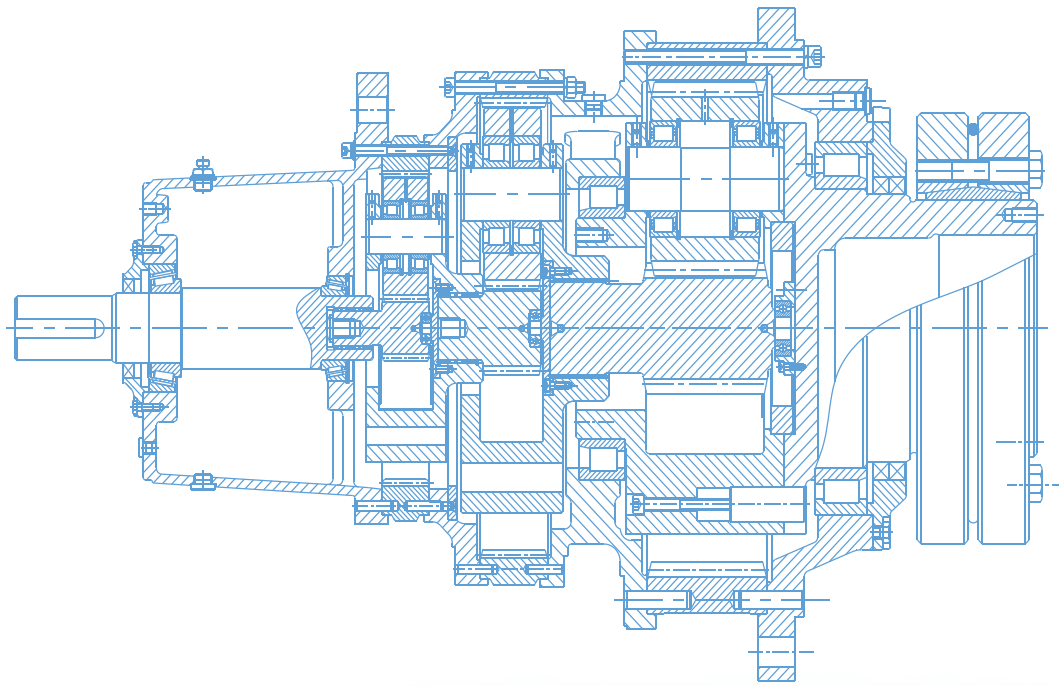


## P Planetary Gearbox

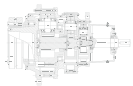
Modified date 04/2021



## **P Series Planetary Gearbox**

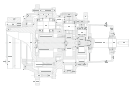
- » The sun wheel and planetary wheel are made of high quality quenching alloy steel, the ring gears adopt in hardened surface alloy steel, all grinding gears.
- » Cast iron housing and steel/cast iron frame, all designed by computer simulation and stress analysis method, which will enlarge the loading capacity.
- » Highly modular design makes all the spare parts standardization and reducing the stock. Improve delivery speed.
- » All bearings using roller bearings, the force part are import brand bearing.
- » The input and output side with radial skeleton seal, wherein the output double seals.
- » Lots of accessories for choose and can be used with other products of our company.





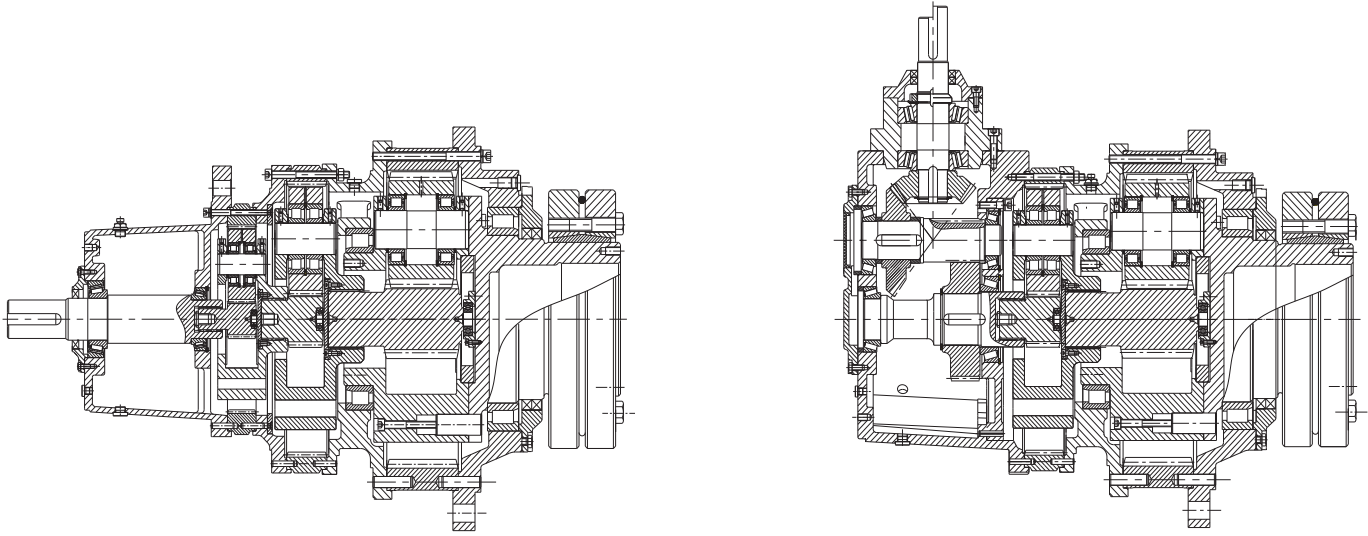
<b>1</b>	<b>Sectional Drawings</b>	<b>2</b>
<b>2</b>	<b>Type Designation</b>	<b>2</b>
<b>3</b>	<b>Input and Output Modes</b>	<b>3</b>
<b>4</b>	<b>Mounting Position, Position of Motor Terminal Box</b>	<b>4</b>
<b>5</b>	<b>Type Selection and Example</b>	<b>6</b>
<b>6</b>	<b>Transmission Capacity</b>	<b>10</b>
<b>7</b>	<b>Radial Forces on Output Shaft</b>	<b>30</b>
<b>8</b>	<b>Outline Dimensions</b>	<b>31</b>
<b>9</b>	<b>Flange Input</b>	<b>41</b>
<b>10</b>	<b>Combi-type</b>	<b>47</b>
<b>11</b>	<b>Accessories</b>	<b>48</b>
<b>12</b>	<b>Screw hole in shaft end</b>	<b>58</b>
<b>13</b>	<b>Parallel keys and keyway</b>	<b>60</b>





# 1 Type Designation

P



## 2 Type Designation

**P 3 N A 10 - 140 - M11 + B42 - B5 - 90**

Series \_\_\_\_\_

Stages \_\_\_\_\_

Input Modes \_\_\_\_\_

N = Standard (coaxial)  
S = Helical gear stage  
L = Bevel gear stage  
K = Bevel-helical gear stage

Output Modes \_\_\_\_\_

A = Hollow shaft with shrink disk  
B = Solid shaft with parallel key  
C = Hollow shaft with involute splines  
D = Solid shaft with involute splines

Size \_\_\_\_\_

Nominal Ratio Code \_\_\_\_\_

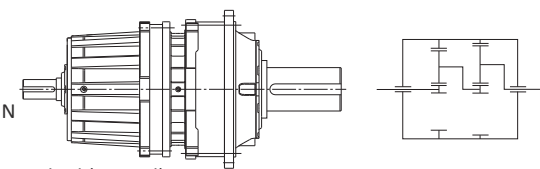
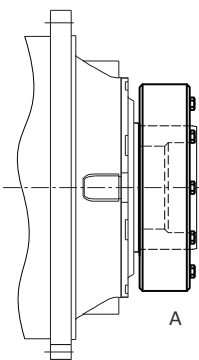
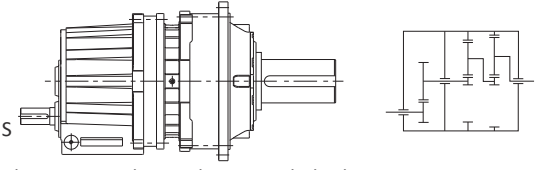
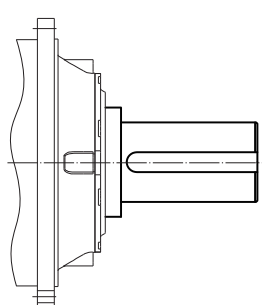
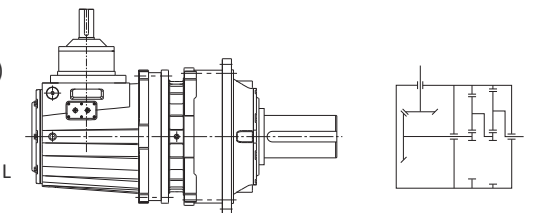
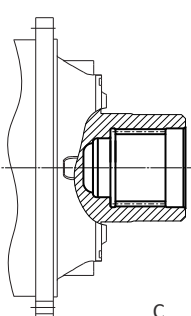
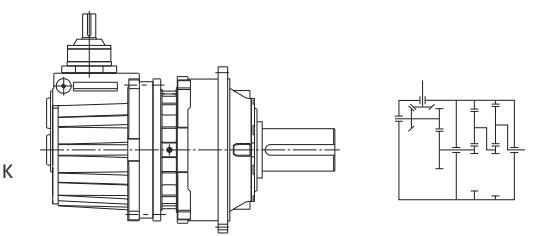
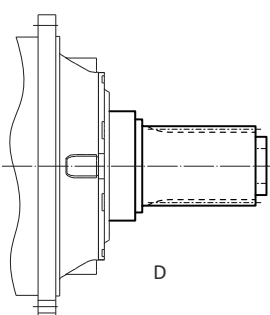
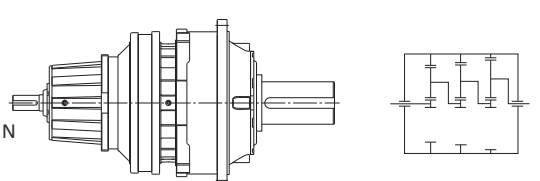
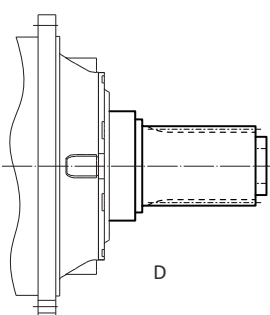
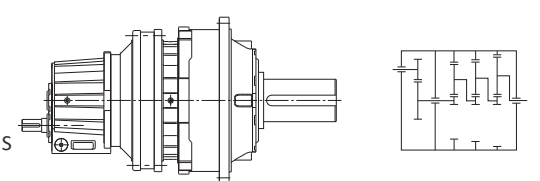
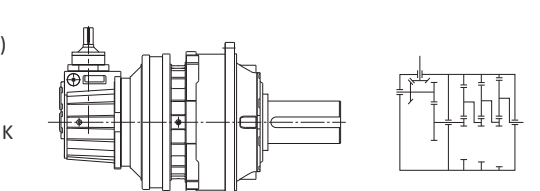
Input Part \_\_\_\_\_

M = Motor  
No Code for Shaft Input

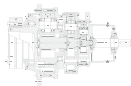
Accessories and Specifical Requests \_\_\_\_\_

Mounting Positions \_\_\_\_\_

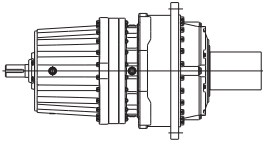
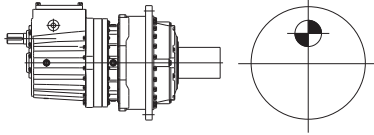
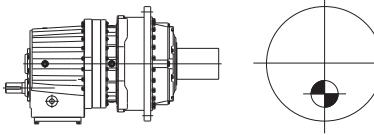
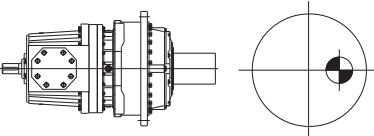
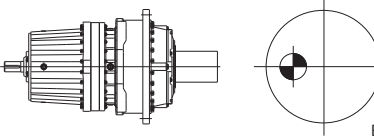
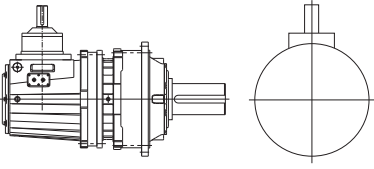
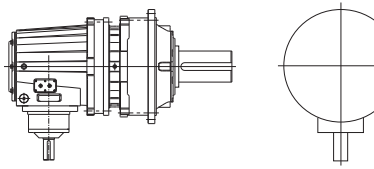
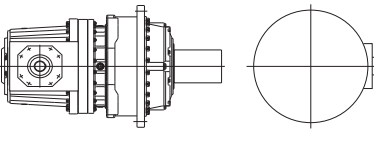
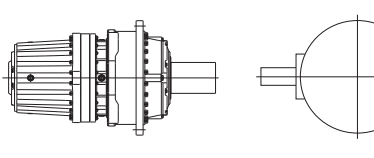
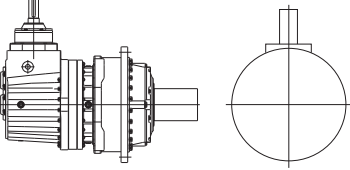
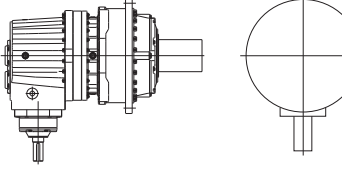
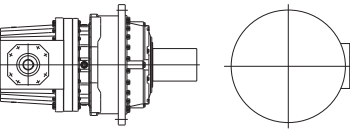
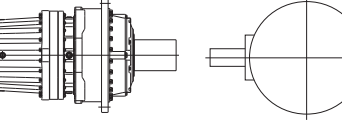
Positions of Motor Terminal Box \_\_\_\_\_

Input modes	Output modes:
<b>2-stage planetary gearbox</b>	
<p>P 2 N .. (i:25-40)</p>  <p>Standard (Coaxial)</p>	<p>P .. A ..</p>  <p>Hollow shaft with shrink disk</p>
<p>P 2 S .. (i:45-125)</p>  <p>Planetary gearbox with primary helical gear stage</p>	<p>P .. B ..</p>  <p>Solid shaft with parallel keys</p>
<p>P 2 L .. (i:31.5-100)</p>  <p>Planetary gearbox with primary bevel gear stage</p>	<p>P .. C ..</p>  <p>Hollow shaft with internal splines</p>
<p>P 2 K .. (i:112-500)</p>  <p>Planetary gearbox with primary bevel-helical gear stage</p>	<p>P .. D ..</p>  <p>Solid shaft with external splines</p>
<b>3-stage planetary gearbox</b>	
<p>P 3 N .. (i:140-280)</p>  <p>Standard (Coaxial)</p>	<p>P .. D ..</p>  <p>Solid shaft with external splines</p>
<p>P 3 S .. (i:280-900)</p>  <p>Planetary gearbox with primary helical gear stage</p>	
<p>P 3 K .. (i:560-4000)</p>  <p>Planetary gearbox with primary bevel-helical gear stage</p>	

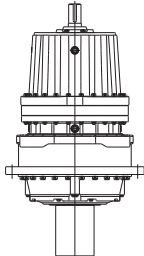
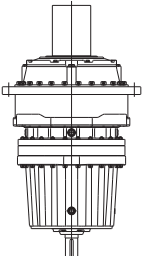
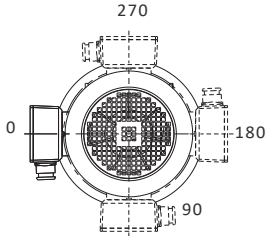
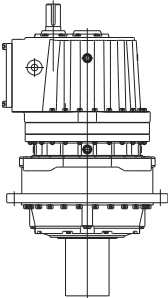
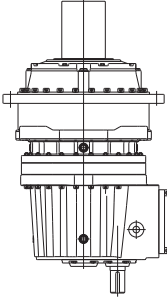
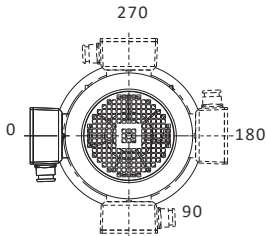
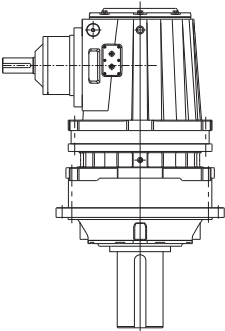
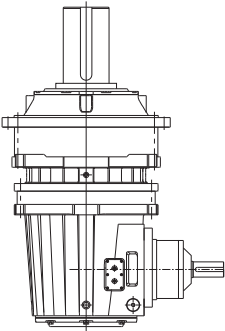
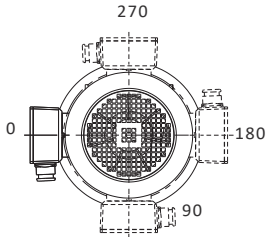
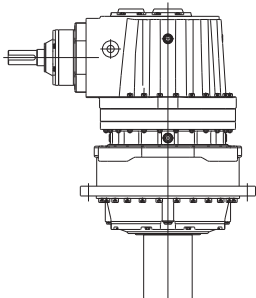
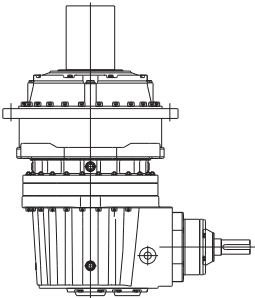
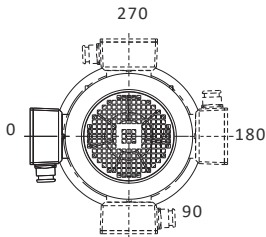
P



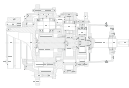
P

		Horizontal	
Coaxial planetary gearbox	P.N.		
			B5
Helical-planetary gearbox	P.S.	 B51 *	 B53
		 B52	 B54
Bevel-planetary gearbox	P.L.	 B51 *	 B53
		 B52	 B54
Bevel-helical-planetary gearbox	P.K.	 B51 *	 B53
		 B52	 B54



Vertical*		Position of Motor Terminal Box
 <p>V1</p>	 <p>V3</p>	
 <p>V11</p>	 <p>V31</p>	
 <p>V11</p>	 <p>V31</p>	
 <p>V11</p>	 <p>V31</p>	

\* If lubrication required, please consult us.



P

Steps	Description	Symbols	Parameters Calculation and Guidelines									
1	Driven Machine Factor	f1	Refer to f1 table on P8 and P9.									
2	Prime Mover Factor	f2	Prime Mover Factor		f2							
			Electric motor, hydraulic motor, turbine		1.0							
			Piston engine with 4-6 cylinders, cyclic variation 1:100 to 1:200		1.25							
			Piston engine with 1-3 cylinders, cyclic variation 1:100		1.5							
3	Factor for gearbox reliability	SF	Refer to SF table on Page P9.									
4	Input Speed	n1	≤1500r/min Consult us if higher speed required.									
5	Calculation of the ratio	i	$i = n1/n2$									
6	Determination of gearbox type and transmission efficiency	η	Type	η	Type	η						
			P2N..	94%	P3N..	92%						
			P2L..	93%	P3S..	91%						
			P2S..	93%	P3K..	89%						
			P2K..	91%								
7	Calculation of the input power of the gearbox on basis of the torque and power required by the driven machine.	P1	$P1 = T2 \cdot n1 / (9550 \cdot i \cdot \eta)$ or $P1 = P2 / \eta$									
8	Determination of gearbox size referring to the table of Transmission Capacity.	T2N p1N	$T2N \geq T2 \cdot f1 \cdot f2 \cdot SF$ or $P1N \geq P1 \cdot f1 \cdot f2 \cdot SF$ If $3.33 \cdot P1 \geq P1N$ is not met, Please consult us.									
9	Check Peak Torque	TA	$P1N \geq TA \cdot n1 \cdot f3 / 9550$	f3		Load peaks per hour						
						1-5	6-30	31-100	>100			
				Steady direction of load		0.5	0.65	0.7	0.85			
Alternating direction of load		0.7	0.95	1.10	1.25							
10	Check the radial on the shafts.	Fr2	See Fr2 table on P29.									
11	Calculation of the utilization	f14	Utilization = $P1/P1N \cdot 100\%$	Utilization	30%	40%	50%	60%	70%	80%	90%	100%
			f14: factor for utilization	f14	0.66	0.77	0.83	0.90	0.90	0.95	1.0	1.0
12	Ambient temperature factor	ft	Refer to ft table on Page 8.									
13	Check thermal capacity	PG	$P1 \leq PG = PG1 \cdot ft \cdot f14$ no cooling device is required.									
			if $P1 > PG$ , auxiliary cooling device should be installed. Consult us if required.									
14	Determination of lubrication system		For details about lubrication system, see P54,55.									
15	Determination of every item included in the Type Designation		For details about Type Designation, see P1.									

Peak torque: max. load torque, which means max. torque due to be caused from starting, braking or max. pulsating load. (Generally, it refers to peak starting or braking torque.)

## Example

### Prime mover

Motor Power : 90kW

Motor Speed:  $n_1=1000\text{r/min}$

Max. starting torque: 2000N.m

(This value is usually provided by users. If not available, it is routine to calculate by 1.6 times of nominal torque of electric motor.)

### Driven machine

Name : bucket conveyer

Speed: 12.5r/min

Output torque: 68000N ·m

Duty: 12h/d

Starts per hour: >3 times

Operating cycle per hour: 60%

Ambient temperature: 20°C

Place of installation: in the open

Altitude: below 1000m

### Gear Unit

Parallel input shafts, solid output shaft with parallel keys, input shaft facing downwards, mounting position B53

### Selection steps:

#### 1. Determination of gearbox type:

1.1 Calculation of the ratio:  $i=n_1/n_2=1000/12.5=80$

1.2 Selection of gearbox type:

P2SB..-B53 selected (as per the ratio, input and output shafts).

#### 2. Determination of gearbox size:

2.1 Calculation of the nominal power of gearbox:

$$P_1 = T_2 \cdot n_1 / (9550 \cdot i \cdot \eta)$$

In the table of transmission capacity on P5,  $\eta=0.93$

$$P_1 = T_2 \cdot n_1 / (9550 \cdot i \cdot \eta)$$

$$= 68000 \times 1000 / (9550 \times 80 \times 0.93) = 95.7 \text{ kW}$$

$$P_{1N} \geq P_1 \times f_1 \times f_2 \times SF$$

See P7,  $f_1=1.5$ , and P5  $f_2=1$  P8,  $SF=1$

$$P_{1N} \geq P_1 \times f_1 \times f_2 = 95.7 \times 1.5 \times 1 = 143.6 \text{ kW}$$

Selected from the table of transmission capacity: P2SB14-80-B53,

where  $P_{1N}=149 \text{ kW}$   $i_{ex}=78.8$

2.2 Check

$$3.33 \times 95.7 = 318.681 \geq P_{1N}, \text{ satisfied.}$$

2.3 Check of peak torque

$$P_{1N} = 149 \text{ kW} \geq T_A \cdot n_1 \cdot f_3 / 9550$$

$$= 2000 \times 1000 \times 0.5 / 9550 = 104.71 \text{ kW}, \text{ satisfied.}$$

#### 3. Check of thermal capacity

$$\text{Nominal power utilization} = P_1 / P_{1N} = 95.7 / 149 = 0.642 = 64.2\%$$

So  $f_{14}=0.9$   $f_t=1.16$

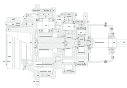
$$P_{G1} \times f_t \times f_{14} = 94 \times 1.16 \times 0.9 = 100.32 \text{ kW} > P_1$$

So no auxiliary cooling device is needed

Lubrication: Dip

#### 4. The type selected:

P2SB14-80-B53



P

**Table 1 Factor for driven machine f1**

Driven machines	Effective daily operating period under load in hours			Driven machines	Effective daily operating period under load in hours		
	≤ 2	>2-10	>10		≤ 2	>2-10	>10
<b>Waste water treatment</b>				<b>Conveyors</b>			
Thickeners (central drive)	-	-	1.2	Bucket conveyors	-	1.4	1.5
Filter presses	1.0	1.3	1.5	Hauling winches	1.4	1.6	1.6
Flocculation apparatus	0.8	1.0	1.3	Hoists	-	1.5	1.8
Aerators	-	1.8	2.0	Belt conveyors 150 kW	1.0	1.2	1.3
Raking equipment	1.0	1.2	1.3	Belt conveyors 150 kW	1.1	1.3	1.4
Combined longitudinal and rotary rakes	1.0	1.3	1.5	Goods lifts	-	1.2	1.5
Pre-thickeners	-	1.1	1.3	Passenger lifts	-	1.5	1.8
Screw pumps	-	1.3	1.5	Apron conveyors	-	1.2	1.5
Water turbines	-	-	2.0	Escalators	1.0	1.2	1.4
Pumps				Rail travelling gears	-	1.5	-
Centrifugal pumps	1.0	1.2	1.3				
Positive-displacement pumps				<b>Frequency converters</b>	-	1.8	2.0
1 piston	1.3	1.4	1.8				
> 1piston	1.2	1.4	1.5	<b>Reciprocating compressors</b>	-	1.8	1.9
<b>Dredgers</b>				<b>Cranes</b>			
Bucket conveyors	-	1.6	1.6	Slewing gears		1.4	1.8
Dumping devices	-	1.3	1.5	Luf fing gears		1.1	1.4
Caterpillar travelling gears	1.2	1.6	1.8	Travelling gears		1.6	2.0
Bucket wheel excavators as pick-up	-	1.7	1.7	Hoisting gears		1.1	1.4
for primitive material	-	2.2	2.2	Derricking jib cranes		1.2	1.6
Cutter heads	-	2.2	2.2				
Traversing gears	-	1.4	1.8	<b>Cooling towers</b>			
				Cooling tower fans	-	-	2.0
<b>Plate bending machines</b>	-	1.0	1.0	Blowers (axial and radial)	-	1.4	1.5
<b>Chemical industry</b>				<b>Food industry</b>			
Extruders	-	-	1.6	Cane sugar production			
Dough mills	-	1.8	1.8	Cane knives	-	-	1.7
Rubber calendars	-	1.5	1.5	Cane mills	-	-	1.7
Cooling drums	-	1.3	1.4	Beet sugar production			
Mixers for uniform media	1.0	1.3	1.4	Beet cassettes macerators,	-	-	1.2
non-uniform media	1.4	1.6	1.7	Extraction plants, Technical			
Agitators for media with uniform density	1.0	1.3	1.5	refrigerators, Juice boilers,	-	-	1.4
non-uniform density	1.2	1.4	1.6	Sugar beet washing machines,			
non-uniform gas absorption	1.4	1.6	1.8	Sugar beet cutters	-	-	1.5
Tosters	1.0	1.3	1.5				
Centrifuges	1.0	1.2	1.3	<b>Paper machines</b>			
				of all-kind	-	1.8	2.0
<b>Metal working mills</b>				Pulper drives			On request
Plate tilters	1.0	1.0	1.2				
Ingot pushers	1.0	1.2	1.2	<b>Centrifugal compressors</b>	-	1.4	1.5
Winding machines	-	1.6	1.6				
Cooling bed transfer frames	-	1.5	1.5	<b>Cableways</b>			
Roller straighteners	-	1.6	1.6	Material ropeways	-	1.3	1.4
Roller tables				To- and fro system			
continuous	-	1.5	1.5	aerial ropeways	-	1.6	1.8
intermittent	-	2.0	2.0	T-bar lifts	-	1.3	1.4
Reversing tube mills	-	1.8	1.8	Continuous ropeways	-	1.4	1.6
Shears							
continuous	-	1.5	1.5	<b>Cement industry</b>			
crank type	1.0	1.0	1.0	Concrete mixers	-	1.5	1.5
Continuous casting drivers	-	1.4	1.4	Breakers	-	1.2	1.4
Rolls				Rotary kilns	-	-	2.0
Reversing blooming mills	-	2.5	2.5	Tube mills	-	-	2.0
Reversing slabbing mills	-	2.5	2.5	Separators	-	1.6	1.6
Reversing wire mills	-	1.8	1.8	Roll crushers	-	-	2.0
Reversing sheet mills	-	2.0	2.0				
Reversing plate mills	-	1.8	1.8				
Roll adjustment drives	0.9	1.0	-				

Table 1				Factor for driven machine			f1		
Driven machines	Effective daily operating period under load in hours			Driven machines	Effective daily operating period under load in hours				
	≤ 2	>2-10	>10		≤ 2	>2-10	>10		
<b>Wood industry</b>				<b>Plastic industry</b>					
Bark peeler				Grinding mill, compound mill					
Feed drive	1.25	1.25	1.50	Coating and film coating Pipe, pull rod, thin plastic manufacture	1.25	1.25	1.25		
Main drive	1.75	1.75	1.75	Tube, pile drawer accessories	1.25	1.25	1.50		
Transporter				Continuous mixer, calender	1.50	1.50	1.50		
Burner, band saw, turret lathe, transportation	1.25	1.25	1.50	Film blower, plasticizer					
mainly heavy load	1.50	1.50	1.50	Batch mixer	1.75	1.75	1.75		
mainly raw log	1.75	1.75	2.00						
Conveyor chain				<b>Rubber industry</b>					
Parquet	1.50	1.50	1.50	Continuous powerful internal stirrer					
Unprocessed materials	1.50	1.50	1.75	Roller mixer, batch charger	1.50	1.50	1.50		
Cutting chain				Crusher(except double rolls)					
Saw drive and traction	1.50	1.50	1.75	Refiner, calender					
Barking drum	1.75	1.75	2.00	Double-roller clamp feeding					
Feed drive				Mixer grinder	1.25	1.25	1.50		
Edge banding, wood sanding				Batch powerful internal stirrer,					
Planer feeding, sorter	1.25	1.25	1.50	Double roll single groove roller grinder, Crusher heater, double rolls, Batch charging grinder	1.75	1.75	1.75		
Automatic inclination and lift				Wave roll crusher	2.00	2.00	2.00		
Multi-spindle feeding									
Log transport and turning	1.75	1.75	1.75	<b>Generator and Exciter</b>	1.00	1.00	1.25		
Transport				<b>Hammer crusher</b>	1.75	1.75	2.00		
Delivery plate				<b>Sand roller</b>	1.25	1.25	1.50		
Plywood lathe drive	1.50	1.50	1.75						
Conveyor chain, crane type									

1. Determination of nominal power of driven machine

\*) The normal power usually corresponds to max. torque

\*\*) The actual service factors should comply with the actually classified loads. For more details, please consult us.

\*\*\*) A check for thermal capacity is absolutely necessary.

2. The factors listed above are empirical values only. Prerequisite for their applications is that the machinery and equipment correspond to generally accepted design and load specifications. In case of deviations, please consult us.

