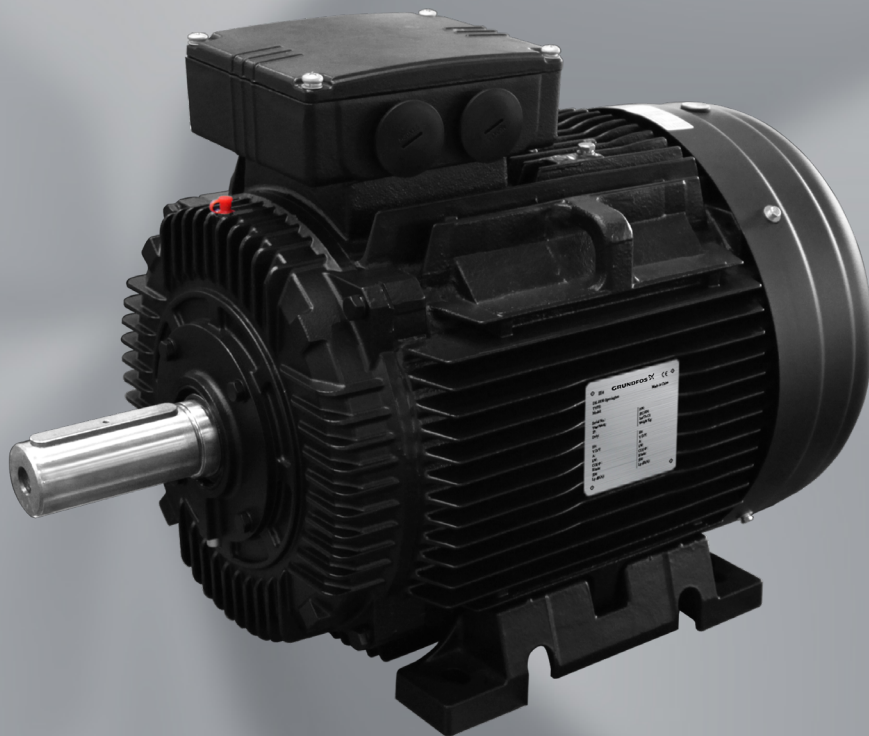


MMG-H IE4

50 Hz



1. General instruction	2
General introduction	2
Standards	2
Basic	3
Conditions	3
Voltage and frequency	3
Motor leads and connection	3
Rated output	3
High degrees of enclosure protection	3
Stator houses chosen	3
Cooling and ventilation	3
Mounting arrangement	3
Thermal protection	3
Vibration	3
Insulation and temperature rise	3
Lifting ways	3
2. Performance Data	8
220D/380Y V, 230D/400Y V, 380D/660Y V, 400D/690Y V	8
3. Dimension Data	11
For mounting arrangement B3	11
For mounting arrangement B5	13
For mounting arrangement B35	15
For mounting arrangement V1	17

1. General instruction

General introduction

- The MMG-H IE4 motors are totally enclosed, fan cooled, and three phase squirrel cage induction motors covering products from 0.75 kW up to 315 kW in frame sizes 80 to 355.



Frame size: 80-180



Frame size: 200-355

Standards

The motors comply with the standards in the following table A.

Table A

Title	DIN / VDE / EN	IEC standard	GB standard
General regulations for rotation electrical machines	DIN EN 60034-1	IEC 60034-1	GB 755-2019
Noise for rotation electrical machines	-	IEC 60034-9	GB 10069.1
AC induction motors for general use with standardized dimensions and power	DIN EN 50347	IEC 60072	GB/T 4772.1-1999 Part 1
Starting performance of single-speed three-phase cage induction motors for voltage up to and including 660 V	DIN EN 60034-12	IEC 60034-12	JB/T 8158-1999
Terminal markings and direction rotation of rotating electrical machines	DIN VDE 0530	IEC 60034-8 Part 8	GB1971-2006
Designation for type of construction, installation and terminal box position	DIN EN 60034-7	IEC 60034-7	GB/T 997-2008
IEC standard voltage	DIN IEC 60038	IEC 60038	-
Cooling methods for rotation electrical machines	DIN EN 60034-6	IEC 60034-6	GB/T 1993-1993
Mechanical vibrations of rotating electrical machines	DIN EN 60034-14	IEC 60034-14	GB 10068-2020
Degrees of protection for rotating electrical machines	DIN EN 60034-5	IEC 60034-5	GB/T 4942.1-2016

Basic

- Protection class: IP55
- Cooling method: IC411
- Efficiency class: IE4 (IEC 60034-30:2014)
- Insulation class: F

Conditions

- Altitude should be lower than 1000 m
- Ambient temperature -20 °C ~ +40 °C
- Relative humidity should be less than 90 %
- If the actual operating conditions deviate from above class, the maximum output should be adjusted according to the table E.

Voltage and frequency

- The applicable power supply for the motor can either be the power frequency or variable frequency power supply.
- The MMG-H IE4 motor can work in frequency 25-50 Hz (when the power frequency is 50 Hz)
- The allowed voltage deviation is $\pm 5\%$ according to IEC 60038.

Motor leads and connection

- All motors with single voltage have 6 leads.
- Motor connection type WYE(Y) for 3 kW and less, type DELTA (Δ) for 4 kW and above.
- For 3 kW and less of 2 pole and 4 pole, motor connection type DELTA(Δ) is also optional.

Rated output

- Rated output of the MMG-H IE4 series motor is shown in table B. Rated output refers to continuous duty according to IEC 60034-1 at a coolant temperature (CT) of 40°C and a site altitude of up to 1000 m above sea level.

High degrees of enclosure protection

- All the motors are designed for IP55; they are suitable for dusty or humid surroundings.

Stator houses chosen

- Aluminum and cast iron houses are provided for different output power. Please refer to Table I.

Cooling and ventilation

- All motors are fitted with a radial-flow fan which functions independently of the direction of rotation (cooling method IC411 to IEC 60034-6).

Mounting arrangement

According to IEC 60034-7, the mounting arrangement of MMG-H IE4 is as follows:

- B3 for frame size 80~355;
- B35 for frame size 80~355;
- B5 for frame size 80~355;
- V1 for frame size 80-355.

Thermal protection

- Motors with output 3kW and above are as standard provided with 3 pcs. PTC in serial.
- As an option 3 or 6 pcs. PT100 sensors can be provided.
- As an option of motor frame 80~355, anti-condensation heater is available for the application in humid surroundings.
- As for the rated voltage and the power of the space heater, please refer to the table H.

Vibration

- Motor rotor is dynamically balanced with half keys to vibration severity grade A of IEC 60034-14. The effective values of the vibration velocity of motors at no load should not exceed the values of grade A.

Insulation and temperature rise

- MMG-H IE4 motor adopts insulation system of class F, the insulation system comprises high-grade enameled wires and insulating sheet materials combined with solvent-free impregnating resin. The system ensures a high level of mechanical and electrical strength as well as good service ability and a long motor life.
- For frame size 280 and above, insulated bearings are provided as standard.
- The rated output of MMG-H IE4 motors are based on the temperature rise for insulation class B, therefore the motors have a generous over-load margin.

Lifting lugs

For the motors weighing more than 15kg, there will be lifting lugs on the frame. The lifting lugs vary from frames and mounting arrangements. For the detail of the liftings lugs, please refer to Table J and the outline drawings in the part Dimension Data.

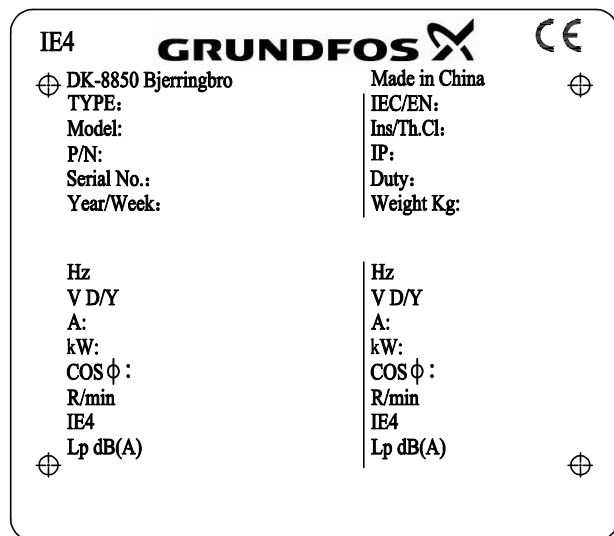
Frame and rating

Table B

Poles	2P		4P		6P		
	Frame size	kW	HP	kW	HP	kW	HP
	80MA	0.75	1				
	80MB	1.1	1.5	0.75	1		
	90S	1.5	2	1.1	1.5	0.75	1
	90L	2.2	3	1.5	2	1.1	1.5
	100L	3	4			1.5	2
	100LA			2.2	3		
	100LB			3	4		
	112M	4	5.5	4	5.5	2.2	3
	132S					3	4
	132SA	5.5	7.5	5.5	7.5		
	132SB	7.5	10				
	132MA			7.5	10	4	5.5
	132MB					5.5	7.5
	160M					7.5	10
	160MA	11	15	11	15		
	160MB	15	20				
	160L	18.5	25			11	15
	160LA			15	20		
	180M	22	30				
	180MA			18.5	25		
	180L					15	20
	180LA			22	30		
	200LA	30	40	30	40	18.5	25
	200LB	37	50			22	30
	225SA			37	50		
	225M					30	40
	225MA	45	60	45	60		
	250M					37	50
	250MA	55	75	55	75		
	280S					45	60
	280SA	75	100	75	100		
	280M					55	75
	280MA	90	125	90	125		
	315SA	110	150	110	150	75	100
	315M	132	175			90	125
	315MA			132	175		
	315LA	160	215	160	215	110	150
	315LB	200	270	200	270	132	175
	355M	250	335	250	335		
	355MA					160	215
	355MB					200	270
	355LA	315	420	315	420	250	335

Nameplate information

Please refer to the drawing below.



