MMG-W IE4

50 Hz

GRUNDFOS

Table of contents

1. General introduction

- The MMG-W IE4 motors are totally enclosed, fan cooled, and three phase squirrel cage induction motors with high quality. They cover products from as little as 0.75 kW up to 355 kW in frame sizes 80mm to 400mm.

TM074148

Frame size: 80-180

TM074147

Frame size: 200-355

Standards

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

Table A

Title	IEC standard	GB standard
General regulations for rotation electrical machines	IEC 60034-1	GB/T 755-2019
Noise for rotation electrical machines	IEC 60034-9	GB 10069.1
AC induction motors for general use with standardized dimensions and power	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	IEC 60034-12	JB/T 8158-1999
Terminal markings and direction rotation of rotating electrical machines	IEC 60034-8 Part 8	GB1971-2006
Designation for type of construction, installation and terminal box position	IEC 60034-7	GB/T 997-2008
IEC standard voltage	IEC 60038	-
Cooling methods for rotation electrical machines	IEC 60034-6	GB/T 1993-1993
Mechanical vibrations of rotating electrical machines	IEC 60034-14	GB 10068-2020
Degrees of protection for rotating electrical machines	IEC 60034-5	GB/T 4942.1-2016

Basic information

- Protection class: IP55
- Cooling method: IC411
- Efficiency class: IE4 (IEC 60034-30-1)
- Insulation class: F

Operating 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 mentioned conditions, 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-W IE4 motor can operate in a frequency range of 25-50 Hz (when the power frequency is 50 Hz)
- The allowed voltage deviation is ± 5 % according to IEC 60038.

Motor leads and connection

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

Rated output

- Rated output of the MMG-W IE4 series motor is showed 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 house materials

- Cast iron houses are provided for all motors.

Cooling and ventilation

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

Mounting arrangement

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

- B3 for frame size 80~400;
- B5 for frame size 80~280;
- V1 for frame size 80~400.

Thermal protection

- Motors with an output of 3kW and above are as standard provided with 3 PTC thermistors in series.
- As an option of motor frame 160~400, 3 pcs or 6 pcs PT100 sensor are available.
- As an option of motor frame 80M~400, anti-condensation heater is available for the application in humid surroundings. The detail of space heater, please see table I.

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-W 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, we provide ceramic insulated shaft as standard.
- The rated output of MMG-W IE4 motors are based on the temperature rise for insulation class B, therefore the motors have a generous over-load margin.

Lifting lugs

- Motors weighing more than 15kg have lifting lugs on the frame. The lifting lugs vary for different frames and mounting arrangements. For details on lifting lugs, refer to table H and the outline drawings in section about dimension data.

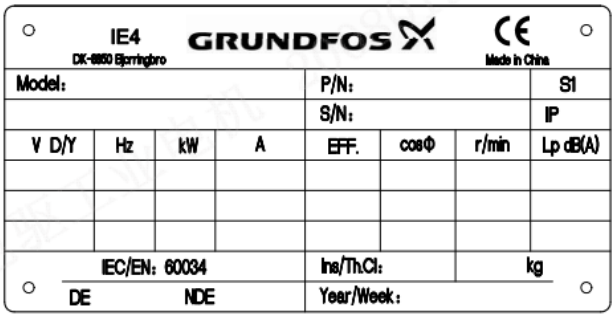
Frame and rating

Table B

Poles	2P		4P		6P	
Frame size	**kW**	**HP**	**kW**	**HP**	**kW**	**HP**
80M	0.75	1	0.55	3/4	0.37	1/2
80MA	1.1	1 1/2	0.75	1	0.55	3/4
90S	1.5	2	1.1	1 1/2	0.75	1
90L	2.2	3	1.5	2	1.1	1 1/2
100L	3	4			1.5	2
100LA			2.2	3		
100LB			3	4		
112M	4	5 1/2	4	5 1/2	2.2	3
132S			5.5	7 1/2	3	4
132SA	5.5	7 1/2				
132SB	7.5	10				
132M			7.5	10		
132MA					4	5 1/2
132MB					5.5	7 1/2
160M			11	15	7.5	10
160MA	11	15				
160MB	15	20				
160L	18.5	25	15	20	11	15
180M	22	30	18.5	25		
180L			22	30	15	20
200L			30	40		
200LA	30	40			18.5	25
200LB	37	50			22	30
225S			37	50		
225M	45	60	45	60	30	40
250M	55	75	55	75	37	50
280S	75	100	75	100	45	60
280M	90	125	90	125	55	75
315S	110	150	110	150	75	100
315M	132	175	132	175	90	125
315LA	160	215	160	215	110	150
315LB	185	250	185	250	132	175
315LC	200	270	200	270		
355MA	220	300	220	300	160	215
355MB	250	335	250	335	185	250
355MC					200	270
355LA	280	375	280	375	220	300
355LB	315	420	315	420	250	335
355LC			355	475	280	375
400MA					315	420
400MB					355	475

Nameplate information

An example of the nameplate is shown as below.



Main information on nameplate as follows:

Table C

Designation on nameplate	Description
Model	Model of motor
P/N	Part number
S1	Duty S1
S/N	Serial number
IP	Protection degree
V D/Y	Rated voltage Connection type
Hz	Rated frequency
kW	Rated output
A	Rated current
EFF.	Efficiency
COSφ	Power factor
r/min	Rated speed
Lp dB(A)	Noise
IEC/EN	Standard
Ins/Th.Cl	Insulation and temperature rise class
kg	Weight
DE	Bearing at drive end
NDE	Bearing at non-drive end
Year/Week	Manufacture date

Cable entry on terminal box

Table D

Frame size	Thread of blind plug [mm]	Auxiliary blind plug [mm]
80	1-M25x1.5	--
90	1-M25x1.5	--
100	1-M25x1.5	--
112	2-M25x1.5	--
132	2-M25x1.5	--
160	2-M32x1.5	1-M20x1.5
180	2-M32x1.5	
200	2-M50x1.5	
225	2-M50x1.5	
250	2-M63x1.5	
280	2-M63x1.5	
315	2-M63x1.5	
355	2-M72x2	
400	3-M72x2	

