

## **GPM HYPOID HELICAL GEARED MOTOR**

RATIO : 7.5~300/1  
MAX.OUTPUT TORQUE : 750Nm  
EFFICIENCY : 93~95%

## About Us.

Gaeyah Transmission an Indian company manufacturing efficient power transmission products to meet the growing aspirations of Indian customers. Gaeyah is mentored by an experienced team of transmission engineers having decades of expertise in various applications and solutions. We promise to deliver, right combination of efficient, affordable and quality products for the light duty industry segment.

## Our Vision.

'Gaeyah's vision is to offer affordable power transmission solutions, empowering customers to improve their product performance'

## Our Values.

Our work will be guided and informed by our beliefs and commitments to:

**Inclusiveness** - Respect all Living Being.

**Honesty** - Upright & Fair.

**Commitment** - Promise to Persevere.

**Innovate** - Contemporary Solution.

**Passion** - Empathize & Listen.

## Our Hypoid Gear Reducers.



● GPMB-TA



● GPMB-FA



● GPMB-IEC



● GPMC-HIHO



● GPMB-HIHO

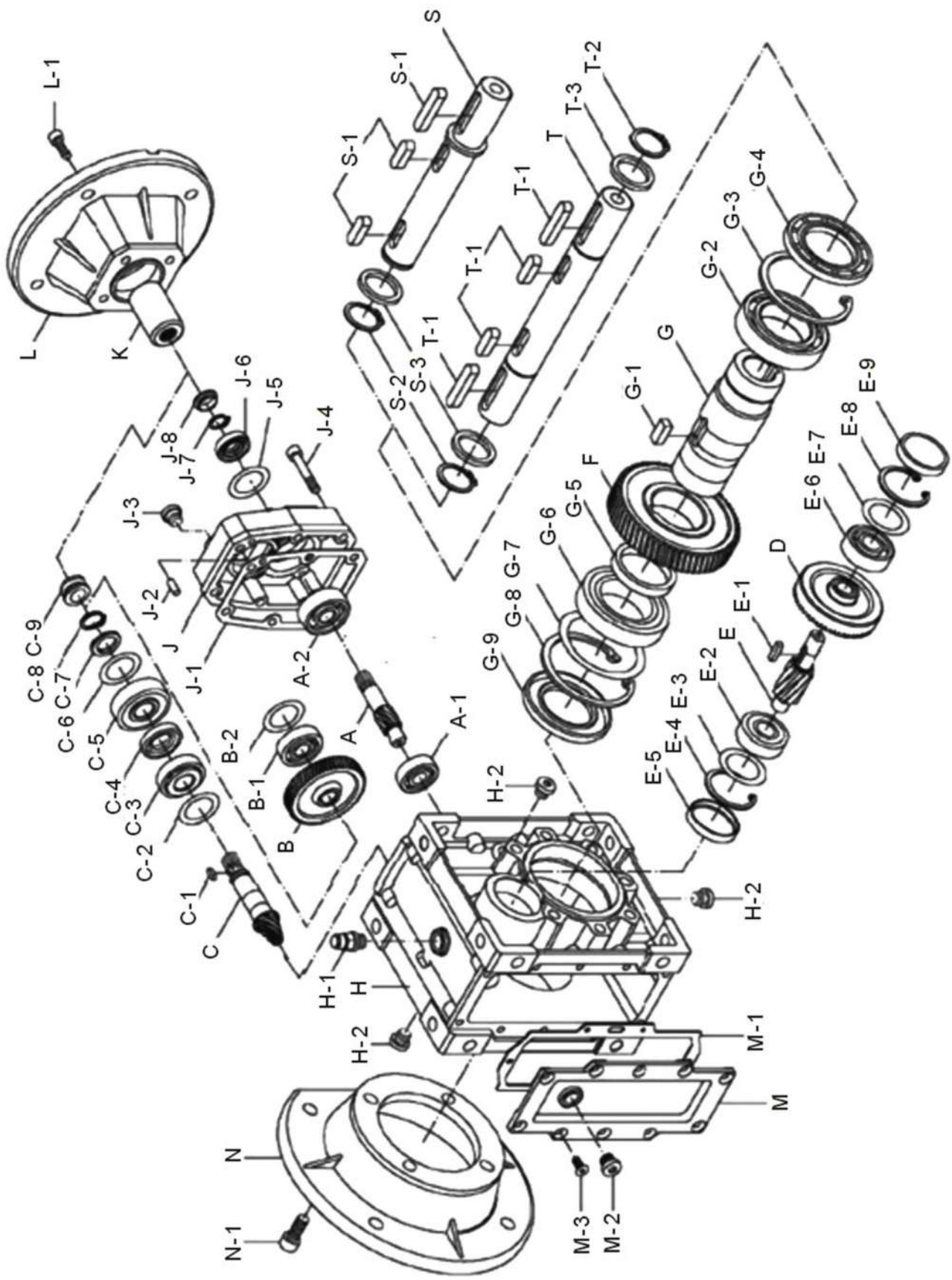


● GPMB-HISO

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## STRUCTURE



A	driving pinion	C-4	oil seal	G-9	oil seal
B	driven gear	C-5	bearing	H-1	air vent valve
C	driving gear shaft	C-6	adjusting shim	H-2	oil plug
D	driven gear	C-7	gasket	J-1	seal spacer
E	driving gear shaft	C-8	shaft circlip	J-2	straight pin
F	driven gear	C-9	rubber sleeve	J-3	oil plug
G	output shaft	E-1	flat key	J-4	inner hexagon screw
H	housing	E-2	bearing	J-5	adjusting shim
J	3 stage housing	E-3	adjusting shim	J-6	oil seal
K	input bushing	E-4	hole circlip	J-7	shaft circlip
L	input flange	E-5	oil seal cover	J-8	rubber sleeve
M	side cover	E-6	bearing	L-1	inner hexagon screw
N	output flange	E-7	adjusting shim	M-1	sealed gasket
S	single output shaft	E-8	hole circlip	M-2	oil plug
T	double output shaft	E-9	oil seal cover	M-3	inner hexagon sunk screw
		G-1	flat key	N-1	inner hexagon screw
A-1	bearing	G-2	bearing	S-1	flat key
A-2	bearing	G-3	hole circlip	S-2	shaft circlip
B-1	bearing	G-4	oil seal	S-3	gasket
B-2	adjusting shim	G-5	spacer sleeve	T-1	flat key
C-1	flat key	G-6	bearing	T-2	shaft circlip
C-2	adjusting shim	G-7	adjusting shim	T-3	gasket
C-3	bearing	G-8	hole circlip		

## ADVANTAGE

GPM is the advanced new generation hypoid helical gearbox in the world, the advantages are as follows:

- 1, Large output torque: more than RV series worm gearbox
- 2, High efficiency: up to 93 - 95%
- 3, Wide ratio range: from 7.5 to 300
- 4, Strong substitute: can replace RV and W series worm gearbox(50 is little different)

### Material

- 1, Housing: High quality aluminum alloy
- 2, Gears: 20CrMnTi
- 3, Hardness: 56-62HRC

## ADVANTAGES OF USING HYPOID GEARS OVER WORM GEARS

### Why Hypoid Gears are Efficient?

The hypoid gear set is a hybrid of bevel and worm gear technologies unlike a worm gear which uses traditional screw-like gear that rotates perpendicular to its corresponding worm gear with less efficiency. Hypoid gear experiences friction losses due to the meshing of the gear teeth, with minimal sliding involved. These losses are minimized using the hypoid tooth pattern which allows torque to be transferred smoothly and evenly across the interfacing surfaces. This is what gives the hypoid reducer a mechanical advantage over worm reducers.

Efficiency of worm units rapidly go down with ratio >15/1. The motor gets overloaded to coverup the inefficiency leading to increase in temp of motor. To compensate it, customers use a larger motor. Efficiency of worm vs hypoid gears can be found in Figure 1.

Hypoid drives can have a higher upfront cost than worm drives due to additional processing techniques required to produce such as machining, heat treatment, and special grinding techniques. This price difference is made up for over the lifetime of the gearmotor due to increased performance and reduced maintenance.

Worm gears produce more friction they run much hotter. In many cases, using a hypoid reducer eliminates the need for cooling fins on the motor casing, further reducing maintenance costs that would be required to keep the fins clean and dissipating heat properly. A comparison of motor surface temperature between worm and hypoid gearmotors can be found in Figure 2.

### Why Efficiency is Important?

Choosing a high-efficiency reducer will minimize costs related to operation and maintenance for years to come. Additionally, a more efficient reducer allows for better reduction capability and as a result, consumes less electrical power.

Single stage worm reducers are typically limited to ratios of 5:1 to 100:1, while hypoid gears have a reduction potential of 5:1 up to 295:1. Typically, hypoid gears themselves only go up to reduction ratios of 10:1, and the additional reduction is provided by another type of gearing, such as helical.

Hypoid reducers can move loads from a dead stop with more ease than worm reducers (Figure 3).

Since hypoid reducers run cooler,

- No maintenance required to keep them running at peak performance.
- Frequent lubricating oil change is not required as the gear unit runs fairly at low temperature.
- Low Inertia help to in startup even with load.
- Even in a scarcely ventilated location the gear unit will function without much temperature rise.
- Life of oil seal increased due to low temperature.
- It eliminates dust accumulation near breather.
- Reduced downtime and increased production.

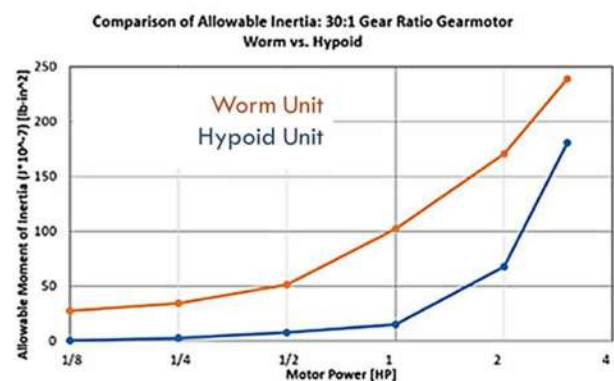


Fig. 3

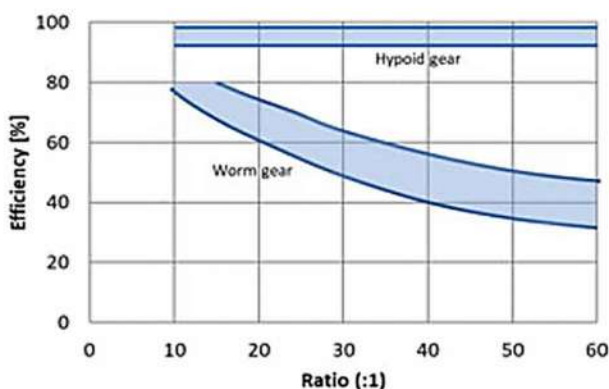


Fig. 1

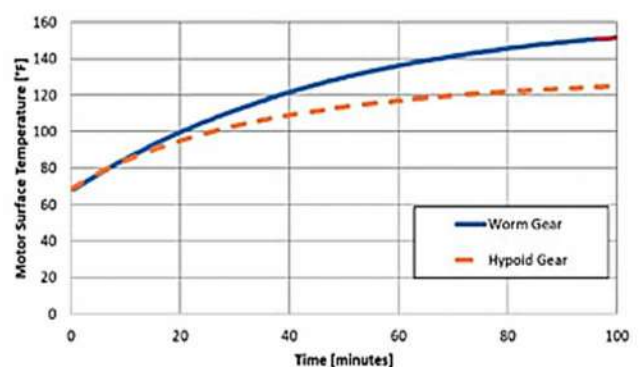


Fig. 2

## 1. MODEL INSTRUCTION

**GPM 50 B - 12.25 - FA 1 - 63B5 - AS 1 - V5**

1      2   3                      4                      5   6                      7                      8   9                      10

NO	Instruction
1	Gearbox series name: GPM
2	Gearbox types: 50, 63,75,90
3	B: 2 stage
	C: 3 stage
4	Ratio
5	Output flange types
	No symbol means without output flange
6	Output flange position
7	Input flange
8	AS : single output shaft
	AB : double output shaft
	No symbol means without output shaft
9	Output shaft position
10	Gearbox mounting position

Example: **GPM63C-100-FB2-71B14-AB1-V6**



## 2. SELECTING PARAMETER

### 2.1 POWER $P$

$$P_1 = \frac{P_2}{\eta} \text{ [kW]}$$

$$P_{1n} \geq P_1 \cdot f_s \text{ [kW]}$$

$P_1$	Input power
$P_2$	Output power
$P_{1n}$	Rated motor power
$f_s$	Service factor
$\eta$	Efficiency

### 2.2 ROTATION SPEED $n$

$n_1$	Gear units input speed
$n_2$	Gear units output speed

For optimizing working condition and improving the life when the gearbox driven by the external device, please use the speed at 1400rpm or lower. High input speed is allowed but the rated torque  $M_2$  will be decreased under such case.

### 2.3 TRANSMISSION RATIO $i$

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

Generally ratio is decimal fraction with 2 radix points tagged in selecting table.

### 2.4 TORQUE $M$

$$M_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} \text{ [Nm]}$$

$$M_{2n} \geq M_2 \cdot f_s \text{ [Nm]}$$

$M_2$	Output torque
$M_{2n}$	Selected output torque
$P_1$	Input power
$\eta$	Efficiency
$f_s$	Service factor

### 2.5 SERVICE FACTOR $f_s$

Please consider the service factor  $f_s$  when used the gearbox, the service factor is decided by running time and frequency of on-off Z per day.

Confirming the 3 kind of loadtypes according to the inertial accelerating factor, the practical application service factors ( $f_s$ ) can be read in the below table, the selected  $f_s$  from the below table must be less than or equal to the  $f_s$  provided in the performance parameter table.

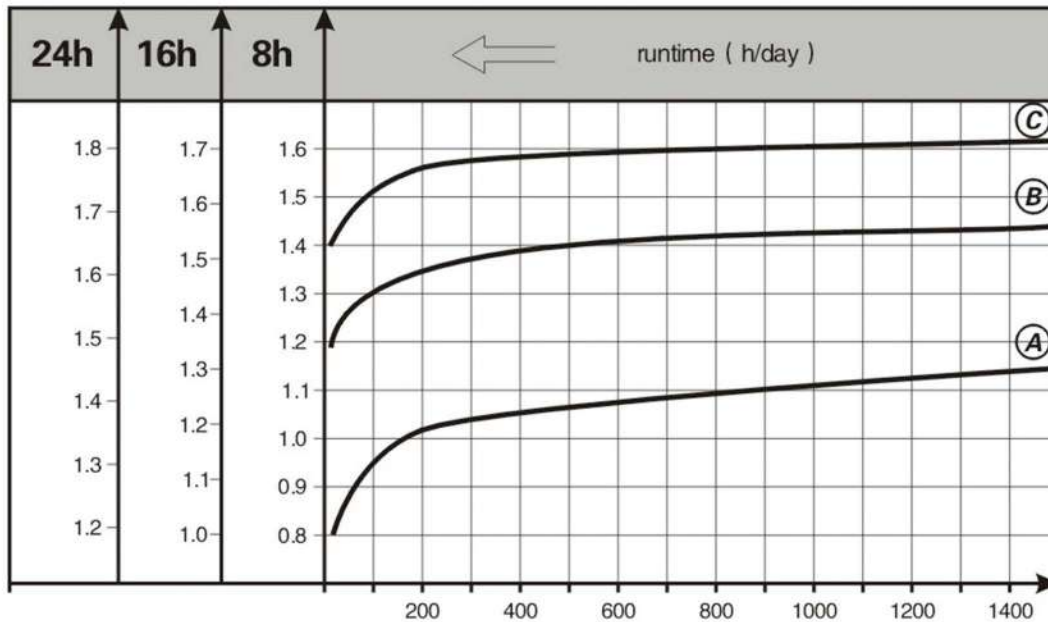


Fig: Service factor ( $f_s$ ) start up frequency  $Z$  (1/h) #

# Start up frequency  $Z$ : The cycle includes all start and brake times, also the times of speed changing on geared motor.

### 2.5.1 LOAD CLASSIFICATIONS

- (A) Uniform, permitted mass acceleration factor  $f_a \leq 0.2$
- (B) Moderate shock load, permitted mass acceleration factor  $f_a \leq 3$
- (C) Heavy shock load, permitted mass acceleration factor  $f_a \leq 10$

### 2.5.2 INERTIAL ACCELERATING FACTOR

The Inertial accelerating factor is calculated as follows:

$$f_a = \frac{J_c}{J_m}$$

- $f_a$  Inertial accelerating factor
- $J_c$  All external mass moments of inertia (  $\text{kgm}^2$  )
- $J_m$  Mass moment of inertia on the motor end (  $\text{kgm}^2$  )

Please contact with our technology department if the inertial accelerating factor  $f_a > 10$ .

To keep the service-life of gearbox, the use factor  $f_s$  selected from the catalogue must be equal or slightly higher than the calculated use factor  $f_s$ .

Example:

Inertial accelerating factor 2.5 (load classification  $f_s$ ), 10hours/day operating time (read off at 16h/d) and 100 cycles/hour result in a service factor  $\textcircled{B}=1.45$ .

Choose the service factor  $f_s = 1.45$  according to the parameter sheet.

## 2.6 RADIAL LOAD AND AXIAL LOAD

The types of transmission parts that mounted on the shaft end must be considered when the radial load was affected. Various transmission parts are corresponding with following transmission parts factors  $f_z$ :

Transmission element	Transmission part factor $F_z$	Comments
Gears	1.15	< 17 teeth
Chain sprockets	1.25	< 20 teeth
	1.40	< 13 teeth
Narrow V-belt pulleys	1.75	Influence of tensile force
Toothed belt pulleys	2.50	Influence of tensile force
Flat belt pulleys	2.50	Influence of tensile force

The radial load forced on the motor and gear shaft is calculated as follows:

$$F_r = \frac{M \cdot 2000 \cdot f_z}{d_0} \text{ [N]}$$

- $F_r$  Radial load [N]
- $M$  Torque on the shaft [Nm]
- $d_0$  Average diameter of the mounted transmission part in [mm]
- $f_z$  Transmission part factor

The permitted radial load is estimated by bearing rated service life  $L_{10h}$  (according to ISO281), and it confirmed by modificatory service life  $L_{na}$  under special running condition.

