	91.3	98.3	113	124	103	110	127	140	151	163	188	206	171	183	211	232
	P _{GD}	109	121	143	161	123	137	161	182	183	202	239	268	205	227	268	301
40	P _{GA}	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
	P _{GB}	62.3	68.1	79.5	87.7	73.3	80	93.4	102	98.9	107	125	138	113	123	144	158
	P _{GC}	84.8	91.3	105	116	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	101	112	133	149	*	*	*	*	*	*	*	*	*	*	*	*
45	P _{GA}	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
	P _{GB}	59.6	65.2	76.1	84	70.7	77.3	90.2	99.5	95	103	120	132	110	120	140	154
	P _{GC}	80.1	86.3	99.7	109	94.4	101	117	129	134	144	167	183	155	166	192	211
	P _{GD}	96	106	126	141	113	125	148	166	162	180	212	239	186	206	243	273
50	P _{GA}	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
	P _{GB}	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
	P _{GC}	77.3	83.5	96.4	106	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	92.8	103	122	137	*	*	*	*	*	*	*	*	*	*	*	*
56	P _{GA}	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
	P _{GB}	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
	P _{GC}	72.6	78.5	90.6	99.9	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	86.7	96.9	114	129	99.7	111	131	148	143	160	188	212	166	185	218	246
63	P _{GA}	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
	P _{GB}	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
	P _{GC}	67.3	72.8	84.1	92.7	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	80.6	90.2	106	120	*	*	*	*	*	*	*	*	*	*	*	*
71	P _{GA}	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
	P _{GB}	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
	P _{GC}	66.5	72	83.1	91.7	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	79.7	89.2	105	118	*	*	*	*	*	*	*	*	*	*	*	*
80	P _{GA}	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
	P _{GB}	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
	P _{GC}	61.8	66.9	77.3	85.3	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	74.2	83	97.9	110	*	*	*	*	*	*	*	*	*	*	*	*
90	P _{GA}	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
	P _{GB}	47.3	52.4	61.1	67.9	54.1	59.8	69.8	77.6	70.7	78.3	91.3	101	81.1	89.7	104	116
	P _{GC}	60.1	65.1	75.1	82.9	*	*	*	*	*	*	*	*	*	*	*	*
	P _{GD}	72.3	81	95.5	107	*	*	*	*	*	*	*	*	*	*	*	*
100	P _{GA}																
	P _{GB}																
	P _{GC}																
	P _{GD}																

* Please consult.

H309				H310				H311				H312				in	
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
101	94.6	96.1	89.7	101	94.9	90.8	84.7	158	144	142	115	197	175	165	132	P _{GA}	16
160	164	191	197	164	167	200	210	265	261	305	306	316	302	361	359	P _{GB}	
282	292	336	363	339	358	411	443	547	560	647	691	645	656	755	794	P _{GC}	
332	353	421	463	392	424	504	554	622	650	777	844	724	752	889	962	P _{GD}	
100	95.1	97.1	91.7	101	95.5	92.6	87.2	154	142	141	117	191	172	164	135	P _{GA}	18
158	163	190	198	161	166	198	209	256	254	297	301	305	295	351	353	P _{GB}	
273	284	327	354	330	348	401	432	512	527	609	652	603	617	710	750	P _{GC}	
322	344	410	452	382	414	491	541	587	617	736	802	682	713	843	916	P _{GD}	
100	95.6	98.0	93.6	101	96.0	94.4	89.8	151	140	140	120	186	169	163	138	P _{GA}	20
156	162	189	199	159	165	196	208	247	247	290	297	294	288	342	348	P _{GB}	
264	277	319	346	320	339	390	422	479	496	573	615	564	580	668	709	P _{GC}	
312	336	399	442	372	403	479	529	553	585	698	762	644	677	801	873	P _{GD}	
100	96.1	99.0	95.6	101	96.6	96.2	92.5	148	138	139	123	180	165	162	140	P _{GA}	22.4
154	161	188	200	157	164	194	207	238	241	282	293	284	282	333	342	P _{GB}	
255	269	310	337	311	330	380	412	448	467	539	580	527	546	628	670	P _{GC}	
302	327	388	431	362	393	467	517	522	555	661	725	607	642	760	831	P _{GD}	
99.3	96.6	100	97.7	100	97.2	98.1	95.3	145	136	138	126	174	162	161	143	P _{GA}	25
152	160	187	201	155	163	192	206	230	235	275	289	274	275	325	337	P _{GB}	
247	262	302	329	303	322	371	403	419	439	507	547	493	513	591	633	P _{GC}	
293	319	378	421	352	384	455	505	492	527	626	689	572	610	721	792	P _{GD}	
99	97.1	101	99.8	100	97.8	100	98.1	142	134	137	129	169	159	160	146	P _{GA}	28
150	159	186	202	153	162	190	205	222	229	268	285	264	269	316	332	P _{GB}	
239	255	294	321	294	313	361	393	392	413	477	516	461	483	556	599	P _{GC}	
284	311	368	411	342	374	443	493	464	500	593	655	540	579	685	755	P _{GD}	
96.9	95.8	100	100	100	98.4	102	101	138	132	137	131	164	156	159	149	P _{GA}	31.5
146	157	183	199	151	165	194	207	215	225	263	281	255	263	308	327	P _{GB}	
230	245	283	309	*	*	*	*	374	396	457	496	431	454	523	566	P _{GC}	
273	300	355	397	*	*	*	*	443	481	570	632	509	549	650	719	P _{GD}	
93.9	93.6	98.7	99.2	99.8	99	104	104	134	130	135	132	159	153	158	152	P _{GA}	35.5
142	153	178	195	149	160	186	203	208	220	257	277	246	257	300	322	P _{GB}	
219	234	271	296	*	*	*	*	354	376	434	472	403	427	492	535	P _{GC}	
262	289	342	383	*	*	*	*	422	460	544	606	480	521	617	685	P _{GD}	
88.9	88.9	93.9	94.9	96.5	96.2	101	101	129	126	132	130	155	150	156	151	P _{GA}	40
134	145	170	186	145	156	182	199	199	212	248	268	238	251	293	315	P _{GB}	
204	219	252	277	*	*	*	*	333	355	410	447	384	407	470	511	P _{GC}	
244	270	319	357	*	*	*	*	397	434	514	573	457	497	589	655	P _{GD}	
85.6	85.9	90.8	92	94	93.9	99.1	99.9	128	126	132	131	149	145	151	147	P _{GA}	45
128	139	162	178	141	152	177	194	199	212	247	268	229	242	283	305	P _{GB}	
193	207	239	262	*	*	*	*	326	347	401	438	364	387	447	487	P _{GC}	
232	256	303	340	*	*	*	*	389	427	505	563	434	474	561	624	P _{GD}	
84.2	85.2	90.6	92.9	89.4	90.3	95.9	98	127	127	134	135	145	144	151	152	P _{GA}	50
126	137	160	177	133	145	169	186	195	210	246	269	222	238	278	303	P _{GB}	
189	203	235	258	*	*	*	*	319	342	395	433	344	368	425	465	P _{GC}	
225	250	295	332	*	*	*	*	381	421	497	558	411	452	534	598	P _{GD}	
80.4	81.8	87.3	90.1	86.2	87.7	93.4	96.2	118	119	127	129	145	146	154	157	P _{GA}	56
120	131	153	169	128	140	164	181	181	197	230	253	221	240	280	307	P _{GB}	
176	190	219	241	*	*	*	*	289	311	359	395	337	361	417	458	P _{GC}	
212	236	278	314	*	*	*	*	345	383	452	508	403	446	527	592	P _{GD}	
76.2	78	83.5	86.8	84.6	86.5	92.5	96	113	115	122	126	143	145	154	159	P _{GA}	63
112	124	145	160	124	137	160	177	171	188	219	242	216	236	276	304	P _{GB}	
163	176	204	225	*	*	*	*	268	289	334	368	330	356	411	452	P _{GC}	
197	220	259	293	*	*	*	*	321	357	421	475	395	439	518	584	P _{GD}	
74.6	76.4	81.8	85.1	80.5	82.4	88.2	91.6	110	112	120	124	133	135	144	149	P _{GA}	71
110	122	142	158	119	131	153	170	166	182	213	235	200	219	256	283	P _{GB}	
160	173	200	220	*	*	*	*	258	279	322	355	298	321	371	408	P _{GC}	
191	214	252	285	*	*	*	*	309	345	407	458	357	398	469	529	P _{GD}	
70.6	72.4	77.6	80.8	76.1	78	83.5	86.8	104	106	113	118	125	128	136	141	P _{GA}	80
104	114	134	148	111	123	143	159	156	172	201	222	188	207	241	267	P _{GB}	
148	160	185	204	*	*	*	*	238	257	297	327	277	298	345	380	P _{GC}	
179	200	236	266	*	*	*	*	286	319	377	425	332	370	437	492	P _{GD}	
67.1	68.8	73.8	76.9	74.3	76.2	81.6	85	100	103	110	114	123	125	134	139	P _{GA}	90
98.8	109	127	141	108	119	140	155	151	166	194	215	183	201	235	260	P _{GB}	
138	149	172	190	*	*	*	*	228	247	285	314	267	288	333	367	P _{GC}	
166	186	219	247	*	*	*	*	275	307	362	409	321	358	422	476	P _{GD}	
63.8	66	70.1	73.8	70.7	72.7	78	81.6	94.3	98	105	109	116	119	128	133	P _{GA}	100
94.2	104	121	135	103	114	133	148	143	158	184	204	173	191	223	247	P _{GB}	
128	139	160	177	*	*	*	*	211	228	264	291	247	267	308	340	P _{GC}	
155	174	204	230	*	*	*	*	254	285	336	380	297	332	392	442	P _{GD}	

* Please consult.

8 Rated thermal capacity(kW)

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

8 Rated thermal capacity(kW)

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
6.3	P _{GA}	47	47.3	40	31	58.7	56.6	*	*	68.3	65.1	*	*	75.8	70.5	*	*	89.9	81.4	*	*
	P _{GB}	105	125	132	144	145	169	178	193	170	197	215	232	216	249	261	279	261	298	314	332
	P _{GC}	126	141	147	157	185	206	217	230	264	293	325	344	266	295	310	327	388	431	452	475
	P _{GD}	179	212	231	258	263	308	339	376	359	419	484	536	393	458	500	553	548	636	695	765
7.1	P _{GA}	45	45.8	40.6	34	57.2	56.4	44	*	69	67.5	50.6	*	74.3	71.4	*	*	88.9	83.8	*	*
	P _{GB}	99	117	125	136	137	161	169	182	166	194	204	219	203	237	248	263	246	285	298	313
	P _{GC}	116	129	135	145	171	190	199	212	257	286	298	317	244	272	284	301	357	397	414	437
	P _{GD}	164	194	213	238	243	286	313	347	349	410	447	495	362	424	462	511	506	590	642	707
8	P _{GA}	42.8	43.9	39.9	35	54.8	54.8	45.1	*	67.2	66.7	53.4	*	72.1	70.6	53	*	86.1	83	*	*
	P _{GB}	92.9	110	117	129	128	151	160	173	157	185	195	211	192	225	236	253	229	267	280	298
	P _{GC}	107	119	124	133	157	175	182	195	237	264	276	294	226	252	263	279	323	359	375	397
	P _{GD}	152	181	198	222	225	265	290	323	324	382	417	464	336	395	430	477	459	539	586	649
9	P _{GA}	41	42.3	39.3	35	52.7	53.2	45.7	36	64.5	64.8	54.4	*	70.2	69.7	55.8	*	82.7	81.1	61.6	*
	P _{GB}	87.8	105	111	123	121	144	153	166	148	176	186	202	182	214	226	244	215	253	266	285
	P _{GC}	98.8	110	115	123	144	161	168	180	218	243	253	271	212	236	246	263	297	331	346	368
	P _{GD}	141	167	183	206	206	244	267	298	299	353	386	430	316	373	407	453	424	498	543	603
10	P _{GA}	34.6	35.8	33.7	31	49.3	50.1	44	36	61.1	61.8	53.3	43	66.4	66.5	55.1	*	79.2	78.5	62.3	*
	P _{GB}	72.8	87.1	92.8	102	111	132	140	154	138	164	174	190	169	199	211	229	202	238	251	271
	P _{GC}	78.9	88.1	91.9	99	129	144	150	161	200	224	233	250	192	214	224	239	274	305	318	339
	P _{GD}	112	134	147	164	185	219	240	268	276	326	356	398	288	340	372	414	392	462	505	561
11.2	P _{GA}	33.5	34.8	33	30	44.4	45.3	40.4	34	58.4	59.3	52.1	43	59.8	60.2	51	40	76.1	75.9	61.9	57.7
	P _{GB}	70.3	84.3	89.8	99	99.5	118	125	137	131	155	165	180	150	177	188	204	192	227	240	259
	P _{GC}	75.4	84.2	87.9	94	113	126	131	141	183	204	213	229	168	187	195	209	257	286	298	319
	P _{GD}	107	128	140	157	162	192	210	235	252	298	327	365	252	298	326	363	368	434	474	528
12.5	P _{GA}	30.2	31.5	30.3	28.3	42.4	43.5	39.5	34	54.5	55.7	50.1	43	55.8	56.5	49	40	72.2	72.7	61.7	48
	P _{GB}	63.0	75.4	80.2	88.1	94	112	118.5	130	119	142	151	166	136	162	172	188	179	212	224	244
	P _{GC}	66.0	73.7	76.8	82.3	103	115	119.8	129	163	182	189	203	150	167	173	185	234	261	272	291
	P _{GD}	93.7	112	123	138	148	176	192.9	216	225	267	292	327	225	267	291	325	337	398	435	485
14	P _{GA}	28.8	30.2	29.6	28.3	39.6	40.8	38	34	49	50.3	46	40	50.2	51	45	37	65.2	66.1	57.4	47
	P _{GB}	59.8	71.2	76.0	83.4	85.8	102	108	120	106	127	135	149	121	145	154	169	159	189	200	218
	P _{GC}	60.4	67.1	70.2	75.4	92	102	106	114	142	159	166	178	131	146	152	162	205	228	238	255
	P _{GD}	85.6	102.6	113	126	132	157	172	193	196	232	255	285	196	232	254	283	293	347	380	424

*Please consult.

B209				B210				B211				B212					iN
960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740		
89.4	78.6	*	*	98.3	83.8	*	*	122	*	*	*	142	*	*	*	P _{GA}	6.3
265	301	315	330	300	337	354	367	441	480	479	514	556	591	581	606	P _{GB}	
333	370	386	404	460	510	532	556	566	625	651	706	976	1076	1120	1192	P _{GC}	
489	566	617	676	643	740	809	884	834	944	1010	1161	1340	1500	1596	1795	P _{GD}	
89.1	82.4	*	*	99.3	89.8	*	*	132	108	*	*	158	*	*	*	P _{GA}	7.1
250	288	299	311	284	325	336	346	436	485	493	485	546	598	601	572	P _{GB}	
306	340	354	372	422	468	488	512	545	604	629	650	931	1029	1072	1097	P _{GC}	
451	525	570	625	594	689	747	817	808	925	996	1073	1278	1451	1556	1659	P _{GD}	
87.4	83	*	*	97.7	91.2	*	*	129	112	*	*	155	127	*	*	P _{GA}	8
237	274	287	302	267	308	321	336	400	451	463	467	498	555	564	556	P _{GB}	
283	315	328	347	383	426	444	468	482	535	557	580	817	904	942	973	P _{GC}	
419	490	533	588	541	631	686	754	719	830	896	973	1129	1293	1392	1500	P _{GD}	
85.8	83.2	59.6	*	95.3	91.1	*	*	129	116	*	*	162	140	*	*	P _{GA}	9
226	264	277	295	251	292	306	324	383	437	452	465	490	554	568	574	P _{GB}	
267	297	310	329	352	392	409	433	454	505	526	551	791	877	915	952	P _{GC}	
396	465	507	561	500	585	637	703	679	788	853	933	1094	1261	1363	1480	P _{GD}	
81.9	80.3	60.8	*	91.7	88.9	63.9	*	125	115	*	*	153	137	*	*	P _{GA}	10
212	249	261	280	237	277	291	310	359	413	429	447	447	508	525	537	P _{GB}	
244	272	284	302	325	362	377	400	417	463	483	508	700	777	810	847	P _{GC}	
363	426	465	516	462	542	591	654	626	729	791	868	972	1126	1218	1329	P _{GD}	
74.5	73.6	57.7	65.2	89	87	65.2	*	114	106	*	*	150	136	*	*	P _{GA}	11.2
187	220	232	250	226	265	279	299	318	367	382	401	426	488	506	522	P _{GB}	
212	236	246	262	307	341	356	379	361	401	418	441	659	733	764	801	P _{GC}	
316	372	406	451	438	514	561	622	543	633	688	757	918	1066	1156	1265	P _{GD}	
70.7	70.5	57.5	54.2	85.1	84.3	66.9	*	109	103	*	*	145	135	*	*	P _{GA}	12.5
174	205	217	200	212	250	264	284	298	346	405	381	400	462	481	503	P _{GB}	
193	215	225	239	280	312	326	347	329	367	383	404	604	672	701	738	P _{GC}	
289	341	373	414	401	472	515	573	497	581	632	697	845	985	1070	1176	P _{GD}	
63.8	64.1	53.7	53	77	76.9	63.1	*	98.6	94	*	*	131	125	*	*	P _{GA}	14
155	183	194	179	189	223	236	255	266	309	362	342	353	409	428	451	P _{GB}	
169	188	197	209	243	271	283	302	286	319	332	352	522	580	605	640	P _{GC}	
251	297	326	362	348	411	449	500	431	506	551	608	733	856	931	1027	P _{GD}	

*Please consult.