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) [m]	Coolant temperature [°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	6204-2Z C3	6204-2Z C3
90	6205-2Z C3	6205-2Z C3	6205-2Z C3	6205-2Z C3
100	6206-2Z C3	6206-2Z C3	6206-2Z C3	6206-2Z C3
112	6306-2Z C3	6306-2Z C3	6306-2Z C3	6306-2Z C3
132	6308-2Z C3	6308-2Z C3	6308-2Z C3	6308-2Z C3
160	6309-2Z C3	6309-2Z C3	6309-2Z C3	6309-2Z C3
180	6311 C3	6311 C3	6311 C3	6311 C3
200	6312 C3	6312 C3	6312 C3	6312 C3
225	6312 C3	6313 C3	6312 C3	6312 C3
250	6314 C3	6314 C3	6313 C3	6313 C3
280	6314 C3	6317 C3	6314 C3	6314 C3
315	6317 C3	6319 C3	6317 C3	6319 C3
355	6319 C3	6322 C3	6319 C3/7319B（V1）	6322 C3/7322B(V1)
400		6326 C3		6326 C3/7326B(V1)

Bearing re-grease cycle and volume at the ambient temperature of 40℃

Table G

Grease Type	Frame size	Amount of grease [g]		Grease interval [hours]	
		2P	4P, 6 P	2P	4P, 6 P
Polyrex EM-2	180	20	20	2000	4000
	200	22	22	2000	4000
	225	24	24	2000	4000
	250	26	26	2000	4000
	280	26	38	2000	4000
	315	38	45	2000	4000
	355	45	60	2000	4000
	400	/	80	/	4000

Note: Frame size 160 and below have non-service bearings that do not require re-greasing.

Motor lifting eye size and quantity

Table H

Frame	Size	Horizontal installation		Vertical installation	
		Quantity	Location	Quantity	Location
80	N/A	N/A	N/A	N/A	N/A
90	M8	1	Top of motor	1	N/A
100	M8	1	Top of motor	1	Top of motor
112	M8	1	Top of motor	1	Top of motor
132	M10	1	Top of motor	2	Both sides of motor
160	M12	1	Top of motor	2	Both sides of motor
180	M12	1	Top of motor	2	Both sides of motor
200	M16	1	Top of motor	2	Both sides of motor
225	M16	1	Top of motor	2	Both sides of motor
250	M24	2	Both sides of motor	2	Both sides of motor
280	M24	2	Both sides of motor	2	Both sides of motor
315	M30	2	Both sides of motor	2	Both sides of motor
355	M36	2	Both sides of motor	2	Both sides of motor
400	M42	2	Both sides of motor	2	Both sides of motor

Note: 'Both sides of motor' means that both sides form an angle of 45 ° with the terminal box.

Space heater

Table I

Frame	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
400	230	115	220

Note: Frame H315 adopts two 80 W heating belts with parallel connection. Frames H355 and H400 adopt two 110 W heating belts with parallel connection.
230 V (applicable to 220 to 240 V) or 115 V (applicable to 110 to 120 V) (regulated during ordering).

2. Performance data

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

Motor Type MMG-W IE4, class F insulation, Class B temperature rise

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		Frame size	Rated output						Power factor cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		220V	380V	230V	400V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm²]	[kg]	[dB(A)]
0.75	1	80MA	2.83	1.64	2.71	1.56	2.49	2875	0.83	0.80	0.74	83.5	83.3	83.2	850	220	230	0.001	14/14	50
1.1	1.5	80MB	4.08	2.36	3.91	2.25	3.64	2885	0.83	0.80	0.74	85.2	85.5	84.9	850	220	230	0.0014	15/15	50
1.5	2	90S	5.35	3.1	5.11	2.94	4.96	2890	0.85	0.82	0.75	86.5	87.1	86.2	900	220	230	0.0015	24/25	55
2.2	3	90L	7.63	4.42	7.3	4.2	7.3	2895	0.86	0.83	0.76	88.0	88.4	88.7	900	220	230	0.0017	28/29	55
3	4	100L	10.2	5.9	9.7	5.6	9.9	2900	0.87	0.84	0.79	89.1	89.7	88.8	950	220	230	0.0055	35/37	62