The permitted radial load must be calculated by the following formula when the loading point is deflected from the shaft center, and choose the permissible value  $F_{xI}$  on the point X (according to bearing service life)

$$F_{xI} = F_{r(1,2)} \cdot \frac{a}{b+x} \text{ [N]}$$

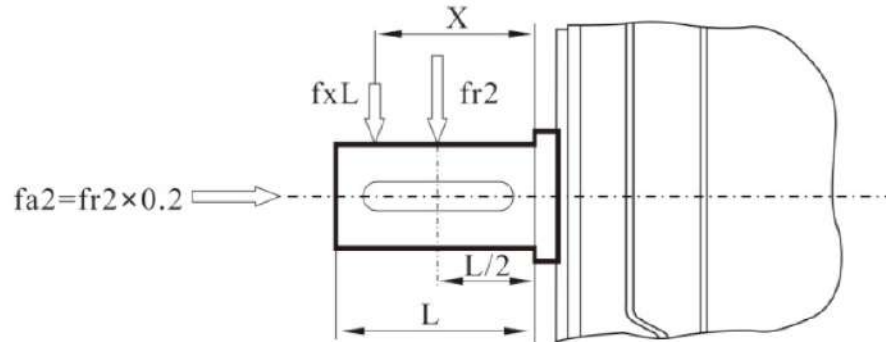
$F_{r1}, F_{r2}$  = Permitted radial load ( $x=L/2$ ) for footmounted gearbox according to the selection tables [N]

$x$  = Distance from shaft shoulder to the pressure point [mm]

$a, b,$  = Gearbox radial conversion constant [mm]

## Radial Load Calculations

### Output Shaft Radial Loads

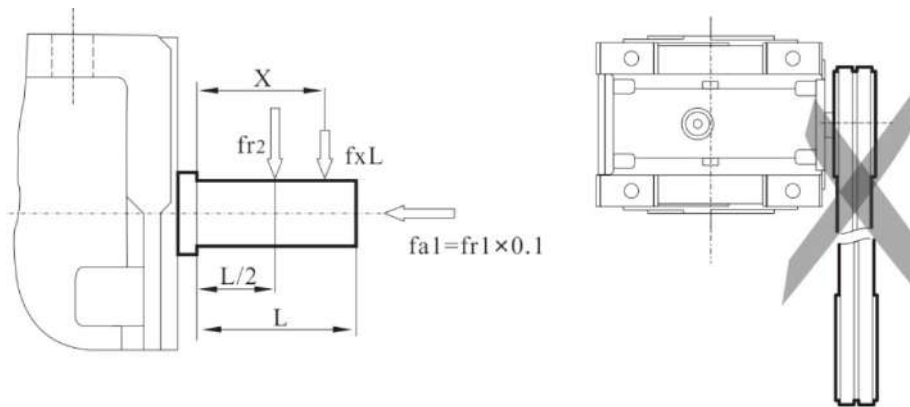


$fa2$  – Output Axial Load

### Output Shaft Radial Load Conversion Constant

Constant	GPM050B	GPM050C	GPM063B	GPM063C	GPM075	GPM075C	GPM090B	GPM090C	GPM110B	GPM110C
<b>a</b>	104	104	118	118	131	131	159	159	174	174
<b>b</b>	78	78	93	93	101	101	119	119	134	134

### Input Shaft Radial Loads

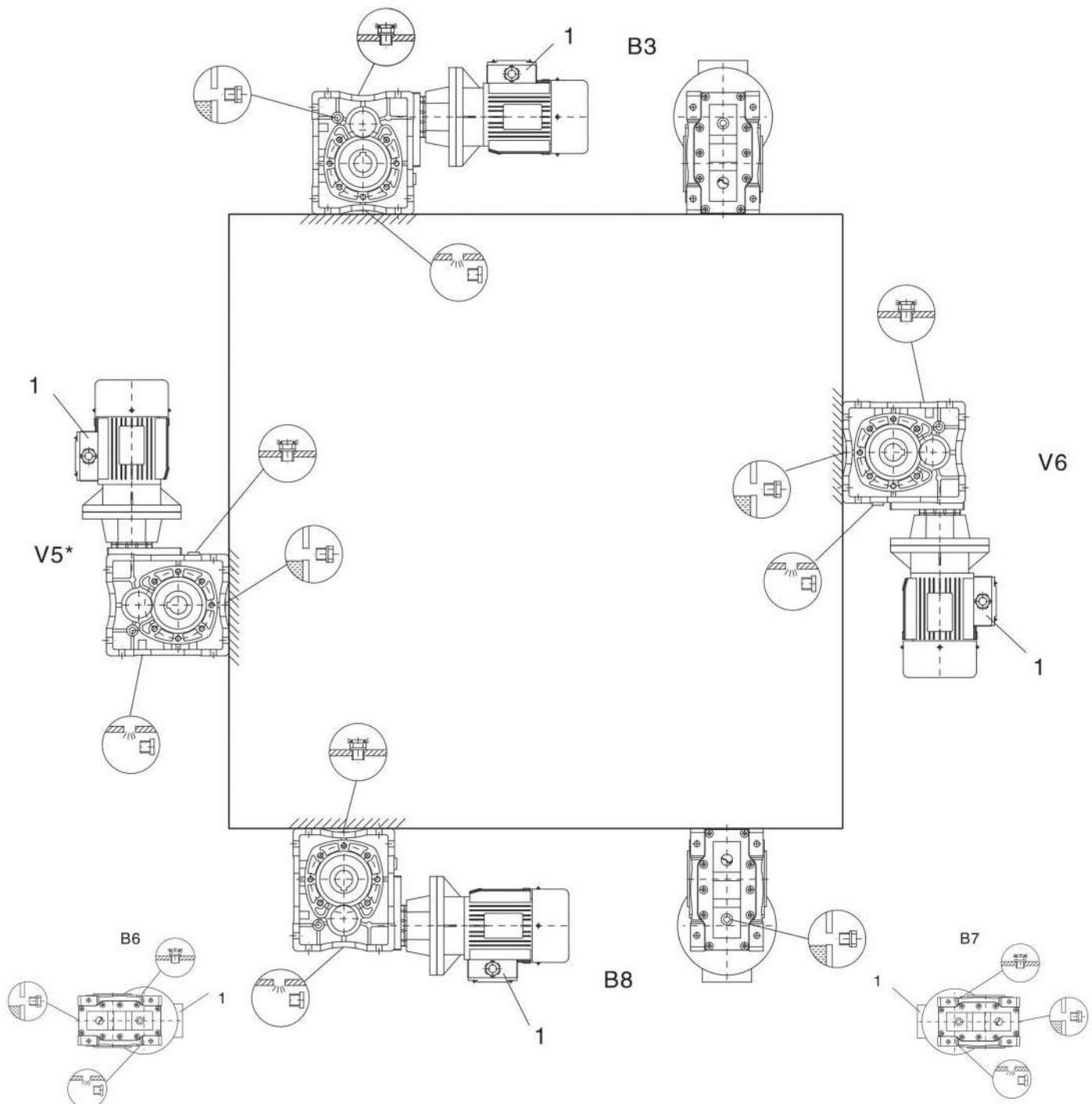
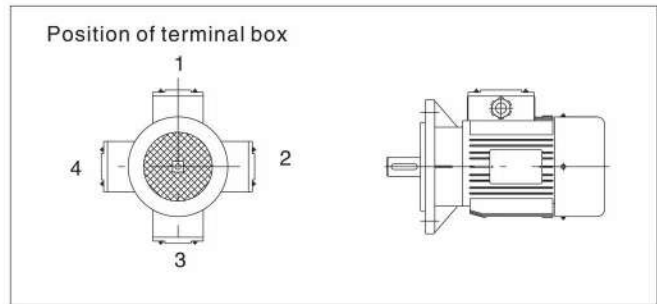


**Its not advisable to use the input (right chart) including 3 stage input**

### Input Shaft Radial Load Conversion Constant

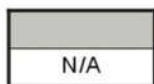
Constant	GPM050B	GPM050C	GPM063B	GPM063C	GPM075	GPM075C	GPM090B	GPM090C	GPM110B	GPM110C
<b>a</b>	51.5	56	58	56	73	70	81	70	101	87
<b>b</b>	40	44.5	43	44.5	53	55	61	55	76	67

Symbol	Meaning
	Breather
	Oil mirror
	Oil drain plug



\*: It means the lubricant can't be added only according to the oil level of mirror, but also higher than it, the fill quantity as shown in the table

## 2.7 SELECTION TABLE INSTRUCTION



Gearbox with such input flange is applicable  
 Gearbox with such input flange is not applicable

- \* Ratio is divisible;
- $P_{1n}$  Rated motor power;
- $n_2$  Output speed;
- $M_{2n}$  Output torque;
- $M_{2max}$  Max. permissible output torque
- $F_{r2}$  Output shaft radial load
- $i$  Gearbox nominal ratio;
- $i_a$  Gearbox actual ratio;
- $f_s$  Service factor;



Gearbox type;



Motor type;

Page Dimension sheet page no;

## 3. SELECTION EXAMPLE

### 3.1 GEARED MOTOR

Example: Required power 0.37kW on driven machine, work for 8 h/day, moderate shock load, start up frequency 100(1/h),  $n_2=7r/min$ , **B3** mounted,  
 So:

Check the service factor table at page 6 ,choose  $f_s = 1.3$

$$i = \frac{n_1}{n_2} = \frac{1400}{7} = 200$$

$$P_{1n} \geq P_1 \cdot f_s = \frac{P_2}{\eta} \cdot f_s = \frac{0.37}{0.94} \times 1.3 = 0.512 \text{ [kW]}$$

Choose type:

**GPM 75C-200-71B5-7124-B3**

## 3.2 GEARBOX

Example: Required 130Nm on driven machine, work for 8 h/day, start up frequency 200(1/h), FA1 mounted  $n_1=1400\text{r/min}$ ,  $n_2=90\text{r/min}$ , so the only selection is 3 stage after checked the table:

Check the service factor table at page 6 ,  
choose  $f_s=1.02$

$$i = \frac{1}{n_2} = \frac{1400}{90} = 15.5$$

$$M_{2n} \geq M_2 \cdot f_s = 130 \times 1.02 = 132.6 \text{ [Nm]}$$

$$P_{1n} \geq P_1 \cdot f_s = \frac{M_2 \cdot n_1}{9550 \cdot \eta \cdot i} \cdot f_s = \frac{132.6 \times 1400}{9550 \times 0.94 \times 15} \times 1.02 = 1.4 \text{ [kW]}$$

Choose type:

**63B-15-FA1-90B5**

## 4. GEARBOX SELECTING

### 4.1 GEARBOX AND INPUT FLANGE COMBINATION

#### GPM50

$n_1=1440\text{r/min}$

**160Nm**

Model	i Nominal	i Actual	$n_2$ [r/min]	$M_{2\text{max}}$ [Nm]	$F_{r2}$ [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
<b>3 Stage</b>									
GPM50C	300	294.05	4.8	130	4100		N/A	N/A	N/A
GPM50C	250	244.29	5.8	130	4100		N/A	N/A	N/A
GPM50C	200	200.44	7.0	130	4100		N/A	N/A	N/A
GPM50C	150	146.67	9.6	160	4000		N/A	N/A	N/A
GPM50C	125	120.34	12	160	3770			N/A	N/A
GPM50C	100	101.04	14	160	3560			N/A	N/A
GPM50C	75	74.62	19	160	3220			N/A	N/A
GPM50C	60	62.36	23	160	3030			N/A	N/A
GPM50C	50	52.36	27	160	2860			N/A	N/A
<b>2 Stage</b>									
GPM50B	60	58.36	24	130	2960			N/A	N/A
GPM50B	50	48.86	29	130	2790				N/A
GPM50B	40	40.09	35	130	2610				N/A
GPM50B	30	29.33	48	160	2350				N/A
GPM50B	25	24.07	59	160	2200				
GPM50B	20	20.21	70	160	2080				
GPM50B	15	14.92	94	160	1880				
GPM50B	12.5	12.47	113	160	1770				
GPM50B	10	10.47	134	160	1670				
GPM50B	7.5	7.73	182	160	1510				

#### GPM63

$n_1=1440\text{r/min}$

**180Nm**

Model	i Nominal	i Actual	$n_2$ [r/min]	$M_{2\text{max}}$ [Nm]	$F_{r2}$ [N]	63B5	71B5 71B14	80B5 80B14	90B5 90B14
<b>3 Stage</b>									
GPM63C	300	302.50	4.7	160	4800		N/A	N/A	N/A
GPM63C	250	243.57	5.8	160	4800		N/A	N/A	N/A
GPM63C	200	196.43	7.2	160	4800			N/A	N/A
GPM63C	150	151.56	9.3	180	4650			N/A	N/A
GPM63C	125	122.22	12	180	4330			N/A	N/A
GPM63C	100	94.50	14	180	4070			N/A	N/A
GPM63C	75	73.33	20	180	3650				N/A
GPM63C	60	63.33	23	180	3480				N/A
GPM63C	50	52.48	27	180	3270				N/A
<b>2 Stage</b>									
GPM63B	60	60.50	24	160	3430				N/A
GPM63B	50	48.71	29	160	3190				
GPM63B	40	39.29	36	160	2970				
GPM63B	30	30.31	47	180	2720				
GPM63B	25	24.44	58	180	2530	N/A			
GPM63B	20	18.90	70	180	2380	N/A			
GPM63B	15	14.67	96	180	2130	N/A	N/A		
GPM63B	12.5	12.67	111	180	2030	N/A	N/A		
GPM63B	10	10.50	134	180	1910	N/A	N/A		
GPM63B	7.5	7.60	185	180	1710	N/A	N/A		



## GPM75

$n_1=1440r/min$

**350Nm**

Model	i Nominal	i Actual	$n_2$ [r/min]	$M_{2max}$ [Nm]	$F_{r2}$ [N]	63B5	71B5	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
<b>3 Stage</b>											
GPM75C	300	297.21	4.8	300	6500			N/A	N/A	N/A	N/A
GPM75C	250	240.89	5.9	300	6500			N/A	N/A	N/A	N/A
GPM75C	200	200.66	7.0	300	6500			N/A	N/A	N/A	N/A
GPM75C	150	149.30	9.3	350	6500				N/A	N/A	N/A
GPM75C	125	121.00	12	350	5980				N/A	N/A	N/A
GPM75C	100	100.80	15	350	5520				N/A	N/A	N/A
GPM75C	75	79.40	19	350	5040					N/A	N/A
GPM75C	60	62.43	23	350	4730	N/A				N/A	N/A
GPM75C	50	49.18	29	350	4370	N/A				N/A	N/A
<b>2 Stage</b>											
GPM75B	60	59.44	24	300	4660	N/A				N/A	N/A
GPM75B	50	48.18	30	300	4.40	N/A				N/A	N/A
GPM75B	40	40.13	35	300	4080	N/A					N/A
GPM75B	30	29.86	47	350	3720	N/A	N/A				N/A
GPM75B	25	24.20	56	350	3500	N/A	N/A				
GPM75B	20	20.16	71	350	3230	N/A	N/A				
GPM75B	15	15.88	93	350	2950	N/A	N/A				
GPM75B	12.5	12.49	113	350	2770	N/A	N/A	N/A			
GPM75B	10	9.84	143	350	2550	N/A	N/A	N/A			
GPM75B	7.5	7.48	188	350	2330	N/A	N/A	N/A			

## GPM90

$n_1=1440r/min$

**500Nm**

Model	i Nominal	i Actual	$n_2$ [r/min]	$M_{2max}$ [Nm]	$F_{r2}$ [N]	63B5	71B5	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
<b>3 Stage</b>											
GPM90C	300	297.21	4.8	450	6500			N/A	N/A	N/A	N/A
GPM90C	250	240.89	5.9	450	6500				N/A	N/A	N/A
GPM90C	200	200.66	7.0	450	6500				N/A	N/A	N/A
GPM90C	150	151.20	9.3	500	6500				N/A	N/A	N/A
GPM90C	125	125.95	12	500	5980				N/A	N/A	N/A
GPM90C	100	99.22	15	500	5520	N/A				N/A	N/A
GPM90C	75	75.45	19	500	5040	N/A				N/A	N/A
GPM90C	60	62.43	23	500	4730	N/A				N/A	N/A
GPM90C	50	49.18	29	500	4370	N/A				N/A	N/A
<b>2 Stage</b>											
GPM90B	60	59.44	24	450	5890	N/A					N/A
GPM90B	50	48.18	30	450	5500	N/A					N/A
GPM90B	40	40.13	35	450	5170	N/A	N/A				
GPM90B	30	30.24	47	500	4710	N/A	N/A				
GPM90B	25	25.19	56	500	4430	N/A	N/A				
GPM90B	20	19.84	71	500	4090	N/A	N/A	N/A			
GPM90B	15	15.09	93	500	3730	N/A	N/A	N/A			
GPM90B	12.5	12.49	113	500	3510	N/A	N/A	N/A			
GPM90B	10	9.84	143	500	3240	N/A	N/A	N/A			
GPM90B	7.5	7.48	188	500	2950	N/A	N/A	N/A			



## Gearbox Selection and Input Flange Option



**GPM110**




$n_1=1440$  r/min



**750NM**



Model	i Nominal	i Actual	$n_2$ (RPM)	$M_2$ Max (Nm)	$Fr_2$ [N]	71B5/ B14	80B5/ B14	90B5/ B14	100B5/ B14	112B5/ B14	13285
<b>3 Stage</b>											
GPM110C	300	299	4.7	750	10000						
GPM110C	250	250	5.6	750	10000						
GPM110C	200	195.5	7.2	750	9740						
GPM110C	150	156	9	750	9040						
GPM110C	125	123	11.4	750	8340						
GPM110C	100	98	14.3	650	7740						
GPM110C	75	76	18.5	520	7090						
<b>2 Stage</b>											
GPM110B	60	60	23	750	6560						
GPM110B	50	50	28	750	6180						
GPM110B	40	39	36	750	5690						
GPM110B	30	31	45	750	5280						
GPM110B	25	25	57	750	4870						
GPM110B	20	19.6	71	650	4520						
GPM110B	15	15	93	520	4150						
GPM110B	12.5	12	115	750	3860						
GPM110B	10	9.7	144	650	3580						
GPM110B	7.5	7.5	187	520	3280						



$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$							
<b>0.18</b>	24.0	67	60	58.81	2960	1.6	<b>GPM50B</b>	<b>63B5</b>	<b>6324</b>				
	28.7	56	50	48.86	2790	2.3							
	35	46	40	40.09	2610	2.8							
	48	34	30	29.33	2350	3.8							
	58	28	25	24.07	2200	4.7							
	69	23	20	20.21	2080	5.6							
	94	17.2	15	14.92	1880	7.5							
	112	14.4	12.5	12.47	1770	9.0							
	134	12.1	10	10.47	1670	10.8							
	181	8.9	7.5	7.73	1510	11.2							
		12.1	131	75	74.62	3730	1.0	<b>GPM50C</b>	<b>71B5/B14</b>	<b>7116</b>			
		14.4	110	60	62.36	3510	1.1						
		17.2	92	50	52.36	3310	1.2						
		15.4	105	60	58.81	3430	1.0	<b>GPM50B</b>	<b>71B5/B14</b>	<b>7116</b>			
		18.4	88	50	48.86	3240	1.5						
		22.4	72	40	40.09	3030	1.8						
		31	53	30	29.33	2730	2.5						
		37	43	25	24.07	2550	3.0						
		45	36	20	20.21	2410	3.6						
		60	27	15	14.92	2180	4.9						
		72	22	12.5	12.47	2050	5.8						
		9.3	171	300	302.50	4650	1.0				<b>GPM63C</b>	<b>63B5</b>	<b>6312</b>
		11.5	138	250	243.57	4330	1.5						
		14.3	111	200	196.43	4030	1.8						
		18.5	86	150	151.91	3690	2.3						
		22.9	69	125	122.22	3440	2.9						
		27.6	57	100	101.18	3230	3.5						
		38	41	75	74.73	2900	3.9						
		44	36	60	63.33	2760	3.9						
		53	30	50	48.98	2590	4.0						
		7.1	222	200	196.43	4800	0.9	<b>GPM63C</b>	<b>63B5</b>	<b>6324</b>			
		9.2	171	150	151.91	4650	1.2						
		11.5	138	125	122.22	4330	1.4						
		13.8	114	100	101.18	4070	1.7						
		19.1	83	75	74.73	3650	1.9						
		22.1	72	60	63.33	3480	2.0						
		26.7	59	50	48.98	3270	2.0						
		23.1	70	60	60.50	3430	2.4	<b>GPM63B</b>	<b>63B5</b>	<b>6324</b>			
		28.7	56	50	48.71	3190	3.6						
		36	45	40	39.29	2970	4.4						
		7.4	215	125	122.22	4800	0.9	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7116</b>			
		8.9	178	100	101.18	4720	1.1						
		12.3	129	75	74.73	4230	1.2						
		14.2	111	60	63.33	4030	1.3						
		17.1	92	50	48.98	3790	1.3						
		14.9	109	60	60.50	3970	1.6	<b>GPM63B</b>	<b>71B5/B14</b>	<b>7116</b>			
		18.5	87	50	48.71	3690	2.3						
		22.9	71	40	39.29	3440	2.8						
		29.7	54	30	30.38	3150	3.7						
		9.4	168	300	297.21	6320	2.1	<b>GPM75C</b>	<b>63B5</b>	<b>6312</b>			
		11.6	136	250	240.89	5890	2.6						
		14.0	113	200	200.66	5540	3.1						
		18.5	85	150	151.20	5040	4.1						
		4.7	336	300	297.21	6500	1.0	<b>GPM75C</b>	<b>63B5</b>	<b>6324</b>			
		5.8	272	250	240.89	6500	1.3						
		7.0	227	200	200.66	6500	1.5						
		9.3	171	150	151.20	6500	2.0						
		11.1	142	125	125.95	5980	2.5						
		14.1	112	100	99.22	5520	3.1						
		18.6	85	75	75.45	5040	4.1						