8 Rated thermal capacity(kW)

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	P _{GA}	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
	P _{GB}	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
	P _{GC}	70.8	78.8	87.4	95.9	115	128	141	154	128	142	157	171	200	223	244	266	223	248	272	295
	P _{GD}	92.2	105	121	136	149	171	195	218	165	190	216	241	257	294	334	372	285	326	369	410
18	P _{GA}	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
	P _{GB}	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
	P _{GC}	68.5	76.3	84.7	93	111	123	136	149	122	136	150	164	192	214	235	256	217	241	265	287
	P _{GD}	89.5	102	117	132	144	166	189	212	159	183	208	233	247	284	322	360	277	317	359	400
20	P _{GA}	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
	P _{GB}	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
	P _{GC}	64.8	72.2	80.1	88	107	119	131	143	118	132	145	159	184	205	225	246	204	227	249	271
	P _{GD}	84.3	96.9	111	125	138	159	181	203	154	176	201	225	236	270	307	344	261	300	340	379
22.4	P _{GA}	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
	P _{GB}	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
	P _{GC}	63	70.2	77.9	85.7	105	117	130	142	115	128	142	155	178	198	218	238	198	220	242	263
	P _{GD}	82.2	94.5	108	122	137	158	180	202	149	171	195	219	226	260	296	331	253	290	330	368
25	P _{GA}	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
	P _{GB}	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
	P _{GC}	59.4	66.1	73.6	80.9	99.4	110	122	134	110	122	135	148	169	188	208	227	189	211	232	254
	P _{GD}	77.4	89	102	115	128	147	168	189	142	163	186	209	217	249	284	319	243	279	317	355
28	P _{GA}	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
	P _{GB}	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
	P _{GC}	56	62.4	69.4	76.5	94	104	116	127	109	121	134	147	156	174	193	211	183	204	225	246
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	52.5	58.5	65.2	71.8	87.6	97.5	108	119	102	114	126	139	146	162	180	198	174	194	215	236
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	48.3	53.8	59.9	66.1	80.2	89.3	99.3	109	96.8	107	119	131	135	151	167	184	162	180	200	219
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	40.7	45.3	50.5	55.7	66.7	74.3	82.7	91	90.4	100	111	123	112	125	138	152	151	168	187	205
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	39.5	44	49	54.1	64.3	71.6	79.7	87.8	82.9	92.3	102	113	108	120	133	147	139	155	172	190
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	39.5	44	49.1	54.2	62.6	69.7	77.7	85.7	69.2	77	85.8	94.6	104	116	129	142	116	129	144	158
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	35.6	39.6	44.2	48.9	56.4	62.8	70.1	77.4	66.7	74.3	82.9	91.4	94.7	105	117	129	111	123	138	152
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	33.7	37.5	41.9	46.3	53.3	59.3	66.2	73.1	65	72.4	80.8	89.2	89.8	100	111	123	108	120	134	147
	P _{GD}	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	P _{GA}	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
	P _{GB}	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
	P _{GC}	30.6	34.1	38	42	49.3	54.9	61.3	67.7	58.8	65.4	73	80.6	83.1	92.5	103	113	98.3	109	122	134
	P _{GD}	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	P _{GA}	20.7	22.0	19.2	19.9	30.1	32.1	27.0	27.9	29.5	31.4	31.9	32.9	39.1	41.5	42.1					

B309				B310				B311				B312				iN	
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	*	P _{GA}	16
193	218	239	258	214	240	262	281	300	334	358	375	347	384	407	419	P _{GB}	
304	338	369	399	343	382	415	448	425	473	508	542	557	620	662	701	P _{GC}	
388	444	500	555	434	496	558	618	569	648	719	787	724	823	907	986	P _{GD}	
96.5	97.7	92.5	84.4	102	102	96.3	86.1	132	129	115	93.1	156	149	129	*	P _{GA}	18
187	211	232	250	197	222	243	261	293	328	353	371	347	386	411	426	P _{GB}	
293	326	357	386	315	351	383	414	416	463	499	534	558	621	665	706	P _{GC}	
375	429	485	539	399	457	514	570	558	635	707	776	726	825	913	995	P _{GD}	
92.8	94.3	89.8	82.9	105	106	100	90.8	126	124	112	93.3	147	141	124	96	P _{GA}	20
179	202	223	241	203	228	251	270	280	314	339	358	323	360	385	401	P _{GB}	
280	312	342	371	323	359	392	425	396	441	476	511	516	574	616	657	P _{GC}	
360	412	466	519	410	469	529	588	531	605	676	743	672	764	848	926	P _{GD}	
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	P _{GA}	22.4
175	198	218	237	186	210	231	250	266	298	324	343	324	361	388	407	P _{GB}	
272	303	332	361	295	329	360	390	367	409	443	476	515	573	617	659	P _{GC}	
348	399	452	504	375	429	485	539	495	565	632	697	671	764	850	932	P _{GD}	
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	P _{GA}	25
166	188	209	228	178	202	223	243	250	281	307	329	309	346	375	398	P _{GB}	
253	282	310	337	284	316	347	377	337	375	408	440	489	545	590	634	P _{GC}	
324	371	422	471	359	411	466	520	454	519	584	647	640	730	817	901	P _{GD}	
83.9	86.8	85	82.5	92.7	95.6	93.1	89.4	113	114	109	100	140	140	131	117	P _{GA}	28
157	179	199	218	174	197	220	240	238	269	296	320	295	332	363	390	P _{GB}	
235	261	288	315	274	305	336	367	313	349	382	414	456	508	554	598	P _{GC}	
302	346	395	442	349	400	455	509	424	486	549	611	596	682	767	851	P _{GD}	
80.6	83.9	82.7	81.3	89.1	92.4	90.7	88.4	108	111	106	100	133	135	129	118	P _{GA}	31.5
149	170	190	209	165	188	210	230	225	254	282	306	276	312	344	371	P _{GB}	
220	245	271	297	254	283	312	341	291	324	356	387	417	464	508	551	P _{GC}	
282	324	370	415	324	372	424	476	395	453	514	573	548	627	709	788	P _{GD}	
76.9	80.3	79.6	78.9	85.3	88.8	87.7	86.3	105	108	105	100	128	131	125	118	P _{GA}	35.5
141	161	181	199	156	178	199	219	215	244	271	296	262	296	328	356	P _{GB}	
201	224	248	272	237	264	292	320	276	307	338	369	389	433	475	516	P _{GC}	
260	298	341	384	302	347	396	445	373	428	487	544	509	584	661	738	P _{GD}	
72.1	75.4	75	74.7	81.6	85.2	84.4	83.6	99.6	102	100	97	122	125	121	115	P _{GA}	40
131	150	168	186	149	170	191	211	201	229	255	279	246	279	310	337	P _{GB}	
182	202	224	246	222	247	274	300	253	282	310	339	360	401	440	480	P _{GC}	
235	270	309	348	283	325	372	418	344	395	449	503	473	542	616	688	P _{GD}	
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	P _{GA}	45
120	137	154	170	140	160	180	199	184	210	234	257	236	268	298	326	P _{GB}	
164	182	202	222	203	226	251	275	227	253	280	306	340	378	417	454	P _{GC}	
211	243	279	314	260	299	342	384	311	357	407	457	449	515	585	655	P _{GD}	
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	P _{GA}	50
117	133	151	167	131	150	169	188	181	207	232	256	221	251	281	310	P _{GB}	
156	174	194	213	184	205	228	250	222	247	274	300	312	348	384	421	P _{GC}	
203	234	269	303	236	272	312	352	301	346	396	445	411	472	539	606	P _{GD}	
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	P _{GA}	56
108	124	140	156	120	137	155	173	164	188	211	234	203	232	260	288	P _{GB}	
140	156	174	192	166	185	206	227	197	219	243	267	279	311	345	379	P _{GC}	
182	210	241	272	213	245	281	318	268	308	354	398	370	426	488	549	P _{GD}	
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	P _{GA}	63
104	119	135	150	117	134	151	168	158	180	203	226	198	227	255	283	P _{GB}	
132	147	164	181	159	177	197	217	185	206	229	252	271	302	335	368	P _{GC}	
173	199	229	259	203	234	269	304	253	291	334	377	358	411	471	531	P _{GD}	
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	P _{GA}	71
97.8	112	126	141	108	124	140	156	146	167	189	210	180	206	232	257	P _{GB}	
119	133	148	163	143	159	177	195	166	185	206	226	240	267	297	327	P _{GC}	
157	181	209	236	183	211	243	275	228	262	301	340	319	367	421	474	P _{GD}	
53.2	56.3	57	58.6	59.6	63.1	63.8	65.3	73.1	77.2	77.644	78.8	90.7	95.5	95.8	96.9	P _{GA}	80
94.6	108	121	136	105	120	136	151	142	162	183.6	203	173	198	224	248	P _{GB}	
113	126	140	154	134	149	167	184	156	173	194.36	213	224	250	278	305	P _{GC}	
150	172	199	226	174	200	231	261	217	248	286.14	323	300	345	396	447	P _{GD}	
50.6	53.7	54.4	56	55.9	59.3	60	61.5	68.6	72.6	73.02	74.2	84.5	89.2	89.6	90.9	P _{GA}	90
89.9	103.0	116	129	98.4	112	127	142	133	151	171.45	191	161	184	208	231	P _{GB}	
104	117	130	143	121	135	151	166	140	157	175.74	192	201	224	249	274	P _{GC}	
138	160	185	209	159	183	210	238	198	227	260.12	295	271	311	357	403	P _{GD}	

8 Rated thermal capacity(kW)

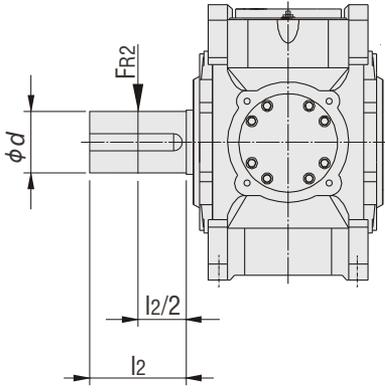
B4 (kW)

iN		B405				B406				B407				B408			
		960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740	960	1150	1450	1740
100	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}	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	P _{GA}									46.6	52.9	52.5	55.2	56.7	61.2	63.8	67

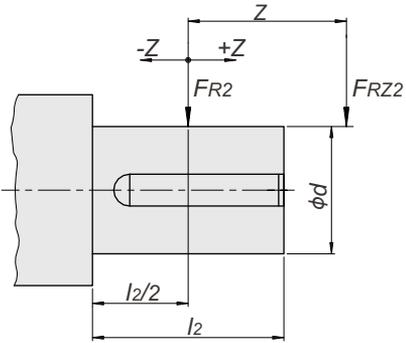
9 Permissible additional radial force on output shaft

9.1 Permissible additional radial force on output shaft d:

Permissible additional radial force F_{R2} (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	10	28	35	35
H3..HS	A+B+G+H			29	29	40	40	40	60	85	85
	C+D			18	18	26	26	18	40	50	50
H4..HS	C+D					40	40	40	60	85	85
	A+B+G+H			18	18	26	26	18	40	50	50
B2..HS	A+C		13	27	27	37	37	38	55	78	78
	B+D		12	15	15	17	17	10	30	35	38
B3..HS	A+C		14	29	29	40	40	40	60	85	85
	B+D			18	18	26	26	18	40	50	50
B4..HS	A+C			29	29	40	40	40	60	85	85
	B+D			18	18	26	26	18	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.

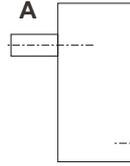
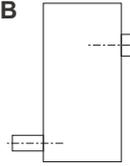
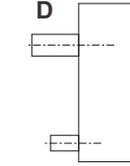
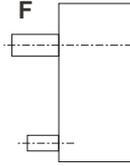
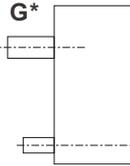
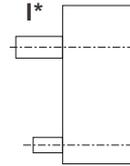
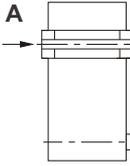
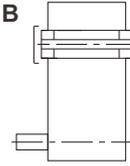
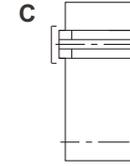
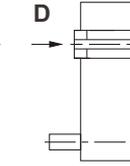
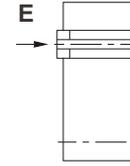
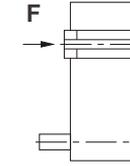
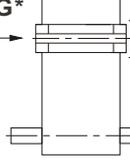
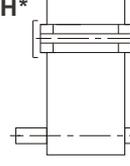
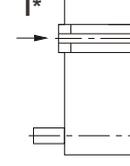
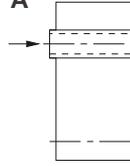
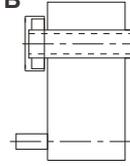
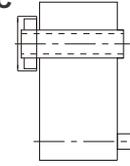
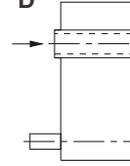
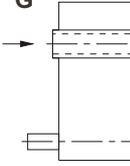
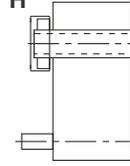
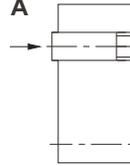
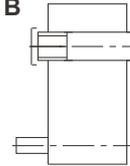
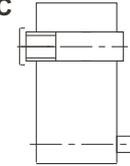
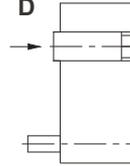
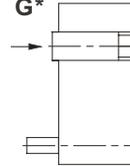
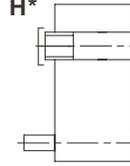
9.2 Additional radial force allowed on output shaft d:

<p>Force is not applied at midpoint of shaft extension of output shaft</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $F_{RZ2} = F_{R2} \times k$ </div> 	<p>F_{RZ2} Permissible external radial force</p> <p>F_{R2} Permissible additional radial force Determined according to table 9.1</p> <p>k Applied force factor should be determined according to the following table</p>												
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	0.62	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

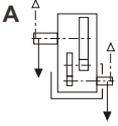
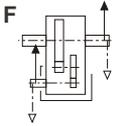
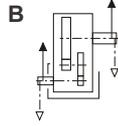
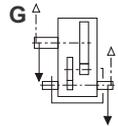
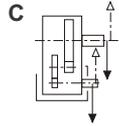
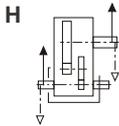
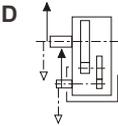
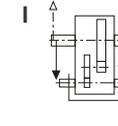
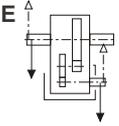
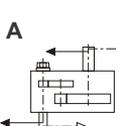
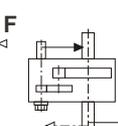
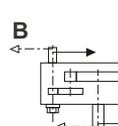
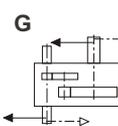
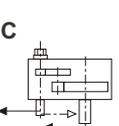
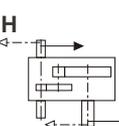
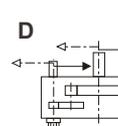
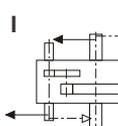
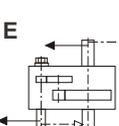
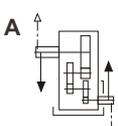
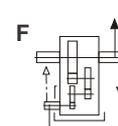
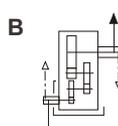
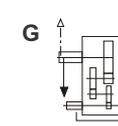
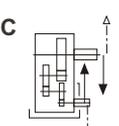
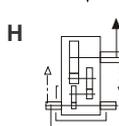
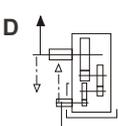
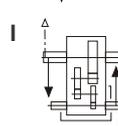
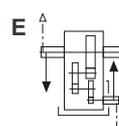
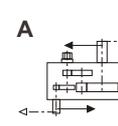
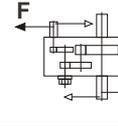
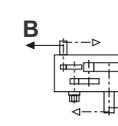
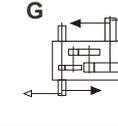
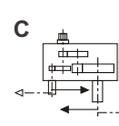
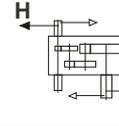
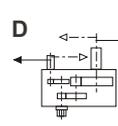
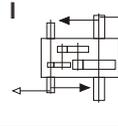
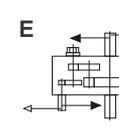
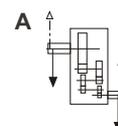
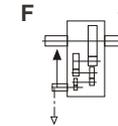
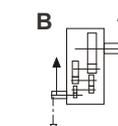
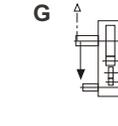
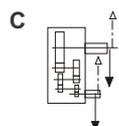
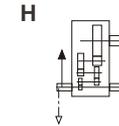
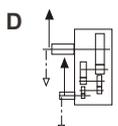
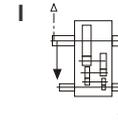
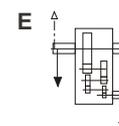
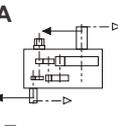
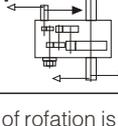
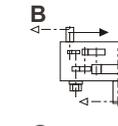
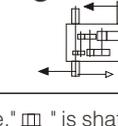
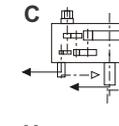
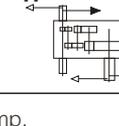
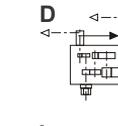
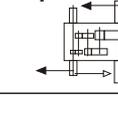
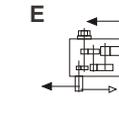
10 Shaft assemblies:

10.1 H series shaft assemblies:

10.1.1 Shaft assemblies:

Parallel key solid shaft	A 	B 	C 	D 	E 	F 				
	G* 	H* 	I* 							
Parallel key hollow shaft	A 	B 	C 	D 	E 	F 				
	G* 	H* 	I* 							
Hollow shaft with shrink disc	A 	B 	C 	D 	G* 	H* 				
Hollow shaft with involute spline	A 	B 	C 	D 	G* 	H* 				
*)Shaft assemblies G/H/I is available when nominal is within the range of value showed in right table.	Size Type iN	04	05	06	07	08	09	10	11	12
	H2	6.3-14								
	H3	/	16-63							
H4	/	/	/	/	71-200		71-280			

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.

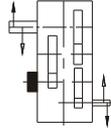
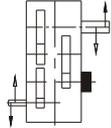
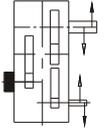
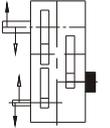
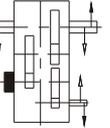
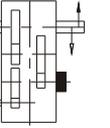
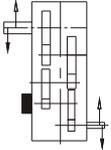
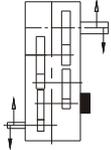
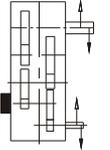
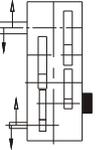
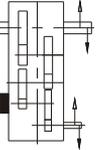
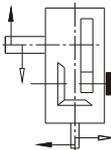
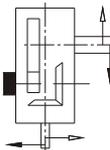
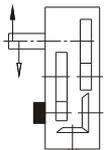
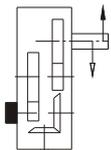
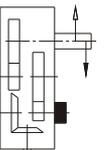
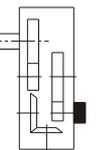
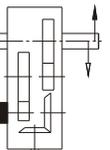
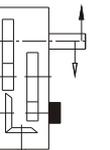
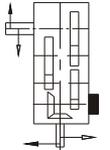
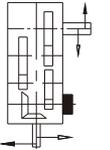
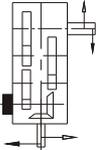
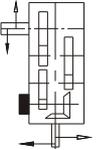
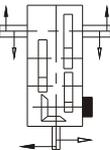
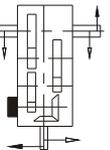
10.2.2 Direction of rotation:

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.