3. For driven machines not listed in the table, please consult us.

Table 2		Factor for gearbox reliability		SF	
Ordinary: single machine halts when gearbox fail, easy to replace spare parts and minor loss occurred.				1.0 ≤ SF ≤ 1.3	
Important: a product line or an entire plant halts when gearbox fail, heavy loss.				1.3 < SF ≤ 1.5	
Highly reliable: severe production problem happens when gearbox fail, enormous loss and life injuries.				1.5 < SF	

Table 3		Thermal Factor					ft
Ambient Temperature	Operating cycle per hour (ED) in %						
	100%	80%	60%	40%	20%		
10°C	1.14	1.20	1.32	1.54	2.04		
20°C	1.00	1.06	1.16	1.35	1.79		
30°C	0.87	0.93	1.00	1.18	1.56		
40°C	0.71	0.75	0.82	0.96	1.27		
50°C	0.55	0.58	0.64	0.74	0.98		



# 6 Transmission Capacity

## 6.1 P2N.. and P2S..(i=25-125)

P

n 1 (r/min)	n 2N (r/min)	i N	P2..09			P2..10			P2..11			P2..12			P2..13			P2..14		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	58	25	22	25.634	130	31	25.634	184	42	25.875	246	60	24.983	365	83	24.958	505	117	24.958	712
960	38.4				86			122			163			241			334			471
710	28.4				64			90			121			179			247			349
1450	51.8	28	22	28.058	119	31	28.058	168	42	28.233	226	60	27.26	334	83	27.318	461	117	27.318	650
960	34.3				79			111			150			221			305			431
710	25.4				58			82			111			164			226			318
1450	46	31.5	22	31.142	107	31	31.142	151	42	31.207	204	60	30.13	302	83	30.321	416	117	30.321	586
960	30.5				71			100			135			200			275			388
710	22.5				53			74			100			148			204			287
1450	40.8	35.5	22	35.201	95	31	35.201	134	42	35.072	182	60	33.863	269	83	34.272	368	117	34.272	518
960	27				63			89			120			178			243			343
710	20				46			65			89			132			180			254
1450	36.3	40	22	40.781	82	31	40.781	115	42	40.302	158	60	38.912	234	83	39.706	317	117	39.706	447
960	24				54			76			105			155			210			296
710	17.8				40			57			77			115			155			219
1450	32.2	45	22	45.601	73	31	45.601	103	42	43.209	148	60	41.719	218	83	43.797	288	117	43.797	406
960	21.3				49			68			98			145			191			269
710	15.8				36			51			72			107			141			199
1450	29	50	22	51.544	65	31	51.544	91	42	48.561	131	60	46.887	194	83	49.505	255	117	49.505	359
960	19.2				43			60			87			129			169			238
710	14.2				32			45			64			95			125			176
1450	25.9	56	22	59.715	56	31	59.715	79	42	55.802	114	60	53.878	169	83	57.353	220	117	57.353	310
960	17.1				37			52			76			112			145			205
710	12.7				27			39			56			83			108			152
1450	23	63	22	61.953	54	31	61.953	76	42	63.399	101	60	61.213	149	83	59.977	210	117	59.977	296
960	15.2				36			50			67			99			139			196
710	11.3				26			37			49			73			103			145
1450	20.4	71	22	71.775	47	31	71.775	66	42	72.853	88	60	70.34	130	83	69.485	181	117	69.485	256
960	13.5				31			43			58			86			120			169
710	10				23			32			43			63			89			125
1450	18.1	80	22	78.782	42	31	78.782	60	42	81.303	78	60	78.499	116	83	78.827	160	117	78.827	225
960	12				28			40			52			77			106			149
710	8.9				21			29			38			57			78			110
1450	16.1	90	22	91.272	37	31	91.272	52	42	93.426	68	60	90.205	101	83	91.324	138	117	91.324	195
960	10.7				24			34			45			67			91			129
710	7.9				18			25			33			49			68			95
1450	14.5	100	22	99.735	33	31	99.735	47	42	99.678	64	60	96.241	95	83	95.963	131	117	95.963	185
960	9.6				22			31			42			63			87			123
710	7.1				16			23			31			46			64			91
1450	12.9	112	22	115.55	29	31	115.55	41	42	114.54	56	60	110.59	82	83	111.18	113	117	111.18	160
960	8.6				19			27			37			55			75			106
710	6.3				14			20			27			40			56			78
1450	11.6	125	22	124.74	27	31	124.74	38	42	123.14	52	60	118.9	77	83	119.12	106	117	119.12	149
960	7.7				18			25			34			51			70			99
710	5.7				13			18			25			38			52			73

P2..16			P2..17			P2..18			P2..19			P2..20			P2..21			P2..22			i N	n 2N (r/min)	n 1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
160	24.75	982	202	24.75	1239	244	24.958	1485	295	26.622	1683	354	26.622	2019	392	26.622	2236	450	26.622	2567	25	58	1450
		650			821			983			1114			1337			1480			1699		38.4	960
		481			607			727			824			989			1095			1257		28.4	710
160	27.09	897	202	27.09	1132	244	27.318	1356	295	29.139	1537	354	29.139	1845	392	29.139	2043	450	29.139	2345	28	51.8	1450
		594			750			898			1018			1221			1352			1553		34.3	960
		439			554			664			753			903			1000			1148		25.4	710
160	30.068	808	202	30.068	1020	244	30.321	1222	295	32.342	1385	354	32.342	1662	392	32.342	1840	450	32.342	2113	31.5	46	1450
		535			675			809			917			1100			1219			1399		30.5	960
		396			500			599			678			814			901			1035		22.5	710
160	33.987	715	202	33.987	903	244	34.272	1081	295	36.557	1225	354	36.557	1470	392	36.557	1628	450	36.557	1869	35.5	40.8	1450
		473			598			716			811			974			1078			1238		27	960
		350			442			529			600			720			797			915		20	710
160	39.375	617	202	39.375	779	244	39.706	933	295	42.353	1058	354	42.353	1269	392	42.353	1405	450	42.353	1613	40	36.3	1450
		409			516			618			700			840			930			1068		24	960
		302			381			457			518			621			688			790		17.8	710
160	42.318	574	202	42.318	725	244	42.867	864	295	45.725	980	354	45.725	1176	392	46.357	1284	450	46.357	1474	45	32.2	1450
		380			480			572			649			778			850			976		21.3	960
		281			355			423			480			576			628			722		15.8	710
160	47.833	508	202	47.833	641	244	48.454	765	295	51.684	867	354	51.684	1040	392	52.399	1136	450	52.399	1304	50	29	1450
		336			425			506			574			689			752			863		19.2	960
		249			314			374			424			509			556			639		14.2	710
160	55.417	438	202	55.417	554	244	56.136	660	295	59.878	748	354	59.878	898	392	60.706	981	450	60.706	1126	56	25.9	1450
		290			366			437			495			594			649			745		17.1	960
		215			271			323			366			440			480			551		12.7	710
160	61.438	395	202	61.438	499	244	60.32	614	295	64.341	696	354	64.341	835	392	66.084	901	450	66.084	1034	63	23	1450
		262			331			407			461			553			596			685		15.2	960
		194			244			301			341			409			441			506		11.3	710
160	71.178	341	202	71.178	431	244	69.882	530	295	74.541	601	354	74.541	721	392	76.561	777	450	76.561	893	71	20.4	1450
		226			285			351			398			477			515			591		13.5	960
		167			211			260			294			353			381			437		10	710
160	78.788	308	202	78.788	389	244	78.976	469	295	84.841	528	354	84.841	634	392	84.746	702	450	84.746	805	80	18.1	1450
		204			258			311			350			419			465			533		12	960
		151			191			230			259			310			344			394		8.9	710
160	91.278	266	202	91.278	336	244	91.496	406	295	97.596	456	354	97.596	551	392	98.182	606	450	98.182	696	90	16.1	1450
		176			222			269			304			365			401			461		10.7	960
		130			165			199			225			270			297			341		7.9	710
160	96.594	252	202	96.594	318	244	95.963	386	295	102.36	438	354	102.36	525	392	103.9	573	450	103.9	658	100	14.5	1450
		167			210			256			290			348			379			435		9.6	960
		123			155			189			214			257			281			322		7.1	710
160	111.91	217	202	111.91	274	244	111.18	333	295	118.59	378	354	118.59	453	392	120.37	495	450	120.37	568	112	12.9	1450
		144			181			221			250			300			327			376		8.6	960
		106			134			163			185			222			242			278		6.3	710
160	120.59	201	202	120.59	254	244	119.12	311	295	127.06	353	354	127.06	423	392	129.41	459	450	129.41	528	125	11.6	1450
		133			168			206			233			280			304			350		7.7	960
		99			125			152			173			207			225			256		5.7	710

P

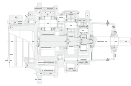


P

n1 (r/min)	n2N (r/min)	i N	P2..23			P2..24			P2..25			P2..26			P2..27			P2..28			P2..29		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	58	25	513	26.872	2899	592	26.872	3345	684	26.872	3865	763	26.872	4312	852	26.622	4860	950	26.622	5419	1060	26.622	6046
960	38.4				1919			2215			2559			2855			3217			3588			4003
710	28.4				1419			1638			1892			2111			2380			2653			2961
1450	51.8	28	513	29.321	2657	592	29.321	3066	684	29.321	3542	763	29.321	3951	852	29.139	4440	950	29.139	4951	1060	29.139	5524
960	34.3				1759			2030			2345			2616			2940			3278			3657
710	25.4				1301			1501			1734			1935			2174			2424			2705
1450	46	31.5	513	32.409	2404	592	32.409	2774	684	32.409	3205	763	32.409	3575	852	32.342	4000	950	32.342	4460	1060	32.342	4977
960	30.5				1591			1836			2122			2367			2648			2953			3295
710	22.5				1177			1358			1569			1750			1959			2184			2437
1450	40.8	35.5	513	36.424	2139	592	36.424	2468	684	36.424	2852	763	36.424	3181	852	36.557	3539	950	36.557	3946	1060	36.557	4403
960	27				1416			1634			1888			2106			2343			2613			2915
710	20				1047			1208			1396			1558			1733			1932			2156
1450	36.3	40	513	41.855	1861	592	41.855	2148	684	41.855	2482	763	41.855	2768	852	42.353	3055	950	42.353	3406	1060	42.353	3800
960	24				1232			1422			1643			1833			2022			2255			2516
710	17.8				911			1052			1215			1355			1496			1668			1861
1450	32.2	45	513	45.373	1717	592	45.373	1981	684	45.373	2289	763	45.373	2554	852	46.948	2756	950	46.948	3073	1060	46.948	3428
960	21.3				1137			1312			1516			1691			1821			2034			2270
710	15.8				841			970			1121			1250			1349			1505			1679
1450	29	50	513	50.993	1528	592	50.993	1763	684	50.993	2037	763	50.993	2272	852	53.067	2438	950	53.067	2718	1060	53.067	3033
960	19.2				1011			1167			1349			1504			1614			1800			2008
710	14.2				748			863			997			1113			1194			1331			1485
1450	25.9	56	513	58.597	1329	592	58.597	1534	684	58.597	1773	763	58.597	1977	852	61.48	2104	950	61.48	2346	1060	61.48	2618
960	17.1				880			1016			1174			1309			1393			1553			1733
710	12.7				651			751			868			968			1030			1149			1282
1450	23	63	513	64.442	1209	592	64.442	1395	684	64.442	1612	763	64.442	1798	852	66.345	1950	950	66.345	2174	1060	66.345	2426
960	15.2				800			924			1067			1190			1291			1440			1606
710	11.3				592			683			789			880			955			1065			1188
1450	20.4	71	513	74.051	1052	592	74.051	1214	684	74.051	1403	763	74.051	1565	852	76.863	1683	950	76.863	1877	1060	76.863	2094
960	13.5				696			804			929			1036			1114			1243			1386
710	10				515			594			687			766			824			919			1025
1450	18.1	80	513	82.781	941	592	82.781	1086	684	82.781	1255	763	82.781	1400	852	84.241	1536	950	84.241	1712	1060	84.241	1911
960	12				623			719			831			927			1017			1134			1265
710	8.9				461			532			614			685			752			838			936
1450	16.1	90	513	95.124	819	592	95.124	945	684	95.124	1092	763	95.124	1218	852	97.596	1326	950	97.596	1478	1060	97.596	1649
960	10.7				542			626			723			806			878			979			1092
710	7.9				401			463			535			596			649			724			808
1450	14.5	100	513	101.6	767	592	101.6	885	684	101.6	1022	763	101.6	1140	852	102.36	1264	950	102.36	1409	1060	102.36	1572
960	9.6				508			586			677			755			837			933			1041
710	7.1				375			433			501			558			619			690			770
1450	12.9	112	513	116.75	667	592	116.75	770	684	116.75	890	763	116.75	992	852	118.59	1091	950	118.59	1216	1060	118.59	1357
960	8.6				442			510			589			657			722			805			899
710	6.3				327			377			436			486			534			596			665
1450	11.6	125	513	125.56	620	592	125.56	716	684	125.56	827	763	125.56	923	852	127.06	1018	950	127.06	1135	1060	127.06	1267
960	7.7				411			474			548			611			674			752			839
710	5.7				304			351			405			452			499			556			620



P2..30			P2..31			P2..32			P2..33			P2..34			P2..35			P2..36			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
1200	26.622	6845	1330	26.872	7131	1500	26.872	8476	1680	26.622	9582	1920	26.622	10951	2240	26.872	12658	2600	26.872	14692	25	58	1450
		4532			4766			5612			6344			7251			8380			9727		38.4	960
		3352			3525			4150			4692			5362			6198			7194		28.4	710
1200	29.139	6253	1330	29.321	6732	1500	29.321	7768	1680	29.139	8755	1920	29.139	10005	2240	29.321	11601	2600	29.321	13465	28	51.8	1450
		4140			4500			5143			5796			6624			7680			8915		34.3	960
		3062			3328			3804			4287			4899			5680			6593		25.4	710
1200	32.342	5634	1330	32.409	6091	1500	32.409	7028	1680	32.342	7888	1920	32.342	9015	2240	32.409	10495	2600	32.409	12182	31.5	46	1450
		3730			4071			4653			5222			5968			6949			8065		30.5	960
		2759			3011			3441			3862			4414			5139			5965		22.5	710
1200	36.557	4984	1330	36.424	5420	1500	36.424	6253	1680	36.557	6974	1920	36.557	7975	2240	36.424	9338	2600	36.424	10839	35.5	40.8	1450
		3300			3622			4140			4618			5280			6183			7176		27	960
		2441			2679			3062			3415			3905			4573			5307		20	710
1200	42.353	4302	1330	41.855	4716	1500	41.855	5442	1680	42.353	6023	1920	42.353	6884	2240	41.855	8127	2600	41.855	9433	40	36.3	1450
		2848			3152			3603			3988			4558			5380			6245		24	960
		2107			2331			2665			2949			3371			3979			4619		17.8	710
1200	46.948	3881	1330	45.575	4331	1500	45.575	4998	1680	45.481	5609	1920	45.481	6410	2240	45.373	7497	2600	45.373	8701	45	32.2	1450
		2570			2895			3309			3714			4244			4963			5761		21.3	960
		1900			2141			2447			2747			3139			3671			4261		15.8	710
1200	53.067	3434	1330	51.221	3854	1500	51.221	4447	1680	51.409	4962	1920	51.409	5671	2240	50.993	6670	2600	50.993	7742	50	29	1450
		2273			2576			2944			3285			3755			4416			5126		19.2	960
		1681			1905			2177			2430			2777			3266			3791		14.2	710
1200	61.48	2964	1330	58.858	3354	1500	58.858	3870	1680	59.559	4283	1920	59.559	4895	2240	58.597	5805	2600	58.597	6738	56	25.9	1450
		1962			2242			2562			2836			3241			3843			4461		17.1	960
		1451			1658			1895			2097			2397			2842			3299		12.7	710
1200	66.345	2747	1330	66.102	2986	1500	66.102	3446	1680	66.345	3845	1920	66.345	4394	2240	65.562	5188	2600	65.562	6022	63	23	1450
		1818			1996			2281			2546			2909			3435			3987		15.2	960
		1345			1476			1687			1883			2152			2540			2949		11.3	710
1200	76.863	2371	1330	75.958	2599	1500	75.958	2999	1680	76.863	3319	1920	76.863	3793	2240	75.338	4515	2600	75.338	5240	71	20.4	1450
		1570			1737			1985			2197			2511			2989			3470		13.5	960
		1161			1285			1468			1625			1857			2211			2566		10	710
1200	84.241	2163	1330	83.932	2352	1500	83.932	2714	1680	84.241	3028	1920	84.241	3461	2240	81.252	4186	2600	81.252	4859	80	18.1	1450
		1432			1572			1797			2005			2291			2772			3217		12	960
		1059			1163			1329			1483			1695			2050			2379		8.9	710
1200	97.596	1867	1330	96.448	2047	1500	96.448	2362	1680	97.596	2614	1920	97.596	2987	2240	93.368	3643	2600	93.368	4228	90	16.1	1450
		1236			1368			1564			1731			1978			2412			2800		10.7	960
		914			1012			1156			1280			1463			1784			2071		7.9	710
1200	102.36	1780	1330	104.3	1893	1500	104.3	2184	1680	104.69	2437	1920	104.69	2785	2240	100.53	3383	2600	100.53	3927	100	14.5	1450
		1179			1265			1446			1613			1844			2240			2600		9.6	960
		872			936			1069			1193			1364			1657			1923		7.1	710
1200	118.59	1537	1330	119.96	1646	1500	119.96	1899	1680	121.28	2103	1920	121.28	2404	2240	115.52	2944	2600	115.52	3418	112	12.9	1450
		1017			1100			1257			1393			1592			1949			2263		8.6	960
		752			813			930			1030			1177			1442			1673		6.3	710
1200	127.06	1434	1330	127.56	1548	1500	127.56	1786	1680	129.08	1976	1920	129.08	2259	2240	129.2	2633	2600	129.2	3056	125	11.6	1450
		949			1034			1182			1308			1495			1743			2023		7.7	960
		702			765			874			968			1106			1289			1496		5.7	710



## 6.2 P3N.. and P3S..(i=140-900)

n1 (r/min)	n2N (r/min)	i N	P3..09			P3..10			P3..11			P3..12			P3..13			P3..14		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	10.4	140	22	146.81	22.8	31	146.81	32.1	42	147.12	43.3	60	142.04	64.1	83	142.94	88.2	117	142.94	124
960	6.9				15.1			21.2			28.7			42.5			58.4			82.3
710	5.1				11.1			15.7			21.2			31.4			43.2			60.9
1450	9.1	160	22	165.95	20.1	31	165.95	28.4	42	165.34	38.6	60	159.64	57.1	83	161.57	78.0	117	161.57	110
960	6.0				13.3			18.8			25.5			37.8			51.6			72.8
710	4.4				9.9			13.9			18.9			27.9			38.2			53.8
1450	8.1	180	22	192.25	17.4	31	192.25	24.5	42	189.99	33.6	60	183.44	49.7	83	187.19	67.3	117	187.19	94.9
960	5.3				11.5			16.2			22.2			32.9			44.6			62.8
710	3.9				8.5			12.0			16.4			24.3			33.0			46.5
1450	7.3	200	22	210.43	15.9	31	210.43	22.4	42	207.96	30.7	60	200.79	45.4	83	204.88	61.5	117	204.88	86.7
960	4.8				10.5			14.8			20.3			30.0			40.7			57.4
710	3.6				7.8			11.0			15.0			22.2			30.1			42.5
1450	6.4	225	22	233.57	14.3	31	233.57	20.2	42	230.82	27.6	60	222.86	40.9	83	227.41	55.4	117	227.41	78.1
960	4.3				9.5			13.3			18.3			27.1			36.7			51.7
710	3.2				7.0			9.9			13.5			20.0			27.1			38.3
1450	5.8	250	22	264.01	12.7	31	264.01	17.8	42	260.9	24.4	60	251.90	36.2	83	257.04	49.0	117	257.04	69.1
960	3.8				8.4			11.8			16.2			23.9			32.5			45.8
710	2.8				6.2			8.7			12.0			17.7			24.0			33.8
1450	5.2	280	22	305.86	10.9	31	305.86	15.4	42	302.26	21.1	60	291.84	31.2	83	297.79	42.3	117	297.79	59.7
960	3.4				7.2			10.2			14.0			20.7			28.0			39.5
710	2.5				5.3			7.5			10.3			15.3			20.7			29.2
1450	5.2	280	22	295.21	11.3	31	295.21	16	42	295.82	21.6	60	285.62	31.9	83	287.42	43.9	117	287.42	61.8
960	3.4				7.5			11			14.3			21.1			29.0			40.9
710	2.5				5.5			7.8			10.6			15.6			21.5			30.3
1450	4.6	315	22	333.68	10.0	31	333.68	14.1	42	332.46	19.2	60	320.99	28.4	83	324.88	38.8	117	324.88	54.7
960	3.0				6.6			9.3			12.7			18.8			25.7			36.2
710	2.3				4.9			6.9			9.4			13.9			19.0			26.8
1450	4.1	355	22	386.58	8.6	31	386.58	12.2	42	382.03	16.7	60	368.86	24.7	83	376.39	33.5	117	376.39	47.2
960	2.7				5.7			8.1			11.1			16.4			22.2			31.3
710	2.0				4.2			6.0			8.2			12.1			16.4			23.1
1450	3.6	400	22	401.07	8.3	31	401.07	11.7	42	399.60	16.0	60	385.82	23.6	83	390.49	32.3	117	390.49	45.5
960	2.4				5.5			7.8			10.6			15.6			21.4			30.1
710	1.8				4.1			5.7			7.8			11.6			15.8			22.3
1450	3.2	450	22	464.65	7.2	31	464.65	10.1	42	459.18	13.9	60	443.35	20.6	83	452.4	27.9	117	452.4	39.3
960	2.1				4.8			6.7			9.2			13.6			18.4			26.0
710	1.6				3.5			5.0			6.8			10.1			13.6			19.2
1450	2.9	500	22	510.01	6.6	31	510.01	9.2	42	508.15	12.6	60	490.62	18.6	83	496.56	25.4	117	496.56	35.8
960	1.9				4.3			6.1			8.3			12.3			16.8			23.7
710	1.4				3.2			4.5			6.1			9.1			12.4			17.5
1450	2.6	560	22	590.87	5.7	31	590.87	8.0	42	583.92	10.9	60	563.78	16.2	83	575.29	21.9	117	575.29	30.9
960	1.7				3.7			5.3			7.2			10.7			14.5			20.4
710	1.3				2.8			3.9			5.3			7.9			10.7			15.1
1450	2.3	630	22	645.65	5.2	31	645.65	7.3	42	643.29	9.9	60	621.11	14.7	83	628.63	20.0	117	628.63	28.3
960	1.5				3.4			4.8			6.6			9.7			13.3			18.7
710	1.1				2.5			3.6			4.9			7.2			9.8			13.8
1450	2.0	710	22	748.01	4.5	31	748.01	6.3	42	739.21	8.6	60	713.72	12.8	83	728.29	17.3	117	728.29	24.4
960	1.4				3.0			4.2			5.7			8.5			11.5			16.2
710	1.0				2.2			3.1			4.2			6.3			8.5			11.9
1450	1.8	800	22	807.55	4.1	31	807.55	5.8	42	798.04	8.0	60	770.53	11.8	83	786.25	16.0	117	786.25	22.6
960	1.2				2.7			3.9			5.3			7.8			10.6			15.0
710	0.9				2.0			2.9			3.9			5.8			7.8			11.1
1450	1.6	900	22	935.57	3.6	31	935.57	5.0	42	924.56	6.9	60	892.68	10.2	83	910.90	13.8	117	910.90	19.5
960	1.1				2.4			3.3			4.6			6.8			9.2			12.9
710	0.8				1.7			2.5			3.4			5.0			6.8			9.6

P3..16			P3..17			P3..18			P3..19			P3..20			P3..21			P3..22			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
160	143.08	170	202	143.08	214	244	142.94	259	295	152.47	294	354	152.47	353	392	152.47	390	450	152.47	448	140	10.4	1450
		112			142			172			195			233			258			297		6.9	960
		83			105			127			144			173			191			219		5.1	710
160	161.73	150	202	161.73	190	244	161.57	229	295	172.34	260	354	172.34	312	392	172.34	345	450	172.34	396	160	9.1	1450
		99			126			152			172			207			229			263		6.0	960
		74			93			112			127			153			169			194		4.4	710
160	187.37	130	202	187.37	164	244	187.19	198	295	199.66	224	354	199.66	269	392	199.66	298	450	199.66	342	180	8.1	1450
		86			108			131			149			178			197			227		5.3	960
		63			80			97			110			132			146			168		3.9	710
160	204.45	119	202	204.45	150	244	204.88	181	295	218.54	205	354	218.54	246	392	218.54	272	450	218.54	313	200	7.3	1450
		79			99			120			136			163			180			207		4.8	960
		58			73			89			100			120			133			153		3.6	710
160	225.98	108	202	225.98	136	244	227.41	163	295	242.57	185	354	242.57	222	392	242.57	245	450	242.57	282	225	6.4	1450
		71			90			108			122			147			162			187		4.3	960
		53			66			80			90			109			120			138		3.2	710
160	253.97	96	202	253.97	121	244	257.04	144	295	274.18	163	354	274.18	196	392	274.18	217	450	274.18	249	250	5.8	1450
		63			80			95			108			130			144			165		3.8	960
		47			59			71			80			96			106			122		2.8	710
160	291.84	83	202	291.84	105	244	297.79	124	295	317.65	141	354	317.65	169	392	317.65	187	450	317.65	215	280	5.2	1450
		55			70			82			93			112			124			142		3.4	960
		41			51			61			69			83			92			105		2.5	710
160	268.53	90	202	268.53	114	244	283.53	131	295	302.43	148	354	302.43	178	392	302.43	197	450	302.43	226	280	5.2	1450
		60			76			87			98			118			130			150		3.4	960
		44			56			64			73			87			96			111		2.5	710
160	303.53	80	202	303.53	101	244	320.48	116	295	341.48	131	354	341.48	157	392	341.48	174	450	341.48	200	315	4.6	1450
		53			67			77			87			104			115			132		3.0	960
		39			49			57			64			77			85			98		2.3	710
160	351.65	69	202	351.65	87	244	371.29	100	295	396.04	113	354	396.04	136	392	396.04	150	450	396.04	173	355	4.1	1450
		46			58			66			75			90			100			114		2.7	960
		34			43			49			55			66			74			84		2.0	710
160	396.27	61	202	396.27	77	244	388.27	93	295	414.16	108	354	414.16	130	392	414.16	144	450	414.16	165	400	3.6	1450
		41			51			62			72			86			95			109		2.4	960
		30			38			46			53			64			70			81		1.8	710
160	459.1	53	202	459.1	67	244	449.83	81	295	479.82	93	354	479.82	112	392	479.82	124	450	479.82	142	450	3.2	1450
		35			44			53			62			74			82			94		2.1	960
		26			33			40			46			55			61			70		1.6	710
160	508.18	48	202	508.18	60	244	510.30	73	295	544.32	82	354	544.32	99	392	544.32	109	450	544.32	126	500	2.9	1450
		32			40			48			54			65			72			83		1.9	960
		23			30			36			40			48			54			61		1.4	710
160	588.75	41	202	588.75	52	244	591.20	63	295	630.61	71	354	630.61	85	392	630.61	94	450	630.61	108	560	2.6	1450
		27			34			42			47			56			62			72		1.7	960
		20			26			31			35			42			46			53		1.3	710
160	623.03	39	202	623.03	49	244	621.23	59	295	662.65	68	354	662.65	81	392	662.65	90	450	662.65	103	630	2.3	1450
		26			33			39			45			54			59			68		1.5	960
		19			24			29			33			40			44			50		1.1	710
160	721.81	34	202	721.81	42	244	719.72	51	295	767.70	58	354	767.70	70	392	767.70	78	450	767.70	89	710	2.0	1450
		22			28			34			39			46			51			59		1.4	960
		16			21			25			29			34			38			44		1.0	710
160	776.02	31	202	776.02	40	244	771.13	48	295	822.54	54	354	822.54	65	392	822.54	72	450	822.54	83	800	1.8	1450
		21			26			32			36			43			48			55		1.2	960
		15			19			23			27			32			35			41		0.9	710
160	891.73	27	202	891.73	34	244	893.38	42	295	952.94	47	354	952.94	56	392	952.94	62	450	952.94	72	900	1.6	1450
		18			23			28			31			37			41			47		1.1	960
		13			17			20			23			28			31			35		0.8	710

P



P

n1 (r/min)	n2N (r/min)	i N	P3..23			P3..24			P3..25			P3..26			P3..27			P3..28			P3..29		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	10.4	140	513	152.79	510	592	152.79	588	684	152.79	680	763	152.79	758	852	152.47	849	950	152.47	946	1060	152.47	1056
960	6.9				338			390			450			502			562			626			
710	5.1				250			288			333			371			415			463			
1450	9.1	160	513	171.71	454	592	171.71	524	684	171.71	605	763	171.71	675	852	172.34	751	950	172.34	837	1060	172.34	934
960	6.0				300			347			400			447			497			554			
710	4.4				222			256			296			330			368			410			
1450	8.1	180	513	197.32	416	592	197.32	480	684	197.32	526	763	197.32	587	852	199.66	648	950	199.66	723	1060	199.66	806
960	5.3				275			318			348			389			429			478			
710	3.9				204			235			258			288			317			354			
1450	7.3	200	513	215.97	361	592	215.97	416	684	215.97	481	763	215.97	536	852	218.54	592	950	218.54	660	1060	218.54	737
960	4.8				239			276			318			355			392			437			
710	3.6				177			204			235			263			290			323			
1450	6.4	225	513	239.71	325	592	239.71	375	684	239.71	433	763	239.71	483	852	242.57	533	950	242.57	595	1060	242.57	664
960	4.3				215			248			287			320			353			394			
710	3.2				159			184			212			237			261			291			
1450	5.8	250	513	270.95	288	592	270.95	332	684	270.95	383	763	270.95	428	852	274.18	472	950	274.18	526	1060	274.18	587
960	3.8				190			220			254			283			312			348			
710	2.8				141			162			188			209			231			258			
1450	5.2	280	513	313.91	248	592	313.91	286	684	313.91	331	763	313.91	369	852	317.65	407	950	317.65	454	1060	317.65	507
960	3.4				164			190			219			244			270			301			
710	2.5				122			140			162			181			199			222			
1450	5.2	280	513	295.28	264	592	295.28	304	684	295.28	352	763	295.28	392	852	296.01	437	950	296.01	487	1060	296.01	544
960	3.4				175			202			233			260			289			323			
710	2.5				129			149			172			192			214			239			
1450	4.6	315	513	331.86	235	592	331.86	271	684	331.86	313	763	331.86	349	852	334.59	387	950	334.59	431	1060	334.59	481
960	3.0				155			179			207			231			256			285			
710	2.3				115			133			153			171			189			211			
1450	4.1	355	513	381.34	204	592	381.34	236	684	381.34	272	763	381.34	304	852	387.63	334	950	387.63	372	1060	387.63	415
960	2.7				135			156			180			201			221			246			
710	2.0				100			115			133			149			163			182			
1450	3.6	400	513	426.24	183	592	426.24	211	684	426.24	244	763	426.24	272	852	416.52	311	950	416.52	346	1060	416.52	386
960	2.4				121			140			161			180			206			229			
710	1.8				89			103			119			133			152			170			
1450	3.2	450	513	489.8	159	592	489.8	184	684	489.8	212	763	489.8	237	852	482.56	268	950	482.56	299	1060	482.56	334
960	2.1				105			122			140			157			178			198			
710	1.6				78			90			104			116			131			146			
1450	2.9	500	513	546.62	143	592	546.62	164	684	546.62	190	763	546.62	212	852	545.35	237	950	545.35	265	1060	545.35	295
960	1.9				94			109			126			140			157			175			
710	1.4				70			81			93			104			116			130			
1450	2.6	560	513	628.12	124	592	628.12	143	684	628.12	165	763	628.12	184	852	631.81	205	950	631.81	228	1060	631.81	255
960	1.7				82			95			109			122			136			151			
710	1.3				61			70			81			90			100			112			
1450	2.3	630	513	670.15	116	592	670.15	134	684	670.15	155	763	670.15	173	852	662.65	195	950	662.65	218	1060	662.65	243
960	1.5				77			89			103			114			129			144			
710	1.1				57			66			76			85			96			107			
1450	2.0	710	513	770.08	101	592	770.08	117	684	770.08	135	763	770.08	150	852	767.70	169	950	767.70	188	1060	767.70	210
960	1.4				67			77			89			100			112			124			
710	1.0				50			57			66			74			83			92			
1450	1.8	800	513	829.8	94	592	829.8	108	684	829.8	125	763	829.8	140	852	822.54	157	950	822.54	175	1060	822.54	196
960	1.2				62			72			83			92			104			116			
710	0.9				46			53			61			68			77			86			
1450	1.6	900	513	961.35	81	592	961.35	94	684	961.35	108	763	961.35	121	852	952.94	136	950	952.94	151	1060	952.94	169
960	1.1				54			62			72			80			90			100			
710	0.8				40			46			53			59			66			74			

