

EMM HIGH EFFICIENCY (EFF2) AC MOTORS

The Driving Force Behind Every Machine



CE



Elektrim Motors & Machinery Pte Ltd

EU Efficiency Level Classification

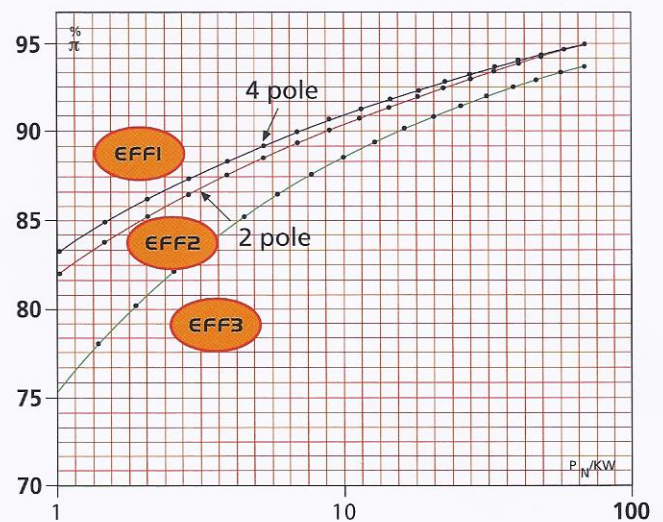
With the aim to reduce the power requirement of electric motors and to the energy consumption in Europe, CEMEP and the European Union reached an agreement, by which 2- and 4-pole three phase AC motors are affected, i.e. standard motors, defined as totally enclosed fan cooled, squirrel cage low voltage motors with 400V, 50Hz and S1 in the rated output range of 1.1 to 90kW.

In the 1.1 to 90kW output range, the 2- and 4-pole standard three phase motors described in this documentation correspond with the EU efficiency classification EFF2. Designation takes place with the EFF2 logo on the nameplate.

The nominal levels of efficiency, to which the individual rated outputs, pole numbers and classes are allocated, are contained in the following tables.

2-pole	EFF3	EFF2	EFF1
kw	$\pi\%$	$\pi\%$	$\pi\%$
1.1	<76.2	≥ 76.2	≥ 82.8
1.5	<78.5	≥ 78.5	≥ 84.1
2.2	<81.0	≥ 81.0	≥ 85.6
3	<82.6	≥ 82.6	≥ 86.7
4	<84.2	≥ 84.2	≥ 87.6
5.5	<85.7	≥ 85.7	≥ 88.6
7.5	<87.0	≥ 87.0	≥ 89.5
11	<88.4	≥ 88.4	≥ 90.5
15	<89.4	≥ 89.4	≥ 91.3
18.5	<90.0	≥ 90.0	≥ 92.2
22	<90.5	≥ 90.5	≥ 92.9
30	<91.4	≥ 91.4	≥ 93.3
37	<92.0	≥ 92.0	≥ 93.7
45	<92.5	≥ 92.5	≥ 94.0
55	<93.0	≥ 93.0	≥ 94.0
75	<93.6	≥ 93.6	≥ 94.6
90	<93.9	≥ 93.9	≥ 95.0

4-pole	EFF3	EFF2	EFF1
kw	$\pi\%$	$\pi\%$	$\pi\%$
1.1	<76.2	≥ 76.2	≥ 82.8
1.5	<78.5	≥ 78.5	≥ 84.1
2.2	<81.0	≥ 81.0	≥ 85.6
3	<82.6	≥ 82.6	≥ 86.7
4	<84.2	≥ 84.2	≥ 87.6
5.5	<85.7	≥ 85.7	≥ 88.6
7.5	<87.0	≥ 87.0	≥ 89.5
11	<88.4	≥ 88.4	≥ 90.5
15	<89.4	≥ 89.4	≥ 91.3
18.5	<90.0	≥ 90.0	≥ 92.2
22	<90.5	≥ 90.5	≥ 92.9
30	<91.4	≥ 91.4	≥ 93.3
37	<92.0	≥ 92.0	≥ 93.7
45	<92.5	≥ 92.5	≥ 94.0
55	<93.0	≥ 93.0	≥ 94.0
75	<93.6	≥ 93.6	≥ 94.6
90	<93.9	≥ 93.9	≥ 95.0

