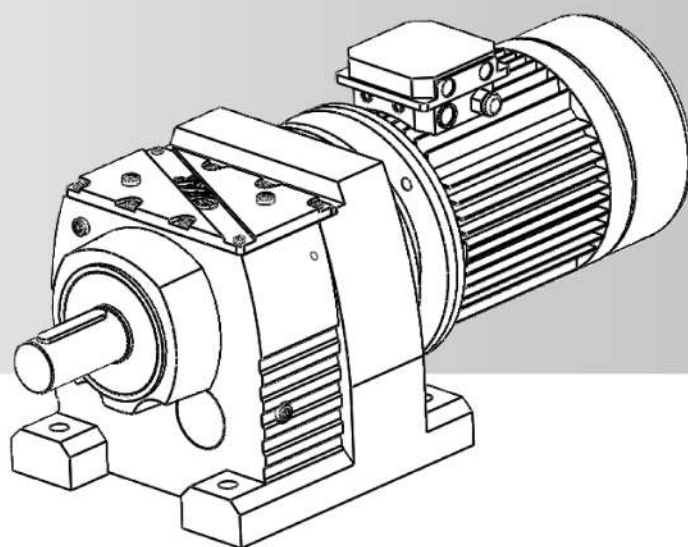


# HELICAL IN-LINE GEARMOTORS





# Introduction

## General information

Information in this manual is provided with symbols in order to understand the subject matter and data. These symbols are intended to aid the user in selecting the right gearmotors.

## Input speed

- This is the input speed at the gearbox related to the type of drive unit selected.
- When different speeds are required, contact our Technical Service.

## Gear ratio

- This value is strictly related to the size and number of teeth gears inside the gearbox.
- From the data given in the catalogue, the value can be calculated using the following formula:

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

## Output speed

This is the gearbox output speed calculated using the formula given above:

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

## Requested torque

This is the torque needed for the application and must be known when selecting a drive system. It can either be provided by the user or calculated according to the application data (if provided).

## Nominal torque

This is the output torque that can be transmitted by the gearbox according to input speed  $n_1$  and gear ratio  $i$ . It is calculated based on service with a continuous steady load corresponding to a service factor equal to 1. This value is not given in the catalogue but can be calculated approximately with the following formula between  $M_2$  (output torque) and  $sf$  (service factor):

$$Mn_2 = M_2 \cdot sf$$

## Output torque

This is the gearbox's output torque. It is strictly related to power  $P_1$  of the motor installed, output rpm  $n_2$  and dynamic efficiency  $Rd$ . It can be calculated with the following formula:

$$M_2 = \frac{9550 \cdot P_2 \cdot Rd}{n_2}$$

Or :

$$M_2 = \frac{9550 \cdot P_2}{n_2}$$

Where :

$$P_2 = P_1 \cdot Rd$$

## Efficiency

Efficiency is calculated based on dynamic efficiency  $Rd$  of the gearboxes.

On helical gearboxes the average efficiency is 94%.

## Input power

This is the power applied by the motor at the gearbox input in reference to speed  $n_1$ .

It can be calculated with the following formula:

$$P_1 = \frac{M_2 \cdot n_2}{9550 \cdot Rd}$$

## Service factor

This value indicates how a certain drive system is to be over sized in order to assure the requested service and stand up to shocks.

The tables given in the catalogue offer a wide range of drive systems with different service factors able to satisfy most types of applications. To correctly understand service factor values  $sf$  given for each item, approximate values for load classes A, B and C along with the number of hours of daily operation  $h/d$  and number of start-ups/hours need to be known.

Once the load class required for the application has been determined, locate corresponding value  $sf$  to be used when selecting the most suitable drive system.

	<b>A - Uniform</b>	$fa \leq 0.3$
Type of load	<b>B - Moderate shocks</b>	$fa \leq 3$
	<b>C - Heavy shocks</b>	$fa \leq 10$

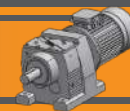
$$fa = \frac{Je}{Jm}$$

•  $Je$  ( $kgm^2$ ) moment of reduced external inertia at the drive-shaft

•  $Jm$  ( $kgm^2$ ) moment of inertia of motor.

If  $fa > 10$  call our Technical Service.





**A**

**Uniform load**

sf									
h/d	start-up / hour								
	2	4	8	16	32	63	125	250	500
4	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.2
8	1.0	1.0	1.1	1.1	1.3	1.3	1.3	1.3	1.3
16	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
24	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8

**B**

**Moderate shock load**

sf									
h/d	start-up / hour								
	2	4	8	16	32	63	125	250	500
4	1.0	1.0	1.0	1.0	1.3	1.3	1.3	1.3	1.3
8	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
16	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8
24	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2

**C**

**Heavy shock load**

sf									
h/d	start-up / hour								
	2	4	8	16	32	63	125	250	500
4	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.5
8	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8	1.8
16	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.2	2.2
24	2.2	2.2	2.2	2.2	2.5	2.5	2.5	2.5	2.5

**Radial load**

Pinions, pulleys, etc applied on the output shaft of the gearboxes create radial forces that must be taken into consideration to avoid excessive stress risking damage to the gearbox itself.

External radial load R that acts on the gearbox shaft can be calculated as follows:

$$R = \frac{2000 \cdot M_2 \cdot kr}{d} \leq R_2$$

where :

- d [mm]** diameter of the pinion or pulley
- kr** coefficient in relation to type of transmission :
  - kr = 1.4** sprocket wheel
  - kr = 1.1** gear
  - kr = 1.5 - 2.5** pulley for V belts

Keep in mind that values R2 refer to loads that act on the center line of the output shaft (considering the shaft protrudes). As a result, the value should be compared under the same conditions.

**Axial load**

At times, along with the radial load, force A may be present that acts axially on the output shaft. In this case, keep in mind allowable axial load A2 that can be applied on the shaft is:

$$A_2 = R_2 \cdot 0.2$$

If axial load A that acts on the shaft is greater than A2, contact our Technical Service.

**Selecting the gearmotors**

To select the required gearmotor, perform the procedure below:

1. Determine the service factor sf for the desired application by referring to the charts given on page A4. This is to be done by considering the class of load, the operational hours/day and the number of start-ups/ hour.
2. If the required motor power output P is known, go to item 3); if the required output torque M is known, determine motor output P by using the following formulas:

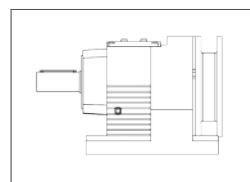
$$P = \frac{M \cdot n_2}{9550 \cdot Rd}$$

Where Rd stands for the dynamic efficiency and n2 indicates the required output rpm of the gearmotor.

3. Use the specification chart to search for the power unit where P1 is greater than or equal to P with a speed n2/n2max that approximates the desired one. Choose a power unit where the indicated service factor sf is equal to or greater than that calculated at point 1).

**Lubrication**

All unit sizes of ITH series are complete with mineral oil, viscosity 220.



ITH

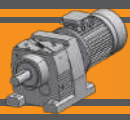
SHELL	MOBIL	KLUB
Omala S2 G 220	Mobilgear 660 XP 2	Kluberoil GEM 1-220 N

CASTROL	FUCHS	B
Tribol 1100/220 Optigear BM 220	Renolin CLP 220	Energol GR-XP 220

The tables contain the approximate amount of lubricant held and/or to be put in.

Always specify the desired installation position at the time of order.





### Operating temperature

#### Standard temperature range

ITH	-25°C / +50°C
-----	---------------

#### Standard temperature range

	< -15°C	> +50°C
ITH	Output radial load halved	<ul style="list-style-type: none"> <li>• Use Viton (FPM) oil seals</li> <li>• Use high temperature lubricant</li> </ul>

For temperature <0°C refer to the following notes:

- Check if the motor is suitable for low temperature;
- Due to the high viscosity of the lubricant, check if the motor can supply high starting torque;
- Let the group run for a few minutes without load to guarantee good lubrication;

### Installation and inspection

While installing the gearbox always make sure that:

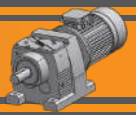
- The specifications stamped on the rating plate match those indicated for the unit actually ordered;
- The mating surfaces and the shafts are thoroughly clean and free of dents;
- The surfaces where the gearbox to be mounted on are flat and strong enough;
- The machine drive shaft and the gearbox shaft are perfectly aligned;
- The required torque limiters have been installed if the machine is likely to produce shocks or blockages during operation;
- The rotary parts have been provided with the required safety guards;
- Adequate weatherproof covering has been provided if the machine is to be installed outdoor;
- The working environment is not exposed to corrosive agents (unless this has been indicated while placing the order so that the gearbox assembly can be adequately set up);
- The pinions or pulleys on the gearbox input/output shafts are properly fitted in order not to produce radial and/or axial loads that exceed the maximum allowable limits;
- All the couplings have been treated with adequate rust preventative in order to avoid oxidation provoked by contact;
- All the mounting screws have been securely tightened;
- Check the lubricant quantity depending on the mounting position on all gearboxes.

### Critical applications

In these cases please contact the Technical Service

- Used to increase speed ;
- Used as a hoist;
- Used in mounting positions not shown in the catalogue;
- Use in environment pressure other than atmospheric pressure;
- Use in places with temperature <-25°C or >+50°C





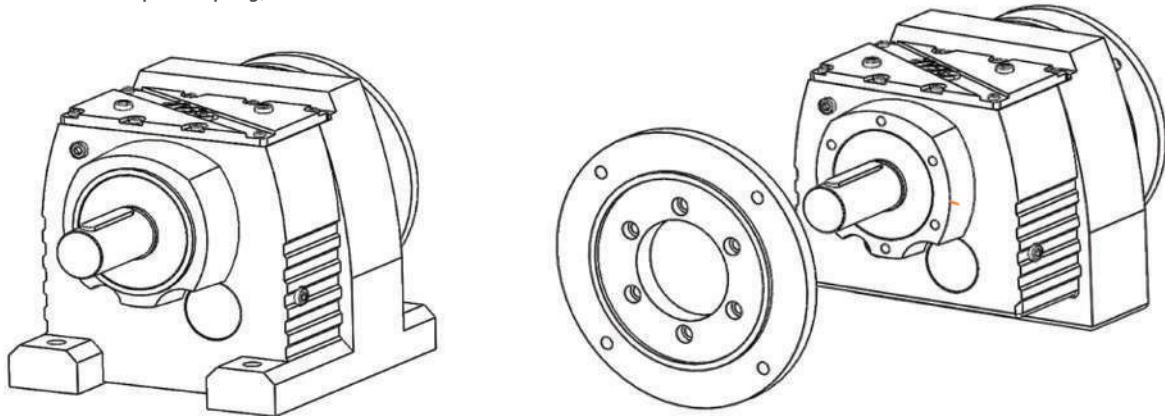
### Technical features

The ITH gearmotors are intended for heavy duty applications.

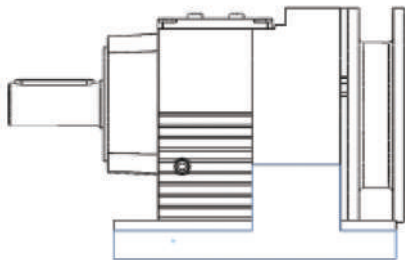
The robust one pieces casing of the main housing and the modular design of input and output sets increase application flexibility.

The main features of ITH range are:

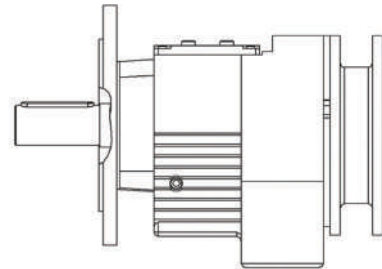
- Robust cast iron housings;
- High degree of modularity;
- Lubrication with synthetic oil;
- Coupled to motor with input coupling;



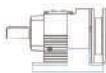
### Versions

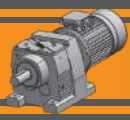


U

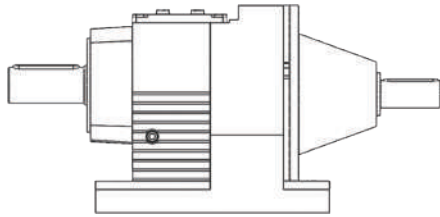


F..

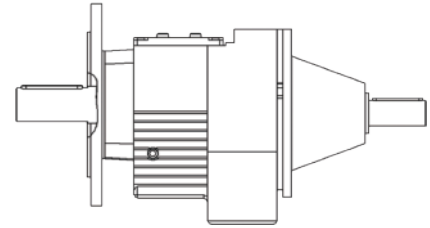
GEARBOX									
ITH	6	2	H	27.58	D90	132	B5	M1	
Type	Size	Stages	Version	Ratio	Output shaft	IEC	Version	Mounting position	Backstop device
 ITH	15			see tables	see tables	100.. --- 280..	B5 B14	M1 (B3)	CW CCW
	16	2	U					M2 (V6)	
	17	3	F					M3 (B8)	
	18							M4 (V5)	
								M5 (B7)	
								M6 (B6)	



### Classification



**U**

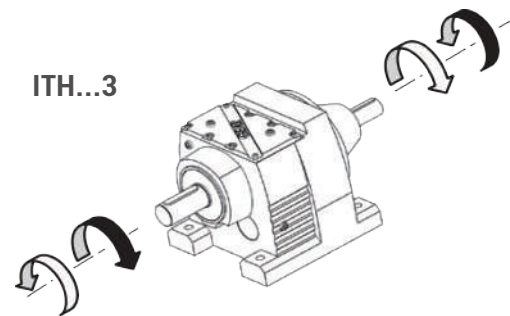
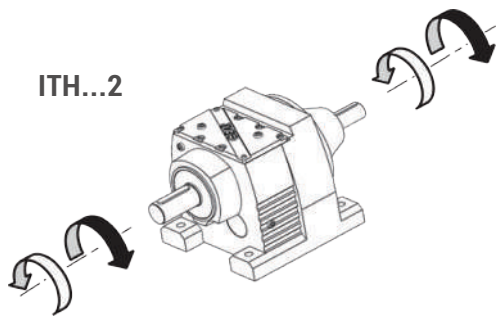


**F..**

GEARBOX						
ITH	16	2	H	29.49	D90	M1
Type	Size	Stages	Version	Ratio	Output shaft	Mounting position
 ITHIS	15	2 3	U F..	see tables	see tables	M1 (B3)
	16					M2 (V6)
	17					M3 (B8)
	18					M4 (V5) M5 (B7) M6 (B6)

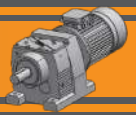
MOTOR					
5.5 kW	4P	3ph	230/400V	50Hz	T1
Power	Poles	Phases	Voltage	Frequency	Terminal box pos.
see tables	2p	1ph 3ph	230/400V	50Hz 60Hz	
	4p		220/380V		
	6p		...		
	8p		230V		

### Direction of rotation



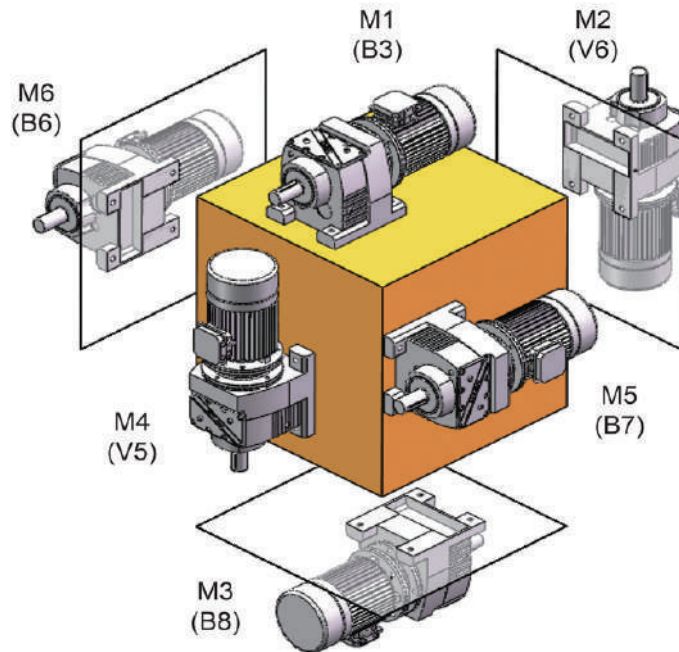
### Symbols

$n_1$	[min <sup>-1</sup> ]	Input speed	$Mn_2$	[Nm]	Nominal output torque referred to $Pn_1$
$n_2$	[min <sup>-1</sup> ]	Output speed	sf		Service factor
i		Ratio	$R_1$	[N]	Permitted input radial load
$P_1$	[kW]	Input power	$A_1$	[N]	Permitted input axial load
$M_2$	[Nm]	Output torque referred to $P_1$	$R_2$	[N]	Permitted output radial load
$Pn_1$	[kW]	Nominal in put power	$A_2$	[N]	Permitted output axial load

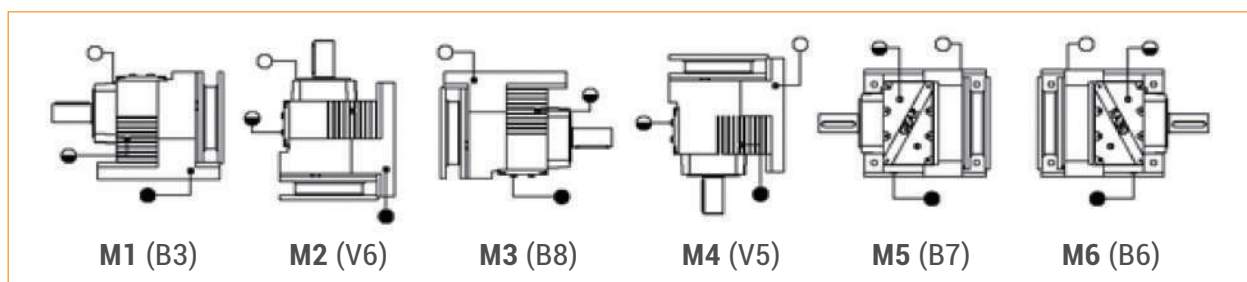


### Lubrication

- ITH series gearmotors come complete with mineral oil.
- The lubricant quantity depends on mounting position.