P3..30			P3..31			P3..32			P3..33			P3..34			P3..35			P3..36			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
1200	152.47	1195	1330	152.79	1292	1500	152.79	1491	1680	153.90	1658	1920	153.90	1894	2240	154.22	2206	2600	154.22	2560	140	10.4	1450
		791			864			987			1097			1254			1460			1695		6.9	960
		585			639			730			812			928			1080			1254		5.1	710
1200	172.34	1057	1330	171.71	1150	1500	171.71	1326	1680	173.96	1466	1920	173.96	1676	2240	173.33	1962	2600	173.33	2278	160	9.1	1450
		700			768			878			971			1110			1299			1508		6.0	960
		518			568			650			718			821			961			1115		4.4	710
1200	199.66	913	1330	197.32	1000	1500	197.32	1154	1680	201.54	1266	1920	201.54	1447	2240	199.17	1708	2600	199.17	1982	180	8.1	1450
		604			669			764			838			958			1131			1312		5.3	960
		447			495			565			620			708			836			971		3.9	710
1200	218.54	834	1330	215.97	914	1500	215.97	1055	1680	219.91	1160	1920	219.91	1326	2240	217.32	1565	2600	217.32	1817	200	7.3	1450
		552			611			698			768			878			1036			1203		4.8	960
		408			452			516			568			649			766			890		3.6	710
1200	242.57	751	1330	239.71	824	1500	239.71	950	1680	243.07	1050	1920	243.07	1199	2240	240.21	1416	2600	240.21	1644	225	6.4	1450
		497			550			629			695			794			937			1088		4.3	960
		368			407			465			514			587			693			805		3.2	710
1200	274.18	665	1330	270.95	729	1500	270.95	841	1680	273.18	934	1920	273.18	1067	2240	269.96	1260	2600	269.96	1462	250	5.8	1450
		440			487			557			618			707			834			968		3.8	960
		325			360			412			457			523			617			716		2.8	710
1200	317.65	574	1330	313.91	629	1500	313.91	726	1680	313.91	813	1920	313.91	929	2240	310.22	1096	2600	310.22	1273	280	5.2	1450
		380			420			480			538			615			726			843		3.4	960
		281			311			355			398			455			537			623		2.5	710
1200	296.01	616	1330	300.72	656	1500	300.72	757	1680	292.05	873	1920	292.05	998	2240	292.66	1162	2600	292.66	1349	280	5.2	1450
		408			439			501			578			661			769			893		3.4	960
		301			324			371			428			489			569			661		2.5	710
1200	334.59	545	1330	337.97	584	1500	337.97	674	1680	330.11	773	1920	330.11	883	2240	328.9	1034	2600	328.9	1200	315	4.6	1450
		361			390			446			512			585			685			795		3.0	960
		267			289			330			378			432			506			588		2.3	710
1200	387.63	470	1330	388.37	508	1500	388.37	586	1680	382.45	667	1920	382.45	762	2240	377.95	900	2600	377.95	1045	355	4.1	1450
		311			340			388			442			505			596			692		2.7	960
		230			251			287			327			373			441			511		2.0	710
1200	416.52	437	1330	426.24	463	1500	426.24	534	1680	417.18	611	1920	417.18	699	2240	415.65	818	2600	415.65	950	400	3.6	1450
		290			310			354			405			463			542			629		2.4	960
		214			229			262			299			342			401			465		1.8	710
1200	482.56	378	1330	489.80	403	1500	489.80	465	1680	483.31	528	1920	483.31	603	2240	477.63	712	2600	477.63	827	450	3.2	1450
		250			269			308			349			399			471			547		2.1	960
		185			199			228			258			295			349			405		1.6	710
1200	545.35	334	1330	546.60	361	1500	546.60	417	1680	535.90	476	1920	535.90	544	2240	533.94	637	2600	533.94	739	500	2.9	1450
		221			241			276			315			360			422			490		1.9	960
		164			179			204			233			266			312			362		1.4	710
1200	631.81	288	1330	628.12	314	1500	628.12	363	1680	620.86	411	1920	620.86	470	2240	613.55	554	2600	613.55	643	560	2.6	1450
		191			210			240			272			311			367			426		1.7	960
		141			155			178			201			230			271			315		1.3	710
1200	662.65	275	1330	670.15	295	1500	670.15	340	1680	657.74	388	1920	657.74	443	2240	655.34	519	2600	655.34	602	630	2.3	1450
		182			197			225			257			293			344			399		1.5	960
		135			146			166			190			217			254			295		1.1	710
1200	767.70	237	1330	770.08	256	1500	770.08	296	1680	762.02	335	1920	762.02	383	2240	753.05	452	2600	753.05	524	710	2.0	1450
		157			171			196			222			253			299			347		1.4	960
		116			127			145			164			187			221			257		1.0	710
1200	822.54	222	1330	827.92	238	1500	827.92	275	1680	819.53	311	1920	819.53	356	2240	809.89	420	2600	809.89	487	800	1.8	1450
		147			159			182			206			236			278			323		1.2	960
		108			118			135			152			174			206			239		0.9	710
1200	952.94	191	1330	959.17	206	1500	959.17	237	1680	941.73	271	1920	941.73	310	2240	930.65	365	2600	930.65	424	900	1.6	1450
		127			138			157			179			205			242			281		1.1	960
		94			102			116			133			152			179			208		0.8	710

P



### 6.3 P2L.. (i=31.5-100)

n1 (r/min)	n2 N (r/min)	i N	P2..09			P2..10			P2..11			P2..12			P2..13		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	46.0	31.5	22	32.5353	103	31	32.5353	145	42	32.8413	194	60	31.7089	287	83	31.6775	398
960	30.5				68			96			129			190			263
710	22.5				50			71			95			141			195
1450	40.8	35.5	22	35.6114	94	31	35.6114	132	42	35.8344	178	60	34.5987	263	83	34.6723	364
960	27.0				62			88			118			174			241
710	20.0				46			65			87			129			178
1450	36.3	40	22	39.5264	85	31	39.5264	119	42	39.6083	161	60	38.2424	238	83	38.4842	327
960	24.0				56			79			107			158			217
710	17.8				41			58			79			117			160
1450	32.2	45	22	43.882	76	31	43.882	107	42	43.4177	147	60	41.9206	217	83	42.1856	299
960	21.3				50			71			97			144			198
710	15.8				37			53			72			106			146
1450	29.0	50	22	50.4204	66	31	50.4204	93	42	50.5248	126	60	48.7826	187	83	49.0910	257
960	19.2				44			62			84			124			170
710	14.2				32			46			62			91			126
1450	25.9	56	22	55.7278	60	31	55.7278	84	42	55.8432	114	60	53.9176	169	83	54.2585	232
960	17.1				40			56			76			112			154
710	12.7				29			41			56			83			114
1450	23.0	63	22	60.4521	55	31	60.4521	78	42	60.5773	105	60	58.4884	156	83	62.3263	202
960	15.2				37			51			70			103			134
710	11.3				27			38			52			76			99
1450	20.4	71	22	69.6115	48	31	69.6115	68	42	69.7557	91	60	67.3503	135	83	67.7761	186
960	13.5				32			45			61			90			123
710	10.0				23			33			45			66			91
1450	18.1	80	22	79.0528	42	31	79.0528	60	42	80.2465	79	60	77.477	118	83	77.968	162
960	12.0				28			39			53			78			107
710	8.9				21			29			39			58			79
1450	16.1	90	22	86.2394	39	31	86.2394	55	42	86.418	74	60	83.438	109	83	83.9656	150
960	10.7				26			36			49			72			99
710	7.9				19			27			36			53			74
1450	14.5	100	22	99.088	34	31	99.088	48	42	99.295	64	60	95.868	95	83	96.476	131
960	9.6				22			31			43			63			86
710	7.1				17			23			31			47			64

P2..14			P2..16			P2..17			P2..18			P2..19			i N	n2N (r/min)	n1 (r/min)
T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)			
117	31.6775	561	160	31.4135	773	202	31.4135	976	244	31.4286	1179	295	33.5237	1336	31.5	46.0	1450
		371			512			646			781			885		30.5	960
		275			379			478			577			654		22.5	710
117	34.6723	512	160	34.3835	707	202	34.3835	892	244	34.3999	1077	295	36.6933	1221	35.5	40.8	1450
		339			468			591			713			808		27.0	960
		251			346			437			527			598		20.0	710
117	38.4842	462	160	38.1635	637	202	38.1635	804	244	38.1819	970	295	40.7272	1100	40	36.3	1450
		306			421			532			642			728		24.0	960
		226			312			394			475			539		17.8	710
117	42.1856	421	160	41.834	581	202	41.834	733	244	43.149	859	295	46.0254	973	45	32.2	1450
		279			385			485			569			644		21.3	960
		206			284			359			420			477		15.8	710
117	49.091	362	160	48.6818	499	202	48.6818	630	244	49.091	755	295	52.3636	855	50	29.0	1450
		240			330			417			500			566		19.2	960
		177			244			309			370			419		14.2	710
117	54.2585	327	160	53.8063	452	202	53.8063	570	244	54.8664	674	295	58.524	765	56	25.9	1450
		217			299			377			446			507		17.1	960
		160			221			279			330			375		12.7	710
117	62.3263	285	160	61.8069	393	202	61.8069	496	244	62.3263	594	295	66.4812	674	63	23.0	1450
		189			260			329			394			446		15.2	960
		140			192			243			291			330		11.3	710
117	67.7761	262	160	67.2113	361	202	67.2113	456	244	67.7761	547	295	72.2943	620	71	20.4	1450
		174			239			302			362			410		13.5	960
		128			177			223			268			303		10.0	710
117	77.968	228	160	77.318	314	202	77.318	397	244	77.968	475	295	83.165	539	80	18.1	1450
		151			208			263			315			357		12.0	960
		112			154			194			233			264		8.9	710
117	83.9656	212	160	83.2658	292	202	83.2658	368	244	83.9656	441	295	89.563	500	90	16.1	1450
		140			193			244			292			331		10.7	960
		104			143			180			216			245		7.9	710
117	96.476	184	160	95.671	254	202	95.671	321	244	96.476	384	295	102.906	435	100	14.5	1450
		122			168			212			254			288		9.6	960
		90			124			157			188			213		7.1	710

Note:   Forced lubrication required.



P

n1 (r/min)	n2N (r/min)	i N	P2..20			P2..21			P2..22			P2..23			P2..24			P2..25		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	46.0	31.5	354	33.5237	1603	392	33.5237	1776	450	33.5237	2038	513	33.8391	2302	592	33.8391	2657	684	33.8391	3069
960	30.5				1062			1176			1350			1524			1759			2032
710	22.5				785			869			998			1127			1301			1503
1450	40.8	35.5	354	36.6933	1465	392	36.6933	1622	450	36.6933	1862	513	36.9231	2110	592	36.9231	2435	684	36.9231	2813
960	27.0				970			1074			1233			1397			1612			1862
710	20.0				717			794			912			1033			1192			1377
1450	36.3	40	354	40.7272	1320	392	40.7272	1462	450	40.7272	1678	513	40.8116	1909	592	40.8116	2203	684	40.8116	2545
960	24.0				874			968			1111			1264			1458			1685
710	17.8				646			716			822			935			1079			1246
1450	32.2	45	354	46.0254	1168	392	46.0254	1293	450	46.0254	1485	513	46.1208	1689	592	46.1208	1949	684	46.1208	2252
960	21.3				773			856			983			1118			1290			1491
710	15.8				572			633			727			827			954			1103
1450	29.0	50	354	52.3636	1027	392	52.3636	1137	450	52.3636	1305	513	52.472	1485	592	52.472	1713	684	52.1365	1979
960	19.2				680			753			864			983			1134			1311
710	14.2				503			557			639			727			839			969
1450	25.9	56	354	58.524	919	392	58.524	1017	450	58.524	1168	513	58.6452	1328	592	58.6452	1533	684	58.6452	1771
960	17.1				608			673			773			879			1015			1173
710	12.7				450			498			572			650			751			867
1450	23.0	63	354	66.4812	809	392	66.4812	895	450	66.4812	1028	513	66.6189	1169	592	66.6189	1349	684	66.6189	1559
960	15.2				535			593			680			774			893			1032
710	11.3				396			438			503			573			661			763
1450	20.4	71	354	72.2943	744	392	72.2943	823	450	72.2943	945	513	72.4441	1075	592	72.4441	1241	684	72.4441	1434
960	13.5				492			545			626			712			822			949
710	10.0				364			403			463			527			608			702
1450	18.1	80	354	83.165	646	392	83.165	716	450	83.165	822	513	83.337	937	592	83.337	1078	684	83.337	1246
960	12.0				428			474			544			620			714			825
710	8.9				316			350			402			459			528			610
1450	16.1	90	354	89.563	600	392	89.563	665	450	89.563	763	513	89.7486	868	592	89.7486	1002	684	89.7486	1157
960	10.7				397			440			505			575			663			766
710	7.9				294			325			374			425			490			567
1450	14.5	100	354	102.904	522	392	102.904	578	450	102.904	664	513	103.1195	755	592	103.1195	872	684	103.1195	1007
960	9.6				346			383			440			500			577			667
710	7.1				256			283			325			370			427			493

Note:   Forced lubrication required.



P2..26			P2..27			P2..28			P2..29			P2..30			P2..31-P2..36			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
763	33.8391	3424	852	33.5237	3859	950	33.5237	4303	1060	33.5237	4801	1200	33.5237	5435				31.5	46.0	1450
		2267			2555			2849			3179			3599					30.5	960
		1677			1890			2107			2351			2662					22.5	710
763	36.9231	3138	852	36.6933	3526	950	36.6933	3931	1060	36.6933	4387	1200	36.6933	4966				35.5	40.8	1450
		2077			2334			2603			2904			3288					27.0	960
		1536			1726			1925			2148			2432					20.0	710
763	40.8116	2839	852	40.7272	3177	950	40.7272	3542	1060	40.7272	3952	1200	40.7272	4474				40	36.3	1450
		1880			2103			2345			2617			2962					24.0	960
		1390			1555			1734			1935			2191					17.8	710
763	46.1208	2512	852	46.0254	2811	950	46.0254	3134	1060	46.0254	3497	1200	46.0254	3959				45	32.2	1450
		1663			1861			2075			2315			2621					21.3	960
		1230			1376			1535			1712			1939					15.8	710
763	52.1365	2208	852	52.0288	2471	950	52.0288	2755	1060	52.0288	3074	1200	52.0288	3480	On request			50	29.0	1450
		1462			1636			1824			2035			2304					19.2	960
		1081			1210			1349			1505			1704					14.2	710
763	58.6452	1976	852	58.524	2211	950	58.524	2465	1060	58.524	2750	1200	58.524	3114				56	25.9	1450
		1308			1464			1632			1821			2061					17.1	960
		967			1082			1207			1347			1525					12.7	710
763	66.6189	1739	852	66.4812	1946	950	66.4812	2170	1060	66.4812	2421	1200	66.4812	2741				63	23.0	1450
		1151			1288			1437			1603			1815					15.2	960
		852			953			1062			1186			1342					11.3	710
763	72.4441	1599	852	72.2943	1790	950	72.2943	1995	1060	72.2943	2226	1200	72.2943	2521				71	20.4	1450
		1059			1185			1321			1474			1669					13.5	960
		783			876			977			1090			1234					10.0	710
763	83.337	1390	852	83.165	1556	950	83.165	1735	1060	83.165	1935	1200	83.165	2191				80	18.1	1450
		920			1030			1148			1281			1451					12.0	960
		680			762			849			948			1073					8.9	710
763	89.7486	1291	852	89.563	1445	950	89.563	1611	1060	89.563	1797	1200	89.563	2035				90	16.1	1450
		855			956			1066			1190			1347					10.7	960
		632			707			789			880			996					7.9	710
763	103.1195	1124	852	102.904	1257	950	102.904	1402	1060	102.904	1564	1200	102.904	1771				100	14.5	1450
		744			832			928			1036			1172					9.6	960
		550			616			686			766			867					7.1	710

Note:  Forced lubrication required.

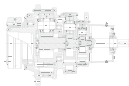


## 6.4 P2K.. (i=112-560)

n1 (r/min)	n2N (r/min)	i N	P2..09			P2..10			P2..11			P2..12			P2..13			P2..14		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	12.9	112	22	111.25	30	31	111.25	42	42	111.83	57	60	107.97	84	83	107.97	117	117	107.76	165
960	8.6				20			28			38			56			77			109
710	6.3				15			21			28			41			57			81
1450	11.6	125	22	125.75	27	31	125.75	37	42	125.68	51	60	121.35	75	83	121.8	104	117	121.8	146
960	7.7				18			25			34			50			69			97
710	5.7				13			18			25			37			51			71
1450	10.4	140	22	145.69	23	31	145.69	32	42	144.42	44	60	139.44	65	83	141.11	90	117	141.11	126
960	6.9				15			21			29			43			60			83
710	5.1				11			16			22			32			44			62
1450	9.1	160	22	157.28	21	31	157.28	30	42	155.27	41	60	149.91	61	83	151.19	84	117	151.19	118
960	6.0				14			20			27			40			56			78
710	4.4				10			15			20			30			41			58
1450	8.1	180	22	175.77	19	31	175.77	27	42	173.52	37	60	167.54	54	83	167.85	75	117	167.85	106
960	5.3				13			18			24			36			50			70
710	3.9				9.3			13			18			27			37			52
1450	7.3	200	22	203.53	16	31	203.53	23	42	200.92	32	60	193.99	47	83	192.86	65	117	192.86	92
960	4.8				11			15			21			31			43			61
710	3.6				8.0			11			16			23			32			45
1450	6.4	225	22	223.22	15	31	223.22	21	42	220.36	29	60	212.76	43	83	213.16	59	117	213.16	83
960	4.3				9.9			14			19			28			39			55
710	3.2				7.3			10			14			21			29			41
1450	5.8	250	22	242.15	14	31	242.15	19	42	239.04	27	60	230.8	39	83	231.23	55	117	231.23	77
960	3.8				9.1			13			18			26			36			51
710	2.8				6.8			10			13			19			27			38
1450	5.2	280	22	278.84	12	31	278.84	17	42	275.26	23	60	265.77	34	83	266.26	47	117	266.26	67
960	3.4				7.9			11			15			23			31			44
710	2.5				5.9			8.3			11			17			23			33
1450	4.5	320	22	316.65	11	31	316.65	15	42	312.6	20	60	301.82	30	83	302.38	42	117	302.38	59
960	3.0				7.0			10			14			20			28			39
710	2.2				5.2			7.3			10			15			20			29
1450	4.0	360	22	345.44	9.7	31	345.44	14	42	341.01	19	60	329.25	28	83	329.86	38	117	329.86	54
960	2.7				6.4			9.0			12			18			25			36
710	2.0				4.7			6.7			9.2			14			19			26
1450	3.6	400	22	396.90	8.4	31	396.90	12	42	391.83	16	60	378.31	24	83	379.01	33	117	379.01	47
960	2.4				5.6			7.9			11			16			22			31
710	1.8				4.1			5.8			8.0			12			16			23
1450	3.2	450	22	443.52	7.5	31	443.52	11	42	437.85	15	60	422.75	22	83	423.53	30	117	423.53	42
960	2.1				5.0			7.0			10			14			20			28
710	1.6				3.7			5.2			7.1			11			15			21
1450	2.9	500	22	485.10	6.9	31	485.10	10	42	478.90	13.3	60	462.38	20	83	462.24	27	117	462.24	38
960	1.9				4.6			6.4			8.8			13			18			25
710	1.4				3.4			4.8			6.5			10			13			19
1450	2.6	560	On request																	
960	1.7																			
710	1.3																			

P2..16			P2..17			P2..18			P2..19			P2..20			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
160	108.47	224	202	108.47	283	244	107.76	344	295	114.94	390	354	114.94	468	112	12.9	1450
		148			187			228			258			310		8.6	960
		110			138			168			191			229		6.3	710
160	122.6	198	202	122.6	250	244	121.8	304	295	129.92	345	354	129.92	414	125	11.6	1450
		131			166			201			228			274		7.7	960
		97			123			149			169			203		5.7	710
160	142.04	171	202	142.04	216	244	141.11	263	295	150.52	298	354	150.52	357	140	10.4	1450
		113			143			174			197			236		6.9	960
		84			106			129			146			175		5.1	710
160	153.05	159	202	153.05	200	244	151.19	245	295	161.27	278	354	161.27	333	160	9.1	1450
		105			133			162			184			221		6.0	960
		78			98			120			136			163		4.4	710
160	167.77	145	202	167.77	183	244	165.73	221	295	176.78	253	354	176.78	304	180	8.1	1450
		96			121			146			168			201		5.3	960
		71			90			108			124			149		3.9	710
160	195.23	124	202	195.23	157	244	192.86	192	295	205.71	218	354	205.71	261	200	7.3	1450
		82			104			127			144			173		4.8	960
		61			77			94			107			128		3.6	710
160	215.79	113	202	215.79	142	244	213.16	174	295	227.37	197	354	227.37	236	225	6.4	1450
		75			94			115			130			157		4.3	960
		55			70			85			96			116		3.2	710
160	234.08	104	202	234.08	131	244	244.85	160	295	261.18	172	354	261.18	206	250	5.8	1450
		69			87			106			114			136		3.8	960
		51			64			78			84			101		2.8	710
160	269.55	90	202	269.55	114	244	266.26	139	295	284.01	158	354	284.01	189	280	5.2	1450
		60			75			92			104			125		3.4	960
		44			56			68			77			93		2.5	710
160	309	79	202	309	99	244	305.24	123	295	325.59	138	354	325.59	165	320	4.5	1450
		52			66			81			91			109		3.0	960
		39			49			60			67			81		2.2	710
160	333.93	73	202	333.93	92	244	329.86	112	295	351.86	127	354	351.86	153	360	4.0	1450
		48			61			74			84			101		2.7	960
		36			45			55			62			75		2.0	710
160	383.68	63	202	383.68	80	244	379.01	98	295	404.28	111	354	404.28	133	400	3.6	1450
		42			53			65			73			88		2.4	960
		31			39			48			54			65		1.8	710
160	428.75	57	202	428.75	72	244	423.53	87	295	451.76	99	354	451.77	119	450	3.2	1450
		38			47			58			66			79		2.1	960
		28			35			43			49			58		1.6	710
160	468.95	52	202	468.95	65	244	462.24	80	295	494.12	91	354	494.12	109	500	2.9	1450
		34			43			53			60			72		1.9	960
		25			32			39			44			53		1.4	710
On request															560	2.6	1450
																1.7	960
																1.3	710

P



## 6.5 P3K.. (i=560-4000)

n1 (r/min)	n2N (r/min)	i N	P3..09			P3..10			P3..11			P3..12			P3..13		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	2.59	560	22	566.22	5.9	31	566.22	8.3	42	567.4	11.2	60	547.83	16.6	83	551.29	22.9
960	1.71				3.9			5.5			7.4			11.0			15.1
710	1.27				2.9			4.1			5.5			8.1			11.2
1450	2.30	630	22	640.02	5.2	31	640.02	7.4	42	637.68	10.0	60	615.69	14.8	83	623.14	20.2
960	1.52				3.5			4.9			6.6			9.8			13.4
710	1.13				2.6			3.6			4.9			7.2			9.9
1450	2.04	710	22	700.53	4.8	31	700.53	6.7	42	697.96	9.1	60	673.9	13.5	83	682.06	18.5
960	1.35				3.2			4.4			6.0			9.0			12.2
710	1.00				2.3			3.3			4.5			6.6			9.0
1450	1.81	800	22	777.54	4.3	31	777.54	6.1	42	774.7	8.2	60	747.98	12.2	83	757.04	16.6
960	1.20				2.8			4.0			5.5			8.1			11.0
710	0.89				2.1			3.0			4.0			6.0			8.2
1450	1.61	900	22	878.88	3.8	31	878.88	5.4	42	875.66	7.3	60	845.46	10.7	83	855.70	14.7
960	1.07				2.5			3.5			4.8			7.1			9.8
710	0.79				1.9			2.6			3.6			5.2			7.2
1450	1.45	1000	22	982.19	3.4	31	982.19	4.8	42	978.6	6.5	60	944.85	9.6	83	956.3	13.2
960	0.96				2.3			3.2			4.3			6.4			8.7
710	0.71				1.7			2.3			3.2			4.7			6.5
1450	1.29	1120	22	1137.3	2.9	31	1137.3	4.1	42	1133.1	5.6	60	1094	8.3	83	1107.3	11.4
960	0.86				1.9			2.7			3.7			5.5			7.5
710	0.63				1.4			2.0			2.8			4.1			5.6
1450	1.16	1250	22	1247.3	2.7	31	1247.3	3.8	42	1242.8	5.1	60	1199.9	7.6	83	1214.4	10.4
960	0.77				1.8			2.5			3.4			5.0			6.9
710	0.57				1.3			1.8			2.5			3.7			5.1
1450	1.04	1400	22	1351.1	2.5	31	1351.1	3.5	42	1348.1	4.7	60	1301.6	7.0	83	1317.4	9.6
960	0.69				1.6			2.3			3.1			4.6			6.3
710	0.51				1.2			1.7			2.3			3.4			4.7
1450	0.91	1600	22	1558.1	2.1	31	1558.1	3.0	42	1552.4	4.1	60	1498.9	6.1	83	1517	8.3
960	0.60				1.4			2.0			2.7			4.0			5.5
710	0.44				1.0			1.5			2.0			3.0			4.1
1450	0.81	1800	22	1769.4	1.9	31	1769.4	2.7	42	1762.9	3.6	60	1702.1	5.4	83	1722.8	7.3
960	0.53				1.2			1.8			2.4			3.5			4.8
710	0.39				0.9			1.3			1.8			2.6			3.6
1450	0.73	2000	22	1930.3	1.8	31	1930.3	2.5	42	1923.2	3.3	60	1856.9	4.9	83	1879.4	6.7
960	0.48				1.2			1.6			2.2			3.2			4.4
710	0.36				0.9			1.2			1.6			2.4			3.3
1450	0.65	2240	22	2218.92	1.5	31	2218.92	2.1	42	2209.74	2.9	60	2133.53	4.3	83	2159.37	5.8
960	0.43				1.0			1.4			1.9			2.8			3.9
710	0.32				0.7			1.0			1.4			2.1			2.9
1450	0.58	2500	22	2479.56	1.3	31	2479.56	1.9	42	2469.29	2.6	60	2384.14	3.8	83	2413.01	5.2
960	0.38				0.9			1.3			1.7			2.5			3.5
710	0.28				0.7			0.9			1.3			1.9			2.6
1450	0.52	2800	22	2712.01	1.2	31	2712.01	1.7	42	2700.79	2.4	60	2607.65	3.5	83	2639.23	4.8
960	0.34				0.8			1.1			1.6			2.3			3.2
710	0.25				0.6			0.8			1.2			1.7			2.3
1450	0.46	3150	22	3138.19	1.1	31	3138.19	1.5	42	3125.20	2.0	60	3017.42	3.0	83	3053.96	4.1
960	0.30				0.7			1.0			1.4			2.0			2.7
710	0.23				0.5			0.7			1.0			1.5			2.0
1450	0.41	3550	22	3633.91	0.9	31	3633.91	1.3	42	3620.67	1.8	60	3495.81	2.6	83	3538.14	3.6
960	0.27				0.6			0.9			1.2			1.7			2.4
710	0.20				0.5			0.6			0.9			1.3			1.7
1450	0.36	4000	22	4210.03	0.8	31	4210.03	1.1	42	4160.53	1.5	60	4017.07	2.3	83	4099.00	3.1
960	0.24				0.5			0.7			1.0			1.5			2.0
710	0.18				0.4			0.5			0.8			1.1			1.5

P3..14			P3..16			P3..17			P3..18			P3..19			i N	n2N (r/min)	n1 (r/min)
T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)	T2N (kNm)	i ex	P1N (kW)			
117	551.29	32.2	160	551.25	44.1	202	551.25	55.6	244	544.28	68.1	295	580.56	77.2	560	2.59	1450
		21.3			29.2			36.8			45.1			51.1		1.71	960
		15.8			21.6			27.2			33.3			37.8		1.27	710
117	623.14	28.5	160	623.09	39.0	202	623.09	49.2	244	615.21	60.2	295	656.22	68.3	630	2.30	1450
		18.9			25.8			32.6			39.9			45.2		1.52	960
		14.0			19.1			24.1			29.5			33.4		1.13	710
117	682.06	26.0	160	679.88	35.7	202	679.88	45.1	244	673.37	55.0	295	718.27	62.4	710	2.04	1450
		17.2			23.7			29.9			36.4			41.3		1.35	960
		12.8			17.5			22.1			26.9			30.5		1.00	710
117	757.04	23.5	160	751.48	32.3	202	751.48	40.8	244	747.4	49.6	295	797.23	56.2	800	1.81	1450
		15.5			21.4			27.0			32.8			37.2		1.20	960
		11.5			15.8			20.0			24.3			27.5		0.89	710
117	855.70	20.8	160	844.56	28.8	202	844.56	36.3	244	844.81	43.9	295	901.13	49.7	900	1.61	1450
		13.7			19.0			24.0			29.0			32.9		1.07	960
		10.2			14.1			17.8			21.5			24.3		0.79	710
117	956.3	18.6	160	943.84	25.7	202	943.84	32.5	244	937.9	39.5	295	1000.4	44.8	1000	1.45	1450
		12.3			17.0			21.5			26.2			29.6		0.96	960
		9.1			12.6			15.9			19.3			21.9		0.71	710
117	1107.3	16.0	160	1092.4	23.6	202	1092.9	29.8	244	1077.6	34.4	295	1149.5	39.0	1120	1.29	1450
		10.6			15.6			19.7			22.8			25.8		0.86	960
		7.9			11.6			14.6			16.8			19.1		0.63	710
117	1214.4	14.6	160	1198.6	20.3	202	1198.6	25.6	244	1191.1	31.1	295	1270.5	35.3	1250	1.16	1450
		9.7			13.4			16.9			20.6			23.3		0.77	960
		7.2			9.9			12.5			15.2			17.3		0.57	710
117	1317.4	13.5	160	1300.2	18.7	202	1300.2	23.6	244	1292.1	28.7	295	1378.2	32.5	1400	1.04	1450
		8.9			12.4			15.6			19.0			21.5		0.69	960
		6.6			9.1			11.6			14.0			15.9		0.51	710
117	1517	11.7	160	1497.3	16.4	202	1497.3	20.7	244	1487.8	24.9	295	1587	28.2	1600	0.91	1450
		7.8			10.9			13.7			16.5			18.7		0.60	960
		5.7			8.0			10.2			12.2			13.8		0.44	710
117	1722.8	10.3	160	1700.3	14.3	202	1700.3	18.0	244	1689.6	21.9	295	1802.3	24.9	1800	0.81	1450
		6.8			9.5			11.9			14.5			16.5		0.53	960
		5.0			7.0			8.8			10.7			12.2		0.39	710
117	1879.4	9.5	160	1854.9	13.1	202	1854.9	16.5	244	1843.2	20.1	295	1966.1	22.8	2000	0.73	1450
		6.3			8.7			10.9			13.3			15.1		0.48	960
		4.6			6.4			8.1			9.8			11.2		0.36	710
117	2159.4	8.2	160	2131.3	11.4	202	2131.3	14.4	244	2117.8	17.5	295	2259.0	19.8	2240	0.65	1450
		5.4			7.5			9.5			11.6			13.1		0.43	960
		4.0			5.6			7.0			8.6			9.7		0.32	710
117	2413.0	7.4	160	2381.6	10.2	202	2381.6	12.9	244	2366.6	15.7	295	2524.4	17.7	2500	0.58	1450
		4.9			6.8			8.5			10.4			11.7		0.38	960
		3.6			5.0			6.3			7.7			8.7		0.28	710
117	2654.0	6.7	160	2604.9	9.3	202	2604.9	11.8	244	2588.4	14.3	295	2761.0	16.2	2800	0.52	1450
		4.5			6.2			7.8			9.5			10.7		0.34	960
		3.3			4.6			5.8			7.0			7.9		0.25	710
117	3054.0	5.8	160	3014.2	8.1	202	3014.2	10.2	244	2995.2	12.4	295	3194.9	14.0	3150	0.46	1450
		3.9			5.3			6.7			8.2			9.3		0.30	960
		2.8			3.9			5.0			6.1			6.9		0.23	710
117	3538.1	5.0	160	3463.7	7.0	202	3463.7	8.9	244	3470.1	10.7	295	3701.4	12.1	3550	0.41	1450
		3.3			4.6			5.9			7.1			8.0		0.27	960
		2.5			3.4			4.3			5.2			5.9		0.20	710
117	4099.0	4.3	160	4012.7	6.1	202	4012.7	7.6	244	4020.2	9.2	295	4288.2	10.4	4000	0.36	1450
		2.9			4.0			5.1			6.1			6.9		0.24	960
		2.1			3.0			3.7			4.5			5.1		0.18	710