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

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

Rated output		Frame size	Rated output`						Power factor cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		380V	660V	400V	690V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm²]	[kg]	[dB(A)]
0.75	1	80MA	1.64	0.94	1.56	0.90	2.49	2875	0.83	0.80	0.74	83.5	83.3	83.2	850	220	230	0.001	14/14	50
1.1	1.5	80MB	2.36	1.36	2.25	1.30	3.64	2885	0.83	0.80	0.74	85.2	85.5	84.9	850	220	230	0.0014	15/15	50
1.5	2	90S	3.10	1.78	2.94	1.70	4.96	2890	0.85	0.82	0.75	86.5	87.1	86.2	900	220	230	0.0015	24/25	55
2.2	3	90L	4.42	2.54	4.2	2.43	7.3	2895	0.86	0.83	0.76	88.0	88.4	88.7	900	220	230	0.0017	28/29	55
3	4	100L	5.9	3.4	5.6	3.25	9.9	2900	0.87	0.84	0.79	89.1	89.7	88.8	950	220	230	0.0055	35/37	62
4	5.5	112M	7.7	4.4	7.3	4.23	13.1	2915	0.88	0.86	0.79	90.0	90.6	89.7	950	220	230	0.0075	44/47	65
5.5	7.5	132SA	10.4	6.0	9.9	5.7	18	2925	0.88	0.86	0.79	90.9	91.2	90.6	950	200	230	0.015	61/65	67
7.5	10	132SB	14.0	8.1	13.3	7.7	24.5	2925	0.89	0.86	0.80	91.7	92.3	91.4	950	200	230	0.019	70/72	67
11	15	160MA	20.3	11.7	19.3	11.2	35.7	2940	0.89	0.86	0.79	92.6	92.9	92.3	950	200	230	0.05	112/116	68
15	20	160MB	27.4	15.8	26.1	15.1	48.7	2940	0.89	0.86	0.79	93.3	93.5	92.9	950	200	230	0.059	124/128	68
18.5	25	160L	33.7	19.4	32.0	18.6	60	2940	0.89	0.87	0.81	93.7	94.1	93.4	950	200	230	0.069	146/150	68
22	30	180M	40	23	38	22	71	2945	0.89	0.87	0.81	94.0	94.3	93.7	950	200	230	0.1	178/184	70
30	40	200LA	54	31	51	30	96	2970	0.89	0.87	0.82	94.5	94.3	94.1	900	200	230	0.2	256/264	71
37	50	200LB	67	39	63	37	119	2970	0.89	0.86	0.82	94.8	94.7	94.2	900	200	230	0.24	277/285	71
45	60	225M	81	47	77	45	145	2970	0.89	0.87	0.83	95.0	94.9	94.6	900	200	230	0.39	325/335	73
55	75	250M	99	57	94	54	177	2970	0.89	0.87	0.83	95.3	95.3	94.9	900	200	230	0.49	452/464	75
75	100	280S	134	77	127	74	240	2980	0.89	0.88	0.83	95.6	95.6	95.3	850	180	230	0.86	580/595	80
90	125	280M	160	92	152	88	288	2980	0.89	0.88	0.84	95.8	95.8	95.5	850	180	230	1.1	655/670	80
110	150	315S	196	113	186	108	352	2985	0.89	0.88	0.84	96.0	96.0	95.7	850	180	230	1.5	970/995	82
132	175	315M	234	135	223	129	422	2985	0.89	0.88	0.84	96.2	96.2	95.9	850	180	230	1.6	1060/1085	82
160	215	315LA	284	164	269	156	512	2985	0.89	0.88	0.85	96.3	96.3	96.0	850	180	220	2.1	1155/1180	82
185	250	315LB	328	189	312	181	592	2985	0.89	0.88	0.85	96.3	96.3	96.0	850	180	220	2.3	1210/1235	82
200	270	315LC	354	204	336	195	640	2985	0.89	0.88	0.85	96.5	96.5	96.2	850	180	220	2.5	1210/1235	82
220	300	355MA	381	219	362	210	703	2990	0.91	0.89	0.87	96.5	96.5	96.2	850	160	220	4.2	1790/1820	85
250	335	355MB	433	249	411	238	798	2990	0.91	0.89	0.88	96.5	96.5	96.2	850	160	220	4.9	1790/1820	85
280	375	355LA	484	279	460	267	894	2990	0.91	0.89	0.88	96.5	96.5	96.2	850	160	220	4.7	2030/2055	85
315	420	355LB	545	314	518	300	1006	2990	0.91	0.89	0.88	96.5	96.5	96.2	850	160	220	6	2030/2055	85

1500 rpm, 4-pole, 220D/380Y V, 3-phase, 50Hz

1500 rpm, 4-pole, 230D/400Y V, 3-phase, 50Hz

Rated output		Frame size	Rated output						Power factor cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		220V	380V	230V	400V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm²]	[kg]	[dB(A)]
0.75	1	80MB	3.11	1.8	2.97	1.71	5	1425	0.74	0.67	0.55	85.7	86.1	84.5	850	230	230	0.0026	16/16	44
1.1	1.5	90S	4.42	2.56	4.23	2.43	7.3	1425	0.75	0.69	0.56	87.2	87.6	86.5	850	230	230	0.0037	23/24	44
1.5	2	90L	5.72	3.31	5.48	3.15	10	1430	0.78	0.72	0.60	88.2	88.5	87.5	900	230	230	0.0047	26/27	47
2.2	3	100LA	8.2	4.73	7.8	4.49	14.6	1430	0.79	0.73	0.62	89.5	89.7	89.2	900	230	230	0.011	37/39	47
3	4	100LB	10.9	6.3	10.4	6	19.9	1435	0.80	0.74	0.63	90.4	90.7	90.1	950	220	230	0.015	40/42	52