ITH	Oil quantity (litres)					
	M1 (B3)	M2 (V6)	M3 (B8)	M4 (V5)	M5 (B7)	M6 (B6)
152 153	6.5 / 13.5	17	17	19.5	15	13.5
162 163	11 / 27	29	30	31.5	25	25
172 173	16 / 45	47	48	53	41	39.5
182 183	29 / 75	85	78	90	70	66



- Breather and filling plug
- ◐ Oil level plug
- Oil drain plug



### Technical data

### IEC - 50 Hz - n<sub>1</sub> 1400min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
------------------------	--	------------------------	----	---	---	---	-----------------------

1.1								
90S4 1400min <sup>-1</sup>	10.2	940	4.3	137.6	ITH153	B5	26280	
	9.0	1060	3.8	155.2			B5	26280
	8.2	1161	3.4	170.0			B5	26280
	7.1	1348	3.0	197.4			B5	26280
	6.4	1504	2.7	220.2			B5	26280
	6.0	1594	2.5	233.4			B5	26280
	5.3	1805	2.2	264.4			B5	26280

1.5								
90L4 1400min <sup>-1</sup>	14.8	879	4.6	94.4	ITH153	B5	26280	
	13.2	990	4.1	106.3			B5	26280
	12.1	1077	3.8	115.7			B5	26280
	10.2	1281	3.2	137.6			B5	26280
	9.0	1445	2.8	155.2			B5	26280
	8.2	1583	2.6	170.0			B5	26280
	7.1	1838	2.2	197.4			B5	26280
	6.4	2050	2.0	220.2			B5	26280
	6.0	2173	1.9	233.4			B5	26280
	5.3	2462	1.7	264.4			B5	26280

2.2								
100LA4 1400min <sup>-1</sup>	23.3	821	4.9	60.1	ITH153	B5	26280	
	21.3	899	4.5	65.9			B5	26280
	18.5	1036	3.9	75.9			B5	26280
	16.6	1153	3.5	84.4			B5	26280
	14.8	1289	3.2	94.4			B5	26280
	13.2	1452	2.8	106.3			B5	26280
	12.1	1580	2.6	115.7			B5	26280
	10.2	1879	2.2	137.6			B5	26280
	9.0	2119	1.9	155.2			B5	26280
	8.2	2322	1.8	170.0			B5	26280
	7.1	2696	1.5	197.4			B5	26280
	6.4	3007	1.4	220.2			B5	26280
	6.0	3187	1.3	233.4	B5	26280		
	5.3	3611	1.1	264.4	B5	26280		
	12.1	1580	4.7	115.7	ITH163	B5	48060	
	10.2	1881	4.0	137.7			B5	48060
	9.0	2119	3.5	155.2			B5	48060
	8.2	2323	3.2	170.1			B5	48060
	7.1	2697	2.8	197.5			B5	48060
	6.4	3009	2.5	220.3			B5	48060
6.0	3189	2.4	233.5	B5			48060	
5.3	3614	2.1	264.6	B5			48060	

3.0								
100LB4 1400min <sup>-1</sup>	29.3	889	4.5	47.7	ITH153	B5	26280	
	26.2	994	4.0	53.4			B5	26280
	23.3	1119	3.6	60.1			B5	26280
	21.3	1226	3.3	65.9			B5	26280
	18.5	1413	2.8	75.9			B5	26280
	16.6	1572	2.5	84.4			B5	26280
	14.8	1758	2.3	94.4			B5	26280
	13.2	1980	2.0	106.3			B5	26280
	12.1	2155	1.9	115.7			B5	26280
	10.2	2562	1.6	137.6			B5	26280
	9.0	2890	1.4	155.2			B5	26280
	8.2	3166	1.3	170.0			B5	26280
	7.1	3676	1.1	197.4			B5	26280
	6.4	4101	1.0	220.2			B5	26280
	6.0	4346	0.9	233.4			B5	26280
	5.3	4924	0.8	264.4	B5	26280		
	13.4	2595	4.6	104.5	ITH173	B5	56430	
	12.2	2841	4.2	114.4			B5	56430
	10.3	3379	3.6	136.1			B5	56430
	9.1	3811	3.1	153.5			B5	56430
	8.3	4176	2.9	168.2			B5	56430
	7.2	4849	2.5	195.3			B5	56430
	6.4	5408	2.2	217.8			B5	56430
	6.1	5733	2.1	230.9			B5	56430
	5.4	6496	1.8	261.6			B5	56430

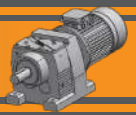
P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
------------------------	--	------------------------	----	---	---	---	-----------------------

3.0										
100LB4 1400min <sup>-1</sup>	16.6	1572	4.8	84.4	ITH163	B5	48060			
	14.8	1759	4.3	94.4			B5	48060		
	13.2	1981	3.8	106.4			B5	48060		
	12.1	2155	3.5	115.7			B5	48060		
	10.2	2564	2.9	137.7			B5	48060		
	9.0	2890	2.6	155.2			B5	48060		
	8.2	3168	2.4	170.1			B5	48060		
	7.1	3678	2.0	197.5			B5	48060		
	6.4	4103	1.8	220.3			B5	48060		
	6.0	4348	1.7	233.5			B5	48060		
	5.3	4928	1.5	264.6			B5	48060		
	10.3	2535	4.7	136.1			ITH173	B5	56430	
	9.1	2859	4.2	153.5					B5	56430
	8.3	3132	3.8	168.2					B5	56430
	7.2	3637	3.3	195.3					B5	56430
6.4	4056	3.0	217.8	B5	56430					
6.1	4300	2.8	230.9	B5	56430					
5.4	4872	2.5	261.6	B5	56430					




4.0								
112M4 1400min <sup>-1</sup>	42.0	828	4.8	33.4	ITH153	B5	26280	
	37.6	925	4.3	37.2			B5	26280
	32.6	1065	3.8	42.9			B5	26280
	29.3	1185	3.4	47.7			B5	26280
	26.2	1325	3.0	53.4			B5	26280
	23.3	1493	2.7	60.1			B5	26280
	21.3	1635	2.4	65.9			B5	26280
	18.5	1884	2.1	75.9			B5	26280
	16.6	2096	1.9	84.4			B5	26280
	14.8	2344	1.7	94.4			B5	26280
	13.2	2639	1.5	106.3			B5	26280
	12.1	2873	1.4	115.7			B5	26280
	10.2	3417	1.2	137.6			B5	26280
	9.0	3854	1.0	155.2			B5	26280
	8.2	4221	0.9	170.0			B5	26280
	7.1	4901	0.8	197.4	B5	26280		
	21.2	1636	4.6	65.9	ITH163	B5	48060	
	18.4	1885	4.0	75.9			B5	48060
	16.6	2097	3.6	84.4			B5	48060
	14.8	2345	3.2	94.4			B5	48060
	13.2	2642	2.8	106.4			B5	48060
	12.1	2873	2.6	115.7			B5	48060
	10.2	3419	2.2	137.7			B5	48060
	9.0	3854	1.9	155.2			B5	48060
	8.2	4224	1.8	170.1			B5	48060
	7.1	4904	1.5	197.5			B5	48060
	6.4	5470	1.4	220.3			B5	48060
	6.0	5798	1.3	233.5			B5	48060
	5.3	6570	1.1	264.6			B5	48060












IEC - 50 Hz - n<sub>1</sub> 1400min<sup>-1</sup>





P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
<b>4.0</b>							
112M4 1400min <sup>-1</sup>	9.1	3831	4.2	154.3	ITH183		B5 108000
	8.3	4199	3.8	169.1			B5 108000
	7.5	4628	3.5	186.4			B5 108000
	6.8	5105	3.1	205.6			B5 108000
	6.0	5763	2.8	232.1			B5 108000
	5.3	6530	2.5	263.0			B5 108000

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf			R <sub>2</sub> [N]	
<b>7.5</b>							
132MA4 1400min <sup>-1</sup>	72.8	925	4.3	19.2	ITH152	B5 26280	
	66.9	1007	4.0	20.9		B5 26280	
	56.2	1197	3.3	24.9		B5 26280	
	50.1	1300	3.1	27.9		ITH153	B5 26280
	42.0	1553	2.6	33.4			B5 26280
	37.6	1734	2.3	37.2			B5 26280
	32.6	1998	2.0	42.9			B5 26280
	29.3	2222	1.8	47.7			B5 26280
	26.2	2485	1.6	53.4			B5 26280
	23.3	2798	1.4	60.1			B5 26280
	21.3	3066	1.3	65.9			B5 26280
	18.5	3533	1.1	75.9			B5 26280
	16.6	3929	1.0	84.4			B5 26280
	14.8	4395	0.9	94.4			B5 26280
	13.2	4949	0.8	106.3			B5 26280
	42.8	1523	4.9	32.7		ITH163	B5 48060
	38.3	1701	4.4	36.5			B5 48060
	33.3	1959	3.8	42.1			B5 48060
	29.9	2179	3.4	46.8			B5 48060
	26.7	2437	3.1	52.4			B5 48060
	23.7	2744	2.7	59.0			B5 48060
	21.2	3068	2.4	65.9			B5 48060
	18.4	3535	2.1	75.9			B5 48060
	16.6	3931	1.9	84.4			B5 48060
	14.8	4397	1.7	94.4			B5 48060
	13.2	4954	1.5	106.4			B5 48060
	12.1	5387	1.4	115.7			B5 48060
	10.2	6411	1.2	137.7		B5 48060	
	9.0	7226	1.0	155.2		B5 48060	
	8.2	7919	0.9	170.1		B5 48060	
	7.1	9195	0.8	197.5		B5 48060	
	26.3	2481	4.8	53.3		ITH173	B5 56430
	24.1	2704	4.4	58.1			B5 56430
	21.3	3062	3.9	65.8			B5 56430
	18.5	3521	3.4	75.6			B5 56430
	16.7	3900	3.1	83.8			B5 56430
15.0	4342	2.8	93.3	B5 56430			
13.4	4865	2.5	104.5	B5 56430			
12.2	5326	2.3	114.4	B5 56430			
10.3	6336	1.9	136.1	B5 56430			
9.1	7146	1.7	153.5	B5 56430			
8.3	7831	1.5	168.2	B5 56430			
7.2	9092	1.3	195.3	B5 56430			
6.4	10140	1.2	217.8	B5 56430			
6.1	10750	1.1	230.9	B5 56430			
5.4	12179	1.0	261.6	B5 56430			
18.6	3514	4.6	75.5	ITH183	B5 108000		
16.7	3908	4.1	83.9		B5 108000		
14.9	4371	3.7	93.9		B5 108000		
13.2	4921	3.3	105.7		B5 108000		
12.2	5354	3.0	115.0		B5 108000		
10.2	6374	2.5	136.9		B5 108000		
9.1	7184	2.2	154.3		B5 108000		
8.3	7873	2.0	169.1		B5 108000		
7.5	8678	1.8	186.4		B5 108000		
6.8	9572	1.7	205.6		B5 108000		
6.0	10806	1.5	232.1		B5 108000		
5.3	12244	1.3	263.0		B5 108000		

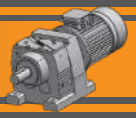
P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]	
<b>5.5</b>								
132S4 1400min <sup>-1</sup>	56.2	878	4.6	24.9	ITH152		B5 26280	
	50.1	954	4.2	27.9			ITH153	B5 26280
	42.0	1139	3.5	33.4				B5 26280
	37.6	1271	3.1	37.2				B5 26280
	32.6	1465	2.7	42.9				B5 26280
	29.3	1630	2.5	47.7				B5 26280
	26.2	1822	2.2	53.4				B5 26280
	23.3	2052	1.9	60.1				B5 26280
	21.3	2249	1.8	65.9				B5 26280
	18.5	2591	1.5	75.9				B5 26280
	16.6	2882	1.4	84.4				B5 26280
	14.8	3223	1.2	94.4				B5 26280
	13.2	3629	1.1	106.3				B5 26280
	12.1	3950	1.0	115.7			B5 26280	
	10.2	4698	0.9	137.6			B5 26280	
	29.9	1598	4.7	46.8			ITH163	B5 48060
	26.7	1787	4.2	52.4				B5 48060
	23.7	2013	3.7	59.0				B5 48060
	21.2	2250	3.3	65.9				B5 48060
	18.4	2592	2.9	75.9				B5 48060
	16.6	2883	2.6	84.4				B5 48060
	14.8	3224	2.3	94.4				B5 48060
	13.2	3633	2.1	106.4				B5 48060
	12.1	3950	1.9	115.7				B5 48060
	10.2	4701	1.6	137.7				B5 48060
	9.0	5299	1.4	155.2				B5 48060
	8.2	5807	1.3	170.1				B5 48060
	7.1	6743	1.1	197.5			B5 48060	
	6.4	7521	1.0	220.3			B5 48060	
	6.0	7972	0.9	233.5			B5 48060	
	5.3	9034	0.8	264.6			B5 48060	
	18.5	2582	4.6	75.6			ITH173	B5 56430
	16.7	2860	4.2	83.8				B5 56430
	15.0	3184	3.8	93.3				B5 56430
	13.4	3568	3.4	104.5				B5 56430
	12.2	3906	3.1	114.4				B5 56430
	10.3	4647	2.6	136.1				B5 56430
	9.1	5241	2.3	153.5				B5 56430
	8.3	5743	2.1	168.2				B5 56430
	7.2	6668	1.8	195.3				B5 56430
	6.4	7436	1.6	217.8				B5 56430
	6.1	7883	1.5	230.9				B5 56430
	5.4	8931	1.3	261.6				B5 56430
	13.2	3609	4.4	105.7			ITH183	B5 108000
	12.2	3926	4.1	115.0				B5 108000
	10.2	4674	3.4	136.9				B5 108000
	9.1	5268	3.0	154.3				B5 108000
	8.3	5773	2.8	169.1				B5 108000
	7.5	6364	2.5	186.4				B5 108000
	6.8	7019	2.3	205.6				B5 108000
	6.0	7924	2.0	232.1				B5 108000
	5.3	8979	1.8	263.0				B5 108000







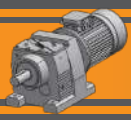
### IEC - 50 Hz - $n_1$ 1400min<sup>-1</sup>