P

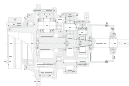


P

n1 (r/min)	n2N (r/min)	i N	P3..20			P3..21			P3..22			P3..23			P3..24			P3..25		
			T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)
1450	2.59	560	354	580.56	92.6	392	580.56	103	450	580.56	118	513	593.88	131	592	593.88	151	684	593.88	175
960	1.71				61.3			68			78			87			100			116
710	1.27				45.3			50			58			64			74			86
1450	2.30	630	354	656.22	81.9	392	656.22	91	450	656.22	104	513	667.44	117	592	667.44	135	684	667.44	156
960	1.52				54.2			60			69			77			89			103
710	1.13				40.1			44			51			57			66			76
1450	2.04	710	354	718.27	74.8	392	718.27	83	450	718.27	95	513	730.55	107	592	730.55	123	684	730.55	142
960	1.35				49.5			55			63			71			81			94
710	1.00				36.6			41			47			52			60			70
1450	1.81	800	354	797.23	67.4	392	797.23	75	450	797.23	86	513	810.87	96	592	810.87	111	684	810.87	128
960	1.20				44.6			49			57			64			73			85
710	0.89				33.0			37			42			47			54			63
1450	1.61	900	354	901.13	59.7	392	901.13	66	450	901.13	76	513	916.54	85	592	916.54	98	684	916.54	113
960	1.07				39.5			44			50			56			65			75
710	0.79				29.2			32			37			42			48			55
1450	1.45	1000	354	1000.4	53.7	392	1000.4	60	450	1000.4	68	513	1004.7	78	592	1004.7	89	684	1004.7	103
960	0.96				35.6			39			45			51			59			68
710	0.71				26.3			29			33			38			44			51
1450	1.29	1120	354	1149.5	46.8	392	1149.5	52	450	1149.5	59	513	1169.1	67	592	1169.1	77	684	1169.1	89
960	0.86				31.0			34			39			44			51			59
710	0.63				22.9			25			29			33			38			43
1450	1.16	1250	354	1270.5	42.3	392	1270.5	47	450	1270.5	54	513	1292.2	60	592	1292.2	70	684	1292.2	80
960	0.77				28.0			31			36			40			46			53
710	0.57				20.7			23			26			30			34			39
1450	1.04	1400	354	1378.2	39.0	392	1378.2	43	450	1378.2	50	513	1401.8	56	592	1401.8	64	684	1401.8	74
960	0.69				25.8			29			33			37			42			49
710	0.51				19.1			21			24			27			31			36
1450	0.91	1600	354	1587	33.9	392	1587	38	450	1587	43	513	1614.2	48	592	1614.2	56	684	1614.2	64
960	0.60				22.4			25			29			32			37			43
710	0.44				16.6			18			21			24			27			32
1450	0.81	1800	354	1802.3	29.8	392	1802.3	33	450	1802.3	38	513	1850.4	42	592	1850.4	49	684	1850.4	56
960	0.53				19.7			22			25			28			32			37
710	0.39				14.6			16			19			21			24			27
1450	0.73	2000	354	1966.1	27.3	392	1966.1	30	450	1966.1	35	513	1999.7	39	592	1999.7	45	684	1999.7	52
960	0.48				18.1			20			23			26			30			34
710	0.36				13.4			15			17			19			22			25
1450	0.65	2240	354	2259.0	23.8	392	2259.0	26	450	2259.0	30	513	2297.7	34	592	2297.7	39	684	2297.7	45
960	0.43				15.8			17			20			22			26			30
710	0.32				11.7			13			15			17			19			22
1450	0.58	2500	354	2524.4	21.3	392	2524.4	24	450	2524.4	27	513	2567.6	30	592	2567.6	35	684	2567.6	40
960	0.38				14.1			16			18			20			23			27
710	0.28				10.4			12			13			15			17			20
1450	0.52	2800	354	2761.0	19.5	392	2761.0	21.6	450	2761.0	24.7	513	2808.3	28	592	2808.3	32	684	2808.3	37
960	0.34				12.9			14.3			16.4			18			21			24
710	0.25				9.5			10.6			12.1			14			16			18
1450	0.46	3150	354	3194.9	16.8	392	3194.9	18.6	450	3194.9	21.4	513	3249.6	24	592	3249.6	28	684	3249.6	32
960	0.30				11.1			12.3			14.2			16			18			21
710	0.23				8.2			9.1			10.5			12			14			16
1450	0.41	3550	354	3701.4	14.5	392	3701.4	16.1	450	3701.4	18.5	513	3734	21	592	3734	24	684	3734	28
960	0.27				9.6			10.6			12.2			14			16			18
710	0.20				7.1			7.9			9.0			10			12			14
1450	0.36	4000	354	4288.2	12.5	392	4288.2	13.9	450	4288.2	15.9	513	4326.1	18	592	4326.1	21	684	4326.1	24
960	0.24				8.3			9.2			10.5			12			14			16
710	0.18				6.1			6.8			7.8			9			10			12

P3..26			P3..27			P3..28			P3..29			P3..30			P3..31~P3..36			i N	n2N (r/min)	n1 (r/min)
T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)	T 2N (kNm)	i ex	P 1N (kW)			
763	593.88	195	852	580.56	223	950	580.56	248	1060	580.56	277	1200	580.56	314				560	2.59	1450
		129			148			165			184			208					1.71	960
		96			109			122			136			154					1.27	710
763	667.44	174	852	656.22	197	950	656.22	220	1060	656.22	245	1200	656.22	278				630	2.30	1450
		115			131			146			162			184					1.52	960
		85			97			108			120			136					1.13	710
763	730.55	159	852	718.27	180	950	718.27	201	1060	718.27	224	1200	718.27	254				710	2.04	1450
		105			119			133			148			168					1.35	960
		78			88			98			110			124					1.00	710
763	810.87	143	852	797.23	162	950	797.23	181	1060	797.23	202	1200	797.23	229				800	1.81	1450
		95			107			120			134			151					1.20	960
		70			79			89			99			112					0.89	710
763	916.54	126	852	901.13	144	950	901.13	160	1060	901.13	179	1200	901.13	202				900	1.61	1450
		84			95			106			118			134					1.07	960
		62			70			78			87			99					0.79	710
763	1004.7	115	852	987.8	129	950	987.8	144	1060	987.8	161	1200	987.8	182				1000	1.45	1450
		76			86			95			107			121					0.96	960
		56			63			71			79			89					0.71	710
763	1169.1	99	852	1149.5	113	950	1149.5	125	1060	1149.5	140	1200	1149.5	159				1120	1.29	1450
		66			75			83			93			105					0.86	960
		49			55			61			69			78					0.63	710
763	1992.2	90	852	1270.5	102	950	1270.5	114	1060	1270.5	127	1200	1270.5	143				1250	1.16	1450
		59			67			75			84			95					0.77	960
		44			50			56			62			70					0.57	710
763	1401.8	83	852	1459.4	94	950	1459.4	105	1060	1459.4	117	1200	1459.4	132	On request			1400	1.04	1450
		55			62			69			77			88					0.69	960
		40			46			51			57			65					0.51	710
763	1614.2	72	852	1587	82	950	1587	91	1060	1587	101	1200	1587	115	On request			1600	0.91	1450
		48			54			60			67			76					0.60	960
		35			40			45			50			56					0.44	710
763	1850.4	63	852	1819.3	72	950	1819.3	80	1060	1819.3	89	1200	1819.3	101				1800	0.81	1450
		41			48			53			59			67					0.53	960
		31			35			39			44			50					0.39	710
763	1999.7	58	852	1966.1	66	950	1966.1	73	1060	1966.1	82	1200	1966.1	93				2000	0.73	1450
		38			44			49			54			61					0.48	960
		28			32			36			40			45					0.36	710
763	2297.7	50	852	2259.0	57	950	2259.0	64	1060	2259.0	71	1200	2259.0	81				2240	0.65	1450
		33			38			42			47			53					0.43	960
		25			28			31			35			39					0.32	710
763	2567.6	45	852	2524.4	51	950	2524.4	57	1060	2524.4	64	1200	2524.4	72				2500	0.58	1450
		30			34			38			42			48					0.38	960
		22			25			28			31			35					0.28	710
763	2808.3	41	852	2761.0	47	950	2761.0	52	1060	2761.0	58	1200	2761.0	66				2800	0.52	1450
		27			31			35			39			44					0.34	960
		20			23			26			29			32					0.25	710
763	3249.6	36	852	3194.9	40	950	3194.9	45	1060	3194.9	50	1200	3194.9	57				3150	0.46	1450
		24			27			30			33			38					0.30	960
		17			20			22			25			28					0.23	710
763	3734	31	852	3701.4	35	950	3701.4	39	1060	3701.4	43	1200	3701.4	49				3550	0.41	1450
		21			23			26			29			33					0.27	960
		15			17			19			21			24					0.20	710
763	4326.1	27	852	4288.2	30	950	4288.2	34	1060	4288.2	38	1200	4288.2	42				4000	0.36	1450
		18			20			22			25			28					0.24	960
		13			15			16			18			21					0.18	710

P



## 6.5 Nominal Thermal Capacity

### 6.6.1 P2N.. (Mounting position B5):

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	21	26	32	42	49	65	75	92	100	119	142	174	201	242	287	326	366
Large halls or workshops Wind velocity $\geq$ 1.4m/s	29	37	45	60	69	92	106	130	147	169	201	246	285	343	406	462	519	619
In the open Wind velocity $\geq$ 3.7m/s	39	50	60	80	93	125	143	175	191	228	272	333	386	464	505	626	702	838

### 6.6.2 P2S.. (Mounting position B52\B53\B54):

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	15	20	24	32	36	49	56	69	75	89	106	130	151	182	215	245	275
Large halls or workshops Wind velocity $\geq$ 1.4m/s	22	28	34	45	52	69	79	97	106	127	151	185	214	257	305	347	389	464
In the open Wind velocity $\geq$ 3.7m/s	29	38	45	60	70	94	107	132	143	171	204	250	289	348	412	469	527	628

### 6.6.3 P3N.. (Mounting position B5):

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	14	18	22	29	34	46	52	64	70	83	99	121	141	169	200	228	256
Large halls or workshops Wind velocity $\geq$ 1.4m/s	20	26	31	41	48	64	74	91	99	118	140	172	199	240	284	323	362	432
In the open Wind velocity $\geq$ 3.7m/s	28	35	42	56	65	87	100	123	133	159	190	233	269	324	384	437	490	585

### 6.6.4 P3S.. (Mounting position B52\B53\B54):

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	12	15	18	24	28	40	43	53	57	69	82	100	116	139	165	188	211
Large halls or workshops Wind velocity $\geq$ 1.4m/s	17	21	26	34	40	53	61	75	81	97	116	142	164	197	234	266	298	356
In the open Wind velocity $\geq$ 3.7m/s	23	29	35	46	54	72	82	101	110	131	156	192	222	267	316	360	404	482

Note: Thermal capacity of other mounting positions on request.



**6.6.5 P2L.. (Mounting position B52\B53\B54):**

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31~36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	14	18	22	29	34	46	52	64	70	83	99	121	141	169	200
Large halls or workshops Wind velocity $\geq$ 1.4m/s	20	26	31	41	48	64	74	91	99	118	140	172	199	240	284	
In the open Wind velocity $\geq$ 3.7m/s	28	35	42	56	65	87	100	123	133	159	190	233	269	324	384	

**6.6.6 P2K.. (Mounting position B52\B53\B54):**

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20
	Small confined spaces Wind velocity $\geq$ 0.5m/s	12	15	18	24	28	38	44	53	58
Large halls or workshops Wind velocity $\geq$ 1.4m/s	17	22	26	35	40	54	62	76	82	98
In the open Wind velocity $\geq$ 3.7m/s	23	29	35	47	54	73	83	102	111	133

**6.6.7 P3K.. (Mounting position B52\B53\B54):**

Size PG1 Wind velocity	09	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31~36
	Small confined spaces Wind velocity $\geq$ 0.5m/s	10	12	15	20	23	31	35	43	47	56	67	82	95	109	125
Large halls or workshops Wind velocity $\geq$ 1.4m/s	14	17	21	28	33	44	50	61	66	79	95	116	106	125	144	
In the open Wind velocity $\geq$ 3.7m/s	19	24	28	38	44	59	67	83	90	107	128	157	166	195	225	

Note: Thermal capacity of other mounting positions on request.



## 7 Radial Force on Output Shaft

n <sub>2N</sub> (r/min)	Fr2 (N)													
	09	10	11	12	13	14	16	17	18	19-20	21-22	23-24	25-26	27-28
56-71	9538	23353	32518	42407	34737	41183	72297	64454	69713	70477	99136	99347	123583	126071
50-56	9905	24252	33770	44039	36075	42768	75080	66935	72396	73190	102952	103171	128341	130925
45-50	10302	25223	35122	45803	37519	44481	78086	69616	75295	76121	107075	107302	133480	136167
40-45	10720	26249	36550	47665	39044	46289	81261	72446	78356	79215	111428	111665	138907	141703
35.5-40	11155	27314	38033	49599	40629	48167	84559	75386	81536	82430	115950	116196	144544	147454
31.5-35.5	11602	28408	39556	51585	42256	50096	87945	78404	84801	85731	120593	120849	150332	153358
28-31.5	12017	29423	40970	53429	43766	51887	91088	81207	87832	88795	124903	125169	155705	158840
25-28	12479	30556	42547	55486	45451	53884	94595	84333	91214	92214	129712	129988	161700	164955
22.4-25	12979	31779	44251	57708	47271	56042	98383	87710	94866	95906	134906	135193	168175	171560
20-22.4	13507	33071	46050	60054	49193	58320	102382	91276	98723	99805	140390	140689	175011	178534
18-20	14055	34413	47919	62491	51189	60687	106537	94980	102729	103856	146088	146398	182114	185780
16-18	14618	35791	49838	64993	53239	63117	110803	98783	106843	108014	151937	152260	189406	193219
14-16	15140	37071	51619	67316	55142	65373	114764	102314	110662	111875	157368	157703	196176	200125
12.5-14	15723	38498	53606	69908	57265	67890	119182	106253	114922	116182	163427	163774	203729	207830
11.2-12.5	16309	39933	55605	72514	59400	70421	123626	110215	119207	120514	169520	169880	211325	215578
≤11.2	16937	41471	57746	75306	61687	73132	128385	114458	123796	125153	176046	176420	219460	223878

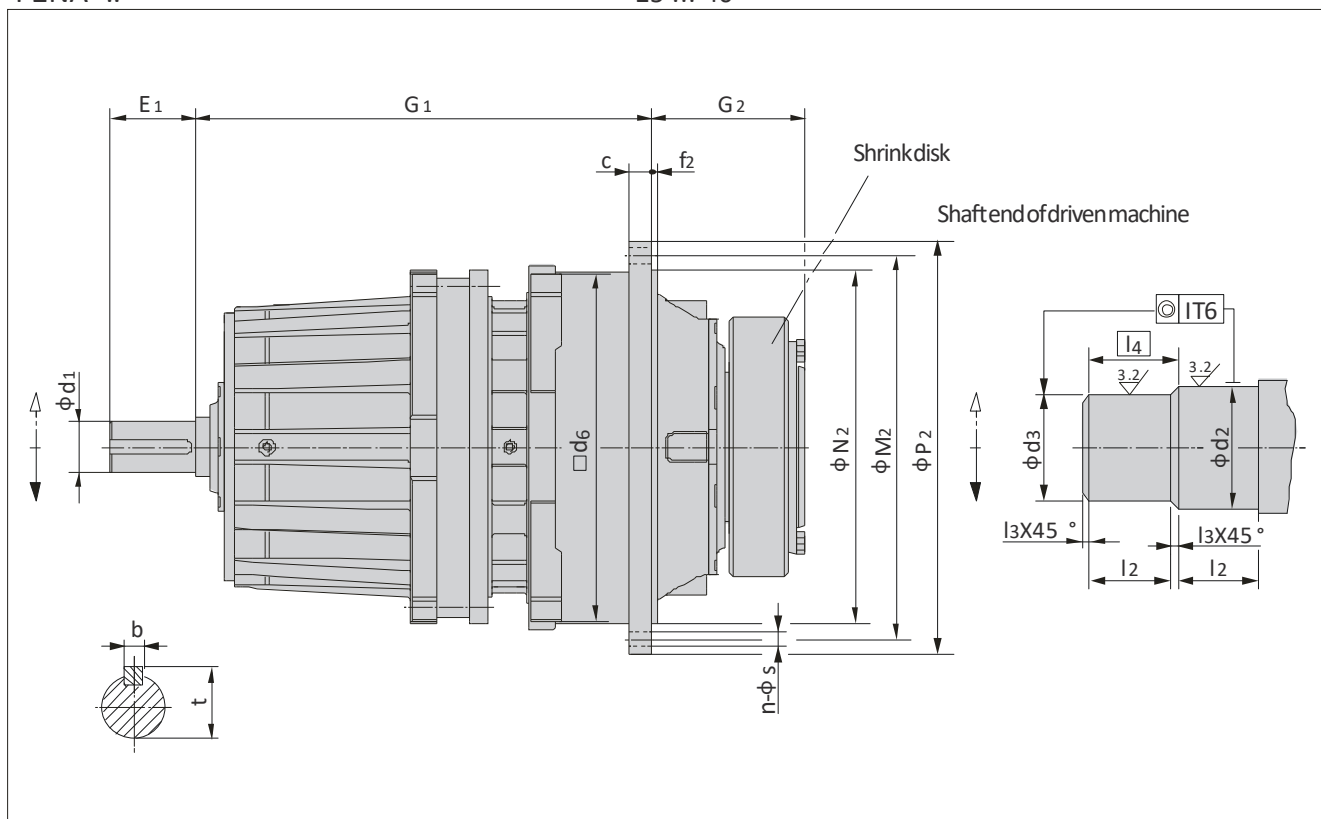
Note: For lower output speed, apply the largest Fr2 value in each type.

## 8 Outline Dimensions

### 8.1 Gearbox

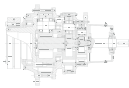
P2NA ..

$i_N = 25 \dots 40$



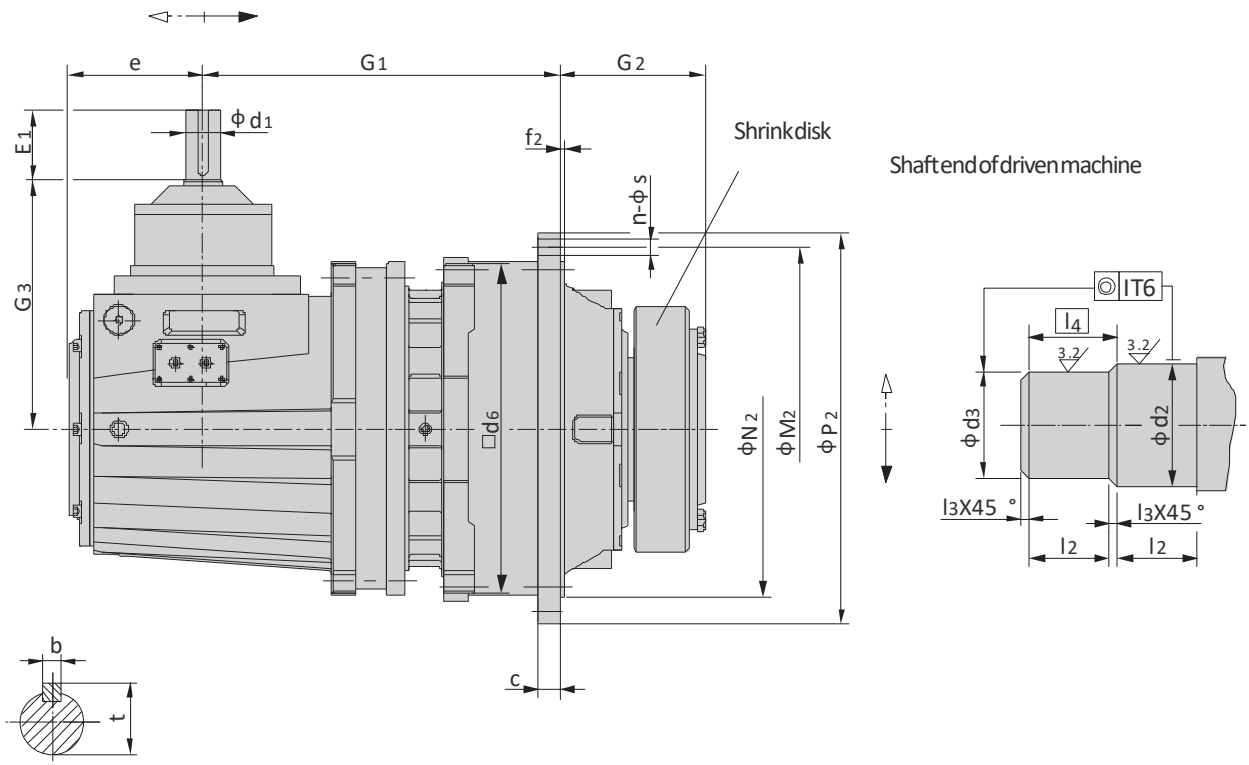
P2NA .. Size	Nominal output torque $T_{2N}$ (Nm)	Input shaft				c	d2	d3	d6	f2	G1	G2	l2	l3	l4	M2	N2	P2	Flange bolts		Weight* (kg)
		d1	E1	b	t														n	s	
09	22 000	55m6	90	16	59	24	120m6	115m6	356	$6 \pm 1.5$	469	165	65	2.5	67.5	388	350m7	428	24	18	145
10	31 000	55m6	90	16	59	28	130m6	125m6	400	$8 \pm 1.5$	489	174	70	2.5	72.5	436	394m7	472	28	18	195
11	42 000	70m6	120	20	74.5	32	140m6	135m6	436	$8 \pm 1.5$	579	204	82.5	2.5	85.0	485	425m7	525	20	22	280
12	60 000	70m6	120	20	74.5	34	160m6	155m6	510	$9 \pm 1.5$	593	224	90	2.5	92.5	555	495m7	605	20	26	425
13	83 000	80 m6	140	22	85	39	180m6	175m6	554	$11 \pm 1.5$	714	241	95	2.5	97.5	595	535m7	645	24	26	540
14	117 000	80 m6	140	22	85	42	210m6	205m6	629	9	737	278	105	2.5	107.5	665	610m7	720	32	26	805
16	160 000	95 m6	160	25	100	44	230m6	225m6	680	10	851	285	110	2.5	112.5	715	660m7	770	36	26	1030
17	202 000	95 m6	160	25	100	50	250m6	245m6	775	10	877	294	120	2.5	122.5	830	750m7	895	24	33	1500
18	244 000	110 m6	180	28	116	50	260m6	255m6	815	10	1006	303	120	2.5	122.5	865	785m7	930	32	33	1900
19	295 000	110 m6	180	28	116	56	280m6	275m6	870	12	1029.5	327.5	135	2.5	137.5	915	840m7	980	36	33	2000
20	354 000	110 m6	180	28	116	56	300m6	295m6	870	12	1029.5	327.5	135	2.5	137.5	915	840m7	980	36	33	2100
21	392 000	120 m6	210	32	127	62	310m6	305m6	960	24	1046	354	152	2.5	154.5	1025	935m7	1115	32	39	2650
22	450 000	120m6	210	32	127	62	330m6	325m6	960	24	1046	354	152	2.5	154.5	1025	935m7	1115	32	39	2800
23	513 000	130m6	210	32	137	68	350m6	345m6	1056	28	1150	380	164	2.5	166.5	1120	1025m7	1210	36	39	3450
24	592 000	130m6	210	32	137	68	360m6	355m6	1056	28	1150	380	164	2.5	166.5	1120	1025m7	1210	36	39	3900
25	684 000	140 m6	240	36	148	74	380m6	375m6	1150	29	1241	407	180	2.5	182.5	1220	1115m7	1320	36	45	4750
26	763 000	140 m6	240	36	148	74	400m6	395m6	1150	29	1241	407	180	2.5	182.5	1220	1115m7	1320	36	45	5150
27	852 000	150 m6	240	36	158	81	430m6	425m6	1248	31	1379	453	191	2.5	193.5	1345	1215m7	1460	32	52	6100
28	950 000	150 m6	240	36	158	81	450m6	445m6	1248	31	1379	453	191	2.5	193.5	1345	1215m7	1460	32	52	6550
29	1060 000	160 m6	270	40	169	87	460m6	450m6	1355	34	1457	483	197.5	5	202.5	1450	1320m7	1565	36	52	7800
30	1200 000	160 m6	270	40	169	87	480m6	470m6	1355	34	1457	483	197.5	5	202.5	1450	1320m7	1565	36	52	8300
31	1330 000	170 m6	270	40	179	94	48m6	470m6	1443	36	1607	538	232	5	237.0	1545	1400m7	1665	32	62	10200
32	1500 000	170 m6	270	40	179	94	510m6	500m6	1443	36	1607	538	232	5	237.0	1545	1400m7	1665	32	62	10700
33	1680 000	180 m6	310	40	179	100	530m6	520m6	1536	36	1683	573	242	5	247.0	1635	1495m7	1755	36	62	12350
34	1920 000	180 m6	310	45	190	100	570m6	560m6	1536	36	1683	573	242	5	247.0	1635	1495m7	1755	36	62	13150
35	2240 000	190 m6	310	45	200	112	600m6	590m6	1720	40	1899	656	272	5	277.0	1825	1685m7	1945	40	62	17300
36	2600 000	190 m6	310	45	200	112	640m6	630m6	1720	40	1899	656	272	5	277.0	1825	1685m7	1945	40	62	18400

Note: \*Weight without shrink disk and oil.



P2LA ..

$i_N = 31.5 \dots 100$

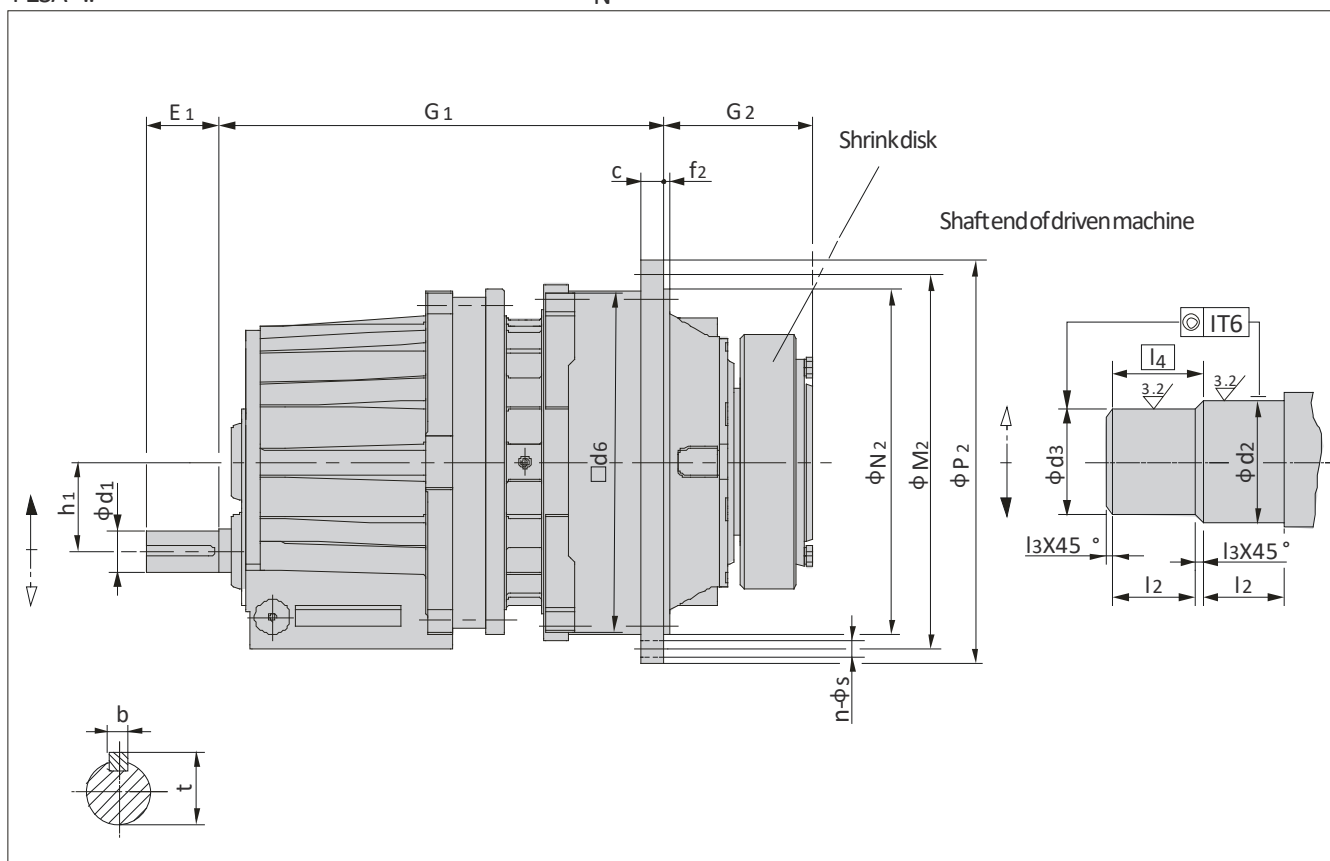


P2LA .. Size	Nominal output torque T <sub>2N</sub> (N·m)	Input shaft												c	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	e	f <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	l <sub>2</sub>	l <sub>3</sub>	14	M <sub>2</sub>	N <sub>2</sub>	P <sub>2</sub>	Flange bolts		Weight* (kg)			
		$i_N \leq 90$				$i_N \geq 100$				n	s																							
		d <sub>1</sub>	E <sub>1</sub>	b	t	d <sub>1</sub>	E <sub>1</sub>	b	t																									
09	22 000	50k6	100	14	53.5	40k6	80	12	43	24	120h6	115h6	356	185	6 <sup>± 1.5</sup>	425	165	305	65	2.5	67.5	388	350h7	428	24	18	159							
10	31 000	50k6	100	14	53.5	40k6	80	12	43	28	130h6	125h6	400	185	8 <sup>± 1.5</sup>	445	174	305	70	2.5	72.5	436	394h7	472	28	18	215							
11	42 000	60m6	110	18	64	50k6	100	14	53.5	32	140h6	135h6	436	210	8 <sup>± 1.5</sup>	501	204	350	82.5	2.5	85.0	485	425 h7	525	20	22	310							
12	60 000	60m6	110	18	64	50k6	100	14	53.5	34	160h6	155h6	510	210	9 <sup>± 1.5</sup>	515	224	350	90	2.5	92.5	555	495h7	605	20	26	470							
13	83 000	75m6	135	20	79.5	60m6	110	18	64	39	180g6	175g6	554	250	11 <sup>± 1.5</sup>	619	241	415	95	2.5	97.5	595	535h7	645	24	26	595							
14	117 000	75m6	135	20	79.5	60m6	110	18	64	42	210g6	205g6	629	250	9	642	278	415	105	2.5	107.5	665	610h7	720	32	26	890							
16	160 000	85m6	165	22	90	70m6	140	20	74.5	44	230g6	225g6	680	295	10	705	285	490	110	2.5	112.5	715	660h7	770	36	26	1137							
17	202 000	85m6	165	22	90	70m6	140	20	74.5	50	250g6	245g6	775	295	10	731	294	490	120	2.5	122.5	830	750h7	895	24	33	1660							
18	244 000	95m6	165	25	100	75m6	140	20	79.5	50	260g6	255g6	815	350	10	882	303	605	120	2.5	122.5	865	785h7	930	32	33	2100							
19	295 000	95m6	165	25	100	75m6	140	20	79.5	56	280g6	275g6	870	350	12	905.5	327.5	605	135	2.5	137.5	915	840h7	980	36	33	2200							
20	354 000	95m6	165	25	100	75m6	140	20	79.5	56	300g6	295g6	870	350	12	905.5	327.5	605	135	2.5	137.5	915	840h7	980	36	33	2300							
21	392 000	115m6	205	32	122	90m6	170	25	95	62	310g6	305g6	960	400	24	996	354	700	152	2.5	154.5	1025	935h7	1115	32	39	2930							
22	450 000	115m6	205	32	122	90m6	170	25	95	62	330g6	325g6	960	400	24	996	354	700	152	2.5	154.5	1025	935h7	1115	32	39	3100							
23	513 000	115m6	205	32	122	90m6	170	25	95	68	350g6	345g6	1056	400	28	1055	380	700	164	2.5	166.5	1120	1025h7	1210	36	39	3800							
24	592 000	115m6	205	32	122	90m6	170	25	95	68	360g6	355g6	1056	400	28	1055	380	700	164	2.5	166.5	1120	1025h7	1210	36	39	4300							
25	684 000	140m6	245	36	148	110m6	210	28	116	74	380g6	375g6	1150	475	29	1138	407	835	180	2.5	182.5	1220	1115h7	1320	36	45	5250							
26	763 000	140m6	245	36	148	110m6	210	28	116	74	400g6	395g6	1150	475	29	1138	407	835	180	2.5	182.5	1220	1115h7	1320	36	45	5660							
27	852 000	140m6	245	36	148	110m6	210	28	116	81	430g6	425g6	1248	475	31	1272	453	835	191	2.5	193.5	1345	1215h7	1460	32	52	6680							
28	950 000	140m6	245	36	148	110m6	210	28	116	81	450g6	445g6	1248	475	31	1272	453	835	191	2.5	193.5	1345	1215h7	1460	32	52	7180							
29	1 060 000	150m6	245	40	169	115m6	210	32	122	87	460g6	450g6	1355	530	34	1367	483	945	197.5	5	202.5	1450	1320h7	1565	36	52	8500							
30	1 200 000	150m6	245	40	169	115m6	210	32	122	87	480g6	470g6	1355	530	34	1367	483	945	197.5	5	202.5	1450	1320h7	1565	36	52	9070							
31-36		On request																																

Note: \*Weight without shrink disk and oil.