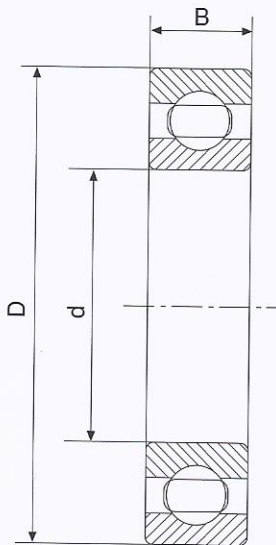


EMM series cast iron motors are totally enclosed fan cooled, 3 phase, squirrel cage induction motors.

EMM series cast iron motors are manufactured to High Efficiency (EFF2) and starting torque and are characterized by outstanding features such as : protection degree in IP55, insulation class F, low noise (test at load), optimized structure and artistic outline.

Its cooling method is IC411 and the rated output and mounting dimensions fully conformed to the standard IEC and DIN 42673. The EMM series cast iron motors are suitable for driving various kinds of machines or equipments without special requirements. They are rated at 400V, 50Hz, Y-connection for motors up to 3kw, Δ -connection for 4kw and above. The S1 duty operating condition is not more than 40°C ambient temperature and not exceeding 1,000 meters height above sea level.

Bearing Data



Frame	DE	NDE	d	D	B
EM80	6204 ZZ C3	6204 ZZ C3	20	47	14
EM90	6205 ZZ C3	6205 ZZ C3	25	52	15
EM100	6206 ZZ C3	6206 ZZ C3	30	62	16
EM112	6306 ZZ C3	6306 ZZ C3	30	72	19
EM132	6308 ZZ C3	6308 ZZ C3	40	90	23
EM160	6309 C3	6309 C3	45	100	25
EM180	6311 C3	6311 C3	55	120	29
EM200	6312 C3	6312 C3	60	130	31
EM225	6313 C3	6313 C3	65	140	33
EM250 (Horizontal)	6314 C3	6314 C3	70	150	35
EM250 (Vertical)	6314 C3	7314	70	150	35
EM280-2P (Horizontal)	6314 C3	6314 C3	70	150	35
EM280-2P (Vertical)	6314 C3	7314	70	150	35
EM280-4-8P (Horizontal)	6317 C3	6317 C3	85	180	41
EM280-4-8P (Vertical)	6317 C3	7317	85	180	41
EM315-2P (Horizontal)	6316 C3	6316 C3	80	170	39
EM315-2P (Vertical)	6316 C3	7316	80	170	39
EM315-4-8P (Horizontal)	N319	6319 C3	95	200	45
EM315-4-8P (Vertical)	N319	7319	95	200	45
EM355-2P (Horizontal)	6319 C3	6319 C3	95	200	45
EM355-2P (Vertical)	6319 C3	7319	95	200	45
EM355-4-8P (Horizontal)	N322	6322 C3	110	240	50
EM355-4-8P (Vertical)	N322	7322	110	240	50

- EMM motors are equipped with bearings from excellent manufacturers.
- In general the bearings have C3 clearances.
- Motors of frame sizes 80-132 are fitted with life-lubricated bearings.
- Motors of frame sizes 160-355 are fitted with open bearings and regreasing device. Depending on the useful life of grease, open bearings must be regreased in good time so that the scheduled bearing service life is reached.

Frame size	Drive end bearing	Non-drive end bearing	Regreasing period hours for operating temperatures up to 70°C			Quantity of grease in bearing chamber grams
			<3600r/min	<1800r/min	<3600r/min	
EM160	6309 C3	6309 C3	6000	12000	18000	12
EM180	6311 C3	6311 C3	4000	11000	16000	15
EM200	6312 C3	6312 C3	3500	8500	13000	20
EM225	6313 C3	6313 C3	3000	6000	9000	22
EM250	6314 C3	6314 C3	2000	5000	8000	23
EM280 2P	6314 C3	6314 C3	1200	-	-	30
EM280 4-8P	6317 C3	6317 C3	-	4000	18000	30
EM315 2P	6316 C3	6316 C3	1200	-	-	30
EM315 4-8P	N319	6319 C3	-	2000	3000	45
EM355 2P	6319 C3	6319 C3	1200	-	-	30
EM355 4-8P	N322	6322 C3	-	1400	2200	60

Notes: 1. Vertical motors should be greased twice as often as horizontal motors.
2. Regreasing time should be reduced if bearing operating temperature is in excess of 70°C.