$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]	$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]		
<b>11</b>								<b>15</b>									
160M4	117.4	841	4.8	11.9	ITH152	B5	26280	160L4	181.3	743	5.4	7.7	ITH152	B5	26280		
1400min <sup>-1</sup>	102.0	968	4.1	13.7			B5	26280	1400min <sup>-1</sup>	163.0	826	4.8			8.6	B5	26280
	91.7	1077	3.7	15.3			B5	26280		131.2	1026	3.9			10.7	B5	26280
	82.0	1205	3.3	17.1			B5	26280		117.4	1146	3.5			11.9	B5	26280
	72.8	1356	2.9	19.2	B5	26280		102.0	1321	3.0	13.7	B5	26280				
	66.9	1476	2.7	20.9	B5	26280		91.7	1469	2.7	15.3	B5	26280				
	56.2	1756	2.3	24.9	B5	26280		82.0	1643	2.4	17.1	B5	26280				
					ITH153	B5	26280		72.8	1850	2.2	19.2	B5	26280			
	50.1	1907	2.1	27.9			B5	26280		66.9	2013	2.0	20.9	B5	26280		
	42.0	2277	1.8	33.4			B5	26280		56.2	2395	1.7	24.9	B5	26280		
	37.6	2543	1.6	37.2			B5	26280						ITH153	B5	26280	
	32.6	2930	1.4	42.9			B5	26280		50.1	2601	1.5	27.9			B5	26280
	29.3	3259	1.2	47.7			B5	26280		42.0	3105	1.3	33.4			B5	26280
	26.2	3645	1.1	53.4			B5	26280		37.6	3468	1.2	37.2			B5	26280
	23.3	4104	1.0	60.1			B5	26280		32.6	3995	1.0	42.9			B5	26280
	21.3	4497	0.9	65.9	B5	26280		29.3	4444	0.9	47.7	B5	26280				
					ITH162	B5	48060		26.2	4970	0.8	53.4	B5			26280	
	56.6	1746	4.3	24.8			B5	48060		82.5	1631	4.6	17.0			ITH162	B5
	52.8	1809	4.1	26.5	ITH163	B5	48060		73.7	1827	4.1	19.0	B5	48060			
	42.8	2234	3.4	32.7			B5	48060		67.3	2001	3.7	20.8	B5	48060		
	38.3	2494	3.0	36.5	B5	48060		56.6	2381	3.2	24.8	B5	48060				
	33.3	2873	2.6	42.1	B5	48060						ITH163	B5	48060			
	29.9	3196	2.3	46.8	B5	48060		52.8	2467	3.0	26.5			B5	48060		
	26.7	3575	2.1	52.4	B5	48060		42.8	3046	2.5	32.7	B5	48060				
	23.7	4025	1.9	59.0	B5	48060		38.3	3401	2.2	36.5	B5	48060				
	21.2	4499	1.7	65.9	B5	48060		33.3	3918	1.9	42.1	B5	48060				
	18.4	5184	1.4	75.9	B5	48060		29.9	4359	1.7	46.8	B5	48060				
	16.6	5766	1.3	84.4	B5	48060		26.7	4874	1.5	52.4	B5	48060				
	14.8	6449	1.2	94.4	B5	48060		23.7	5489	1.4	59.0	B5	48060				
	13.2	7265	1.0	106.4	B5	48060		21.2	6135	1.2	65.9	B5	48060				
	12.1	7900	0.9	115.7	B5	48060		18.4	7069	1.1	75.9	B5	48060				
	10.2	9403	0.8	137.7	B5	48060		16.6	7862	1.0	84.4	B5	48060				
					ITH173	B5	56430		14.8	8794	0.9	94.4	B5	48060			
	37.3	2566	4.7	37.6			B5	56430		56.6	2381	5.0	24.8	ITH172	B5	56430	
	32.4	2950	4.1	43.2			B5	56430		50.4	2587	4.6	27.8			B5	56430
	29.2	3269	3.7	47.9			B5	56430		42.2	3090	3.9	33.2	B5	56430		
	26.3	3639	3.3	53.3			B5	56430		37.3	3499	3.4	37.6	B5	56430		
	24.1	3966	3.0	58.1			B5	56430		32.4	4023	3.0	43.2	B5	56430		
	21.3	4490	2.7	65.8			B5	56430		29.2	4457	2.7	47.9	B5	56430		
	18.5	5164	2.3	75.6			B5	56430		26.3	4963	2.4	53.3	B5	56430		
	16.7	5720	2.1	83.8			B5	56430		24.1	5408	2.2	58.1	B5	56430		
	15.0	6369	1.9	93.3			B5	56430		21.3	6123	2.0	65.8	B5	56430		
	13.4	7136	1.7	104.5			B5	56430		18.5	7042	1.7	75.6	B5	56430		
	12.2	7812	1.5	114.4			B5	56430		16.7	7800	1.5	83.8	B5	56430		
	10.3	9293	1.3	136.1	B5	56430		15.0	8685	1.4	93.3	B5	56430				
	9.1	10481	1.1	153.5	B5	56430		13.4	9730	1.2	104.5	B5	56430				
	8.3	11485	1.0	168.2	B5	56430		12.2	10652	1.1	114.4	B5	56430				
	7.2	13336	0.9	195.3	B5	56430		10.3	12673	0.9	136.1	B5	56430				
	6.4	14872	0.8	217.8	B5	56430		9.1	14293	0.8	153.5	B5	56430				
					ITH183	B5	108000		38.0	3432	4.7	36.9	ITH183	B5	108000		
	26.5	3607	4.4	52.8			B5	108000		33.0	3954	4.0			42.5	B5	108000
	23.5	4062	3.9	59.5			B5	108000		29.6	4399	3.6	47.2	B5	108000		
	21.4	4473	3.6	65.5			B5	108000		26.5	4919	3.3	52.8	B5	108000		
	18.6	5153	3.1	75.5			B5	108000		23.5	5539	2.9	59.5	B5	108000		
	16.7	5732	2.8	83.9			B5	108000		21.4	6099	2.6	65.5	B5	108000		
	14.9	6410	2.5	93.9			B5	108000		18.6	7027	2.3	75.5	B5	108000		
	13.2	7217	2.2	105.7			B5	108000		16.7	7816	2.0	83.9	B5	108000		
	12.2	7852	2.0	115.0			B5	108000		14.9	8741	1.8	93.9	B5	108000		
	10.2	9348	1.7	136.9			B5	108000		13.2	9842	1.6	105.7	B5	108000		
	9.1	10536	1.5	154.3			B5	108000		12.2	10708	1.5	115.0	B5	108000		
	8.3	11547	1.4	169.1			B5	108000		10.2	12747	1.3	136.9	B5	108000		
	7.5	12728	1.3	186.4	B5	108000		9.1	14367	1.1	154.3	B5	108000				
	6.8	14039	1.1	205.6	B5	108000		8.3	15745	1.0	169.1	B5	108000				
	6.0	15848	1.0	232.1	B5	108000		7.5	17356	0.9	186.4	B5	108000				
	5.3	17958	0.9	263.0	B5	108000		6.8	19144	0.8	205.6	B5	108000				



IEC - 50 Hz -  $n_1$  1400min<sup>-1</sup>





$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]	$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]				
<b>18.5</b>								<b>22</b>											
160L24 1400min <sup>-1</sup>	288.1	577	6.9	4.9	ITH152	B5	26280	180L4 1400min <sup>-1</sup>	288.1	686	5.8	4.9	ITH152	B5	26280				
	233.3	712	5.6	6.0			B5	26280		233.3	846	4.7			6.0	B5	26280		
	209.0	795	5.0	6.7			B5	26280		209.0	945	4.2			6.7	B5	26280		
	181.3	916	4.4	7.7			B5	26280		181.3	1089	3.7			7.7	B5	26280		
	163.0	1019	3.9	8.6			B5	26280		163.0	1212	3.3			8.6	B5	26280		
	131.2	1266	3.2	10.7			B5	26280		131.2	1505	2.7			10.7	B5	26280		
	117.4	1414	2.8	11.9			B5	26280		117.4	1682	2.4			11.9	B5	26280		
	102.0	1629	2.5	13.7			B5	26280		102.0	1937	2.1			13.7	B5	26280		
	91.7	1811	2.2	15.3			B5	26280		91.7	2154	1.9			15.3	B5	26280		
	82.0	2026	2.0	17.1			B5	26280		82.0	2409	1.7			17.1	B5	26280		
	72.8	2281	1.8	19.2			B5	26280		72.8	2713	1.5			19.2	B5	26280		
	66.9	2483	1.6	20.9			B5	26280		66.9	2953	1.4			20.9	B5	26280		
	56.2	2954	1.4	24.9	B5	26280		56.2	3513	1.1	24.9	B5	26280						
	50.1	3207	1.2	27.9	ITH153	B5	26280		50.1	3814	1.0	27.9	ITH153	B5	26280				
	42.0	3830	1.0	33.4			B5	26280		42.0	4554	0.9			33.4	B5	26280		
	37.6	4277	0.9	37.2			B5	26280		37.6	5086	0.8			37.2	B5	26280		
	32.6	4928	0.8	42.9	ITH162	B5	26280		132.6	1490	5.0	10.6	ITH162	B5	48060				
	101.8	1631	4.6	13.8			B5	48060		117.1	1687	4.4			12.0	B5	48060		
	91.9	1807	4.2	15.2			B5	48060		101.8	1940	3.9			13.8	B5	48060		
	82.5	2012	3.7	17.0			B5	48060		91.9	2148	3.5			15.2	B5	48060		
	73.7	2254	3.3	19.0			B5	48060		82.5	2392	3.1			17.0	B5	48060		
	67.3	2467	3.0	20.8			B5	48060		73.7	2680	2.8			19.0	B5	48060		
	56.6	2936	2.6	24.8			B5	48060		67.3	2934	2.6			20.8	B5	48060		
	52.8	3043	2.5	26.5			ITH163	B5	48060		56.6	3491			2.1	24.8	ITH163	B5	48060
	42.8	3756	2.0	32.7	B5	48060				52.8	3619	2.1	26.5	B5	48060				
	38.3	4195	1.8	36.5	B5	48060				42.8	4467	1.7	32.7	B5	48060				
	33.3	4832	1.6	42.1	B5	48060				38.3	4989	1.5	36.5	B5	48060				
	29.9	5376	1.4	46.8	B5	48060				33.3	5747	1.3	42.1	B5	48060				
	26.7	6012	1.2	52.4	B5	48060				29.9	6393	1.2	46.8	B5	48060				
	23.7	6770	1.1	59.0	B5	48060				26.7	7149	1.0	52.4	B5	48060				
	21.2	7567	1.0	65.9	B5	48060				23.7	8051	0.9	59.0	B5	48060				
	18.4	8719	0.9	75.9	B5	48060				21.2	8998	0.8	65.9	B5	48060				
	67.3	2467	4.9	20.8	ITH172	B5			56430		73.2	2697	4.4	19.1	ITH172	B5			56430
	56.6	2936	4.1	24.8					B5	56430		67.3	2934	4.1					20.8
	50.4	3190	3.8	27.8	ITH173	B5			56430		56.6	3491	3.4	24.8	ITH173	B5			56430
	42.2	3811	3.1	33.2			B5	56430		50.4	3794	3.2	27.8	B5			56430		
	37.3	4316	2.8	37.6			B5	56430		42.2	4533	2.6	33.2	B5			56430		
	32.4	4962	2.4	43.2			B5	56430		37.3	5132	2.3	37.6	B5			56430		
	29.2	5497	2.2	47.9			B5	56430		32.4	5901	2.0	43.2	B5			56430		
	26.3	6121	2.0	53.3			B5	56430		29.2	6537	1.8	47.9	B5			56430		
	24.1	6670	1.8	58.1			B5	56430		26.3	7279	1.6	53.3	B5			56430		
	21.3	7552	1.6	65.8			B5	56430		24.1	7932	1.5	58.1	B5			56430		
	18.5	8685	1.4	75.6			B5	56430		21.3	8981	1.3	65.8	B5			56430		
	16.7	9620	1.2	83.8			B5	56430		18.5	10328	1.2	75.6	B5			56430		
	15.0	10711	1.1	93.3			B5	56430		16.7	11440	1.0	83.8	B5			56430		
	13.4	12001	1.0	104.5			B5	56430		15.0	12737	0.9	93.3	B5			56430		
	12.2	13138	0.9	114.4	B5	56430		13.4	14271	0.8	104.5	B5	56430						
	51.1	3144	5.1	27.4	ITH183	B5	108000		56.3	3510	4.6	24.9	ITH182 ITH183	B5	108000				
	42.4	3791	4.2	33.0			B5	108000		51.1	3739	4.3			27.4	B5	108000		
	38.0	4233	3.8	36.9			B5	108000		42.4	4508	3.5			33.0	B5	108000		
	33.0	4877	3.3	42.5			B5	108000		38.0	5034	3.2			36.9	B5	108000		
	29.6	5425	2.9	47.2			B5	108000		33.0	5800	2.8			42.5	B5	108000		
	26.5	6067	2.6	52.8			B5	108000		29.6	6451	2.5			47.2	B5	108000		
	23.5	6832	2.3	59.5			B5	108000		26.5	7215	2.2			52.8	B5	108000		
	21.4	7522	2.1	65.5			B5	108000		23.5	8124	2.0			59.5	B5	108000		
	18.6	8667	1.8	75.5			B5	108000		21.4	8945	1.8			65.5	B5	108000		
	16.7	9640	1.7	83.9			B5	108000		18.6	10307	1.6			75.5	B5	108000		
	14.9	10781	1.5	93.9			B5	108000		16.7	11463	1.4			83.9	B5	108000		
	13.2	12138	1.3	105.7			B5	108000		14.9	12821	1.2			93.9	B5	108000		
	12.2	13206	1.2	115.0	B5	108000		13.2	14435	1.1	105.7	B5	108000						
	10.2	15721	1.0	136.9	B5	108000		12.2	15705	1.0	115.0	B5	108000						
	9.1	17720	0.9	154.3	B5	108000		10.2	18696	0.9	136.9	B5	108000						
	8.3	19419	0.8	169.1	B5	108000		9.1	21072	0.8	154.3	B5	108000						



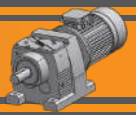
# ITH

## Helical in-line gearmotors

### IEC - 50 Hz - $n_1$ 1400min<sup>-1</sup>

$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]	$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]
<b>30</b>								<b>37</b>							
200L4 1400min <sup>-1</sup>	288.1	935	3.0	4.9	ITH152	B5	26280	225S4 1400min <sup>-1</sup>	288.1	1153	2.5	4.9	ITH152	B5	26280
	233.3	1154	2.5	6.0		B5	26280		233.3	1423	2.1	6.0		B5	26280
	209.0	1289	2.5	6.7		B5	26280		209.0	1590	2.0	6.7		B5	26280
	181.3	1485	2.2	7.7		B5	26280		181.3	1832	1.8	7.7		B5	26280
	163.0	1652	2.0	8.6		B5	26280		163.0	2038	1.7	8.6		B5	26280
	131.2	2053	2.0	10.7		B5	26280		131.2	2531	1.6	10.7		B5	26280
	117.4	2293	1.8	11.9		B5	26280		117.4	2828	1.5	11.9		B5	26280
	102.0	2641	1.6	13.7		B5	26280		102.0	3257	1.3	13.7		B5	26280
	91.7	2937	1.4	15.3		B5	26280		91.7	3623	1.2	15.3		B5	26280
	82.0	3286	1.3	17.1		B5	26280		82.0	4052	1.0	17.1		B5	26280
	72.8	3699	1.1	19.2		B5	26280		72.8	4562	0.9	19.2		B5	26280
	66.9	4026	1.0	20.9		B5	26280		66.9	4966	0.8	20.9		B5	26280
	56.2	4790	0.9	24.9		B5	26280								
	277.8	970	4.6	5.0	ITH162	B5	48060		277.8	1196	3.8	5.0	ITH162	B5	48060
	232.6	1158	4.6	6.0		B5	48060		232.6	1428	3.7	6.0		B5	48060
	205.3	1312	4.3	6.8		B5	48060		205.3	1618	3.5	6.8		B5	48060
	178.6	1508	3.8	7.8		B5	48060		178.6	1860	3.1	7.8		B5	48060
	161.1	1672	3.4	8.7		B5	48060		161.1	2062	3.1	8.7		B5	48060
	132.6	2031	3.8	10.6		B5	48060		132.6	2505	2.8	10.6		B5	48060
	117.1	2301	3.3	12.0		B5	48060		117.1	2838	2.7	12.0		B5	48060
	101.8	2645	2.9	13.8		B5	48060		101.8	3262	2.4	13.8		B5	48060
	91.9	2930	2.7	15.2		B5	48060		91.9	3613	2.2	15.2		B5	48060
	82.5	3262	2.4	17.0		B5	48060		82.5	4024	1.9	17.0		B5	48060
	73.7	3655	2.1	19.0		B5	48060		73.7	4508	1.7	19.0		B5	48060
	67.3	4001	2.0	20.8		B5	48060		67.3	4935	1.6	20.8		B5	48060
	56.6	4761	1.6	24.8		B5	48060		56.6	5872	1.3	24.8		B5	48060
	52.8	4935	1.5	26.5	ITH163	B5	48060		52.8	6086	1.2	26.5	ITH163	B5	48060
	42.8	6091	1.2	32.7		B5	48060		42.8	7513	1.0	32.7		B5	48060
	38.3	6803	1.1	36.5		B5	48060		38.3	8390	0.9	36.5		B5	48060
	33.3	7836	1.0	42.1		B5	48060		132.0	2517	4.6	10.6	ITH172	B5	56430
	29.9	8717	0.9	46.8		B5	48060		118.1	2811	4.5	11.9		B5	56430
	102.6	2626	4.7	13.7	ITH172	B5	56430		102.6	3238	3.8	13.7		B5	56430
	92.2	2920	4.3	15.2		B5	56430		92.2	3601	3.5	15.2		B5	56430
	82.4	3266	3.9	17.0		B5	56430		82.4	4028	3.1	17.0		B5	56430
	73.2	3678	3.2	19.1		B5	56430		73.2	4536	2.6	19.1		B5	56430
	67.3	4001	2.9	20.8		B5	56430		67.3	4935	2.4	20.8		B5	56430
	56.6	4761	2.4	24.8		B5	56430		56.6	5872	2.0	24.8		B5	56430
	50.4	5173	2.4	27.8	ITH173	B5	56430		50.4	6380	1.9	27.8	ITH173	B5	56430
	42.2	6181	2.0	33.2		B5	56430		42.2	7623	1.6	33.2		B5	56430
	37.3	6998	1.8	37.6		B5	56430		37.3	8631	1.4	37.6		B5	56430
	32.4	8047	1.5	43.2		B5	56430		32.4	9924	1.2	43.2		B5	56430
	29.2	8915	1.4	47.9		B5	56430		29.2	10995	1.1	47.9		B5	56430
	26.3	9926	1.2	53.3		B5	56430		26.3	12242	1.0	53.3		B5	56430
	24.1	10816	1.1	58.1		B5	56430		24.1	13340	0.9	58.1		B5	56430
	21.3	12246	1.0	65.8		B5	56430		21.3	15104	0.8	65.8		B5	56430
	18.5	14084	0.9	75.6		B5	56430		91.7	3620	4.8	15.3	ITH182	B5	108000
	82.4	3270	4.5	17.0	ITH182	B5	108000		82.4	4033	3.6	17.0		B5	108000
	74.5	3616	4.3	18.8		B5	108000		74.5	4460	3.5	18.8		B5	108000
	66.9	4024	3.9	20.9		B5	108000		66.9	4963	3.2	20.9		B5	108000
	56.3	4786	3.3	24.9		B5	108000		56.3	5903	2.7	24.9		B5	108000
	51.1	5099	2.9	27.4	ITH183	B5	108000		51.1	6289	2.3	27.4	ITH183	B5	108000
	42.4	6147	2.8	33.0		B5	108000		42.4	7582	2.2	33.0		B5	108000
	38.0	6864	2.5	36.9		B5	108000		38.0	8466	2.0	36.9		B5	108000
	33.0	7909	2.2	42.5		B5	108000		33.0	9754	1.7	42.5		B5	108000
	29.6	8797	1.9	47.2		B5	108000		29.6	10850	1.6	47.2		B5	108000
	26.5	9838	1.7	52.8		B5	108000		26.5	12134	1.4	52.8		B5	108000
	23.5	11079	1.5	59.5		B5	108000		23.5	13664	1.2	59.5		B5	108000
	21.4	12198	1.4	65.5		B5	108000		21.4	15044	1.1	65.5		B5	108000
	18.6	14054	1.2	75.5		B5	108000		18.6	17334	1.0	75.5		B5	108000
	16.7	15632	1.1	83.9		B5	108000		16.7	19279	0.9	83.9		B5	108000
	14.9	17483	1.0	93.9		B5	108000								
	13.2	19684	0.9	105.7		B5	108000								





IEC - 50 Hz - n<sub>1</sub> 1400min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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45