P2SA ..

$i_N = 45 \dots 125$



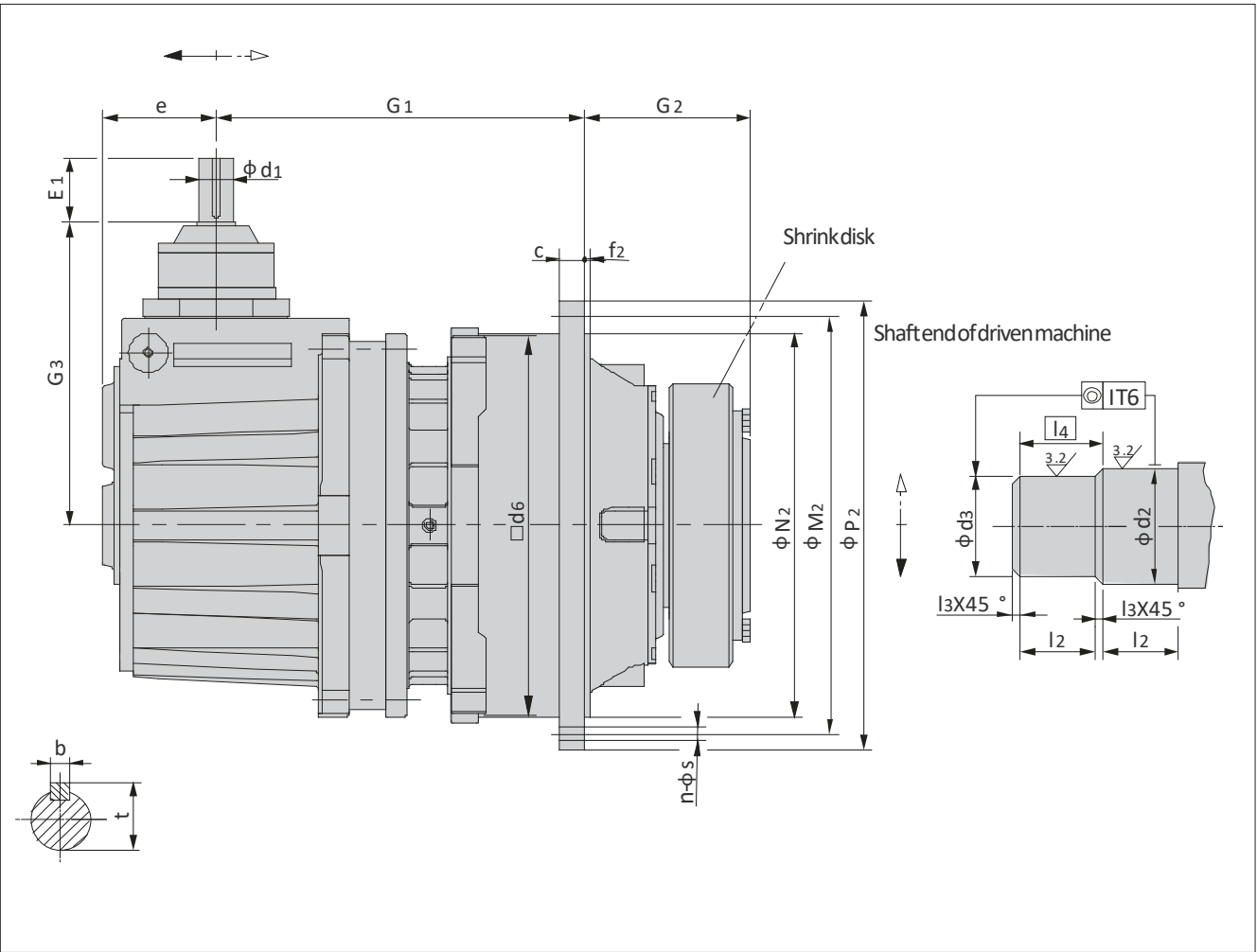
P2SA .. Size	Nominal output torque T <sub>2N</sub> (N · m)	Input shaft				c	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	f <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>	h <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	M <sub>2</sub>	N <sub>2</sub>	P <sub>2</sub>	Flange bolts		Weight* (kg)
		d <sub>1</sub>	E <sub>1</sub>	b	t															n	s	
09	22 000	38k6	60	10	41	24	120h6	115h6	356	6±1.5	469	165	90	65	2.5	67.5	388	350h7	428	24	18	160
10	31 000	38k6	60	10	41	28	130h6	125h6	400	8±1.5	489	174	90	70	2.5	72.5	436	394h7	472	28	18	220
11	42 000	55m6	90	16	59	32	140h6	135h6	436	8±1.5	579	204	115	82.5	2.5	85.0	485	425h7	525	20	22	310
12	60 000	55m6	90	16	59	34	160h6	155h6	510	9±1.5	593	224	115	90	2.5	92.5	555	495h7	605	20	26	470
13	83 000	70m6	120	20	74.5	39	180g6	175g6	554	11±1.5	714	241	140	95	2.5	97.5	595	535h7	645	24	26	600
14	117 000	70m6	120	20	74.5	42	210g6	205g6	629	9	737	278	140	105	2.5	107.5	665	610h7	720	32	26	900
16	160 000	80m6	140	22	85	44	230g6	225g6	680	10	851	285	170	110	2.5	112.5	715	660h7	770	36	26	1150
17	202 000	80m6	140	22	85	50	250g6	245g6	775	10	877	294	170	120	2.5	122.5	830	750h7	895	24	33	1650
18	244 000	90m6	160	25	95	50	260g6	255g6	815	10	1006	303	200	120	2.5	122.5	865	785h7	930	32	33	1950
19	295 000	90m6	160	25	95	56	280g6	275g6	870	12	1029.5	327.5	200	135	2.5	137.5	915	840h7	980	36	33	2400
20	354 000	90m6	160	25	95	56	300g6	295g6	870	12	1029.5	327.5	200	135	2.5	137.5	915	840h7	980	36	33	2500
21	392 000	100m6	180	28	106	62	310g6	305g6	960	24	1076	354	230	152	2.5	154.5	1025	935h7	1115	32	39	2900
22	450 000	100m6	180	28	106	62	330g6	325g6	960	24	1076	354	230	152	2.5	154.5	1025	935h7	1115	32	39	3100
23	513 000	120m6	210	32	127	68	350g6	345g6	1056	28	1175	380	265	164	2.5	166.5	1120	1025h7	1210	36	39	3800
24	592 000	120m6	210	32	127	68	360g6	355g6	1056	28	1175	380	265	164	2.5	166.5	1120	1025h7	1210	36	39	4100
25	684 000	130m6	210	32	137	74	380g6	375g6	1150	29	1291	407	300	180	2.5	182.5	1220	1115h7	1320	36	45	4950
26	763 000	130m6	210	32	137	74	400g6	395g6	1150	29	1291	407	300	180	2.5	182.5	1220	1115h7	1320	36	45	5350
27	852 000	140m6	240	36	148	81	430g6	425g6	1248	31	1429	453	320	191	2.5	193.5	1345	1215h7	1460	32	52	6800
28	950 000	140m6	240	36	148	81	450g6	445g6	1248	31	1429	453	320	191	2.5	193.5	1345	1215h7	1460	32	52	7200
29	1 060 000	150m6	240	36	158	87	460g6	450g6	1355	34	1507	483	360	197.5	5	202.5	1450	1320h7	1565	36	52	8500
30	1 200 000	150m6	240	36	158	87	480g6	470g6	1355	34	1507	483	360	197.5	5	202.5	1450	1320h7	1565	36	52	9000
31	1 330 000	160m6	270	40	169	94	480g6	470g6	1443	36	1662	538	400	232	5	237.0	1545	1400h7	1665	32	62	10500
32	1 500 000	160m6	270	40	169	94	510g6	500g6	1443	36	1662	538	400	232	5	237.0	1545	1400h7	1665	32	62	11200
33	1 680 000	170m6	270	40	179	100	530g6	520g6	1536	36	1743	573	400	242	5	247.0	1635	1495h7	1755	36	62	12700
34	1 920 000	170m6	270	40	179	100	570g6	560g6	1536	36	1743	573	400	242	5	247.0	1635	1495h7	1755	36	62	13500
35	2 240 000	180m6	310	45	190	112	600g6	590g6	1720	40	1960	656	442	272	5	277.0	1825	1685h7	1945	40	62	17800
36	2 600 000	180m6	310	45	190	112	640g6	630g6	1720	40	1960	656	442	272	5	277.0	1825	1685h7	1945	40	62	18900

Note: \*Weight without shrink disk and oil.



P2KA ..

$i_N = 1 \ 12 \dots 500$

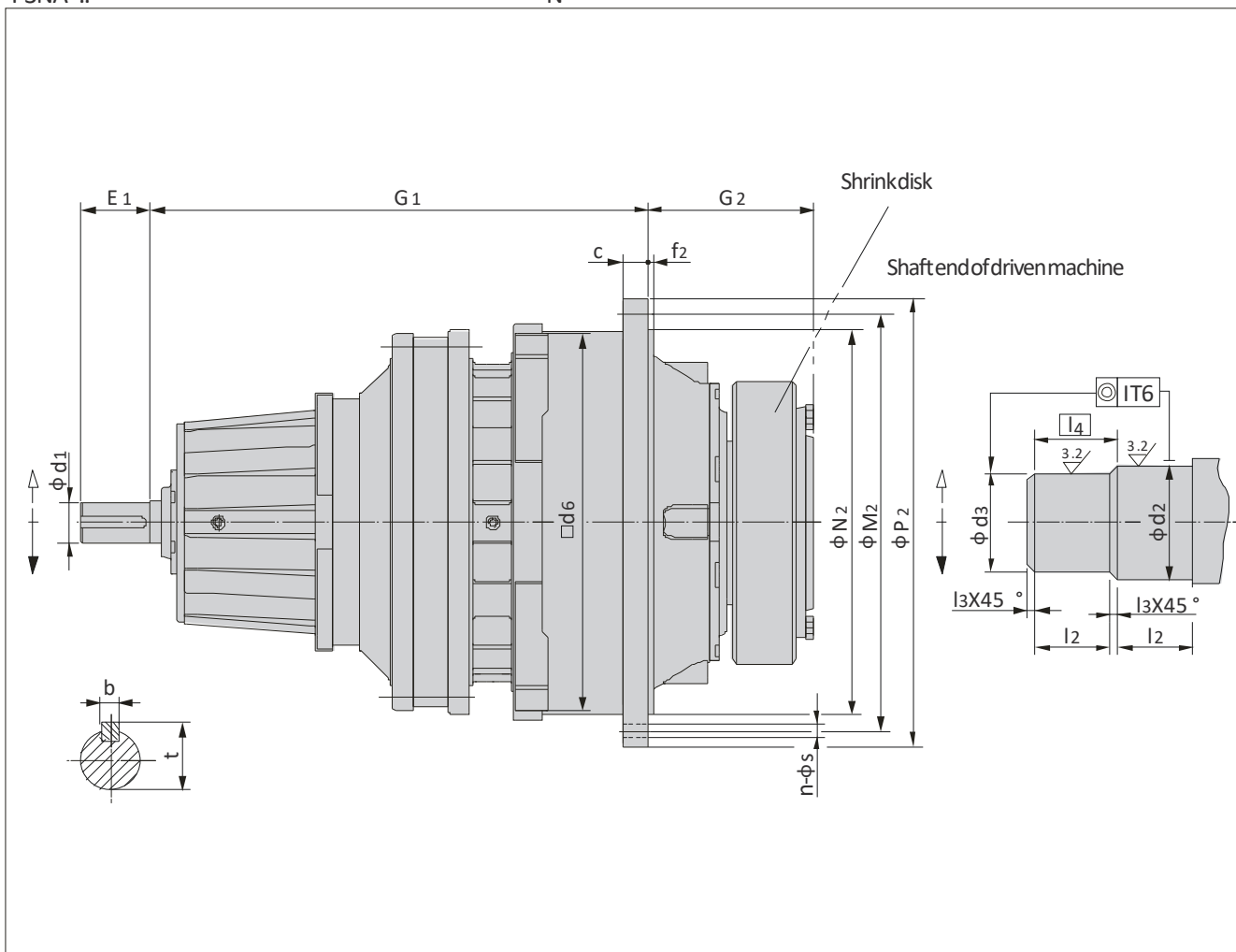


P2KA .. Size	Nominal output torque $T_{2N}$ (N·m)	Input shaft								c	d2	d3	d6	e	f2	G1	G2	G3	l2	l3	l4	M2	N2	P2	Flange bolts		Weight* (kg)
		i <sub>N</sub> ≤ 360				i <sub>N</sub> ≥ 400																			n	s	
		d1	E1	b	t	d1	E1	b	t																		
09	22 000	35k6	70	10	38	30k6	60	8	33	24	120h6	115h6	356	119	6±1.5	339	165	320	65	2.5	67.5	388	350h7	428	24	18	165
10	31 000	35k6	70	10	38	30k6	60	8	33	28	130h6	125h6	400	119	8±1.5	359	174	320	70	2.5	72.5	436	394h7	472	28	18	227
11	42 000	45k6	80	14	48.5	35k6	60	10	38	32	140h6	135h6	436	137	8±1.5	419	204	375	82.5	2.5	85	485	425h7	525	20	22	320
12	60 000	45k6	80	14	48.5	35k6	60	10	38	34	160h6	155h6	510	137	9±1.5	433	224	375	90	2.5	92.5	555	495h7	605	20	26	484
13	83 000	50k6	100	14	53.5	40k6	80	12	43	39	180g6	175g6	554	172	11±1.5	518.5	241	445	95	2.5	97.5	595	535h7	645	24	26	618
14	117 000	50k6	100	14	53.5	40k6	80	12	43	42	210g6	205g6	629	172	9	541.5	278	445	105	2.5	107.5	665	610h7	720	32	26	927
16	160 000	60m6	110	18	64	50k6	100	14	53.5	44	230g6	225g6	680	194	10	632	285	520	110	2.5	112.5	715	660h7	770	36	26	1184
17	202 000	60m6	110	18	64	50k6	100	14	53.5	50	250g6	245g6	775	194	10	658	294	520	120	2.5	122.5	830	750h7	895	24	33	1700
18	244 000	75m6	135	20	79.5	60m6	110	18	64	50	260g6	255g6	815	240	10	741.5	303	615	120	2.5	122.5	865	785h7	930	32	33	2010
19	295 000	75m6	135	20	79.5	60m6	110	18	64	56	280g6	275g6	870	240	12	764.5	327.5	615	135	2.5	137.5	915	840h7	980	36	33	2470
20	354 000	75m6	135	20	79.5	60m6	110	18	64	56	300g6	295g6	870	240	12	764.5	327.5	615	135	2.5	137.5	915	840h7	980	36	33	2550
21 - 26	On request																										

Note: \*Weight without shrink disk and oil.

P3NA ..

$i_N = 140 \dots 280$



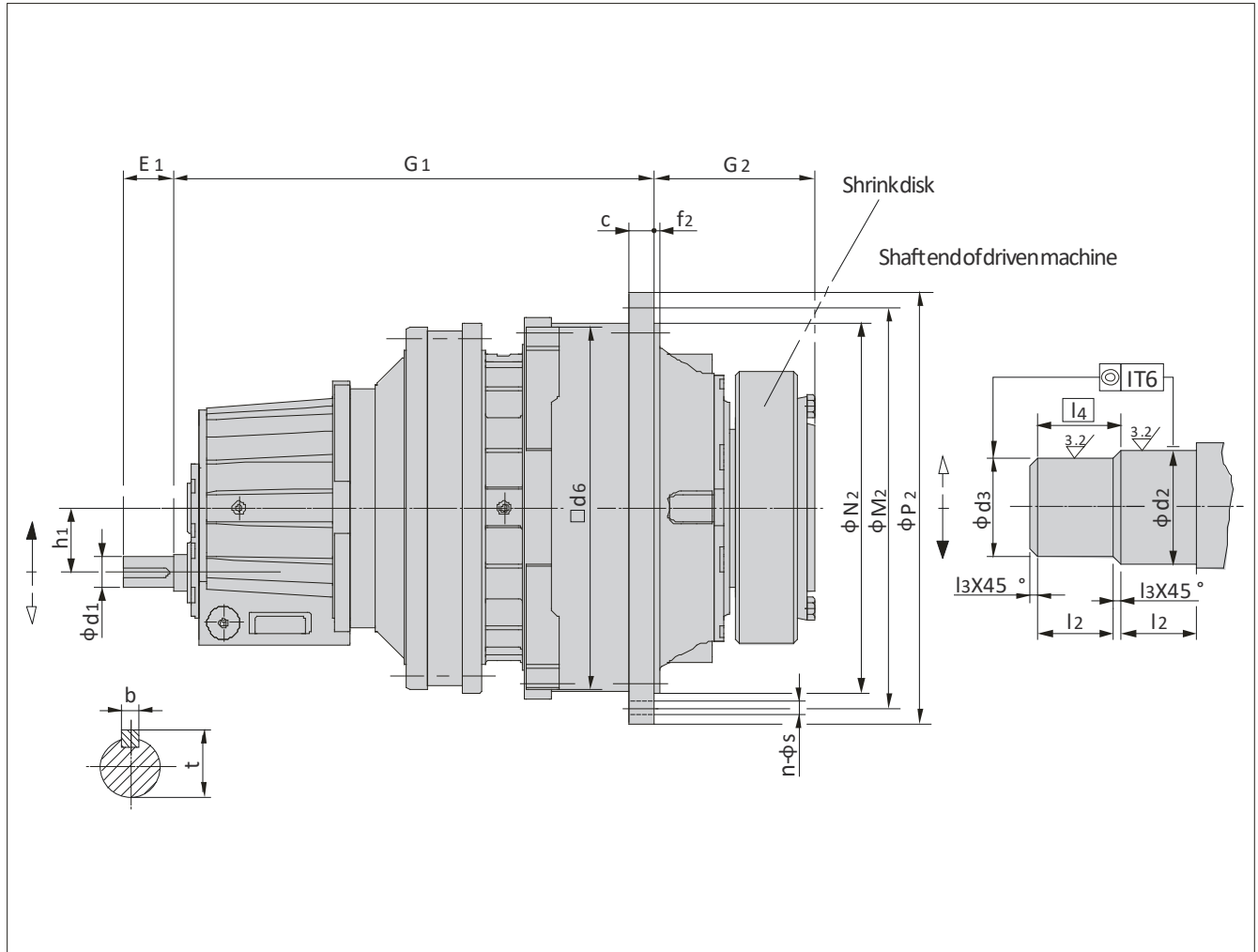
P3NA .. Size	Nominal output torque T <sub>2N</sub> (N · m)	Input shaft				c	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	f <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	M <sub>2</sub>	N <sub>2</sub>	P <sub>2</sub>	Flange bolts		Weight* (kg)
		d <sub>1</sub>	E <sub>1</sub>	b	t														n	s	
09	22 000	55m6	90	16	59	24	120h6	115h6	356	6±1.5	565	165	65	2.5	67.5	388	350h7	428	24	18	152
10	31 000	55m6	90	16	59	28	130h6	125h6	400	6±1.5	585	174	70	2.5	72.5	436	394h7	472	28	18	205
11	42 000	55m6	90	16	59	32	140h6	135h6	436	8±1.5	616	204	82.5	2.5	85.0	485	425h7	525	28	22	295
12	60 000	55m6	90	16	59	34	160h6	155h6	510	9±1.5	630	224	90	2.5	92.5	555	495h7	605	20	26	447
13	83 000	55m6	90	16	59	39	180g6	175g6	554	11±1.5	688	241	95	2.5	97.5	595	535h7	645	24	26	567
14	117 000	55m6	90	16	59	42	210g6	205g6	629	9	711	278	105	2.5	107.5	665	610h7	720	32	26	850
16	160 000	70m6	120	20	74.5	44	230g6	225g6	680	10	853	285	110	2.5	112.5	715	660h7	770	36	26	1085
17	202 000	70m6	120	20	74.5	50	250g6	245g6	775	10	879	294	120	2.5	122.5	830	750h7	895	24	33	1580
18	244 000	80m6	140	22	85	50	260g6	255g6	815	10	1013.5	303	120	2.5	122.5	865	785h7	930	32	33	2000
19	295 000	80m6	140	22	85	56	280g6	275g6	870	12	1036.5	327.5	135	2.5	137.5	915	840h7	980	36	33	2100
20	354 000	80m6	140	22	85	56	300g6	295g6	870	12	1036.5	327.5	135	2.5	137.5	915	840h7	980	36	33	2200
21	392 000	80m6	140	22	85	62	310g6	305g6	960	24	1093	354	152	2.5	154.5	1025	935h7	1115	32	39	2785
22	450 000	80m6	140	22	85	62	330g6	325g6	960	24	1093	354	152	2.5	154.5	1025	935h7	1115	32	39	2950
23	513 000	95m6	160	25	100	68	350g6	345g6	1056	28	1222	380	164	2.5	166.5	1120	1025h7	1210	36	39	3625
24	592 000	95m6	160	25	100	68	360g6	355g6	1056	28	1222	380	164	2.5	166.5	1120	1025h7	1210	36	39	4100
25	684 000	95m6	160	25	100	74	380g6	375g6	1150	29	1284.5	407	180	2.5	182.5	1220	1115h7	1320	36	45	5000
26	763 000	95m6	160	25	100	74	400g6	395g6	1150	29	1284.5	407	180	2.5	182.5	1220	1115h7	1320	36	45	5400
27	852 000	110m6	180	28	116	81	430g6	425g6	1248	31	1470	453	191	2.5	193.5	1345	1215h7	1460	32	52	6400
28	950 000	110m6	180	28	116	81	450g6	445g6	1248	31	1470	453	191	2.5	193.5	1345	1215h7	1460	32	52	6875
29	1 060 000	110m6	180	28	116	87	460g6	450g6	1355	34	1517	483	197.5	5	202.5	1450	1320h7	1565	36	52	8190
30	1 200 000	110m6	180	28	116	87	480g6	470g6	1355	34	1517	483	197.5	5	202.5	1450	1320h7	1565	36	52	8715
31	1 330 000	120m6	210	32	127	94	480g6	470g6	1433	36	1585	540	232	5	237.0	1545	1400h7	1665	32	62	10700
32	1 500 000	120m6	210	32	127	94	510g6	500g6	1443	36	1585	540	232	5	237.0	1545	1400h7	1665	32	62	11200
33	1 680 000	130m6	210	32	137	100	530g6	520g6	1536	36	1710	573	242	5	247.0	1635	1495h7	1755	36	62	12950
34	1 920 000	130m6	210	32	137	100	570g6	560g6	1536	36	1710	573	242	5	247.0	1635	1495h7	1755	36	62	13800
35-36																					On request

Note: \*Weight without shrink disk and oil.



P3SA ..

$i_N = 280 \dots 900$



P3SA .. Size	Nominal output torque T <sub>2N</sub> (N · m)	Input shaft				c	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	f <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>	h <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	M <sub>2</sub>	N <sub>2</sub>	P <sub>2</sub>	Flange bolts		Weight* (kg)
		d <sub>1</sub>	E <sub>1</sub>	b	t															n	s	
09	22 000	38k6	60	10	41	24	120h6	115h6	356	6±1.5	565	165	90	65	2.5	67.5	388	350h7	428	24	18	170
10	31 000	38k6	60	10	41	28	130h6	125h6	400	8±1.5	585	174	90	70	2.5	72.5	436	394h7	472	28	18	230
11	42 000	38k6	60	10	41	32	140h6	135h6	436	8±1.5	616	204	90	82.5	2.5	85.0	485	425h7	525	20	22	310
12	60 000	38k6	60	10	41	34	160h6	155h6	510	9±1.5	630	224	90	90	2.5	92.5	555	495h7	605	20	26	460
13	83 000	38k6	60	10	41	39	180g6	175g6	554	11±1.5	688	241	90	95	2.5	97.5	595	535h7	645	24	26	584
14	117 000	38k6	60	10	41	42	210g6	205g6	629	9	711	278	90	105	2.5	107.5	665	610h7	720	32	26	875
16	160 000	55m6	90	16	59	44	230g6	225g6	680	10	853	285	115	110	2.5	112.5	715	660h7	770	36	26	1115
17	202 000	55m6	90	16	59	50	250g6	245g6	775	10	879	294	115	120	2.5	122.5	830	750h7	895	24	33	1625
18	244 000	70m6	120	20	74.5	50	260g6	255g6	815	10	1013.5	303	140	120	2.5	122.5	865	785h7	930	32	33	2060
19	295 000	70m6	120	20	74.5	56	280g6	275g6	870	12	1036.5	327.5	140	135	2.5	137.5	915	840h7	980	36	33	2160
20	354 000	70m6	120	20	74.5	56	300g6	295g6	870	12	1036.5	327.5	140	135	2.5	137.5	915	840h7	980	36	33	2260
21	392 000	70m6	120	20	74.5	62	310g6	305g6	960	24	1093	354	140	152	2.5	154.5	1025	935h7	1115	32	39	2870
22	450 000	70m6	120	20	74.5	62	330g6	325g6	960	24	1093	354	140	152	2.5	154.5	1025	935h7	1115	32	39	3040
23	513 000	80m6	140	22	85	68	350g6	345g6	1056	28	1222	380	170	164	2.5	166.5	1120	1025h7	1210	36	39	3730
24	592 000	80m6	140	22	85	68	360g6	355g6	1056	28	1222	380	170	164	2.5	166.5	1120	1025h7	1210	36	39	4220
25	684 000	80m6	140	22	85	74	380g6	375g6	1150	29	1284	407	170	180	2.5	182.5	1220	1115h7	1320	36	45	5150
26	763 000	80m6	140	22	85	74	400g6	395g6	1150	29	1284	407	170	180	2.5	182.5	1220	1115h7	1320	36	45	5560
27	852 000	90m6	160	25	95	81	430g6	425g6	1248	31	1470	453	200	191	2.5	193.5	1345	1215h7	1460	32	52	6580
28	950 000	90m6	160	25	95	81	450g6	445g6	1248	31	1470	453	200	191	2.5	193.5	1345	1215h7	1460	32	52	7080
29	1 060 000	90m6	160	25	95	87	460g6	450g6	1355	34	1517	483	200	197.5	5	202.5	1450	1320h7	1565	36	52	8400
30	1 200 000	90m6	160	25	95	87	480g6	470g6	1355	34	1517	483	200	197.5	5	202.5	1450	1320h7	1565	36	52	8970
31	1 330 000	100m6	180	28	106	94	480g6	470g6	1443	36	1617	538	230	232	5	237.0	1545	1400h7	1665	32	62	11000
32	1 500 000	100m6	180	28	106	94	510g6	500g6	1443	36	1617	538	230	232	5	237.0	1545	1400h7	1665	32	62	11500
33	1 680 000	120m6	210	32	127	100	530g6	520g6	1536	36	1735	573	265	242	5	247.0	1635	1495h7	1755	36	62	13300
34	1 920 000	120m6	210	32	127	100	570g6	560g6	1536	36	1735	573	265	242	5	247.0	1635	1495h7	1755	36	62	14200
35-36																						

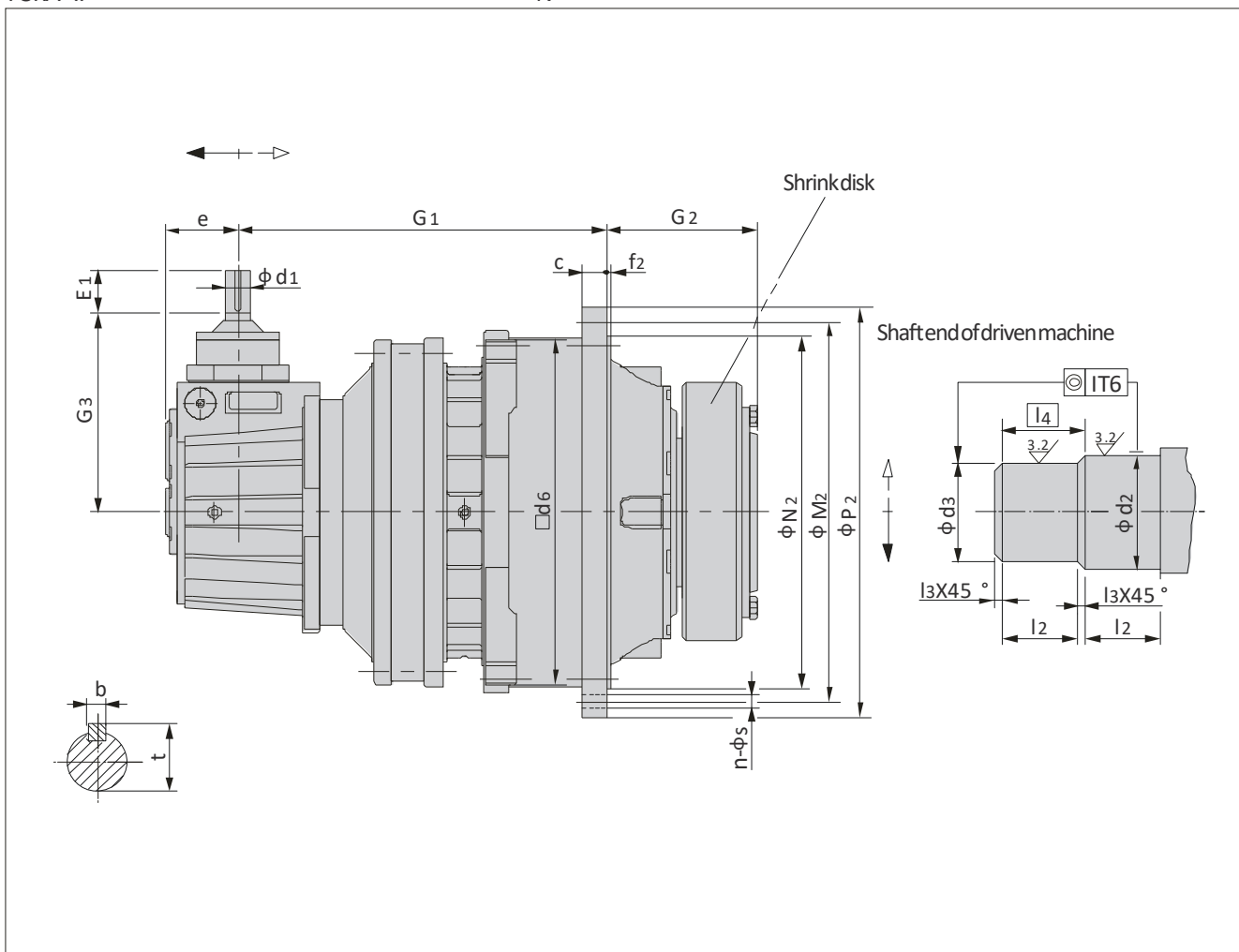
On request

Note: \*Weight without shrink disk and oil.



P3KA ..