• EMM reserves right to make changes to this brochure without notice.

Standards and Regulations

Degrees of protection (IEC 60034-5)

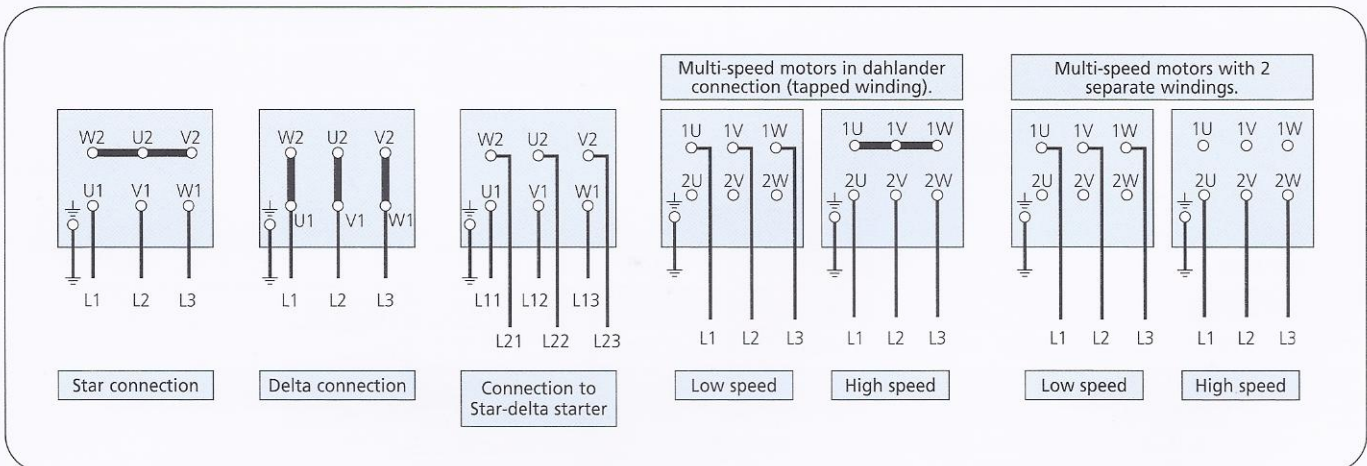
Designation	First Numeral	Second Numeral
	Protection against contact and ingress of foreign bodies. Protection against hazardous "Live" parts and moving mechanical parts.	Protection against water
	5. Ingress of dust is not totally prevented, but dust shall not interfere with the satisfactory operation of equipment. A probe of 1mm diameter shall not penetrate the enclosure.	5. Water projected in jets against the enclosure from any direction will have no harmful effects.
	6. No ingress of dust	6. Water projected in power jets shall have no harmful effects.
IP55	Dust protected	Jetting water
IP56	Dust protected	Powerful jetting
IP65	Dust tight	Jetting water
IP66	Dust tight	Powerful jetting