225M4 1400min <sup>-1</sup>	288.1	1402	2.0	4.9	ITH152	B5	26280	
	233.3	1731	1.7	6.0		B5	26280	
	209.0	1933	1.7	6.7		B5	26280	
	181.3	2228	1.5	7.7		B5	26280	
	163.0	2479	1.4	8.6		B5	26280	
	131.2	3079	1.3	10.7		B5	26280	
	117.4	3439	1.2	11.9		B5	26280	
	102.0	3962	1.1	13.7		B5	26280	
	91.7	4406	0.9	15.3		B5	26280	
	82.0	4928	0.9	17.1		B5	26280	
	277.8	1454	3.1	5.0		ITH162	B5	48060
	232.6	1737	3.0	6.0			B5	48060
	205.3	1968	2.9	6.8			B5	48060
	178.6	2262	2.6	7.8			B5	48060
	161.1	2507	2.5	8.7			B5	48060
	132.6	3047	2.3	10.6	B5		48060	
	117.1	3451	2.2	12.0	B5		48060	
	101.8	3968	2.0	13.8	B5		48060	
	91.9	4395	1.8	15.2	B5		48060	
	82.5	4894	1.6	17.0	B5		48060	
	73.7	5482	1.4	19.0	B5		48060	
	67.3	6002	1.3	20.8	B5		48060	
	56.6	7142	1.1	24.8	B5		48060	
	52.8	7402	1.0	26.5	ITH163		B5	48060
	42.8	9137	0.8	32.7			B5	48060
	208.3	1939	4.9	6.7	ITH172	B5	56430	
	180.9	2233	4.4	7.7		B5	56430	
	162.6	2484	4.1	8.6		B5	56430	
	132.0	3061	3.8	10.6		B5	56430	
	118.1	3419	3.7	11.9		B5	56430	
	102.6	3939	3.1	13.7		B5	56430	
	92.2	4380	2.9	15.2		B5	56430	
	82.4	4900	2.6	17.0		B5	56430	
	73.2	5517	2.1	19.1		B5	56430	
	67.3	6002	2.0	20.8		B5	56430	
	56.6	7142	1.6	24.8		B5	56430	
	50.4	7760	1.6	27.8		ITH173	B5	56430
	42.2	9271	1.3	33.2			B5	56430
	37.3	10498	1.2	37.6			B5	56430
	32.4	12070	1.0	43.2			B5	56430
	29.2	13372	0.9	47.9	B5		56430	
	26.3	14889	0.8	53.3	B5		56430	
	113.0	3575	4.6	12.4	ITH182	B5	108000	
	102.0	3959	4.2	13.7		B5	108000	
	91.7	4403	4.0	15.3		B5	108000	
82.4	4905	3.0	17.0	B5		108000		
74.5	5425	2.9	18.8	B5		108000		
66.9	6036	2.6	20.9	B5		108000		
56.3	7179	2.2	24.9	B5		108000		
51.1	7648	1.9	27.4	ITH183		B5	108000	
42.4	9221	1.8	33.0			B5	108000	
38.0	10296	1.7	36.9		B5	108000		
33.0	11863	1.4	42.5		B5	108000		
29.6	13196	1.3	47.2		B5	108000		
26.5	14757	1.2	52.8		B5	108000		
23.5	16618	1.0	59.5	B5	108000			
21.4	18297	0.9	65.5	B5	108000			
18.6	21082	0.8	75.5	B5	108000			

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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55

250M4 1400min <sup>-1</sup>	277.8	1777	2.5	5.0	ITH162	B5	48060	
	232.6	2123	2.5	6.0		B5	48060	
	205.3	2405	2.4	6.8		B5	48060	
	178.6	2765	2.1	7.8		B5	48060	
	161.1	3065	2.1	8.7		B5	48060	
	132.6	3724	1.9	10.6		B5	48060	
	117.1	4218	1.8	12.0		B5	48060	
	101.8	4849	1.6	13.8		B5	48060	
	91.9	5371	1.5	15.2		B5	48060	
	82.5	5981	1.3	17.0		B5	48060	
	73.7	6701	1.2	19.0		B5	48060	
	67.3	7335	1.1	20.8		B5	48060	
	56.6	8729	0.9	24.8		B5	48060	
	52.8	9047	0.8	26.5		ITH163	B5	48060
	280.6	1760	4.8	5.0			ITH172	B5
	232.6	2123	4.2	6.0	B5	56430		
	208.3	2370	4.0	6.7	B5	56430		
	180.9	2730	3.6	7.7	B5	56430		
	162.6	3036	3.4	8.6	B5	56430		
	132.0	3742	3.1	10.6	B5	56430		
	118.1	4179	3.0	11.9	B5	56430		
	102.6	4814	2.6	13.7	B5	56430		
	92.2	5353	2.4	15.2	B5	56430		
	82.4	5988	2.1	17.0	B5	56430		
	73.2	6743	1.7	19.1	B5	56430		
	67.3	7335	1.6	20.8	B5	56430		
	56.6	8729	1.3	24.8	B5	56430		
	50.4	9484	1.3	27.8	ITH173	B5		56430
	42.2	11331	1.1	33.2		B5		56430
	37.3	12830	1.0	37.6		B5	56430	
	32.4	14752	0.8	43.2	ITH182	B5	56430	
	130.7	3777	4.4	10.7		B5	108000	
	113.0	4370	3.8	12.4		B5	108000	
	102.0	4839	3.4	13.7		B5	108000	
	91.7	5382	3.3	15.3		B5	108000	
	82.4	5995	2.4	17.0		B5	108000	
	74.5	6630	2.4	18.8		B5	108000	
	66.9	7378	2.1	20.9		B5	108000	
	56.3	8774	1.8	24.9		B5	108000	
	51.1	9348	1.6	27.4	ITH183	B5	108000	
	42.4	11270	1.5	33.0		B5	108000	
	38.0	12584	1.4	36.9		B5	108000	
	33.0	14500	1.2	42.5		B5	108000	
	29.6	16128	1.1	47.2		B5	108000	
	26.5	18037	0.9	52.8		B5	108000	
23.5	20311	0.8	59.5	B5	108000			

75

280S4 1400min <sup>-1</sup>	277.8	2424	1.9	5.0	ITH162	B5	48060
	232.6	2895	1.8	6.0		B5	48060
	205.3	3280	1.7	6.8		B5	48060
	178.6	3770	1.5	7.8		B5	48060
	161.1	4179	1.5	8.7		B5	48060
	132.6	5078	1.4	10.6		B5	48060
	117.1	5752	1.3	12.0		B5	48060
	101.8	6613	1.2	13.8		B5	48060
	91.9	7324	1.1	15.2		B5	48060
	82.5	8156	1.0	17.0		B5	48060
	73.7	9137	0.9	19.0		B5	48060





### IEC - 50 Hz - n<sub>1</sub> 1400min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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#### 75

280S4 1400min <sup>-1</sup>	280.6	2400	3.5	5.0	ITH172	B5	56430
	232.6	2895	3.1	6.0		B5	56430
	208.3	3232	2.9	6.7		B5	56430
	180.9	3722	2.6	7.7		B5	56430
	162.6	4141	2.5	8.6		B5	56430
	132.0	5102	2.3	10.6		B5	56430
	118.1	5699	2.2	11.9		B5	56430
	102.6	6564	1.9	13.7		B5	56430
	92.2	7300	1.7	15.2		B5	56430
	82.4	8166	1.6	17.0		B5	56430
	73.2	9195	1.3	19.1	B5	56430	
	67.3	10003	1.2	20.8	B5	56430	
	56.6	11903	1.0	24.8	B5	56430	
	50.4	12933	1.0	27.8	ITH173	B5	56430
	157.1	4285	3.9	8.9	ITH182	B5	108000
	130.7	5151	3.2	10.7		B5	108000
	113.0	5958	2.8	12.4		B5	108000
	102.0	6598	2.5	13.7		B5	108000
	91.7	7339	2.4	15.3		B5	108000
	82.4	8175	1.8	17.0		B5	108000
74.5	9041	1.7	18.8	B5		108000	
66.9	10061	1.6	20.9	B5		108000	
56.3	11965	1.3	24.9	B5	108000		
51.1	12747	1.1	27.4	ITH183	B5	108000	
42.4	15368	1.1	33.0		B5	108000	
38.0	17161	1.0	36.9		B5	108000	
33.0	19772	0.9	42.5		B5	108000	

#### 90

280M4 1400min <sup>-1</sup>	277.8	2909	1.5	5.0	ITH162	B5	48060
	232.6	3474	1.5	6.0		B5	48060
	205.3	3936	1.4	6.8		B5	48060
	178.6	4524	1.3	7.8		B5	48060
	161.1	5015	1.3	8.7		B5	48060
	132.6	6094	1.1	10.6		B5	48060
	117.1	6902	1.1	12.0		B5	48060
	101.8	7935	1.0	13.8		B5	48060
	91.9	8789	0.9	15.2		B5	48060
	82.5	9787	0.8	17.0		B5	48060
	280.6	2880	2.9	5.0	ITH172	B5	56430
	232.6	3474	2.5	6.0		B5	56430
	208.3	3878	2.4	6.7		B5	56430
	180.9	4467	2.2	7.7		B5	56430
	162.6	4969	2.1	8.6		B5	56430
	132.0	6123	1.9	10.6		B5	56430
	118.1	6839	1.9	11.9		B5	56430
	102.6	7877	1.6	13.7		B5	56430
	92.2	8760	1.5	15.2		B5	56430
	82.4	9799	1.3	17.0		B5	56430
73.2	11034	1.1	19.1	B5	56430		
67.3	12004	1.0	20.8	B5	56430		
56.6	14283	0.8	24.8	B5	56430		
157.1	5142	3.2	8.9	ITH182	B5	108000	
130.7	6181	2.7	10.7		B5	108000	
113.0	7150	2.3	12.4		B5	108000	
102.0	7918	2.1	13.7		B5	108000	
91.7	8806	2.0	15.3		B5	108000	
82.4	9811	1.5	17.0		B5	108000	
74.5	10849	1.4	18.8		B5	108000	
66.9	12073	1.3	20.9		B5	108000	
56.3	14358	1.1	24.9		B5	108000	

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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#### 90

280M4 1400min <sup>-1</sup>	51.1	15297	1.0	27.4	ITH183	B5	108000
	42.4	18442	0.9	33.0		B5	108000
	38.0	20593	0.8	36.9		B5	108000

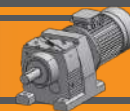
#### 110

315S4 1400min <sup>-1</sup>	277.8	3555	1.3	5.0	ITH162	B5	48060	
	232.6	4246	1.3	6.0		B5	48060	
	205.3	4810	1.2	6.8		B5	48060	
	178.6	5530	1.1	7.8		B5	48060	
	161.1	6129	1.0	8.7		B5	48060	
	132.6	7448	0.9	10.6		B5	48060	
	117.1	8436	0.9	12.0		B5	48060	
	101.8	9698	0.8	13.8		B5	48060	
	280.6	3520	2.4	5.0		ITH172	B5	56430
	232.6	4246	2.1	6.0			B5	56430
	208.3	4740	2.0	6.7	B5		56430	
	180.9	5459	1.8	7.7	B5		56430	
	162.6	6073	1.7	8.6	B5		56430	
	132.0	7484	1.5	10.6	B5		56430	
	118.1	8358	1.5	11.9	B5		56430	
	102.6	9628	1.3	13.7	B5		56430	
	92.2	10707	1.2	15.2	B5		56430	
	82.4	11977	1.1	17.0	B5		56430	
	73.2	13486	0.9	19.1	B5	56430		
	67.3	14671	0.8	20.8	B5	56430		
157.1	6285	2.6	8.9	ITH182	B5	108000		
130.7	7554	2.2	10.7		B5	108000		
113.0	8739	1.9	12.4		B5	108000		
102.0	9677	1.7	13.7		B5	108000		
91.7	10763	1.6	15.3		B5	108000		
82.4	11991	1.2	17.0		B5	108000		
74.5	13260	1.2	18.8		B5	108000		
66.9	14756	1.1	20.9		B5	108000		
56.3	17549	0.9	24.9		B5	108000		

#### 132

315M4 1400min <sup>-1</sup>	280.6	4224	2.0	5.0	ITH172	B5	56430
	232.6	5095	1.7	6.0		B5	56430
	208.3	5688	1.7	6.7		B5	56430
	180.9	6551	1.5	7.7		B5	56430
	162.6	7288	1.4	8.6		B5	56430
	132.0	8980	1.3	10.6		B5	56430
	118.1	10030	1.3	11.9		B5	56430
	102.6	11553	1.1	13.7		B5	56430
	92.2	12848	1.0	15.2		B5	56430
	82.4	14372	0.9	17.0		B5	56430
	157.1	7541	2.2	8.9	ITH182	B5	108000
	130.7	9065	1.8	10.7		B5	108000
	113.0	10487	1.6	12.4		B5	108000
	102.0	11613	1.4	13.7		B5	108000
	91.7	12916	1.4	15.3		B5	108000
	82.4	14389	1.0	17.0		B5	108000
	74.5	15912	1.0	18.8		B5	108000
	66.9	17707	0.9	20.9		B5	108000



IEC - 50 Hz -  $n_1$  1400min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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## 160

315LA4 1400min <sup>-1</sup>	280.6	5119	1.7	5.0	ITH172	B5	56430
	232.6	6176	1.4	6.0		B5	56430
	208.3	6894	1.4	6.7		B5	56430
	180.9	7941	1.2	7.7		B5	56430
	162.6	8833	1.2	8.6		B5	56430
	132.0	10885	1.1	10.6		B5	56430
	118.1	12157	1.0	11.9		B5	56430
	102.6	14004	0.9	13.7	B5	56430	
	92.2	15574	0.8	15.2	B5	56430	
	157.1	9141	1.8	8.9	ITH182	B5	108000
	130.7	10988	1.5	10.7		B5	108000
	113.0	12711	1.3	12.4		B5	108000
	102.0	14076	1.2	13.7		B5	108000
	91.7	15656	1.1	15.3		B5	108000
82.4	17441	0.8	17.0	B5		108000	
74.5	19288	0.8	18.8	B5		108000	

## 200

315LB4 1400min <sup>-1</sup>	157.1	11426	1.5	8.9	ITH182	B5	108000
	130.7	13735	1.2	10.7		B5	108000
	113.0	15889	1.0	12.4		B5	108000
	102.0	17595	0.9	13.7		B5	108000
	91.7	19570	0.9	15.3		B5	108000



# Technical data

**IEC - 60 Hz -  $n_1$  1750min<sup>-1</sup>**

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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### 1.1

90S4 1750min <sup>-1</sup>	12.7	752	5.3	137.6	ITH153	B5	26280
	11.3	848	4.7	155.2		B5	26280
	10.3	929	4.3	170.0		B5	26280
	8.9	1078	3.7	197.4		B5	26280
	7.9	1203	3.3	220.2		B5	26280
	7.5	1275	3.1	233.4		B5	26280
	6.6	1444	2.8	264.4		B5	26280

### 3.0

100LB4 1750min <sup>-1</sup>	20.7	1258	6.0	84.4	ITH163	B5	48060	
	18.5	1407	5.3	94.4		B5	48060	
	16.4	1585	4.7	106.4		B5	48060	
	15.1	1724	4.4	115.7		B5	48060	
	12.7	2051	3.7	137.7		B5	48060	
	11.3	2312	3.2	155.2		B5	48060	
	10.3	2534	3.0	170.1		B5	48060	
	8.9	2942	2.5	197.5		B5	48060	
	7.9	3282	2.3	220.3		B5	48060	
	7.5	3479	2.2	233.5		B5	48060	
	6.6	3942	1.9	264.6		B5	48060	
	12.9	2028	5.9	136.1		ITH173	B5	56430
	11.4	2287	5.2	153.5			B5	56430
10.4	2506	4.8	168.2	B5	56430			
9.0	2910	4.1	195.3	B5	56430			
8.0	3245	3.7	217.8	B5	56430			
7.6	3440	3.5	230.9	B5	56430			
6.7	3897	3.1	261.6	B5	56430			

### 1.5

90L4 1750min <sup>-1</sup>	18.5	703	5.8	94.4	ITH153	B5	26280
	16.5	792	5.1	106.3		B5	26280
	15.1	862	4.7	115.7		B5	26280
	12.7	1025	4.0	137.6		B5	26280
	11.3	1156	3.5	155.2		B5	26280
	10.3	1266	3.2	170.0		B5	26280
	8.9	1470	2.8	197.4		B5	26280
	7.9	1640	2.5	220.2		B5	26280
	7.5	1739	2.3	233.4		B5	26280
	6.6	1970	2.1	264.4		B5	26280

### 4.0

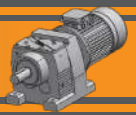
112M4 1750min <sup>-1</sup>	52.5	662	6.0	33.4	ITH153	B5	26280	
	47.0	740	5.4	37.2		B5	26280	
	40.8	852	4.7	42.9		B5	26280	
	36.7	948	4.2	47.7		B5	26280	
	32.8	1060	3.8	53.4		B5	26280	
	29.1	1194	3.4	60.1		B5	26280	
	26.6	1308	3.1	65.9		B5	26280	
	23.1	1507	2.7	75.9		B5	26280	
	20.7	1677	2.4	84.4		B5	26280	
	18.5	1875	2.1	94.4		B5	26280	
	16.5	2112	1.9	106.3		B5	26280	
	15.1	2298	1.7	115.7		B5	26280	
	12.7	2733	1.5	137.6		B5	26280	
	11.3	3083	1.3	155.2		B5	26280	
	10.3	3377	1.2	170.0		B5	26280	
	8.9	3921	1.0	197.4		B5	26280	
	26.6	1309	5.7	65.9		ITH163	B5	48060
	23.1	1508	5.0	75.9			B5	48060
	20.7	1677	4.5	84.4			B5	48060
	18.5	1876	4.0	94.4			B5	48060
	16.4	2114	3.5	106.4			B5	48060
	15.1	2298	3.3	115.7			B5	48060
12.7	2735	2.7	137.7	B5	48060			
11.3	3083	2.4	155.2	B5	48060			
10.3	3379	2.2	170.1	B5	48060			
8.9	3923	1.9	197.5	B5	48060			
7.9	4376	1.7	220.3	B5	48060			
7.5	4638	1.6	233.5	B5	48060			
6.6	5256	1.4	264.6	B5	48060			
16.7	2076	5.8	104.5	ITH173	B5	56430		
15.3	2272	5.3	114.4		B5	56430		
12.9	2703	4.4	136.1		B5	56430		
11.4	3049	3.9	153.5		B5	56430		
10.4	3341	3.6	168.2		B5	56430		
9.0	3879	3.1	195.3		B5	56430		
8.0	4326	2.8	217.8		B5	56430		
7.6	4587	2.6	230.9		B5	56430		
6.7	5196	2.3	261.6		B5	56430		