$i_N = 560 \dots 4000$



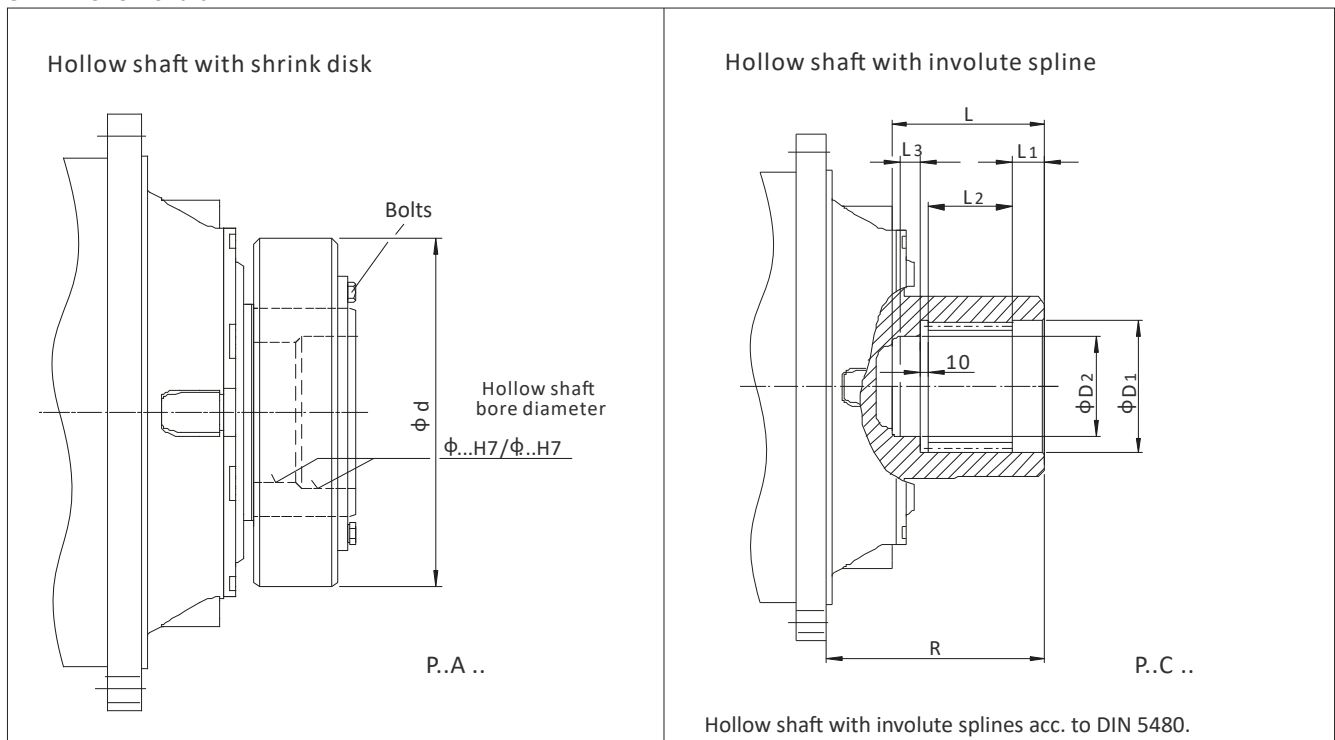
P3KA ... Size	Nominal output torque T <sub>2N</sub> (N · m)	Input shaft												c	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	e	f <sub>2</sub>	G <sub>1</sub>	G <sub>2</sub>	G <sub>3</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	M <sub>2</sub>	N <sub>2</sub>	P <sub>2</sub>	Flange bolts		Weight* (kg)
		i <sub>N</sub> ≤ 2000				i <sub>N</sub> ≥ 2240				n	s																				
		d <sub>1</sub>	E <sub>1</sub>	b	t	d <sub>1</sub>	E <sub>1</sub>	b	t																						
09	22 000	35k6	70	10	38	30k6	60	8	33	24	120h6	115h6	356	119	6±1.5	435	165	320	65	2.5	67.5	388	350h7	428	24	18	180				
10	31 000	35k6	70	10	38	30k6	60	8	33	28	130h6	125h6	400	119	8±1.5	455	174	320	70	2.5	72.5	436	394h7	472	28	18	240				
11	42 000	35k6	70	10	38	30k6	60	8	33	32	140h6	135h6	436	119	8±1.5	486	204	320	82.5	2.5	85	485	425h7	525	20	22	315				
12	60 000	35k6	70	10	38	30k6	60	8	33	34	160h6	155h6	510	119	9±1.5	500	224	320	90	2.5	92.5	555	495h7	605	20	26	470				
13	83 000	35k6	70	10	38	30k6	60	8	33	39	180g6	175g6	554	119	11±1.5	558	241	320	95	2.5	97.5	595	535h7	645	24	26	595				
14	117 000	35k6	70	10	38	30k6	60	8	33	42	210g6	205g6	629	119	9	581	278	320	105	2.5	107.5	665	610h7	720	32	26	890				
16	160 000	45k6	80	14	48.5	35k6	60	10	38	44	230g6	225g6	680	137	10	693	285	375	110	2.5	112.5	715	660h7	770	36	26	1137				
17	202 000	45k6	80	14	48.5	35k6	60	10	38	50	250g6	245g6	775	137	10	719	294	375	120	2.5	122.5	830	750h7	895	24	33	1660				
18	244 000	50k6	100	14	53.5	40k6	80	12	43	50	260g6	255g6	815	172	10	818	303	445	120	2.5	122.5	865	785h7	930	32	33	2100				
19	295 000	50k6	100	14	53.5	40k6	80	12	43	56	280g6	275g6	870	172	12	841	327.5	445	135	2.5	137.5	915	840h7	980	36	33	2200				
20	354 000	50k6	100	14	53.5	40k6	80	12	43	56	300g6	295g6	970	172	12	841	327.5	445	135	2.5	137.5	915	840h7	980	36	33	2300				
21	392 000	50k6	100	14	53.5	40k6	80	12	43	62	310g6	305g6	860	172	24	897.5	354	445	152	2.5	154.5	1025	935h7	1115	32	39	2930				
22	450 000	50k6	100	14	53.5	40k6	80	12	43	62	330g6	325g6	960	172	24	897.5	354	445	152	2.5	154.5	1025	935h7	1115	32	39	3100				
23	513 000	60m6	110	18	64	50k6	100	14	53.5	68	350g6	345g6	1056	194	28	1003	380	520	164	2.5	166.5	1120	1025h7	1210	36	39	3800				
24	592 000	60m6	110	18	64	50k6	100	14	53.5	68	360g6	355g6	1056	194	28	1003	380	520	164	2.5	166.5	1120	1025h7	1210	36	39	4300				
25	684 000	60m6	110	18	64	50k6	100	14	53.5	74	380g6	375g6	1150	194	29	1065	407	520	180	2.5	182.5	1220	1115h7	1320	36	45	5250				
26	763 000	60m6	110	18	64	50k6	100	14	53.5	74	400g6	395g6	1150	194	29	1065	407	520	180	2.5	182.5	1220	1115h7	1320	36	45	5660				
27	852 000	75m6	135	20	79.5	60m6	110	18	64	81	430g6	425g6	1248	240	31	1205.5	453	615	191	2.5	193.5	1345	1215h7	1460	32	52	6680				
28	950 000	75m6	135	20	79.5	60m6	110	18	64	81	450g6	445g6	1248	240	31	1205.5	453	615	191	2.5	193.5	1345	1215h7	1460	32	52	7180				
29	1 060 000	75m6	135	20	79.5	60m6	110	18	64	87	460g6	450g6	1355	240	34	1252.5	483	615	197.5	5	202.5	1450	1320h7	1565	36	52	8500				
30	1 200 000	75m6	135	20	79.5	60m6	110	18	64	87	480g6	470g6	1355	240	34	1252.5	483	615	197.5	5	202.5	1450	1320h7	1565	36	52	9070				

Note: \*Weight without shrink disk and oil.



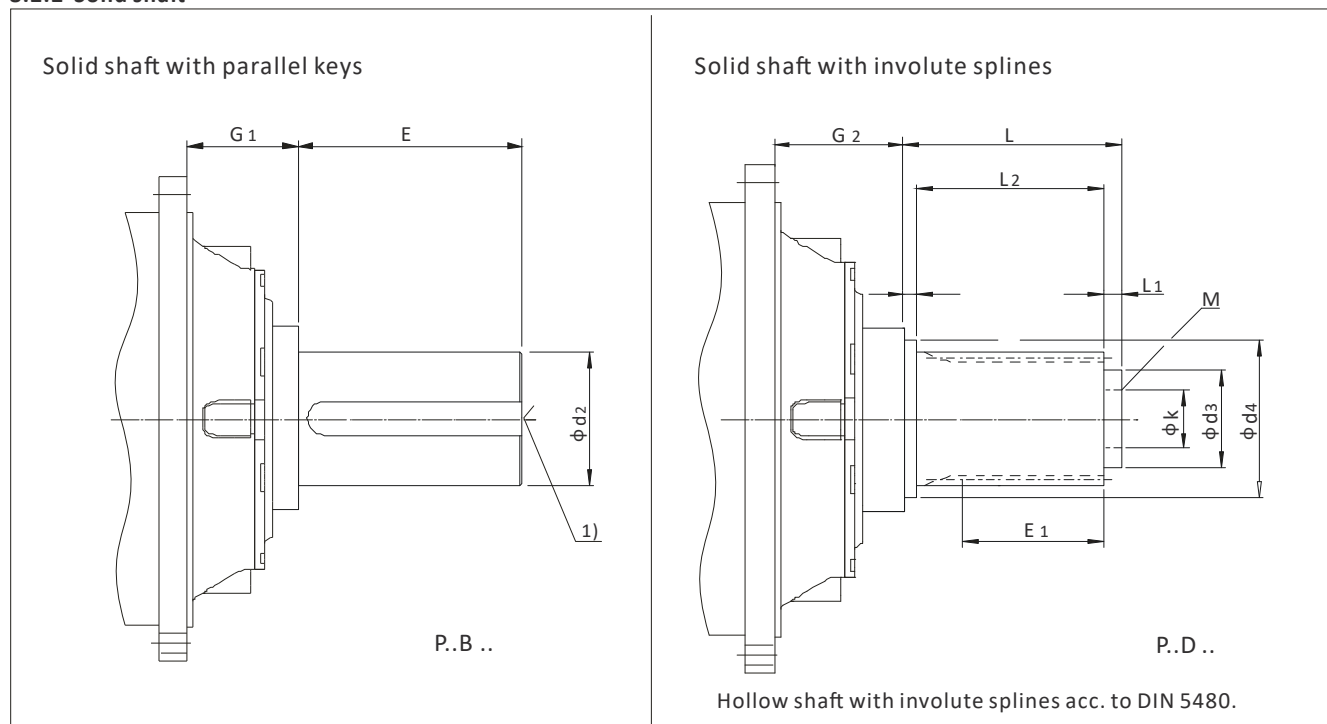
## 8.2 Dimensions of output shafts

### 8.2.1 Hollow shaft



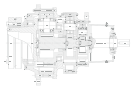
Size	Nominal output torque T <sub>2N</sub> (N · m)	Shrink disk				Hollow shaft with involute spline							
		Size	d	Bolts	Weight (kg)	Internal spline	D <sub>1</sub>	D <sub>2</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	R
09	22 000	SP2-155	263	M 12	15.2	N120 x 5 x 30 x 22 x 9H	122H7	107 H7	150	40	70	20	165
10	31 000	SP2- 165	290	M 16	21.5	N130 x 5 x 30 x 24 x 9H	132 H7	117 H7	160	40	80	20	174
11	42 000	SP2- 185	320	M 16	32.7	N140 x 5 x 30 x 26 x 9H	142 H7	125 H7	180	45	90	25	204
12	60 000	SP2- 220	370	M 16	53	N160 x 5 x 30 x 30 x 9H	162 H7	145 H7	190	45	100	25	223
13	83 000	SP2- 240	405	M 20	66	N180 x 5 x 30 x 34 x 9H	182 H7	165 H7	200	45	110	25	237
14	1 17 000	SP2- 280	460	M 20	103	N210 x 5 x 30 x 40 x 9H	212 H7	195 H7	215	45	125	25	264
16	160 000	SP2- 300	485	M 20	120	N240 x 8 x 30 x 28 x 9H	242 H7	220 H7	235	50	140	25	285
17	202 000	SP2- 320	520	M 20	138	N250 x 8 x 30 x 30 x 9H	252 H7	230 H7	250	50	150	30	290
18	244 000	SP2- 340	570	M 20	189	N260 x 8 x 30 x 31 x 9H	262 H7	240 H7	260	50	160	30	303
19	295 000	SP2- 360	590	M 20	207	N280 x 8 x 30 x 34 x 9H	282 H7	260 H7	270	50	170	30	327.5
20	354 000	SP2- 380	640	M 24	244	N300 x 8 x 30 x 36 x 9H	302 H7	280 H7	280	50	180	30	327.5
21	392 000	SP2- 390	650	M 24	249	N310 x 8 x 30 x 37 x 9H	312 H7	290 H7	310	60	190	40	354
22	450 000	SP2- 420	670	M 24	285	N330 x 8 x 30 x 40 x 9H	332 H7	310 H7	320	60	200	40	354
23	513 000	SP2- 440	720	M 24	357	N340 x 8 x 30 x 41 x 9H	342 H7	320 H7	320	60	200	40	348
24	592 000	SP2- 460	770	M 24	419	N360 x 8 x 30 x 44 x 9H	362 H7	340 H7	340	60	220	40	368
25	684 000	SP2- 480	800	M 24	492	N380 x 8 x 30 x 46 x 9H	382 H7	360 H7	350	60	230	40	372
26	763 000	SP2- 500	850	M 27	567	N400 x 8 x 30 x 48 x 9H	402 H7	380 H7	360	60	240	40	382
27	852 000	SP2- 530	910	M 27	744	N440 x 8 x 30 x 54 x 9H	442 H7	420 H7	370	60	250	40	423
28	950 000	SP2- 560	940	M 27	776	N450 x 8 x 30 x 55 x 9H	452 H7	430 H7	385	65	260	40	428
29	1 060 000	SP2- 560	940	M 27	736	N460 x 8 x 30 x 56 x 9H	462 H7	440 H7	400	65	270	45	433
30	1 200 000	SP2- 590	960	M 27	845	N480 x 8 x 30 x 58 x 9H	482 H7	460 H7	415	65	285	45	448
31	1 330 000	SP2- 590	960	M 27	835								
32	1 500 000	SP2- 620	1020	M 30	1064								
33	1 680 000	SP2- 660	1070	M 33	1178								
34	1 920 000	SP2- 700	1140	M 33	1345								
35	2 240 000	SP2- 750	1150	M 33	1346								
36	2 600 000	SP2- 800	1230	M 33	1646								

### 8.2.2 Solid shaft



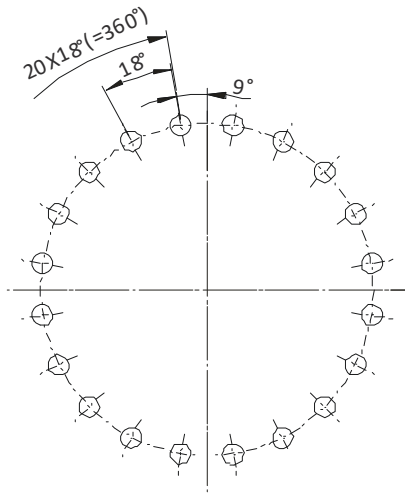
Size	Nominal output torque $T_{2N}$ (N·m)	Solid shaft with parallel key			Solid shaft with involute splines										
		d2	E	G1	External splines	d3	d4	E1	G2	k	L	L1	L2	L3	M
09	22 000	120n6	210	95	W130 x 5 x 30 x 24 x 8m	110k6	132k6	70	95	80	120	20	80	20	3 x M16 x 24
10	31 000	130n6	210	95	W140 x 5 x 30 x 26 x 8m	120k6	142k6	80	95	90	130	20	90	20	3 x M16 x 24
11	42 000	150n6	240	109	W160 x 5 x 30 x 30 x 8m	140k6	162k6	90	109	110	150	25	100	25	3 x M16 x 24
12	60 000	160n6	270	106	W180 x 5 x 30 x 34 x 8m	90k6	182k6	100	106	130	160	25	110	25	3 x M16 x 24
13	83 000	180n6	310	118	W200 x 5 x 30 x 38 x 8m	100k6	202k6	110	118	140	175	30	120	25	3 x M16 x 24
14	1 17 000	210n6	350	139	W220 x 5 x 30 x 42 x 8m	120k6	222k6	125	139	160	195	30	135	30	3 x M16 x 24
16	160 000	230n6	350	142	W250 x 8 x 30 x 30 x 8m	140k6	252k6	140	142	185	220	35	155	30	3 x M20 x 30
17	202 000	250n6	400	139	W260 x 8 x 30 x 31 x 8m	155k6	262k6	150	139	200	240	40	165	35	3 x M20 x 30
18	244 000	260n6	400	134	W280 x 8 x 30 x 34 x 8m	170k6	282k6	160	134	215	250	40	175	35	3 x M20 x 30
19	295 000	280n6	450	148.5	W300 x 8 x 30 x 36 x 8m	180k6	302k6	170	148.5	225	260	40	185	35	3 x M20 x 30
20	354 000	300n6	500	148.5	W310 x 8 x 30 x 37 x 8m	190k6	312k6	180	148.5	235	270	40	195	35	6 x M20 x 30
21	392 000	310n6	500	158	W320 x 8 x 30 x 38 x 8m	200k6	322k6	190	158	250	280	40	205	35	6 x M20 x 30
22	450 000	330n6	500	158	W340 x 8 x 30 x 41 x 8m	210k6	342k6	200	158	265	290	40	215	35	6 x M20 x 30
23	513 000	350n6	550	175	W360 x 8 x 30 x 44 x 8m	230k6	362k6	200	175	275	290	40	215	35	6 x M20 x 30
24	592 000	360n6	590	175	W380 x 8 x 30 x 46 x 8m	245k6	382k6	220	175	290	310	40	235	35	6 x M20 x 30
25	684 000	380n6	590	182	W400 x 8 x 30 x 48 x 8m	260k6	402k6	230	182	310	320	40	245	35	6 x M24 x 36
26	763 000	400n6	650	182	W420 x 8 x 30 x 51 x 8m	280k6	422k6	240	182	330	330	40	255	35	6 x M24 x 36
27	852 000	430n6	690	196.5	W440 x 8 x 30 x 54 x 8m	310k6	442k6	250	196.5	370	340	40	265	35	6 x M24 x 36
28	950 000	450n6	750	196.5	W450 x 8 x 30 x 55 x 8m	330k6	452k6	260	196.5	380	360	45	275	40	6 x M24 x 36
29	1 060 000	460n6	750	209	W460 x 8 x 30 x 56 x 8m	340k6	462k6	270	209	390	370	45	285	40	6 x M24 x 36
30	1 200 000	480n6	790	209	W480 x 8 x 30 x 58 x 8m	360k6	482k6	285	209	410	385	45	300	40	6 x M24 x 36
31	1 330 000	500n6	790	232											
32	1 500 000	510n6	850	232											
33	1 690 000	530n6	900	251											
34	1 920 000	570n6	950	251											
35	2 240 000	600n6	1000	276											
36	2 600 000	640n6	1000	276											

1) The central hole of shaft extension, see page 58, 59.

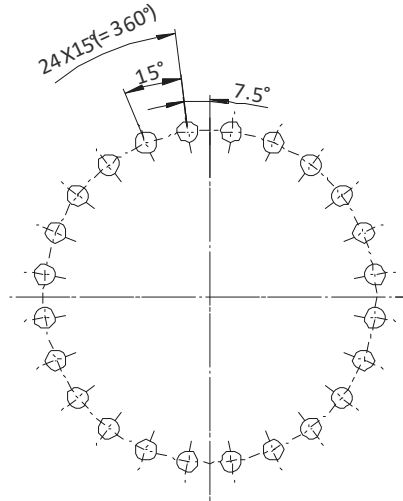


### 8.3 Hole pattern on output flanges

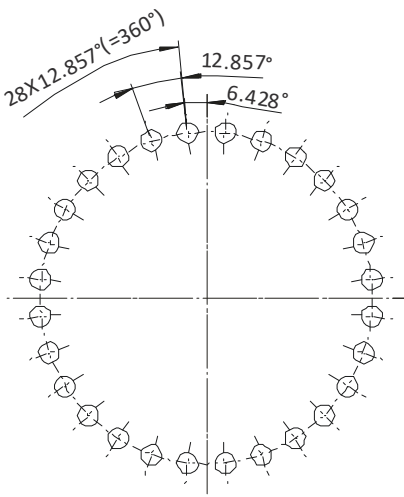
P



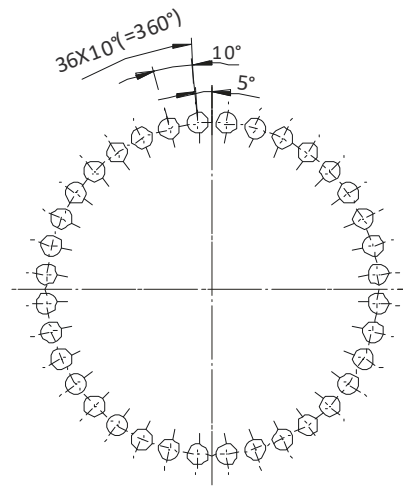
Size: 11,12



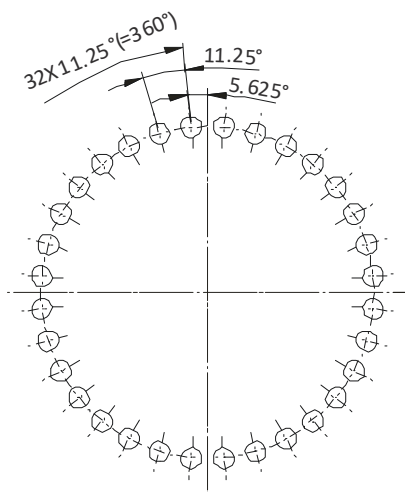
Size: 09,13,17



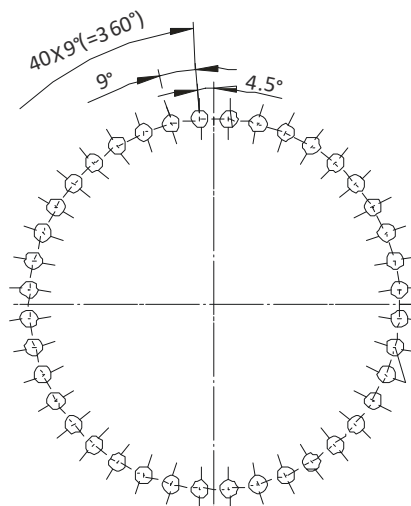
Size: 10



Size: 16, 19, 20, 23, 24, 25, 26, 29, 30, 33, 34



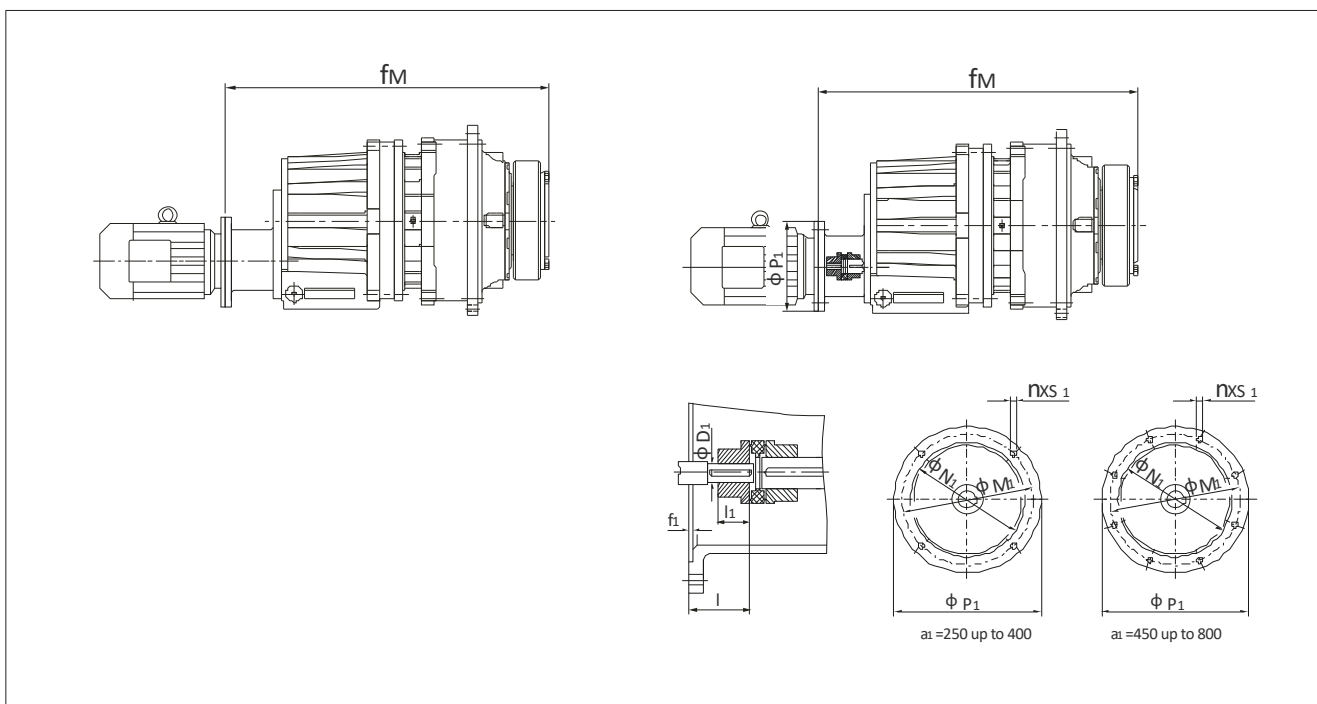
Size: 14, 18, 21, 22, 27, 28, 31, 32



Size: 35, 36

## 9 Flange Input

P2S..



P2S..	Motor (M)*	Flange (F)**	D1	f1	fm	l	l1	M1	n	N1	P1	s1
09	160	42	6	832	110	75	300	4	250h7	350	M16	
	180	48	6	832	110	75	300	4	250h7	350	M16	
10	160	42	6	861	110	75	300	4	250h7	350	M16	
	180	48	6	861	110	75	300	4	250h7	350	M16	
11	160	42	6	1010	110	75	300	4	250h7	350	M16	
	180	48	6	1010	110	75	300	4	250h7	350	M16	
	200	55	7	1010	110	75	350	4	300h7	400	M16	
12	160	42	6	1044	110	75	300	4	250h7	350	M16	
	180	48	6	1044	110	75	300	4	250h7	350	M16	
	200	55	7	1044	110	75	350	4	300h7	400	M16	
13	225	60	7	1247	140	90	400	8	350h7	450	M16	
	250	65	8	1247	140	90	500	8	450h7	550	M16	
14	225	60	7	1307	140	90	400	8	350h7	450	M16	
	250	65	8	1307	140	90	500	8	450h7	550	M16	
16	250	65	7	1452	140	100	500	8	450h7	550	M16	
	280	75	8	1452	140	100	500	8	450h7	550	M16	
17	250	65	7	1487	140	100	500	8	450h7	550	M16	
	280	75	8	1487	140	100	500	8	450h7	550	M16	
18	315	80	11	1680	140	110	600	8	550h7	660	M20	
19-20	315	80	11	1728	140	110	600	8	550h7	660	M20	

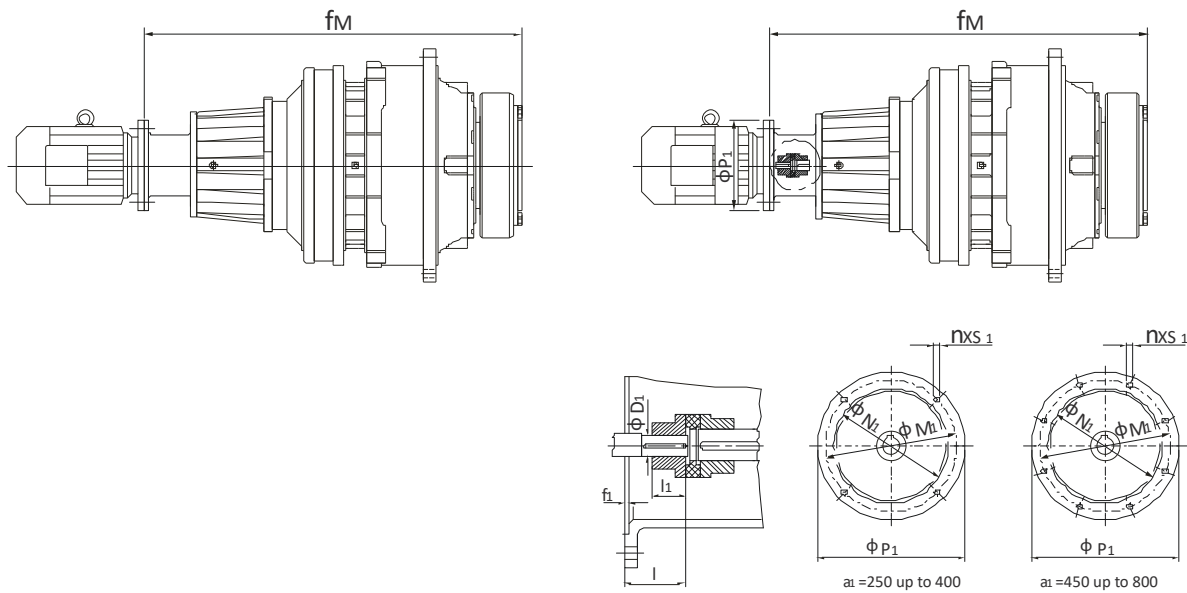
Note:

(1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.

(2) For combinations with torque arm on one side, please consult us.



P3N..



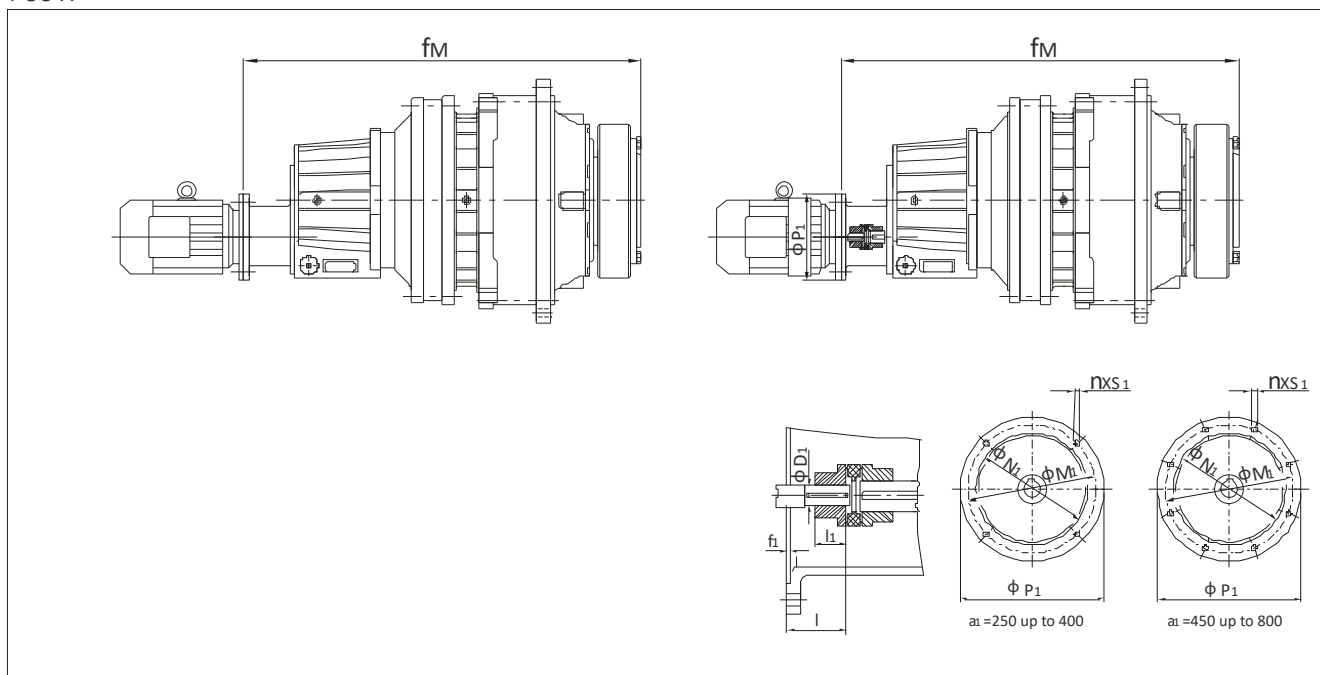
P3N..	Motor (M)*	Flange (F)**	D 1	f1	fM	l	l1	M1	n	N1	P1	s 1
09	132	38	5	912	80	56	265	4	230 h7	300	M12	
	160	42	6	960	110	80	300	4	250 h7	350	M16	
	180	48	6	960	110	80	300	4	250 h7	350	M16	
10	132	38	5	941	80	56	265	4	230 h7	300	M12	
	160	42	6	989	110	80	300	4	250 h7	350	M16	
	180	48	6	989	110	80	300	4	250 h7	350	M16	
11	132	38	5	1002	80	56	265	4	230 h7	300	M12	
	160	42	6	1050	110	80	300	4	250 h7	350	M16	
	180	48	6	1050	110	80	300	4	250 h7	350	M16	
12	132	38	5	1036	80	56	265	4	230 h7	300	M12	
	160	42	6	1084	110	80	300	4	250 h7	350	M16	
	180	48	6	1084	110	80	300	4	250 h7	350	M16	
13	160	42	6	1159	110	80	300	4	250 h7	350	M16	
	180	48	6	1159	110	80	300	4	250 h7	350	M16	
	200	55	7	1159	110	80	350	4	300 h7	400	M16	
14	160	42	6	1219	110	80	300	4	250 h7	350	M16	
	180	48	6	1219	110	80	300	4	250 h7	350	M16	
	200	55	7	1219	110	80	350	4	300 h7	400	M16	
16	200	55	7	1400	110	90	350	4	300 h7	400	M16	
	225	60	7	1430	140	90	400	8	350 h7	450	M16	
17	200	55	7	1435	110	90	350	4	300 h7	400	M16	
	225	60	7	1465	140	90	400	8	350 h7	450	M16	
18	250	65	7	1636.5	140	100	500	8	450 h7	550	M16	
	280	75	8	1636.5	140	100	500	8	450 h7	550	M16	
19,20	250	65	7	1685	140	100	500	8	450 h7	550	M16	
	280	75	8	1685	140	100	500	8	450 h7	550	M16	

Note:

(1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.