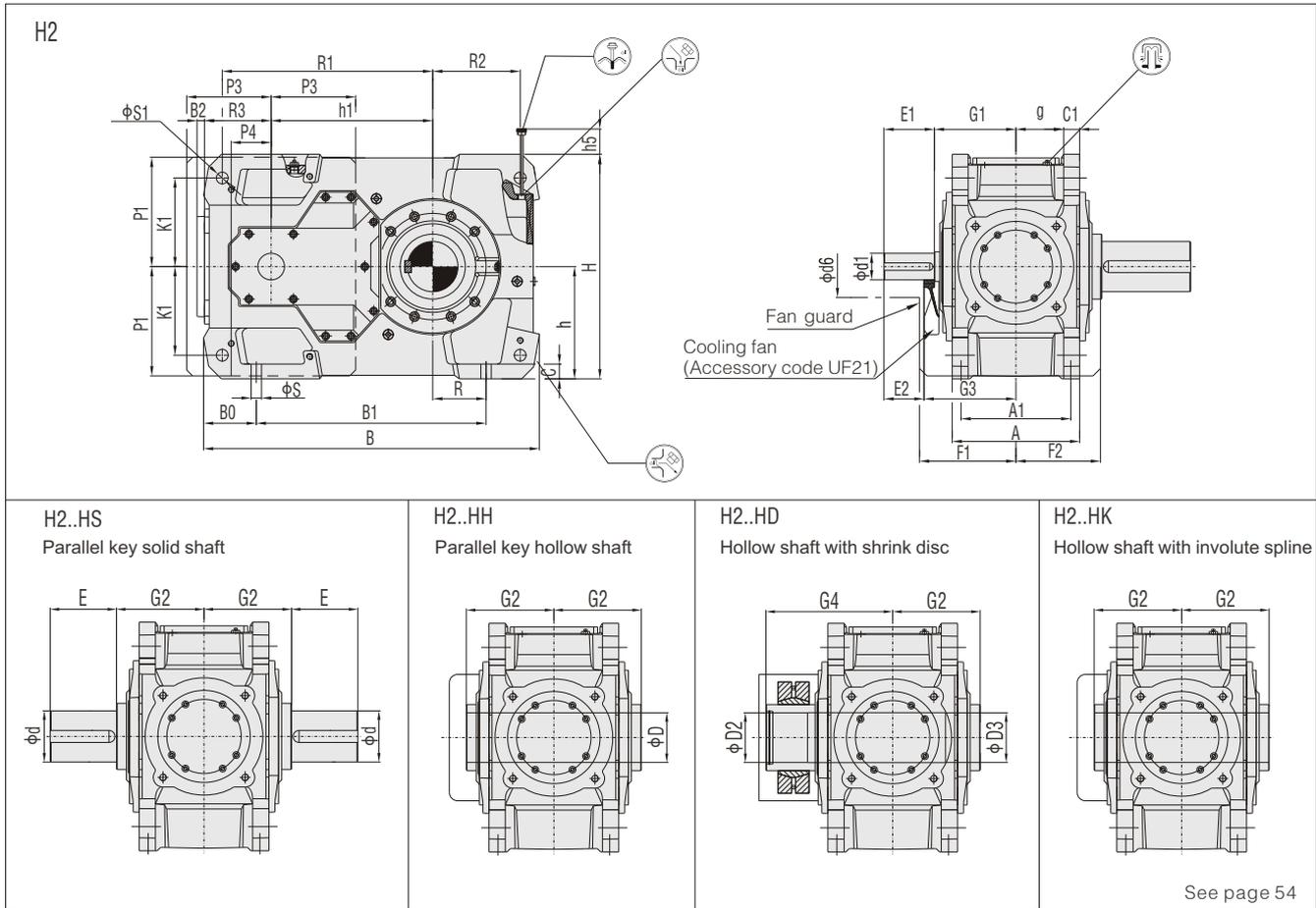
10.3 Backstop assemblies and direction of shaft rotation direction:

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

- ⚠ Note:** 1. Gear box 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

H204H~H212H



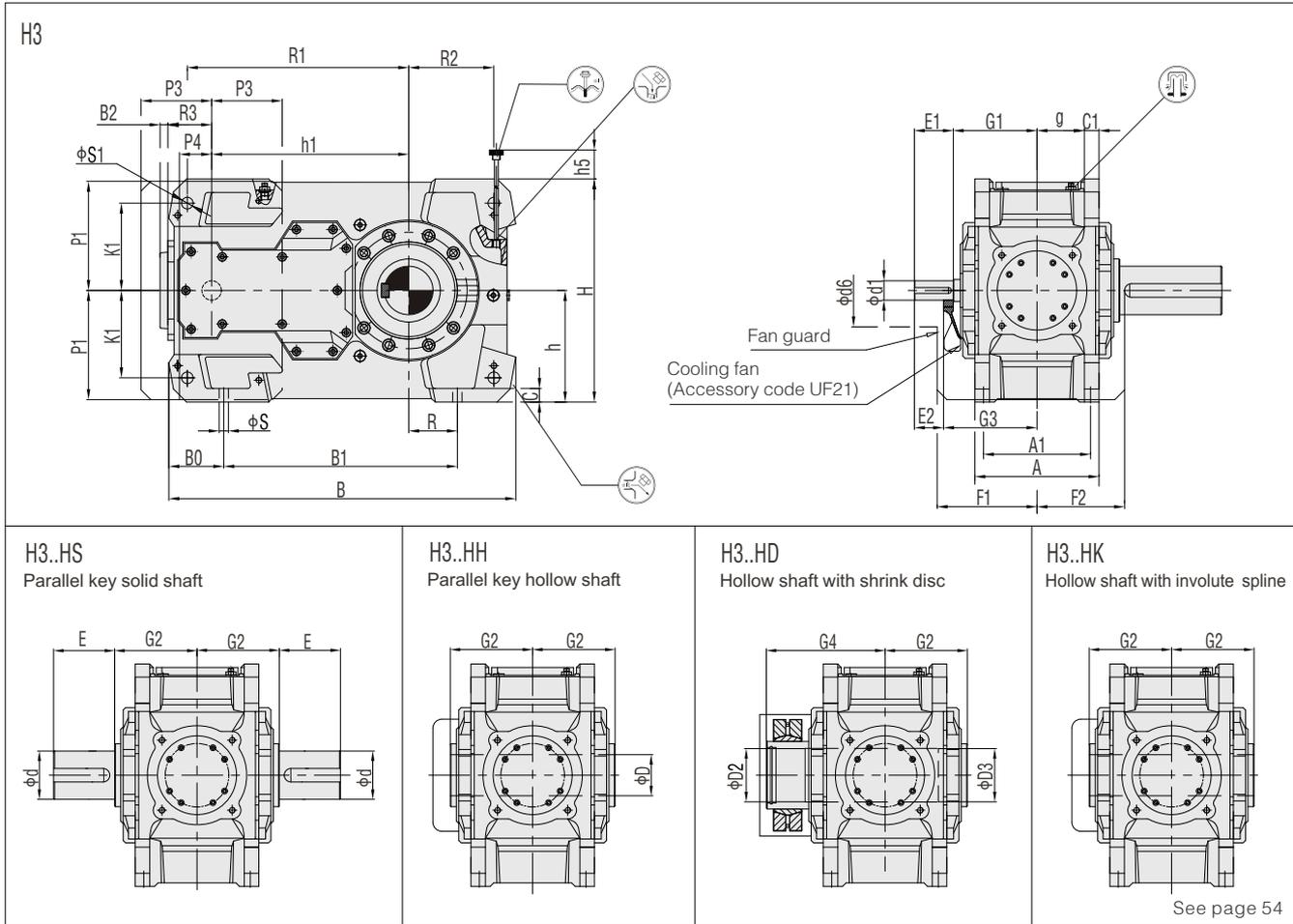
See page 54

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
04	205	160	170	140	190	205	77.5	405	200	270	15	150	195	155	40	85	345	160	110	19	24H9
05	230	180	195	165	215	240	97.5	460	230	315	15	180	225	165	55	100	405	175	130	19	24H9
06	230	180	195	165	215	240	97.5	490	230	350	0	180	225	165	55	145	440	220	130	19	24H9
07	255	210	210	195	240	280	114	560	280	385	0	215	270	220	70	130	500	215	160	24	28H9
08	255	210	210	195	240	285	114	580	280	430	0	215	270	220	70	190	545	275	160	24	28H9
09	285	245	240	235	270	330	140	640	320	450	10	245	310	240	95	155	585	260	185	28	36H9
10	285	245	240	235	270	350	140	670	320	500	0	245	310	240	95	205	635	310	185	28	36H9
11	325	285	275	270	310	400	161	760	380	545	30	300	370	285	125	180	710	295	225	35	40H9
12	325	285	275	270	310	405	161	790	380	615	5	300	370	285	125	265	780	380	225	35	40H9

11 Outline dimension

H305H ~ H 312H



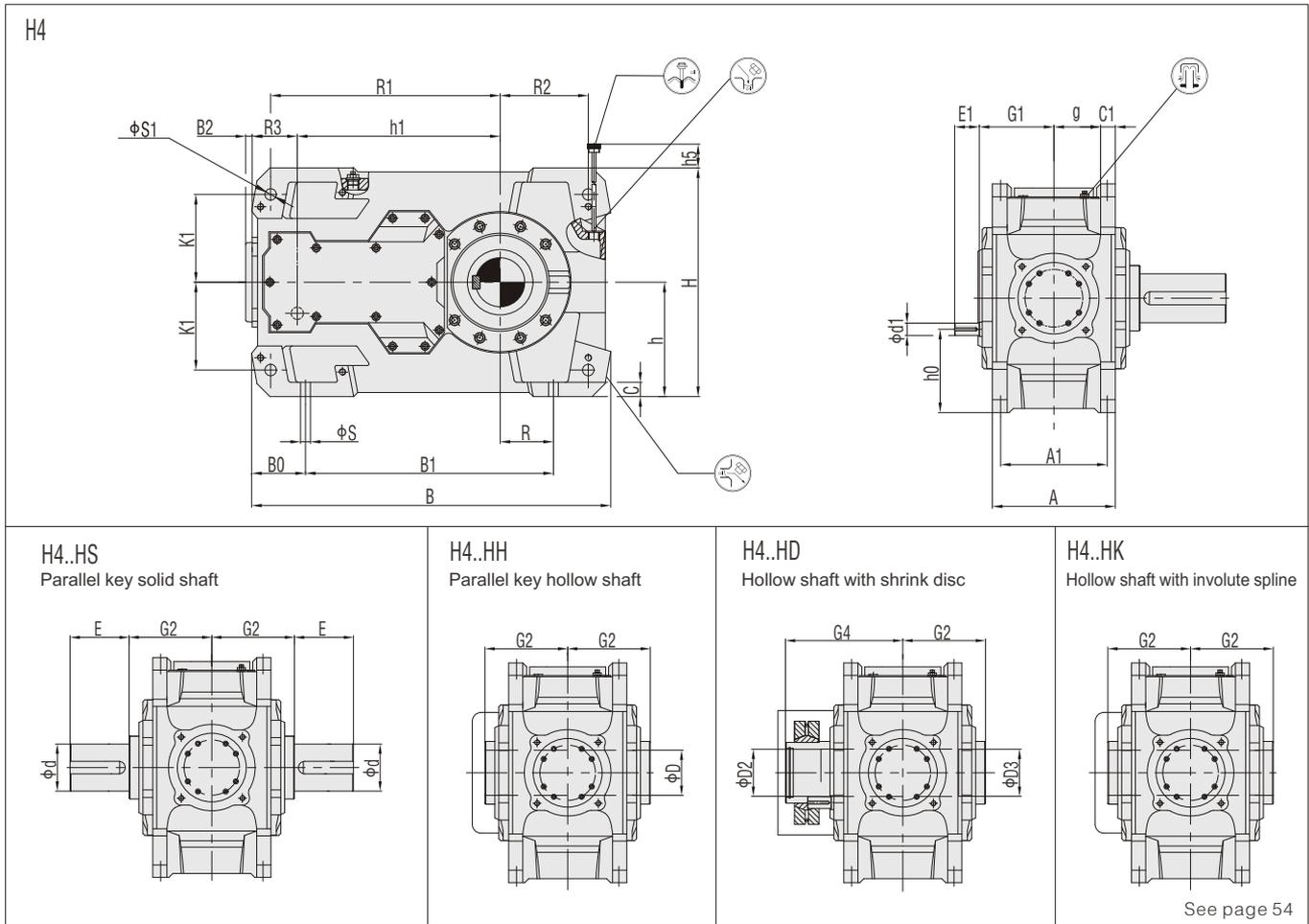
See page 54

Size	in ≤ 45			in ≤ 50			in ≥ 50			in ≥ 56			A	A1	B	B0	B1	B2	C	C1	d	d6	D	D2	D3
	d1	E1	E2	d1	E1	E2	d1	E1	E2	d1	E1	E2													
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
05	210	205	180	170	165	190	240	97.5	460	230	405	40	180	225	145	55	100	455	175	90	19	24H9
06	210	205	180	170	165	190	240	97.5	490	230	440	10	180	225	145	55	145	490	220	90	19	24H9
07	210	255	210	210	195	240	280	114	560	280	495	0	215	270	220	70	130	560	215	110	24	28H9
08	250	255	210	210	195	240	285	114	580	280	540	0	215	270	220	70	190	605	275	110	24	28H9
09	250	285	245	240	235	270	330	140	640	320	580	15	245	310	240	95	155	660	260	130	28	36H9
10	300	285	245	240	235	270	350	140	670	320	630	0	245	310	240	95	205	710	310	130	28	36H9
11	300	325	285	275	270	310	400	161	760	380	705	30	300	370	285	125	180	805	295	160	35	40H9
12	300	325	285	275	270	310	405	161	790	380	775	5	300	370	285	125	265	875	380	160	35	40H9

11 Outline dimension

H407H ~ H 412H

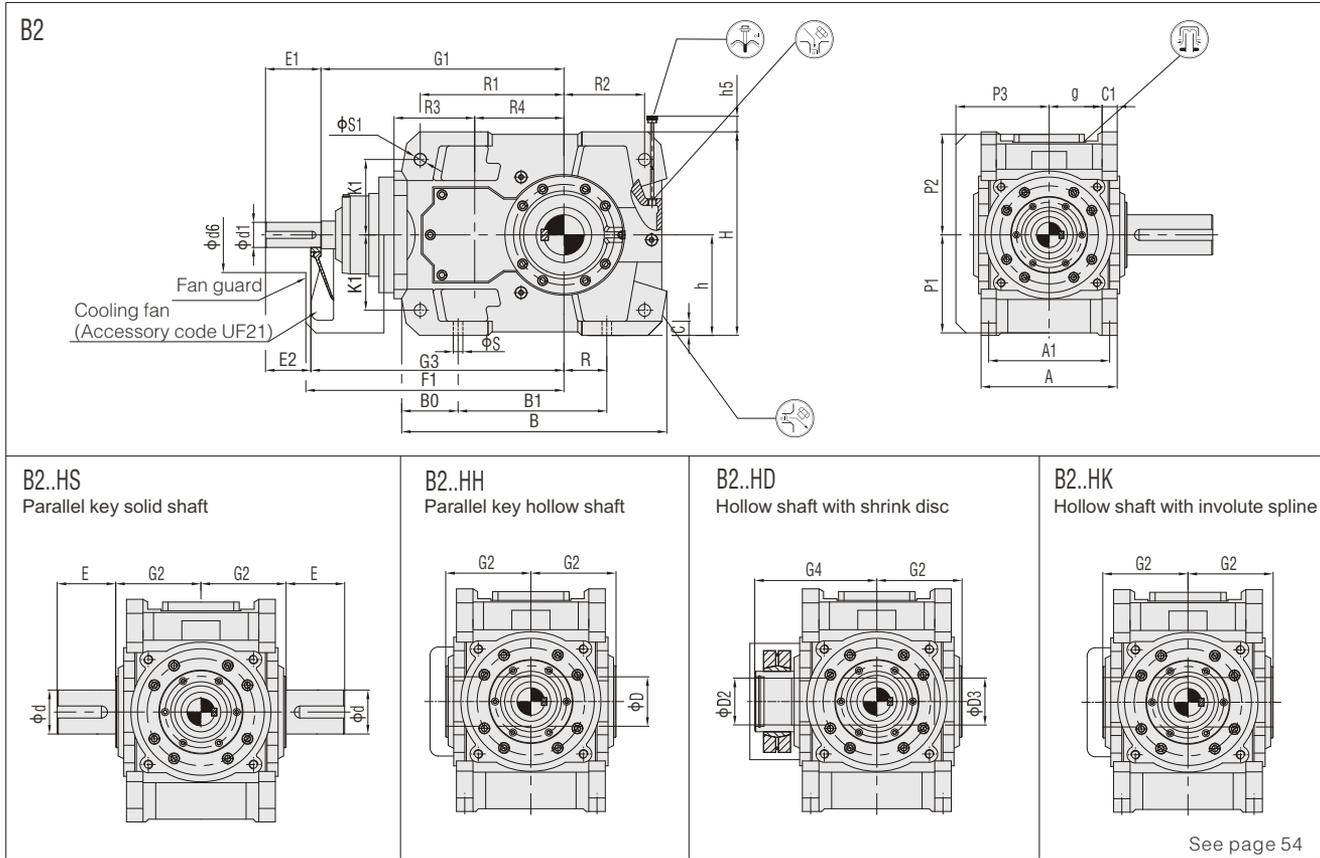


Size	in \leq 200		in \leq 224		in \geq 224		in \geq 250		A	A1	B	B0	B1	B2	C	C1	d	D	D2	D3
	d1	E1	d1	E1	d1	E1	d1	E1												
07	30k6	60			24k6	50			300	260	876	131	605	16	35	36 \pm 1	120m6	115H7	120H7	120H7
08	30k6	60			24k6	50			300	260	981	131	710	16	35	36 \pm 1	130m6	125H7	130H7	130H7
09	35k6	80	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