### 3.0

100LB4 1750min <sup>-1</sup>	36.7	711	5.6	47.7	ITH153	B5	26280
	32.8	795	5.0	53.4		B5	26280
	29.1	896	4.5	60.1		B5	26280
	26.6	981	4.1	65.9		B5	26280
	23.1	1130	3.5	75.9		B5	26280
	20.7	1257	3.2	84.4		B5	26280
	18.5	1406	2.8	94.4		B5	26280
	16.5	1584	2.5	106.3		B5	26280
	15.1	1724	2.3	115.7		B5	26280
	12.7	2050	2.0	137.6		B5	26280
	11.3	2312	1.7	155.2		B5	26280
	10.3	2533	1.6	170.0		B5	26280
	8.9	2941	1.4	197.4		B5	26280
	7.9	3281	1.2	220.2		B5	26280
	7.5	3477	1.2	233.4		B5	26280
	6.6	3939	1.0	264.4		B5	26280





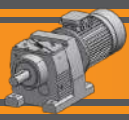


IEC - 60 Hz - n<sub>1</sub> 1750min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
<b>4.0</b>							
112M4	11.3	3065	5.2	154.3	ITH183		B5 108000
1750min <sup>-1</sup>	10.3	3359	4.8	169.1			B5 108000
	9.4	3703	4.3	186.4			B5 108000
	8.5	4084	3.9	205.6			B5 108000
	7.5	4610	3.5	232.1			B5 108000
	6.7	5224	3.1	263.0			B5 108000

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf			R <sub>2</sub> [N]
<b>7.5</b>						
132MA4	91.0	740	5.4	19.2	ITH152	B5 26280
1750min <sup>-1</sup>	83.6	805	5.0	20.9		B5 26280
	70.3	958	4.2	24.9		B5 26280
	62.7	1040	3.8	27.9		ITH153
52.5	1242	3.2	33.4	B5 26280		
47.0	1387	2.9	37.2	B5 26280		
40.8	1598	2.5	42.9	B5 26280		
36.7	1778	2.3	47.7	B5 26280		
32.8	1988	2.0	53.4	B5 26280		
29.1	2239	1.8	60.1	B5 26280		
26.6	2453	1.6	65.9	B5 26280		
23.1	2826	1.4	75.9	B5 26280		
20.7	3143	1.3	84.4	B5 26280		
18.5	3516	1.1	94.4	B5 26280		
16.5	3959	1.0	106.3	B5 26280		
53.5	1218	6.2	32.7	ITH163	B5 48060	
47.9	1361	5.5	36.5		B5 48060	
41.6	1567	4.8	42.1		B5 48060	
37.4	1743	4.3	46.8		B5 48060	
33.4	1950	3.8	52.4		B5 48060	
29.7	2196	3.4	59.0		B5 48060	
26.6	2454	3.1	65.9		B5 48060	
23.1	2828	2.7	75.9		B5 48060	
20.7	3145	2.4	84.4		B5 48060	
18.5	3517	2.1	94.4		B5 48060	
16.4	3963	1.9	106.4		B5 48060	
15.1	4309	1.7	115.7		B5 48060	
12.7	5129	1.5	137.7		B5 48060	
11.3	5780	1.3	155.2		B5 48060	
10.3	6335	1.2	170.1	B5 48060		
8.9	7356	1.0	197.5	B5 48060		
32.8	1985	6.0	53.3	ITH173	B5 56430	
30.1	2163	5.5	58.1		B5 56430	
26.6	2449	4.9	65.8		B5 56430	
23.1	2817	4.3	75.6		B5 56430	
20.9	3120	3.8	83.8		B5 56430	
18.8	3474	3.5	93.3		B5 56430	
16.7	3892	3.1	104.5		B5 56430	
15.3	4261	2.8	114.4		B5 56430	
12.9	5069	2.4	136.1		B5 56430	
11.4	5717	2.1	153.5		B5 56430	
10.4	6265	1.9	168.2		B5 56430	
9.0	7274	1.6	195.3		B5 56430	
8.0	8112	1.5	217.8	B5 56430		
7.6	8600	1.4	230.9	B5 56430		
6.7	9743	1.2	261.6	B5 56430		
23.2	2811	5.7	75.5	ITH183	B5 108000	
20.8	3126	5.1	83.9		B5 108000	
18.6	3497	4.6	93.9		B5 108000	
16.6	3937	4.1	105.7		B5 108000	
15.2	4283	3.7	115.0		B5 108000	
12.8	5099	3.1	136.9		B5 108000	
11.3	5747	2.8	154.3		B5 108000	
10.3	6298	2.5	169.1		B5 108000	
9.4	6942	2.3	186.4		B5 108000	
8.5	7658	2.1	205.6		B5 108000	
7.5	8645	1.9	232.1		B5 108000	
6.7	9795	1.6	263.0		B5 108000	

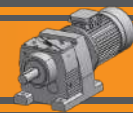
P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
<b>5.5</b>							
132S4	70.3	703	5.7	24.9	ITH152		B5 26280
1750min <sup>-1</sup>	62.7	763	5.2	27.9			ITH153
	52.5	911	4.4	33.4	B5 26280		
	47.0	1017	3.9	37.2	B5 26280		
	40.8	1172	3.4	42.9	B5 26280		
	36.7	1304	3.1	47.7	B5 26280		
	32.8	1458	2.7	53.4	B5 26280		
	29.1	1642	2.4	60.1	B5 26280		
	26.6	1799	2.2	65.9	B5 26280		
	23.1	2073	1.9	75.9	B5 26280		
	20.7	2305	1.7	84.4	B5 26280		
	18.5	2578	1.6	94.4	B5 26280		
	16.5	2903	1.4	106.3	B5 26280		
	15.1	3160	1.3	115.7	B5 26280		
	12.7	3758	1.1	137.6	B5 26280		
	37.4	1279	5.9	46.8	ITH163	B5 48060	
	33.4	1430	5.2	52.4		B5 48060	
	29.7	1610	4.7	59.0		B5 48060	
	26.6	1800	4.2	65.9		B5 48060	
	23.1	2074	3.6	75.9		B5 48060	
	20.7	2306	3.3	84.4		B5 48060	
	18.5	2579	2.9	94.4		B5 48060	
	16.4	2906	2.6	106.4		B5 48060	
	15.1	3160	2.4	115.7		B5 48060	
	12.7	3761	2.0	137.7		B5 48060	
	11.3	4239	1.8	155.2		B5 48060	
	10.3	4646	1.6	170.1		B5 48060	
	8.9	5394	1.4	197.5		B5 48060	
	7.9	6017	1.2	220.3		B5 48060	
	7.5	6378	1.2	233.5		B5 48060	
	6.6	7227	1.0	264.6		B5 48060	
	23.1	2066	5.8	75.6		ITH173	B5 56430
	20.9	2288	5.2	83.8			B5 56430
	18.8	2547	4.7	93.3	B5 56430		
	16.7	2854	4.2	104.5	B5 56430		
	15.3	3125	3.8	114.4	B5 56430		
	12.9	3717	3.2	136.1	B5 56430		
	11.4	4193	2.9	153.5	B5 56430		
	10.4	4594	2.6	168.2	B5 56430		
	9.0	5334	2.2	195.3	B5 56430		
	8.0	5949	2.0	217.8	B5 56430		
	7.6	6307	1.9	230.9	B5 56430		
	6.7	7145	1.7	261.6	B5 56430		
	16.6	2887	5.5	105.7	ITH183	B5 108000	
	15.2	3141	5.1	115.0		B5 108000	
	12.8	3739	4.3	136.9		B5 108000	
11.3	4214	3.8	154.3	B5 108000			
10.3	4619	3.5	169.1	B5 108000			
9.4	5091	3.1	186.4	B5 108000			
8.5	5616	2.8	205.6	B5 108000			
7.5	6339	2.5	232.1	B5 108000			
6.7	7183	2.2	263.0	B5 108000			



### IEC - 60 Hz - n<sub>1</sub> 1750min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i		R <sub>2</sub> [N]	P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i		R <sub>2</sub> [N]	
<b>11</b>							<b>15</b>							
160M4	146.8	673	5.9	11.9	ITH152	B5	226.7	594	6.7	7.7	ITH152	B5	26280	
1750min <sup>-1</sup>	127.5	775	5.2	13.7		B5	26280	203.7	661	6.1		8.6	B5	26280
	114.6	862	4.6	15.3		B5	26280	164.0	821	4.9	10.7	B5	26280	
	102.5	964	4.2	17.1		B5	26280	146.8	917	4.4	11.9	B5	26280	
	91.0	1085	3.7	19.2		B5	26280	127.5	1056	3.8	13.7	B5	26280	
	83.6	1181	3.4	20.9		B5	26280	114.6	1175	3.4	15.3	B5	26280	
	70.3	1405	2.8	24.9		B5	26280	102.5	1314	3.0	17.1	B5	26280	
					ITH153	B5	26280	91.0	1480	2.7	19.2	B5	26280	
	62.7	1526	2.6	27.9		B5	26280	83.6	1610	2.5	20.9	B5	26280	
	52.5	1822	2.2	33.4		B5	26280	70.3	1916	2.1	24.9	B5	26280	
	47.0	2034	2.0	37.2		B5	26280							
	40.8	2344	1.7	42.9		B5	26280	62.7	2081	1.9	27.9	ITH153	B5	26280
	36.7	2607	1.5	47.7		B5	26280	52.5	2484	1.6	33.4		B5	26280
	32.8	2916	1.4	53.4		B5	26280	47.0	2774	1.4	37.2	B5	26280	
	29.1	3284	1.2	60.1	B5	26280	40.8	3196	1.3	42.9	B5	26280		
	26.6	3598	1.1	65.9	B5	26280	36.7	3555	1.1	47.7	B5	26280		
					ITH162	B5	48060	32.8	3976	1.0	53.4	B5	26280	
	70.7	1397	5.4	24.8		B5	48060							
	66.0	1448	5.2	26.5	ITH163	B5	48060	103.2	1305	5.7	17.0	ITH162	B5	48060
	53.5	1787	4.2	32.7		B5	48060	92.1	1462	5.1	19.0		B5	48060
	47.9	1995	3.8	36.5	B5	48060	84.1	1600	4.7	20.8	B5	48060		
	41.6	2299	3.3	42.1	B5	48060	70.7	1904	3.9	24.8	B5	48060		
	37.4	2557	2.9	46.8	B5	48060					ITH163	B5	48060	
	33.4	2860	2.6	52.4	B5	48060	66.0	1974	3.8	26.5		B5	48060	
	29.7	3220	2.3	59.0	B5	48060	53.5	2437	3.1	32.7	B5	48060		
	26.6	3599	2.1	65.9	B5	48060	47.9	2721	2.8	36.5	B5	48060		
	23.1	4147	1.8	75.9	B5	48060	41.6	3135	2.4	42.1	B5	48060		
	20.7	4613	1.6	84.4	B5	48060	37.4	3487	2.2	46.8	B5	48060		
	18.5	5159	1.5	94.4	B5	48060	33.4	3900	1.9	52.4	B5	48060		
	16.4	5812	1.3	106.4	B5	48060	29.7	4391	1.7	59.0	B5	48060		
	15.1	6320	1.2	115.7	B5	48060	26.6	4908	1.5	65.9	B5	48060		
	12.7	7522	1.0	137.7	B5	48060	23.1	5655	1.3	75.9	B5	48060		
					ITH173	B5	56430	20.7	6290	1.2	84.4	B5	48060	
	46.6	2053	5.8	37.6		B5	56430	18.5	7035	1.1	94.4	B5	48060	
	40.5	2360	5.1	43.2	B5	56430					ITH172	B5	56430	
	36.6	2615	4.6	47.9	B5	56430	70.7	1904	6.3	24.8		B5	56430	
	32.8	2912	4.1	53.3	B5	56430	63.0	2069	5.8	27.8	ITH173	B5	56430	
	30.1	3173	3.8	58.1	B5	56430	52.7	2472	4.9	33.2		B5	56430	
	26.6	3592	3.3	65.8	B5	56430	46.6	2799	4.3	37.6	B5	56430		
	23.1	4131	2.9	75.6	B5	56430	40.5	3219	3.7	43.2	B5	56430		
	20.9	4576	2.6	83.8	B5	56430	36.6	3566	3.4	47.9	B5	56430		
	18.8	5095	2.4	93.3	B5	56430	32.8	3970	3.0	53.3	B5	56430		
	16.7	5708	2.1	104.5	B5	56430	30.1	4326	2.8	58.1	B5	56430		
	15.3	6249	1.9	114.4	B5	56430	26.6	4898	2.4	65.8	B5	56430		
	12.9	7435	1.6	136.1	B5	56430	23.1	5634	2.1	75.6	B5	56430		
	11.4	8385	1.4	153.5	B5	56430	20.9	6240	1.9	83.8	B5	56430		
	10.4	9188	1.3	168.2	B5	56430	18.8	6948	1.7	93.3	B5	56430		
	9.0	10668	1.1	195.3	B5	56430	16.7	7784	1.5	104.5	B5	56430		
	8.0	11898	1.0	217.8	B5	56430	15.3	8522	1.4	114.4	B5	56430		
					ITH183	B5	108000	12.9	10138	1.2	136.1	B5	56430	
	33.1	2886	5.5	52.8		B5	108000	11.4	11434	1.0	153.5	B5	56430	
	29.4	3250	4.9	59.5		B5	108000					ITH183	B5	108000
	26.7	3578	4.5	65.5		B5	108000	47.5	2746	5.8	36.9		B5	108000
	23.2	4123	3.9	75.5		B5	108000	41.2	3164	5.1	42.5	B5	108000	
	20.8	4585	3.5	83.9		B5	108000	37.0	3519	4.5	47.2	B5	108000	
	18.6	5128	3.1	93.9		B5	108000	33.1	3935	4.1	52.8	B5	108000	
	16.6	5774	2.8	105.7		B5	108000	29.4	4431	3.6	59.5	B5	108000	
	15.2	6282	2.5	115.0		B5	108000	26.7	4879	3.3	65.5	B5	108000	
	12.8	7478	2.1	136.9		B5	108000	23.2	5622	2.8	75.5	B5	108000	
	11.3	8429	1.9	154.3		B5	108000	20.8	6253	2.6	83.9	B5	108000	
	10.3	9237	1.7	169.1		B5	108000	18.6	6993	2.3	93.9	B5	108000	
	9.4	10182	1.6	186.4		B5	108000	16.6	7874	2.0	105.7	B5	108000	
	8.5	11231	1.4	205.6		B5	108000	15.2	8566	1.9	115.0	B5	108000	
	7.5	12679	1.3	232.1		B5	108000	12.8	10198	1.6	136.9	B5	108000	
	6.7	14367	1.1	263.0		B5	108000	11.3	11494	1.4	154.3	B5	108000	
							10.3	12596	1.3	169.1	B5	108000		
							9.4	13885	1.2	186.4	B5	108000		
							8.5	15315	1.0	205.6	B5	108000		