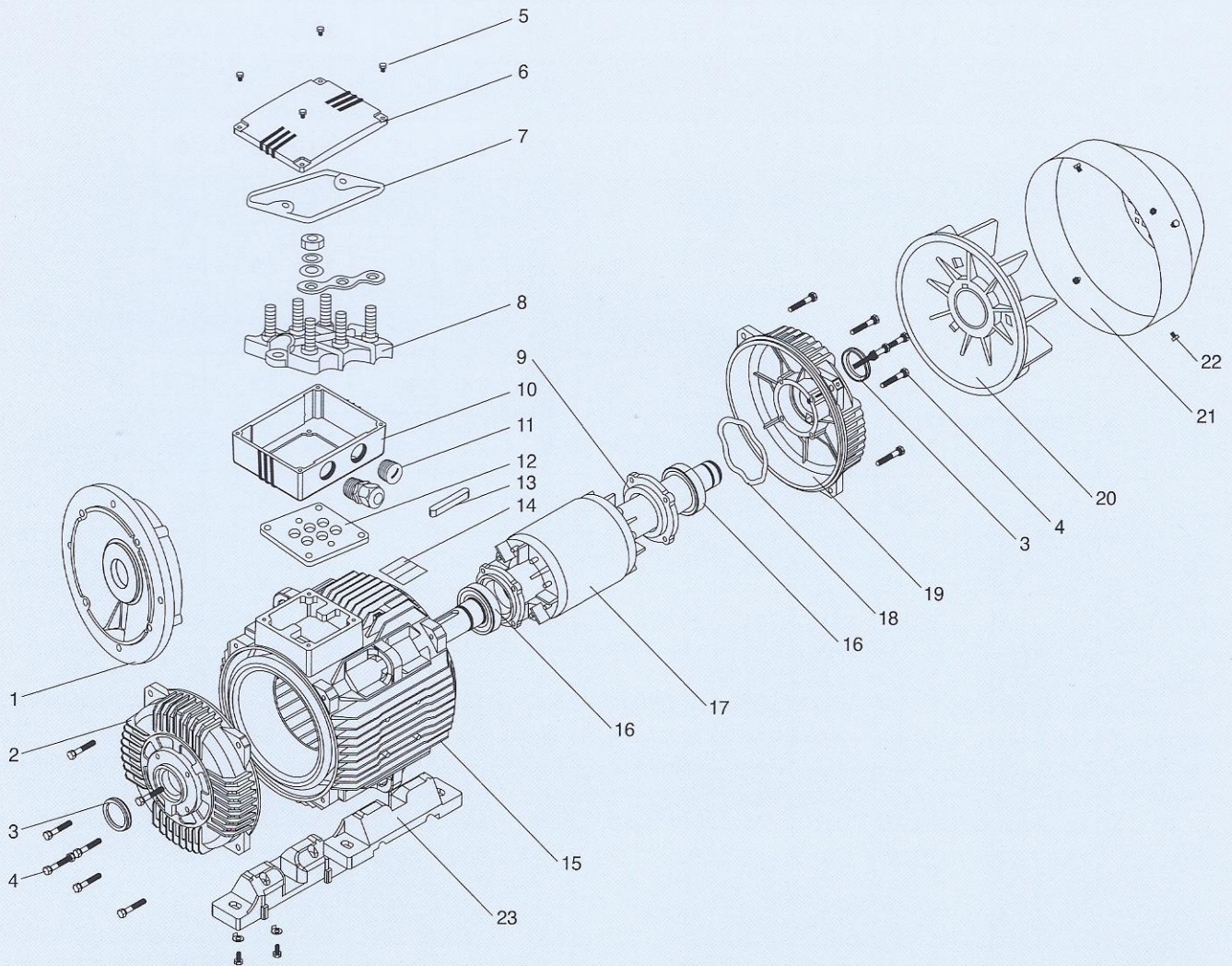
Mounting Arrangements (IEC 60034-7)

FOOT MTG HORIZ	FLANGE MTG	FOOT/FLANGE MTG	FOOT MTG VERT
<p>B3 IM1001 H80 ~ 355</p>	<p>B5 IM3001 H80 ~ 280</p>	<p>B35 IM2001 H80 ~ 355</p>	
<p>B6 IM1051 H80 ~ 160</p>	<p>V1 IM3011 H80 ~ 355</p>	<p>V15 IM2011 H80 ~ 160</p>	<p>V5 IM1011 H80 ~ 160</p>
<p>B7 IM1061 H80 ~ 160</p>			
<p>B8 IM1071 H80 ~ 160</p>	<p>V3 IM3031 H80 ~ 160</p>	<p>V36 IM2031 H80 ~ 160</p>	<p>V6 IM1031 H80 ~ 160</p>

Connection Diagrams

Three Phase Motors with Cage Rotor





- | | | |
|--|--------------------------|---------------------------------|
| 1. Flange B5 | 9. Bearing cover | 17. Rotor with shaft complete |
| 2. End shield B3 | 10. Terminal box base | 18. Spring washer |
| 3. V-ring | 11. Cable gland and plug | 19. NDE shield |
| 4. Screws for fixing end shield | 12. Terminal base seal | 20. Cooling fan |
| 5. Screws for fixing terminal box cover | 13. Key | 21. Fan cover |
| 6. Terminal box cover IP55 | 14. Name plate | 22. Screws for fixing fan cover |
| 7. Terminal box seal | 15. Frame | 23. Feet |
| 8. Terminal board complete with components | 16. Bearings | |

- This catalogue is only a reference for users. The data may be changed, please contact us before ordering.
- Note type, rated output, synchronous speed, voltage and frequency, insulation class, mounting type etc. When ordering.
- For special requirement, please contact us, we may deliver following special type of motor:
 1. Voltage: such as 420V.
 2. Frequency 60Hz.
 3. Double end shaft.
 4. Motor for tropical humid climate.