(2) For combinations with torque arm on one side, please consult us.

P3S..



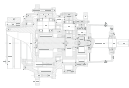
P

P3S..	Motor (M)*	Flange (F)**	D1	ft	fm	l	l1	M1	n	N1	P1	s1
09	100	28	5	865	60	45	215	4	180 h7	250	M12	
	112	28	5	865	60	45	215	4	180 h7	250	M12	
	132	38	5	896	80	70	265	4	230 h7	300	M12	
	160	42	6	931	110	75	300	4	250 h7	350	M16	
10	100	28	5	894	60	45	215	4	180 h7	250	M12	
	112	28	5	894	60	45	215	4	180 h7	250	M12	
	132	38	5	925	80	70	265	4	230 h7	300	M12	
	160	42	6	957	110	75	300	4	250 h7	350	M16	
11	112	28	5	955	60	45	215	4	180 h7	250	M12	
	132	38	5	986	80	70	265	4	230 h7	300	M12	
	160	42	6	1018	110	75	300	4	250 h7	350	M16	
	180	48	6	1018	110	75	300	4	250 h7	350	M16	
12	112	28	5	989	60	45	215	4	180 h7	250	M12	
	132	38	5	1020	80	70	265	4	230 h7	300	M12	
	160	42	6	1052	110	75	300	4	250 h7	350	M16	
	180	48	6	1052	110	75	300	4	250 h7	350	M16	
13	132	38	5	1095	80	70	265	4	230 h7	300	M12	
	160	42	6	1127	110	75	300	4	250 h7	350	M16	
	180	48	6	1127	110	75	300	4	250 h7	350	M16	
14	132	38	5	1155	80	70	265	4	230 h7	300	M12	
	160	42	6	1187	110	75	300	4	250 h7	350	M16	
	180	48	6	1187	110	75	300	4	250 h7	350	M16	
16	160	42	6	1365	110	75	300	4	250 h7	350	M16	
	180	48	6	1365	110	75	300	4	250 h7	350	M16	
	200	55	7	1365	110	75	350	4	300 h7	400	M16	
17	160	42	6	1390	110	75	300	4	250 h7	350	M16	
	180	48	6	1390	110	75	300	4	250 h7	350	M16	
	200	55	7	1400	110	75	350	4	300 h7	400	M16	
18	180	48	6	1558.5	110	90	300	4	250 h7	350	M16	
	200	55	6	1570.5	110	90	350	4	300 h7	400	M16	
	225	60	7	1608.5	110	90	400	8	350 h7	450	M16	
	250	65	7	1608.5	110	90	500	8	450 h7	550	M16	
19, 20	180	48	6	1606	110	90	300	4	250 h7	350	M16	
	200	55	6	1618	110	90	350	4	300 h7	400	M16	
	225	60	7	1656	110	90	400	8	350 h7	450	M16	
	250	65	7	1656	110	90	500	8	450 h7	550	M16	

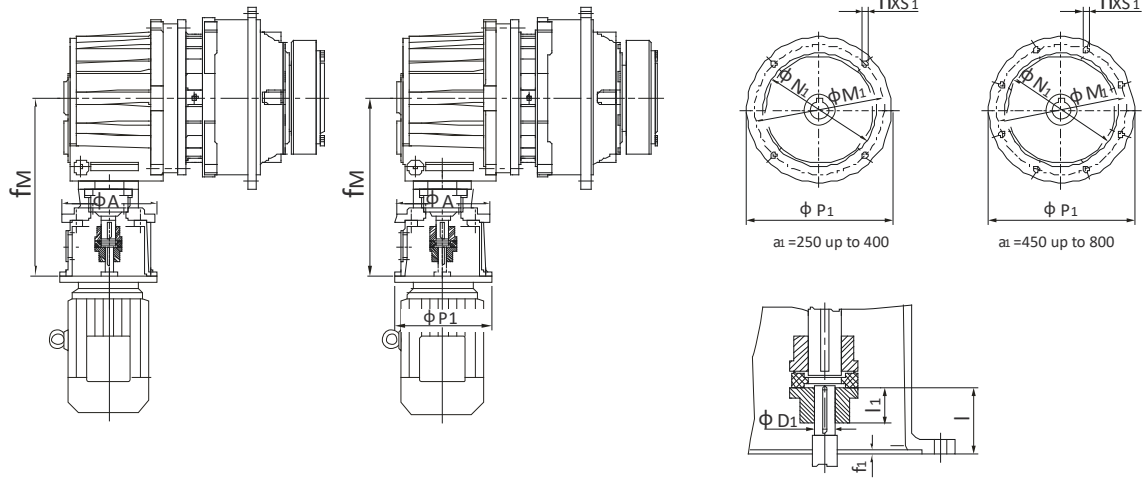
Note:

(1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.

(2) For combinations with torque arm on one side, please consult us.



P2K..



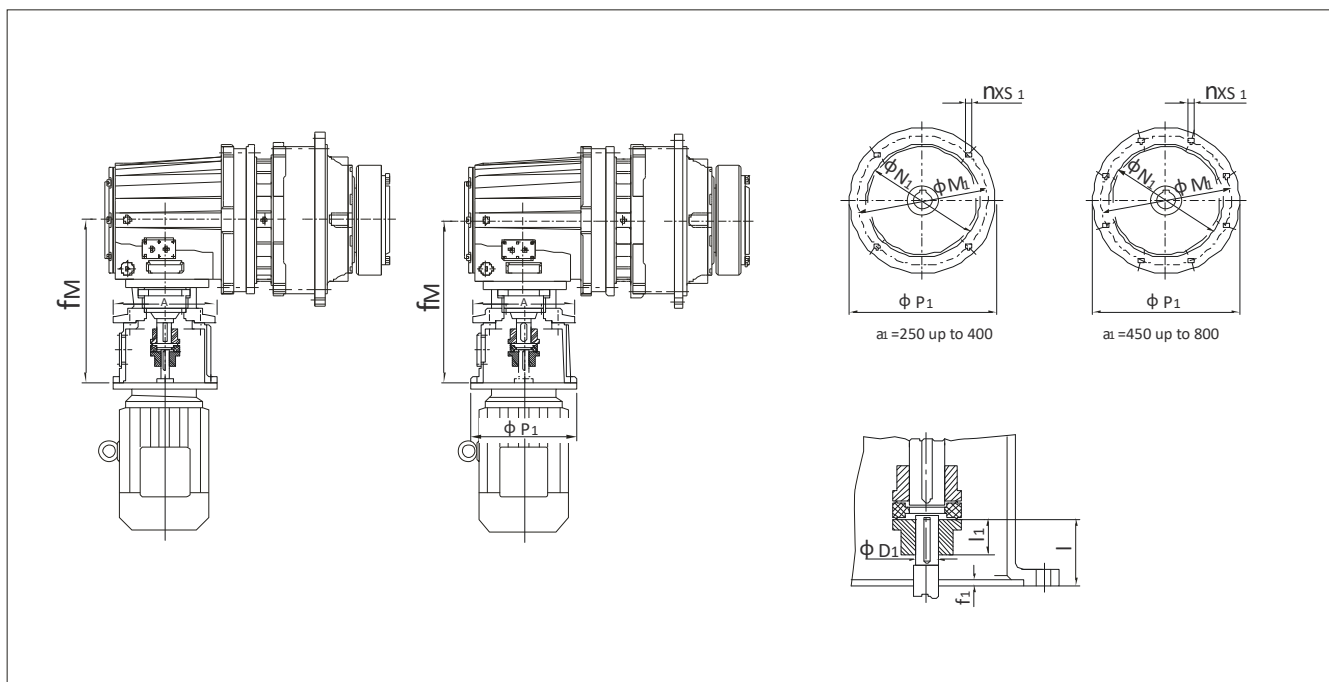
P2K..	Motor (M)*	Flange (F)**	A	D 1	f1	fM	l	l1	M1	n	N1	P1	s1
09, 10	132		250	38	5	486	80	70	265	4	230 h7	300	M12
	160		250	42	6	528	110	75	300	4	250 h7	350	M16
11, 12	160		300	42	6	593	110	75	300	4	250 h7	350	M16
	180		350	48	6	593	110	75	300	4	250 h7	350	M16
	200		350	55	7	593	110	75	350	4	300 h7	400	M16
13,14	160		440	42	6	663	110	75	300	4	250 h7	350	M16
	180		440	48	6	663	110	75	300	4	250 h7	350	M16
	200		440	55	7	663	110	75	350	4	300 h7	400	M16
	225		440	60	7	695	140	80	400	8	350 h7	450	M16
	250		440	65	8	707	140	85	500	8	450 h7	550	M16
16, 17	200		440	55	7	770	110	80	350	4	300 h7	400	M16
	225		440	60	7	800	140	80	400	8	350 h7	450	M16
	250		440	65	8	812	140	85	500	8	450 h7	550	M16
	280		440	75	8	812	140	85	500	8	450 h7	550	M16
18, 19, 20	225		440	60	7	932	140	80	400	8	350 h7	450	M16
	250		440	65	8	932	140	85	500	8	450 h7	550	M16
	280		440	75	8	932	140	85	500	8	450 h7	550	M16
	315 *		440	80	11	967	170	100	600	8	550 h7	660	M20

Note:

- (1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.
- (2) For combinations with torque arm on one side, please consult us.



P2L..



P2L..	Motor (M)*	Flange (F)**	A	D1	f1	fM	l1	l	M1	n	N1	P1	s1
09,10	160		440	42	6	543	75	110	300	4	250 h7	350	M16
	180		440	48	6	543	75	110	300	4	250 h7	350	M16
	200		440	55	7	543	75	110	350	4	300 h7	400	M16
	225		440	60	7	575	80	140	400	8	350 h7	450	M16
11,12	200		440	55	7	600	75	110	350	4	300 h7	400	M16
	225		440	60	7	630	80	140	400	8	350 h7	450	M16
	250		440	65	8	642	85	140	500	8	450 h7	550	M16
13,14	225		440	60	7	732	85	140	400	8	350 h7	450	M16
	250		440	65	8	732	85	140	500	8	450 h7	550	M16
	280		440	75	8	732	85	140	500	8	450 h7	550	M16
16,17	280		600	75	8	842	100	140	500	8	450 h7	550	M16
	315*		650	80	11	872	100	170	600	8	550 h7	660	M20
18,19,20	315*		650	80	11	987	100	170	600	8	550 h7	660	M20
21,22,23,24	315		650	80	11	1122	125	170	600	8	550 h7	660	M20
	355		650	95	11	1122	125	170	740	8	680 h7	800	M20

Note:

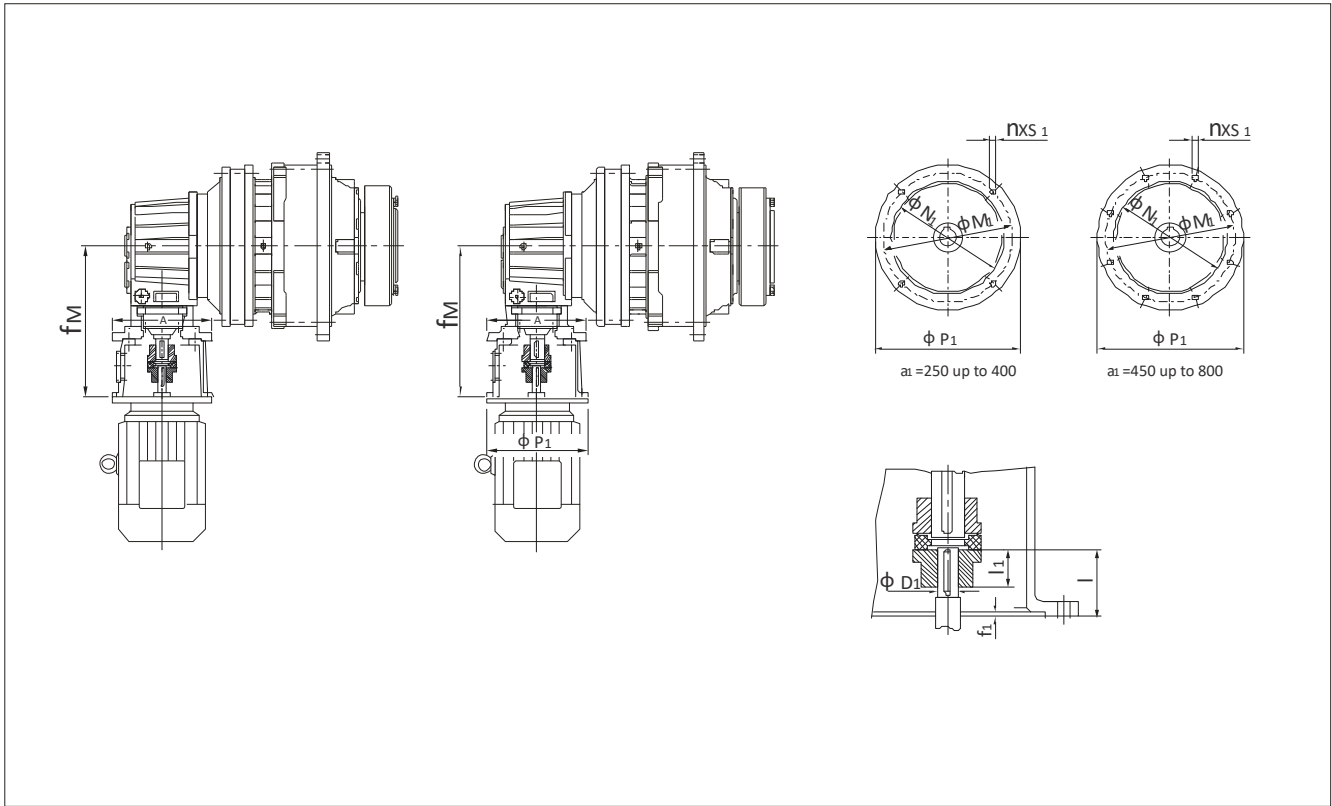
(1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.

(2) For combinations with torque arm on one side, please consult us.



P

P3K..



P3K..	电机 Motor (M)*	法兰 Flange (F)**	A	D1	f1	fM	l	l1	M1	N1	n	P1	s1
09,10,11 12,13,14	132		250	38	5	486	80	70	265	230 h7	4	300	M12
	160		250	42	6	528	110	75	300	250 h7	4	350	M16
	180		250	48	6	528	110	75	300	250 h7	4	350	M16
16, 17	160		350	42	6	593	110	75	300	250 h7	4	350	M16
	180		350	40	6	593	110	75	300	250 h7	4	350	M16
	200		350	55	7	593	110	75	350	300 h7	4	400	M16
18,19,20 21,22	160		440	42	6	663	110	75	300	250 h7	4	350	M16
	180		440	48	6	663	110	75	300	250 h7	4	350	M16
	200		440	55	7	663	110	75	350	300 h7	4	400	M16
	225		440	60	7	695	140	80	400	350 h7	8	450	M16
	250		440	65	8	707	140	85	500	450 h7	8	550	M16
23,24 25,26	200		440	55	6	770	110	80	350	300 h7	4	400	M16
	225		440	60	7	800	140	80	400	350 h7	8	450	M16
	250		440	62	7	812	140	85	500	450 h7	8	550	M16
	280		440	75	8	812	140	85	500	450 h7	8	550	M16
27,28 29,30	225		440	60	7	932	140	85	400	350 h7	8	450	M16
	250		440	65	7	932	140	85	500	450 h7	8	550	M16
	280		440	75	8	932	140	85	500	450 h7	8	550	M16
	315 *		440	80	11	967	170	100	600	550 h7	8	660	M20

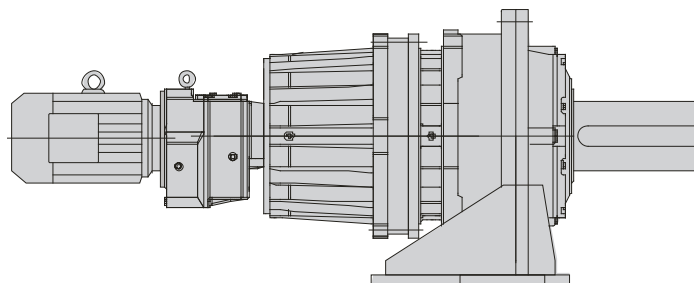
Note:

(1) the power of the coupled motor in selection must be sufficient for the transmission capacity requirements; the flanges listed in the table are standard. Consult us if any deviation exists.

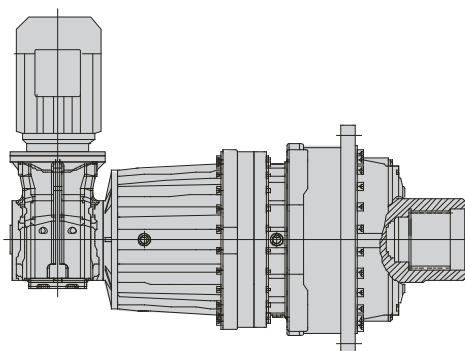
(2) For combinations with torque arm on one side, please consult us.

# 10 Combi-type

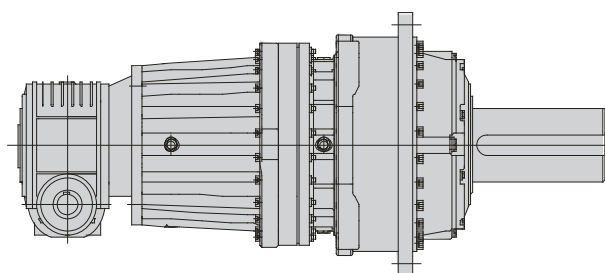
P



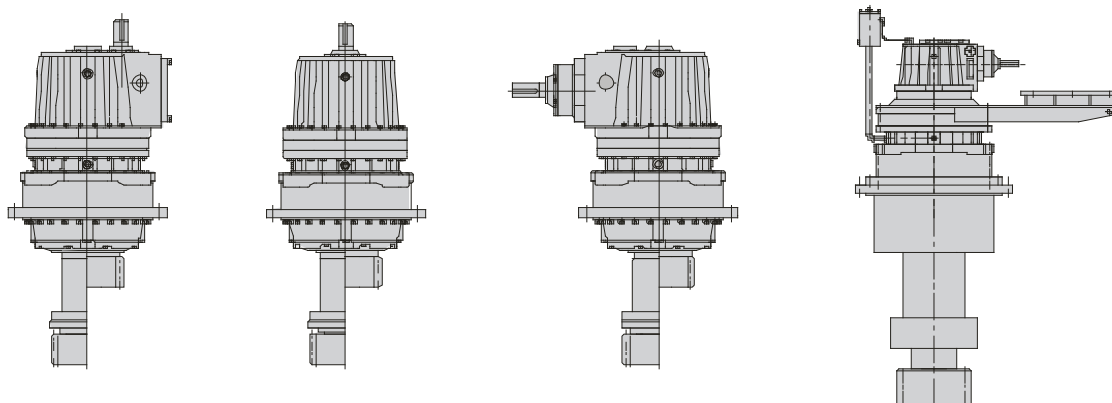
P./CR combination upon request.



P./K combination upon request.



P./RV combination upon request.

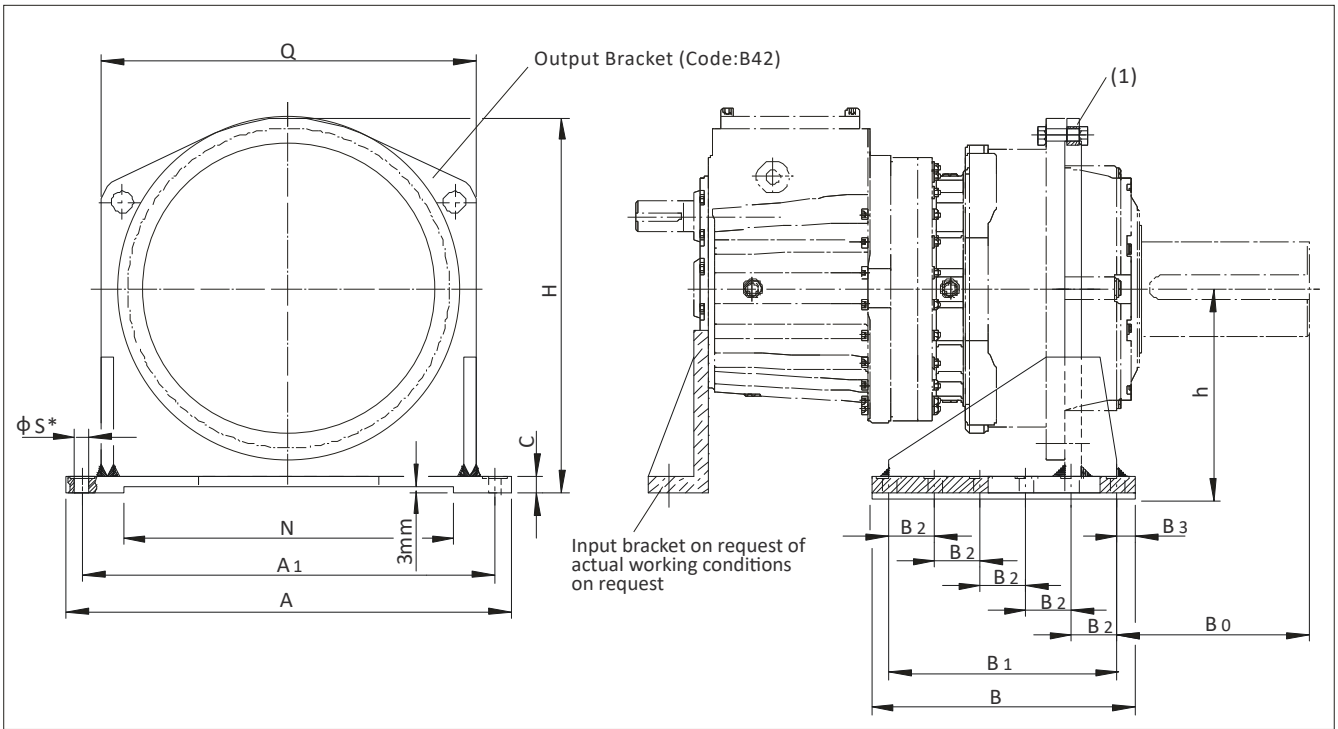


P./TR combination(Slewing Gears) upon request.



# 11 Accesories

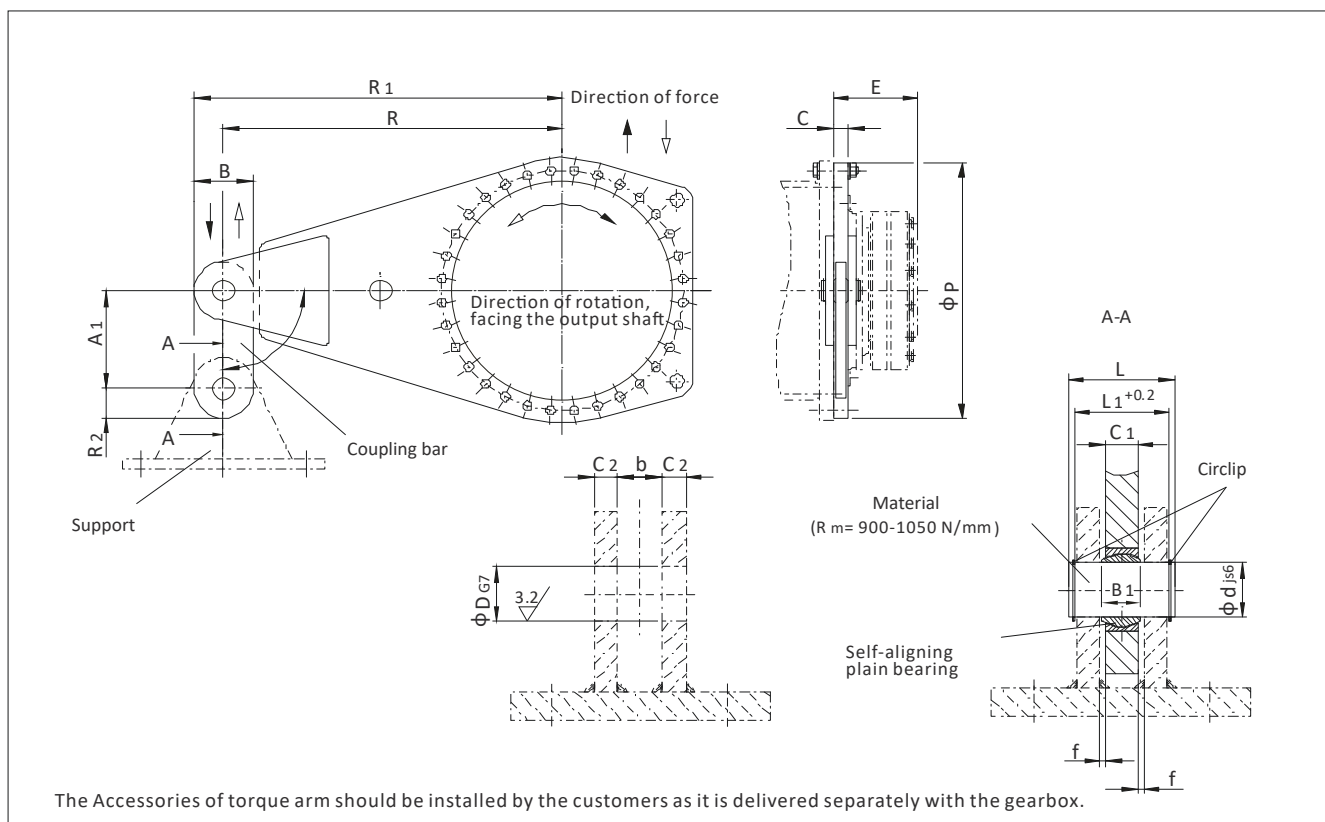
## 11.1 Output Bracket(Code:B42)



Size	A	A1	B	B0	B1	B2	B3	C	h	H	N	Q	Hole		Weight (kg)
													S *	No.	
09	580	520	330	240	260	130	35	20	260	480	380	450	26	2 x 3	56
10	630	570	360	240	290	145	35	25	280	525	430	500	26	2 x 3	82
11	680	620	400	274	330	110	35	30	315	585	480	550	26	2 x 4	122
12	760	700	450	292	380	95	35	30	360	670	560	630	26	2 x 5	157
13	820	750	490	334	420	105	35	35	390	720	610	680	26	2 x 5	213
14	920	840	560	380	480	120	40	35	430	800	680	760	33	2 x 5	270
16	980	900	580	374	500	125	40	40	470	865	700	820	33	2 x 5	350
17	1130	1040	670	405	580	145	45	45	540	998	810	940	39	2 x 5	520
18	1180	1080	720	385	620	155	50	45	560	1035	830	980	39	2 x 5	580
19	1260	1160	760	450	640	160	60	50	590	1090	880	1050	45	2 x 5	720
20	1260	1160	760	500	640	160	60	50	590	1090	880	1050	45	2 x 5	720
21	1440	1320	840	513	700	175	70	55	660	1228	1020	1170	52	2 x 5	940
22	1440	1320	840	513	700	175	70	55	660	1228	1020	1170	52	2 x 5	940
23	1540	1420	910	567	750	150	80	60	730	1345	1100	1270	52	2 x 6	1275
24	1540	1420	910	607	750	150	80	60	730	1345	1100	1270	52	2 x 6	1275
25	1700	1550	1000	574	860	215	70	65	795	1465	1240	1400	62	2 x 5	1670
26	1700	1550	1000	634	860	215	70	65	795	1465	1240	1400	62	2 x 5	1670
27	1850	1700	1100	664	950	190	75	70	870	1610	1370	1550	62	2 x 6	2170
28	1850	1700	1100	724	950	190	75	70	870	1610	1370	1550	62	2 x 6	2170
29	1980	1820	1180	731	1000	250	90	75	925	1715	1460	1640	70	2 x 5	2650
30	1980	1820	1180	771	1000	250	90	75	925	1715	1460	1640	70	2 x 5	2650
31	2150	1950	1300	773	1100	220	100	75	1000	1845	1570	1750	70	2 x 6	3100
32	2150	1950	1300	833	1100	220	100	75	1000	1845	1570	1750	70	2 x 6	3100
33	2230	2050	1350	883	1150	230	100	85	1050	1940	1630	1850	78	2 x 6	3850
34	2230	2050	1350	933	1150	230	100	85	1050	1940	1630	1850	78	2 x 6	3850
35	On request														
36	On request														