Size	E	G1	G2	G4	g	H	h	h0	h1	h5	K1	R	R1	R2	R3	S	S1
07	210	180	195	280	114	560	280	204	495	0	215	130	560	215	110	24	28H9
08	250	180	195	285	114	580	280	204	540	0	215	190	605	275	110	24	28H9
09	250	215	235	330	140	640	320	227	580	15	245	155	660	260	130	28	36H9
10	300	215	235	350	140	670	320	227	630	0	245	205	710	310	130	28	36H9
11	300	250	270	400	161	760	380	260	705	30	300	180	805	295	160	35	40H9
12	300	250	270	405	161	790	380	260	775	5	300	265	875	380	160	35	40H9

11 Outline dimension

B204H ~ B 212H



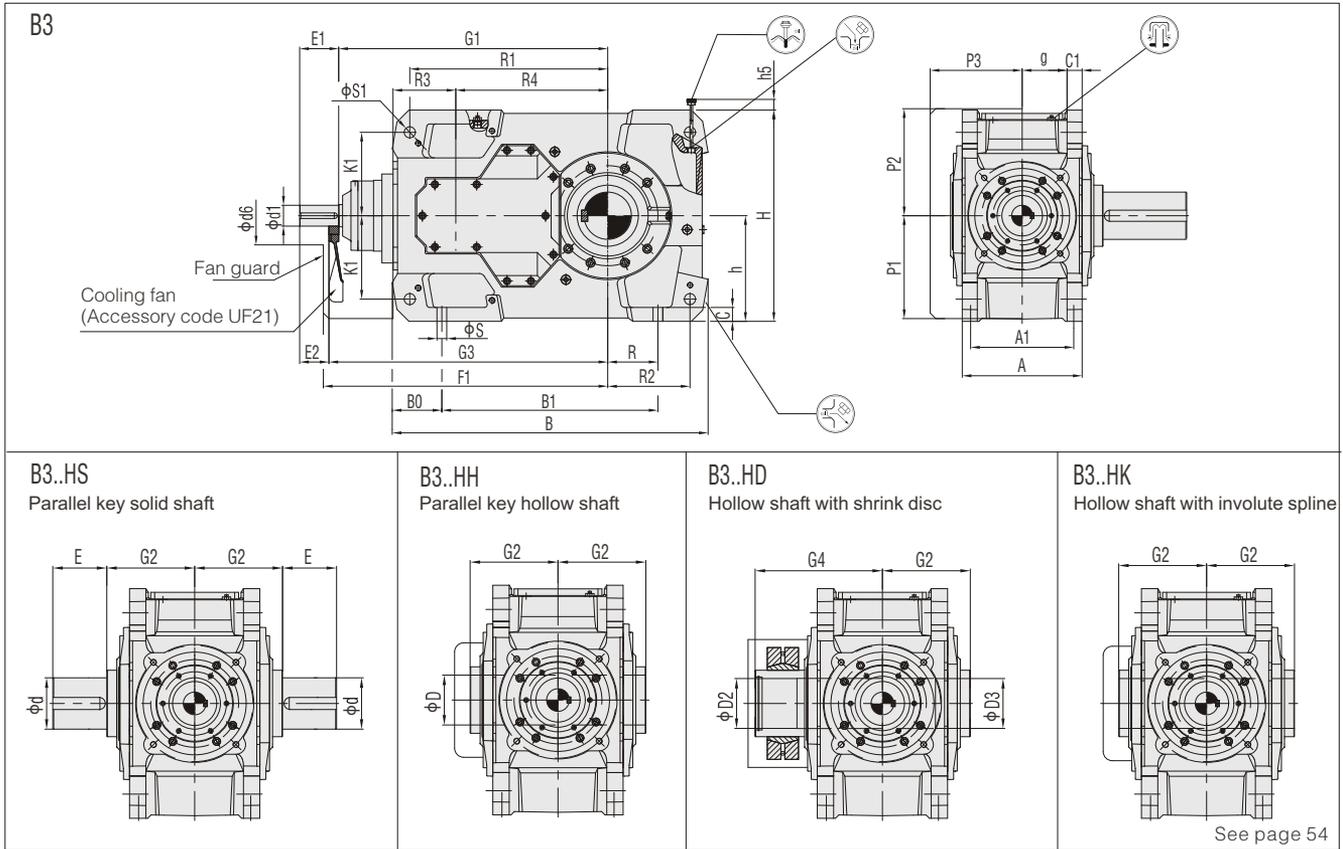
See page 54

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
04	482	140	502	205	105	400	200	15	150	195	200	185	85	285	160	160	177	19	24H9
05	551	165	581	240	130	460	230	30	180	220	235	215	100	330	175	185	201	19	24H9
06	590	165	620	240	130	490	230	0	180	220	235	215	145	365	220	185	240	19	24H9
07	660	195	690	280	154	560	280	35	215	270	285	250	130	405	215	225	240	24	28H9
08	700	195	730	285	154	580	280	25	215	270	285	250	190	450	275	225	280	24	28H9
09	755	235	790	330	172	640	320	10	245	310	325	250	155	480	260	265	280	28	36H9
10	815	235	850	350	172	670	320	0	245	310	325	250	205	530	310	265	340	28	36H9
11	945	270	980	400	211	760	380	55	300	370	385	330	180	580	295	320	340	35	40H9
12	995	270	1030	405	211	790	380	30	300	370	385	330	265	650	380	320	390	35	40H9

11 Outline dimension

B304H ~ B 312H



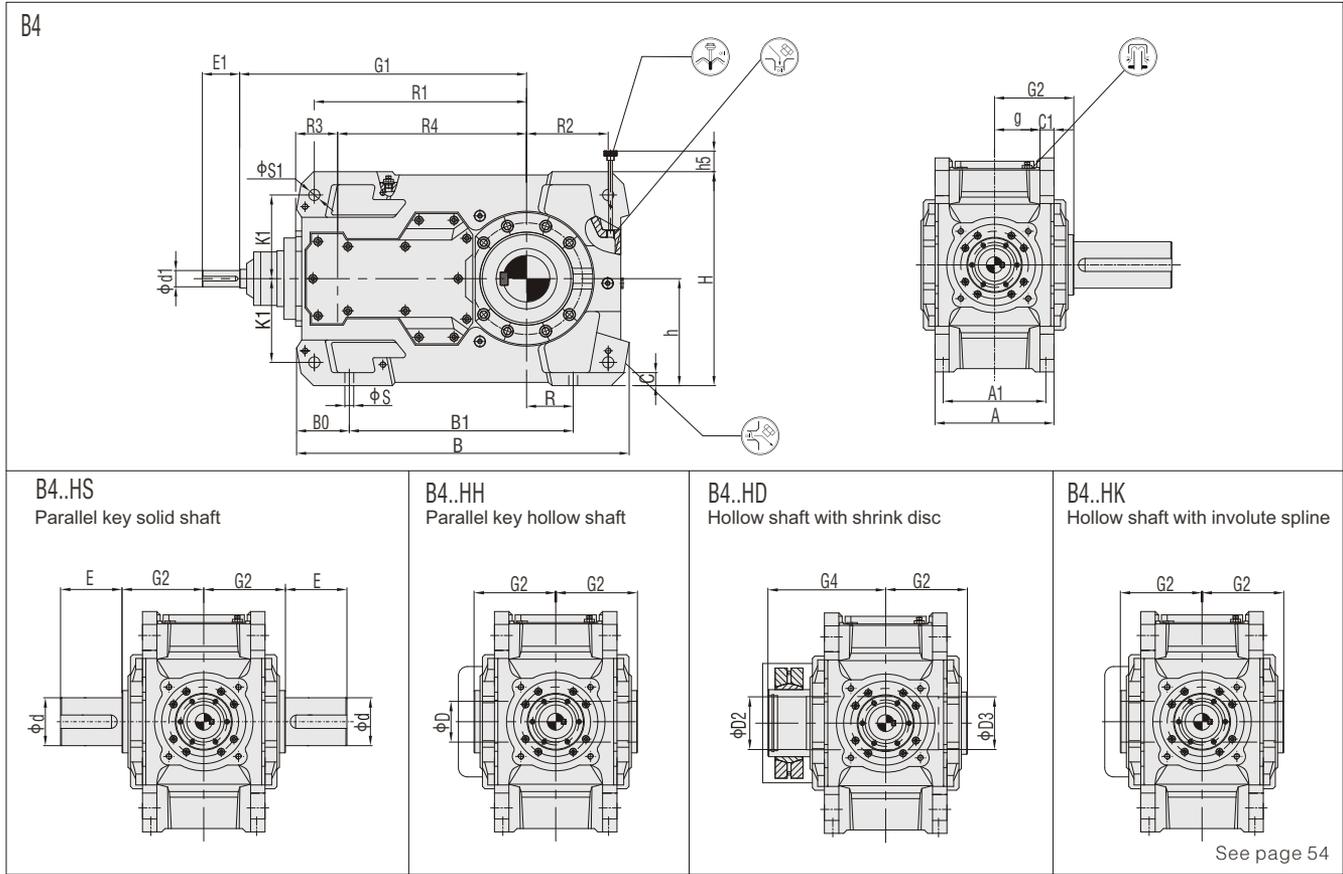
See page 54

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
04	500	140	520	205	77.5	400	200	15	150	195	200	185	85	345	160	110	270	19	24H9
05	575	165	605	240	97.5	460	230	15	180	220	235	215	100	405	175	130	315	19	24H9
06	610	165	640	240	97.5	490	230	0	180	220	235	215	145	440	220	130	350	19	24H9
07	690	195	710	280	114	560	280	0	215	270	285	250	130	500	215	160	385	24	28H9
08	735	195	755	285	114	580	280	0	215	270	285	250	190	545	275	160	430	24	28H9
09	800	235	830	330	140	640	320	10	245	310	325	250	155	585	260	185	450	28	36H9
10	850	235	880	350	140	670	320	0	245	310	325	250	205	635	310	185	500	28	36H9
11	965	270	995	400	161	760	380	30	300	370	385	330	180	710	295	225	545	35	40H9
12	1035	270	1065	405	161	790	380	5	300	370	385	330	265	780	380	225	615	35	40H9

11 Outline dimension

B405H ~ B 412H

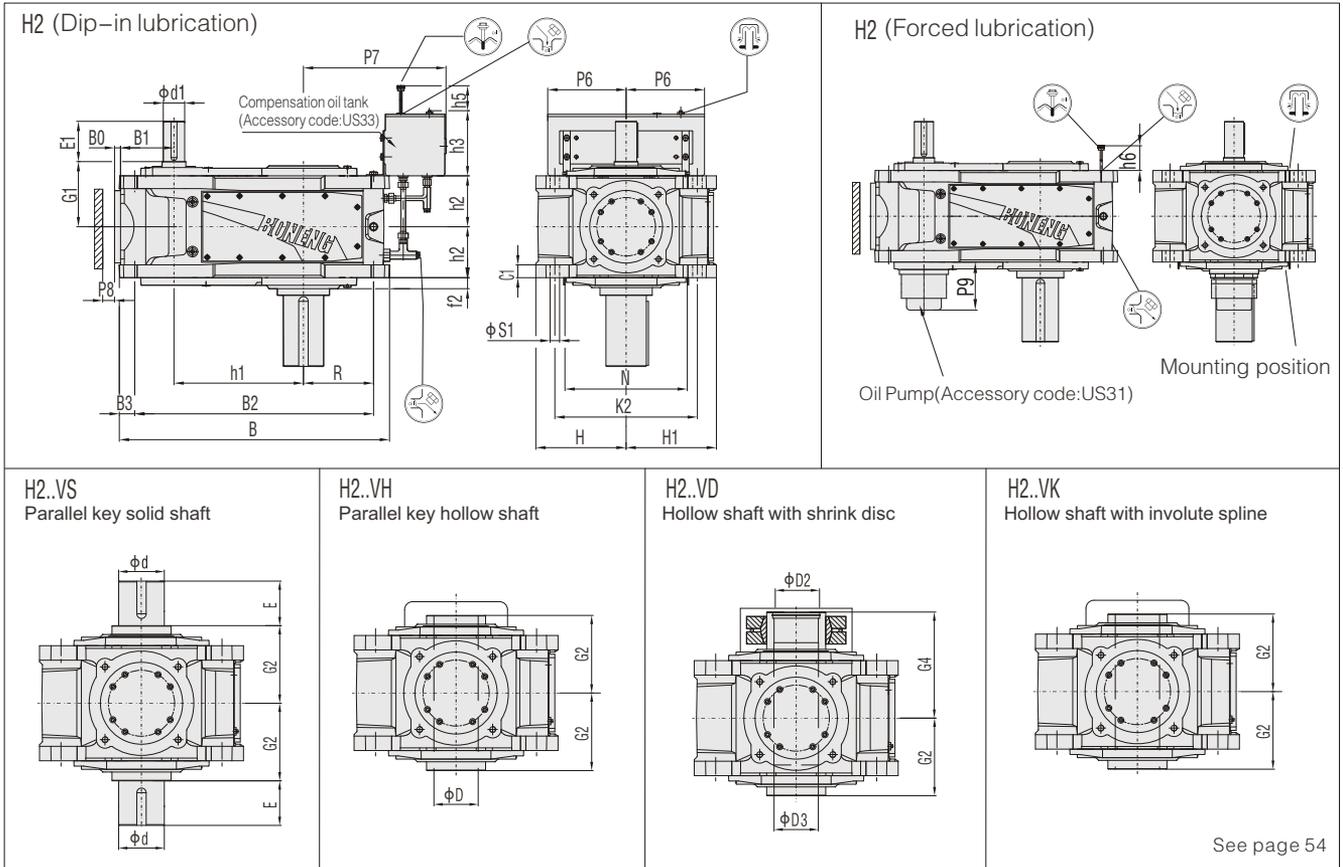


Size	in ≤ 250		in ≤ 280		in ≥ 280		in ≥ 315		A	A1	B	B0	B1	C	C1	d	D
	d1	E1	d1	E1	d1	E1	d1	E1									
05			35k6	80			25k6	50	255	220	713	113	480	28	30 ± 1	100m6	95H7
06			35k6	80			25k6	50	255	220	793	113	560	28	30 ± 1	110m6	105H7
07			35k6	80			30k6	60	300	260	876	131	605	35	36 ± 1	120m6	115H7
08			35k6	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
05	100H7	100H7	210	615	165	240	97.5	460	230	40	180	100	455	175	90	405	19	24H9
06	110H7	110H7	210	650	165	240	97.5	490	230	10	180	145	490	220	90	440	19	24H9
07	120H7	120H7	210	725	195	280	114	560	280	0	215	130	560	215	110	495	24	28H9
08	130H7	130H7	250	770	195	285	114	580	280	0	215	190	605	275	110	540	24	28H9
09	140H7	140H7	250	840	235	330	140	640	320	15	245	155	660	260	130	580	28	36H9
10	150H7	150H7	300	890	235	350	140	670	320	0	245	205	710	310	130	630	28	36H9
11	165H7	165H7	300	1010	270	400	161	760	380	30	300	180	805	295	160	705	35	40H9
12	180H7	180H7	300	1080	270	405	161	790	380	5	300	265	875	380	160	775	35	40H9

11 Outline dimension

H204V~H212V



See page 54

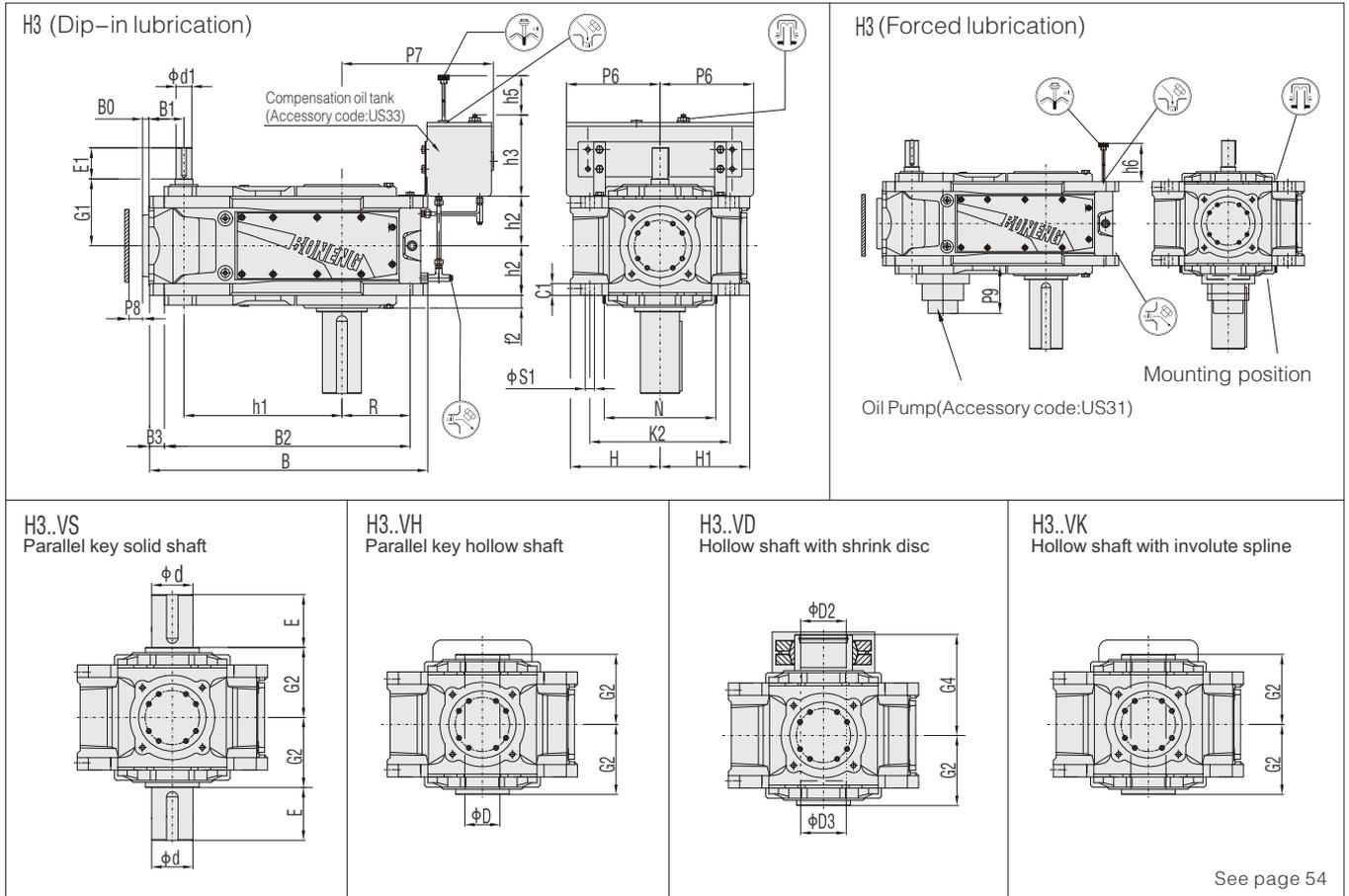
Size	in ≤ 1.2		in ≥ 1.2.5		B	B0	B1	B2	B3	C1	d	D	D2	D3	E	f2
	d1	E1	d1	E1												
04	45k6	110	32k6	80	586	16	110	505	37	30 ± 1	80m6	80H7	85H7	85H7	170	35
05	50k6	110	38k6	80	667	16	130	580	38	30 ± 1	100m6	95H7	100H7	100H7	210	30
06	50k6	110	38k6	80	743	16	130	660	38	30 ± 1	110m6	105H7	110H7	110H7	210	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
04	170	140	205	200	200	270	107.5	175	140	85	300	250	150	340	35	132	160	24H9
05	195	165	240	230	230	315	127.5	210	160	105	360	310	240	405	35	145	175	24H9
06	195	165	240	230	260	350	127.5	210	160	105	360	310	240	450	35	145	220	24H9
07	210	195	280	280	280	385	150	210	160	120	430	360	240	445	35	143	215	28H9
08	210	195	285	280	310	430	150	210	160	120	430	360	240	505	35	143	275	28H9
09	240	235	330	320	320	450	185	285	200	155	490	410	330	585	40	135	260	36H9
10	240	235	350	320	350	500	185	285	200	155	490	430	330	635	40	135	310	36H9
11	275	270	400	380	380	545	215	285	200	150	600	500	330	620	50	142	295	40H9
12	275	270	405	380	410	615	215	285	200	150	600	500	330	705	50	142	380	40H9