2 Pole-3000 rpm Synchronous Speed 50Hz

Motor Type	Rated Output		Rated Speed rpm	IFL 380V (AMP)	IFL 400V (AMP)	IFL 415V (AMP)	IST / IFL	EFF %	Power Factor	Rated Torque Nm	TST TFL	TM TFL	M of J kgm ²	Noise Level LW dB(A)	Net Weight kg
	kW	HP													
EM71A-2	0.37	0.50	2750	0.89	0.85	0.82	4.3	72.5	0.86	1.3	2.2	2.4	0.0006	64	13
EM71B-2	0.55	0.75	2760	1.2	1.14	1.1	4.9	78.0	0.89	1.9	2.5	2.6	0.0006	64	14
EM80A-2	0.75	1	2840	1.8	1.7	1.67	5.5	75.5	0.83	2.5	2.3	2.6	0.0008	67	14
EM80B-2	1.1	1.5	2840	2.6	2.5	2.4	5.6	76.2	0.84	3.7	2.3	2.6	0.0009	67	15
EM90S-2	1.5	2	2850	3.4	3.2	3.1	6.1	79.5	0.85	5	2.5	2.9	0.0012	72	20
EM90L-2	2.2	3	2850	4.8	4.6	4.4	6.1	81.7	0.85	7.4	2.7	2.9	0.0014	72	24
EM100L-2	3	4	2880	6.3	6	5.8	6.5	83.1	0.87	10	2.7	2.9	0.0039	76	30
EM112M-2	4	5.5	2880	8.2	7.8	7.6	6.5	84.2	0.88	13.3	2.6	2.9	0.0055	77	38
EM132SA-2	5.5	7.5	2900	11.1	10.5	10.2	6.9	85.9	0.88	18.1	2.3	2.6	0.011	80	57
EM132SB-2	7.5	10	2900	14.9	14.2	13.5	6.9	87.2	0.88	24.5	2.5	2.8	0.013	80	61
EM160MA-2	11	15	2930	21.1	20.1	19.4	6.7	88.7	0.89	35.8	2.6	2.9	0.038	86	101
EM160MB-2	15	20	2930	28.6	27.2	26.2	6.7	89.5	0.89	48.8	2.6	2.9	0.045	86	111
EM160L-2	18.5	25	2930	34.6	32.9	31.8	6.8	90.2	0.90	60.4	2.5	2.8	0.055	86	126
EM180M-2	22	30	2940	41	38.9	37.6	6.6	90.6	0.90	71.4	2.6	2.8	0.076	89	176
EM200LA-2	30	40	2950	55.4	52.6	50.7	6.5	91.5	0.90	97.2	2.5	2.7	0.124	92	226
EM200LB-2	37	50	2950	67.9	64.5	62.2	6.5	92.0	0.90	119.8	2.4	2.6	0.139	92	245
EM225M-2	45	60	2970	82.1	78	75.3	6.8	92.5	0.90	144.8	2.4	2.6	0.233	92	280
EM250M-2	55	75	2970	99.6	94.6	91.3	6.8	93.2	0.90	177	2.5	2.8	0.312	93	379
EM280S-2	75	100	2970	134.8	128.1	123.5	6.7	93.9	0.90	241.3	2.4	2.7	0.597	94	512
EM280M-2	90	125	2970	159.5	151.5	146.1	6.7	94.2	0.91	289.5	2.4	2.7	0.675	94	578
EM280M-2	110	150	2970	194.7	185	178.3	6.5	94.3	0.91	353.9	2	2.5	0.86	96	733
EM315S-2	110	150	2980	194.6	184.9	178.2	6.6	94.4	0.91	352.7	2	2.5	1.18	96	845
EM315M-2	132	180	2980	233	221.4	213.4	6.6	94.6	0.91	423.2	2.1	2.5	1.55	96	942
EM315LA-2	160	220	2980	282.1	270	258.4	6.7	94.7	0.91	513	1.9	2.4	1.76	99	1019
EM315LB-2	200	270	2980	347.7	330.1	318.4	6.7	95.0	0.92	641.2	1.9	2.4	2.02	99	1177
EM355M-2	250	340	2980	432.3	410.8	395.9	6.5	95.5	0.92	801.5	1.6	2.3	3.56	103	1740
EM355L-2	315	430	2980	543	515.9	497.3	6.5	95.8	0.92	1010	1.6	2.3	4.1	103	1920