\* (1)See P49

## 11.2 Torque arm on one side (code: T71)

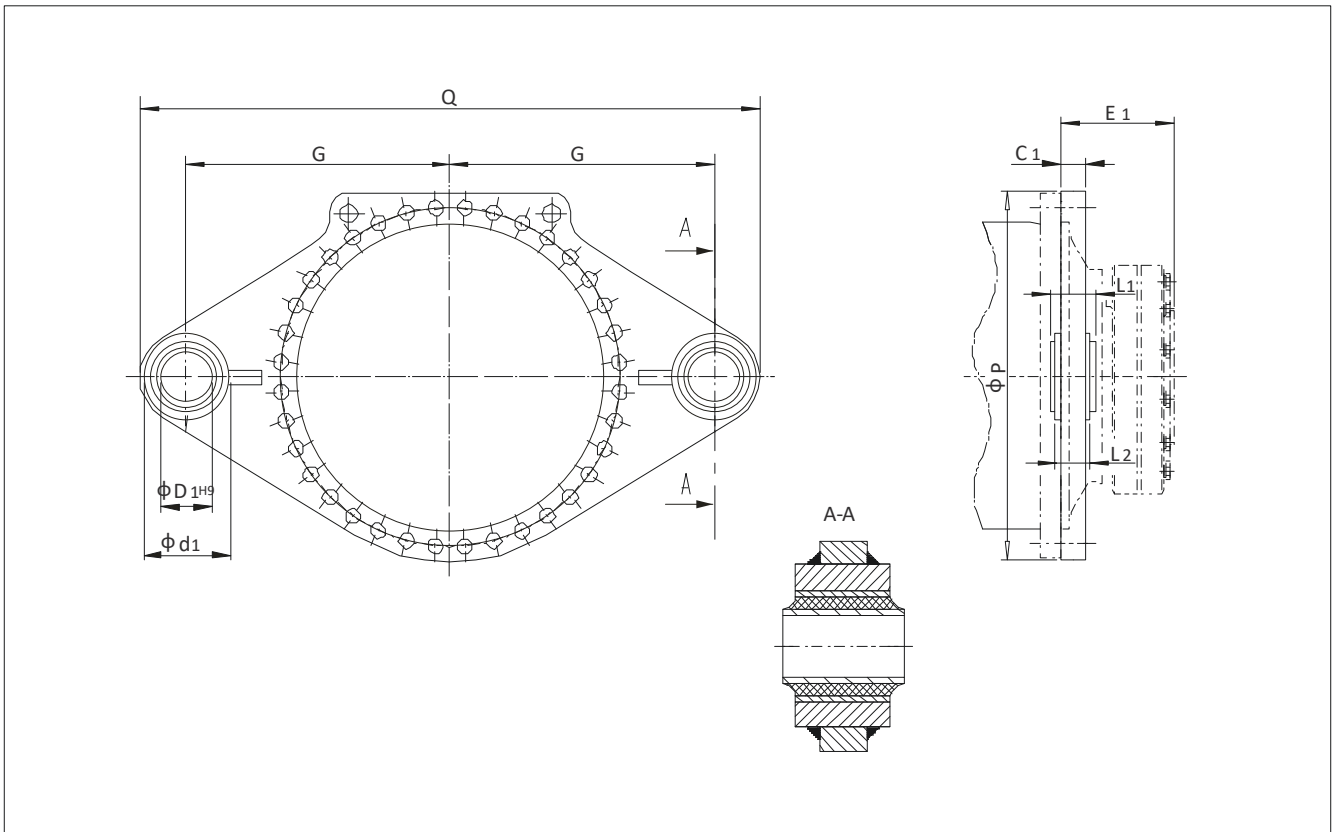


Size	T <sub>2N</sub> (N·m)	A1	b	B	B1	C	C1	C2 min.	d	D	E	f	L1	L	P	R	R1	R2	Weight (Kg)
09	22 000	140	25	100	22-0.12	25	18	15	30	165	3.5	59.5	70	440	555	605	50	38	
10	31 000	140	30	105	25-0.12	30	20	15	35	174	5	64.5	75	485	615	667.5	52.5	51	
11	42 000	160	30	130	28-0.12	30	22	18	40	204	4	70.5	85	540	685	750	65	82	
12	60 000	160	30	130	28-0.12	30	22	18	40	224	4	70.5	85	620	785	850	65	85	
13	83 000	180	35	145	32-0.12	35	25	20	45	241	5	79.5	95	665	840	912.5	72.5	113	
14	117 000	200	40	145	35-0.12	40	30	20	50	278	5	85	100	740	940	1012.5	72.5	145	
16	160 000	240	50	155	44-0.15	50	35	25	60	285	7.5	105	120	790	1000	1077.5	77.5	206	
17	202 000	240	50	170	44-0.15	50	35	25	60	294	7.5	105	120	915	1165	1250	85	274	
18	244 000	280	55	210	49-0.15	55	40	30	70	303	7.5	120	135	955	1210	1315	105	365	
19	295 000	320	60	210	55-0.15	60	45	30	80	327.5	7.5	125	145	1005	1300	1405	105	423	
20	354 000	320	60	210	55-0.15	60	45	30	80	327.5	7.5	125	145	1005	1300	1405	105	423	
21	392 000	320	60	225	55-0.15	60	45	30	80	354	7.5	125	145	1140	1450	1562.5	113	530	
22	450 000	320	60	225	55-0.15	60	45	30	80	354	7.5	125	145	1140	1450	1562.5	113	530	
23	513 000	360	65	250	60-0.20	65	50	30	90	380	7.5	130	150	1235	1575	1700	125	665	
24	592 000	360	65	250	60-0.20	65	50	30	90	380	7.5	130	150	1235	1575	1700	125	665	
25	684 000	400	75	275	70-0.20	75	55	35	100	407	10	150	170	1350	1720	1857.5	138	940	
26	763 000	400	75	275	70-0.20	75	55	35	100	407	10	150	170	1350	1720	1857.5	138	940	
27	852 000	440	75	300	70-0.20	75	55	35	110	453	10	150	175	1490	1900	2050	150	1120	
28	950 000	440	75	300	70-0.20	75	55	35	110	453	10	150	175	1490	1900	2050	150	1120	
29	1 060 000	440	75	315	70-0.20	75	55	35	110	483	10	150	175	1600	2035	2192.5	158	1260	
30	1 200 000	440	75	315	70-0.20	75	55	35	110	483	10	150	175	1600	2035	2192.5	158	1260	
31 - 36	On request																		



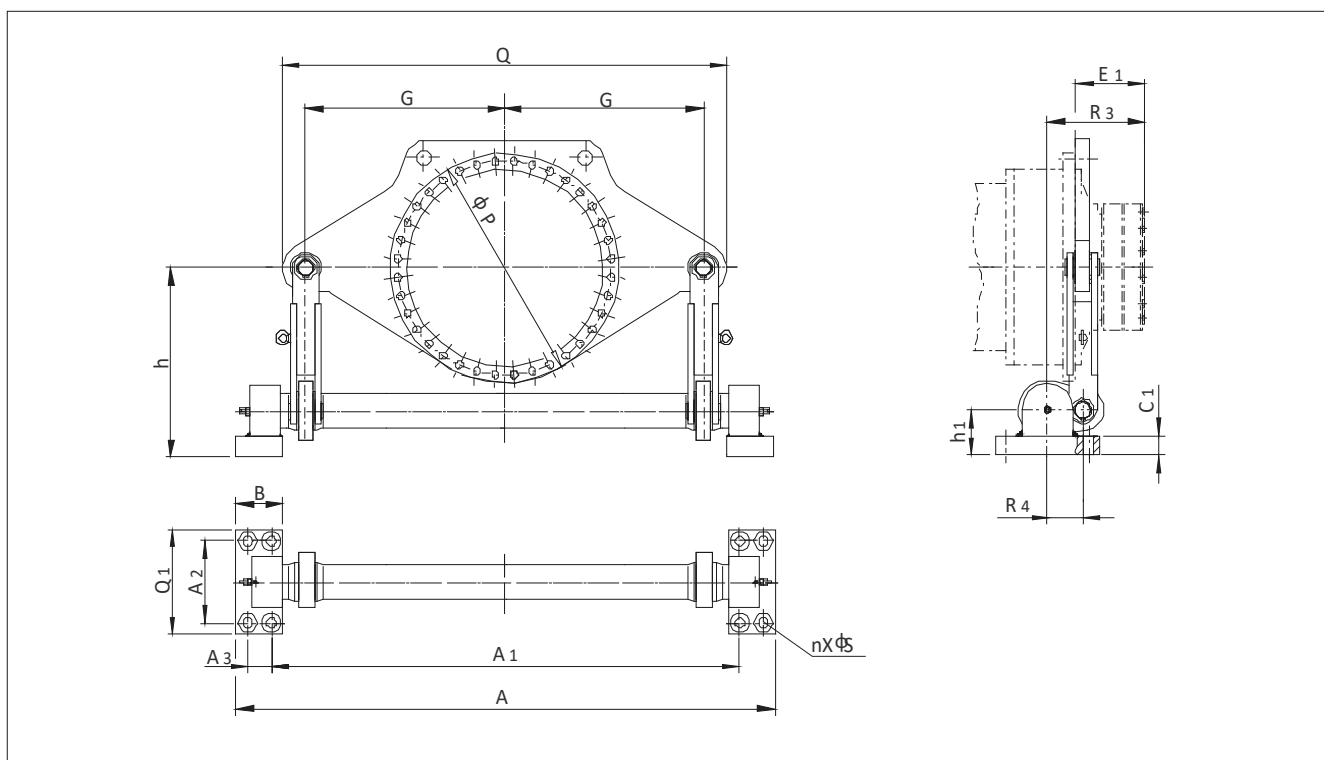
### 11.3 Torque arm on two sides with rubber bushes (code: T72)

P



Size	T <sub>2N</sub> (N·m)	C1	d1	D1	E1	G	L1	L2	P	Q	Weight (kg)
09	22 000	30	115	50h8	165	500	110	100	440	1140	58
10	31 000	30	115	50 h8	174	550	110	100	485	1240	72
11	42 000	30	180	100h8	204	575	120	110	540	1355	95
12	60 000	35	180	100h8	224	625	120	110	620	1455	120
13	83 000	35	210	110h8	241	600	180	170	665	1435	145
14	117 000	40	210	110h8	278	650	180	170	740	1535	170
16	160 000	40	240	124h8	285	700	230	220	790	1670	230
17	202 000	40	240	124h8	294	750	230	220	915	1770	300
18	244 000	50	240	124h8	303	900	230	220	955	2070	400

## 11.4 Torsion shaft support (code: B41)

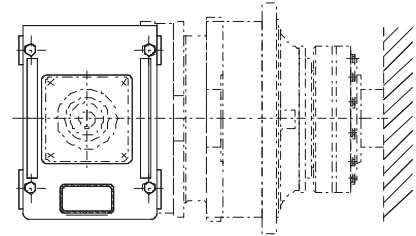
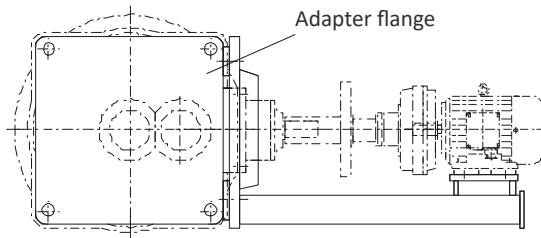


Size	T <sub>2N</sub> (N·m)	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	B	C <sub>1</sub>	E <sub>1</sub>	G	h	h <sub>1</sub>	n	P	Q	Q <sub>1</sub>	R <sub>3</sub>	R <sub>4</sub>	S	Weight (kg)
09	22 000	1619	1414	250	65	140	48.5	165	550	560	120	8	610	1230	330	247.5	105	33	300
10	31 000	1619	1414	250	65	140	48.5	174	550	560	120	8	610	1230	330	256.5	105	33	300
11	42 000	1619	1414	250	65	140	48.5	204	550	560	120	8	610	1230	330	286.5	105	33	300
12	60 000	1619	1414	250	65	140	48.5	224	550	560	120	8	610	1230	330	306.5	105	33	300
13	83 000	1837	1604	280	75	158	68.5	241	650	620	155	8	775	1450	380	358.5	145	39	600
14	1 17 000	1837	1604	280	75	158	68.5	278	650	620	155	8	775	1450	380	395.5	145	39	600
16	160 000	1837	1604	280	75	158	68.5	285	650	620	155	8	775	1450	380	402.5	145	39	600
17	202 000	2041	1777	315	84	180	73.5	294	750	700	170	8	955	1680	400	431.5	165	39	900
18	244 000	2041	1777	315	84	180	73.5	303	750	700	170	8	955	1680	400	440.5	165	39	900
19	295 000	2300	2000	350	100	200	83.5	328	850	860	195	8	985	1900	450	470.5	175	45	1400
20	354 000	2300	2000	350	100	200	83.5	328	850	860	195	8	985	1900	450	470.5	175	45	1400
21	392 000	2591	2254	400	113	225	88.5	354	950	900	210	8	1120	2110	530	506.5	190	45	1700
22	450 000	2591	2254	400	113	225	88.5	354	950	900	210	8	1120	2110	530	506.5	190	45	1700
23	513 000	2871	2496	450	125	250	98.5	380	1063	1060	235	8	1215	2385	590	562.5	220	45	2150
24	592 000	2871	2496	450	125	250	98.5	380	1063	1060	235	8	1215	2385	590	562.5	220	45	2150
25	684 000	3236	2816	500	140	280	118.5	407	1150	1200	275	8	1350	2600	650	614.5	245	52	2700
26	763 000	3236	2816	500	140	280	118.5	407	1150	1200	275	8	1350	2600	650	614.5	245	52	2700
27	852 000	3327	2887	530	150	290	128.5	453	1250	1250	300	8	1490	2820	700	670.5	255	52	3400
28	950 000	3327	2887	530	150	290	128.5	453	1250	1250	300	8	1490	2820	700	670.5	255	52	3400
29	1 060 000	3673	3200	560	158	315	128.5	483	1360	1350	300	8	1565	3080	750	718	280	62	4350
30	1 200 000	3673	3200	560	158	315	128.5	483	1360	1350	300	8	1565	3080	750	718	280	62	4350
31	1 330 000	3906	3408	590	168	330	148.5	538	1450	1400	340	8	1695	3260	790	788	300	70	5500
32	1 500 000	3906	3408	590	168	330	148.5	538	1450	1400	340	8	1695	3260	790	788	300	70	5500
33	1 680 000	4116	3588	620	178	350	158.5	573	1550	1500	375	8	1785	3520	840	840.5	320	70	7000
34	1 920 000	4116	3588	620	178	350	158.5	573	1550	1500	375	8	1785	3520	840	840.5	320	70	7000
35-36		On request																	

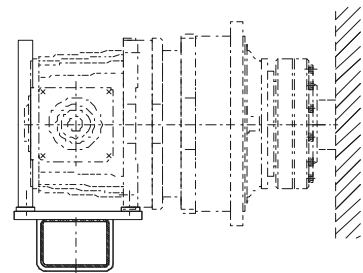
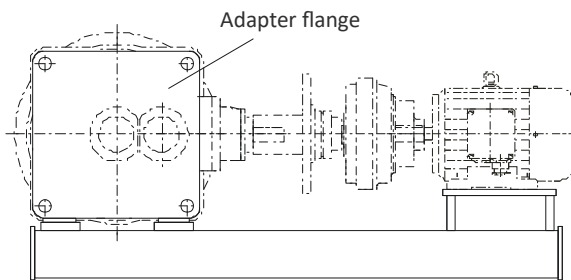


## 11.5 Motor Bracket

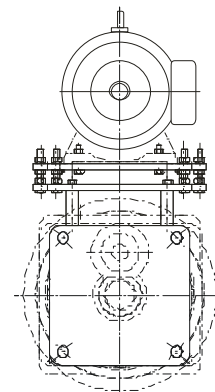
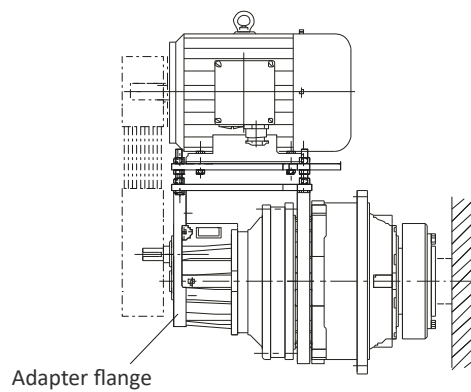
Motor bracket for P.K., P.L.. vertical mounting(please consult)



Motor bracket for P.K., P.L.. horizontal mounting(please consult)



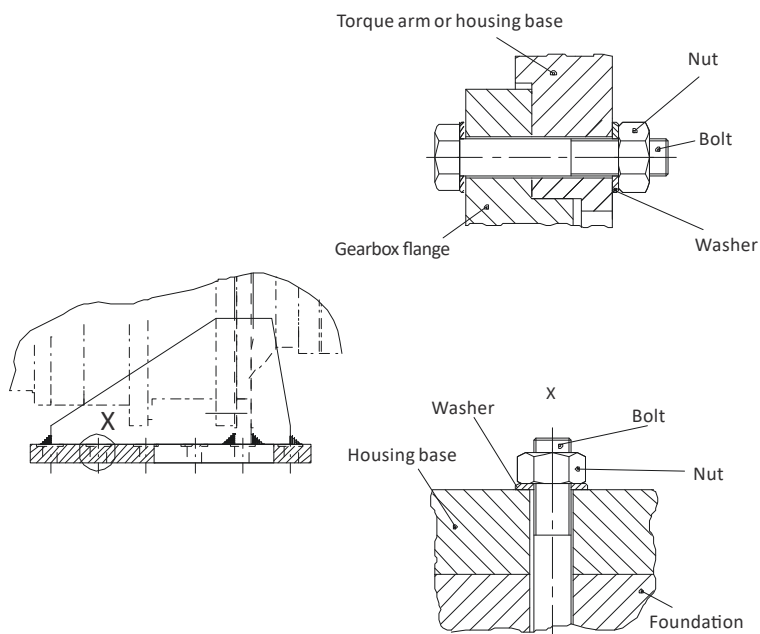
Brackets for horizontal motor(please consult)





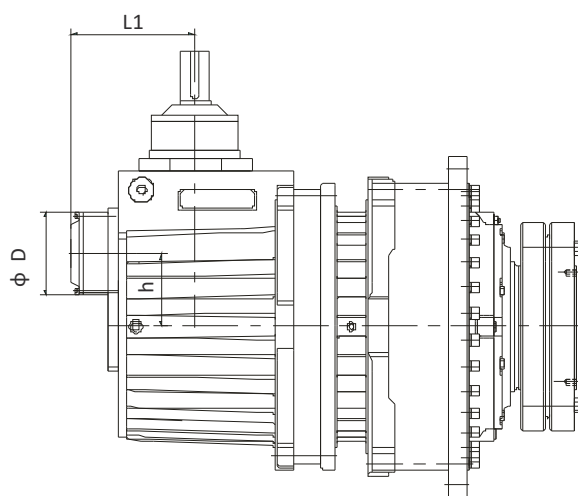
## 11.6 Tightening torques

Tightening torques for flange connections and foot-mounted design.



Size	Flange		Base	
	Bolt (10.9)	Tightening torque (N · m)	Bolt (8.8)	Tightening torque (N · m)
09	M 16	295	M 24	710
10	M 16	295	M 24	710
11	M 20	580	M 24	710
12	M 24	1000	M 24	710
13	M 24	1000	M 24	710
14	M 24	1000	M 30	1450
16	M 24	1000	M 30	1450
17	M 30	2000	M 36	2530
18	M 30	2000	M 36	2530
19/20	M 30	2000	M 42	4070
21/22	M 36	3560	M 48	6140
23/24	M 36	3560	M 48	6140
25/26	M 42	5720	M 56	9840
27/28	M 48	8640	M 56	9840
29/30	M 48	8640	M 64	14300
31/32	M 56	13850	M 64	14300
33/34	M 56	13850	M 64	14300
35/36	M 56	13850	M 72X6	20800

## 11.7 Backstop (Code B:11)



Size	L <sub>1</sub>	D	h
P2K09	185	125	90
P2K10	185	125	90
P2K11	205	150	115
P2K12	205	150	115
P2K13	265	175	140
P2K14	265	175	140
P2K16	290	190	170
P2K17	290	190	170
P2K18	345	230	200
P2K19	345	230	200
P2K20	345	230	200
P3K09	185	125	90
P3K10	185	125	90
P3K11	185	125	90
P3K12	185	125	90
P3K13	185	125	90
P3K14	185	125	90
P3K16	205	150	115
P3K17	205	150	115
P3K18	265	175	140
P3K19	265	175	140
P3K20	265	175	140
P3K21	265	175	140
P3K22	265	175	140
P3K23	290	190	170
P3K24	290	190	170
P3K25	290	190	170
P3K26	290	190	170
P3K27	345	230	200
P3K28	345	230	200
P3K29	345	230	200
P3K30	345	230	200



P

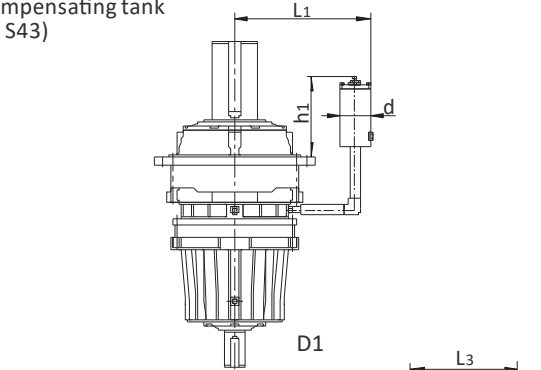
Oil level (L)							
Type	P2N ..	P2L ..	P2S ..	P2K ..	P3N ..	P3S ..	P3K ..
09	6	6	6	6	7	7	7
10	8	8	8	8	9	9	9
11	12	12	12	12	13	13	15
12	16	16	16	16	17	17	20
13	20	20	20	20	21	21	21
14	32	32	32	32	33	33	33
16	40	40	40	40	42	42	42
17	56	56	56	56	60	60	60
18	66	66	66	73	70	70	70
19	82	82	82	82	85	85	85
20	75	75	75	75	75	75	75
21	110	110	110		115	115	115
22	95	95	95		105	105	105
23	150	150	150		155	155	155
24	125	125	125		135	135	135
25	190	190	190		195	195	195
26	160	160	160		170	170	170
27	245	245	245		250	250	250
28	205	205	205		220	220	220
29	305	305	305		310	310	310
30	255	255	255		280	280	280
31	380		380		390	390	
32	315		315		360	360	
33	460		460		470	470	
34	380		380		430	430	
35	645		645				
36	535		535				

**Note:**

- 1) When ambient temperature is between -10°C–40°C, VG320 (ISO viscosity class) should be used for P series and accessory code is V32.
- 2) The above oil levels are for P..N in mounting position B5 and P.K/P.L/P.S in mounting position B53. Other positions on request.

## 11.9 Lubrication System

### 11.9.1 Oil compensating tank for vertical mounting positions V1,V11,V3,V31 of P.N.. and P.S..

Oil compensating tank (code S43)	Size	L1	L2	L3	h1	h2	h3	d
	09	345	285	285	210	160	160	φ 80
	10	375	285	285	210	160	160	φ 80
	11	400	320	285	210	160	160	φ 80
	12	435	320	285	210	160	160	φ 80
	13	500	400	285	250	180	160	φ 120
	14	530	400	285	250	180	160	φ 120
	16	555	450	320	250	180	180	φ 120
	17	620	450	320	250	180	180	φ 120
	18	635	500	400	250	180	180	φ 120
	19	650	500	400	250	180	180	φ 120
	20	650	500	400	250	180	180	φ 120
	21	730	550	400	250	180	180	φ 120
	22	730	550	400	250	180	180	φ 120
	23	780	550	450	250	180	180	φ 120
	24	780	550	450	250	185	180	φ 120
	25-36	On request						

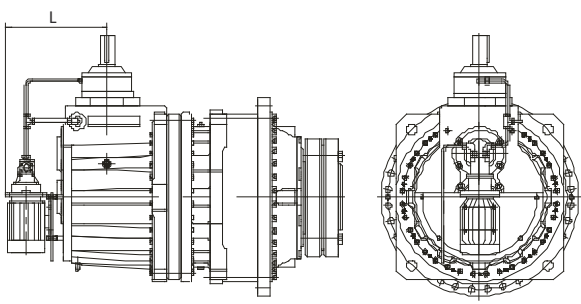
In case of vertical mounting position, normal lubrication system would fail to feed the overhead rolling bearings. To ensure an adequate supply of lubricants, the oil level has to be increased accordingly. As shown above (D1, D2), an oil compensating tank with breather is attached for this purpose. It can be fitted either to the gearbox or to the customer's machine frame. The actual dimension and final position will be decided when the product is ordered.



**11.9.2 Forced lubrication with motor pump for P.K., P.L. and P.S.21-P.S.36 in mounting position B51**

P

Size	L	Motor pump size	Size	L	Motor pump size
P2K09	335	CB-B6JZ	P3K09	335	CB-B6JZ
P2K10	335	CB-B6JZ	P3K10	335	CB-B6JZ
P2K11	335	CB-B6JZ	P3K11	335	CB-B6JZ
P2K12	335	CB-B6JZ	P3K12	335	CB-B6JZ
P2K13	425	CB-B10JZ	P3K13	335	CB-B6JZ
P2K14	425	CB-B10JZ	P3K14	335	CB-B6JZ
P2K16	445	CB-B10JZ	P3K16	335	CB-B6JZ
P2K17	445	CB-B10JZ	P3K17	445	CB-B10JZ
P2K18	495	CB-B10JZ	P3K18	445	CB-B10JZ
P2K19	495	CB-B10JZ	P3K19	445	CB-B10JZ
P2K20	495	CB-B10JZ	P3K20	445	CB-B10JZ
P2L09	400	CB-B6JZ	P3K21	445	CB-B10JZ
P2L10	400	CB-B6JZ	P3K22	445	CB-B10JZ
P2L11	425	CB-B6JZ	P3K23	495	CB-B10JZ
P2L12	425	CB-B6JZ	P3K24	495	CB-B10JZ
P2L13	500	CB-B10JZ	P3K25	495	CB-B10JZ
P2L14	500	CB-B10JZ	P3K26	495	CB-B10JZ
P2L16	545	CB-B10JZ	P3K27	495	CB-B10JZ
P2L17	545	CB-B10JZ	P3K28	495	CB-B10JZ
P2L18	600	CB-B10JZ	P3K29	495	CB-B10JZ
P2L19	600	CB-B10JZ	P3K30	495	CB-B10JZ
P2L20	600	CB-B10JZ			
P2L21	650	CB-B10JZ			
P2L22	650	CB-B10JZ			
P2L23	725	CB-B10JZ			
P2L24	725	CB-B10JZ			



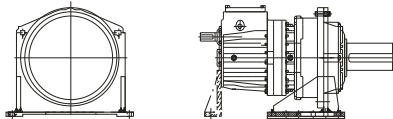
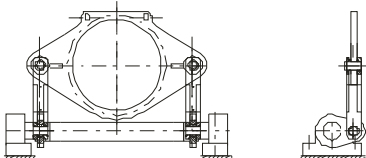
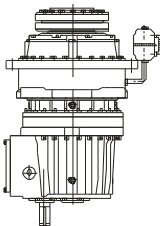
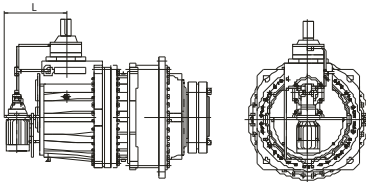
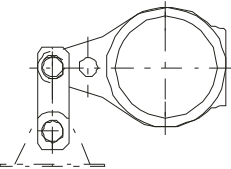
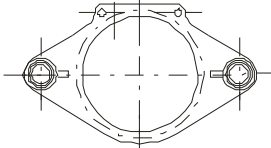
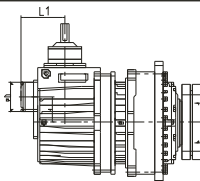
Forced lubrication with motor pump(accessory code S32)

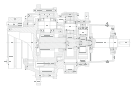
Note: For mounting positions, see P4.

**11.9.3 Planetary gearbox in other mounting positions are usually lubricated with splash lubrication system**

Note: Verify the thermal capacity of the gearbox when selecting the lubrication systems, especially the mode of oil compensating tank.

## 11.10 Accessory Codes

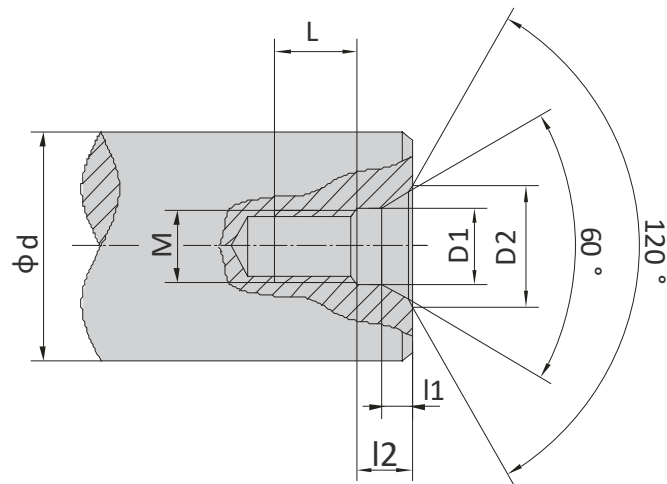
Symbol	Accessories	Examples	Page
B42	Output bracket		P48
B41	Torsion shaft support		P51
S43	Oil compensating tank, dip lubrication		P55
S32	Motor pump, forced lubrication		P56
T71	Torque arm (on one side)		P49
T72	Torque arm (on both sides)		P50
B11	Backstop		P53



## 12 Screw hole in shaft end

### 12.1 Type C screw central hole in shaft end

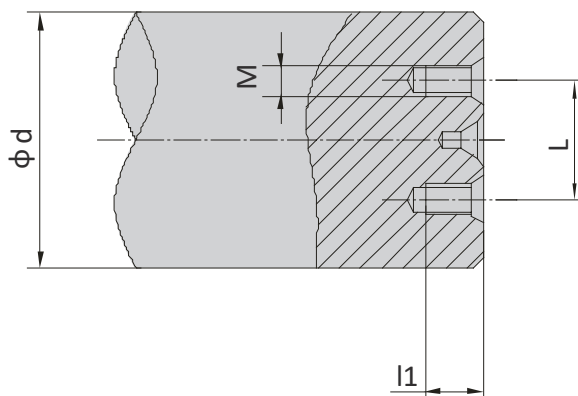
P



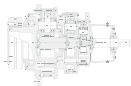
d	M	L	l2	l1	D1	D2
$7 < d \leq 10$	M3	10	2.6	1.8	3.2	5.8
$10 < d \leq 13$	M4	10	3.2	2.1	4.3	7.4
$13 < d \leq 16$	M5	10	4	2.4	5.3	8.8
$16 < d \leq 21$	M6	12	5	2.8	6.4	10.5
$21 < d \leq 24$	M8	12	6	3.3	8.4	13.2
$24 < d \leq 30$	M10	15	7.5	3.8	10.5	16.3
$30 < d \leq 38$	M12	20	9.5	4.4	13	19.8
$38 < d \leq 50$	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	26	38
$130 < d \leq 225$	M30	45	18	11	31	48
$225 < d \leq 330$	M36	55	22	15	37	60
$330 < d \leq 360$	M42	60	26	19	43	71

Note: If  $d > 360$ , double screw hole in shaft end is taken.

## 12.2 Double screw holes in shaft end

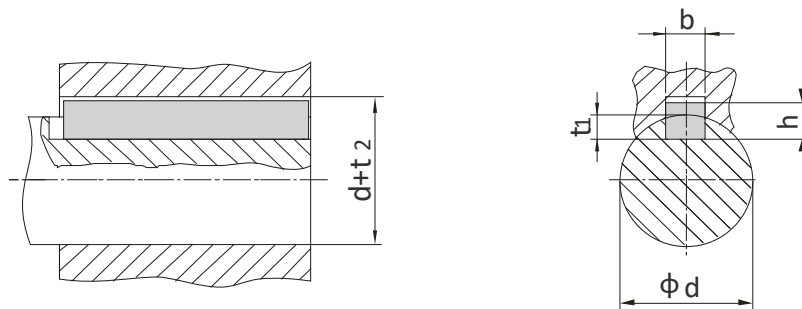


d	M	l1	L
$360 < d \leq 390$	M24	45	270
$390 < d \leq 420$	M30	55	300
$420 < d \leq 460$			320
$460 < d \leq 500$			350
$500 < d \leq 530$			380
$530 < d \leq 560$			400
$560 < d \leq 600$			430



## 13 Parallel Key and Keyway

P



d	b	h	t <sub>1</sub>	d + t <sub>2</sub>
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 + 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
260 < d ≤ 290	63	32	20	d + 12.4
290 < d ≤ 330	70	36	22	d + 14.4
330 < d ≤ 380	80	40	25	d + 15.4
380 < d ≤ 440	90	45	28	d + 17.4
440 < d ≤ 500	100	50	31	d + 19.5
500 < d ≤ 560	110	56	34.3	d + 22.2
560 < d ≤ 640	120	63	39	d + 24.5

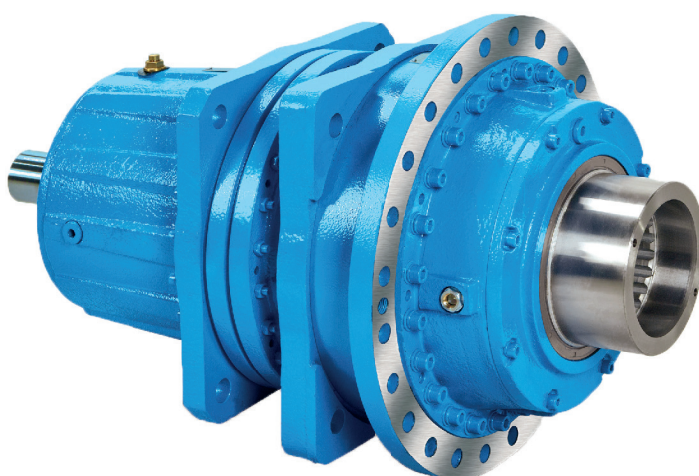


## Note:

- The structure scheme, appearance diagram and other attached diagrams in sample are examples, there is no strict proportion requirement. (The unmarked dimension units are mm).
- The marked weight is average value, it has no constraint force.

### ⚠ You must conform to the following instructions:

- To prevent accidents, all the rotation parts are added with protective covers according to the safety regulations of the nation and region.
- Before debugging, you should carefully read instruction book.
- Gearbox is on running-permission status when delivered, you should add lubrication oil before putting it into running.
- The marked oil quantity in sample is only reference value, actual oil filling quantity should be the same with the mark on oil immersion lens.
- Lubrication oil viscosity should be selected according to working situation and application environment temperature of gearmotor.
- You can only apply lubrication oil of internationally famous brand.





## **TGE Transmission s.r.o.**

9. května 209,  
268 01 Hořovice

### **Technical office Plzeň**

Teslova 7b  
301 00 Plzeň  
info@tge.cz | www.tge.cz

### **Local dealer**