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

11 Outline dimension

H305V ~ H 312V



See page 54

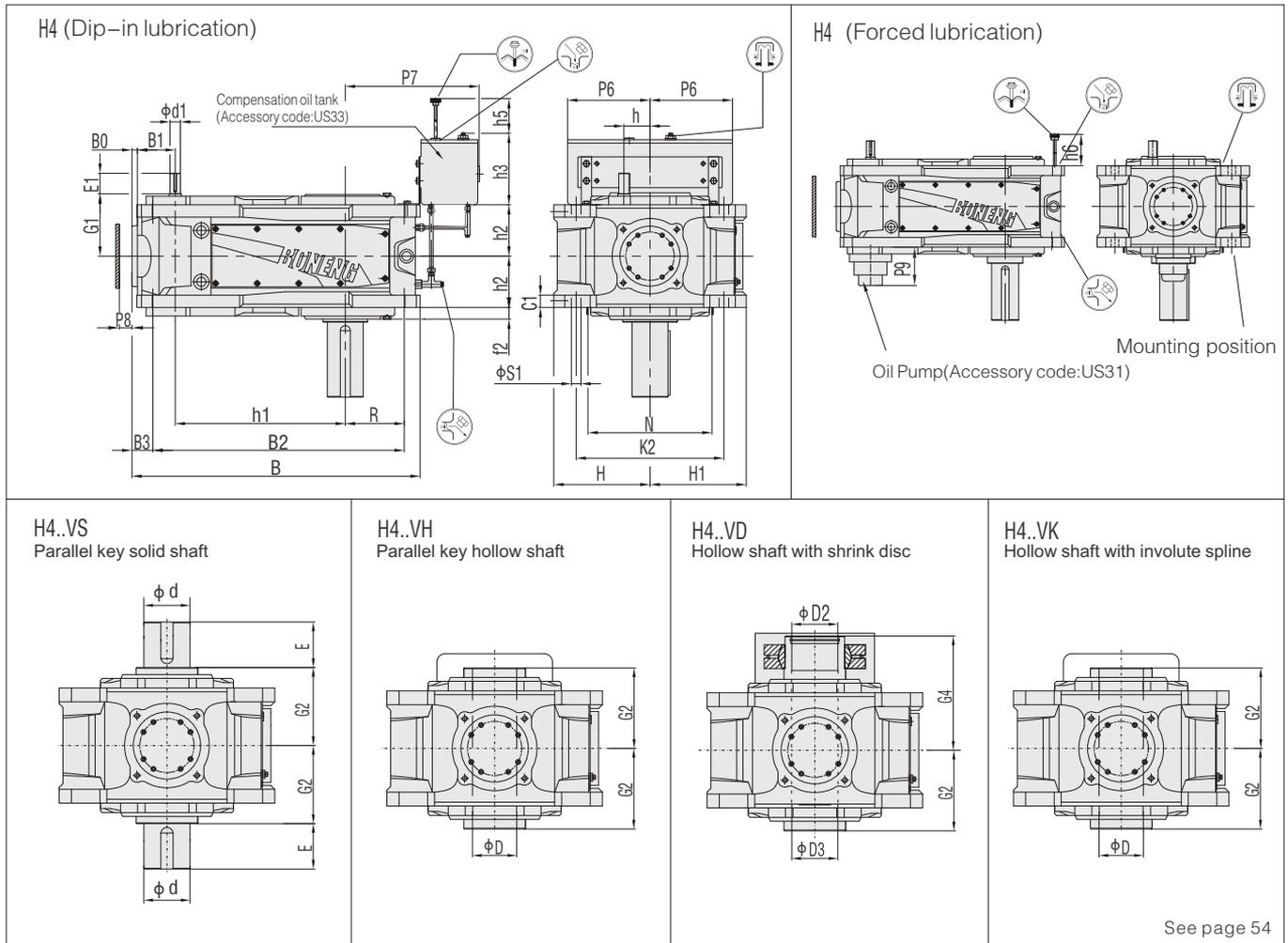
Size	in ≤ 45		in ≤ 50		in ≥ 50		in ≥ 56		B	B0	B1	B2	B3	C1	d	D	D2	D3
	d1	E1	d1	E1	d1	E1	d1	E1										
05	40k6	80			30k6	60			713	16	90	630	38	30 ± 1	100m6	95H7	100H7	100H7
06	40k6	80			30k6	60			793	16	90	710	38	30 ± 1	110m6	105H7	110H7	110H7
07			45k6	110			35k6	80	876	16	110	775	46	36 ± 1	120m6	115H7	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
05	210	30	170	165	240	230	230	405	127.5	210	160	105	360	310	240	405	35	145	175	24H9
06	210	30	170	165	240	230	260	440	127.5	210	160	105	360	310	240	450	35	145	220	24H9
07	210	35	210	195	280	280	280	495	150	210	160	120	430	360	240	445	35	143	215	28H9
08	250	35	210	195	285	280	310	540	150	210	160	120	430	360	240	505	35	143	275	28H9
09	250	35	240	235	330	320	320	580	185	285	200	155	490	420	330	585	40	155	260	36H9
10	300	35	240	235	350	320	350	630	185	285	200	155	490	430	330	635	40	155	310	36H9
11	300	42	275	270	400	380	380	705	215	285	200	150	600	510	330	620	50	162	295	40H9
12	300	42	275	270	405	380	410	775	215	285	200	150	600	510	330	705	50	162	380	40H9

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

11 Outline dimension

H407V~H412V



See page 54

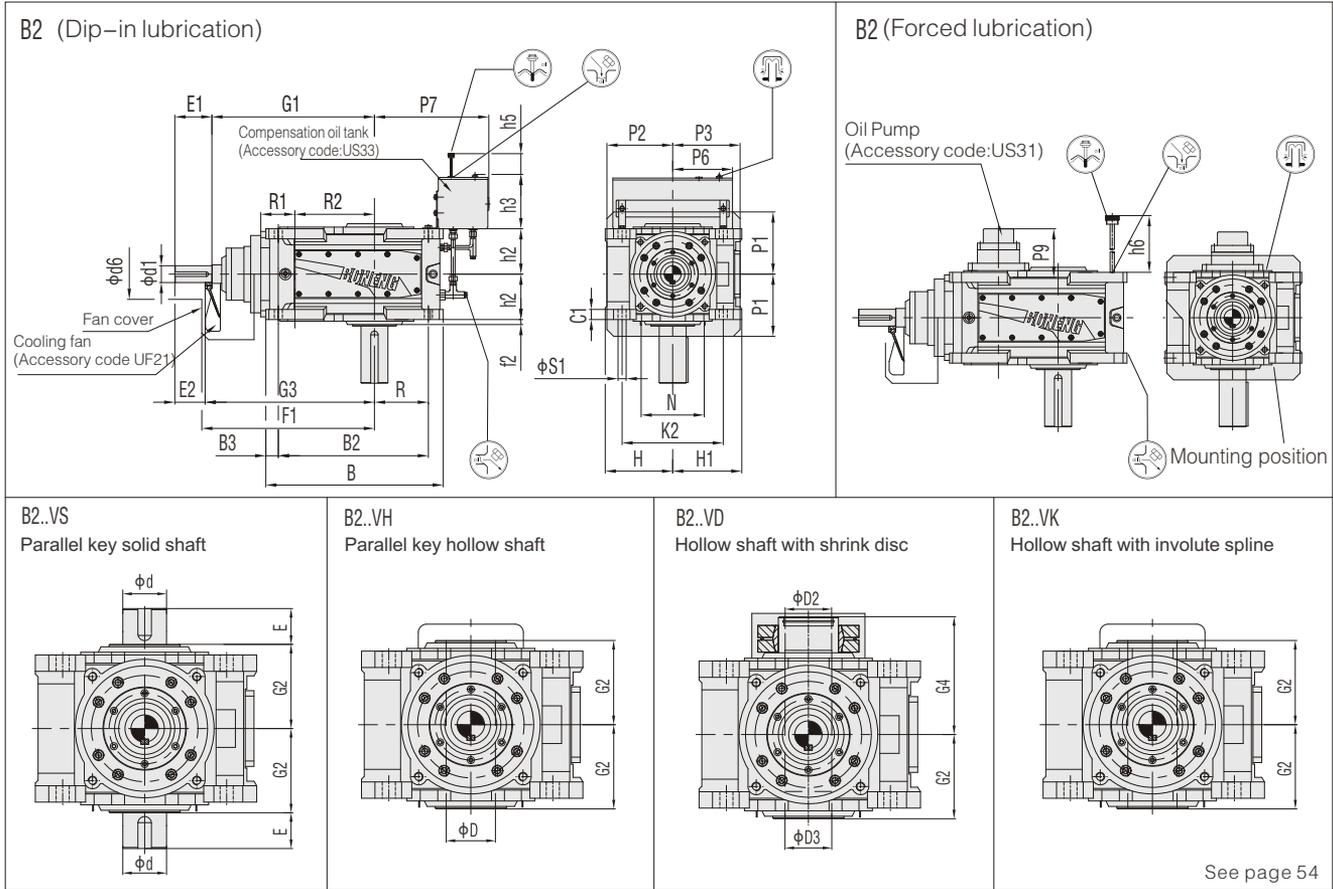
Size	in ≤ 200		in ≤ 224		in ≥ 224		in ≥ 250		B	B0	B1	B2	B3	C1	d	D	D2	D3	E
	d1	E1	d1	E1	d1	E1	d1	E1											
07	30k6	60			24k6	50			876	16	110	775	46	36 ± 1	120m6	115H7	120H7	120H7	210
08	30k6	60			24k6	50			981	16	110	880	46	36 ± 1	130m6	125H7	130H7	130H7	250
09	35k6	80			28k6	60			1033	20	130	920	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
07	35	180	195	280	280	280	76	495	150	210	160	120	430	360	240	445	35	102	215	28H9
08	35	180	195	285	280	310	76	540	150	210	160	120	430	360	240	505	35	102	275	28H9
09	35	215	235	330	320	320	93.5	580	185	285	200	155	490	420	330	585	40	125	260	36H9
10	35	215	235	350	320	350	93.5	630	185	285	200	155	490	430	330	635	40	125	310	36H9
11	42	250	270	400	380	380	120	705	215	285	200	150	600	510	330	620	50	140	295	40H9
12	42	250	270	405	380	410	120	775	215	285	200	150	600	510	330	705	50	140	380	40H9

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

11 Outline dimension

B204V ~ B 212V



See page 54

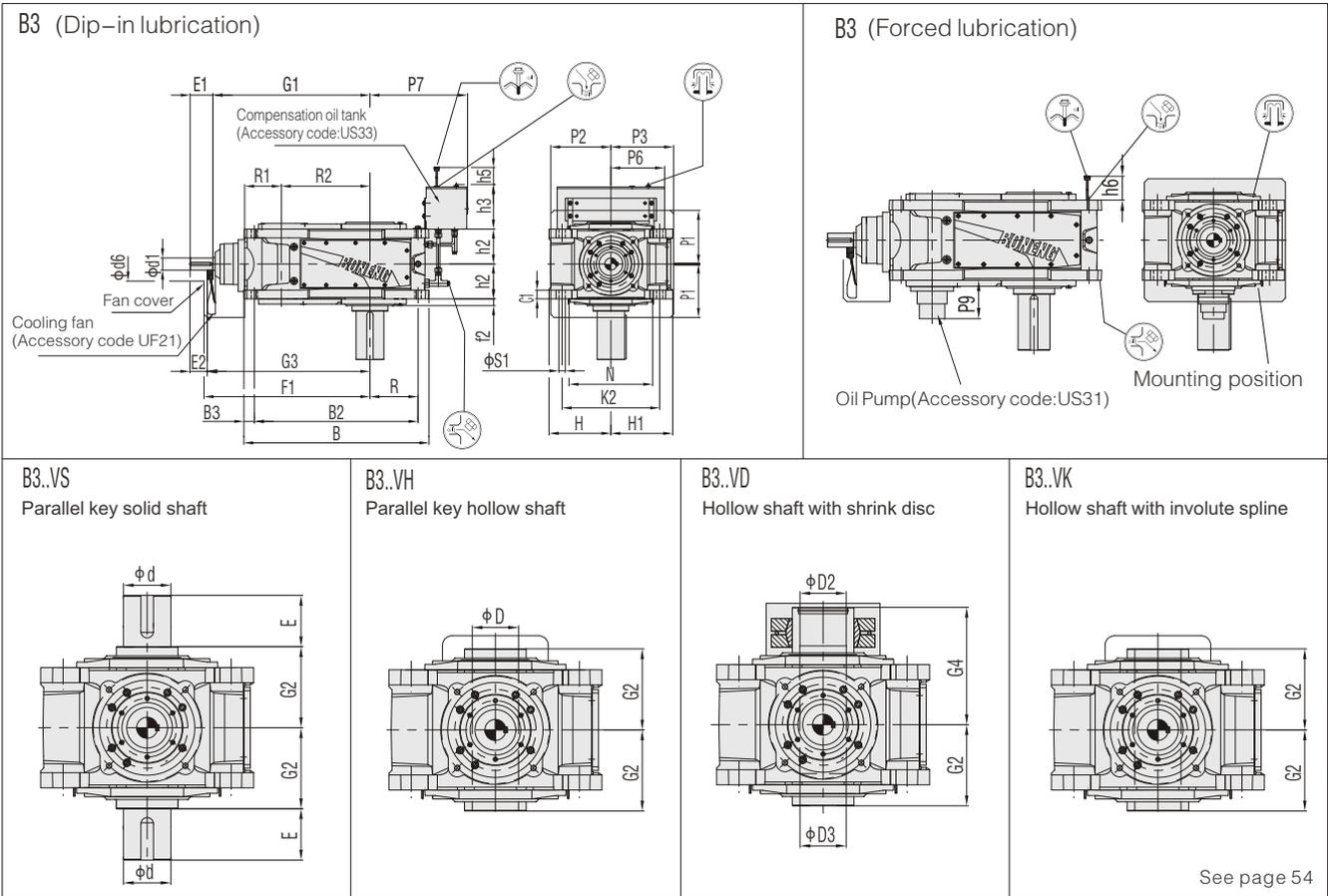
Size	iN ≤ 14			B	B2	B3	C1	d	d6	D	D2	D3	E	F1	f2	G1	G2
	d1	E1	E2														
04	50k6	110	90	530	445	50	30 ± 1	80m6	150	80H7	85H7	85H7	170	517	20	482	140
05	60m6	140	110	595	505	55	30 ± 1	100m6	160	95H7	100H7	100H7	210	596	10	551	165
06	60m6	140	110	680	585	60	30 ± 1	110m6	160	105H7	110H7	110H7	210	635	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
04	502	205	200	200	135	175	140	130	300	250	185	195	200	150	340	140	160	160	177	24H9
05	581	240	230	230	160	210	160	145	360	310	215	220	235	240	405	132	175	185	201	24H9
06	620	240	230	260	160	210	160	145	360	310	215	220	235	240	450	132	220	185	240	24H9
07	690	280	280	280	190	210	160	180	430	360	250	270	285	240	445	150	215	225	240	28H9
08	730	285	280	310	190	210	160	180	430	360	250	270	285	240	505	150	275	225	280	28H9
09	790	330	320	320	220	285	200	165	490	390	250	310	325	330	585	160	260	265	280	36H9
10	850	350	320	350	220	285	200	165	490	430	250	310	325	330	635	160	310	265	340	36H9
11	980	400	380	380	265	285	200	140	600	450	330	370	385	330	620	161	295	320	340	40H9
12	1030	405	380	410	265	285	200	140	600	490	330	370	385	330	705	161	380	320	390	40H9