1500 rpm, 4-pole, 380D/660Y V, 3-phase, 50Hz

1500 rpm, 4-pole, 400D/690Y V, 3-phase, 50Hz

Rated output		Frame size	Rated output`						Power factor cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		380V	660V	400V	690V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm²]	[kg]	[dB(A)]
0.75	1	80MB	1.8	1.04	1.71	0.99	5	1425	0.74	0.67	0.55	85.7	86.1	84.5	850	230	230	0.0026	16/16	44
1.1	1.5	90S	2.56	1.47	2.43	1.41	7.3	1425	0.75	0.69	0.56	87.2	87.6	86.5	850	230	230	0.0037	23/24	47
1.5	2	90L	3.31	1.91	3.15	1.83	10	1430	0.78	0.72	0.60	88.2	88.5	87.5	900	230	230	0.0047	26/27	47
2.2	3	100LA	4.73	2.72	4.49	2.60	14.6	1430	0.79	0.73	0.62	89.5	89.7	89.2	900	230	230	0.011	37/39	52
3	4	100LB	6.3	3.63	6	3.48	19.9	1435	0.80	0.74	0.63	90.4	90.7	90.1	950	220	230	0.015	40/42	52
4	5.5	112M	8.3	4.78	7.9	4.58	26.3	1440	0.80	0.75	0.67	91.1	91.4	90.8	950	200	230	0.022	51/54	53
5.5	7.5	132SA	11.4	6.6	10.8	6.3	36	1450	0.80	0.77	0.67	91.9	92.1	91.6	950	200	230	0.035	69/73	59
7.5	10	132MA	15.2	8.8	14.4	8.3	49.1	1460	0.81	0.79	0.69	92.6	92.9	92.3	950	220	230	0.04	71/75	59
11	15	160MA	21.6	12.4	20.5	11.9	71	1470	0.83	0.81	0.71	93.3	93.5	93.0	950	220	230	0.098	124/128	60
15	20	160LA	28.9	16.6	27.4	15.9	97	1470	0.84	0.81	0.73	93.9	94.2	93.6	950	200	230	0.12	149/153	60
18.5	25	180MA	35.1	20.2	33.3	19.3	120	1475	0.85	0.82	0.75	94.2	94.5	93.9	950	200	230	0.19	183/189	63
22	30	180LA	41.6	24.0	39.5	22.9	142	1475	0.85	0.82	0.75	94.5	94.5	94.2	950	200	230	0.22	203/209	63
30	40	200LA	57	33	54	31	194	1475	0.85	0.82	0.76	94.9	94.9	94.5	900	200	230	0.46	291/299	63
37	50	225SA	69	40	66	38	239	1480	0.85	0.82	0.77	95.2	95.2	94.7	900	200	230	0.5	330/338	65
45	60	225MA	84	48	80	46	290	1480	0.85	0.83	0.76	95.4	95.4	94.9	900	200	230	0.58	365/375	65
55	75	250MA	102	59	96	56	355	1480	0.86	0.84	0.78	95.7	95.7	95.2	900	200	230	0.92	490/502	65
75	100	280S	136	78	130	75	482	1485	0.87	0.85	0.78	96	96.0	95.7	850	200	230	1.5	620/635	77
90	125	280M	162	93	154	89	579	1485	0.88	0.86	0.79	96.1	96.1	95.8	850	200	230	1.8	705/720	77
110	150	315S	195	112	185	107	705	1490	0.89	0.86	0.79	96.3	96.3	96.0	850	200	220	3.1	970/995	80
132	175	315M	234	135	222	129	846	1490	0.89	0.87	0.80	96.4	96.4	96.1	850	200	220	3.4	1060/1085	80
160	215	315LA	280	161	266	154	1026	1490	0.90	0.87	0.85	96.6	96.6	96.3	850	200	220	4.1	1140/1165	80
185	250	315LB	323	186	307	178	1186	1490	0.90	0.87	0.85	96.7	96.7	96.4	850	200	220	5.3	1245/1270	80
200	270	315LC	349	201	322	187	1282	1490	0.90	0.88	0.86	96.7	96.7	96.4	850	200	220	5.4	1245/1270	80
220	300	355MA	384	221	365	212	1405	1495	0.90	0.87	0.85	96.7	96.7	96.4	850	200	220	9.3	1730/1760	82
250	335	355MB	436	251	415	241	1597	1495	0.90	0.88	0.86	96.7	96.7	96.4	850	200	220	9.5	1730/1760	82
280	375	355LA	489	281	464	269	1789	1495	0.90	0.88	0.86	96.7	96.7	96.4	850	200	220	11	1930/1955	82
315	420	355LB	550	317	522	303	2012	1495	0.90	0.88	0.86	96.7	96.7	96.5	850	200	220	11	1930/1955	82
355	475	355LC	620	357	589	341	2268	1495	0.90	0.88	0.86	96.7	96.7	96.5	850	90	180	12	1980/2035	82

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 cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		220V	380V	230V	400V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm^2]	[kg]	[dB(A)]
0.75	1	90S	3.40	1.97	3.25	1.87	7.6	940	0.70	0.63	0.51	82.7	83.5	82.4	750	200	210	0.0061	22/23	42
1.1	1.5	90L	4.89	2.83	4.66	2.68	11.1	945	0.70	0.64	0.52	84.5	85.3	84.1	750	200	210	0.0079	26/27	45
1.5	2	100L	6.5	3.74	6.2	3.55	15.1	950	0.71	0.66	0.56	85.9	86.7	84.9	750	200	210	0.014	38/40	49
2.2	3	112M	9.3	5.4	8.9	5.1	22.1	950	0.71	0.66	0.56	87.4	88.2	86.7	750	200	210	0.023	46/49	53
3	4	132S	12.4	7.2	12	6.9	29.8	960	0.71	0.66	0.57	88.6	88.9	88.2	750	200	210	0.029	62/66	57

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

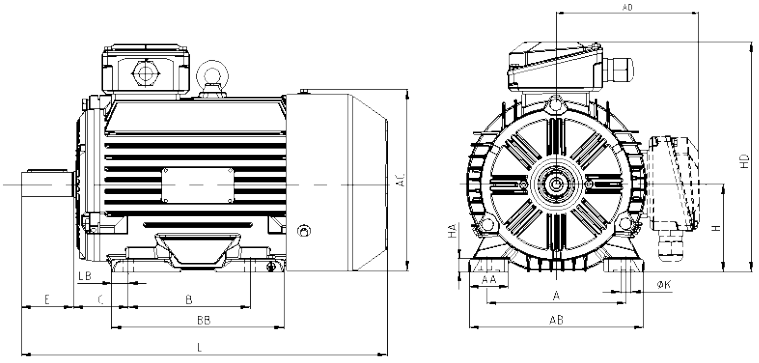
1000 rpm, 6-pole, 400D/690Y V, 3-phase, 50Hz