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$					
<b>0.18</b>	4.5	353	200	200.66	6500	1.0	<b>GPM75C</b>	<b>71B5</b>	<b>7116</b>		
	6.0	266	150	151.20	6500	1.3					
	7.1	221	125	125.95	6500	1.6					
	9.1	174	100	99.22	6400	2.0					
	11.9	133	75	75.45	5840	2.6					
	14.4	110	60	62.43	5480	3.2					
	18.3	86	50	49.18	5060	4.1	<b>GPM75B</b>	<b>71B5</b>	<b>7116</b>		
	15.1	107	60	59.44	5390	3.3					
	18.7	87	50	48.18	5030	4.0	<b>GPM90C</b>	<b>63B5</b>	<b>6312</b>		
	9.5	167	300	295.18	7990	2.8					
	11.6	136	250	240.89	7470	3.7	<b>GPM90C</b>	<b>63B5</b>	<b>6324</b>		
	4.7	333	300	295.18	8300	1.4					
	5.8	272	250	240.89	8300	1.8					
	7.0	227	200	200.66	8300	2.2					
	9.3	171	150	151.54	8050	2.9					
	11.1	142	125	126.02	7580	3.5					
	<b>0.25</b>	3.7	423	250	240.89	8300	1.2	<b>GPM90C</b>	<b>71B5</b>	<b>7116</b>	
		4.5	353	200	200.66	8300	1.4				
		6.0	266	150	151.54	8300	1.9	<b>GPM50C</b>	<b>63B5</b>	<b>6322</b>	
		7.1	221	125	126.02	8300	2.3				
9.1		174	100	99.34	8110	2.9					
11.9		133	75	75.45	7400	3.8					
14.4		110	60	62.43	6950	4.1					
19.1		115	150	146.67	3200	1.1					
23.3		94	125	120.34	2990	1.4	<b>GPM50B</b>	<b>63B5</b>	<b>6322</b>		
27.7		79	100	101.04	2820	1.6					
38		59	75	74.62	2550	2.2					
45		49	60	62.36	2400	2.5					
53		41	50	52.36	2270	2.7					
48		47	60	58.81	2350	2.4					
57		39	50	48.86	2220	3.3	<b>GPM50C</b>	<b>71B5/B14</b>	<b>7114</b>		
70		32	40	40.09	2070	4.0					
18.8		117	75	74.62	3220	1.1					
22.5		98	60	62.36	3030	1.2					
26.7		82	50	52.36	2860	1.3					
24.0		94	60	58.81	2960	1.2					
<b>GPM50B</b>	28.7	78	50	48.86	2790	1.7	<b>71B5/B14</b>	<b>7114</b>			
	35	64	40	40.09	2610	2.0					
	48	47	30	29.33	2350	2.8					
	58	39	25	24.07	2200	3.4					
	69	32	20	20.21	2080	4.0					
	94	24	15	14.92	1880	5.4					
	<b>GPM50B</b>	18.4	122	50	48.86	3240			1.1	<b>71B5/B14</b>	<b>7126</b>
		22.4	100	40	40.09	3030			1.3		
		31	73	30	29.33	2730			1.8		
		37	60	25	24.07	2550			2.2		
45		50	20	20.21	2410	2.6					
60		37	15	14.92	2180	3.5					
72		31	12.5	12.47	2050	4.2					
86		26	10	10.47	1930	5.0					
116		19	7.5	7.73	1750	5.2					
<b>GPM63C</b>		11.5	191	250	243.57	4330	1.0	<b>63B5</b>	<b>6322</b>		
	14.3	154	200	196.43	4030	1.3					
	18.5	119	150	151.91	3690	1.7					
	22.9	96	125	122.22	3440	2.1					
	27.6	79	100	101.18	3230	2.5					
	38	58	75	74.73	2900	2.8					
	44	50	60	63.33	2760	2.8					
	53	41	50	48.98	2590	2.9					



$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$					
0.25	11.5	192	125	122.22	4330	1.0	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7114</b>		
	13.8	159	100	101.18	4070	1.3					
	19.1	115	75	74.73	3650	1.4					
	22.1	99	60	63.33	3480	1.4					
	26.7	82	50	48.98	3270	1.5					
	23.1	97	60	60.50	3430	1.8	<b>GPM63B</b>	<b>71B5/B14</b>	<b>7114</b>		
	28.7	78	50	48.71	3190	2.6					
	36	63	40	39.29	2970	3.2					
	46	49	30	30.38	2720	4.1					
	12.3	179	75	74.73	4230	0.9	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7126</b>		
	14.2	155	60	63.33	4030	0.9					
	17.1	128	50	48.98	3790	0.9					
	14.9	151	60	60.50	3970	1.1	<b>GPM63B</b>	<b>71B5/B14</b>	<b>7126</b>		
	18.5	121	50	48.71	3690	1.6					
	22.9	98	40	39.29	3440	2.0					
	29.7	76	30	30.38	3150	2.6					
	37	61	25	24.44	2930	3.3					
	44	50	20	20.04	2760	4.0					
	9.4	233	300	297.21	6320	1.5				<b>GPM75C</b>	<b>63B5</b>
	11.6	189	250	240.89	5890	1.9					
	14.0	157	200	200.66	5540	2.2					
	18.5	119	150	151.20	5040	3.0					
	22.2	99	125	125.95	4750	3.5					
	5.8	378	250	240.89	6500	0.9	<b>GPM75C</b>	<b>71B5</b>	<b>7114</b>		
	7.0	315	200	200.66	6500	1.1					
	9.3	237	150	151.20	6500	1.5					
	11.1	198	125	125.95	5980	1.8					
	14.1	156	100	99.22	5520	2.2					
	18.6	118	75	75.45	5040	3.0					
	22.4	98	60	62.43	4730	3.6					
	6.0	369	150	151.54	6500	0.9	<b>GPM75C</b>	<b>71B5</b>	<b>7126</b>		
	7.1	307	125	125.95	6500	1.1					
	9.1	242	100	99.22	6400	1.4					
	11.9	184	75	75.45	5840	1.9					
	14.4	152	60	62.43	5480	2.3					
	18.3	120	50	49.18	5060	2.9					
	15.1	148	60	59.44	5390	2.4				<b>GPM75B</b>	<b>71B5</b>
	18.7	120	50	48.18	5030	2.9					
	22.4	100	40	40.13	4730	3.5					
	9.5	232	300	295.18	7990	2.0	<b>GPM90C</b>	<b>63B5</b>	<b>6322</b>		
11.6	189	250	240.89	7470	2.6						
14.0	157	200	200.66	7030	3.2						
18.5	119	150	151.54	6390	4.2						
4.7	463	300	295.18	8300	1.0	<b>GPM90C</b>	<b>71B5</b>	<b>7114</b>			
5.8	378	250	240.89	8300	1.3						
7.0	315	200	200.66	8300	1.6						
9.3	237	150	151.54	8050	2.1						
11.1	198	125	126.02	7580	2.5						
14.1	156	100	99.34	7000	3.2						
18.6	118	75	75.45	6390	4.2						
4.5	490	200	200.66	8300	1.0				<b>GPM90C</b>	<b>71B5</b>	<b>7126</b>
6.0	369	150	151.54	8300	1.4						
7.1	307	125	126.02	8300	1.6						
9.1	242	100	99.34	8110	2.1						
11.9	184	75	75.45	7400	2.7						
14.4	152	60	62.43	6950	3.0						
18.3	120	50	49.18	6420	2.9						
15.2	147	60	59.04	6820	3.1	<b>GPM90C</b>	<b>71B5</b>	<b>7126</b>			
18.7	120	50	48.18	6370	4.2						



$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$					
<b>0.37</b>	23.3	140	125	120.34	2990	0.9	<b>GPM90C</b>	<b>71B5/B14</b>	<b>7112</b>		
	27.7	117	100	99.34	2820	1.1					
	38	87	75	75.45	2550	1.5					
	45	72	60	62.43	2400	1.7					
	53	61	50	49.18	2270	1.8					
	48	69	60	58.81	2350	1.6	<b>GPM50B</b>	<b>71B5/B14</b>	<b>7112</b>		
	57	58	50	48.86	2220	2.2					
	70	48	40	40.09	2070	2.7					
	95	35	30	29.33	1870	3.7					
	28.7	116	50	48.86	2790	1.1	<b>GPM50B</b>	<b>71B5/B14</b>	<b>7124</b>		
	35	95	40	40.09	2610	1.4					
	48	70	30	29.33	2350	1.9					
	58	57	25	24.07	2200	2.3					
	69	48	20	20.21	2080	2.7					
	94	35	15	14.92	1880	3.7					
	112	30	12.5	12.47	1770	4.4					
	134	25	10	10.47	1670	5.2					
	181	18	7.5	7.73	1510	5.5					
31	108	30	29.33	2730	1.2	<b>GPM50B</b>	<b>80B5/B14</b>	<b>8016</b>			
37	89	25	24.07	2550	1.5						
45	75	20	20.21	2410	1.7						
60	55	15	14.92	2180	2.4						
72	46	12.5	12.47	2050	2.8						
86	39	10	10.47	1930	3.4						
116	29	7.5	7.73	1750	3.5						
14.3	228	200	196.43	4030	0.9	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7112</b>			
18.5	176	150	151.91	3690	1.1						
22.9	142	125	122.22	3440	1.4						
27.6	118	100	101.18	3230	1.7						
38	85	75	74.73	2900	1.9						
44	74	60	63.33	2760	1.9						
53	61	50	48.98	2590	2.0						
46	72	60	60.50	2720	2.4				<b>GPM63B</b>	<b>71B5/B14</b>	<b>7112</b>
57	58	50	48.71	2530	3.5						
71	47	40	39.29	2350	4.3						
13.8	235	100	101.18	4070	0.9	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7124</b>			
19.1	170	75	74.73	3650	0.9						
22.1	147	60	63.33	3480	1.0						
26.7	122	50	48.98	3270	1.0						
23.1	144	60	60.50	3430	1.2				<b>GPM63B</b>	<b>71B5/B14</b>	<b>7124</b>
28.7	116	50	48.71	3190	1.7						
36	93	40	39.29	2970	2.1						
46	72	30	30.38	2720	2.8						
57	58	25	24.44	2530	3.4						
69	48	20	20.04	2380	4.2						
18.5	180	50	48.71	3690	1.1	<b>GPM63B</b>	<b>80B5/B14</b>	<b>8016</b>			
22.9	145	40	39.29	3440	1.4						
29.7	112	30	30.38	3150	1.8						
37	90	25	24.44	2930	2.2	<b>GPM63B</b>	<b>80B5/B14</b>	<b>8016</b>			
44	75	20	20.04	2760	2.7						
61	54	15	14.95	2470	3.5						
71	47	12.5	12.67	2360	3.5						
86	39	10	9.80	2210	3.5						
118	28	7.5	7.60	1990	3.6						
9.4	345	300	297.21	6320	1.0				<b>GPM75C</b>	<b>71B5</b>	<b>7112</b>
11.6	280	250	240.89	5890	1.3						
14.0	233	200	200.66	5540	1.5						
18.5	176	150	151.20	5040	2.0						
22.2	146	125	125.95	4750	2.4						
28.2	115	100	99.22	4380	3.0						
37	88	75	75.45	4000	4.0						




$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$						
<b>0.37</b>	9.3	351	150	151.20	6500	1.0	<b>GPM75C</b>	<b>71B5</b>	<b>7124</b>			
	11.1	292	125	125.95	5980	1.2						
	14.1	230	100	99.22	5520	1.5						
	18.6	175	75	75.45	5040	2.0						
	22.4	145	60	62.43	4730	2.4						
	28.5	114	50	49.18	4370	3.1						
	23.6	141	60	59.44	4660	2.5	<b>GPM75B</b>	<b>71B5</b>	<b>7124</b>			
	29.1	114	50	48.18	4340	3.1						
	35	95	40	40.13	4080	3.7						
	9.1	358	100	99.22	6400	1.0	<b>GPM75C</b>	<b>80B5/B14</b>	<b>8016</b>			
	11.9	273	75	75.45	5840	1.3						
	14.4	225	60	62.43	5480	1.6						
	18.3	178	50	49.18	5060	2.0						
	15.1	219	60	59.44	5390	1.6	<b>GPM75B</b>	<b>80B5/B14</b>	<b>8016</b>			
	18.7	178	50	48.18	5030	2.0						
	22.4	148	40	40.13	4730	2.4						
	29.8	112	30	30.24	4310	3.1						
	36	93	25	25.19	4050	3.8						
	9.5	343	300	295.18	7990	1.3	<b>GPM90C</b>	<b>71B5</b>	<b>7112</b>			
	11.6	280	250	240.89	7470	1.8						
	14.0	233	200	200.66	7030	2.1						
	18.5	176	150	151.54	6390	2.8						
	22.2	146	125	126.02	6010	3.4						
	5.8	559	250	240.89	8300	0.9	<b>GPM90C</b>	<b>71B5</b>	<b>7124</b>			
	7.0	466	200	200.66	8300	1.1						
	9.3	351	150	151.54	8050	1.4						
	11.1	292	125	126.02	7580	1.7						
	14.1	230	100	99.34	7000	2.2						
	18.6	175	75	75.45	6390	2.9						
	22.4	145	60	62.43	6000	3.1						
	28.5	114	50	49.18	5540	3.1						
	23.7	140	60	59.04	5890	3.3				<b>GPM90B</b>	<b>71B5</b>	<b>7124</b>
	29.1	114	50	48.18	5500	4.4						
	6.0	546	150	151.54	8300	0.9	<b>GPM90C</b>	<b>80B5/B14</b>	<b>8016</b>			
	7.1	455	125	126.02	8300	1.1						
	9.1	358	100	99.34	8110	1.4						
11.9	273	75	75.45	7400	1.8							
14.4	225	60	62.43	6950	2.0							
18.3	178	50	49.18	6420	2.0							
15.2	218	60	59.04	6820	2.1	<b>GPM90B</b>	<b>80B5/B14</b>	<b>8016</b>				
18.7	178	50	48.18	5370	2.8							
22.4	148	40	40.13	6000	3.4							
<b>0.55</b>	38	129	75	74.62	2550	1.0	<b>GPM50C</b>	<b>71B5/B14</b>	<b>7122</b>			
	45	108	60	62.36	2400	1.1						
	53	90	50	52.36	2270	1.2						
	48	103	60	58.81	2350	1.1	<b>GPM50C</b>	<b>71B5/B14</b>	<b>7122</b>			
	57	86	50	48.86	2220	1.5						
	70	71	40	40.09	2070	1.8						
	95	52	30	29.33	1870	2.5						
	116	42	25	24.07	1750	3.1						
	139	36	20	20.21	1650	3.6						
	35	141	40	40.09	2610	0.9	<b>GPM50B</b>	<b>80B5/B14</b>	<b>8014</b>			
	48	103	30	29.33	2350	1.3						
	58	85	25	24.07	2200	1.5						
	69	71	20	20.21	2080	1.8						
	94	53	15	14.92	1880	2.5						
	112	44	12.5	12.47	1770	3.0						
	134	37	10	10.47	1670	3.5						
	181	27	7.5	7.73	1510	3.7						



$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$					
0.55	37	132	25	24.07	2550	1.0	<b>GPM50B</b>	<b>80B5/B14</b>	<b>8026</b>		
	45	111	20	20.21	2410	1.2					
	60	82	15	14.92	2180	1.6					
	72	68	12.5	12.47	2050	1.9					
	86	57	10	10.47	1930	2.3					
	116	42	7.5	7.73	1750	2.4					
	22.9	211	125	122.22	3440	0.9	<b>GPM63C</b>	<b>71B5/B14</b>	<b>7122</b>		
	27.6	175	100	101.18	3230	1.1					
	38	127	75	74.73	2900	1.3					
	44	109	60	63.33	2760	1.3					
	53	91	50	48.98	2590	1.3					
	46	107	60	60.50	2720	1.6	<b>GPM63B</b>	<b>71B5/B14</b>	<b>7122</b>		
	57	86	50	48.71	2530	2.3					
	71	69	40	39.29	2350	2.9					
	92	53	30	30.38	2160	3.7					
	28.7	172	50	48.71	3190	1.2	<b>GPM63B</b>	<b>80B5/B14</b>	<b>8014</b>		
	36	139	40	39.29	2970	1.4					
	46	107	30	30.38	2720	1.9					
	57	86	25	24.44	2530	2.3					
	69	71	20	20.04	2380	2.8					
	95	52	15	14.95	2130	3.7					
	110	45	12.5	12.67	2030	3.7					
	133	37	10	9.80	1910	3.6					
	184	27	7.5	7.60	1710	3.7					
	22.9	216	40	39.29	3440	0.9	<b>GPM63B</b>	<b>80B5/B14</b>	<b>8026</b>		
	29.7	166	30	30.38	3150	1.2					
	37	134	25	24.44	2930	1.5					
	44	111	20	20.04	2760	1.8					
	61	80	15	14.95	2470	2.4					
	71	70	12.5	12.67	2360	2.4					
	86	58	10	9.80	2210	2.3					
	118	42	7.2	7.60	1990	2.4					
	14.0	346	200	200.66	5540	1.0	<b>GPM75C</b>	<b>71B5</b>	<b>7122</b>		
	18.5	261	150	151.20	5040	1.3					
	22.2	217	125	125.95	4750	1.6					
	28.2	171	100	99.22	4380	2.0					
	37	130	72	75.45	4000	2.7					
	45	108	60	62.43	3750	3.2					
	57	85	50	49.18	3470	4.1					
	47	105	60	59.44	3690	3.3				<b>GPM75B</b>	<b>71B5</b>
	58	85	50	48.18	3440	4.1					
	14.1	342	100	99.22	5520	1.0	<b>GPM75C</b>	<b>80B5/B14</b>	<b>8014</b>		
	18.6	260	75	75.45	5040	1.3					
	22.4	215	60	62.43	4730	1.6	<b>GPM75C</b>	<b>80B5/B14</b>	<b>8014</b>		
	28.5	170	50	49.18	4370	2.1					
	23.6	210	60	59.44	4660	1.7	<b>GPM75B</b>	<b>80B5/B14</b>	<b>8014</b>		
	29.1	170	50	48.18	4340	2.1					
	35	142	40	40.13	4080	2.5					
46	107	30	30.24	3720	3.3						
56	89	25	25.19	3500	3.9						
14.4	335	60	62.43	5480	1.0	<b>GPM75C</b>				<b>80B5/B14</b>	<b>8026</b>
18.3	264	50	49.18	5060	1.3						
15.1	326	60	59.44	5390	1.1	<b>GPM75B</b>				<b>80B5/B14</b>	<b>8026</b>
18.7	264	50	48.18	5030	1.3						
22.4	220	40	40.13	4730	1.6						
29.8	166	30	30.24	4310	2.1						
36	138	25	25.19	4050	2.5						
45	109	20	19.84	3740	3.2						
60	83	15	15.09	3410	4.2						