Main information on nameplate as follows:

Table C

Symbol on nameplate	Description
Type	Specification of motor
Model	Model of motor
P/N	Part number
Serial No.	Serial number
Year/Week	Produce time
IEC/EN	Standard
Ins/Th. Cl	Insulation and temperature rise class
IP	Protection class
Duty	Work duty of motor
Weight Kg	Weight
Hz	Rated frequency
V	Rated voltage
D/Y	Connection type
A	Rated current
kW	Rated output
COSφ	Power factor
R/min	Rated speed
IE4	Efficiency Level
Lp dB(A)	Noise

Cable entry on terminal box

Table D

Frame size	Thread of blind plug [mm]	Auxiliary blind plug [mm]
80	2-M20×1.5	--
90	2-M25×1.5	--
100	2-M25×1.5	
112	2-M25×1.5	1-M20×1.5
132	2-M32×1.5	
160	2-M40×1.5	
180	2-M40×1.5	
200	2-M50×1.5	
225	2-M50×1.5	2-M20×1.5
250	2-M63×1.5	
280	2-M63×1.5	
315	2-M63×1.5	
355	2-M72×2	

Note: Auxiliary blind plugs are provided for the installation of PTC thermistor, space heater or other auxiliary electronic components.

Power conversion coefficients at different altitudes

Table E

Altitude above sea level (ASL), in: [m]	Coolant temperature, in: [°C]					
	<30	30-40	45	50	55	60
1000	1.07	1.00	0.96	0.92	0.87	0.82
1500	1.04	0.97	0.93	0.89	0.84	0.79
2000	1.00	0.94	0.90	0.86	0.82	0.77
2500	0.96	0.90	0.86	0.83	0.78	0.74
3000	0.92	0.86	0.82	0.79	0.75	0.70
3500	0.88	0.82	0.79	0.75	0.71	0.67
4000	0.82	0.77	0.74	0.71	0.67	0.63

Bearing size

Table F

Frame size	DE bearing		NDE bearing	
	2P	4P, 6P	2P	4P, 6P
80	6204 2Z/C3	6204 2Z/C3	6203 2Z/C3	6203 2Z/C3
90	6205 2Z/C3	6205 2Z/C3	6204 2Z/C3	6204 2Z/C3
100	6306 2Z/C3	6306 2Z/C3	6205 2Z/C3	6205 2Z/C3
112	6306 2Z/C3	6306 2Z/C3	6205 2Z/C3	6205 2Z/C3
132	6208 2Z/C3	6208 2Z/C3	6206 2Z/C3	6206 2Z/C3
160	6209 C3	6209 C3	6209 C3	6209 C3
180	6211 C3	6311 C3	6211 C3	6211 C3
200	6212 C3	6312 C3	6212 C3	6212 C3
225	6312 C3	6313 C3	6312 C3	6312 C3
250	6313 C3	6314 C3	6313 C3	6313 C3
280	6314 C3	6317 C3	6314 C3	6314 C3
315	6317 C3	6319 C3	6317 C3/7317B(V1)	6319 C3/7319B(V1)
355	6319 C3	6322 C3	6319 C3/7319B(V1)	6322 C3/7322B(V1)

Bearing re-grease cycle in hour and volume at the ambient temperature of 40°C

Table G

Frame size	Amount of grease [g]	2P		4P		6P	
		B3 B5 B35	V1	B3 B5 B35	V1	B3 B5 B35	V1
160	25	5200	2600	9000	4500	11000	5500
180	30	3400	1700	7000	3500	9000	4500
200	40	3000	1500	6400	3200	8400	4200
225	50	2400	1200	6200	3100	8200	4100
250	60	2200	1100	6000	3000	7600	3800
280	35	2200	1100	-	-	-	-
	70	-	-	4800	2400	6400	3200
315	35	1400	700	-	-	-	-
	90	-	-	4200	2100	6200	3100
355	35	1000	500	-	-	-	-
	120	-	-	3000	1500	5000	2500

Note: Frame size below 160, the bearings are non-service bearing, which don't need to regrease.

Space heater

Table H

Frame size	Rated voltage [V]		Power [W]
	A	B	
80-90	230	115	20
100-112	230	115	30
132-160	230	115	40
180-200	230	115	50
225-280	230	115	60
315	230	115	160
355	230	115	220

Note: Frame size 315 adopts two 80 W heating belts with parallel connection. Frame size 355 adopts two 110 W heating belts with parallel connection.

Stator houses chosen

Table I

Pole	Power	House
2	0.75 to 22kW	Aluminum
	30 to 160kW	Cast iron
4	0.75 to 22kW	Aluminum
	30 to 315kW	Cast iron
6	4 to 15kW	Aluminum
	18.5 to 200kW	Cast iron

Motor lifting lugs

Table J

Frame	Size	B3 & B35		B5		V1	
		Quantity	Location	Quantity	Location	Quantity	Location
80	M6	1		1		2	
90	M8	1		1		2	
100	M8	1		1		2	
112	M8	1	Top of motor ¹⁾	1	Top of motor ¹⁾	2	Note ²⁾
132	M8	1		1		2	
160	M12	1		1		2	
180	M12	1		1		2	
200	Cast in the frame	2		2		2	
225	Cast in the frame	2		2	Note ⁴⁾	2	Note ⁴⁾
250	Cast in the frame	2	Note ³⁾	2		2	
280	M30	2		2		2	
315	M36	2		2	Note ⁵⁾	2	Note ⁵⁾
355	M42	2		2		2	

1) There will be no lifting eyebolt for the motors weighing less than 15 kg.

2) The lifting eyebolts are at both opposite sides of motor, each one forming an angle of 90° with the terminal box. There will be no lifting eyebolt for the motors weighing less than 15 kg.

Note: 3) The lifting lugs are at both opposite sides of motor, each one forming an angle of 45° with the terminal box. For frame 200-250, the lifting lugs are cast in the frame. For frame 280 and above, lifting eyebolts are adopted.

4) Four lifting lugs are cast in the both opposite sides of the frame, evenly distributed to form four 90° angles. Normally, two of them are used.

5) The two eyebolts are 180° symmetrical, forming a diagonal, on the same transverse or vertical section of the frame.

2. Performance Data

220D/380Y V, 230D/400Y V, 380D/660Y V, 400D/690Y V

Motor Type MMG-H IE4, class F insulation

Energy-saving motor to IEC efficiency IE4, IP55 degree of protection

3000 RPM, 2-pole, 220D/380Y V, 3-phase, 50Hz

3000 RPM, 2-pole, 230D/400Y V, 3-phase, 50Hz

Rated output kW	HP	Frame size	Rated output						Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break- down Torque [%]	Moment of inertia J	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
			Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load						
0.75	1	80MA	3.02	1.75	2.89	1.66	2.50	2870	0.78	0.70	0.57	83.5	84.6	83.1	730	460	390	0.001	11	62
1.1	1.5	80MB	4.52	2.62	4.32	2.48	3.66	2875	0.75	0.67	0.53	85.2	85.3	83.7	830	480	420	0.001	12.5	62
1.5	2	90S	5.17	2.99	4.95	2.84	4.93	2905	0.88	0.83	0.73	86.5	87.3	87.3	880	310	370	0.002	16.5	67
2.2	3	90L	7.46	4.32	7.13	4.10	7.26	2895	0.88	0.83	0.72	88.0	89.1	88.9	950	330	370	0.003	21	67
3	4	100L	10.2	5.88	9.72	5.59	9.85	2910	0.87	0.82	0.72	89.1	88.9	87.5	1140	510	460	0.005	31	74