■ IFL = Full Load Current ■ IST = Locked Rotor Current ■ TST = Locked Rotor Torque ■ TM = Maximum Torque ■ TFL = Full Load Torque

4 Pole-1500 rpm Synchronous Speed 50Hz

Motor Type	Rated Output		Rated Speed rpm	IFL 380V (AMP)	IFL 400V (AMP)	IFL 415V (AMP)	IST / IFL	EFF %	Power Factor	Rated Torque Nm	TST TFL	TM TFL	M of J kgm ²	Noise Level LW dB(A)	Net Weight kg
	kW	HP													
EM71A-4	0.25	0.37	1360	0.72	0.68	0.66	3.7	70.0	0.76	1.8	2.4	2.6	0.0006	55	12
EM71B-4	0.37	0.5	1360	1.02	0.97	0.93	3.7	71.3	0.77	2.6	2.4	2.5	0.0008	55	13
EM80A-4	0.55	0.75	1390	1.6	1.5	1.4	5.5	71.4	0.75	3.8	2.2	2.4	0.002	58	13
EM80B-4	0.75	1	1390	2.1	2	1.9	5.6	73.5	0.76	5.2	2.2	2.4	0.002	58	14
EM90S-4	1.1	1.5	1400	2.9	2.7	2.6	5.4	76.2	0.77	7.5	2.2	2.5	0.002	61	20
EM90L-4	1.5	2	1400	3.8	3.5	3.4	5.2	78.7	0.78	10.2	2.4	2.6	0.003	61	23
EM100LA-4	2.2	3	1420	5.1	4.9	4.7	6.0	81.0	0.81	14.8	2.3	2.6	0.007	64	29
EM100LB-4	3	4	1420	6.8	6.4	6.2	6.1	82.7	0.82	20.2	2.3	2.7	0.007	64	33
EM112M-4	4	5.5	1440	8.8	8.4	8.1	6.5	84.5	0.82	26.5	2.3	2.8	0.01	65	40
EM132S-4	5.5	7.5	1440	11.7	11.2	10.8	6.8	85.7	0.83	36.5	2.3	2.9	0.021	71	59
EM132M-4	7.5	10	1440	15.6	14.8	14.3	6.5	87.1	0.84	49.8	2.4	3.0	0.03	71	69
EM160M-4	11	15	1460	22.5	21.3	20.6	6.9	88.6	0.84	72	2.3	2.9	0.075	75	109
EM160L-4	15	20	1460	30.3	28.5	27.5	6.8	89.5	0.85	98.2	2.3	2.9	0.092	75	130
EM180M-4	18.5	25	1470	36.2	34.4	33.2	6.4	90.2	0.86	120.2	2.3	2.9	0.139	76	165
EM180L-4	22	30	1470	42.9	40.7	39.3	6.9	90.7	0.86	143	2.3	2.9	0.158	76	180
EM200L-4	30	40	1470	57.5	54.7	52.7	6.8	92.1	0.86	195	2.4	2.9	0.262	79	240
EM225S-4	37	50	1480	69.7	66.2	64.6	6.5	92.7	0.87	238.9	2.2	2.7	0.406	81	278
EM225M-4	45	60	1480	84.5	80.3	77.4	6.3	93.0	0.87	290.5	2.3	2.5	0.469	81	308
EM250M-4	55	75	1480	103	97.8	94.3	6.4	93.3	0.87	355.1	2.2	2.5	0.66	83	402
EM280S-4	75	100	1480	138.1	131.1	126.4	6.8	93.8	0.88	483.9	2.1	2.8	1.12	86	540
EM280M-4	90	125	1480	165	157	152	6.9	94.1	0.88	580.7	2.2	2.7	1.46	86	615
EM280M-4	110	150	1480	201	191	184	6.5	94.5	0.89	709.8	2.1	2.3	2.68	93	717
EM-315S-4	110	150	1480	200.5	190.5	183.6	6.5	94.7	0.88	709.8	1.9	2.7	3.11	93	870
EM-315M-4	132	180	1480	240	228	220	6.8	95.0	0.88	851.8	2.3	3.2	3.29	93	990
EM315LA-4	160	220	1480	287	273	263	6.6	95.2	0.89	1032	2.6	3.0	3.79	97	1053
EM315LB-4	200	270	1480	358	340	328	6.4	95.4	0.89	1290	2.2	2.8	4.49	97	1243
EM355M-4	250	340	1490	441	419	405	6.2	95.6	0.90	1603	1.9	2.9	5.67	101	1745
EM355L-4	315	430	1490	555	527	509	6.1	95.8	0.90	2020	2.1	3.1	6.66	101	1957