$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$						
<b>0.55</b>	9.5	509	300	295.18	7990	0.9	<b>GPM90C</b>	<b>71B5</b>	<b>7122</b>			
	11.6	416	250	240.89	7470	1.2						
	14.0	346	200	200.66	7030	1.4						
	18.5	261	150	151.54	6390	1.9						
	22.2	217	125	126.02	6010	2.3						
	28.2	171	100	99.34	5550	2.9						
	37	130	75	75.45	5070	3.8						
	45	108	60	62.43	4760	4.2						
	57	85	50	49.18	4390	4.1						
	9.3	522	150	151.54	8050	1.0	<b>GPM90C</b>	<b>80B5/B14</b>	<b>8014</b>			
	11.1	435	125	126.02	7580	1.2						
	14.1	342	100	99.34	7000	1.5						
	18.6	260	75	75.45	6390	1.9						
	22.4	215	60	62.43	6000	2.1						
	28.5	170	50	49.18	5540	2.1						
	23.7	208	60	59.04	5890	2.2	<b>GPM90C</b>	<b>80B5/B14</b>	<b>8014</b>			
	29.1	170	50	48.18	5500	2.9						
	35	142	40	40.13	5170	3.5						
	9.1	533	100	99.34	8110	0.9	<b>GPM90C</b>	<b>80B5/B14</b>	<b>8026</b>			
	11.9	405	75	75.45	7400	1.2						
	14.4	335	60	62.43	6950	1.3						
	18.3	264	50	49.18	6420	1.3						
	15.2	324	60	59.04	6820	1.4	<b>GPM90B</b>	<b>80B5/B14</b>	<b>8026</b>			
	18.7	264	50	48.18	6370	1.9						
	22.4	220	40	40.13	6000	2.3						
	29.8	166	30	30.31	5460	3.0						
	36	138	25	25.20	5130	3.6						
	<b>0.75</b>	57	117	50	48.86	2220	1.1	<b>GPM50B</b>	<b>80B5/B14</b>	<b>8012</b>		
70		96	40	40.09	2070	1.3						
95		71	30	29.33	1870	1.8						
116		58	25	24.07	1750	2.2						
139		49	20	20.21	1650	2.7						
188		36	15	14.92	1490	3.6						
48		141	30	29.33	2350	0.9	<b>GPM50B</b>				<b>80B5/B14</b>	<b>8024</b>
58		116	25	24.07	2200	1.1						
69		97	20	20.21	2080	1.3						
94		72	15	14.92	1880	1.8						
12		60	12.5	12.47	1770	2.2						
134		50	10	10.47	1670	2.6						
181		37	7.5	7.73	1510	2.7						
60		112	15	14.92	2180	1.2		<b>GPM50B</b>	<b>90B5/B14</b>	<b>90S6</b>		
72		93	12.5	12.47	2050	1.4						
86		78	10	10.47	1930	1.7						
116		58	7.5	7.73	1750	1.7						
38		173	75	74.73	2900	0.9	<b>GPM63C</b>	<b>80B5/B14</b>	<b>8012</b>			
44		149	60	63.33	2760	0.9						
53		124	50	48.98	2590	1.0						
46		145	60	60.50	2720	1.2	<b>GPM63B</b>	<b>80B5/B14</b>	<b>8012</b>			
57		117	50	48.71	2530	1.7						
71		94	40	39.29	2350	2.1						
92		73	30	30.38	2160	2.7						
115		59	25	24.44	2010	3.4						
138		49	20	20.04	1890	4.1						
28.7		234	50	48.71	3190	0.9				<b>GPM63B</b>	<b>80B5/B14</b>	<b>8024</b>
36		189	40	39.29	2970	1.1						
46		146	30	30.38	2720	1.4						
57		118	25	24.44	2530	1.7						
69		97	20	20.04	2380	2.1						
95		71	15	14.95	2130	2.7						
110	61	12.5	12.67	2030	2.7							
133	50	10	9.80	1910	2.7							
184	37	7.5	7.60	1710	2.7							

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$			
0.75	37	183	25	24.44	2930	1.1	GPM63B	90B5/B14	90S6
	44	151	20	20.04	2760	1.3			
	61	110	15	14.95	2470	1.7			
	71	95	12.5	12.67	2360	1.7			
	86	79	10	9.80	2210	1.7			
	118	57	7.5	7.60	1990	1.8			
	18.5	356	150	151.20	5040	1.0	GPM75C	80B5/B14	8012
	22.2	296	125	125.95	4750	1.2			
	28.2	234	100	99.22	4380	1.5			
	37	178	75	75.45	4000	2.0			
	45	147	60	62.43	3750	2.4			
	57	116	50	49.18	3470	3.0			
	47	143	60	59.44	3690	2.4	GPM75B	80B5/B14	8012
	58	116	50	48.18	3440	3.0			
	70	96	40	40.13	3240	3.6			
	18.6	355	75	75.45	5040	1.0	GPM75C	80B5/B14	8024
	22.4	294	60	62.43	4730	1.2			
	28.5	231	50	49.18	4370	1.5			
	23.6	286	60	59.44	4660	1.2	GPM75B	80B5/B14	8024
	29.1	232	50	48.18	4340	1.5			
	35	193	40	40.13	4080	1.8			
	46	145	30	30.24	3720	2.4			
	56	121	25	25.19	3500	2.9			
	71	95	20	19.84	3230	3.7			
	18.7	360	50	48.18	5030	1.0	GPM75B	90B5/B14	90S6
	22.4	300	40	40.13	4730	1.2			
	29.8	226	30	30.24	4310	1.5			
	36	188	25	25.19	4050	1.9			
	45	148	20	19.84	3740	2.4			
	60	113	15	15.09	3410	3.1			
	72	93	12.5	12.49	3210	3.7			
	11.6	567	250	240.89	7470	0.9	GPM90C	80B5/B14	8012
	14.0	472	200	200.66	7030	1.1			
	18.5	356	150	151.54	6390	1.4			
	22.2	296	125	126.02	6010	1.7			
	28.2	34	100	99.34	5550	2.8	GPM90C	80B5/B14	8014
	37	178	75	75.45	5070	3.1			
	45	147	60	62.43	4760	3.0			
	57	116	50	49.18	4390	1.1			
	14.1	467	100	99.34	7000	1.4	GPM90C	80B5/B14	8024
	18.6	355	75	75.45	6390	1.5			
	22.4	294	60	62.43	6000	1.5			
	28.5	231	50	49.18	5540	1.6			
	23.7	284	60	59.04	5890	2.2	GPM90B	80B5/B14	8024
	29.1	232	50	48.18	5500	2.6			
	35	193	40	40.13	5170	3.4			
	46	145	30	30.31	4710	4.1			
	56	121	25	25.20	4430	0.9			
11.9	552	75	75.45	7400	1.0	GPM90C			
14.4	457	60	62.43	6950	1.0				
18.3	360	50	49.18	6420	1.0				
15.2	442	60	59.04	6820	1.4	GPM90B	90B5/B14	90S6	
18.7	360	50	48.18	6370	1.7				
22.4	300	40	40.13	6000	2.2				
29.8	226	30	30.31	5460	2.7				
36	188	25	25.20	5130	3.4				
45	148	20	19.87	4740	4.4				
60	113	15	15.09	4330	2.1				

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$						
1.1	70	141	40	40.09	2070	0.9	GPM50B	80B5/B14	8022			
	95	103	30	29.33	1870	1.3						
	116	85	25	24.07	1750	1.5						
	139	71	20	20.21	1650	1.8						
	188	53	15	14.92	1490	2.5						
	225	44	12.5	12.47	1400	3.0						
	267	37	10	10.47	1320	3.5						
	362	27	7.5	7.73	1200	3.7						
	69	143	20	20.21	2080	0.9	GPM50B	90B5/B14	90S4			
	94	105	15	14.92	1880	1.2						
	112	88	12.5	12.47	1770	1.5						
	134	74	10	10.47	1670	1.8						
	181	55	7.5	7.73	1510	1.8						
	72	137	12.5	12.47	2050	1.0	GPM50B	90B5/B14	90L6			
	86	115	10	10.47	1930	1.1						
	116	85	7.5	7.73	1750	1.2						
	57	172	50	48.71	2530	1.2	GPM63B	80B5/B14	8022			
	71	139	40	39.29	2350	1.4						
	92	107	30	30.38	2160	1.9						
	115	86	25	24.44	2010	2.3						
	138	71	20	20.04	1890	2.8						
	191	52	15	14.95	1690	3.7						
	221	45	12.5	12.67	1610	3.7						
	267	37	10	9.80	1510	3.6						
	368	27	7.5	7.60	1360	3.7						
	46	214	30	30.38	2720	0.9				GPM63B	90B5/B14	90S4
	57	172	25	24.44	2530	1.2						
	69	143	20	20.04	2380	1.4						
	95	103	15	14.95	2130	1.8						
	110	89	12.5	12.67	2030	1.8						
	133	74	10	9.80	1910	1.8						
	184	54	7.5	7.60	1710	1.9						
	44	222	20	20.04	2760	0.9	GPM63B	90B5/B14	90L6			
	61	161	15	14.95	2470	1.2						
	71	139	12.5	12.67	2360	1.2	GPM63B	90B5/B14	90L6			
	86	115	10	9.80	2210	1.2						
	118	83	7.5	7.60	1990	1.2						
	28.2	342	100	99.22	4380	1.0	GPM75C	80B5/B14	8022			
	37	260	75	75.45	4000	1.3						
	45	215	60	62.43	3750	1.6						
	57	170	50	49.18	3470	2.1						
	47	210	60	59.44	3690	1.7	GPM75B	80B5/B14	8022			
	58	170	50	48.18	3440	2.1						
	70	142	40	40.13	3240	2.5						
	93	107	30	30.24	2950	3.3						
	111	89	25	25.19	2770	3.9						
	29.1	340	50	48.18	4340	1.0				GPM75B	90B5/B14	90S4
	35	283	40	40.13	4080	1.2						
46	213	30	30.24	3720	1.6							
56	178	25	15.19	3500	2.0							
71	140	20	19.84	3230	2.5							
93	106	15	15.09	2950	3.3							
112	88	12.5	12.49	2770	4.0							
29.8	332	30	30.24	4310	1.1	GPM75B	90B5/B14	90L6				
36	276	25	25.19	4050	1.3							
45	218	20	19.84	3740	1.6							
60	166	15	15.09	3410	2.1							
72	137	12.5	12.49	3210	2.6							
91	108	10	9.84	2960	3.2							
120	82	7.5	7.48	2700	3.4							

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$						
1.1	18.5	522	150	151.54	6390	1.0	GPM90C	80B5/B14	8022			
	22.2	435	125	126.02	6010	1.2						
	28.2	342	100	99.34	5550	1.5						
	37	260	75	75.45	5070	1.9						
	45	215	60	62.43	4760	2.1						
	57	170	50	49.18	4390	2.1	GPM90B	80B5/B14	8022			
	47	208	60	59.04	4670	2.2						
	58	170	50	48.18	4360	2.9						
	70	142	40	40.13	4110	3.5	GPM90C	90B5/B14	90S4			
	18.6	521	75	75.45	6390	1.0						
	22.4	431	60	62.43	6000	1.0						
	28.5	340	50	49.18	5540	1.0						
	23.7	416	60	59.04	5890	1.1						
	29.1	340	50	48.18	5500	1.5						
	35	283	40	40.13	5170	1.8						
	46	213	30	30.31	4710	2.3	GPM90B	90B5/B14	90S4			
	56	1778	25	25.20	4430	2.8						
	71	140	20	19.87	4090	3.6						
	18.7	529	50	48.18	6370	0.9						
	22.4	440	40	40.13	6000	1.1						
29.8	332	30	30.31	5460	1.5							
36	276	25	25.20	5130	1.8							
45	218	20	19.87	2740	2.3	GPM90B	90B5/B14	90L6				
60	166	15	15.09	4330	3.0							
72	137	12.5	12.49	4060	3.4							
91	108	10	9.84	3750	3.3							
120	82	7.5	7.48	3420	3.4							
1.5	116	116	25	24.07	1750				1.1	GPM50B	90B5/B14	90S2
	139	97	20	20.21	1650				1.3			
	188	72	15	14.92	1490	1.8						
	225	60	12.5	12.47	1400	2.2						
	267	50	10	10.47	1320	2.6	GPM50B	90B5/B14	90S2			
	362	37	7.5	7.73	1200	2.7						
	94	144	15	14.92	1880	0.9	GPM50B	90B5/B14	90L4			
	112	120	12.5	12.47	1770	1.1						
	134	101	10	10.47	1670	1.3						
	181	74	7.5	7.73	1510	1.3						
	57	234	50	48.71	2530	0.9				GPM63B	90B5/B14	90L4
	71	189	40	39.29	2350	1.1						
	92	146	30	30.38	2160	1.4						
	115	118	25	24.44	2010	1.7						
	138	97	20	20.04	1890	2.1						
	191	71	15	14.95	1690	2.7						
	221	61	12.5	12.67	1610	2.7						
	267	50	10	9.80	1510	2.7						
	368	37	7.5	7.60	1360	2.7						
	57	235	25	24.44	2530	0.9	GPM63B	90B5/B14	90L4			
	69	195	20	20.04	2380	1.0						
	95	141	15	14.95	2130	1.3						
	110	122	12.5	12.67	2030	1.4						
	133	101	10	9.80	1910	1.3						
	184	73	7.5	7.60	1710	1.4						
	37	355	75	75.45	4000	1.0				GPM75C	90B5/B14	90S2
	45	294	60	62.43	3750	1.2						
	57	231	50	49.18	3470	1.5						
47	286	60	59.44	3690	1.2	GPM75B	90B5/B14	90S2				
58	232	50	48.18	3440	1.5							
70	193	40	40.13	3240	1.8							
93	145	30	30.24	2950	2.4							
111	121	25	25.19	2770	2.9							
141	95	20	19.84	2560	3.7							

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$				
1.5	35	386	40	40.13	4080	0.9	GPM75B	90B5/B14	90L4	
	46	291	30	30.24	3720	1.2				
	56	242	25	25.19	3500	1.4				
	71	191	20	19.84	3230	1.8				
	93	145	15	15.09	2950	2.4				
	112	120	12.5	12.49	2770	2.9				
	142	95	10	9.84	2550	3.7				
	187	72	7.5	7.48	2330	3.9				
	28.2	467	100	99.34	5550	1.1	GPM90C	90B5/B14	90S2	
	37	355	75	75.45	5070	1.4				
	45	294	60	62.43	4760	1.5				
	57	231	50	49.18	4390	1.5				
	47	284	60	59.04	4670	1.6	GPM90B	90B5/B14	90S2	
	58	232	50	48.18	4360	2.2				
	70	193	40	40.13	4110	2.6				
	93	145	30	30.31	3740	3.4				
	111	121	25	25.20	3520	4.1				
	29.1	463	50	48.18	5500	1.1	GPM90B	90B5/B14	90L4	
	35	386	40	40.13	5170	1.3				
	46	291	30	30.31	4710	1.7				
	56	242	25	25.20	4430	2.1				
	71	191	20	19.87	4090	2.6				
	93	145	15	15.09	3760	3.4				
	112	120	12.5	12.49	3510	3.8				
	142	95	10	9.84	3240	3.8				
	187	72	7.5	7.48	2950	3.9				
	2.2	139	143	20	20.21	1650				0.9
		188	105	15	14.92	1490	1.2			
225		88	12.5	12.47	1400	1.5				
267		74	10	10.47	1320	1.8				
362		55	7.5	7.73	1200	1.8				
92		214	30	30.38	2160	0.9	GPM63B	90B5/B14	90L2	
115		172	25	24.44	2010	1.2				
138		143	20	25.04	1890	1.4				
191		103	15	14.95	1690	1.8				
221		89	12.5	12.67	1610	1.8				
267		74	10	9.80	1510	1.8				
368		54	7.5	7.60	1360	1.9				
58		340	50	48.18	3440	1.0				GPM75B
70		283	40	40.13	3240	1.2				
93		213	30	30.24	2950	1.6				
111		178	25	25.19	2770	2.0				
141		140	20	19.84	2560	2.5				
186		106	15	15.09	2340	3.3				
224		88	12.5	12.49	2190	4.0				
56		355	25	25.19	3500	1.0	GPM75B	100B5/B14	100LA4	
71		280	20	19.84	3230	1.3				
93		213	15	15.09	2950	1.6				
112		176	12.5	12.49	2770	2.0				
142		139	10	9.84	2550	2.5				
187		106	7.5	7.48	2330	2.7				
60		331	15	15.09	3410	1.1	GPM75B	112B5/B14	112M6	
72		274	12.5	12.49	3210	1.3				
91		216	10	9.84	2960	1.6				
120		164	7.5	7.48	2700	1.7				
37		521	75	75.45	5070	1.0	GPM90C	90B5/B14	90L2	
45		431	60	62.43	4760	1.0				
57		340	50	49.18	4390	1.0				
47		416	60	59.04	4670	1.1	GPM90B	90B5/B14	90L2	
58		340	50	48.18	4360	1.5				
70		283	40	40.13	4110	1.8				
93		213	30	30.31	3740	2.3				
111		178	25	25.20	3520	2.8				
141		140	20	19.87	3250	3.6				

$P_{1n}$ [KW]	$n_2$ [r/min]	$M_{2n}$ [N/m]	$i$ Nominal	$i$ Actual	$F_{r2}$ [N]	$f_s$						
2.2	35	566	40	40.13	5170	0.9	GPM90B	100B5/B14	100LA4			
	46	427	30	30.31	4710	1.2						
	56	355	25	25.20	4430	1.4						
	71	280	20	19.87	4090	1.8						
	93	213	15	15.09	3730	2.3						
	112	176	12.5	12.49	3510	2.6						
	142	139	10	9.84	3240	2.6						
	187	106	7.5	7.48	2950	2.7						
	36	553	25	25.20	5130	0.9						
	45	435	20	19.87	4740	1.1						
	60	331	15	15.09	4330	1.5						
	72	274	12.5	12.49	4060	1.7						
	91	216	10	9.84	3750	1.7						
	120	164	7.5	7.48	3420	1.7						
3	70	386	40	40.13	3240	0.9	GPM75B	100B5/B14	100L2			
	93	291	30	30.24	2950	1.2						
	111	242	25	25.19	2770	1.4						
	141	191	20	19.84	2560	1.8						
	186	145	15	15.09	2340	2.4	GPM75B	100B5/B14	100L2			
	224	120	12.5	12.49	2190	2.9						
	285	95	10	9.84	2030	3.7						
	374	72	7.5	7.48	1850	3.9						
	93	290	15	15.09	2950	1.2	GPM75B	100B5/B14	100LB4			
	112	240	12.5	12.49	2770	1.5						
	142	189	10	9.84	2550	1.8						
	187	144	7.5	7.48	2330	1.9						
	47	568	60	59.04	4670	0.9	GPM90B	100B5/B14	100L2			
	58	463	50	48.18	4360	1.1						
	70	386	40	40.13	4110	1.3						
	93	291	30	30.31	3740	1.7						
	111	242	25	25.20	3520	2.1						
	141	191	20	19.87	3250	2.6						
	186	145	15	15.09	2960	3.4						
	224	120	12.5	12.49	2780	3.8						
	285	95	10	9.84	2570	3.8						
	374	72	7.5	7.48	2340	3.9						
	56	485	25	25.20	4430	1.0				GPM90B	100B5/B14	100LB4
	71	382	20	19.87	4090	1.3						
93	290	15	15.09	3730	1.7							
112	240	12.5	12.49	3510	1.9							
142	189	10	9.84	3240	1.9							
187	144	7.5	7.48	2950	1.9							
4	111	323	25	25.19	2770	1.1	GPM75B	112B5/B14	112LB4			
	141	254	20	19.84	2560	1.4						
	186	194	15	15.09	2340	1.8						
	224	160	12.5	12.49	2190	2.2						
	285	126	10	9.84	2030	2.8						
	374	96	7.5	7.48	1850	2.9						
	112	320	12.5	12.49	2770	1.1				GPM75B	112B5/B14	112M4
	142	252	10	9.84	2550	1.4						
	187	192	7.5	7.48	2330	1.5						
	70	515	40	40.13	4100	1.0	GPM90B	112B5/B14	112M2			
	93	388	30	30.31	3740	1.3						
	111	323	25	25.20	3520	1.5						
	141	254	20	19.87	3250	2.0						
	186	194	15	15.09	2960	2.6						
	224	160	12.5	12.49	2780	2.9						
	285	126	10	9.84	2570	2.9						
	374	96	7.5	7.48	2340	2.9						
	71	509	20	19.87	4090	1.0				GPM90B	112B5/B14	112M4
	93	387	15	15.09	3730	1.3						
	112	320	12.5	12.49	3510	1.4						
	142	252	10	9.84	3240	1.4						
	187	192	7.5	7.48	2950	1.5						