3000 RPM, 2-pole, 380D/660Y V, 3-phase, 50Hz

3000 RPM, 2-pole, 400D/690Y V, 3-phase, 50Hz

Rated output kW	HP	Frame size	Rated output						Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break- down Torque [%]	Moment of inertia J	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
			Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load						
0.75	1	80MA	1.75	1.01	1.66	0.96	2.50	2870	0.78	0.70	0.57	83.5	84.6	83.1	730	460	390	0.001	11	62
1.1	1.5	80MB	2.62	1.51	2.48	1.44	3.66	2875	0.75	0.67	0.53	85.2	85.3	83.7	830	480	420	0.001	12.5	62
1.5	2	90S	2.99	1.72	2.84	1.65	4.93	2905	0.88	0.83	0.73	86.5	87.3	87.3	880	310	370	0.002	16.5	67
2.2	3	90L	4.32	2.49	4.10	2.38	7.26	2895	0.88	0.83	0.72	88.0	89.1	88.9	950	330	370	0.003	21	67
3	4	100L	5.88	3.39	5.59	3.24	9.85	2910	0.87	0.82	0.72	89.1	88.9	87.5	1140	510	460	0.005	31	74
4	5.5	112M	7.76	4.47	7.37	4.27	13.1	2915	0.87	0.83	0.74	90.0	89.9	88.0	920	300	360	0.014	31	77
5.5	7.5	132SA	10.3	5.95	9.81	5.69	17.9	2930	0.89	0.85	0.76	90.9	90.7	89.9	960	320	380	0.028	47	79
7.5	10	132SB	14.0	8.04	13.3	7.69	24.5	2930	0.89	0.86	0.77	91.7	91.2	90.5	1010	320	390	0.028	55	79
11	15	160MA	20.5	11.8	19.5	11.3	35.7	2945	0.88	0.86	0.80	92.6	92.5	91.0	780	220	370	0.066	98	69
15	20	160MB	27.8	16.0	26.4	15.3	48.7	2945	0.88	0.86	0.80	93.3	93.1	92.0	820	220	380	0.068	108	69
18.5	25	160L	33.7	19.4	32.0	18.6	60.0	2945	0.89	0.87	0.81	93.7	93.5	92.0	820	220	380	0.076	130	60
22	30	180M	40.4	23.3	38.4	22.3	71.1	2955	0.88	0.86	0.80	94.0	93.8	92.5	800	250	320	0.173	150	70
30	40	200LA	54.2	31.2	51.5	29.9	96.5	2970	0.89	0.84	0.74	94.5	94.1	92.8	800	260	320	0.193	258	73
37	50	200LB	66.6	38.4	63.3	36.7	119	2980	0.89	0.84	0.74	94.8	94.6	93.0	780	280	350	0.203	278	73
45	60	225MA	80.0	46.0	76.0	44.0	144	2980	0.90	0.86	0.74	95.0	94.8	93.0	890	250	350	0.411	358	75
55	75	250MA	98.5	56.7	93.6	54.3	176	2980	0.89	0.85	0.73	95.3	95.1	94.1	820	230	350	0.435	452	78
75	100	280SA	134	77.1	127	73.8	241	2980	0.89	0.86	0.75	95.6	95.2	94.3	780	230	320	0.743	544	79
90	125	280MA	159	91.3	151	87.3	289	2980	0.90	0.86	0.76	95.8	95.5	94.8	760	250	320	0.823	620	79
110	150	315SA	193	111	184	107	353	2980	0.90	0.85	0.76	96.0	95.8	95.0	760	230	360	1.64	1078	80
132	175	315M	232	133	220	128	423	2980	0.90	0.87	0.76	96.2	96.0	95.0	770	230	350	1.78	1138	80
160	215	315LA	280	162	266	154	513	2980	0.90	0.87	0.76	96.3	96.1	95.1	760	240	350	1.97	1278	82
200	270	315LB	350	201	332	193	641	2980	0.90	0.87	0.76	96.5	96.3	95.4	810	230	330	1.97	1419	83
250	335	355M	437	252	415	241	801	2980	0.90	0.87	0.76	96.5	96.2	95.3	820	230	350	3.90	1914	83
315	420	355LA	551	317	524	303	1009	2980	0.90	0.87	0.77	96.5	96.2	95.3	890	280	380	4.01	2132	83

1500 RPM, 4-pole, 220D/380Y V, 3-phase, 50Hz**1500 RPM, 4-pole, 230D/400Y V, 3-phase, 50Hz**

Rated output kW	HP	Frame size	Rated output						Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break- down Torque [%]	Moment of inertia J [kgm ²]	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
			Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load						
			220V	380V	230V	400V														
0.75	1	80MB	3.28	1.90	3.14	1.80	3.66	1445	0.70	0.61	0.47	85.2	85.3	83.7	790	500	430	0.005	17	56
1.1	1.5	90S	4.36	2.52	4.17	2.40	7.27	1445	0.76	0.68	0.55	87.2	87.5	85.3	760	380	380	0.007	19	59
1.5	2	90L	5.87	3.40	5.62	3.23	9.91	1445	0.76	0.68	0.54	88.2	88.5	86.5	770	300	350	0.008	21	59
2.2	3	100LA	8.38	4.85	8.01	4.61	14.5	1455	0.77	0.69	0.55	89.5	88.2	86.6	980	410	410	0.009	32	64
3	4	100LB	11.3	6.55	10.8	6.22	19.7	1455	0.77	0.69	0.55	90.4	89.6	88.3	1050	410	440	0.010	35	64

1500 RPM, 4-pole, 380D/660Y V, 3-phase, 50Hz**1500 RPM, 4-pole, 400D/690Y V, 3-phase, 50Hz**

Rated output kW	HP	Frame size	Rated output						Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break- down Torque [%]	Moment of inertia J [kgm ²]	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
			Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load						
			380V	660V	400V	690V														
0.75	1	80MB	1.90	1.09	1.80	1.05	3.66	1445	0.70	0.61	0.47	85.2	85.3	83.7	790	500	430	0.005	17	56
1.1	1.5	90S	2.52	1.45	2.40	1.39	7.27	1445	0.76	0.68	0.55	87.2	87.5	85.3	760	380	380	0.007	19	59
1.5	2	90L	3.40	1.96	3.23	1.87	9.91	1445	0.76	0.68	0.54	88.2	88.5	86.5	770	300	350	0.008	21	59
2.2	3	100LA	4.85	2.79	4.61	2.67	14.5	1455	0.77	0.69	0.55	89.5	88.2	86.6	980	410	410	0.009	32	64
3	4	100LB	6.55	3.77	6.22	3.61	19.7	1455	0.77	0.69	0.55	90.4	89.6	88.3	1050	410	440	0.010	35	64
4	5.5	112M	8.55	4.92	8.13	4.71	26.4	1445	0.78	0.71	0.59	91.1	90.4	90.0	850	370	360	0.019	36	65
5.5	7.5	132SA	11.4	6.54	10.8	6.26	35.9	1465	0.80	0.73	0.60	91.9	91.2	90.0	930	320	330	0.042	61	71
7.5	10	132MA	15.6	8.97	14.8	8.58	48.9	1465	0.79	0.73	0.60	92.6	92.0	91.0	1050	360	400	0.051	74	71
11	15	160MA	21.6	12.4	20.5	11.9	71.3	1475	0.83	0.77	0.67	93.3	93.1	92.2	880	330	340	0.068	106	60
15	20	160LA	29.2	16.8	27.8	16.1	97.1	1475	0.83	0.79	0.70	93.9	93.8	92.9	900	360	380	0.076	124	60
18.5	25	180MA	36.0	20.7	34.2	19.8	120	1475	0.83	0.76	0.68	94.2	94.0	93.0	790	230	380	0.159	162	65
22	30	180LA	42.6	24.5	40.5	23.5	142	1475	0.83	0.76	0.68	94.5	94.3	93.3	850	230	370	0.193	186	65
30	40	200LA	57.2	32.9	54.3	31.5	194	1480	0.84	0.78	0.69	94.9	94.7	93.7	730	190	270	0.311	270	68
37	50	225SA	69.5	40.0	66.0	38.3	239	1480	0.85	0.79	0.70	95.2	95.0	94.0	780	240	320	0.612	344	68
45	60	225MA	84.3	48.6	80.1	46.4	291	1480	0.85	0.79	0.70	95.4	95.1	94.1	830	270	320	0.679	382	69
55	75	250MA	103	59.2	97.6	56.6	354	1485	0.85	0.79	0.70	95.7	95.6	94.8	830	240	300	0.841	472	69
75	100	280SA	138	79.5	131	76.0	483	1485	0.86	0.79	0.70	96.0	95.8	95.2	790	210	290	1.53	614	70
90	125	280MA	165	95.3	157	91.1	579	1485	0.86	0.79	0.70	96.1	96.0	95.0	780	220	300	1.77	688	70
110	150	315SA	195	112	185	108	705	1490	0.89	0.81	0.71	96.2	96.1	95.1	730	210	310	4.01	1000	74
132	175	315MA	234	135	222	129	846	1490	0.89	0.81	0.69	96.4	96.2	95.3	770	200	300	3.74	1068	74
160	215	315LA	283	163	269	156	1025	1490	0.89	0.81	0.69	96.6	96.4	95.5	770	230	320	7.56	1116	74
200	270	315LB	353	203	335	194	1282	1490	0.89	0.82	0.69	96.7	96.5	95.6	790	210	300	5.16	1258	74
250	335	355M	441	254	419	243	1602	1490	0.89	0.86	0.73	96.7	96.5	95.5	800	210	280	8.06	2025	80
315	420	355LA	556	320	528	306	2018	1490	0.89	0.88	0.73	96.7	96.5	95.5	800	240	300	8.76	2420	83

1000 RPM, 6-pole, 220D/380Y V, 3-phase, 50Hz

1000 RPM, 6-pole, 230D/400Y V, 3-phase, 50Hz

Rated output	Frame size	Rated output							Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down Torque [%]	Moment of inertia J [kgm ²]	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
		Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load							
kW	HP	220V	380V	230V	400V															
0.75	1	90S	3.40	1.97	3.25	1.87	7.5	955	0.70	0.62	0.50	82.7	82.1	78.3	420	200	250	0.005	18.5	57
1.1	1.5	90L	4.81	2.79	4.60	2.65	11.0	955	0.71	0.63	0.51	84.5	84.1	77.6	410	200	250	0.007	21	57
1.5	2	100L	6.55	3.79	6.26	3.60	14.9	960	0.70	0.65	0.55	85.9	85.8	83.0	470	200	260	0.008	27	61
2.2	3	112M	8.69	5.03	8.31	4.78	21.9	960	0.76	0.68	0.60	87.4	87.4	85.0	500	200	230	0.016	34	65
3	4	132S	11.9	6.86	11.3	6.52	29.4	975	0.75	0.68	0.58	88.6	88.6	87.1	710	250	250	0.038	51	69