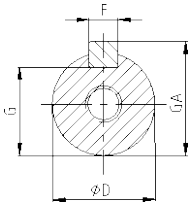
Rated output		Frame size	Rated output`						Power factor cos ϕ			Efficiency η %			Locked/ Rated Current [%]	Locked/ Rated Torque [%]	Break-down/ Rated Torque [%]	Moment Of inertia J	Weight (B3/V1)	Noise (SPL)
			Full load Current A				Torque	Speed												
KW	HP		380V	660V	400V	690V	Nm	rpm	Full load	3/4 load	1/2 load	Full load	3/4 load	1/2 load				[kgm^2]	[kg]	[dB(A)]
4	5.5	132MA	9.4	5.4	9	5.2	39.8	960	0.72	0.67	0.59	89.5	89.8	88.9	800	200	210	0.038	68/72	57
5.5	7.5	132MB	12.8	7.4	12.2	7.1	54	965	0.72	0.67	0.59	90.5	90.8	89.7	800	200	210	0.054	76/80	57
7.5	10	160M	16.4	9.4	15.6	9.0	74	970	0.76	0.72	0.61	91.3	91.6	90.8	800	200	210	0.13	122/126	60
11	15	160L	23.5	13.5	22.3	12.9	108	970	0.77	0.73	0.62	92.3	92.4	91.7	850	200	210	0.19	149/153	60
15	20	180L	30.7	17.7	29.1	16.9	147	975	0.80	0.76	0.68	92.9	92.9	92.3	850	200	210	0.3	203/209	60
18.5	25	200LA	37.6	21.6	35.7	20.7	180	980	0.80	0.76	0.68	93.4	93.4	92.9	850	200	210	0.4	269/277	60
22	30	200LB	44	25.3	41.8	24.2	214	980	0.81	0.77	0.70	93.7	93.7	93.2	850	200	210	0.52	287/295	60
30	40	225M	59	34	56	32	292	980	0.82	0.81	0.71	94.2	94.2	93.7	830	200	210	1.1	320/330	61
37	50	250M	72	41	68	39	359	985	0.83	0.81	0.71	94.5	94.5	93.9	830	200	210	1.4	421/433	62
45	60	280S	87	50	83	48	436	985	0.83	0.81	0.72	94.8	94.8	93.9	850	200	200	2.8	590/605	75
55	75	280M	105	60	99	57	533	985	0.84	0.81	0.73	95.1	95.1	94.2	850	200	200	3.5	640/655	75
75	100	315SA	142	82	135	78	723	990	0.84	0.81	0.74	95.4	95.4	94.7	800	160	200	3.8	950/975	78
90	125	315M	168	97	160	93	868	990	0.85	0.81	0.74	95.6	95.6	94.9	800	160	200	4.5	1060/1085	78
110	150	315LA	205	118	195	113	1061	990	0.85	0.81	0.74	95.8	95.8	94.9	800	160	200	5.5	1115/1140	78
132	175	315LB	243	140	231	134	1273	990	0.86	0.83	0.74	96.0	96.0	95.1	800	160	200	6.5	1235/1260	78
160	215	355MA	294	169	279	162	1536	995	0.86	0.84	0.76	96.2	96.2	95.7	800	160	200	10	1660/1690	79
185	250	355MB	339	195	322	187	1776	995	0.86	0.84	0.76	96.3	96.3	95.8	800	160	200	13	1860/1890	79
200	270	355MC	367	211	349	202	1920	995	0.86	0.84	0.76	96.3	96.3	95.8	800	160	200	13	1860/1890	79
220	300	355LA	399	229	379	219	2112	995	0.87	0.85	0.82	96.4	96.4	95.9	800	160	200	14	2050/2090	79
250	335	355LB	458	264	435	252	2399	995	0.86	0.85	0.82	96.5	96.5	96.0	800	160	200	15	2050/2090	79
280	375	355LC	538	310	511	296	2687	995	0.82	0.77	0.70	96.5	96.5	96.0	800	160	200	16	2140/2130	79
315	420	400MA	604	348	574	333	3023	995	0.82	0.77	0.70	96.6	96.5	96.0	790	90	180	24	2650/2680	85
355	475	400MB	681	392	647	375	3047	995	0.82	0.77	0.70	96.6	96.5	96.0	790	90	180	28	3300/3330	85