## GPM110B/C Rating Chart

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox Flange	Motor
<b>0.18</b>	2.8	543	300	298.6	10000	1.4	<b>GPM110C 71B5</b>	<b>7116</b>
	3.1	497	270	273.0	10000	1.5		
	3.4	455	250	250.1	10000	1.6		
	3.7	416	230	228.7	10000	1.8		
	4.3	356	200	195.4	10000	2.1		
	4.8	325	180	178.7	10000	2.3		
	5.4	284	150	156.1	10000	2.6		
	6.0	260	140	142.7	10000	29.0		
	6.9	223	125	122.7	9660	3.4		
	7.6	204	110	112.2	9380	3.7		
	8.7	178	100	98.0	8960	3.6		
	9.5	163	90	89.6	8700	4.0		
	11.3	137	75	75.5	8220	3.8		
	12.3	126	70	69.0	7980	4.1		
	46.0	465	300	298.6	10000	1.6	<b>GPM110C 63B5</b>	<b>6324</b>
	5.1	425	270	273.0	10000	1.8		
	5.5	389	250	250.1	10000	1.9		
	6.0	356	230	228.7	10000	2.1		
	7.1	304	200	195.4	9740	2.5		
	7.7	278	180	178.7	9450	2.7		
	8.8	243	150	156.1	9040	3.1		
	9.7	222	140	142.7	8770	34.0		
	11.2	191	125	122.7	8340	39.0		
	12.3	175	110	112.2	8090	4.3		
14.1	153	100	98.0	7740	4.3			
15.4	139	90	89.6	7510	4.7			
18.3	118	75	75.5	7090	44.0			
20.0	107	70	69.0	6880	4.8			
<b>0.25</b>	2.8	755	300	298.6	10000	1.0	<b>GPM110C 71B5</b>	<b>7126</b>
	3.1	690	270	273.0	10000	1.1		
	3.4	632	250	250.1	10000	1.2		
	3.7	578	230	228.7	10000	1.3		
	4.3	494	200	195.4	10000	1.5		
	4.8	452	180	178.7	10000	1.7		
	5.4	395	150	156.1	10000	1.9		
	6.0	361	140	142.7	10000	2.1		
	6.9	310	125	122.7	9660	24.0		
	7.6	284	110	112.2	9380	2.6		
	8.7	248	100	98.0	8960	2.6		
	9.5	226	90	89.6	8700	29.0		
	11.3	191	75	75.5	8220	2.7		
	12.3	175	70	69.0	7980	3.0		

## GPM110B/C Rating Chart..

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox	Flange	Motor
<b>0.25</b>	9.2	347	300	298.6	8900	2.2	<b>GPM110C 63B5</b>	<b>63B5</b>	<b>6312</b>
	100.0	317	270	273.0	8640	2.4			
	11.0	290	250	250.1	8390	2.6			
	12.0	265	230	228.7	8150	2.8			
	14.0	227	200	195.4	7730	3.3			
	15.3	207	180	178.7	7500	3.6			
	17.6	181	150	156.1	7170	4.1			
	46.0	688	300	298.6	10000	1.1	<b>GPM110C 71B5</b>	<b>71B5</b>	<b>7124</b>
	5.1	629	270	273.0	10000	1.2			
	5.5	576	250	250.1	10000	1.3			
	6.0	527	230	228.7	10000	1.4			
	7.1	450	200	195.4	9740	1.7			
	7.7	412	180	178.7	9450	1.8			
	8.8	360	150	156.1	9040	2.1			
	9.7	329	140	142.7	8770	2.3			
	11.2	283	125	122.7	8340	2.7			
	12.3	258	110	112.2	8090	2.9			
	14.1	226	100	98.0	7740	2.9			
	15.4	206	90	89.6	7510	3.1			
	18.3	174	75	75.5	7090	3.0			
20.0	159	70	69.0	6880	3.3				
<b>0.37</b>	4.5	702	200	195.4	10000	1.1	<b>GPM110C 80B5</b>	<b>80B5</b>	<b>8016</b>
	5.0	642	180	178.7	10000	1.2			
	5.7	561	150	156.1	10000	1.3			
	6.2	513	140	142.7	10000	1.5			
	7.2	441	125	122.7	9660	1.7			
	7.9	403	110	112.2	9380	1.9			
	9.0	352	100	98.0	8960	1.8			
	9.9	322	90	89.6	8700	2.0			
	11.7	271	75	75.5	8220	1.9			
	12.8	248	70	69.0	7980	2.1			
	14.8	219	60	59.7	7600	3.4			
	17.7	184	50	50.0	7160	4.1			
	92.0	515	300	298.6	8900	1.5	<b>GPM110C 71B5</b>	<b>71B5</b>	<b>7112</b>
	100.0	471	270	273.0	8640	1.6			
	11.0	431	250	250.1	8390	1.7			
	12.0	395	230	228.7	8150	1.9			
	14.0	337	200	195.4	7730	2.2			
	15.3	308	180	178.7	7500	2.4			
	17.6	269	150	156.1	7170	2.8			
	19.2	246	140	142.7	6960	3.0			
22.0	212	125	122.7	6620	3.5				
24.0	193	110	112.2	6420	39.0				
28.0	169	100	98.0	6140	3.8				
31.0	155	90	89.6	5960	4.2				
36.0	130	75	75.5	5630	4.0				
40.0	119	70	69.0	5460	4.4				



## GPM110B/C Rating Chart..

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox Flange	Motor	
<b>0.37</b>	5.5	857	250	250.1	10000	0.9	<b>GPM110C 71B5</b>	<b>7124</b>	
	6.0	783	230	228.7	10000	1.0			
	7.1	669	200	195.4	9740	1.1			
	7.7	612	180	178.7	9450	1.2			
	8.8	535	150	156.1	9040	1.4			
	97.0	489	140	142.7	8770	1.5			
	11.2	420	125	122.7	8340	1.8			
	12.3	384	110	112.2	8090	2.0			
	14.1	336	100	98.0	7740	1.9			
	15.4	307	90	89.6	7510	2.1			
	18.3	259	75	75.5	7090	2.0			
	20.0	236	70	69.0	6880	2.2			
<b>0.55</b>	23.0	209	60	59.7	6560	3.6	<b>GPM110B 80B5</b>	<b>8014</b>	
	28.0	175	50	50.0	6180	4.3			
	35.0	137	40	39.1	5690	5.5			
	<b>0.55</b>	5.7	834	150	156.1	10000	0.9	<b>GPM110C 80B5</b>	<b>8026</b>
		6.2	762	140	142.7	10000	1.0		
		7.2	655	125	122.7	9660	1.1		
		7.9	599	110	112.2	9380	1.3		
		9.0	523	100	98.0	8960	1.2		
		9.9	478	90	89.6	8700	14.0		
		11.7	403	75	75.5	8220	1.3		
		12.8	369	70	69.0	7980	14.0		
		14.8	326	60	59.7	7600	2.3		
		17.7	273	50	50.0	7160	2.7		
		23.0	213	40	39.1	6600	3.5		
		<b>0.55</b>	9.5	678	300	298.6	8900		
10.4	620		270	273.0	8640	1.2			
11.4	568		250	250.1	8390	1.3			
12.4	519		230	228.7	8150	1.4			
14.5	444		200	195.4	7730	1.7			
15.9	406		180	178.7	7500	1.8			
18.2	354		150	156.1	7170	2.1			
19.9	324		140	142.7	6960	2.3			
23.0	278		125	122.7	6620	2.7			
25.0	255		110	112.2	6420	2.9			
29.0	222		100	98.0	6140	2.9			
32.0	203		90	89.6	5960	3.2			
38.0	171		75	75.5	5630	3.0			
41.0	157		70	69.0	5460	3.3			

## GPM110B/C Rating Chart..

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox	Flange	Motor				
<b>0.75</b>	7.7	835	180	178.7	9450	0.9	<b>GPM110C 80B5</b>		<b>8024</b>				
	8.8	729	150	156.1	9040	1.0							
	9.7	667	140	142.7	8770	1.1							
	11.2	573	125	122.7	8340	1.3							
	12.3	524	110	112.2	8090	1.4							
	14.1	458	100	98.0	7740	1.4							
	15.4	418	90	89.6	7510	1.6							
	18.3	353	75	75.5	7090	1.5							
	20.0	322	70	69.0	6880	1.6							
	23.0	285	60	59.7	6560	2.6							
	28.0	239	50	50.0	6180	3.1							
	35.0	187	40	39.1	5690	4.0							
		8.1	794	110	112.2	9380				0.9	<b>GPM110C 90B5</b>		<b>90S6</b>
		9.3	694	100	98.0	8960				0.9			
		10.2	634	90	89.6	8700	1.0						
		12.1	535	75	75.5	8220	1.0						
		13.2	489	70	69.0	7980	1.1						
		15.2	432	60	59.7	7600	1.7						
		18.2	362	50	50.0	7160	2.1						
		23.0	283	40	39.1	6600	2.6						
		29.0	226	30	31.2	6120	3.3						
		37.0	178	25	24.5	5650	4.2						
46.0		142	20	19.6	5240	4.6							
60.0		109	15	15.1	4800	4.8							
<b>1.1</b>		11.4	833	250	250.1	8390	0.9	<b>GPM110C 80B5</b>		<b>8022</b>			
		12.4	761	230	228.7	8150	1.0						
	14.5	651	200	195.4	7730	1.2							
	15.9	595	180	178.7	7500	1.3							
	18.2	520	150	156.1	7170	1.4							
	19.9	475	140	142.7	6960	1.6							
	23.0	408	125	122.7	6620	1.8							
	25.0	373	110	112.2	6420	2.0							
	29.0	326	100	98.0	6140	2.0							
	32.0	298	90	89.6	5960	2.2							
	38.0	251	75	75.5	5630	2.1							
	41.0	230	70	69.0	5460	2.3							
		11.4	828	125	122.7	8340	0.9				<b>GPM110C 90B5</b>		<b>90S4</b>
		12.5	757	110	112.2	8090	1.0						
		14.3	662	100	98.0	7740	1.0						
		15.6	605	90	89.6	7510	1.1						
		18.5	510	75	75.5	7090	1.0						
		20.0	466	70	69.0	6880	1.1						
		23.0	412	60	59.7	6560	1.8						
		28.0	345	50	50.0	6180	2.2						
		36.0	270	40	39.1	5690	2.8						
		45.0	215	30	31.2	5280	3.5						
57.0		169	25	24.5	4870	4.4							
71.0		135	20	19.6	4520	4.8							

## GPM110B/C Rating Chart..

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox Flange	Motor				
<b>1.1</b>	15.2	634	60	59.7	7600	1.2	<b>GPM110B 90B5</b>	<b>90L6</b>				
	18.2	531	50	50.0	7160	1.4						
	23.0	415	40	39.1	6600	1.8						
	29.0	331	30	31.2	6120	2.3						
	37.0	261	25	24.5	5650	2.9						
	46.0	208	20	19.6	5240	3.1						
	60.0	160	15	15.1	4800	3.2						
<b>1.5</b>	18.2	708	150	156.1	7170	1.1	<b>GPM110C 90B5</b>	<b>90S2</b>				
	19.9	648	140	142.7	6960	1.2						
	23.0	557	125	122.7	6620	1.3						
	25.0	509	110	112.2	6420	1.5						
	29.0	445	100	98.0	6140	1.5						
	32.0	407	90	89.6	5960	1.6						
	38.0	343	75	75.5	5630	1.5						
	41.0	313	70	69.0	5460	1.7						
	<b>1.5</b>	24.0	554	60	59.7	6560	14.0	<b>GPM110C 90B5</b>	<b>90L4</b>			
		28.0	464	50	50.0	6180	1.6					
		36.0	363	40	39.1	5690	2.1					
		45.0	290	30	31.2	5280	2.6					
		58.0	228	25	24.5	4870	3.3					
		72.0	182	20	19.6	4520	3.6					
		94.0	140	15	15.1	4150	3.7					
		<b>1.5</b>	15.4	855	60	59.7	7600			0.9	<b>GPM110B 100B5</b>	<b>100L6</b>
			18.4	717	50	50.0	7160			1.0		
24.0			560	40	39.1	6600	1.3					
29.0	447		30	31.2	6120	1.7						
38.0	351		25	24.5	5650	2.1						
47.0	281		20	19.6	5240	2.3						
61.0	216		15	15.1	4800	24.0						
76.0	174		12.5	12.2	4470	4.3						
95.0	139		10	9.7	4150	4.7						
123.0	107	7.5	7.5	3800	4.9							
<b>2.2</b>	23.0	817	125	122.7	6620	0.9	<b>GPM110C 90B5</b>	<b>90L2</b>				
	25.0	747	110	112.2	6420	1.0						
	29.0	652	100	98.0	6140	1.0						
	32.0	596	90	89.6	5960	1.1						
	38.0	503	75	75.5	5630	1.0						
	41.0	460	70	69.0	5460	1.1						
	<b>2.2</b>	24.0	807	60	59.7	6560	0.9	<b>GPM110B 100B5</b>	<b>100LA4</b>			
		29.0	676	50	50.0	6180	1.1					
		37.0	528	40	39.1	5690	14.0					
		46.0	422	30	31.2	5280	1.8					
		58.0	332	25	24.5	4870	2.3					
		73.0	265	20	19.6	4520	2.5					
		95.0	204	15	15.1	4150	2.5					
		118.0	164	12.5	12.2	3860	46.0					
147.0	131	10	9.7	3580	5.0							
191.0	101	7.5	7.5	3280	5.1							

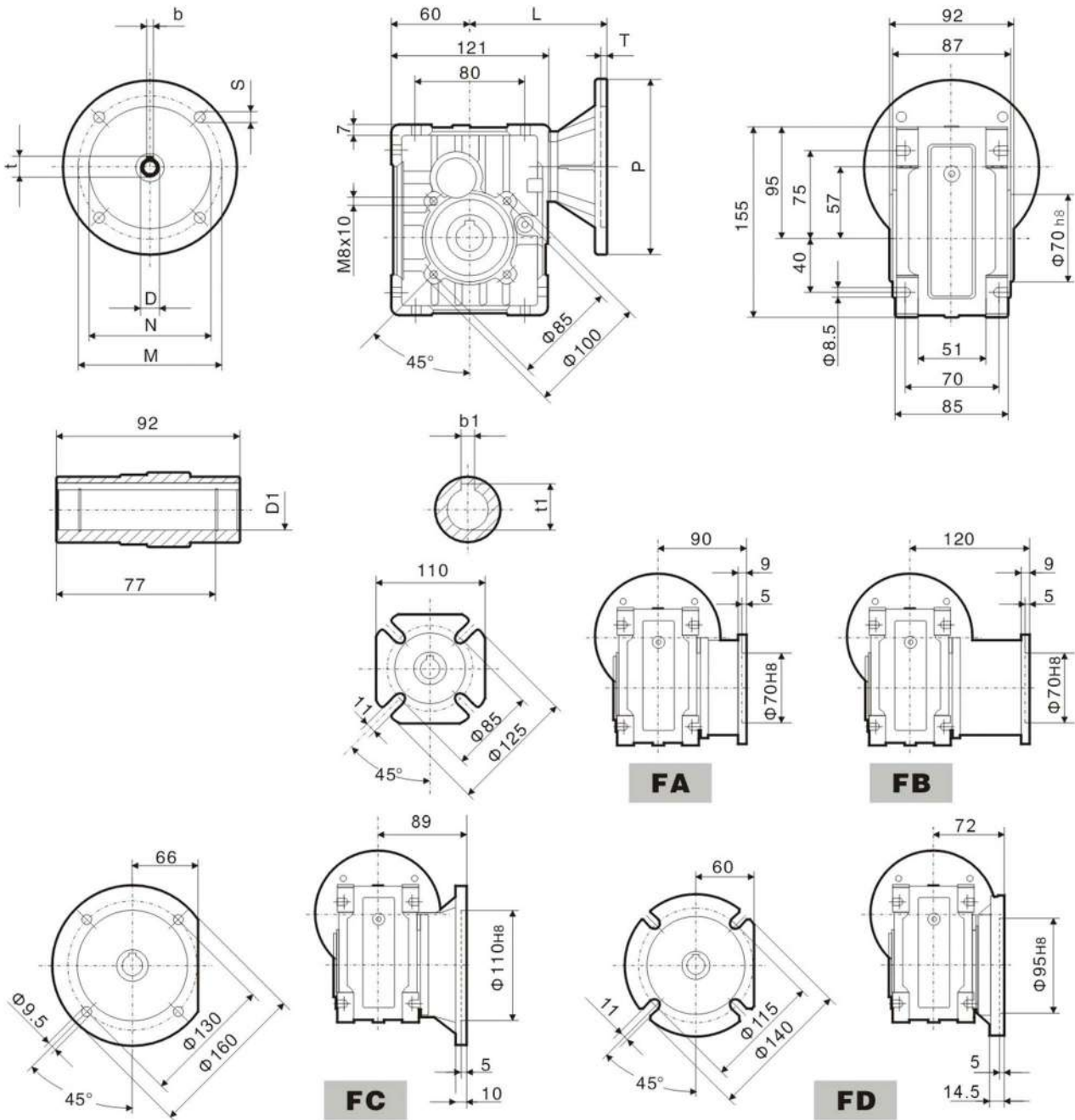
## GPM110B/C Rating Chart..