1000 RPM, 6-pole, 380D/660Y V, 3-phase, 50Hz

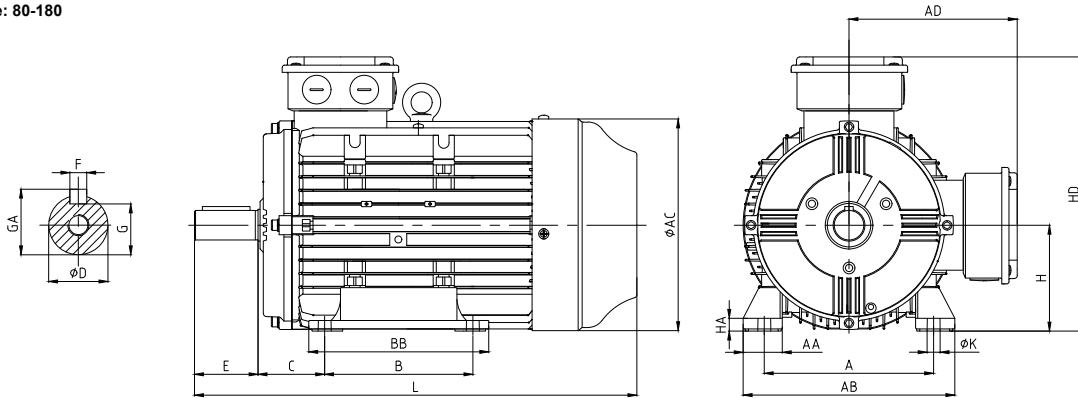
1000 RPM, 6-pole, 400D/690Y V, 3-phase, 50Hz

Rated output	Frame size	Rated output							Power factor cosφ			Efficiency η%			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down Torque [%]	Moment of inertia J [kgm ²]	Weight IMB3 approx. [kg]	Noise (SPL) [dB(A)]
		Full load current A				Torque Nm	Speed rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load							
kW	HP	380V	660V	400V	690V															
4	5.5	132MA	9.05	5.21	8.60	4.99	39.2	975	0.75	0.70	0.58	89.5	89.3	88.0	750	280	310	0.06	63	69
5.5	7.5	132MB	12.2	7.00	11.5	6.69	53.9	975	0.76	0.72	0.60	90.5	90.6	89.9	750	300	310	0.065	71	69
7.5	10	160M	16.6	9.58	15.8	9.16	73.9	970	0.75	0.69	0.60	91.3	91.0	90.2	700	250	280	0.12	138	56
11	15	160L	24.1	13.9	22.9	13.3	108	975	0.75	0.67	0.59	92.3	92.2	91.1	700	300	310	0.16	162	56
15	20	180L	31.5	18.1	29.9	17.3	146	980	0.78	0.70	0.61	92.9	92.7	90.7	850	300	340	0.37	239	59
18.5	25	200LA	37.6	21.7	35.7	20.7	180	980	0.80	0.73	0.64	93.4	93.0	92.1	740	280	290	0.38	262	68
22	30	200LB	43.5	25.1	41.3	24.0	214	980	0.82	0.73	0.63	93.7	93.4	92.9	700	250	260	0.44	286	59
30	40	225M	57.6	33.2	54.7	31.7	291	985	0.84	0.76	0.63	94.2	93.9	93.3	700	220	230	0.73	362	59
37	50	250M	70.8	40.8	67.3	39.0	361	980	0.84	0.76	0.66	94.5	94.0	93.5	800	280	340	0.11	474	59
45	60	280S	85.9	49.4	81.6	47.3	438	980	0.84	0.78	0.68	94.8	94.8	93.4	800	280	330	1.75	572	60
55	75	280M	105	60.2	99.4	57.6	536	980	0.84	0.79	0.71	95.1	94.9	93.6	800	280	320	1.99	644	60
75	100	315SA	144	82.9	137	79.3	731	980	0.83	0.78	0.73	95.4	95.3	94.3	700	200	260	3.68	880	68
90	125	315M	170	98.0	162	93.8	868	990	0.84	0.80	0.72	95.6	95.6	94.7	700	200	260	4.95	992	69
110	150	315LA	210	121	200	116	1061	990	0.83	0.80	0.74	95.8	95.4	94.5	700	200	260	5.76	1420	70
132	175	315LB	252	145	239	139	1273	990	0.83	0.81	0.75	96.0	95.6	94.8	700	200	260	5.79	1420	70
160	215	355MA	294	169	279	162	1543	990	0.86	0.83	0.78	96.2	96.0	94.9	700	230	250	9.96	1980	70
200	270	355MB	371	214	353	204	1919	995	0.85	0.82	0.80	96.3	96.3	96.0	730	220	240	11.5	2033	70
250	335	355LA	463	267	440	255	2399	995	0.85	0.83	0.81	96.5	96.6	96.2	700	220	240	12.6	2234	75

3. Dimension Data

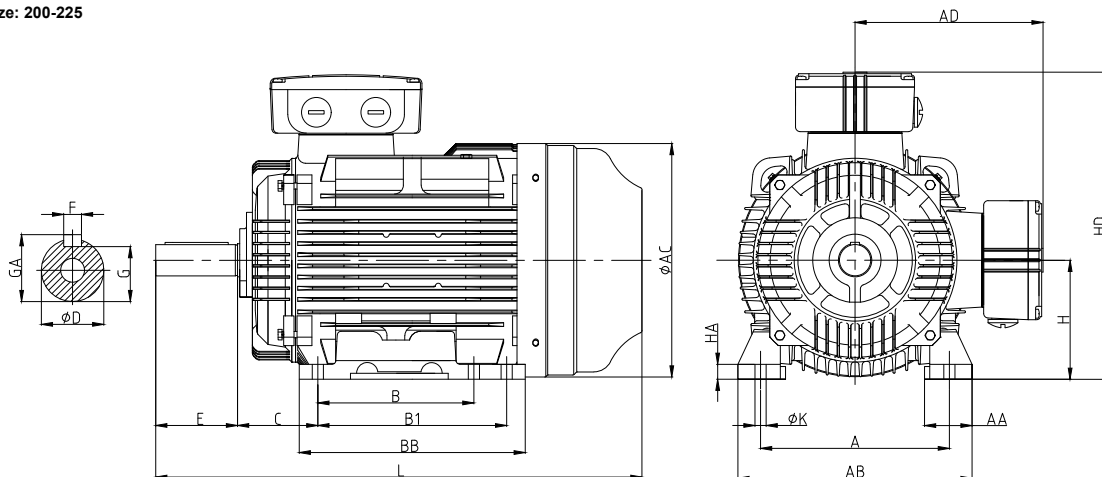
For mounting arrangement B3

Frame size: 80-180



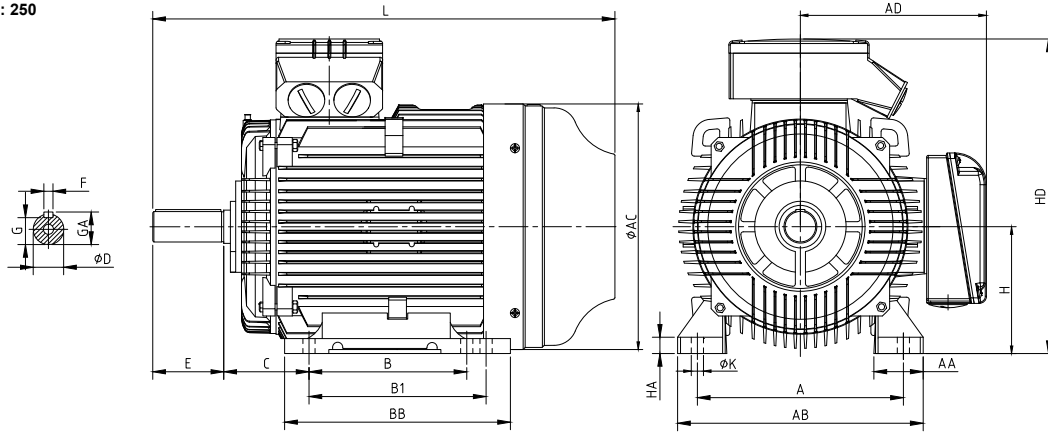
Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]								
		A	B	C	D	E	F	G	H	K	AA	AB	BB	GA	AC	AD	HA	HD	L	
80M	2, 4	125	100	50	19	40	6	15.5	80	10	32	154	125	21.5	157	123	10	203	331	
90S	2-6	140	100	56	24	50	8	20	90	10	37	180	128	27	175	146	10	236	324	
90L	2-6	140	125	56	24	50	8	20	90	10	37	180	153	27	175	146	10	236	349	
100L	2-6	160	140	63	28	60	8	24	100	12	37	200	170	31	199	159	12	259	418	
112M	2-6	190	140	70	28	60	8	24	112	12	47	230	170	31	222	169	12	281	381	
132S	2-6	216	140	89	38	80	10	33	132	12	54	264	172	41	260	192	15	324	475	
132M	4, 6	216	178	89	38	80	10	33	132	12	54	264	210	41	260	192	15	324	513	
160M	2-6	254	210	108	42	110	12	37	160	15	62	314	260	45	314	238	22	398	612	
160L	2-6	254	254	108	42	110	12	37	160	15	62	314	304	45	314	238	22	398	656	
180M	2, 4	279	241	121	48	110	14	42.5	180	15	70	347	304	51.5	355	256	25	436	685	
180L	4, 6	279	279	121	48	110	14	42.5	180	15	70	347	342	51.5	355	256	25	436	723	