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

11 Outline dimension

B304V ~ B 312V



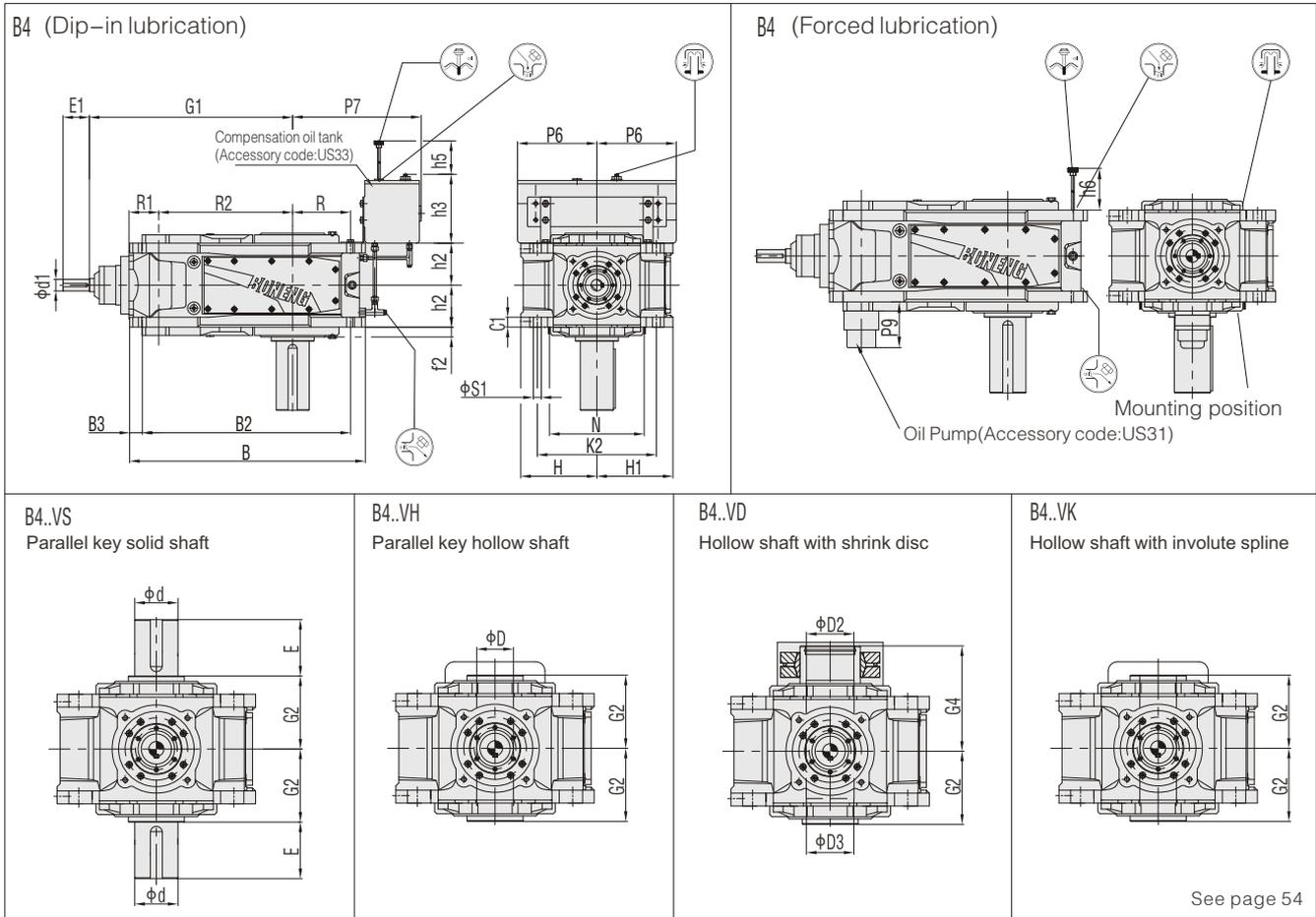
Size	in ≤ 63			in ≥ 71			B	B2	B3	C1	d	d6	E	F1	f2	D	D2	D3	G1
	d1	E1	E2	d1	E1	E2													
04	35k6	80	60	30k6	60	40	586	505	37	30 ± 1	80m6	150	170	540	30	80H7	85H7	85H7	500
05	45k6	110	80	35k6	80	50	667	580	38	30 ± 1	100m6	160	210	630	30	95H7	100H7	100H7	575
06	45k6	110	80	35k6	80	50	743	660	38	30 ± 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
04	140	520	205	200	200	107.5	175	140	85	300	250	185	195	200	150	340	142	160	110	270	24H9
05	165	605	240	230	230	127.5	210	160	105	360	310	215	220	235	240	405	145	175	130	315	24H9
06	165	640	240	230	260	127.5	210	160	105	360	310	215	220	235	240	450	145	220	130	350	24H9
07	195	710	280	280	280	150	210	160	120	430	360	250	270	285	240	445	143	215	160	385	28H9
08	195	755	285	280	310	150	210	160	120	430	360	250	270	285	240	505	143	275	160	430	28H9
09	235	830	330	320	320	185	285	200	155	490	410	250	310	325	330	585	155	260	185	450	36H9
10	235	880	350	320	350	185	285	200	155	490	430	250	310	325	330	635	155	310	185	500	36H9
11	270	995	400	380	380	215	285	200	150	600	500	330	370	385	330	620	162	295	225	545	40H9
12	270	1065	405	380	410	215	285	200	150	600	500	330	370	385	330	705	162	380	225	615	40H9

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

11 Outline dimension

B405V ~ B 412V



See page 54

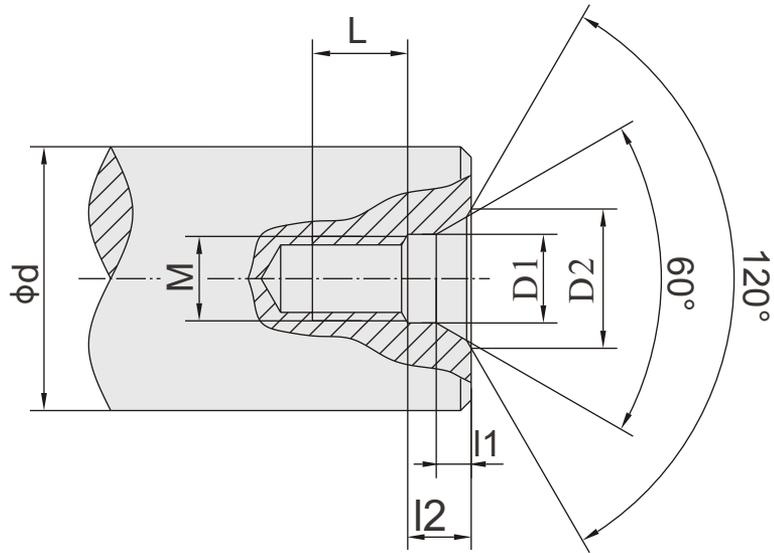
Size	in ≤ 250		in ≤ 280		in ≥ 280		in ≥ 315		B	B2	B3	C1	d	D	D2	D3	E	f2
	d1	E1	d1	E1	d1	E1	d1	E1										
05			35k6	80			25k6	50	713	630	38	30 ± 1	100m6	95H7	100H7	100H7	210	30
06			35k6	80			25k6	50	793	710	38	30 ± 1	110m6	105H7	110H7	110H7	210	30
07			35k6	80			30k6	60	876	775	46	36 ± 1	120m6	115H7	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
05	615	165	240	230	230	127.5	210	160	105	360	310	240	405	120	175	90	405	24H9
06	650	165	240	230	260	127.5	210	160	105	360	310	240	450	120	220	90	440	24H9
07	725	195	280	280	280	150	210	160	120	430	360	240	445	102	215	110	495	28H9
08	770	195	285	280	310	150	210	160	120	430	360	240	505	102	275	110	540	28H9
09	840	235	330	320	320	185	285	200	155	490	420	330	585	125	260	130	580	36H9
10	890	235	350	320	350	185	285	200	155	490	430	330	635	125	310	130	630	36H9
11	1010	270	400	380	380	215	285	200	150	600	510	330	620	140	295	160	705	40H9
12	1080	270	405	380	410	215	285	200	150	600	510	330	705	140	380	160	775	40H9

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

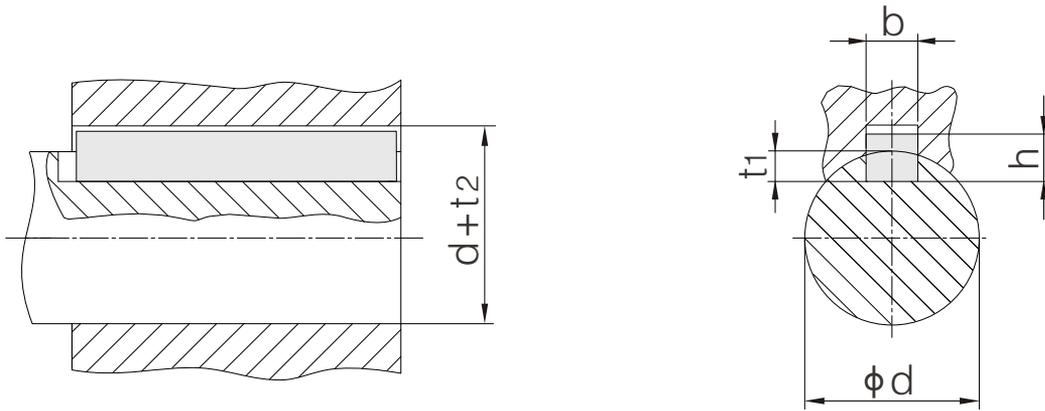
12 Shaft end central hole:

Shaft end C Type screw central hole



d	M	L	l ₂	l ₁	D1	D2
$7 < d \leq 10$	M3	10	2.6	1.8	3.2	5.8
$10 < d \leq 13$	M4	10	3.2	2.1	4.3	7.4
$13 < d \leq 16$	M5	10	4	2.4	5.3	8.8
$16 < d \leq 21$	M6	12	5	2.8	6.4	10.5
$21 < d \leq 24$	M8	12	6	3.3	8.4	13.2
$24 < d \leq 30$	M10	15	7.5	3.8	10.5	16.3
$30 < d \leq 38$	M12	20	9.5	4.4	13	19.8
$38 < d \leq 50$	M16	25	12	5.2	17	25.3
$50 < d \leq 85$	M20	30	15	6.4	21	31.3
$85 < d \leq 130$	M24	35	18	8	25	38
$130 < d \leq 225$	M30	45	18	11	31	48

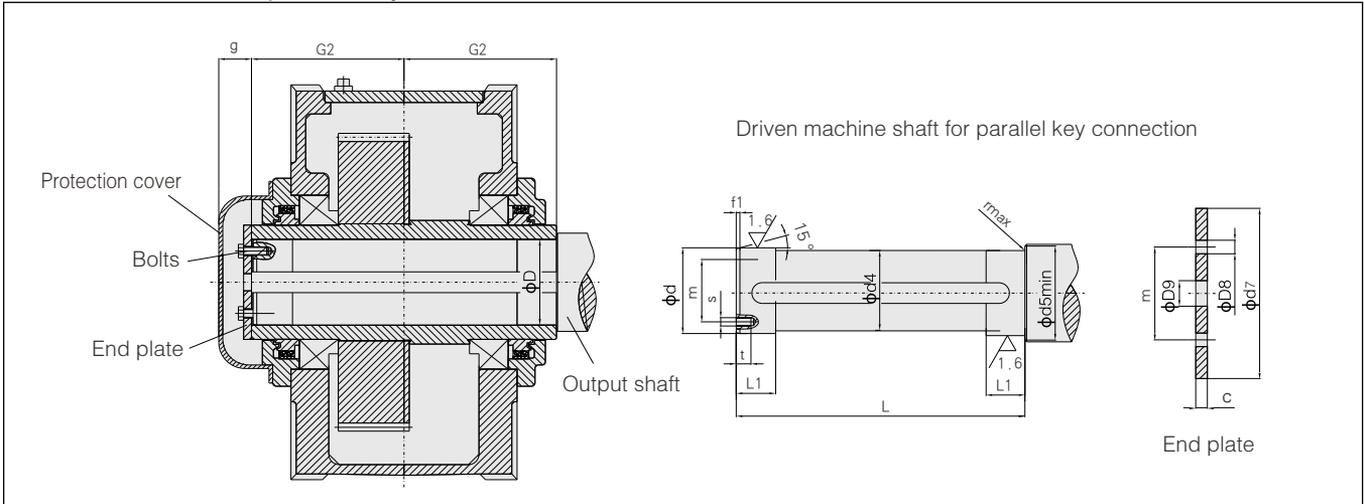
13 Dimension of parallel key and keyway:



d	b	h	t ₁	d + t ₂
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:



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

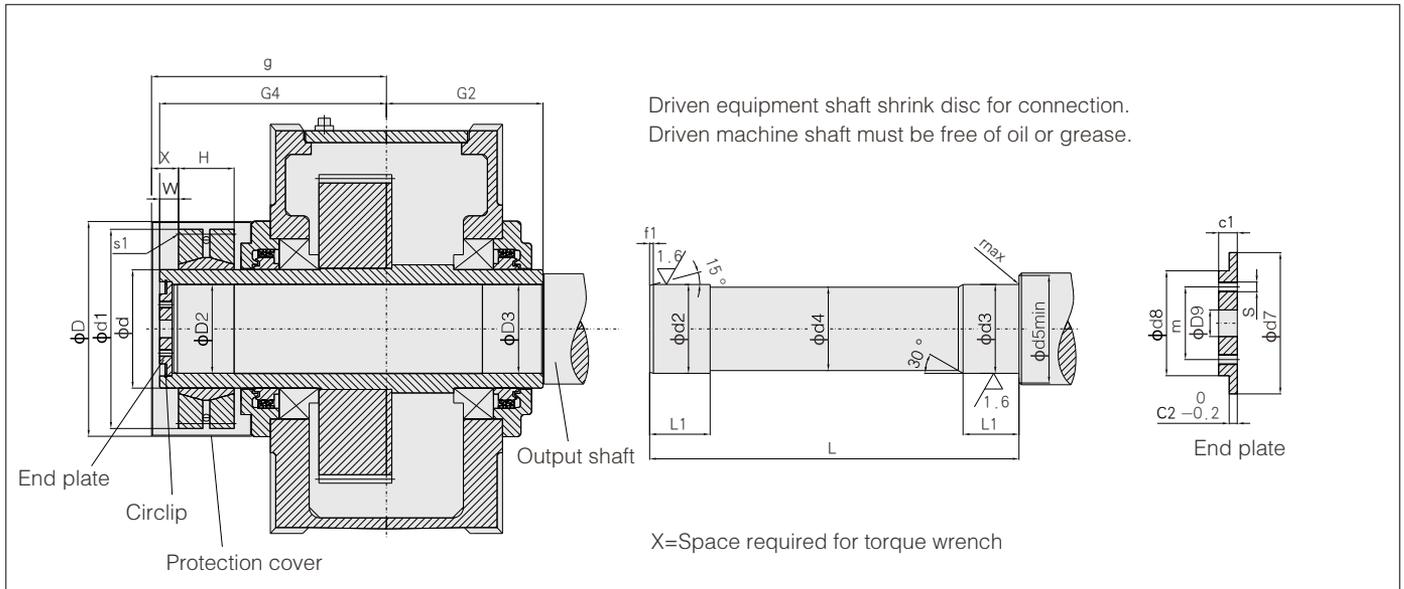
Size	Driven equipment shaft									End plate					Bolt		Hollow shaft		
	d	d4	d5	f1	L	L1	r	s	t	c	D8	D9	d7	m	Specification	Number	D		g
04	80h6	79.5	88	4	278	35	1.2	M10	18	10	11	22	100	60	M10 × 25	2	80H7	140	35
05	95h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10 × 25	2	95H7	165	40
06	105h6	104.5	116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

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	Specification	Number	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	48
05	95h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10 × 25	2	95H7	165	53
06	105h6	104.5	116	5	328	45	1.6	M10	18	10	11	26	120	70	M10 × 25	2	105H7	165	53
07	115h6	114.5	126	5	388	50	1.6	M12	20	12	13.5	26	140	80	M12 × 30	2	115H7	195	60
08	125h6	124.5	136	6	388	55	2.5	M12	20	12	13.5	26	150	85	M12 × 30	2	125H7	195	60
09	135h6	134.5	147	6	467	60	2.5	M12	20	12	13.5	33	160	90	M12 × 30	2	135H7	235	65
10	150h6	149.5	162	6	467	65	2.5	M12	20	12	13.5	33	185	110	M12 × 30	2	150H7	235	65
11	165h6	164.5	177	7	537	70	2.5	M16	28	15	17.5	33	195	120	M16 × 40	2	165H7	270	65
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 Disks:



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

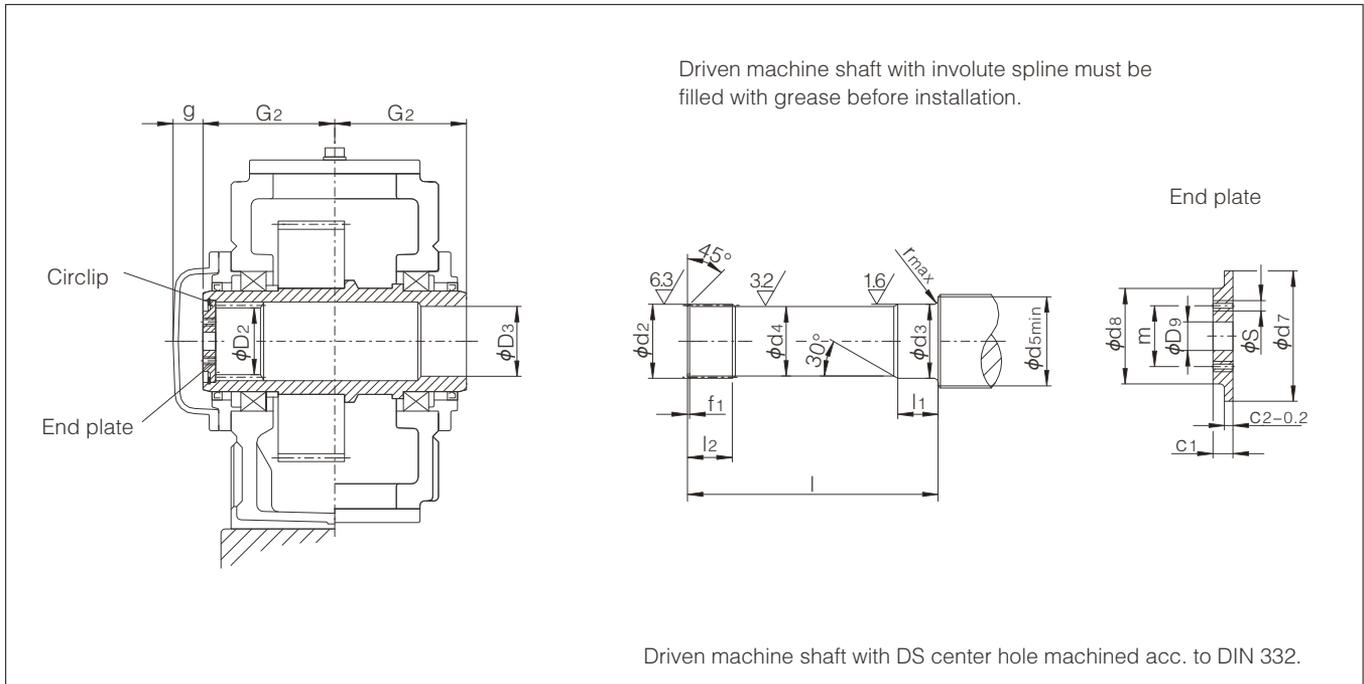
Size	Driven equipment shaft					End plate										Circlip	Hollow shaft				Shrink disc				Bolt	Protection cover			
	d2	d3	d4	d5	f1	L	L1	r	c1	c2	d7	d8	d9	m	s		number	D2	D3	G2	G4	Type	d	d1		H	W	s1	D
04	85g6	85h6	84.5	95	4	326	48	2	17	7	90	70	22	50	M8	2	90	85H7	85H7	140	205	SP2-110	110	185	49	20	M12	232	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	20	M12	277	260
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	20	M12	277	261
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	347	321
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	347	320
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	362	390
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	399	398
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	399	455
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	464	477