3. Dimensional data

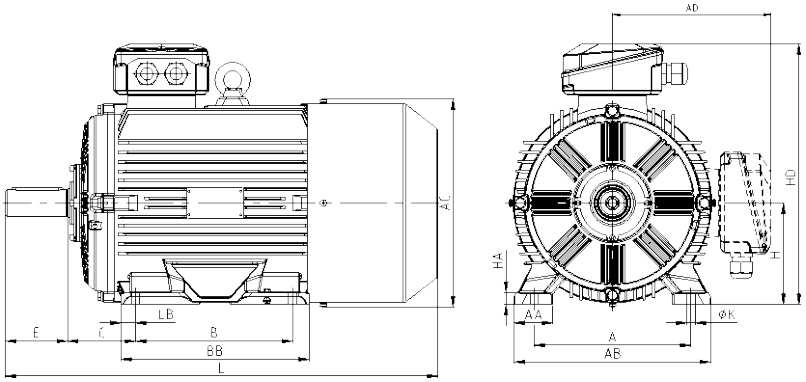
For mounting arrangement B3

H80-100

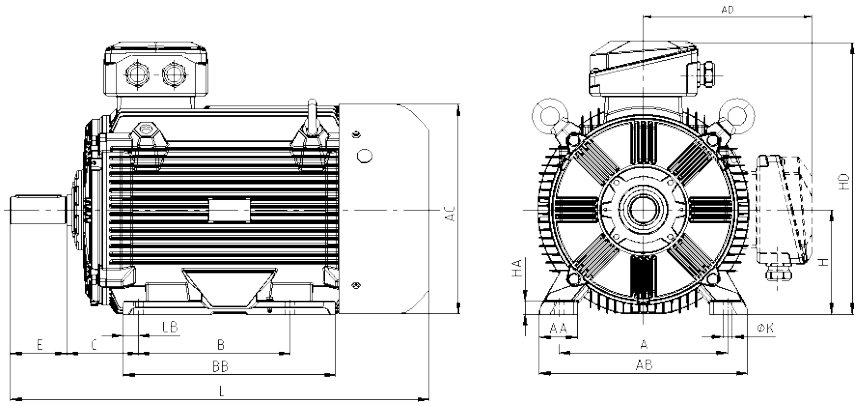




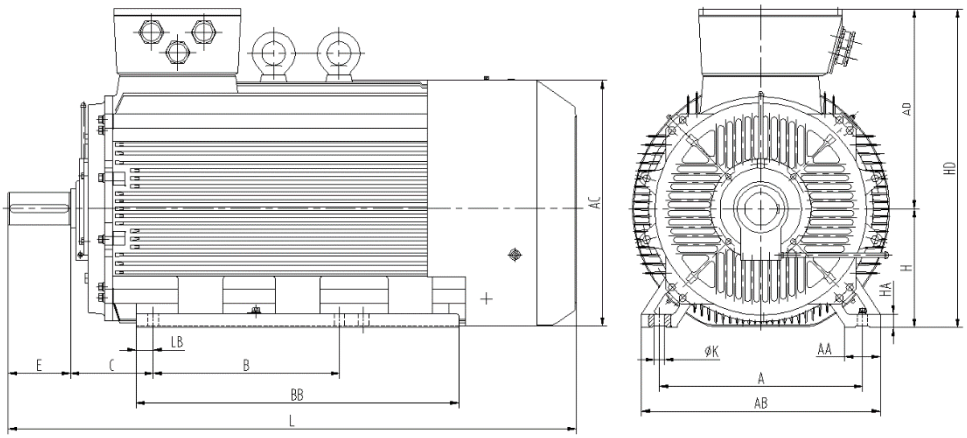
H112-200



H225-355



H400

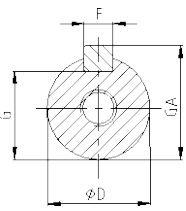


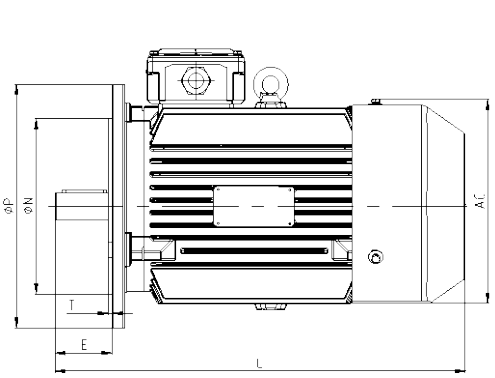
For mounting arrangement B3

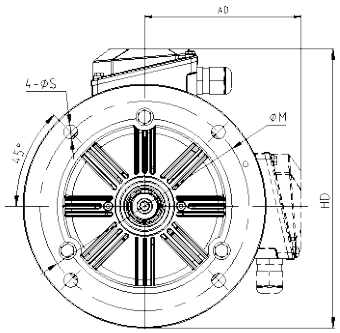
Frame size	Pole	Mounting dimensions [mm]												Overall dimensions [mm]						
		A	B	C	D	E	F	G	H	K	GA	AA	LB	AB	BB	HA	AC	AD	HD	L
80M	2~8	125	100	50	19	40	6	15.5	80	10	21.5	32	15	157	146	10	163	136	221	320
90S	2~8	140	100	56	24	50	8	20	90	10	27	37	16.6	172	153	12	177	149	244	345
90L	2~8	140	125	56	24	50	8	20	90	10	27	37	16.6	172	175	12	177	149	244	370
100L	2~8	160	140	63	28	60	8	24	100	12	31	45	19	200	198	15	208	163	268	420
112M	2~8	190	140	70	28	60	8	24	112	12	31	45	19	228	201	15	226	189	305	465
132S	2~8	216	140	89	38	80	10	33	132	12	41	56.5	21.5	262	184	18	260	210	345	450
132M	4~8	216	178	89	38	80	10	33	132	12	41	56.5	21.5	262	222	18	260	210	345	490
160M	2~8	254	210	108	42	110	12	37	160	14.5	45	65	27	314	280	20	320	260	422	620
160L	2~8	254	254	108	42	110	12	37	160	14.5	45	65	27	314	324	20	320	260	422	665
180M	2,4	279	241	121	48	110	14	42.5	180	14.5	51.5	68	26.5	349	297	22	360	279	463	735
180L	4~8	279	279	121	48	110	14	42.5	180	14.5	51.5	68	26.5	349	335	22	360	279	463	770
200L	2~8	318	305	133	55	110	16	49	200	18.5	59	84	30	388	380	25	396	321	526	845
225S	4,8	356	286	149	60	140	18	53	225	18.5	64	84	43	431	368	28	442	345	570	900
225M	2	356	311	149	55	110	16	49	225	18.5	59	84	30.5	431	368	28	442	345	570	900
225M	4~8	356	311	149	60	140	18	53	225	18.5	64	84	30.5	431	368	28	442	345	570	925
250M	2	406	349	168	60	140	18	53	250	24	64	80	43	484	421	30	488	446	671	950
250M	4~8	406	349	168	65	140	18	58	250	24	69	80	43	484	421	30	488	446	671	950
280S	2	457	368	190	65	140	18	58	280	24	69	84	55	542	460	35	547	449	728	1007
280S	4~8	457	368	190	75	140	20	67.5	280	24	79.5	84	55	542	460	35	547	449	728	1007
280M	2	457	419	190	65	140	18	58	280	24	69	84	58.5	542	515	35	547	449	728	1055
280M	4~8	457	419	190	75	140	20	67.5	280	24	79.5	84	58.5	542	515	35	547	449	728	1055
315S	2	508	406	216	65	140	18	58	315	28	69	115	46	628	540	40	631	507	822	1190
315S	4~8	508	406	216	80	170	22	71	315	28	85	115	46	628	540	40	631	507	822	1220
315M	2	508	457	216	65	140	18	58	315	28	69	115	46	628	640	40	631	507	822	1290
315M	4~8	508	457	216	80	170	22	71	315	28	85	115	46	628	640	40	631	507	822	1320
315L	2	508	508	216	65	140	18	58	315	28	69	115	46	628	640	40	631	507	822	1290
315L	4~8	508	508	216	80	170	22	71	315	28	85	115	46	628	640	40	631	507	822	1320
355M	2	610	560	254	75	140	20	67.5	355	28	79.5	146	40.5	740	700	45	709	644	999	1432
355M	4~8	610	560	254	95	170	25	86	355	28	100	146	40.5	740	700	45	709	644	999	1462
355L	2	610	630	254	75	140	20	67.5	355	28	79.5	146	49	740	887	45	709	644	999	1602
355L	4~8	610	630	254	95	170	25	86	355	28	100	146	49	740	887	45	709	644	999	1632
400M	6	686	630	280	110	210	28	100	400	35	116	120	58	806	1090	45	856	720	1120	1920