Frame size: 200-225



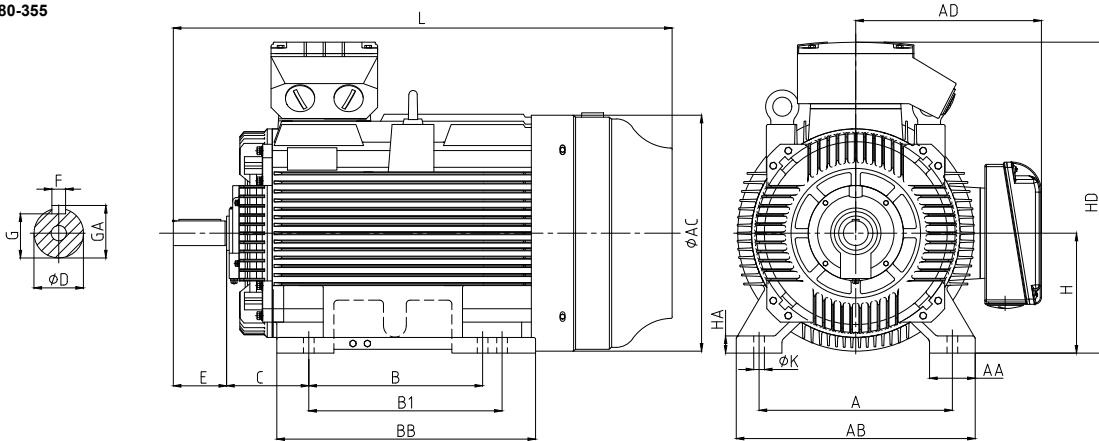
Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]								
		A	B	B1	C	D	E	F	G	H	K	GA	AA	AB	AC	AD	HA	HD	BB	L
200L	2-6	318	305	/	133	55	110	16	49.0	200	19	59.0	70	384	397	296	25	496	369	774
225S	4	356	286	/	149	60	140	18	53.0	225	19	64.0	79	426	445	319	29	544	386	821
225M	2	356	311	/	149	55	110	16	49.0	225	19	59.0	79	426	445	319	29	544	386	816
	4, 6	356	311	/	149	60	140	18	53.0	225	19	64.0	79	426	445	319	29	544	386	846

Frame size: 250



Frame size	Pole	Mounting dimensions [mm]											Overall dimensions [mm]							
		A	B	B1	C	D	E	F	G	H	K	GA	AA	AB	AC	AD	HA	HD	BB	L
250M	2	406	311	349	168	60	140	18	58.0	250	24	64.0	97	484	484	370	32	620	445	911
	4, 6	406	311	349	168	65	140	18	58.0	250	24	69.0	97	484	484	370	32	620	445	911

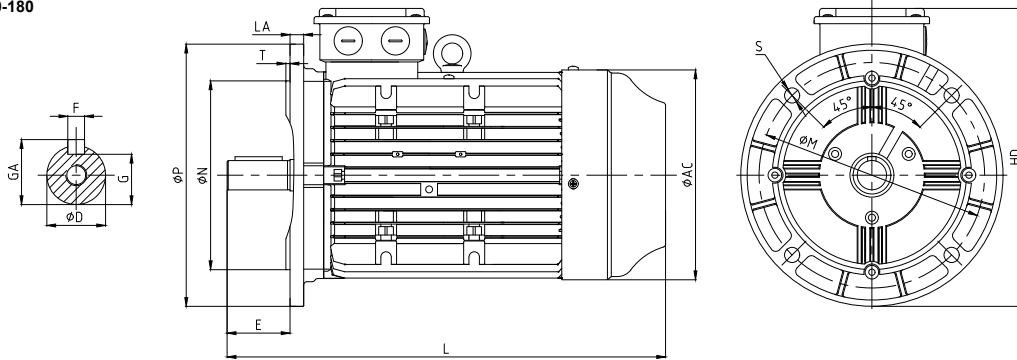
Frame size: 280-355



Frame size	Pole	Mounting dimensions [mm]											Overall dimensions [mm]							
		A	B	B1	C	D	E	F	G	H	K	GA	AA	AB	AC	AD	HA	HD	BB	L
280S	2	457	368	/	190	65	140	18	58.0	280	24	69.0	85	542	546	400	35	680	485	965
	4, 6	457	368	/	190	75	140	20	67.5	280	24	79.5	85	542	546	400	35	680	485	965
280M	2	457	419	/	190	65	140	18	58.0	280	24	69.0	85	542	546	400	35	680	536	1016
	4, 6	457	419	/	190	75	140	20	67.5	280	24	79.5	85	542	546	400	35	680	536	1016
315S	2	508	406	/	216	65	140	18	58.0	315	28	69.0	120	628	620	502	45	817	570	1201
	4, 6	508	406	/	216	80	170	22	71.0	315	28	85.0	120	628	620	502	45	817	570	1231
315M/L	2	508	457	508	216	65	140	18	58.0	315	28	69.0	120	628	620	502	45	817	680	1311
	4, 6	508	457	508	216	80	170	22	71.0	315	28	85.0	120	628	620	502	45	817	680	1341
355M/L	2	610	560	630	254	75	140	20	67.5	355	28	79.5	116	726	698	593	52	948	750	1501
	4, 6	610	560	630	254	95	170	25	86.0	355	28	100.0	116	726	698	593	52	948	750	1531

For mounting arrangement B5

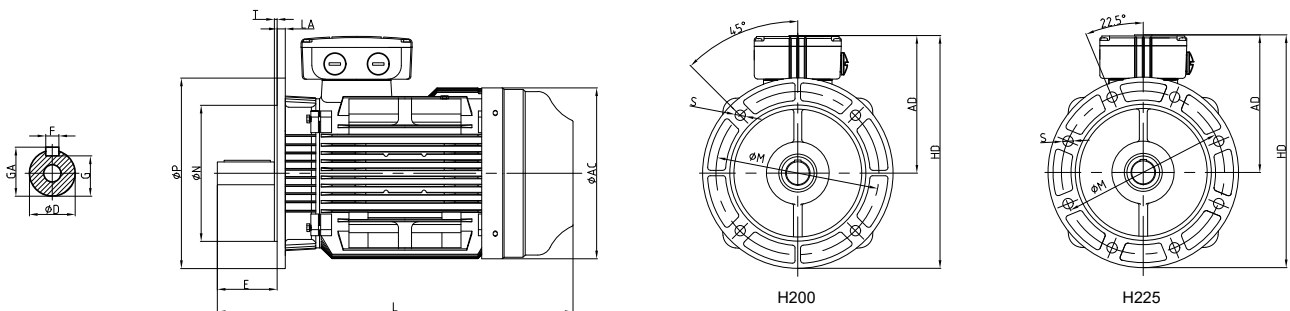
Frame size: 80-180



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]					Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	HD	LA	L	
80M	2	19	40	6	15.5	165	130	200	0	4-φ12	3.5	21.5	157	203	9.5	296	FF165
	4	19	40	6	15.5	165	130	200	0	4-φ12	3.5	21.5	157	203	9.5	331	FF165
90S	2-6	24	50	8	20	165	130	200	0	4-φ12	3.5	27	175	236	10	324	FF165
90L	2-6	24	50	8	20	165	130	200	0	4-φ12	3.5	27	175	236	10	349	FF165
100L	2-6	28	60	8	24	215	180	250	0	4-φ14.5	4.0	31	199	259	12	418	FF215
112M	2-6	28	60	8	24	215	180	250	0	4-φ14.5	4.0	31	222	281	12	381	FF215
132S	2-6	38	80	10	33	265	230	300	0	4-φ14.5	4.0	41	260	324	14	475	FF265
132M	4, 6	38	80	10	33	265	230	300	0	4-φ14.5	4.0	41	260	324	14	513	FF265
160M	2-6	42	110	12	37	300	250	350	0	4-φ19	5.0	45	314	398	15	612	FF300
160L	2-6	42	110	12	37	300	250	350	0	4-φ19	5.0	45	314	398	15	656	FF300
180M	2, 4	48	110	14	42.5	300	250	350	0	4-φ19	5.0	51.5	355	436	15	685	FF300
180L	4, 6	48	110	14	42.5	300	250	350	0	4-φ19	5.0	51.5	355	436	15	723	FF300

Note: R=Distance from flange to shaft shoulder.