P1n (KW)	N2 [r/min]	M2n [NM]	i Nominal	i Actual	Fr2 [N]	fs	Gearbox Flange	Motor	
<b>2.2</b>	30.0	645	30	31.2	6120	1.2	<b>GPM110B 112B5</b>	<b>112M6</b>	
	38.0	507	25	24.5	5650	1.5			
	48.0	405	20	19.6	5240	1.6			
	62.0	312	15	15.1	4800	1.7			
	77.0	251	12.5	12.2	4470	3.0			
	96.0	201	10	9.7	4150	3.2			
	125.0	155	7.5	7.5	3800	34.0			
<b>3</b>	37.0	721	40	39.1	5690	1.0	<b>GPM110B 100B5</b>	<b>100LB4</b>	
	46.0	575	30	31.2	5280	1.3			
	58.0	452	25	24.5	4870	1.7			
	73.0	361	20	19.6	4520	1.8			
	95.0	278	15	15.1	4150	1.9			
	118.0	224	12.5	12.2	3860	3.3			
	147.0	179	10	9.7	3580	3.6			
	191.0	138	7.5	7.5	3280	3.8			
		49.0	538	20	19.6	5240	1.2	<b>GPM110B 132B5</b>	<b>132S6</b>
		64.0	415	15	15.1	4800	1.3		
		79.0	334	12.5	12.2	4470	2.2		
		99.0	267	10	9.7	4150	2.4		
		128.0	205	7.5	7.5	3800	2.5		
<b>4</b>	46.0	762	30	31.2	5280	1.0	<b>GPM110B 112B5</b>	<b>112M4</b>	
	59.0	599	25	24.5	4870	1.3			
	74.0	478	20	19.6	4520	1.4			
	95.0	369	15	15.1	4150	1.4			
	118.0	297	12.5	12.2	3860	2.5			
	148.0	237	10	9.7	3580	2.7			
	193.0	183	7.5	7.5	3280	2.8			
<b>5.5</b>	74.0	657	20	19.6	4520	1.0	<b>GPM110B 132B5</b>	<b>132S4</b>	
	95.0	507	15	15.1	4150	1.0			
	118.0	408	12.5	12.2	3860	1.8			
	148.0	326	10	9.7	3580	2.0			
	193.0	251	7.5	7.5	3280	2.1			

## 5. GEARBOX OUTSIDE DIMENSION

### 5.1 GPM OUTSIDE DIMENSION DRAWING

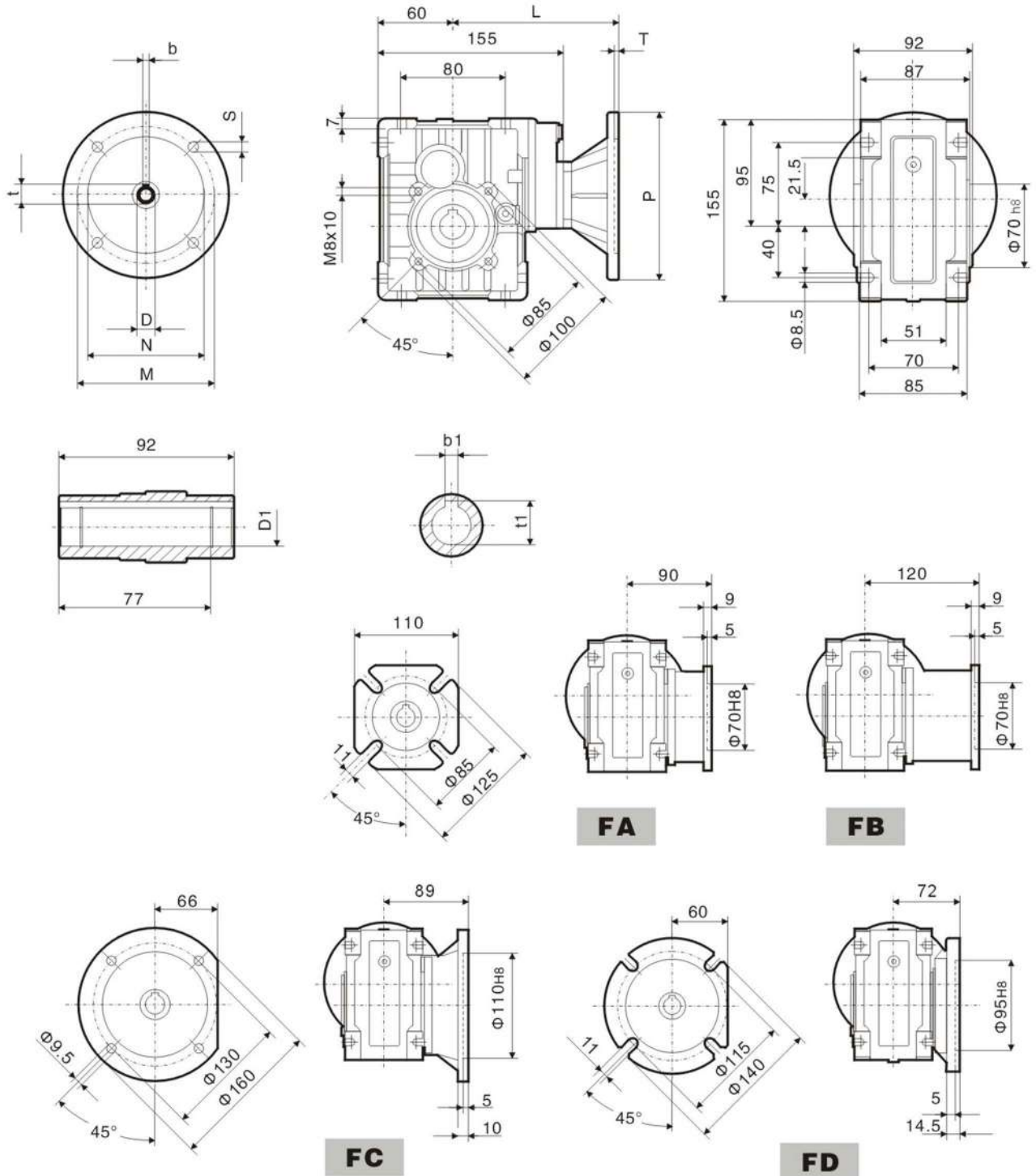
#### GPM 50B..



IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	106	20*	6*	22.8*
71B5	14	5	16.3	160	130	110	9	4	113	24*	8*	27.3*
71B14	14	5	16.3	105	85	70	7	4	113	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	133	*Special request		
80B14	19	6	21.8	120	100	80	7	4	133			
90B14	24	8	27.3	140	115	95	9	4	133			

Weight without motor  
 $\approx 4.2\text{kg}$

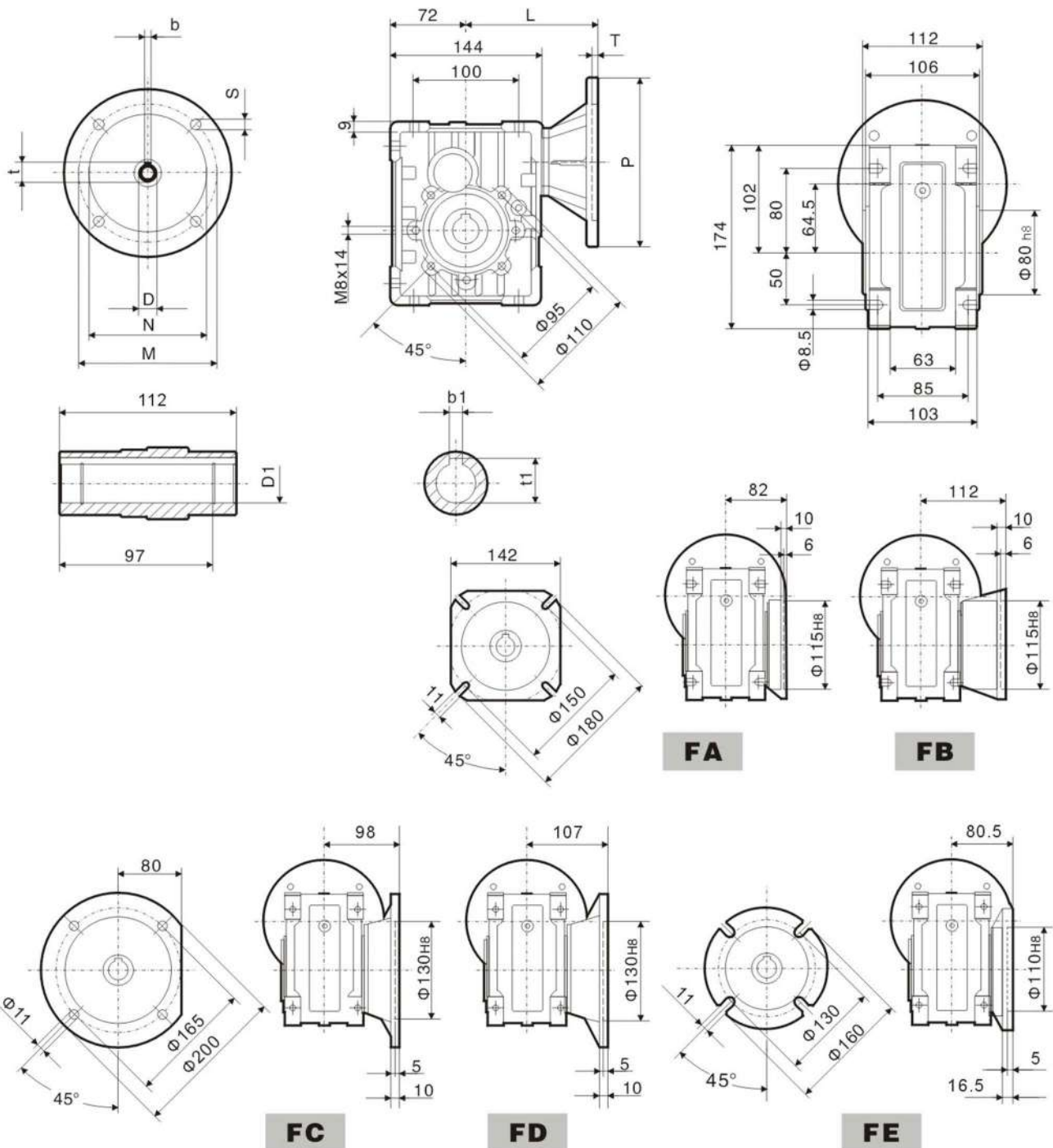
## GPM50C..



Weight without motor  
 $\approx 5.0\text{kg}$

IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	140	20*	6*	22.8*
71B5	14	5	16.3	160	130	110	9	4	147	24*	8*	27.3*
71B14	14	5	16.3	105	85	70	7	4	147	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	167	*Special request		
80B14	19	6	21.8	120	100	80	7	4	167			
90B14	24	8	27.3	140	115	95	9	4	167			

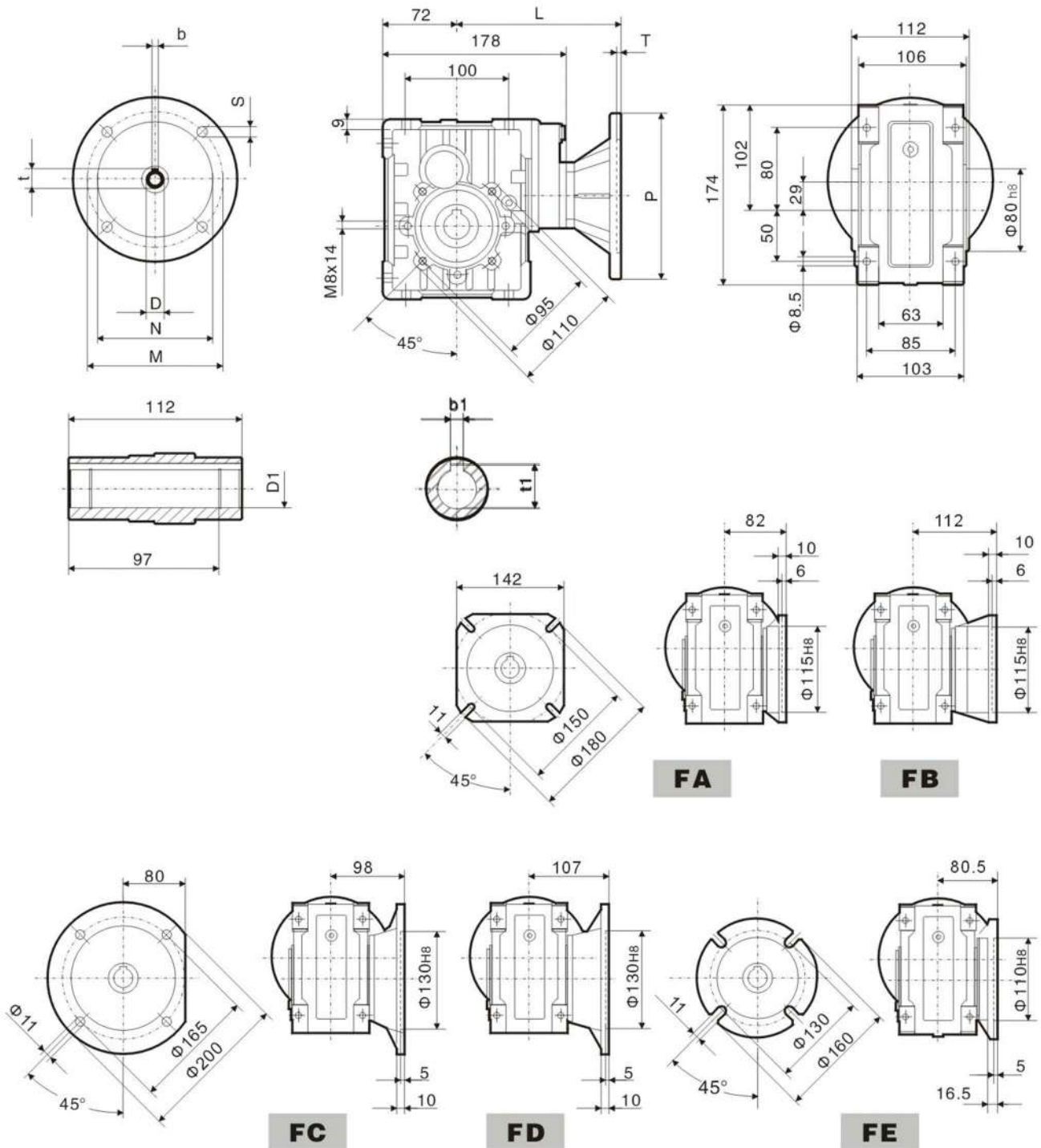
## GPM63B..



IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	117	25	8	28.3
71B5	14	5	16.3	160	130	110	9	4	124	28*	8	31.3
71B14	14	5	16.3	105	85	70	7	4	124	30*	8	33.3
80B5	19	6	21.8	200	165	130	11	4	144	*Special request		
80B14	19	6	21.8	120	100	80	7	4	144			
90B5	24	8	27.3	200	165	130	11	4	144			
90B14	24	8	27.3	140	115	95	9	4	144			

Weight without motor  
≈ 6.0kg

## GPM63C..

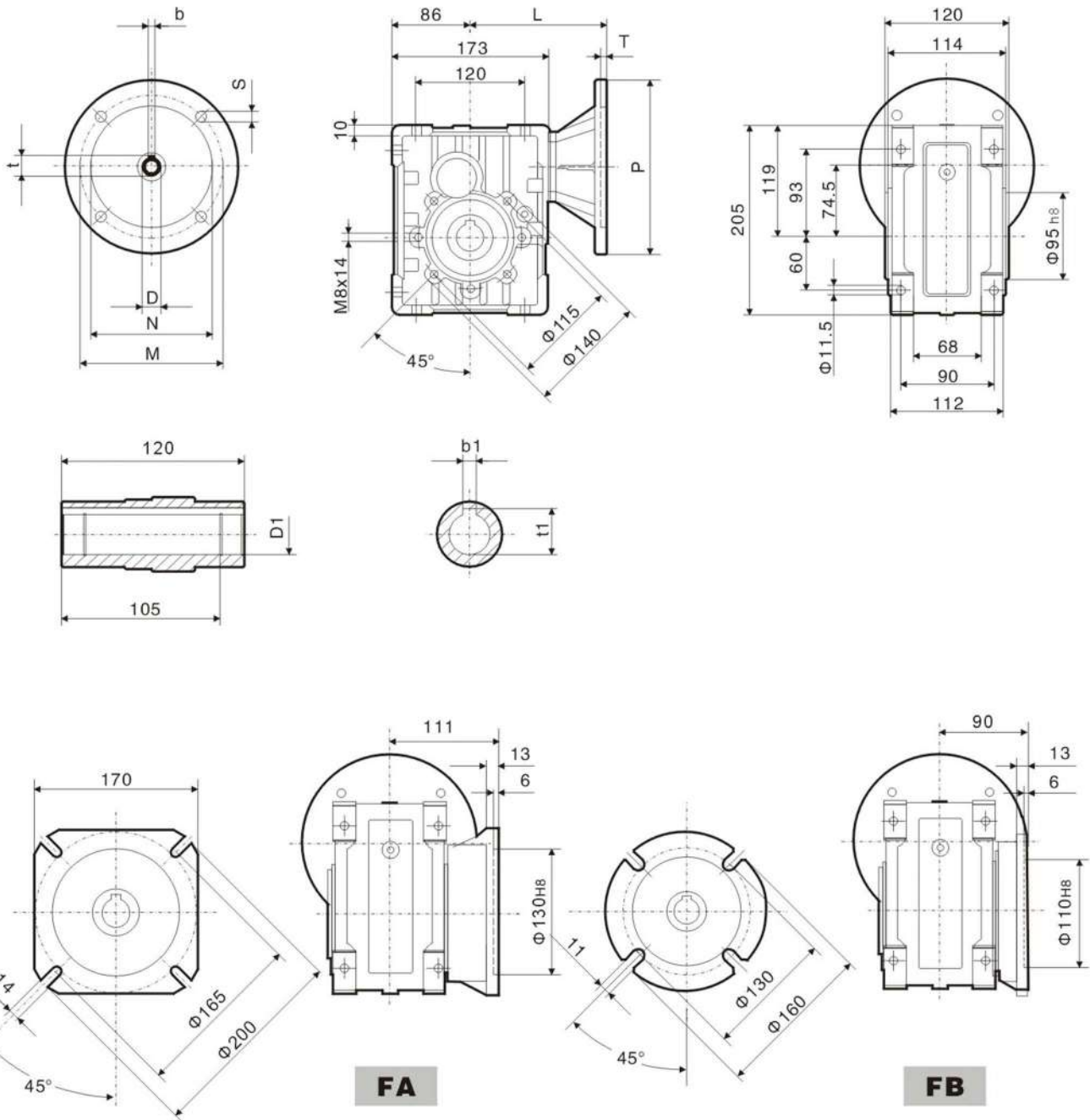


Weight without motor  
≈ 6.8kg

IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	151	25	8	28.3
71B5	14	5	16.3	160	130	110	9	4	158	28*	8	31.3
71B14	14	5	16.3	105	85	70	7	4	158	30*	8	33.3
80B5	19	6	21.8	200	165	130	11	4	178	*Special request		
80B14	19	6	21.8	120	100	80	7	4	178			
90B5	24	8	27.3	200	165	130	11	4	178			
90B14	24	8	27.3	140	115	95	9	4	178			



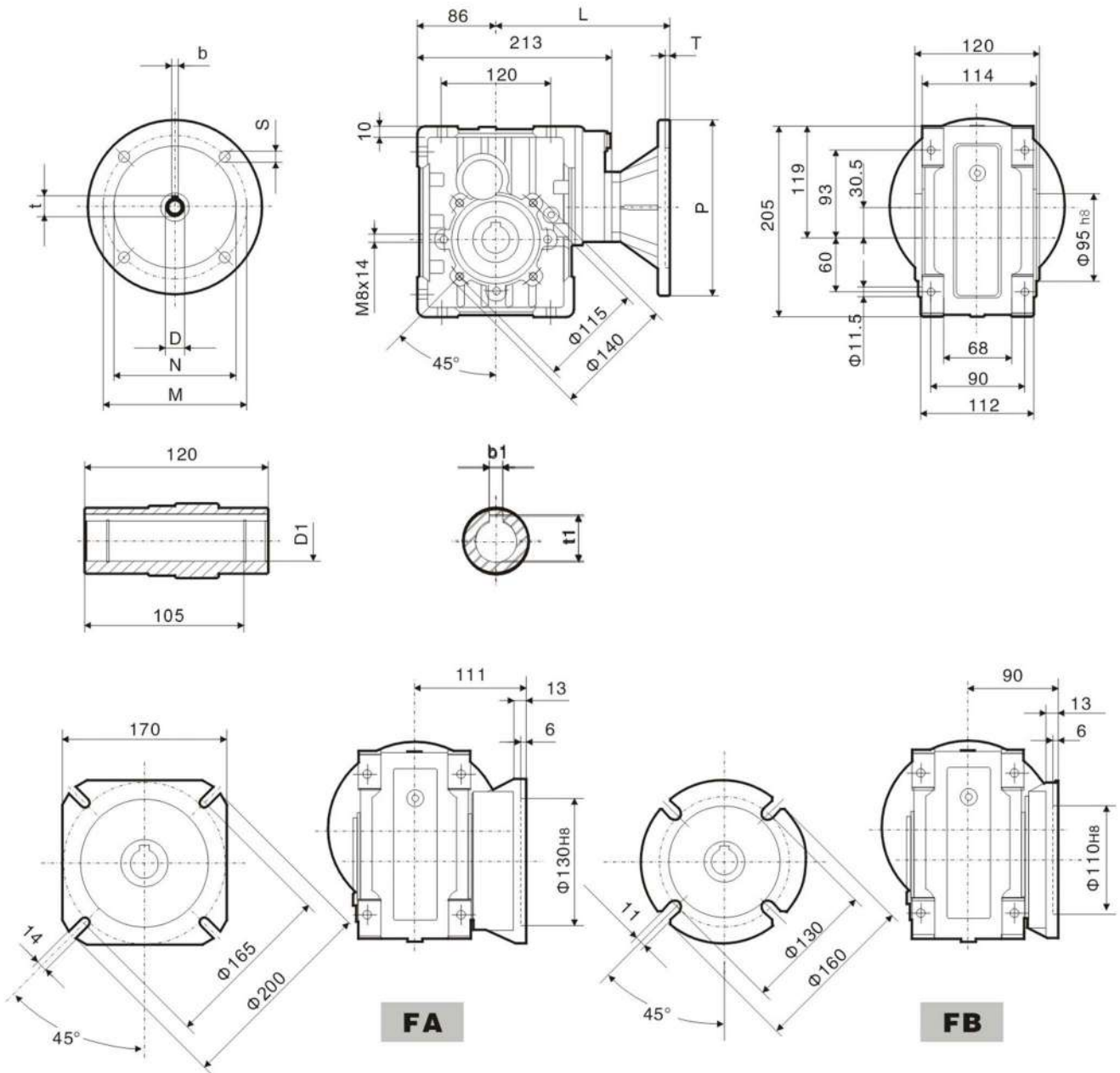
## GPM75B..



IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	139	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	146	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	166	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	166	*Special request		
90B5	24	8	27.3	200	165	130	11	4	166			
90B14	24	8	27.3	140	115	95	9	4	166			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	176			
100/112B14	28	8	31.3	160	130	110	9	4.5	176			

Weight without motor  
 $\approx 9.2\text{kg}$

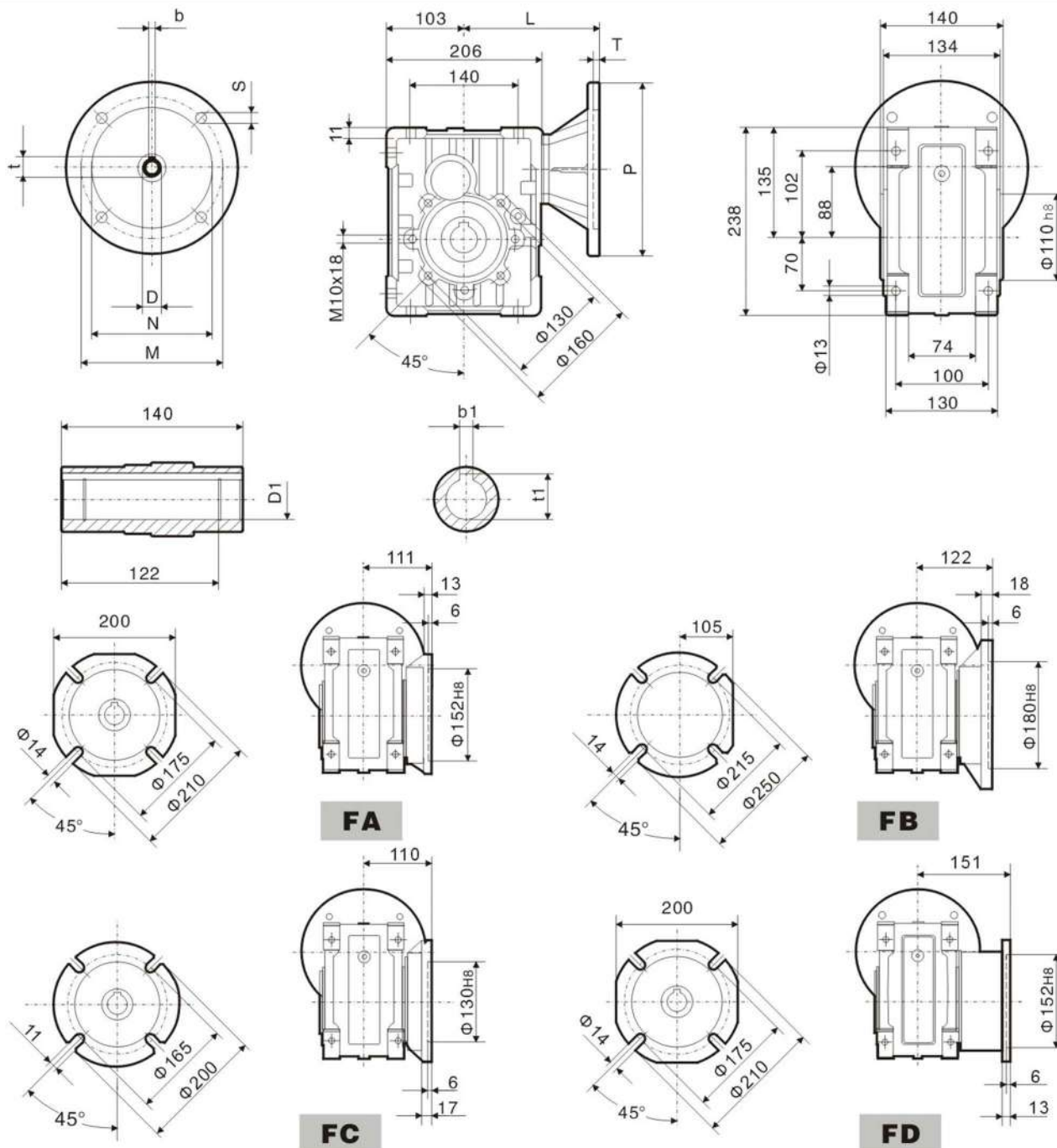
## GPM75C..



Weight without motor  
 ≈ 10.8kg

IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	179	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	186	30*	8*	33.3*
80B5	19	6	21.8	200	165	130	11	4	206	35*	10*	38.3*
80B14	19	6	21.8	120	100	80	7	4	206	*Special request		
90B5	24	8	27.3	200	165	130	11	4	206			
90B14	24	8	27.3	140	115	95	9	4	206			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	216			
100/112B14	28	8	31.3	160	130	110	9	4.5	216			

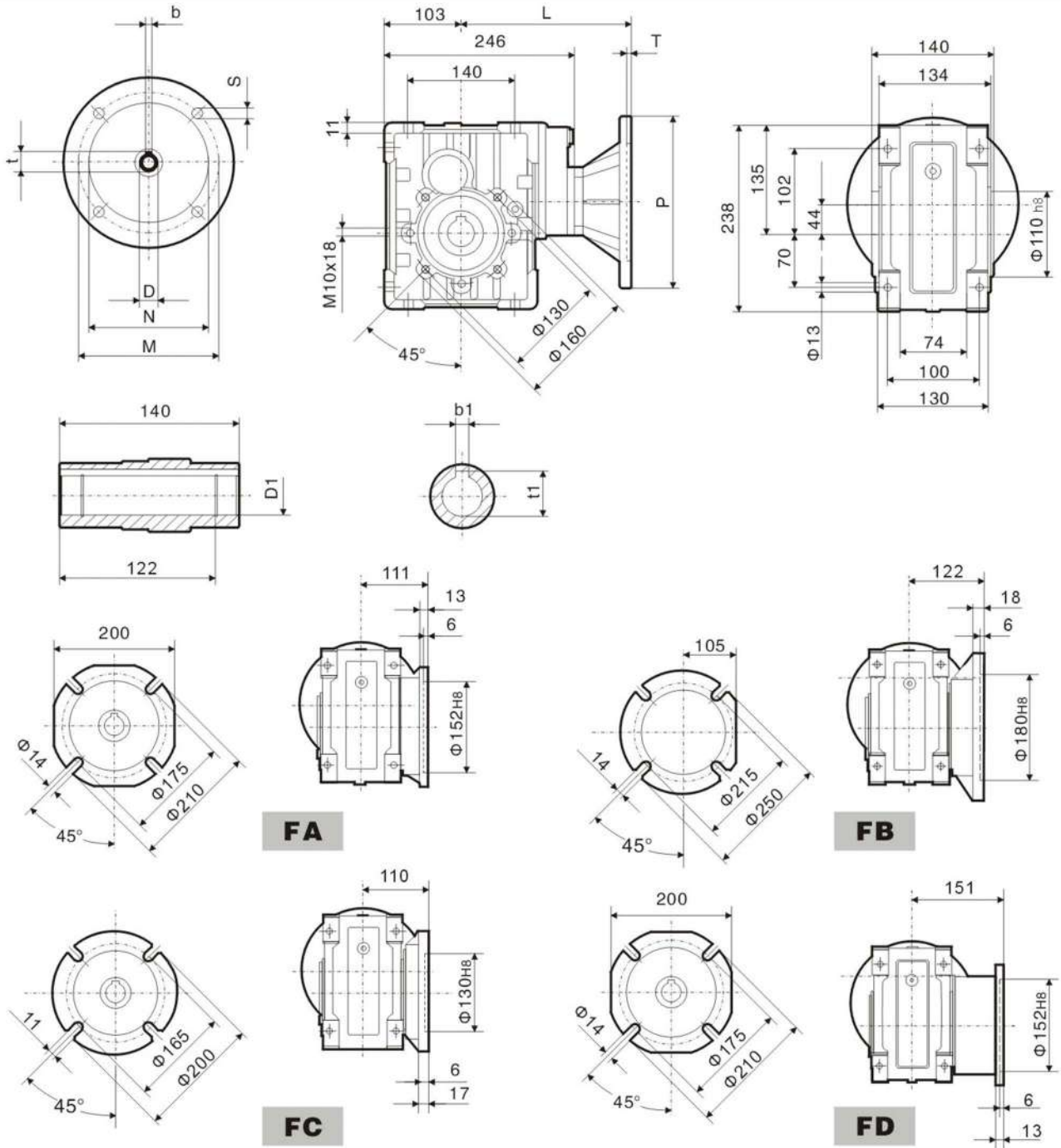
## GPM90B..



IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	155	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	162	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	182	*Special request		
80B14	19	6	21.8	120	100	80	7	4	182			
90B5	24	8	27.3	200	165	130	11	4	182			
90B14	24	8	27.3	140	115	95	9	4	182			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	192			
100/112B14	28	8	31.3	160	130	110	9	4.5	192			

Weight without motor  
 $\approx 13.3\text{kg}$

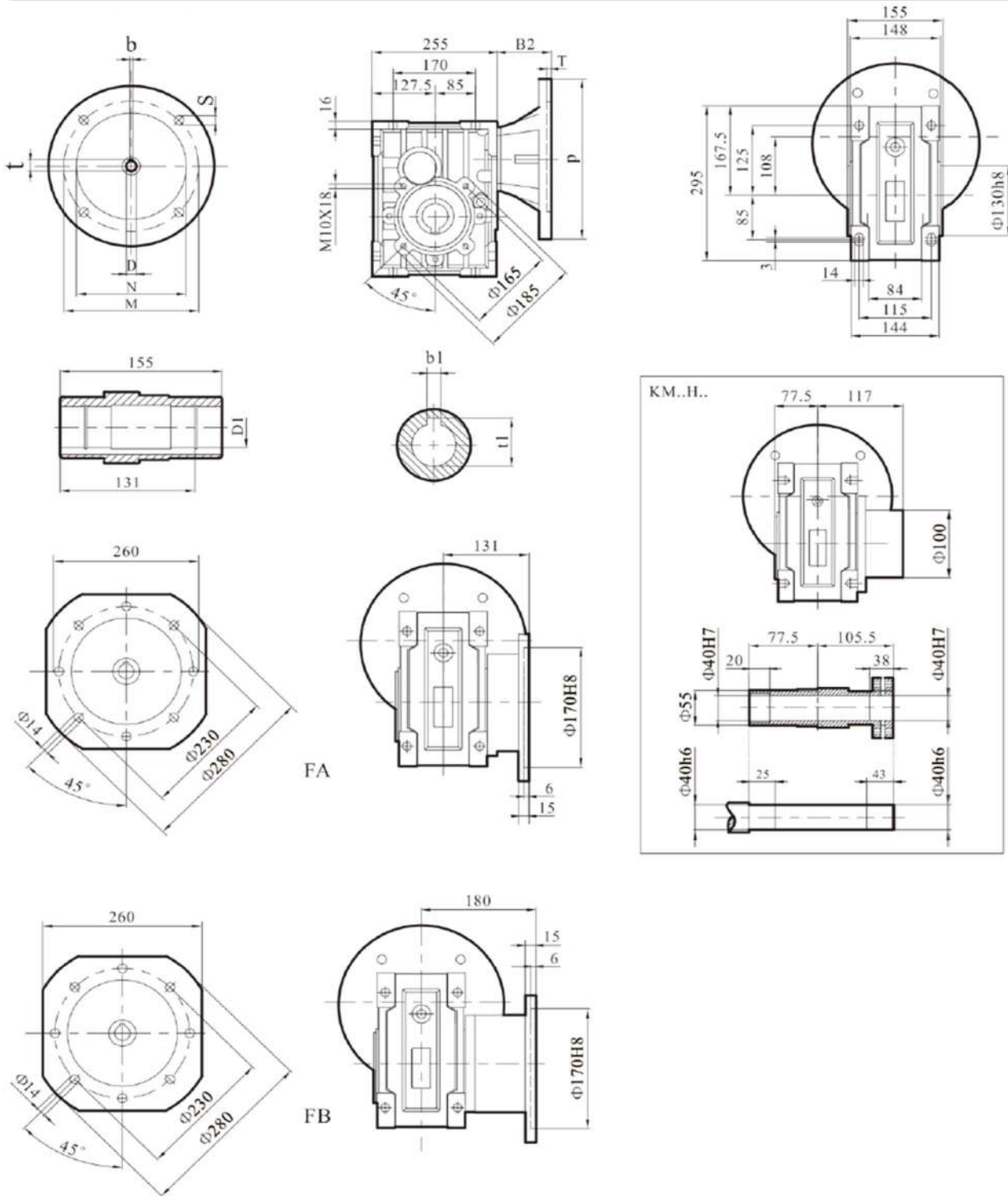
## GPM 90C..



Weight without motor  
 $\approx 14.8\text{kg}$

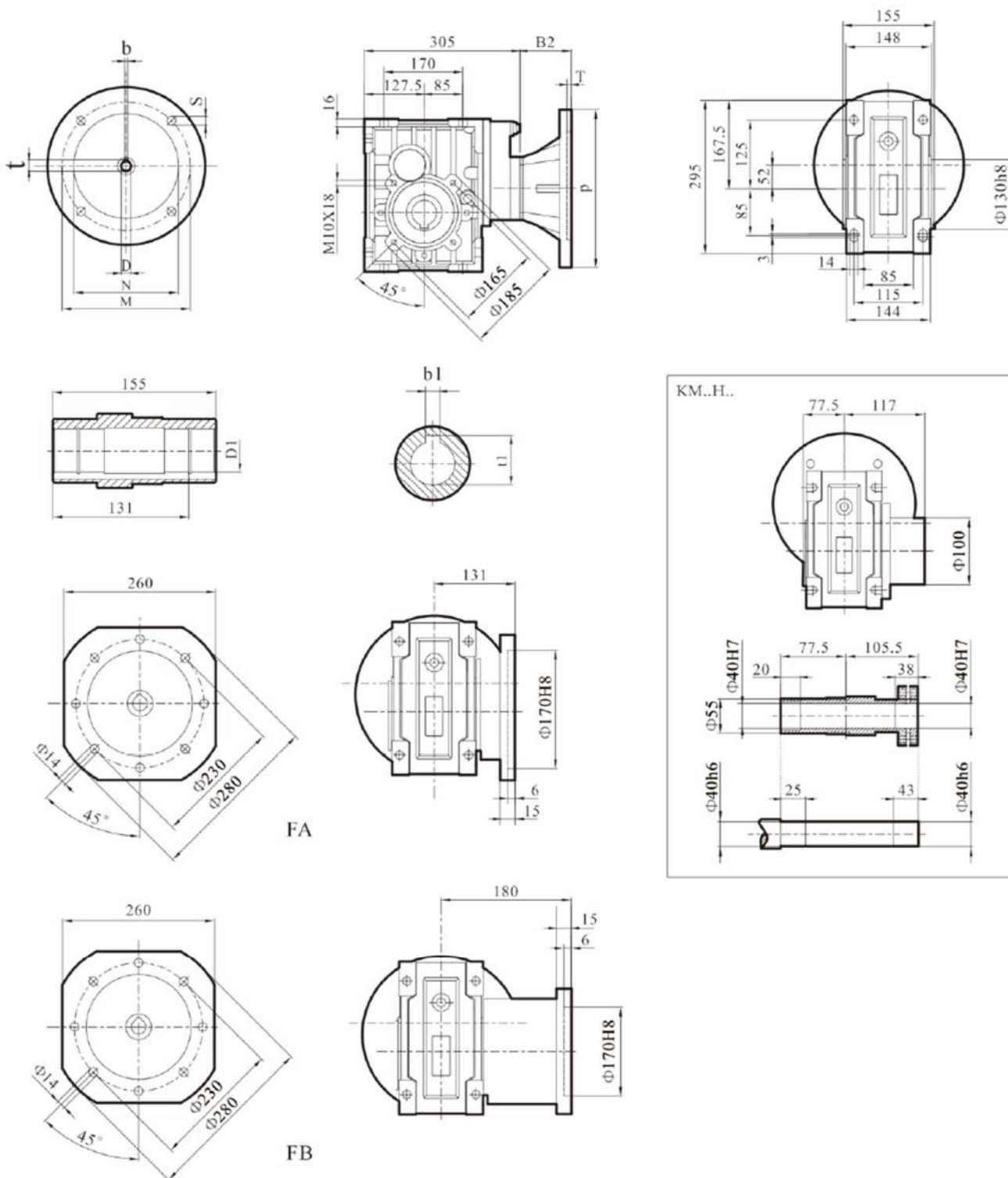
IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	195	35	10	38.3
71B5	14	5	16.3	160	130	110	9	4	202	38*	10*	41.3*
80B5	19	6	21.8	200	165	130	11	4	222	*Special request		
80B14	19	6	21.8	120	100	80	7	4	222			
90B5	24	8	27.3	200	165	130	11	4	222			
90B14	24	8	27.3	140	115	95	9	4	222			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	232			
100/112B14	28	8	31.3	160	130	110	9	4.5	232			

## GPM110B



IEC	De8	b	t	p	M	N	s	T	B2	D1 H8	b1	t1	Weight witout motor: 23.5 kg
71B5	14	5	16.3	160	130	110	9	4	62	40*	12	43.3	
80B5	19	6	21.8	200	165	130	11	4	72	42	12	45.3	
90B5	24	8	27.3	200	165	130	11	4	82	* On request			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	97				
100/112B14	28	8	31.3	160	130	110	9	4.5	97				
132B5	38	10	41.3	300	265	230	14	4.5	120				

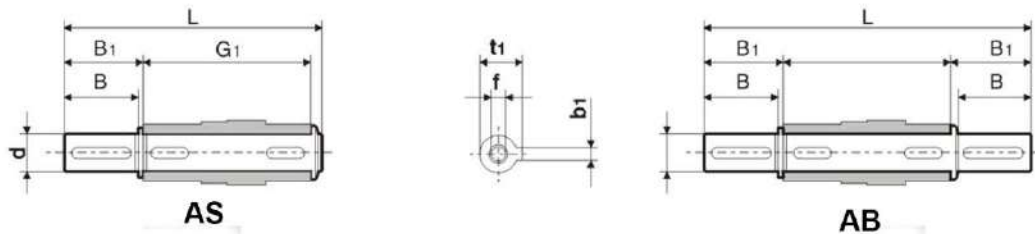
## GPM110C



IEC	De8	b	t	p	M	N	s	T	B2	D1 H8	b1	t1	Weight without motor: 23.5 kg
71B5	14	5	16.3	160	130	110	9	4	62	40*	12	43.3	
80B5	19	6	21.8	200	165	130	11	4	72	42	12	45.3	
90B5	24	8	27.3	200	165	130	11	4	82	* On request			
100B5	28	8	31.3	250	215	180	13.5	4.5	97				
10014	28	8	31.3	160	130	110	9	4.5	97				

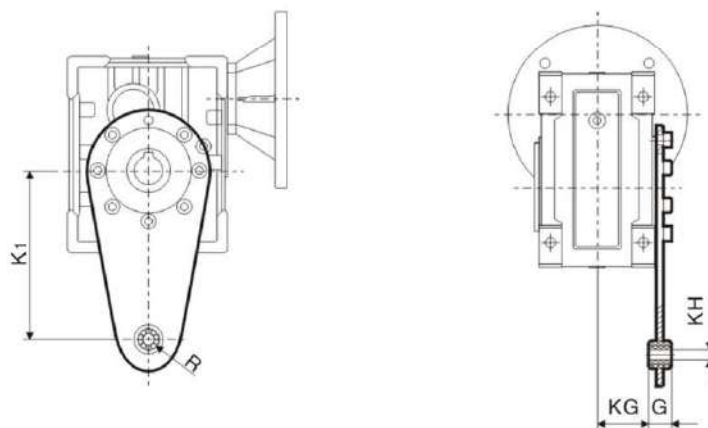
## Parts Dimensions

### Output Shaft



Size	d h6	B	B1	G1	L	L1	f	b1	t 1
GPM050	25	50	53.5	92	153	199	M10x22	8	28
GPM063	25	50	53.5	112	173	219	M10x22	8	28
GPM075	28	60	63.5	120	192	247	M10x22	8	31
GPM090	35	80	84.5	140	234	309	M12x28	10	38
GPM110	42	80	84.5	155	249	324	M16x36	12	45