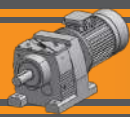




IEC - 60 Hz - n<sub>1</sub> 1750min<sup>-1</sup>

18.5							22								
P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]	P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
160L24 1750min <sup>-1</sup>	360.1	461	8.7	4.9	ITH152	B5	26280	180L4 1750min <sup>-1</sup>	360.1	548	7.3	4.9	ITH152	B5	26280
291.7	569	7.0	6.0	B5			26280	291.7	677	5.9	6.0	B5			26280
261.2	636	6.3	6.7	B5			26280	261.2	756	5.3	6.7	B5			26280
226.7	733	5.5	7.7	B5			26280	226.7	871	4.6	7.7	B5			26280
203.7	815	4.9	8.6	B5			26280	203.7	969	4.1	8.6	B5			26280
164.0	1013	4.0	10.7	B5			26280	164.0	1204	3.3	10.7	B5			26280
146.8	1131	3.5	11.9	B5			26280	146.8	1345	3.0	11.9	B5			26280
127.5	1303	3.1	13.7	B5			26280	127.5	1549	2.6	13.7	B5			26280
114.6	1449	2.8	15.3	B5			26280	114.6	1723	2.3	15.3	B5			26280
102.5	1621	2.5	17.1	B5			26280	102.5	1928	2.1	17.1	B5			26280
91.0	1825	2.2	19.2	B5	26280	91.0	2170	1.8	19.2	B5	26280				
83.6	1986	2.0	20.9	B5	26280	83.6	2362	1.7	20.9	B5	26280				
70.3	2363	1.7	24.9	B5	26280	70.3	2810	1.4	24.9	B5	26280				
62.7	2566	1.6	27.9	ITH153	B5	26280	62.7	3051	1.3	27.9	ITH153	B5	26280		
52.5	3064	1.3	33.4			B5	26280	52.5	3644	1.1			33.4	B5	26280
47.0	3421	1.2	37.2			B5	26280	47.0	4069	1.0			37.2	B5	26280
40.8	3942	1.0	42.9			B5	26280								
127.3	1305	5.7	13.8	ITH162	B5	48060	165.7	1192	6.3	10.6	ITH162	B5	48060		
114.9	1445	5.2	15.2			B5	48060	146.3	1350	5.6			12.0	B5	48060
103.2	1609	4.7	17.0			B5	48060	127.3	1552	4.8			13.8	B5	48060
92.1	1803	4.2	19.0			B5	48060	114.9	1719	4.4			15.2	B5	48060
84.1	1974	3.8	20.8	ITH163	B5	48060	103.2	1914	3.9	17.0	ITH163	B5	48060		
70.7	2349	3.2	24.8			B5	48060	92.1	2144	3.5			19.0	B5	48060
66.0	2435	3.1	26.5			B5	48060	84.1	2347	3.2			20.8	B5	48060
53.5	3005	2.5	32.7			B5	48060	70.7	2793	2.7			24.8	B5	48060
47.9	3356	2.2	36.5	ITH172	B5	48060	66.0	2895	2.6	26.5	ITH172	B5	48060		
41.6	3866	1.9	42.1			B5	48060	53.5	3574	2.1			32.7	B5	48060
37.4	4300	1.7	46.8			B5	48060	47.9	3991	1.9			36.5	B5	48060
33.4	4809	1.6	52.4			B5	48060	41.6	4597	1.6			42.1	B5	48060
29.7	5416	1.4	59.0	ITH173	B5	48060	37.4	5114	1.5	46.8	ITH173	B5	48060		
26.6	6053	1.2	65.9			B5	48060	33.4	5719	1.3			52.4	B5	48060
23.1	6975	1.1	75.9			B5	48060	29.7	6440	1.2			59.0	B5	48060
84.1	1974	6.1	20.8			B5	48060	26.6	7199	1.0			65.9	B5	48060
70.7	2349	5.1	24.8	ITH177	B5	56430	91.5	2158	5.6	19.1	ITH177	B5	56430		
63.0	2552	4.7	27.8			B5	56430	84.1	2347	5.1			20.8	B5	56430
52.7	3049	3.9	33.2			B5	56430	70.7	2793	4.3			24.8	B5	56430
46.6	3453	3.5	37.6			B5	56430	63.0	3035	4.0			27.8	B5	56430
40.5	3970	3.0	43.2	ITH182	B5	56430	52.7	3626	3.3	33.2	ITH182	B5	56430		
36.6	4398	2.7	47.9			B5	56430	46.6	4106	2.9			37.6	B5	56430
32.8	4897	2.5	53.3			B5	56430	40.5	4721	2.5			43.2	B5	56430
30.1	5336	2.2	58.1			B5	56430	36.6	5230	2.3			47.9	B5	56430
26.6	6041	2.0	65.8	ITH183	B5	56430	32.8	5823	2.1	53.3	ITH183	B5	56430		
23.1	6948	1.7	75.6			B5	56430	30.1	6345	1.9			58.1	B5	56430
20.9	7696	1.6	83.8			B5	56430	26.6	7184	1.7			65.8	B5	56430
18.8	8569	1.4	93.3			B5	56430	23.1	8263	1.5			75.6	B5	56430
16.7	9601	1.2	104.5	ITH188	B5	56430	20.9	9152	1.3	83.8	ITH188	B5	56430		
15.3	10510	1.1	114.4			B5	56430	18.8	10190	1.2			93.3	B5	56430
63.9	2515	6.4	27.4			B5	56430	16.7	11417	1.1			104.5	B5	56430
53.0	3033	5.3	33.0			B5	108000	70.3	2808	5.7			24.9	B5	108000
47.5	3386	4.7	36.9	ITH189	B5	108000	63.9	2991	5.3	27.4	ITH189	B5	108000		
41.2	3902	4.1	42.5			B5	108000	53.0	3606	4.4			33.0	B5	108000
37.0	4340	3.7	47.2			B5	108000	47.5	4027	4.0			36.9	B5	108000
33.1	4854	3.3	52.8			B5	108000	41.2	4640	3.4			42.5	B5	108000
29.4	5465	2.9	59.5	ITH190	B5	108000	37.0	5161	3.1	47.2	ITH190	B5	108000		
26.7	6018	2.7	65.5			B5	108000	33.1	5772	2.8			52.8	B5	108000
23.2	6934	2.3	75.5			B5	108000	29.4	6499	2.5			59.5	B5	108000
20.8	7712	2.1	83.9			B5	108000	26.7	7156	2.2			65.5	B5	108000
18.6	8625	1.9	93.9	ITH191	B5	108000	23.2	8245	1.9	75.5	ITH191	B5	108000		
16.6	9711	1.6	105.7			B5	108000	20.8	9171	1.7			83.9	B5	108000
15.2	10565	1.5	115.0			B5	108000	18.6	10257	1.6			93.9	B5	108000
12.8	12577	1.3	136.9			B5	108000	16.6	11548	1.4			105.7	B5	108000
11.3	14176	1.1	154.3	ITH192	B5	108000	15.2	12564	1.3	115.0	ITH192	B5	108000		
10.3	15535	1.0	169.1			B5	108000	12.8	14957	1.1			136.9	B5	108000
								11.3	16858	0.9	154.3			B5	108000









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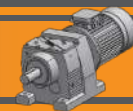
Helical in-line gearmotors

**IEC - 60 Hz -  $n_1$  1750min<sup>-1</sup>**


P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]	P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
<b>30</b>								<b>37</b>							
200L4 1750min <sup>-1</sup>	360.1	748	3.8	4.9	ITH152	B5	26280	225S4 1750min <sup>-1</sup>	360.1	922	3.1	4.9	ITH152	B5	26280
	291.7	923	3.2	6.0		B5	26280		291.7	1139	2.6	6.0		B5	26280
	261.2	1031	3.1	6.7		B5	26280		261.2	1272	2.5	6.7		B5	26280
	226.7	1188	2.8	7.7		B5	26280		226.7	1465	2.3	7.7		B5	26280
	203.7	1322	2.6	8.6		B5	26280		203.7	1630	2.1	8.6		B5	26280
	164.0	1642	2.4	10.7		B5	26280		164.0	2025	2.0	10.7		B5	26280
	146.8	1834	2.3	11.9		B5	26280		146.8	2262	1.9	11.9		B5	26280
	127.5	2113	2.0	13.7		B5	26280		127.5	2606	1.6	13.7		B5	26280
	114.6	2350	1.8	15.3		B5	26280		114.6	2898	1.5	15.3		B5	26280
	102.5	2628	1.6	17.1		B5	26280		102.5	3242	1.3	17.1		B5	26280
	91.0	2959	1.4	19.2		B5	26280		91.0	3650	1.2	19.2		B5	26280
	83.6	3221	1.3	20.9		B5	26280		83.6	3973	1.1	20.9		B5	26280
	70.3	3832	1.1	24.9		B5	26280		347.2	957	4.7	5.0	ITH162	B5	48060
	347.2	776	5.8	5.0	ITH162	B5	48060		290.7	1143	4.6	6.0		B5	48060
	290.7	926	5.7	6.0		B5	48060		256.6	1294	4.4	6.8		B5	48060
	256.6	1050	5.4	6.8		B5	48060		223.2	1488	3.9	7.8		B5	48060
	223.2	1207	4.8	7.8		B5	48060		201.4	1649	3.9	8.7		B5	48060
	201.4	1337	4.3	8.7		B5	48060		165.7	2004	3.5	10.6		B5	48060
	165.7	1625	4.8	10.6		B5	48060		146.3	2270	3.3	12.0		B5	48060
	146.3	1841	4.1	12.0		B5	48060		127.3	2610	3.0	13.8		B5	48060
	127.3	2116	3.7	13.8		B5	48060		114.9	2891	2.7	15.2		B5	48060
	114.9	2344	3.3	15.2		B5	48060		103.2	3219	2.4	17.0		B5	48060
	103.2	2610	3.0	17.0		B5	48060		92.1	3606	2.2	19.0		B5	48060
	92.1	2924	2.7	19.0		B5	48060		84.1	3948	2.0	20.8		B5	48060
	84.1	3201	2.4	20.8		B5	48060		70.7	4698	1.7	24.8		B5	48060
	70.7	3809	2.1	24.8		B5	48060		66.0	4869	1.5	26.5	ITH163	B5	48060
	66.0	3948	1.8	26.5	ITH163	B5	48060		53.5	6010	1.3	32.7		B5	48060
	53.5	4873	1.6	32.7		B5	48060		47.9	6712	1.1	36.5		B5	48060
	47.9	5442	1.4	36.5		B5	48060		164.9	2014	5.7	10.6	ITH172	B5	56430
	41.6	6269	1.2	42.1		B5	48060		147.7	2249	5.6	11.9		B5	56430
	37.4	6974	1.1	46.8		B5	48060		128.2	2591	4.8	13.7		B5	56430
	128.2	2101	5.9	13.7	ITH172	B5	56430		115.3	2881	4.4	15.2		B5	56430
	115.3	2336	5.4	15.2		B5	56430		103.1	3223	3.9	17.0		B5	56430
	103.1	2613	4.8	17.0		B5	56430		91.5	3629	3.2	19.1		B5	56430
	91.5	2942	4.0	19.1		B5	56430		84.1	3948	3.0	20.8		B5	56430
	84.1	3201	3.7	20.8		B5	56430		70.7	4698	2.5	24.8		B5	56430
	70.7	3809	3.1	24.8		B5	56430		63.0	5104	2.4	27.8	ITH173	B5	56430
	63.0	4139	3.0	27.8	ITH173	B5	56430		52.7	6098	2.0	33.2		B5	56430
	52.7	4945	2.5	33.2		B5	56430		46.6	6905	1.8	37.6		B5	56430
	46.6	5599	2.2	37.6		B5	56430		40.5	7939	1.5	43.2		B5	56430
	40.5	6437	1.9	43.2		B5	56430		36.6	8796	1.4	47.9		B5	56430
	36.6	7132	1.7	47.9		B5	56430		32.8	9793	1.3	53.3		B5	56430
	32.8	7941	1.5	53.3		B5	56430		30.1	10672	1.2	58.1		B5	56430
	30.1	8653	1.4	58.1		B5	56430		26.6	12083	1.0	65.8		B5	56430
	26.6	9797	1.3	65.8		B5	56430		114.7	2896	6.1	15.3	ITH182	B5	108000
	23.1	11267	1.1	75.6		B5	56430		102.9	3227	4.5	17.0		B5	108000
	102.9	2616	5.6	17.0	ITH182	B5	108000		93.1	3568	4.4	18.8		B5	108000
	93.1	2893	5.4	18.8		B5	108000		83.7	3971	3.9	20.9		B5	108000
	83.7	3219	4.9	20.9		B5	108000		70.3	4722	3.4	24.9		B5	108000
	70.3	3829	4.2	24.9		B5	108000		63.9	5031	2.9	27.4	ITH183	B5	108000
	63.9	4079	3.6	27.4	ITH183	B5	108000		53.0	6065	2.8	33.0		B5	108000
	53.0	4918	3.5	33.0		B5	108000		47.5	6773	2.5	36.9		B5	108000
	47.5	5491	3.1	36.9		B5	108000		41.2	7804	2.2	42.5		B5	108000
	41.2	6327	2.7	42.5		B5	108000		37.0	8680	2.0	47.2		B5	108000
	37.0	7038	2.4	47.2		B5	108000		33.1	9707	1.8	52.8		B5	108000
	33.1	7871	2.2	52.8		B5	108000		29.4	10931	1.6	59.5		B5	108000
	29.4	8863	1.9	59.5		B5	108000		26.7	12035	1.4	65.5		B5	108000
	26.7	9758	1.7	65.5		B5	108000		23.2	13867	1.2	75.5		B5	108000
	23.2	11244	1.5	75.5		B5	108000		20.8	15423	1.1	83.9		B5	108000
	20.8	12505	1.4	83.9		B5	108000								
	18.6	13986	1.2	93.9		B5	108000								
	16.6	15747	1.1	105.7		B5	108000								

44N57z





IEC - 60 Hz -  $n_1$  1750min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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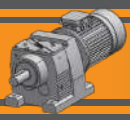
P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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45										
225M4 1750min <sup>-1</sup>	360.1	1122	2.5	4.9	ITH152	B5	26280			
	291.7	1385	2.1	6.0			26280			
261.2	1547	2.1	6.7	26280						
226.7	1782	1.9	7.7	26280						
203.7	1983	1.7	8.6	26280						
164.0	2463	1.6	10.7	26280						
146.8	2752	1.5	11.9	26280						
127.5	3169	1.3	13.7	26280						
114.6	3525	1.1	15.3	26280						
102.5	3943	1.1	17.1	26280						
	347.2	1163	3.9	5.0	ITH162	B5	48060			
	290.7	1390	3.8	6.0			48060			
	256.6	1574	3.6	6.8			48060			
	223.2	1810	3.2	7.8			48060			
	201.4	2006	3.2	8.7			48060			
	165.7	2438	2.8	10.6			48060			
	146.3	2761	2.8	12.0			48060			
	127.3	3174	2.5	13.8			48060			
	114.9	3516	2.2	15.2			48060			
	103.2	3915	2.0	17.0			48060			
	92.1	4386	1.8	19.0	B5	48060				
	84.1	4801	1.6	20.8			48060			
	70.7	5713	1.4	24.8			48060			
	66.0	5922	1.2	26.5			ITH163	B5	48060	
		53.5	7310	1.0					32.7	48060
	260.4	1551	6.1	6.7			ITH172	B5	56430	
		226.1	1787	5.5					7.7	56430
		203.3	1988	5.2			8.6	B5	56430	
		164.9	2449	4.7			10.6			56430
		147.7	2735	4.6			11.9			56430
128.2		3151	3.9	13.7	56430					
115.3		3504	3.6	15.2	56430					
103.1		3920	3.2	17.0	56430					
91.5		4414	2.6	19.1	56430					
84.1		4801	2.4	20.8	56430					
70.7		5713	2.0	24.8	56430					
		63.0	6208	2.0	27.8	ITH173	B5			56430
	52.7	7417	1.7	33.2	56430					
	46.6	8398	1.5	37.6	56430					
	40.5	9656	1.3	43.2	56430					
	36.6	10698	1.2	47.9	56430					
	32.8	11911	1.0	53.3	56430					
		141.2	2860	5.8	12.4			ITH182	B5	108000
		127.6	3167	5.2	13.7					108000
		114.7	3523	5.0	15.3					108000
		102.9	3924	3.7	17.0					108000
93.1		4340	3.6	18.8	108000					
83.7		4829	3.2	20.9	108000					
70.3		5743	2.8	24.9	108000					
		63.9	6119	2.4	27.4	ITH183	B5			108000
		53.0	7377	2.3	33.0					108000
		47.5	8237	2.1	36.9					108000
	41.2	9491	1.8	42.5	108000					
	37.0	10557	1.6	47.2	108000					
	33.1	11806	1.4	52.8	108000					
	29.4	13294	1.3	59.5	108000					
	26.7	14637	1.2	65.5	108000					
	23.2	16865	1.0	75.5	108000					

55												
250M4 1750min <sup>-1</sup>	347.2	1422	3.2	5.0	ITH162	B5	48060					
	290.7	1698	3.1	6.0			48060					
256.6	1924	2.9	6.8	48060								
223.2	2212	2.6	7.8	48060								
201.4	2452	2.6	8.7	48060								
165.7	2979	2.3	10.6	48060								
146.3	3374	2.3	12.0	48060								
127.3	3879	2.0	13.8	48060								
114.9	4297	1.8	15.2	48060								
103.2	4785	1.6	17.0	48060								
	92.1	5361	1.5	19.0	B5	48060						
	84.1	5868	1.3	20.8			48060					
	70.7	6983	1.1	24.8			48060					
	66.0	7238	1.0	26.5			ITH163	B5	48060			
		350.7	1408	6.0					5.0	ITH172	B5	56430
	290.7	1698	5.2	6.0			56430					
	260.4	1896	5.0	6.7			56430					
	226.1	2184	4.5	7.7			56430					
	203.3	2429	4.2	8.6			56430					
	164.9	2993	3.9	10.6			56430					
147.7	3343	3.8	11.9	56430								
128.2	3851	3.2	13.7	56430								
115.3	4283	3.0	15.2	56430								
103.1	4791	2.6	17.0	56430								
	91.5	5394	2.2	19.1	B5	56430						
	84.1	5868	2.0	20.8			56430					
	70.7	6983	1.7	24.8			56430					
	63.0	7588	1.6	27.8			ITH173	B5	56430			
		52.7	9065	1.4					33.2	56430		
		46.6	10264	1.2			37.6	B5	56430			
		40.5	11802	1.0			43.2			56430		
		163.4	3022	5.5			10.7			ITH182	B5	108000
			141.2	3496			4.7					12.4
		127.6	3871	4.3			13.7			108000		
114.7		4305	4.1	15.3	108000							
102.9		4796	3.0	17.0	108000							
93.1		5304	2.9	18.8	108000							
83.7		5902	2.7	20.9	108000							
70.3		7020	2.3	24.9	108000							
	63.9	7478	2.0	27.4	ITH183	B5	108000					
	53.0	9016	1.9	33.0			108000					
	47.5	10068	1.7	36.9			108000					
	41.2	11600	1.5	42.5			108000					
	37.0	12903	1.3	47.2			108000					
	33.1	14429	1.2	52.8			108000					
	29.4	16249	1.0	59.5			108000					

75							
280S4 1750min <sup>-1</sup>	347.2	1939	2.3	5.0	ITH162	B5	48060
	290.7	2316	2.3	6.0			48060
256.6	2624	2.2	6.8	48060			
223.2	3016	1.9	7.8	48060			
201.4	3343	1.9	8.7	48060			
165.7	4063	1.7	10.6	48060			
146.3	4601	1.7	12.0	48060			
127.3	5290	1.5	13.8	48060			
114.9	5859	1.3	15.2	48060			
103.2	6525	1.2	17.0	48060			
92.1	7310	1.1	19.0	48060			





### IEC - 60 Hz - n<sub>1</sub> 1750min<sup>-1</sup>

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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#### 75