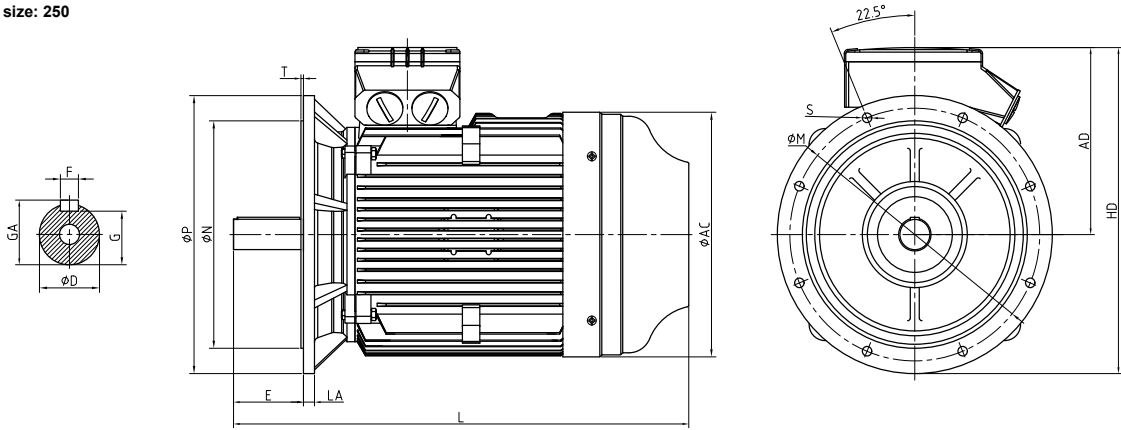
Frame size: 200-225



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]					Flange frame	
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA		L
200L	2-6	55	110	16	49	350	300	400	0	4-φ19	5	59	397	296	496	17	774	FF350
225S	4	60	140	18	53	400	350	450	0	8-φ19	5	64	445	319	544	20	821	FF400
	2	55	110	16	49	400	350	450	0	8-φ19	5	59	445	319	544	20	816	FF400
225M	4, 6	60	140	18	53	400	350	450	0	8-φ19	5	64	445	319	544	20	846	FF400

Note: R=Distance from flange to shaft shoulder.

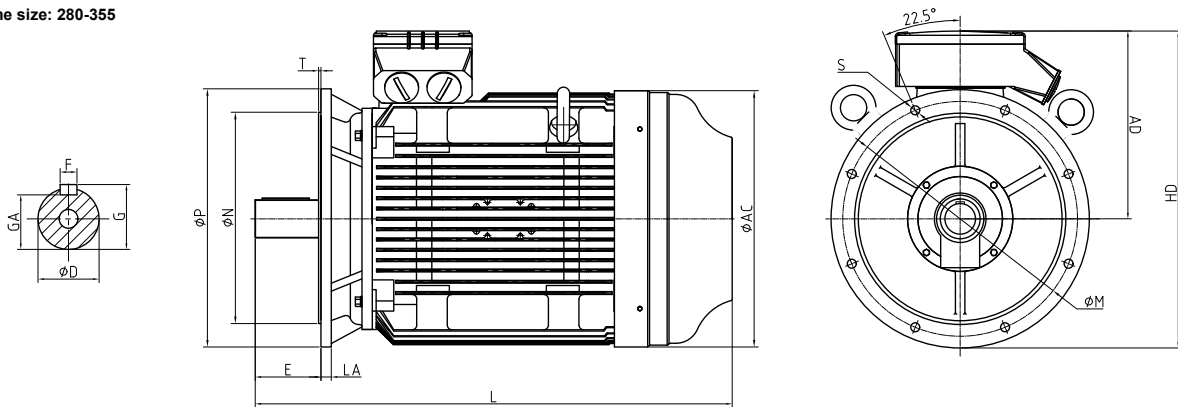
Frame size: 250



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]						Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA	L	
250S/M	2	60	140	18	58	500	450	550	0	8-Φ19	5	64	484	370	620	22	911	FF500
	4, 6	65	140	18	58	500	450	550	0	8-Φ19	5	69	484	370	620	22	911	FF500

Note: R=Distance from flange to shaft shoulder.

Frame size: 280-355

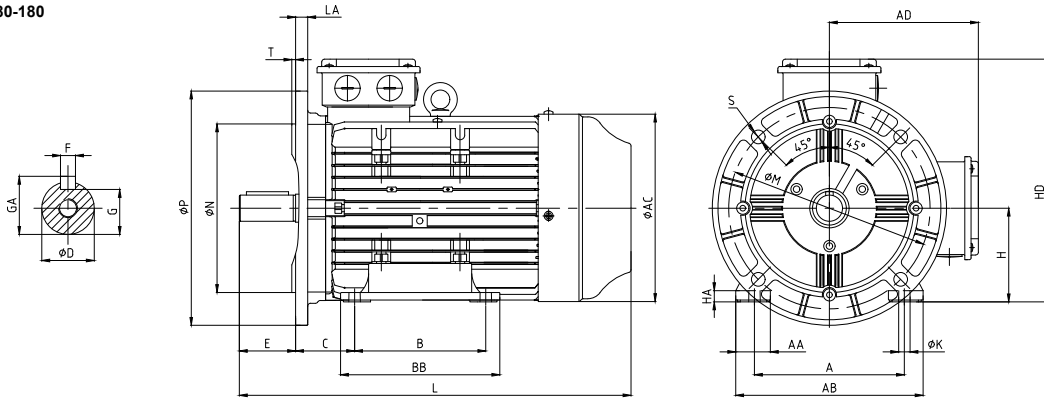


Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]						Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA	L	
280S	2	65	140	18	58	500	450	550	0	8-Φ19	5	69	546	400	680	22	965	FF500
	4, 6	75	140	20	67.5	500	450	550	0	8-Φ19	5	79.5	546	400	680	22	965	FF500
280M	2	65	140	18	58	500	450	550	0	8-Φ19	5	69	546	400	680	22	1016	FF500
	4, 6	75	140	20	67.5	500	450	550	0	8-Φ19	5	79.5	546	400	680	22	1016	FF500
315S	2	65	140	18	58	600	550	660	0	8-Φ24	6	69	620	502	817	22	1201	FF600
	4, 6	80	170	22	71	600	550	660	0	8-Φ24	6	85	620	502	817	22	1231	FF600
315M/L	2	65	140	18	58	600	550	660	0	8-Φ24	6	69	620	502	817	22	1311	FF600
	4, 6	80	170	22	71	600	550	660	0	8-Φ24	6	85	620	502	817	22	1341	FF600
355M/L	2	75	140	20	67.5	740	680	800	0	8-Φ24	6	79.5	698	593	948	25	1501	FF740
	4, 6	95	170	25	86	740	680	800	0	8-Φ24	6	100	698	593	948	25	1531	FF740

Note: R=Distance from flange to shaft shoulder.

For mounting arrangement B35

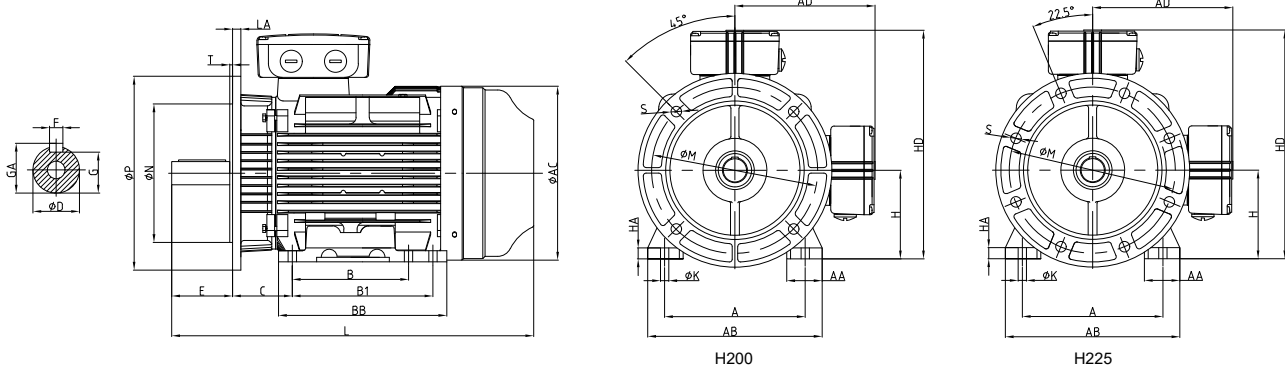
Frame size: 80-180



Frame size	Pole	Mounting dimensions [mm]														Overall dimensions [mm]								Flange frame		
		A	B	C	D	E	F	G	H	K	M	N	P	R	S	T	AA	AB	GA	AC	AD	HA	HD		LA	L
80M	2	125	100	50	19	40	6	15.5	80	10	165	130	200	0	4-Φ12	3.5	32	154	21.5	157	123	10	203	9.5	296	FF165
	4	125	100	50	19	40	6	15.5	80	10	165	130	200	0	4-Φ12	3.5	32	154	21.5	157	123	10	203	9.5	331	FF165
90S	2-6	140	100	56	24	50	8	20	90	10	165	130	200	0	4-Φ12	3.5	37	180	27	175	146	10	236	10	324	FF165
90L	2-6	140	125	56	24	50	8	20	90	10	165	130	200	0	4-Φ12	3.5	37	180	27	175	146	10	236	10	349	FF165
100L	2-6	160	140	63	28	60	8	24	100	12	215	180	250	0	4-Φ14.5	4	37	200	31	199	159	12	259	12	418	FF215
112M	2-6	190	140	70	28	60	8	24	112	12	215	180	250	0	4-Φ14.5	4	47	230	31	222	169	12	281	12	381	FF215
132S	2-6	216	140	89	38	80	10	33	132	12	265	230	300	0	4-Φ14.5	4	54	264	41	260	192	15	324	14	475	FF265
132M	4, 6	216	178	89	38	80	10	33	132	12	265	230	300	0	4-Φ14.5	4	54	264	41	260	192	15	324	14	513	FF265
160M	2-6	254	210	108	42	110	12	37	160	15	300	250	350	0	4-Φ19	5	62	314	45	314	238	22	398	15	612	FF300
160L	2-6	254	254	108	42	110	12	37	160	15	300	250	350	0	4-Φ19	5	62	314	45	314	238	22	398	15	656	FF300
180M	2, 4	279	241	121	48	110	14	42.5	180	15	300	250	350	0	4-Φ19	5	62	347	51.5	355	256	25	436	15	685	FF300
180L	4, 6	279	279	121	48	110	14	42.5	180	15	300	250	350	0	4-Φ19	5	70	347	51.5	355	256	25	436	15	723	FF300

Note: R=Distance from flange to shaft shoulder.