### Torque Arm



Size	K1	G	KG	KH	R
GPM050	100	14	38.5	10	18
GPM063	150	14	49	10	18
GPM075	200	25	47.5	20	30
GPM090	200	25	57.5	20	30
GPM110	250	30	62	25	35

## 7. MOUNTING POSITION

### 7.1 GPM MOUNTING POSITION CHART

B3		B6	V5	V6
B8		B7		

### 7.2 OUTPUT FLANGE MOUNTING POSITION CHART

FA1,FB1,FC1,FD1,FE1	FA2,FB2,FC2,FD2,FE2

The default mounting position for gearbox and output flange are B3 and F..1

### 7.3 OUTPUT SHAFT MOUNTING POSITION CHART

SS1	SS2



## Lubricant

### Brands

		ISO				Lubricant character
		ISO	SHELL	MOBIL	BP	
<b>GPM</b>	Standard -10      +40	VG 220	Shell Omala 220	Mobilgear 630	BP Energol GR-XP 220	Mineral oil
	-20      +25	VG 150 VG 100	shell Omala 100	Mobilgear 627	BP Energol GR-XP 100	
	-30      +10	VG 68-46 VG 32	Shell Tellus T 32	Mobil D.T.E 13M		
	-40      -20	VG 22 VG 15	Shell Tellus T 15	Mobil D.T.E 11M	BP Energol HLP-HM 15	
	-40      +80	VG 220	Shell Omala HD 220	Mobil SHC 630		Synthetic oil
	-40      +40	VG 150		Mobil SHC 629		
	-40      +10	VG 32		Mobil SHC 624		

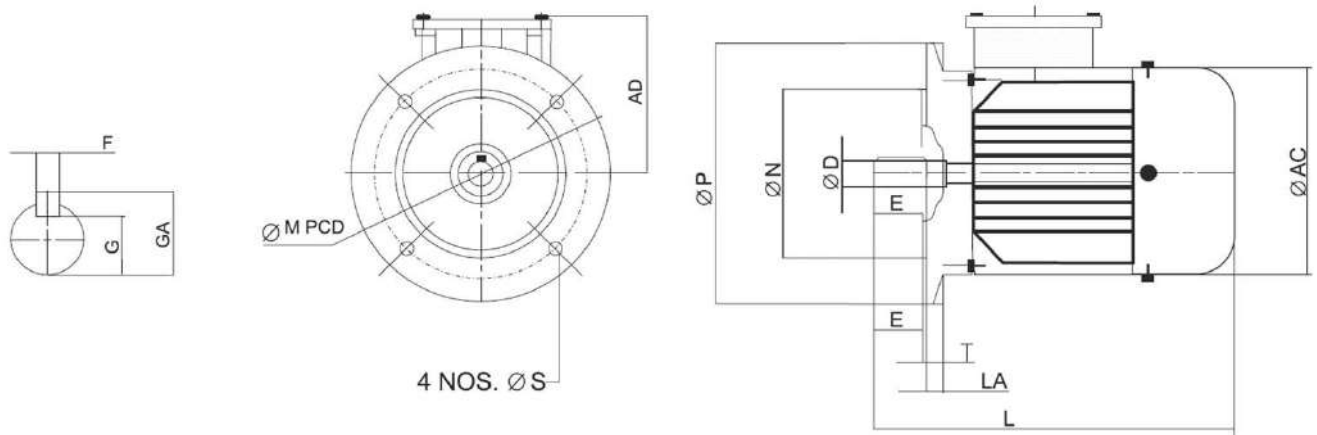
## Lubricant Fill Quantity

The specified fill quantities are recommended values. The precise values vary depending on the number of stages and gear ratio. When filling, it is essential to check the oil level plug since it indicates the precise oil capacity.

The following tables show guide values for lubricant fill quantities in relation to the mounting position (B3, B6, B7.....)

Size	Fill quantity in liters					
	B3	B6	B7	B8	V5	V6
GPM050B	0.22	0.20*	0.13*	0.15	0.25	0.14
GPM050C	0.07	0.04	0.04	0.05	0.08	0.09
GPM063B	0.42	0.35*	0.24*	0.22	0.46	0.25
GPM063C	0.07	0.04	0.04	0.05	0.08	0.09
GPM075B	0.70	0.58*	0.42	0.42	0.75	0.45
GPM075C	0.13	0.09	0.09	0.09	0.15	0.17
GPM090B	1.21	0.95*	0.72*	0.67	1.30	0.74
GPM090C	0.13	0.09	0.09	0.09	0.15	0.17
GPM110B	2.15	1.70*	1.10*	1.25	2.20	1.20
GPM110C	0.25	0.17	0.17	0.20	0.32	0.36

## GEM Series Gaeyah Electric Motor



Frame Size	B5 Flange Dimensions						Shaft Dimensions						Overall Details		
	ØP	M PCD	ØN	ØS	T	LA	ØD	E	F	GA	G	CT	AD	ACØ	L
<b>63</b>	140	115	95	10	3	9	11	23	4	12.5	8.5	M4	104	118	215
<b>71</b>	160	130	110	10	3.5	9	14	30	5	16	11	M5	110	140	240
<b>80</b>	200	165	130	12	3.5	10	19	40	6	21.5	15.5	M6	120	160	280
<b>90S</b>	200	165	130	12	3.5	10	24	50	8	27	20	M8	130	176	310
<b>90L</b>	200	165	130	12	3.5	10	24	50	8	27	20	M8	130	176	335
<b>100L</b>	250	215	180	15	4	11	28	60	8	31	24	M10	140	199	374
<b>112M</b>	250	215	180	15	4	11	28	60	8	31	24	M10	152	224	380
<b>132S</b>	300	265	230	15	4	12	38	80	10	41	33	M12	180	262	455
<b>132M</b>	300	265	230	15	4	12	38	80	10	41	33	M12	180	262	493

TEFC 4P Motor (1500 RPM Synchronous) IP55/ CLF							
Frame Size	Output	Hp	Speed RPM	Current	Torque	Eff, η%	Power Factor
	Kw						
<b>63</b>	0.09	0.125	1330	0.52	0.07	59.0	0.62
	0.18	0.25	1350	0.66	0.15	62.0	0.65
<b>71</b>	0.25	0.33	1370	0.82	0.18	68.0	0.66
	0.37	0.50	1370	1.12	0.28	69.0	0.73
<b>80</b>	0.55	0.75	1390	1.52	0.40	73.0	0.73
	0.75	1.00	1400	1.92	0.52	76.0	0.74
<b>90S</b>	1.10	1.50	1410	2.62	0.77	78.0	0.79
<b>90L</b>	1.50	2.00	1410	3.52	1.05	79.0	0.81
<b>100L</b>	2.20	3.00	1420	4.90	1.55	81.0	0.81
<b>112M</b>	3.70	5.00	1430	7.85	2.55	83.0	0.83
<b>132S</b>	5.50	7.50	1440	11.00	3.75	86.0	0.88
<b>132M</b>	7.50	10.00	1440	15.50	4.98	86.0	0.89

## 9. INSTALLATION

### 9.1 Note Recommendations

1. Check whether the direction of rotation of output shaft of reducer is correct before fitting to the machine.
2. Before connecting with the prime mover and device, please check the reducer's every axial diameter, aperture, key and key slot, to be sure their dimensions are not deviation, and avoid assembling too tight or too loose, unless it will influence the reducer's performance.
3. The mounting on the machine must be stable to avoid any vibration.
4. Whenever possible, protect the reduction unit against solar radiation and bad weather.
5. In the case of particularly lengthy periods of storage (4-6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it. It is because the rubber could stick to the shaft or may even have lost the elasticity.
6. When connect with hollow or solid shaft, please grease the joint to avoid lock or oxidation.
7. Check the correct level of the lubricant through the oil mirror, if there is one.
8. Starting must take place gradually, without immediately applying the maximum load.
9. Supporting unit is required when using reducer that connect with motor directly, if the weight of motor is comparatively heavy.
10. Ensure the motor cools correctly by assuring good passage of air from the fan side.
11. Standard working temperatures should be between  $-5^{\circ}\text{C}$   $+45^{\circ}\text{C}$ , if not, please call the Technical Service.

### 9.2 Service Restrictions

Specification on this catalogue is organized according to standard of general reducer. It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

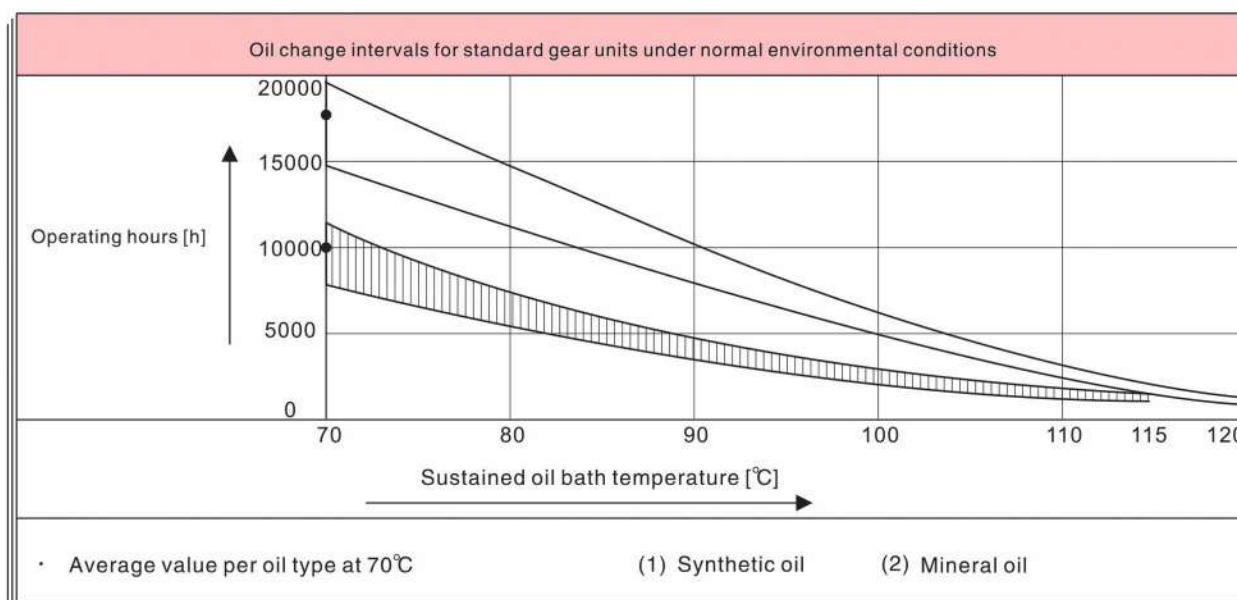
1. As speed increase based on datasheet.
2. Applications when  $f_a > 10$ .
3. Use in services that could be hazardous for people if the reduction unit fails.
4. Applications with high dynamic strain on the case of the reduction unit.
5. When working temperature is under  $-5^{\circ}\text{C}$  or over  $45^{\circ}\text{C}$ .
6. Use in chemically aggressive environments.
7. Use in a salty environment.
8. Use in radioactive environments.
9. Use in environments pressures other than atmospheric pressure.
10. Mounting positions not mentioned in the catalogue.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque that the gear reducer can support must not exceed two times the nominal torque ( $f_s=1$ ) stated in the performance tables. Intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

## 10. MAINTENANCE

- 1) For gear units, first oil change should be done after 300 working hours (run-in period) or three months. The right cleaning lotion is required to clean the gear units with care. Never mix the synthetic oil and mineral oil together.
- 2) Every 3000 working hrs, at least every 6 months, you have to check the oil and oil level, the seals visually for leakage. For IEC input type reducer, the elastomer should be tested or replaced if necessary.
- 3) Depending on the operating conditions (see chart below), every 3 years need inspection as longest period, including changing the mineral oil and replacing the bearing grease.
- 4) Depending on the operating conditions, change the oil seals on output shaft.
- 5) Once the malfunctions appear, stop disassembling the parts, and please contact the customer service (the information about specification, delivery date, series number, time used, name of machine, machine manufacturer, malfunction problems is required), then take the reasonable measures.



## 11. STORAGE

1. Protected against rain and snow, no shock loads.
2. Lay the block or other material between the ground and equipment.
3. The opened but not used gear units should be added with the anti-corrosive oil on its surface, and then return to the packing containers in time.
4. If reducer is storage for 2 years or more, please check cleanliness and mechanical damage, and whether corrosion protection is still there.

## 12. NOTICE FOR ORDER

Please offer the following information when place the orders:

- 1 Type of the reducer (type, ratio, power and mounting position).
- 2 generally the gear units paint in silver.
- 3 Order quantity.
- 4 Other special requirements.
- 5 Company, contact person and telephone no.

## 13. MALFUNCTIONS

### 13.1 Gear Unit Malfunctions

Problem	Possible cause	Remedy
Unusual, regular running noise.	A. Meshing/grinding noise: Bearing damage. B. Knocking noise: Irregularity in the gearing	A. Check the oil, change bearings B. Contact customer service
Unusual, irregular running noise.	Impurity in the oil.	• Check the oil • Stop the drive, contact customer service
Oil leaking 1 • From the gear cover plate • From the motor flange • From the motor oil seal • From the gear unit flange • From the output end oil seal	A. Rubber seal on the gear cover plate is leaking B. Defective seal C. Reducer is not vented	A. Tighten the bolts on the gear cover plate and observe the gear unit. If oil is still leaking, contact customer service B. Contact customer service C. Vent the gear unit (see "Mounting Positions")
Oil leaking from breaking valve	A. Too much oil B. Drive mounted in wrong mounting position C. Frequent cold starts (oil foams) and/or high oil level	A. Correct the oil level (see Sec. "Inspection and Maintenance") B. Mount the breather correctly (see Sec. "Mounting Positions") and correct the oil level (see "Lubricants")
Output shaft does not turn although the motor is running or the input shaft is rotated	Connection between shaft and hub in reducer is cracked	Send reducer to factory for repair.

1) Short-term oil/grease leakage at the oil seal is possible in the run-in phase (24 hours running time).

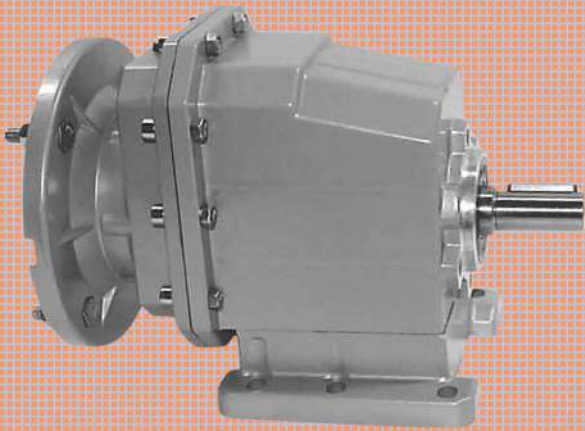
## 14. APPLICATION CHARACTERISTICS CHART (for reference)

AIR BLOWERS		Hoist gear assembly	A
Air blower (axial or radial)	A	Derrick gear assembly	B
Rn of cooling tower	B	Siering gear assembly	B
Induced draught fan	B	Moving gear assembly	C
Rotary piston type fan	B	LAND DREDGER	
Turbo-fan	A	Drum-type conveyer	C
CONSTRUCTION MACHINERY		Drum-type rotation wheel	C
Concrete mixer	B	Dredger head	C
Hoist	B	Powered crab	B
Road building machinery	B	Pump	B
Boring mill	B	Pump turning gear assembly	B
CHEMICAL MACHINERY		Moving gear assembly (apron wheel)	C
Mixer (liquid)	A	Moving gear assembly (track)	B
Mixer (half liquid)	B	FOODSTUFF PROCESSING MACHINERY	
Centrifuge (heavy)	B	Placer or box filler	A
Centrifuge (light)	A	Cane crusher	A
Cooling rolling drum	B	Cane cutter	B
Dry rolling drum	B	Cane crasher	C
Mixer	B	Mixer	B
COMPRESSOR		Paste bucket	B
Piston type compressor	C	Packager	A
Turbo-compressor	B	Beet slicer	B
TRANSMISSION FREIGHTER		Beet washing machine	B
Pal conveyer	B	MOTOR AND CONVERSION EQUIPMENTS	
Balance lifter	B	Frequency converter	C
Trough conveyer	B	Motor	C
Ribbon conveyer (large piece)	C	Welding motor	C
Ribbon conveyer (small piece)	B	WASHING MACHINE	
Drum-type flour conveyer	A	Rolling drum	B
Chain conveyer	B	Washing machine	B
Ring type conveyer	B	METAL ROLLER MACHINE	
Lifter	B	Steel cutter	C
Hoist	B	Chain conveyer	B
Crank-connecting conveyer	B	Cold mill	C
Lifter	B	Continuous casting equipments	B
Worm conveyer	B	Cold bed	B
Steel-band conveyer	B	Cropper	C
Chain reed-type conveyer	B	Cross steering transmitter	B
Crab freighter	B	Deruster	C
HOIST		Heavy and medium steel mill	C
Bracket swing gear assembly	B	Bar mill	C

Bar transmission machine	B	PUMPS	
Bar pusher	B	Centrifugal pump (thin liquid)	A
Push bed	B	Centrifugal pump (half liquid)	B
Shears	C	Displacement pump	C
Lumber elevator platform	B	Plunger pump	C
Roll Adjusting Equipments	B	Force pump	C
Roller levelling machine	B	PLASTIC EQUIPMENTS	
Mill rolling way (heavy)	C	Glazing press	B
Mill rolling way (light)	B	Ejecting press	B
Sheet rolling mill	C	Spiral extruding machine	B
Trimming shears	B	Mixing machine	B
Pipe welder	C	RUBBER EQUIPMENT	
Soldering machine (belt material and wire rod)	B	Glazing press	B
Wire drawbench	B	Ejecting press	C
METAL PROCESSING MACHINE TOOLS		Mixing stir machine	B
Power shaft	A	Kneading machine	B
Drop hammer	C	Roller machine	C
Machine tool and necessary	C	STONE PORCELAIN CLAY PROCESSING EQUIPMENTS	
Machine tool and necessary	A	Ball crusher	B
Machine tool and main driving equipment	B	Ejecting press and breaker	C
Metal facing machine	C	Breaker	C
Plate-leveling machine	C	Brick press	C
Tool Backing-out punch	C	Beating crusher	C
Press machine tool	C	Converter	C
Cutting machine	B	Cylinder mill	C
Sheet bending machine tool	B	TEXTILE MACHINERY	
PETROLEUM PROCESSING MACHINERY		Feeding machine	B
Pump of oil pipe line	B	Loom machine	B
Rotary drilling equipment	C	Dyeing machine	B
PAPERING MACHINE		Purified drum	B
Glazing press	C	Welon machine	B
Multilayer paper board machine	C	WASTER TREATMENT EQUIPMENTS	
Drying cylinder	C	Air blast	B
Glazing cylinder	C	Screw pump	B
Masher	C	WOOD PROCESSING MACHINE TOOL	
Mashing and breaking machine	C	Barker	C
Suction roll	C	Facing machine	B
Wet paper roller machine	C	Saw bench	C
Water absorbing roller machine	C	Wood processing machine tool	A
Welon machine	C		

Note: A - Uniform load; B - Moderate shock load; C - Heavy shock load;\*\* - for 24 hour system.

# GAEYAH RANGE OF PRODUCTS INCLUDE



**GHP Series Helical  
Geared Motor  
Upto Size 35**

**GWM Series Worm  
Geared Motor  
Upto Size 150**



**GEM Series Electric  
Motor  
Upto Size 5.5kW**



No. 17/3B, G J Complex,  
Avadi Main Road, Seneerkuppam,  
Chennai 600056, India.

[sales@gaeyah.com](mailto:sales@gaeyah.com)  
91 8754422004  
[www.gaeyah.com](http://www.gaeyah.com)

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