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

Size	Driven equipment shaft					End plate										Circlip	Hollow shaft				Shrink disc				Bolt	Protection cover			
	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	20	M12	232	242
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	20	M12	277	272
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	20	M12	277	272
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	347	335
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	347	335
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	362	410
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	399	418
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	399	450
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	464	452

- ⚠ 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:



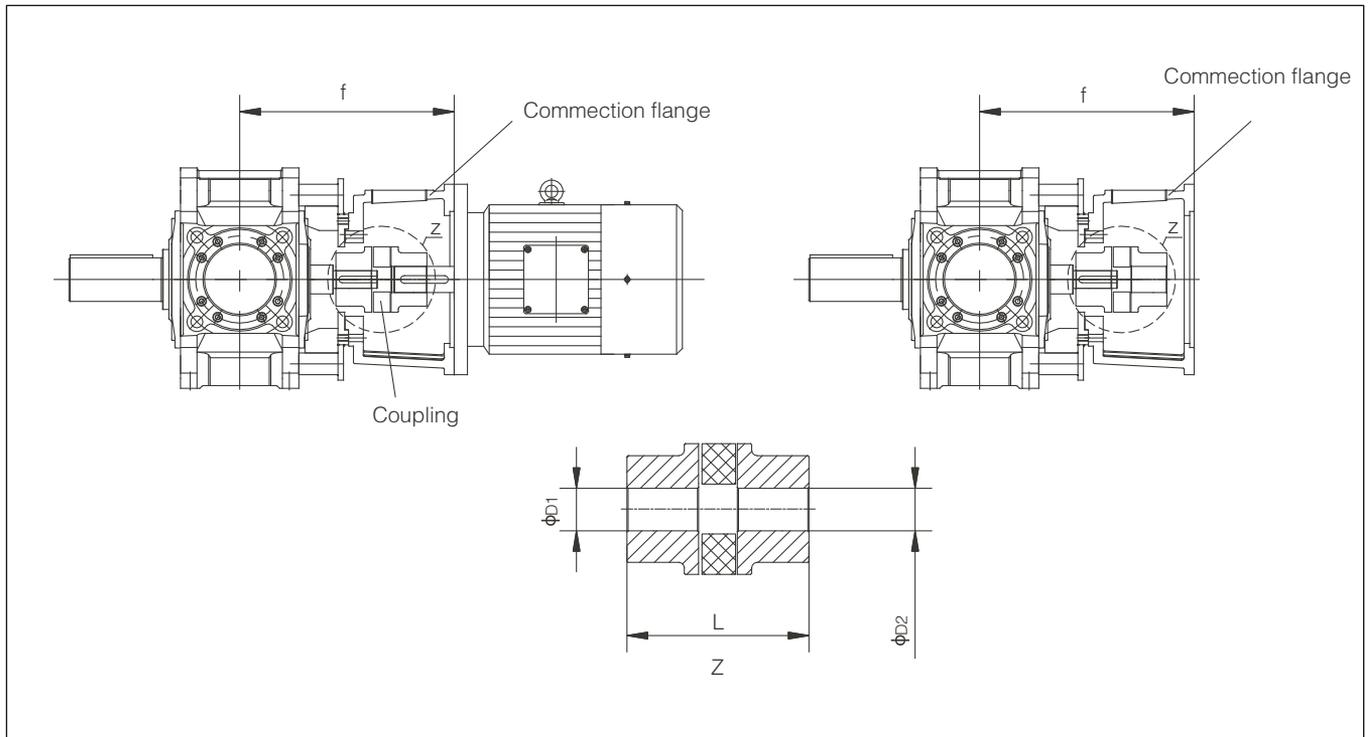
Types H2...K, H3...K, H4...K, B2...K, B3...K, B4...K (size 05–12)

Size	Involute splines DIN5480	Driven equipment shaft ¹⁾										End plate								Hollow shaft				Bolt
		d2	d3	d4	d5	f1	l	l1	l2	r	c1	c2	d7	d8	D9	m	s	α _{ty}	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	45	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	45	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	55	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	55	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	55	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	55	M30
11	W170X5X30X32X8f	169h11	170g6	168	185	5	514	112	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	170H7	270	65	M30
12	W170X5X30X32X8f	169h11	185g6	168	200	5	514	122	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	185H7	270	65	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.

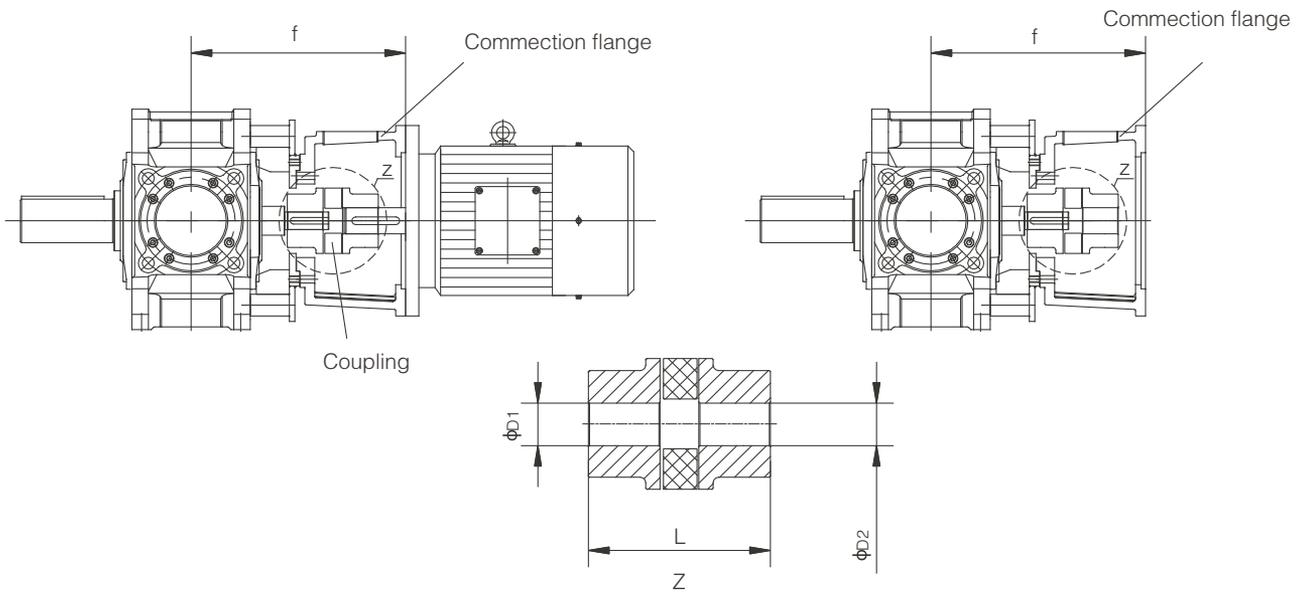
15 Input with motor and flange input(Accessory code:UF31)

H2



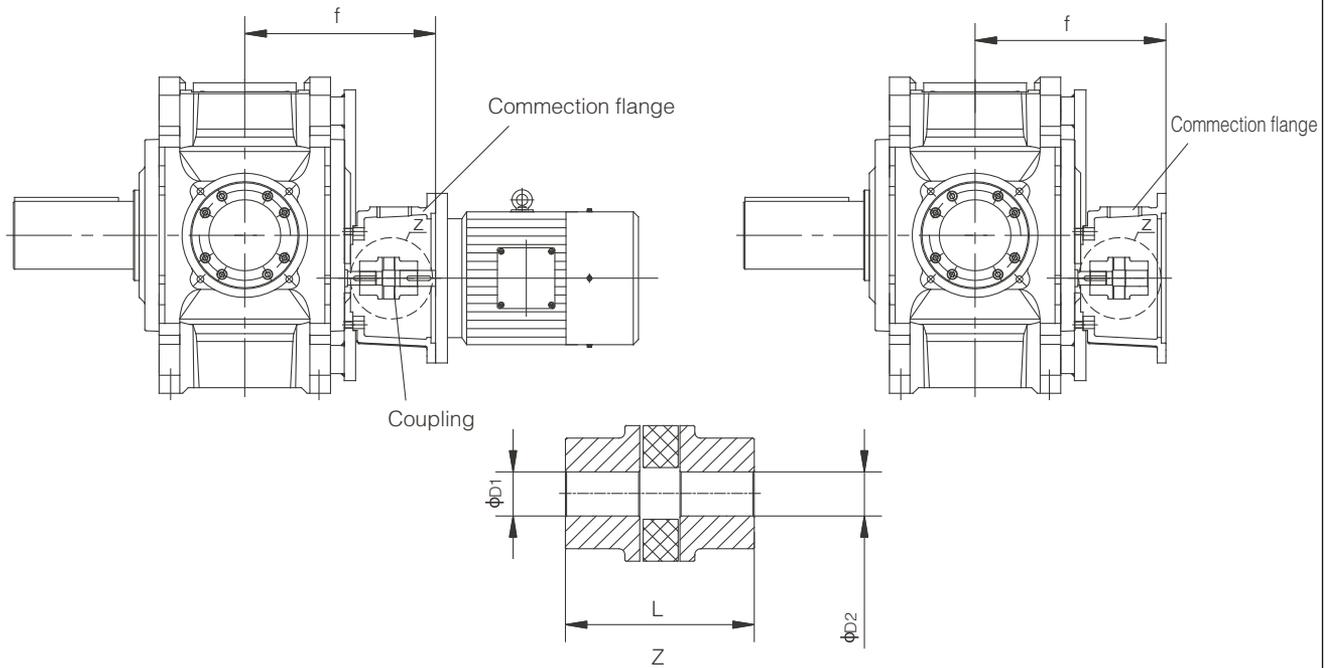
H2			$iN \leq 11.2$					$iN \geq 12.5$				
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
4	160							GA55	32	42	160	389.5
	180							GA55	32	48	160	389.5
	200							GA65	32	55	185	395.5
	225		GA65	45	60	185	425.5	GA65	32	60	185	425.5
5/6	200							GA65	38	55	185	419.5
	225							GA65	38	60	185	449.5
	250		GA75	50	65	210	452.9	GA75	38	65	210	452.5
	280		Ga75	50	75	210	452.9	GA75	38	75	210	452.5

H3



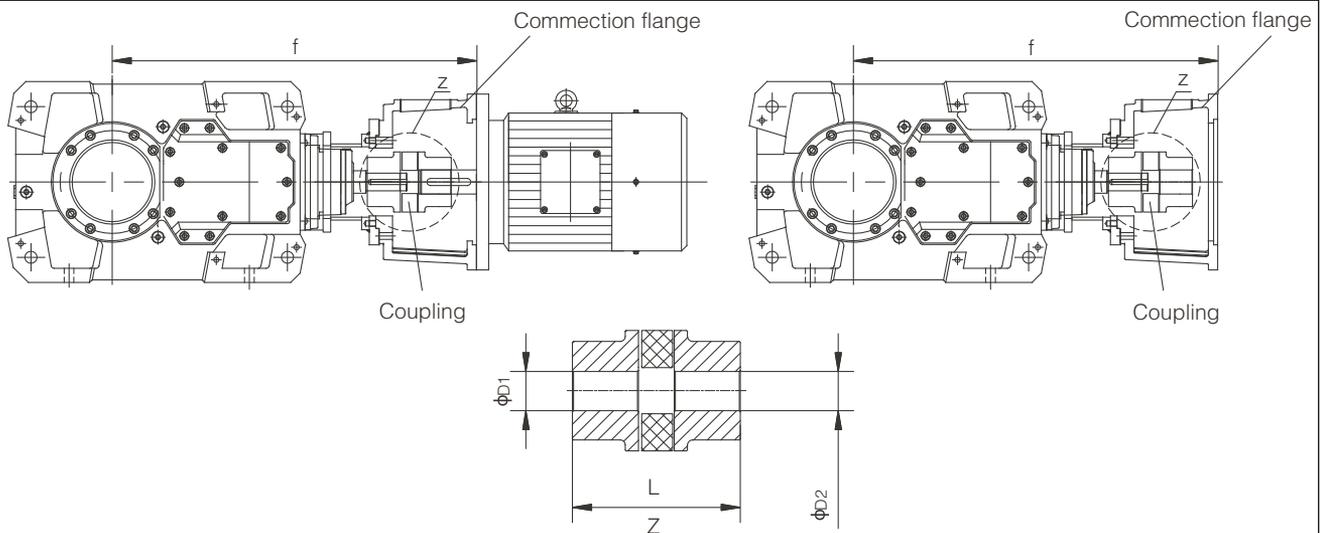
H3			IN ≤ 45 (size: 5, 6) iN ≤ 50 (size: 7, 8, 9, 10, 11, 12)				iN ≥ 50 (size: 5, 6) iN ≥ 56 (size: 7, 8, 9, 10, 11, 12)					
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
5/6	132							GA42	30	38	126	324.5
	160		GA55	40	42	160	378.5	GA55	30	42	160	378.5
	180		GA55	40	48	160	378.5	GA55	30	48	160	378.5
	200		GA65	40	55	185	384.5	GA65	30	55	185	384.5
	225		GA65	40	60	185	414.5	GA65	30	60	185	414.5
7/8	160							GA55	35	42	160	428
	180							GA55	35	48	160	428
	200		GA65	45	55	185	436	GA65	35	55	185	436
	225		GA65	45	60	185	466	GA65	35	60	185	466
	250		GA75	45	65	210	469	GA75	35	65	210	469
	280		GA75	45	75	210	469					
9/10	160							GA55	45	42	160	488
	180							GA55	45	48	160	488
	200		GA65	60	55	185	496	GA65	45	55	185	496
	225		GA65	60	60	185	526	GA65	45	60	185	526
	250		GA75	60	65	210	529	GA75	45	65	210	529
	280		GA75	60	75	210	529					
11/12	225							GA65	50	60	185	556
	250							GA75	50	65	210	559
	280		GA75	70	75	210	559	GA75	50	75	210	559

H4



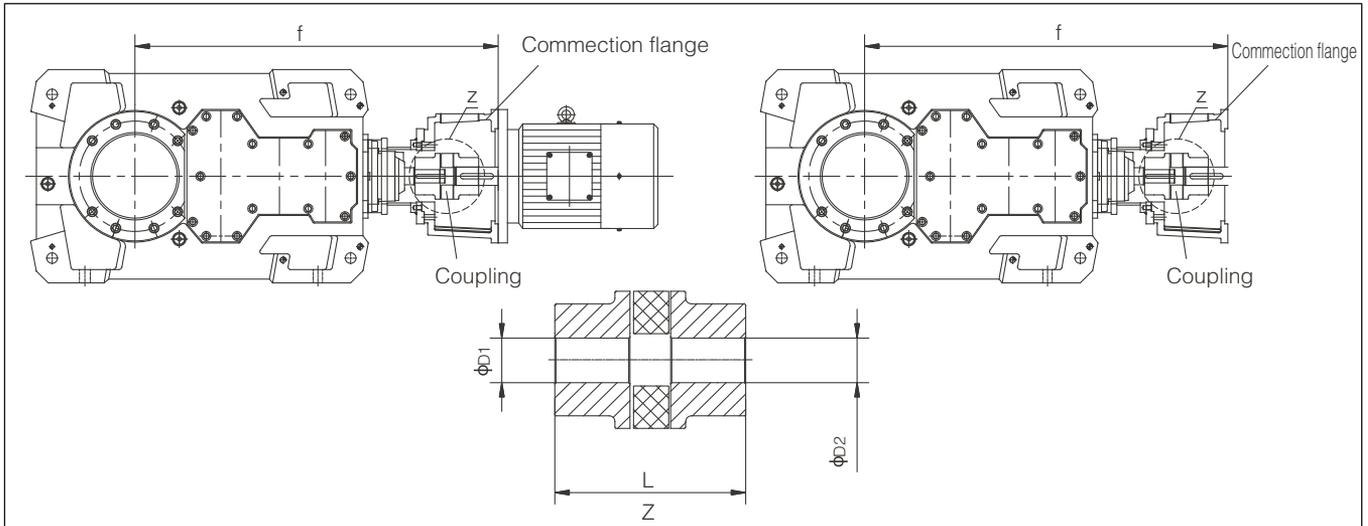
H4			iN ≤ 200 (size: 7, 8, 9, 10) iN ≤ 224 (size: 11, 12)					In ≥ 224 (size: 7, 8, 9, 10) iN ≥ 250 (size: 11, 12)				
Size	Y Motor	F Flange	Coupling				f	Coupling				f
			Type	D1	D2	L		Type	D1	D2	L	
7/8	132		GA42	30	38	126	334	GA42	24	38	126	334
	160		GA55	30	42	160	387	GA55	24	42	160	387
	180		GA55	30	48	160	387	GA55	24	48	160	387
9/10	132							GA42	28	38	126	386
	160		GA55	35	42	160	440	GA55	28	42	160	440
	180		GA55	35	48	160	440	GA55	28	48	160	440
	200		GA65	35	55	185	446	GA65	28	55	185	446
	225		GA65	35	60	185	476	GA65	28	60	185	476
11/12	160							GA55	32	42	160	491
	180		GA55	45	48	160	491	GA55	32	48	160	491
	200		GA65	45	55	185	499	GA65	32	55	185	499
	225		GA65	45	60	185	529	GA65	32	60	185	529
	250		GA75	45	65	210	532					