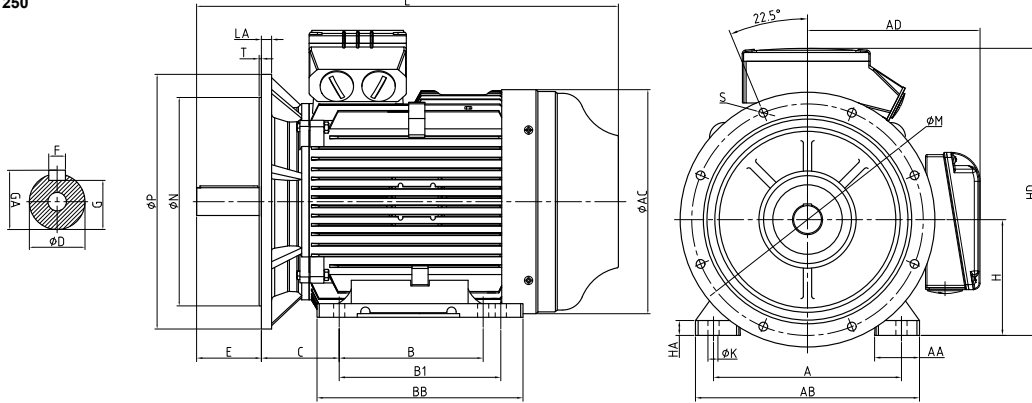
Frame size: 200-225



Frame size	Pole	Mounting dimensions [mm]														Overall dimensions [mm]								Flange frame			
		A	B	B1	C	D	E	F	G	H	K	M	N	P	R	S	T	GA	AA	AB	AC	AD	HA		HD	BB	L
200L	2-6	318	305	/	133	55	110	16	49	200	19	350	300	400	0	4-Φ19	5	59	70	384	397	296	25	496	369	774	FF350
225S	4, 6	356	286	/	149	60	140	18	53	225	19	400	350	450	0	8-Φ19	5	64	79	426	445	319	29	544	361	821	FF400
225M	2	356	311	/	149	55	110	16	49	225	19	400	350	450	0	8-Φ19	5	59	79	426	445	319	29	544	386	816	FF400
	4, 6	356	311	/	149	60	140	18	53	225	19	400	350	450	0	8-Φ19	5	64	79	426	445	319	29	544	386	846	FF400

Note: R=Distance from flange to shaft shoulder.

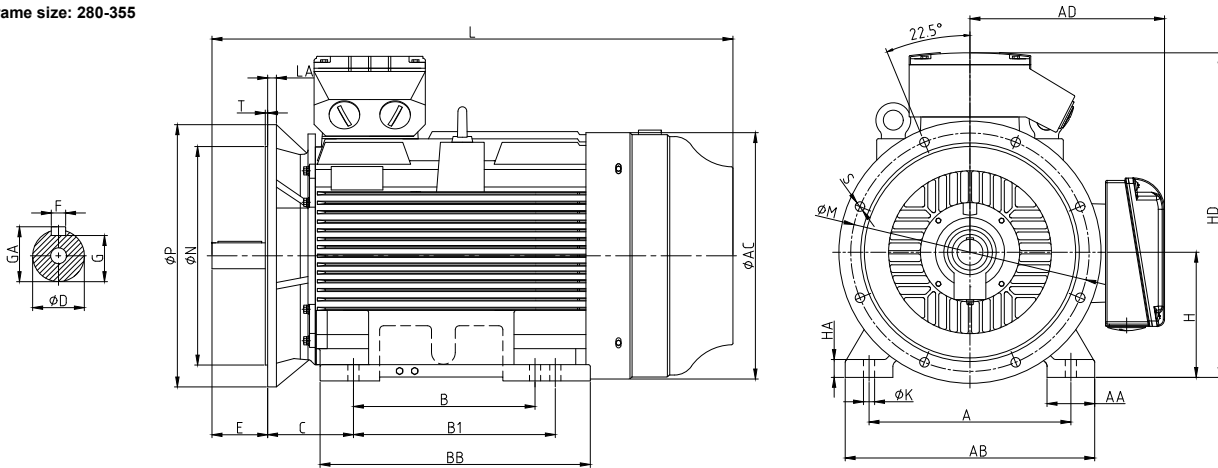
Frame size: 250



Frame size	Pole	Mounting dimensions [mm]														Overall dimensions [mm]								Flange frame			
		A	B	B1	C	D	E	F	G	H	K	M	N	P	R	S	T	GA	AA	AB	AC	AD	HA		HD	BB	L
250S/M	2	406	311	349	168	60	140	18	58	250	24	500	450	550	0	8-Φ19	5	64	97	484	484	370	32	620	445	911	FF500
	4, 6	406	311	349	168	65	140	18	58	250	24	500	450	550	0	8-Φ19	5	69	97	484	484	370	32	620	445	911	FF500

Note: R=Distance from flange to shaft shoulder.

Frame size: 280-355

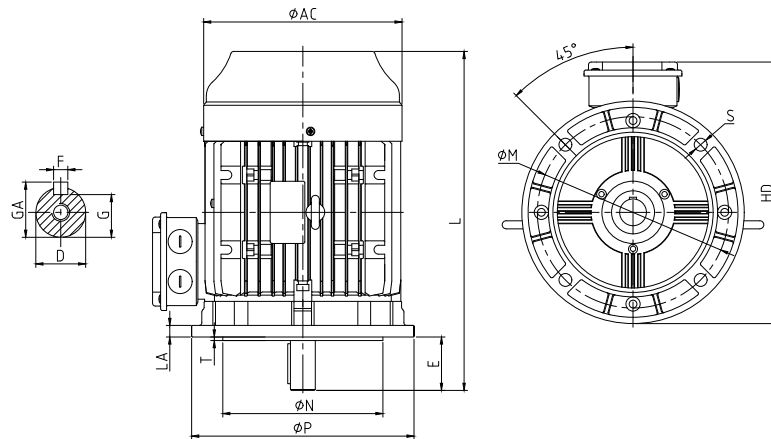


Frame size	Pole	Mounting dimensions [mm]														Overall dimensions [mm]								Flange frame			
		A	B	B1	C	D	E	F	G	H	K	M	N	P	R	S	T	GA	AA	AB	AC	AD	HA		HD	BB	L
280S	2	457	368	/	190	65	140	18	58	280	24	500	450	550	0	8-Φ19	5	69	85	542	546	400	35	680	485	965	FF500
	4, 6	457	368	/	190	75	140	20	67.5	280	24	500	450	550	0	8-Φ19	5	79.5	85	542	546	400	35	680	485	965	FF500
280M	2	457	419	/	190	65	140	18	58	280	24	500	450	550	0	8-Φ19	5	69	85	542	546	400	35	680	536	1016	FF500
	4, 6	457	419	/	190	75	140	20	67.5	280	24	500	450	550	0	8-Φ19	5	79.5	85	542	546	400	35	680	536	1016	FF500
315S	2	508	406	/	216	65	140	18	58	315	28	600	550	660	0	8-Φ24	6	69	120	628	620	502	45	817	570	1201	FF600
	4, 6	508	406	/	216	80	170	22	71	315	28	600	550	660	0	8-Φ24	6	85	120	628	620	502	45	817	570	1231	FF600
315M/L	2	508	457	508	216	65	140	18	58	315	28	600	550	660	0	8-Φ24	6	69	120	628	620	502	45	817	680	1311	FF600
	4, 6	508	457	508	216	80	170	22	71	315	28	600	550	660	0	8-Φ24	6	85	120	628	620	502	45	817	680	1341	FF600
355M/L	2	610	560	630	254	75	140	20	67.5	355	28	740	680	800	0	8-Φ24	6	79.5	116	726	698	593	52	948	750	1501	FF740
	4, 6	610	560	630	254	95	170	25	86	355	28	740	680	800	0	8-Φ24	6	100	116	726	698	593	52	948	750	1531	FF740

Note: R=Distance from flange to shaft shoulder.