280S4 1750min <sup>-1</sup>	350.7	1920	4.4	5.0	ITH172	B5	56430
	290.7	2316	3.8	6.0		B5	56430
	260.4	2585	3.7	6.7		B5	56430
	226.1	2978	3.3	7.7		B5	56430
	203.3	3313	3.1	8.6		B5	56430
	164.9	4082	2.8	10.6		B5	56430
	147.7	4559	2.8	11.9		B5	56430
	128.2	5252	2.3	13.7	B5	56430	
	115.3	5840	2.2	15.2	B5	56430	
	103.1	6533	1.9	17.0	B5	56430	
	91.5	7356	1.6	19.1	B5	56430	
	84.1	8002	1.5	20.8	B5	56430	
	70.7	9522	1.2	24.8	B5	56430	
	63.0	10347	1.2	27.8	ITH173	B5	56430
	196.4	3428	4.8	8.9	ITH182	B5	108000
	163.4	4120	4.0	10.7		B5	108000
	141.2	4767	3.5	12.4		B5	108000
127.6	5278	3.1	13.7	B5		108000	
114.7	5871	3.0	15.3	B5		108000	
102.9	6540	2.2	17.0	B5		108000	
93.1	7233	2.2	18.8	B5		108000	
83.7	8049	1.9	20.9	B5	108000		
70.3	9572	1.7	24.9	B5	108000		
63.9	10198	1.4	27.4	ITH183	B5	108000	
53.0	12295	1.4	33.0		B5	108000	
47.5	13729	1.2	36.9		B5	108000	
41.2	15818	1.1	42.5		B5	108000	

#### 90

280M4 1750min <sup>-1</sup>	347.2	2327	1.9	5.0	ITH162	B5	48060
	290.7	2779	1.9	6.0		B5	48060
	256.6	3149	1.8	6.8		B5	48060
	223.2	3620	1.6	7.8		B5	48060
	201.4	4012	1.6	8.7		B5	48060
	165.7	4875	1.4	10.6		B5	48060
	146.3	5522	1.4	12.0		B5	48060
	127.3	6348	1.2	13.8	B5	48060	
	114.9	7031	1.1	15.2	B5	48060	
	103.2	7830	1.0	17.0	B5	48060	
	350.7	2304	3.7	5.0	ITH172	B5	56430
	290.7	2779	3.2	6.0		B5	56430
	260.4	3102	3.0	6.7		B5	56430
	226.1	3573	2.7	7.7		B5	56430
	203.3	3975	2.6	8.6		B5	56430
	164.9	4898	2.4	10.6		B5	56430
	147.7	5471	2.3	11.9		B5	56430
128.2	6302	2.0	13.7	B5	56430		
115.3	7008	1.8	15.2	B5	56430		
103.1	7839	1.6	17.0	B5	56430		
91.5	8827	1.3	19.1	B5	56430		
84.1	9603	1.2	20.8	B5	56430		
70.7	11426	1.0	24.8	B5	56430		
196.4	4114	4.0	8.9	ITH182	B5	108000	
163.4	4945	3.4	10.7		B5	108000	
141.2	5720	2.9	12.4		B5	108000	
127.6	6334	2.6	13.7		B5	108000	
114.7	7045	2.5	15.3		B5	108000	
102.9	7848	1.9	17.0		B5	108000	
93.1	8679	1.8	18.8		B5	108000	
83.7	9658	1.6	20.9	B5	108000		
70.3	11486	1.4	24.9	B5	108000		

P <sub>1</sub> [kw]	n <sub>2</sub> [min <sup>-1</sup> ]	M <sub>2</sub> [Nm]	sf	i			R <sub>2</sub> [N]
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#### 90

280M4 1750min <sup>-1</sup>	63.9	12237	1.2	27.4	ITH183	B5	108000
	53.0	14753	1.2	33.0		B5	108000
	47.5	16474	1.0	36.9		B5	108000

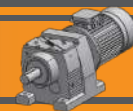
#### 110

315S4 1750min <sup>-1</sup>	347.2	2844	1.6	5.0	ITH162	B5	48060
	290.7	3397	1.6	6.0		B5	48060
	256.6	3848	1.5	6.8		B5	48060
	223.2	4424	1.3	7.8		B5	48060
	201.4	4903	1.3	8.7		B5	48060
	165.7	5959	1.2	10.6		B5	48060
	146.3	6749	1.1	12.0		B5	48060
	127.3	7759	1.0	13.8	B5	48060	
	350.7	2816	3.0	5.0	ITH172	B5	56430
	290.7	3397	2.6	6.0		B5	56430
	260.4	3792	2.5	6.7		B5	56430
	226.1	4367	2.2	7.7		B5	56430
	203.3	4858	2.1	8.6		B5	56430
	164.9	5987	1.9	10.6		B5	56430
	147.7	6687	1.9	11.9		B5	56430
	128.2	7702	1.6	13.7	B5	56430	
	115.3	8566	1.5	15.2	B5	56430	
103.1	9581	1.3	17.0	B5	56430		
91.5	10789	1.1	19.1	B5	56430		
84.1	11737	1.0	20.8	B5	56430		
196.4	5028	3.3	8.9	ITH182	B5	108000	
163.4	6043	2.7	10.7		B5	108000	
141.2	6991	2.4	12.4		B5	108000	
127.6	7742	2.1	13.7		B5	108000	
114.7	8611	2.0	15.3		B5	108000	
102.9	9593	1.5	17.0		B5	108000	
93.1	10608	1.5	18.8		B5	108000	
83.7	11804	1.3	20.9	B5	108000		
70.3	14039	1.1	24.9	B5	108000		

#### 132

315M4 1750min <sup>-1</sup>	350.7	3379	2.5	5.0	ITH172	B5	56430
	290.7	4076	2.2	6.0		B5	56430
	260.4	4550	2.1	6.7		B5	56430
	226.1	5241	1.9	7.7		B5	56430
	203.3	5830	1.8	8.6		B5	56430
	164.9	7184	1.6	10.6		B5	56430
	147.7	8024	1.6	11.9		B5	56430
	128.2	9243	1.3	13.7	B5	56430	
	115.3	10279	1.2	15.2	B5	56430	
	103.1	11498	1.1	17.0	B5	56430	
	196.4	6033	2.8	8.9	ITH182	B5	108000
	163.4	7252	2.3	10.7		B5	108000
	141.2	8390	2.0	12.4		B5	108000
	127.6	9290	1.8	13.7		B5	108000
	114.7	10333	1.7	15.3		B5	108000
	102.9	11511	1.3	17.0		B5	108000
	93.1	12730	1.2	18.8		B5	108000
83.7	14165	1.1	20.9	B5	108000		



IEC - 60 Hz -  $n_1$  1750min<sup>-1</sup>

$P_1$ [kw]	$n_2$ [min <sup>-1</sup> ]	$M_2$ [Nm]	sf	i			$R_2$ [N]
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## 160

315LA4 1750min <sup>-1</sup>	350.7	4096	2.1	5.0	ITH172	B5	56430
	290.7	4941	1.8	6.0		B5	56430
	260.4	5515	1.7	6.7		B5	56430
	226.1	6353	1.5	7.7		B5	56430
	203.3	7067	1.5	8.6		B5	56430
	164.9	8708	1.3	10.6		B5	56430
	147.7	9726	1.3	11.9		B5	56430
	128.2	11203	1.1	13.7	B5	56430	
	115.3	12459	1.0	15.2	B5	56430	
	196.4	7313	2.3	8.9	ITH182	B5	108000
	163.4	8790	1.9	10.7		B5	108000
	141.2	10169	1.6	12.4		B5	108000
	127.6	11261	1.5	13.7		B5	108000
	114.7	12525	1.4	15.3		B5	108000
102.9	13953	1.1	17.0	B5		108000	
93.1	15430	1.0	18.8	B5		108000	

## 200

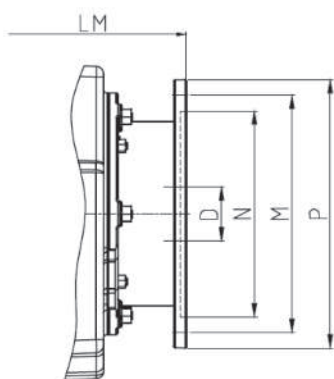
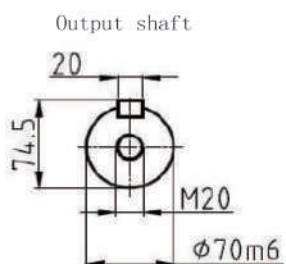
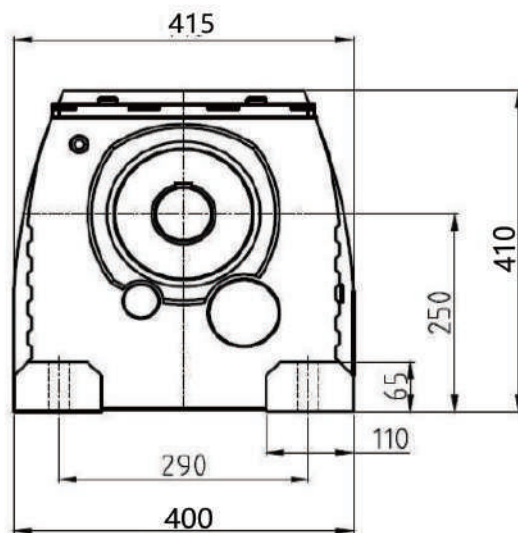
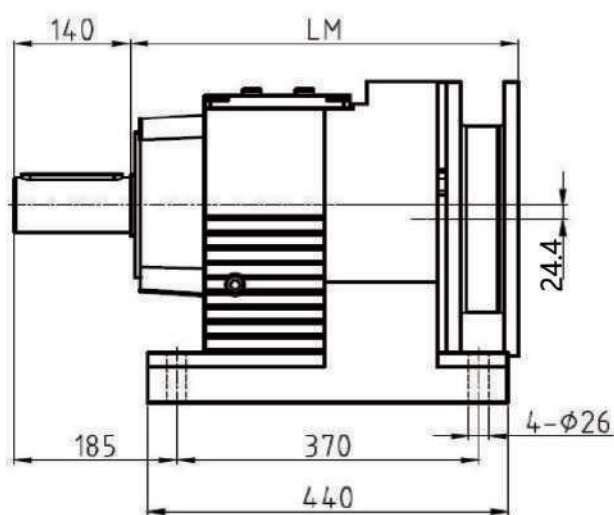
315LB4 1750min <sup>-1</sup>	196.4	9141	1.8	8.9	ITH182	B5	108000
	163.4	10988	1.5	10.7		B5	108000
	141.2	12711	1.3	12.4		B5	108000
	127.6	14076	1.2	13.7		B5	108000
	114.7	15656	1.1	15.3		B5	108000



# Dimensions

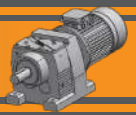
## ITH 152 - ITH 153

ITH152U  
ITH153U



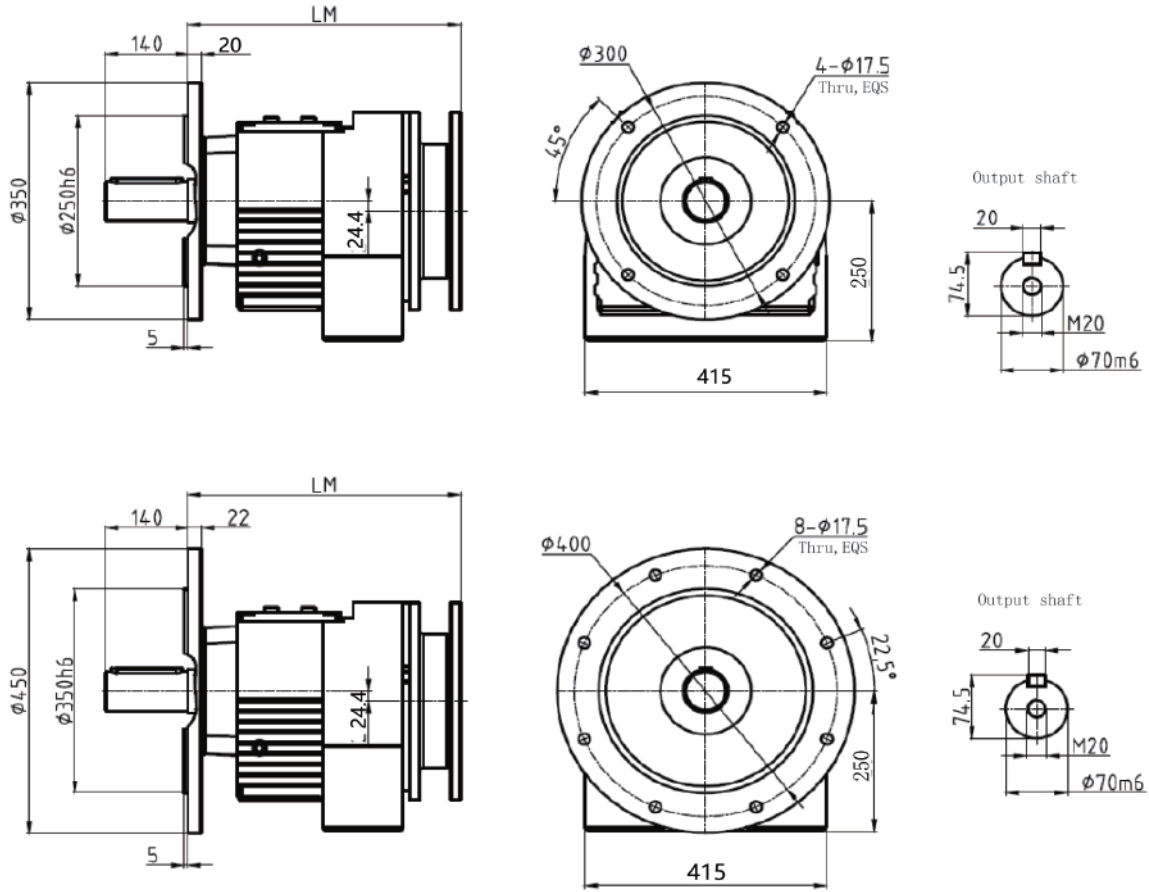
<b>IEC Dimensions</b>								
	100 B5/112 B5	100 B14/112B 14	132 B5	132 B14	160 B5	180 B5	200 B5	225 B5
LM	417	417	438		474	492	513	
N	180	110	230	130	250	300	350	
M	215	130	265	165	300	350	400	
P	250	160	300	200	350	400	450	
D	28		38		42	48	55	60



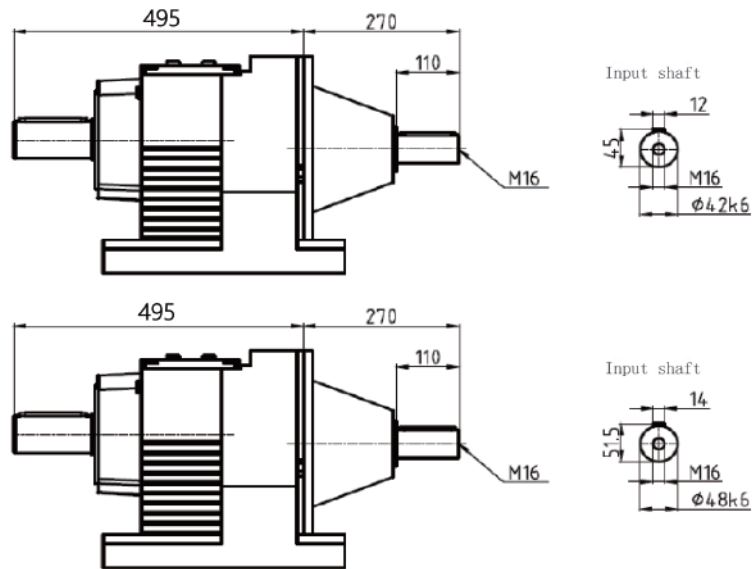


# ITH 152 - ITH 153

ITH152F...  
ITH153F...



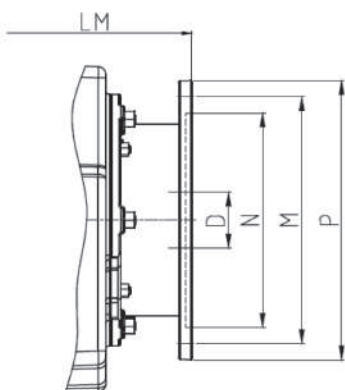
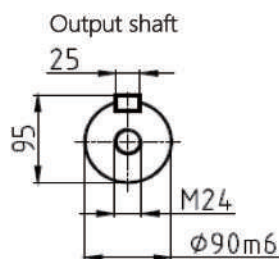
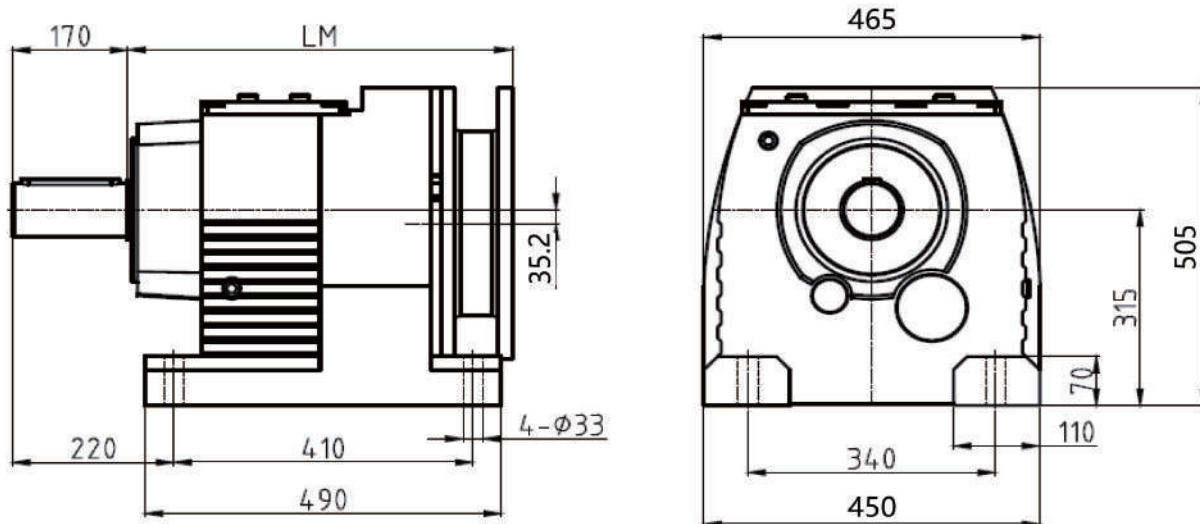
ITH152...  
ITH153...