B3



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

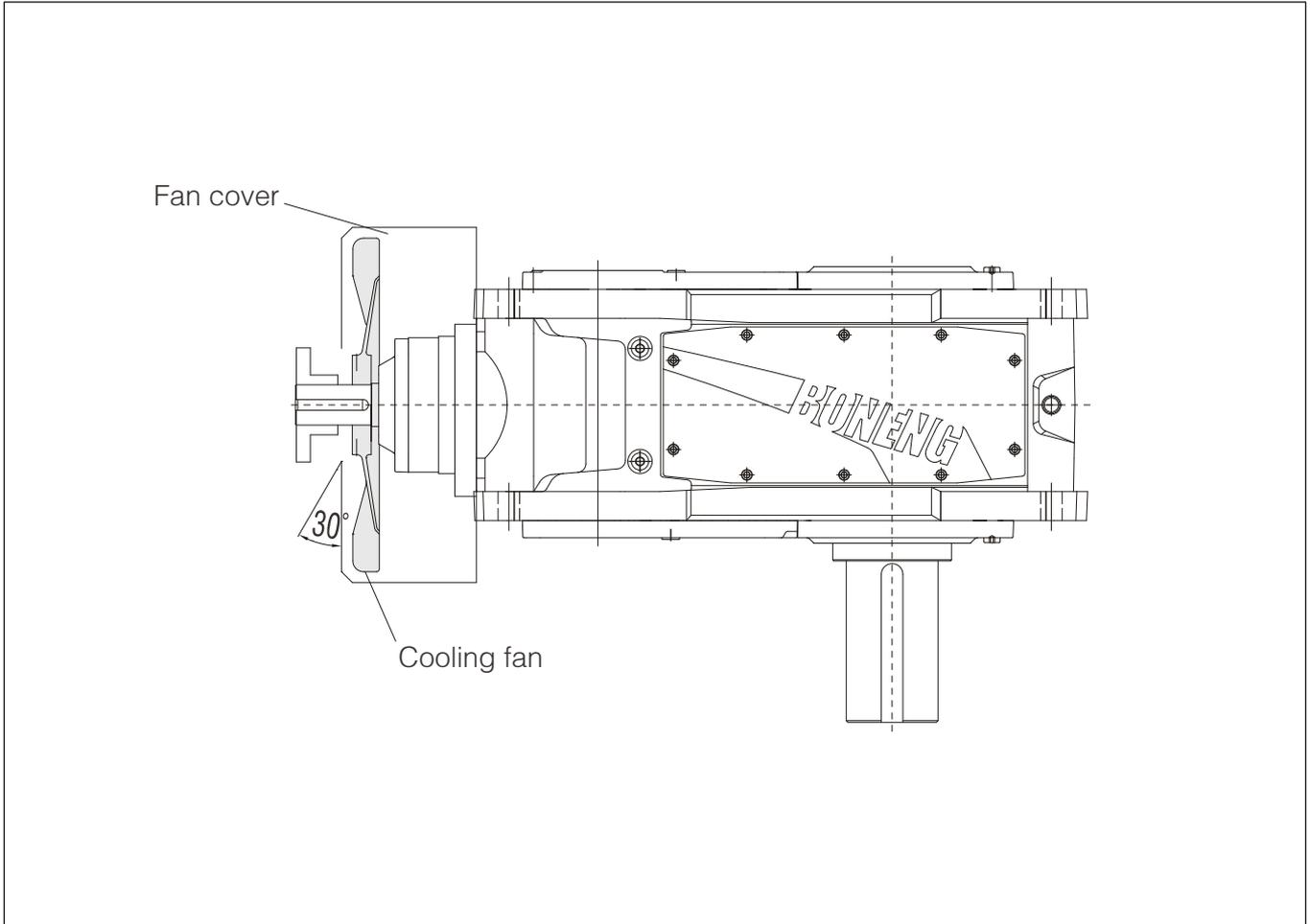
B4



B4			iN ≤ 250 (规格: 9、10) iN ≤ 280 (规格: 5、6、7、8、11、12)					iN ≥ 280 (规格: 9、10) iN ≥ 315 (规格: 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	GA65	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	GA65	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					
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					

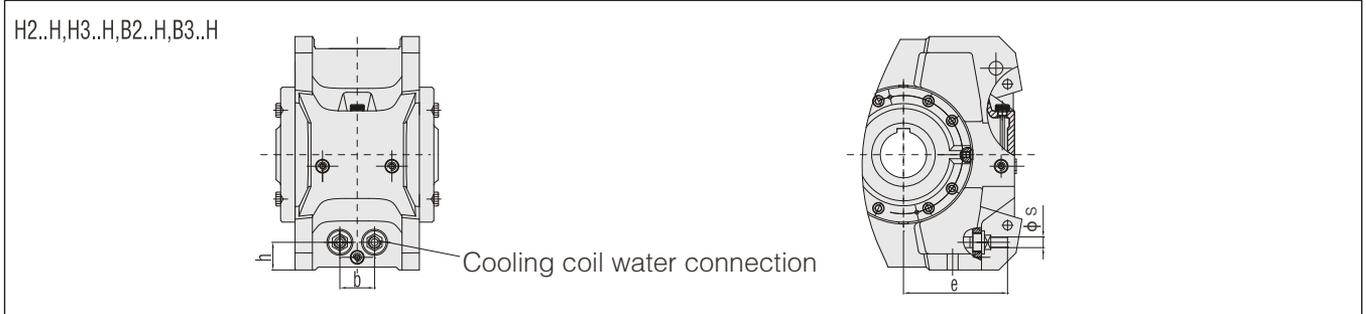
16 Accessory

16.1 Cooling fan (Accessory code:UF21)



16.2 Cooling coil (Accessory code:UC21)

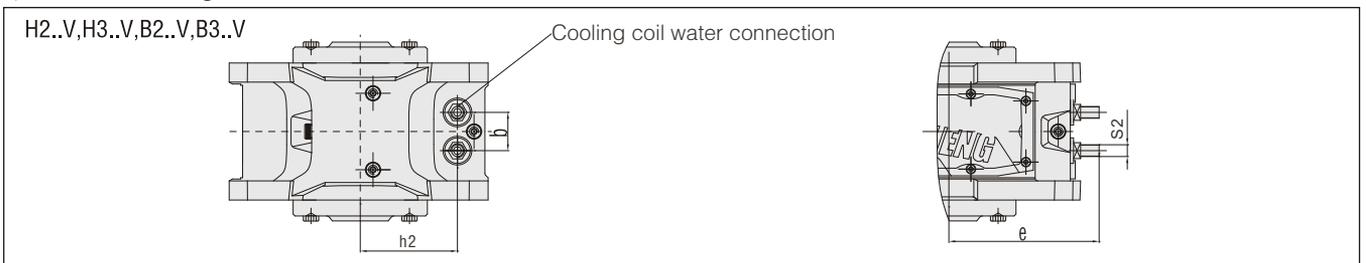
1) Horizontal mounting:



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 brachish 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.

1) Vertical mounting:

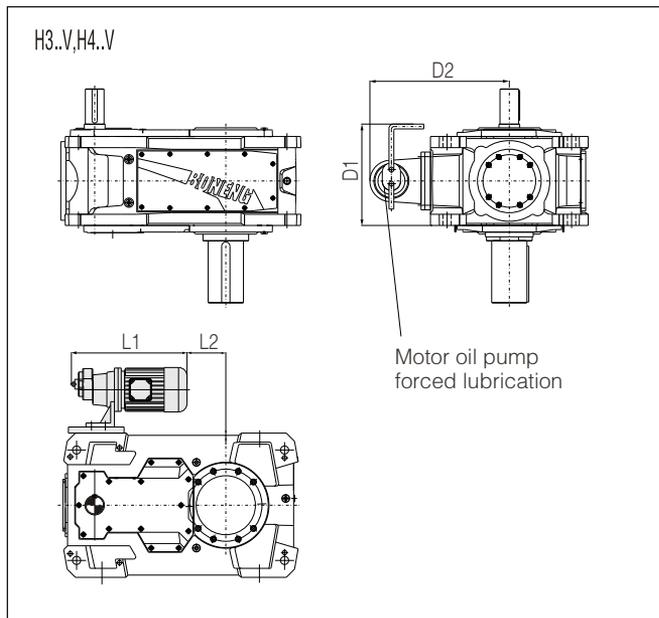


Size	H2..V / B3..V					H3..V					B2..V				
	b	e	h2	s2	Water quantity (l/min)	b	e	h2	s2	Water quantity (l/min)	b	e	h2	s2	Water quantity (l/min)
04	60	165	152	G1/2	4	-	-	-	-	-	60	165	152	G1/2	4
05	70	170	166	G1/2	4	70	170	166	G1/2	4	70	170	166	G1/2	8
06	70	225	175	G1/2	4	70	225	175	G1/2	4	70	225	175	G1/2	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

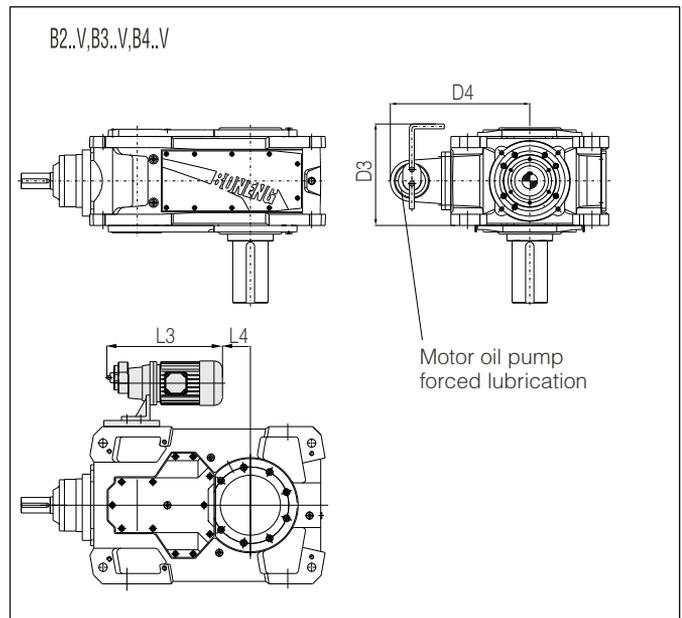
- ⚠ Note: 1.Cooling coil is appropriate for fresh water.Sea water and brachish water,maximum pressure of cooling water:8 bar.
2.For H306(iN>25)、H307(iN>28)、H308(iN>28)、H310(iN>28) there can be no cooling coil.

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		

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

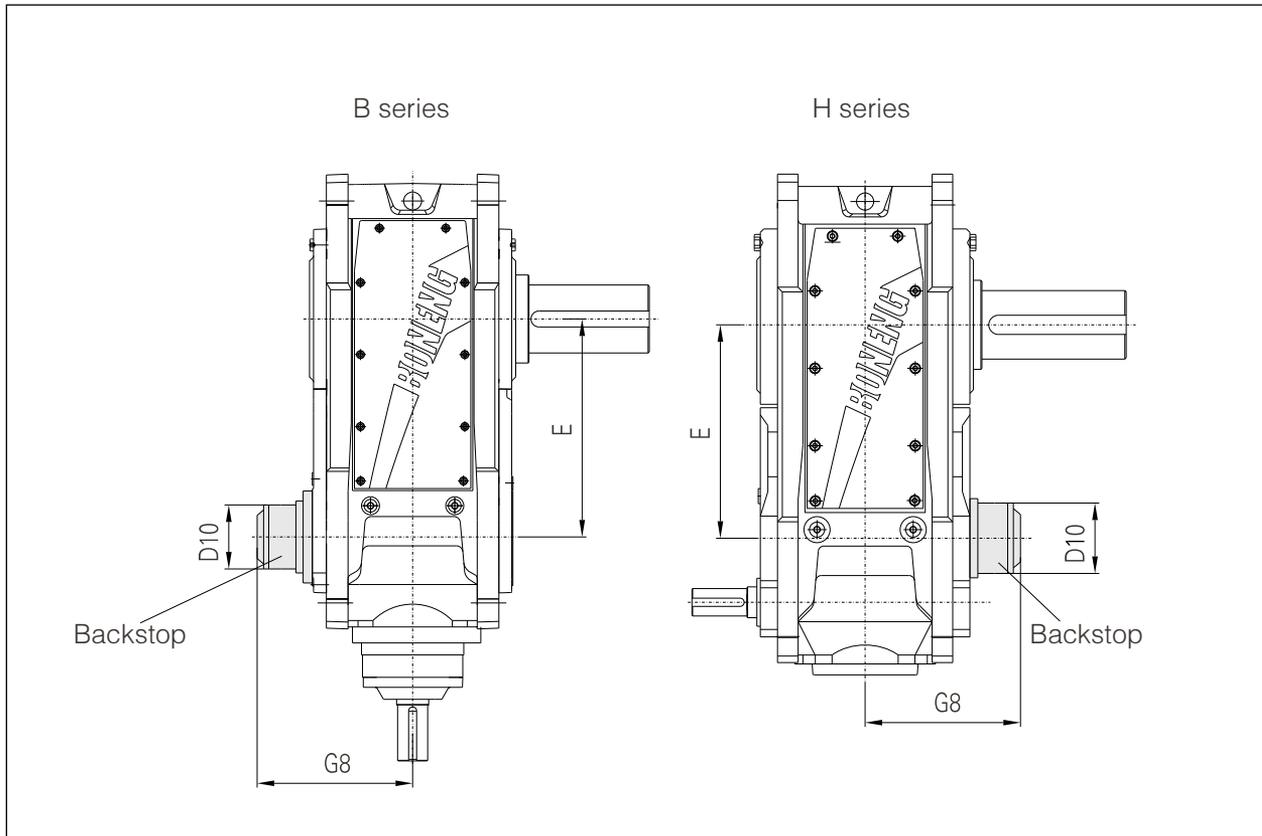


Mounting dimension						
Type	Size	Shaft assemblies	L2	L1	D2	D1
H3..V	05 / 06	A + B + C + D	-30 / 5	560	480	385
	07 / 08	A + B + C + D	55 / 100	585	550	430
	09 / 10	A + B + C + D	140 / 190	610	565	500
	11 / 12	A + B + C + D	375 / 445	530	625	560
H4..V	07 / 08	A + C	55 / 100	600	550	430
		B + D	0 / 45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

16.4 Backstop(Accessory code:UB11)



Size	04			05			06			07			08		
	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									
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: Rotation direction means the rotation direction of output shaft d when facing output shaft.

16.5 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

16.6 Lubrication oil

16.6.1 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

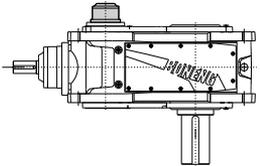
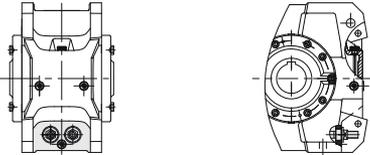
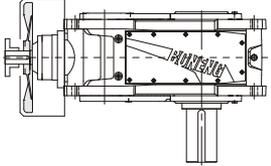
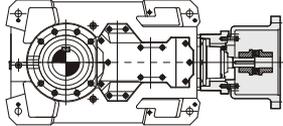
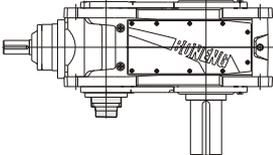
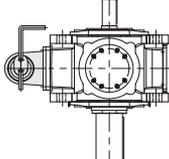
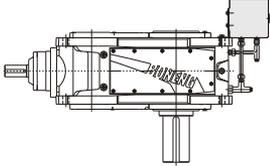
⚠ Note: 1.① Oil tank splash lubrication ②Dip-in lubrication ③ Forced lubrication.
2.The above data are average values.

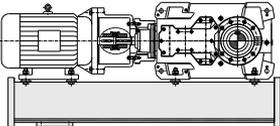
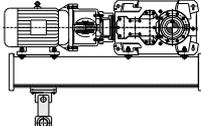
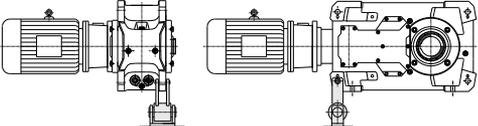
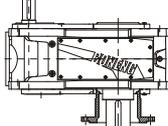
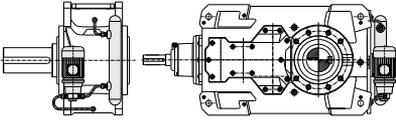
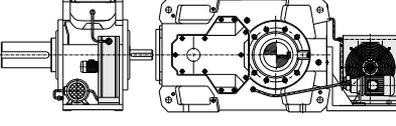
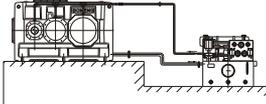
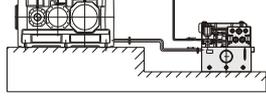
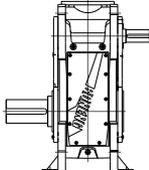
16.6.2 Lubrication oil (heavy-loading industrial gear oil) viscosity number selection[VG320(Accessory code:UV32);VG460(Accessory code:UV46)]

Ambient temperature℃	-20℃~+40℃	+30℃~+50℃
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℃,synthetic oil must be used.
3.To ensure product lifespan, we suggest synthetic oil.
4.IF ambient temperature exceeds the above range, please consult.

16.7 Accessories code table:

Code	Accessories	Example
UB11	Backstop	
UC21	Inner cooling coil	
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	Gear box swing base	
	Swing base with torque arm	
	Torque arm	
	Mounting flange	
	External water-oil cooler	
	External wind air-oil cooler	
	Pipeline(Customer build oil station)	
	Oil station	
	Upright mounting	
	Electric heater	
Shaft sealing of other categories		



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