■ IFL = Full Load Current ■ IST = Locked Rotor Current ■ TST = Locked Rotor Torque ■ TM = Maximum Torque ■ TFL = Full Load Torque

6 Pole-1000 rpm Synchronous Speed 50Hz

Motor Type	Rated Output		Rated Speed rpm	IFL 380V (AMP)	IFL 400V (AMP)	IFL 415V (AMP)	IST / IFL	EFF %	Power Factor	Rated Torque Nm	TST TFL	TM TFL	M of J kgm ²	Noise Level LW dB(A)	Net Weight kg
	kW	HP													
EM71A-6	0.18	0.25	855	0.67	0.64	0.62	2.5	58.4	0.70	2	2	2.3	0.0011	52	13
EM71B-6	0.25	0.37	860	0.86	0.82	0.79	2.6	62.2	0.71	2.8	2.1	2.3	0.0014	52	13.5
EM80A-6	0.37	0.5	890	1.3	1.2	1.1	4.4	62.0	0.70	4	1.9	2.3	0.002	54	14
EM80B-6	0.55	0.75	890	1.8	1.7	1.6	4.5	65.0	0.72	5.9	2.1	2.4	0.003	54	16
EM90S-6	0.75	1	910	2.3	2.2	2.1	4.1	69.1	0.72	7.9	2.3	2.7	0.003	57	20
EM90L-6	1.1	1.5	910	3.2	3	2.9	4.6	72.0	0.73	11.5	2.3	2.7	0.004	57	23
EM100L-6	1.5	2	920	4.1	3.9	3.7	5	76.0	0.75	15.6	2.4	2.8	0.007	61	29
EM112M-6	2.2	3	940	5.6	5.3	5.1	5.2	79.1	0.76	22.4	2.1	2.5	0.014	65	38
EM132S-6	3	4	960	7.4	7	6.8	5.6	81.3	0.76	29.9	1.9	2.5	0.029	69	54
EM132MA-6	4	5.5	960	9.7	9.2	8.9	6.2	82.3	0.76	39.8	2.1	2.7	0.036	69	62
EM132MB-6	5.5	7.5	960	12.8	12.2	11.7	6.5	84.7	0.77	54.7	2.3	2.8	0.045	69	69
EM160M-6	7.5	10	970	17.1	16.2	15.6	5.6	86.6	0.77	73.9	2.0	2.6	0.088	73	103
EM160L-6	11	15	970	24.5	23.2	22.4	5.8	87.6	0.78	108.3	2.1	2.4	0.116	73	121
EM180L-6	15	20	970	31.6	30.1	28.9	5.7	89.0	0.81	147.7	2.0	2.4	0.207	73	173
EM200LA-6	18.5	25	970	38.5	36.6	35.2	6.7	90.2	0.81	182.2	2.2	2.8	0.315	76	221
EM200LB-6	22	30	970	44.7	42.5	40.9	6.6	90.2	0.83	216.7	2.3	2.9	0.36	76	236
EM225M-6	30	40	980	59.3	56.4	54.3	6.8	91.5	0.84	292.5	2.2	2.7	0.547	76	301
EM250M-6	37	50	980	70.1	67.4	64.9	6.2	92.2	0.86	360.7	2.0	2.5	0.834	78	370
EM280S-6	45	60	980	86	82	79	6.1	92.5	0.86	438.7	1.9	2.5	1.39	80	478
EM280M-6	55	75	980	105	100	96	6.7	92.9	0.86	536.2	2.1	2.7	1.65	80	535
EM315S-6	75	100	990	142	135	129	6.5	93.7	0.86	723.8	2.0	2.7	4.11	85	790
EM315M-6	90	125	990	170	161	155	6.2	93.9	0.86	868.6	2.0	2.6	4.28	85	880
EM315LA-6	110	150	990	206	196	188	6	94.5	0.86	1062	1.9	2.7	5.45	85	997
EM315LB-6	132	180	990	244	232	223	5.8	94.6	0.87	1274	2.0	2.7	6.12	85	1103
EM355MA-6	160	220	990	291	276	266	6.3	95.1	0.88	1544	1.6	2.8	8.85	92	1400
EM355MB-6	200	270	990	362	343	331	6.6	95.2	0.88	1930	2.0	2.9	9.55	92	1780
EM355L-6	250	340	990	451	429	413	6.5	95.1	0.88	2413	1.6	3.0	10.3	92	2050