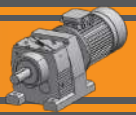
### ITH 162 - ITH 163

ITH162U  
ITH163U



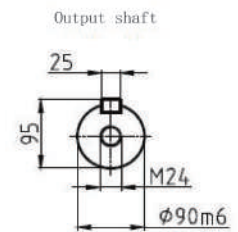
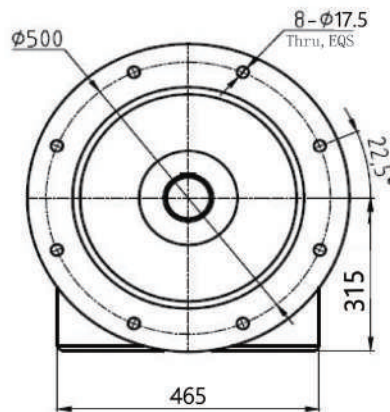
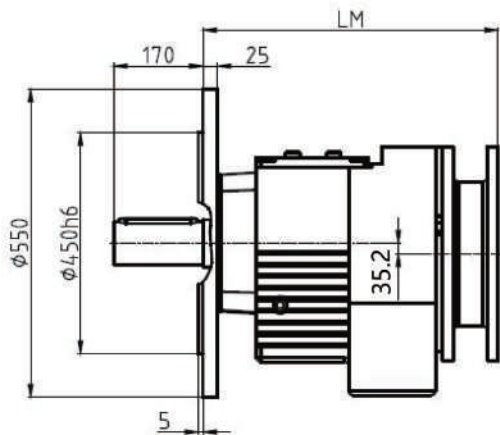
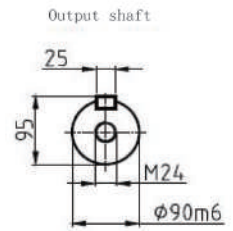
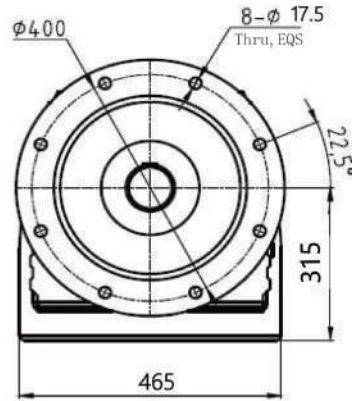
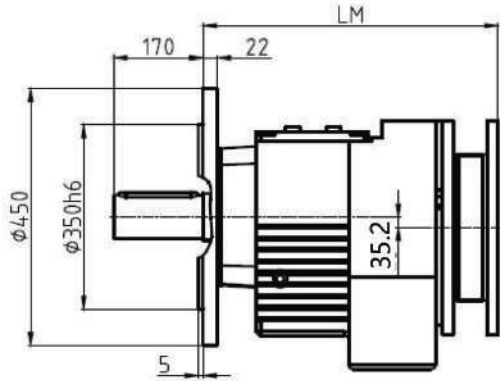
**IEC尺寸参数 / IEC Dimensions**

	132 B5	132 B14	160 B5	180 B5	200 B5	225 B5	250 B5
LM	503		531		549	570	574
N	493	130	250		300	350	450
M	265	165	300		350	400	500
P	300	200	350		400	450	550
D	38		42	48	55	60	65

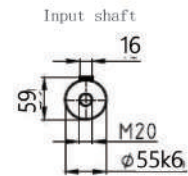
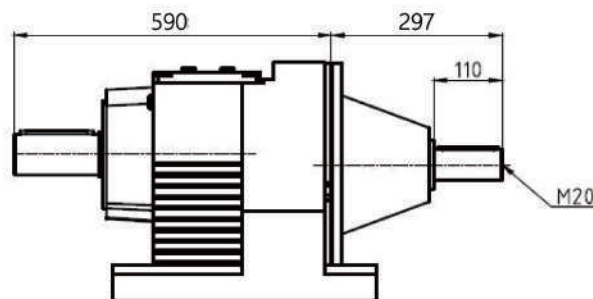


# ITH 162 - ITH 163

ITH162F...  
ITH163F...



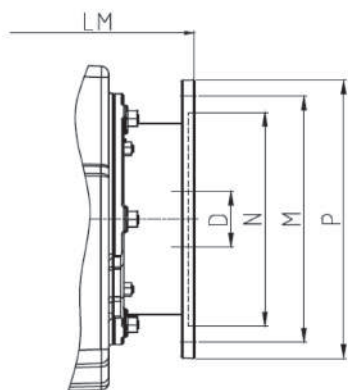
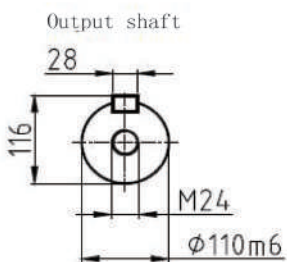
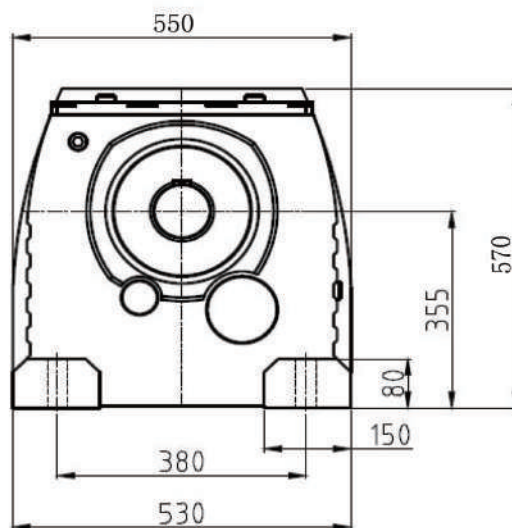
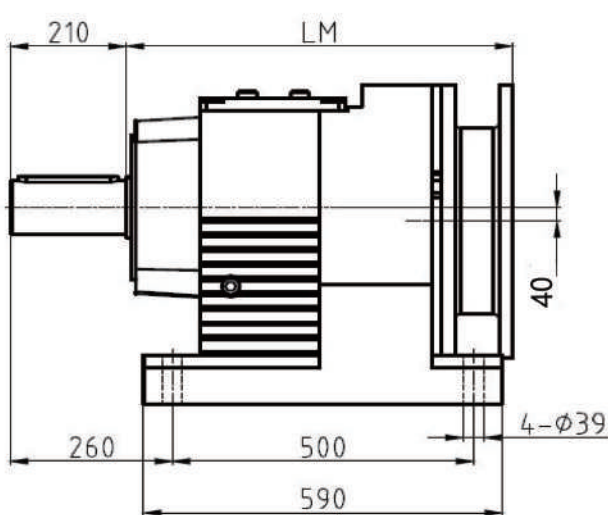
ITHIS162...  
ITHIS163...





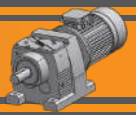
**ITH 172 - ITH 173**

ITH172U  
ITH173U



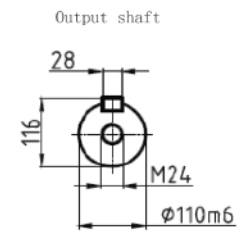
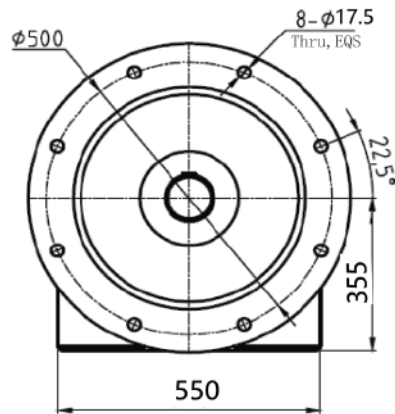
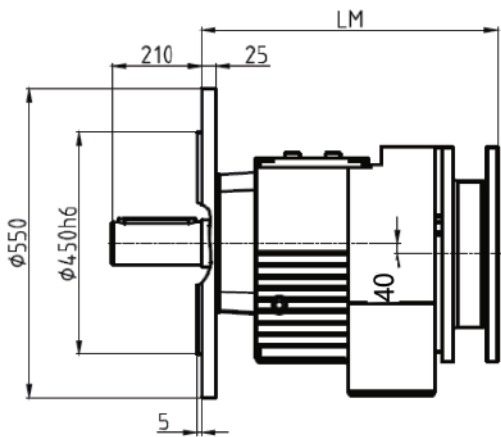
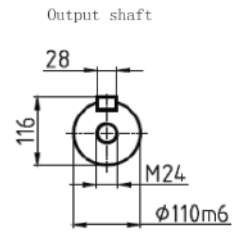
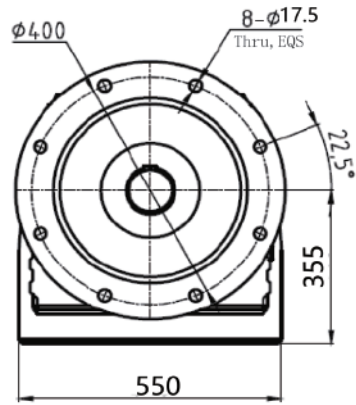
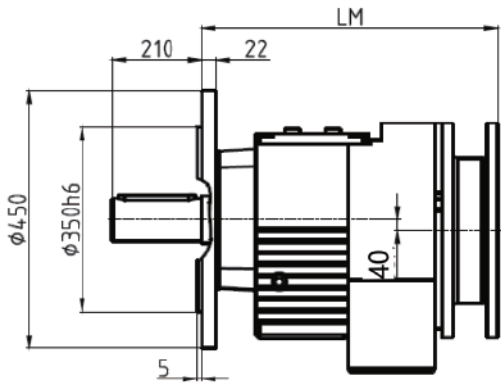
<b>IEC Dimensions</b>						
	160 B5	180 B5	200 B5	225 B5	250 B5	280 B5
LM	597		615	620	624	624
N	250		300	350	450	
M	300		350	400	500	
P	350		400	450	550	
D	42	48	55	60	65	75



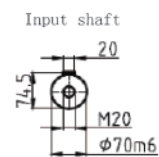
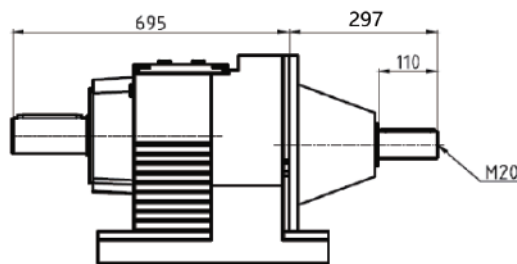
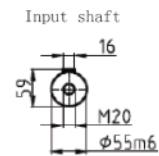
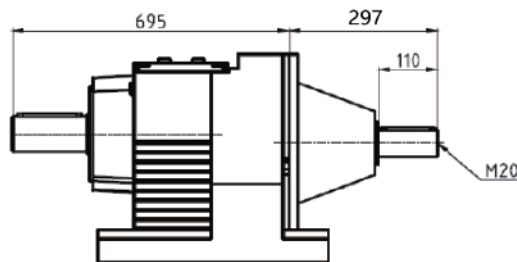


ITH 172 - ITH 173

ITH172F...  
ITH173F...



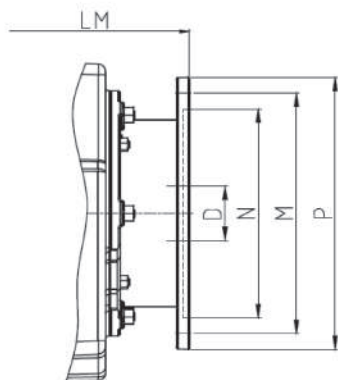
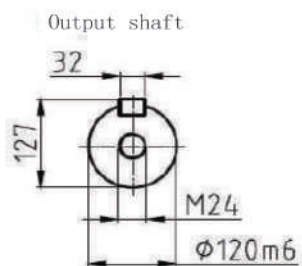
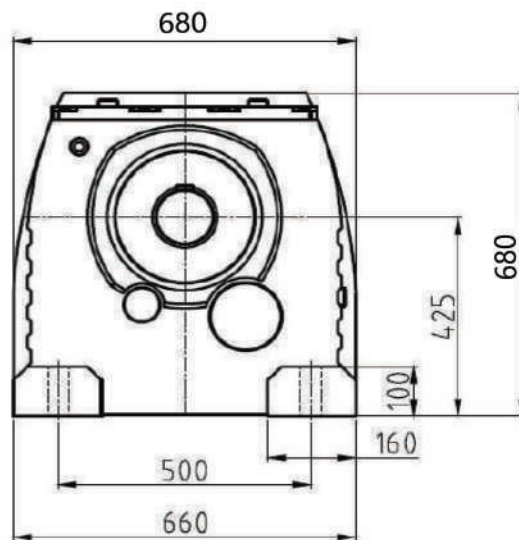
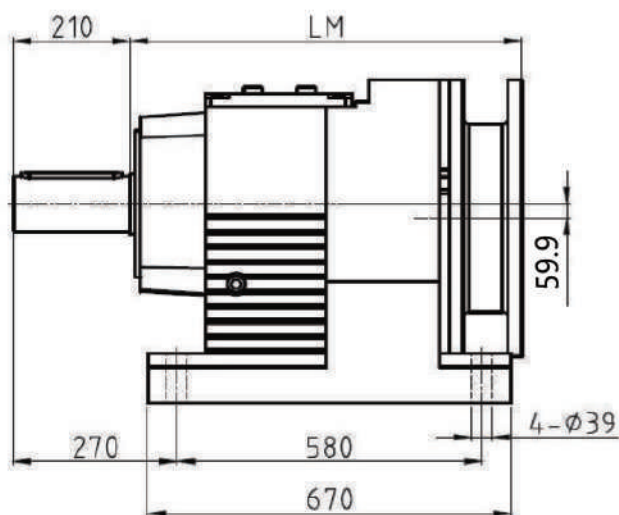
ITHIS172...  
ITHIS173...



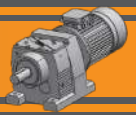


**ITH 182 - ITH 183**

ITH182U  
ITH183U

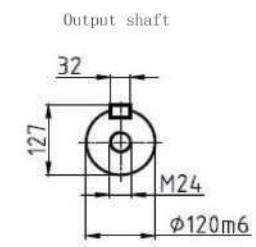
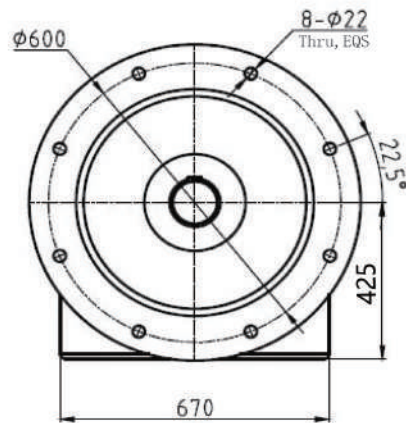
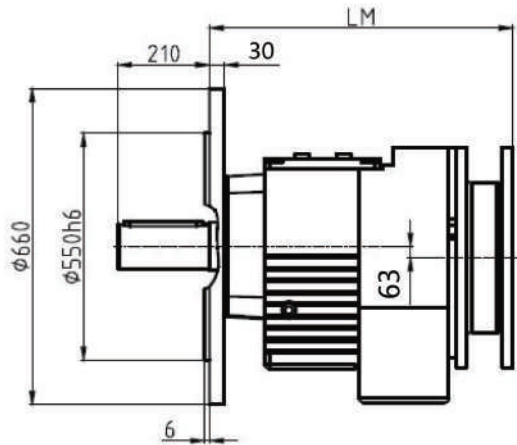
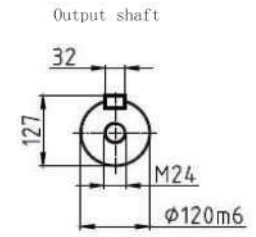
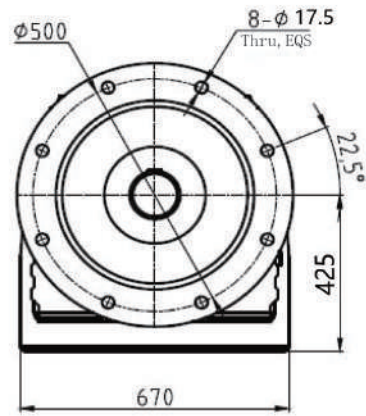
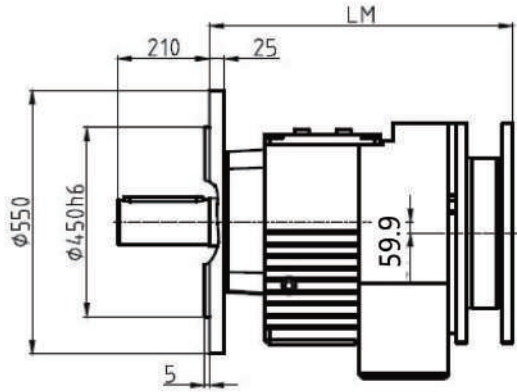


<b>IEC Dimensions</b>							
	160 B5	180 B5	200 B5	225 B5	250 B5	280 B5	315 B5
LM	681		691	696	700	700	750
N	250		300	350	450		550
M	300		350	400	500		600
P	350		400	450	550		660
D	42	48	55	60	65	75	80



# ITH 182 - ITH 183

ITH182F...  
ITH183F...



ITH182...  
ITH183...