For mounting arrangement V1

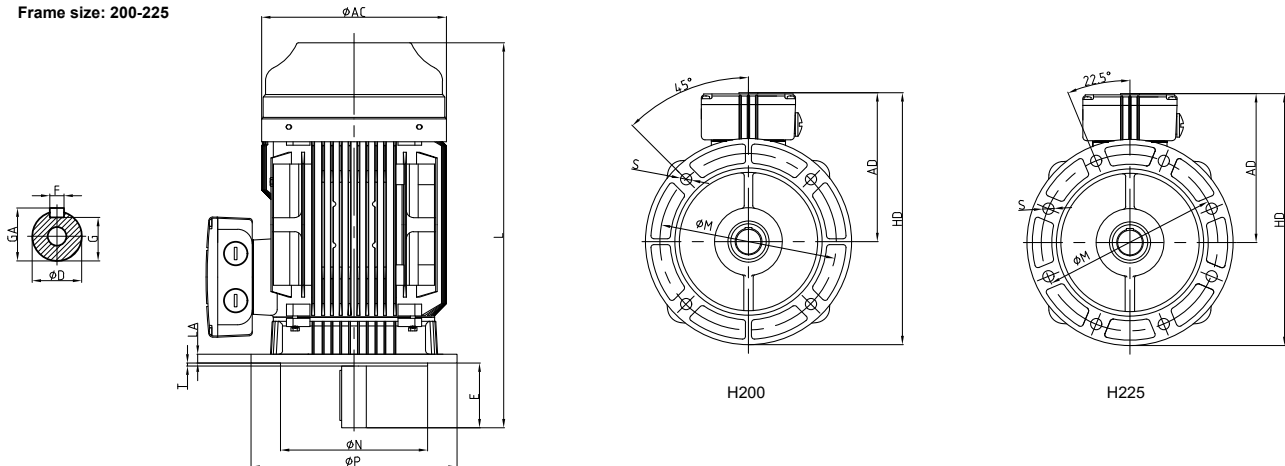
Frame size: 80-180



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]					Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	HD	LA	L	
80M	2	19	40	6	15.5	165	130	200	0	4-Ø12	3.5	21.5	157	203	9.5	296	FF165
	4	19	40	6	15.5	165	130	200	0	4-Ø12	3.5	21.5	157	203	9.5	331	FF165
90S	2-6	24	50	8	20	165	130	200	0	4-Ø12	3.5	27	175	236	10	324	FF165
90L	2-6	24	50	8	20	165	130	200	0	4-Ø12	3.5	27	175	236	10	349	FF165
100L	2-6	28	60	8	24	215	180	250	0	4-Ø14.5	4.0	31	199	259	12	418	FF215
112M	2-6	28	60	8	24	215	180	250	0	4-Ø14.5	4.0	31	222	281	12	381	FF215
132S	2-6	38	80	10	33	265	230	300	0	4-Ø14.5	4.0	41	260	324	14	475	FF265
132M	4, 6	38	80	10	33	265	230	300	0	4-Ø14.5	4.0	41	260	324	14	513	FF265
160M	2-6	42	110	12	37	300	250	350	0	4-Ø19	5.0	45	314	398	15	612	FF300
160L	2-6	42	110	12	37	300	250	350	0	4-Ø19	5.0	45	314	398	15	656	FF300
180M	2, 4	48	110	14	42.5	300	250	350	0	4-Ø19	5.0	51.5	355	436	15	685	FF300
180L	4, 6	48	110	14	42.5	300	250	350	0	4-Ø19	5.0	51.5	355	436	15	723	FF300

Note: R=Distance from flange to shaft shoulder.

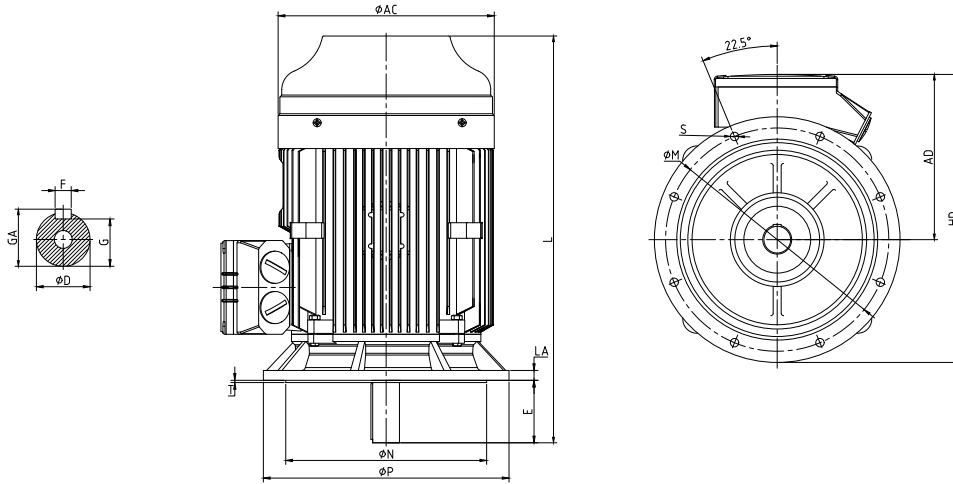
Frame size: 200-225



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]					Flange frame	
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA		L
200L	2-6	55	110	16	49	350	300	400	0	4-Ø19	5	59	397	296	496	17	774	FF350
225S	4	60	140	18	53	400	350	450	0	8-Ø19	5	64	445	319	544	20	821	FF400
225M	2	55	110	16	49	400	350	450	0	8-Ø19	5	59	445	319	544	20	816	FF400
	4, 6	60	140	18	53	400	350	450	0	8-Ø19	5	64	445	319	544	20	846	FF400

Note: R=Distance from flange to shaft shoulder.

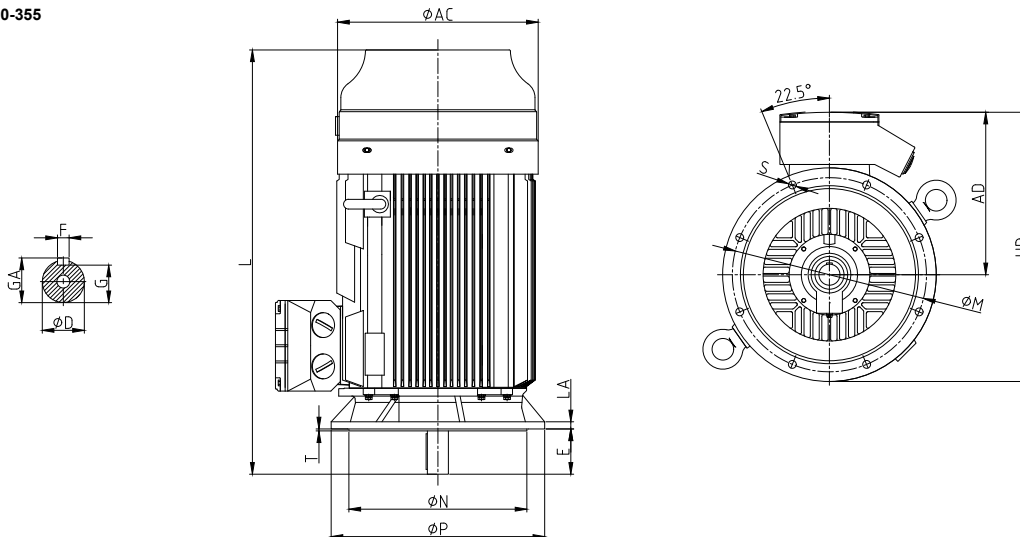
Frame size: 250



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]						Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA	L	
250S/M	2	60	140	18	58	500	450	550	0	8- $\phi 19$	5	64	484	370	620	22	911	FF500
	4, 6	65	140	18	58	500	450	550	0	8- $\phi 19$	5	69	484	370	620	22	911	FF500

Note: R=Distance from flange to shaft shoulder.

Frame size: 280-355



Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]						Flange frame
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	LA	L	
280S	2	65	140	18	58	500	450	550	0	8- $\phi 19$	5	69	546	400	680	22	965	FF500
	4, 6	75	140	20	67.5	500	450	550	0	8- $\phi 19$	5	79.5	546	400	680	22	965	FF500
280M	2	65	140	18	58	500	450	550	0	8- $\phi 19$	5	69	546	400	680	22	1016	FF500
	4, 6	75	140	20	67.5	500	450	550	0	8- $\phi 19$	5	79.5	546	400	680	22	1016	FF500
315S	2	65	140	18	58	600	550	660	0	8- $\phi 24$	6	69	620	502	817	22	1201	FF600
	4, 6	80	170	22	71	600	550	660	0	8- $\phi 24$	6	85	620	502	817	22	1231	FF600
315M/L	2	65	140	18	58	600	550	660	0	8- $\phi 24$	6	69	620	502	817	22	1311	FF600
	4, 6	80	170	22	71	600	550	660	0	8- $\phi 24$	6	85	620	502	817	22	1341	FF600
355M/L	2	75	140	20	67.5	740	680	800	0	8- $\phi 24$	6	79.5	698	593	948	25	1501	FF740
	4, 6	95	170	25	86	740	680	800	0	8- $\phi 24$	6	100	698	593	948	25	1531	FF740

Note: R=Distance from flange to shaft shoulder.

92604689 08.2021

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