For mounting arrangement B5

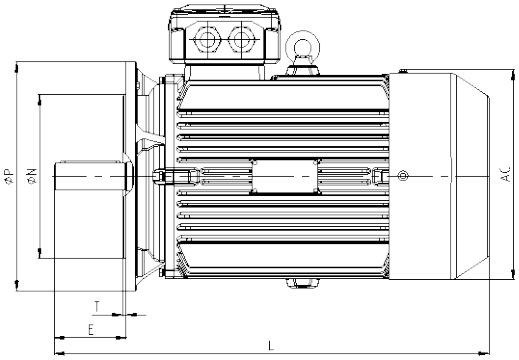
H80-100

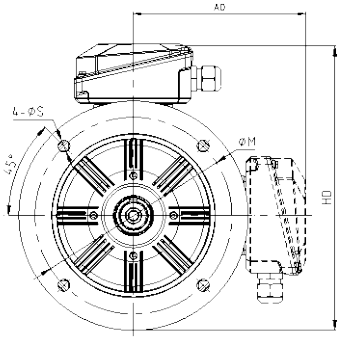




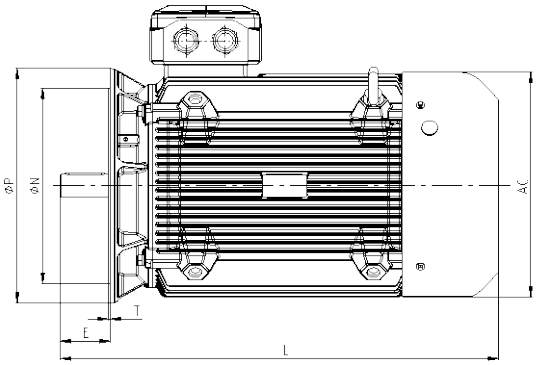


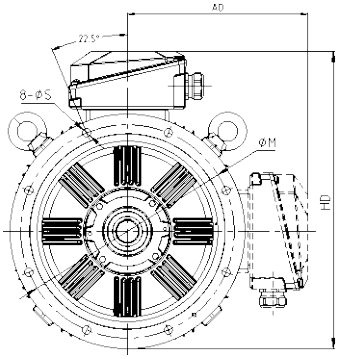
H112-200





H225-280





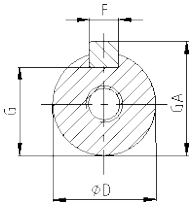
For mounting arrangement B5

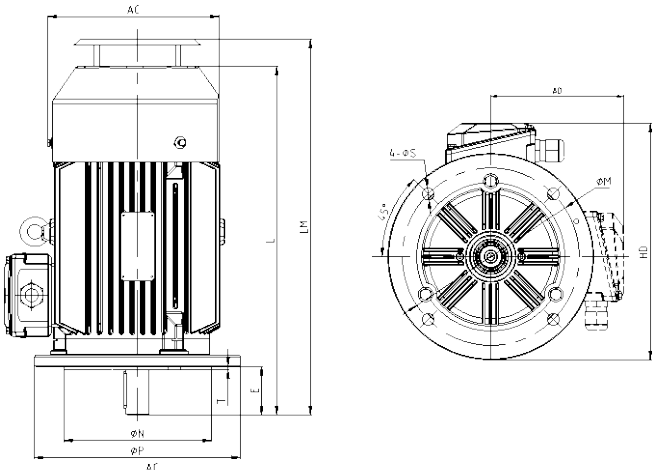
Frame size	Pole	Mounting dimensions [mm]											Overall dimensions [mm]			
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	L
80M	2~8	19	40	6	15.5	165	130	200	0±1.5	12	3.5	21.5	163	136	221	320
90S	2~8	24	50	8	20	165	130	200	0±1.5	12	3.5	27	177	149	244	345
90L	2~8	24	50	8	20	165	130	200	0±1.5	12	3.5	27	177	149	244	370
100L	2~8	28	60	8	24	215	180	250	0±2.0	14.5	4	31	208	163	268	420
112M	2~8	28	60	8	24	215	180	250	0±2.0	14.5	4	31	226	189	305	465
132S	2~8	38	80	10	33	265	230	300	0±2.0	14.5	4	41	260	210	345	450
132M	4~8	38	80	10	33	265	230	300	0±2.0	14.5	4	41	260	210	345	490
160M	2~8	42	110	12	37	300	250	350	0±3.0	18.5	5	45	320	260	422	620
160L	2~8	42	110	12	37	300	250	350	0±3.0	18.5	5	45	320	260	422	665
180M	2,4	48	110	14	42.5	300	250	350	0±3.0	18.5	5	51.5	360	279	463	735
180L	4~8	48	110	14	42.5	300	250	350	0±3.0	18.5	5	51.5	360	279	463	770
200L	2~8	55	110	16	49	350	300	400	0±3.0	18.5	5	59	396	321	526	845
225S	4,8	60	140	18	53	400	350	450	0±4.0	18.5	5	64	442	345	580	900
225M	2	55	110	16	49	400	350	450	0±4.0	18.5	5	59	442	345	580	900
225M	4~8	60	140	18	53	400	350	450	0±4.0	18.5	5	64	442	345	580	925
250M	2	60	140	18	53	500	450	550	0±4.0	18.5	5	64	488	446	671	950
250M	4~8	65	140	18	58	500	450	550	0±4.0	18.5	5	69	488	446	671	950
280S	2	65	140	18	58	500	450	550	0±4.0	18.5	5	69	547	449	723	1007
280S	4~8	75	140	20	67.5	500	450	550	0±4.0	18.5	5	79.5	547	449	723	1007
280M	2	65	140	18	58	500	450	550	0±4.0	18.5	5	69	547	449	723	1055
280M	4~8	75	140	20	67.5	500	450	550	0±4.0	18.5	5	79.5	547	449	723	1055

Note: R = Distance from flange to shaft shoulder

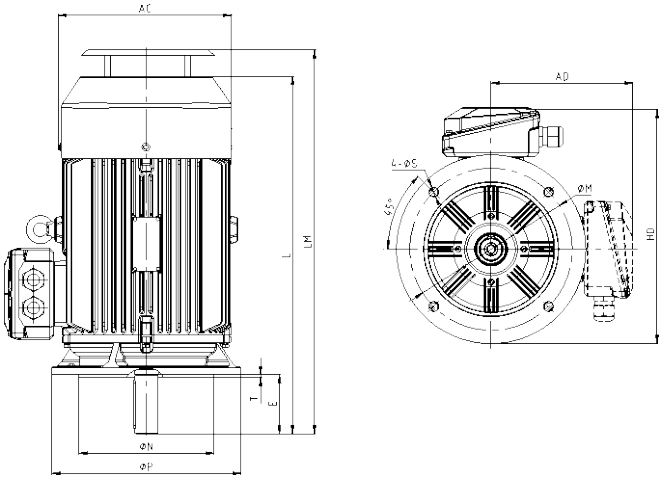
For mounting arrangement V1

H80-100

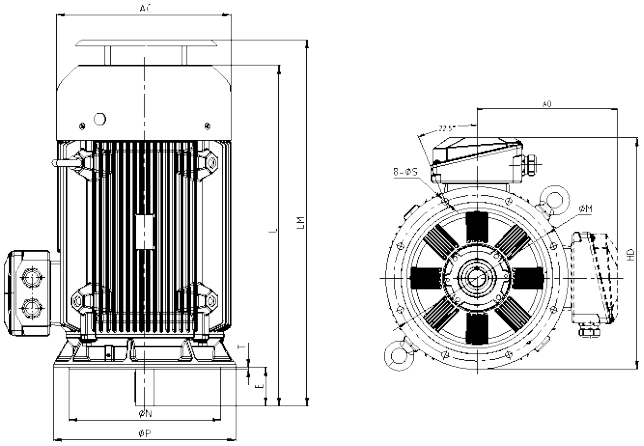




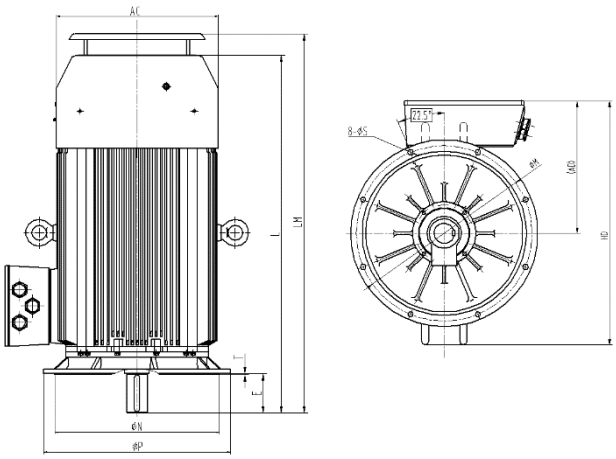
H112-200



H225-355



H400



For mounting arrangement V1

Frame size	Pole	Mounting dimensions [mm]										Overall dimensions [mm]					
		D	E	F	G	M	N	P	R	S	T	GA	AC	AD	HD	L	LM
80M	2~8	19	40	6	15.5	165	130	200	0±1.5	12	3.5	21.5	163	136	221	320	367
90S	2~8	24	50	8	20	165	130	200	0±1.5	12	3.5	27	177	149	244	345	388
90L	2~8	24	50	8	20	165	130	200	0±1.5	12	3.5	27	177	149	244	370	413
100L	2~8	28	60	8	24	215	180	250	0±2.0	14.5	4	31	208	163	268	420	469
112M	2~8	28	60	8	24	215	180	250	0±2.0	14.5	4	31	226	189	305	465	518
132S	2~8	38	80	10	33	265	230	300	0±2.0	14.5	4	41	260	210	345	450	505
132M	4~8	38	80	10	33	265	230	300	0±2.0	14.5	4	41	260	210	345	490	545
160M	2~8	42	110	12	37	300	250	350	0±3.0	18.5	5	45	320	260	422	620	684
160L	2~8	42	110	12	37	300	250	350	0±3.0	18.5	5	45	320	260	422	665	729
180M	2,4	48	110	14	42.5	300	250	350	0±3.0	18.5	5	51.5	360	279	463	735	805
180L	4~8	48	110	14	42.5	300	250	350	0±3.0	18.5	5	51.5	360	279	463	770	840
200L	2~8	55	110	16	49	350	300	400	0±3.0	18.5	5	59	396	321	526	845	920
225S	4,8	60	140	18	53	400	350	450	0±4.0	18.5	5	64	442	345	580	900	985
225M	2	55	110	16	49	400	350	450	0±4.0	18.5	5	59	442	345	580	900	985
225M	4~8	60	140	18	53	400	350	450	0±4.0	18.5	5	64	442	345	580	925	1010
250M	2	60	140	18	53	500	450	550	0±4.0	18.5	5	64	488	446	671	950	1045
250M	4~8	65	140	18	58	500	450	550	0±4.0	18.5	5	69	488	446	671	950	1045
280S	2	65	140	18	58	500	450	550	0±4.0	18.5	5	69	547	449	723	1007	1110
280S	4~8	75	140	20	67.5	500	450	550	0±4.0	18.5	5	79.5	547	449	723	1007	1110
280M	2	65	140	18	58	500	450	550	0±4.0	18.5	5	69	547	449	723	1055	1160
280M	4~8	75	140	20	67.5	500	450	550	0±4.0	18.5	5	79.5	547	449	723	1055	1160
315S	2	65	140	18	58	600	550	660	0±4.0	24	6	69	631	507	850	1190	1290
315S	4~8	80	170	22	71	600	550	660	0±4.0	24	6	85	631	507	850	1220	1320
315M	2	65	140	18	58	600	550	660	0±4.0	24	6	69	631	507	850	1290	1390
315M	4~8	80	170	22	71	600	550	660	0±4.0	24	6	85	631	507	850	1320	1420
315L	2	65	140	18	58	600	550	660	0±4.0	24	6	69	631	507	850	1290	1390
315L	4~8	80	170	22	71	600	550	660	0±4.0	24	6	85	631	507	850	1320	1420
355M	2	75	140	20	67.5	740	680	800	0±4.0	24	6	79.5	709	644	1044	1432	1535
355M	4~8	95	170	25	86	740	680	800	0±4.0	24	6	100	709	644	1044	1462	1570
355L	2	75	140	20	67.5	740	680	800	0±4.0	24	6	79.5	709	644	1044	1602	1710
355L	4~8	95	170	25	86	740	680	800	0±4.0	24	6	100	709	644	1044	1632	1740
400M	6	110	210	28	100	940	880	1000	0±4.0	28	6	116	856	720	1316	1920	2070

Note: R = Distance from flange to shaft shoulder

92882666 **12.2022**
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