■ IFL = Full Load Current ■ IST = Locked Rotor Current ■ TST = Locked Rotor Torque ■ TM = Maximum Torque ■ TFL = Full Load Torque

8 Pole-750 rpm Synchronous Speed 50Hz

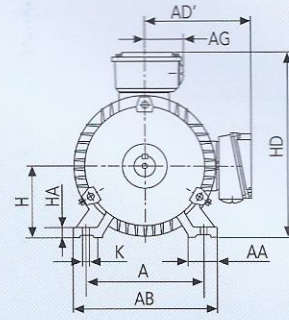
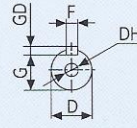
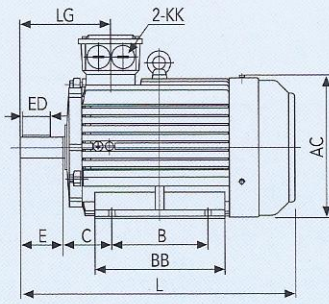
Motor Type	Rated Output		Rated Speed rpm	IFL 380V (AMP)	IFL 400V (AMP)	IFL 415V (AMP)	IST IFL	EFF %	Power Factor	Rated Torque Nm	TST TFL	TM TFL	M of J kgm ²	Noise Level LW dB(A)	Net Weight kg
	kW	HP													
EM80A-8	0.18	0.25	630	0.88	0.83	0.8	2.9	51.0	0.61	2.8	2	2.2	0.002	52	14
EM80B-8	0.25	0.37	640	1.15	1.09	1.05	3	54.0	0.61	3.7	2.1	2.4	0.003	52	16
EM90S-8	0.37	0.50	660	1.48	1.41	1.36	3.4	62.0	0.61	5.4	2	2.2	0.004	56	20
EM90L-8	0.55	0.75	660	2.16	2.06	1.98	3.5	63.0	0.61	8	2.1	2.3	0.004	56	23
EM100LA-8	0.75	1	690	2.41	2.29	2.21	3.5	70.5	0.67	10.4	2	2.2	0.008	59	31
EM100LB-8	1.1	1.5	690	3.35	3.18	3.06	3.6	72.4	0.69	15.2	2.2	2.4	0.01	59	35
EM112M-8	1.5	2	690	4.4	4.2	4	3.9	74.5	0.70	20.8	2.4	2.6	0.017	61	38
EM132S-8	2.2	3	710	5.9	5.6	5.4	4.3	79.3	0.71	29.6	2.3	2.5	0.031	64	52
EM132M-8	3	4	710	7.8	7.4	7.1	4.4	80.1	0.73	40.4	2.2	2.4	0.01	64	61
EM160MA-8	4	5.5	720	10.2	9.7	9.3	4.4	81.6	0.73	53.1	2.2	2.5	0.075	68	90
EM160MB-8	5.5	7.5	720	13.6	12.9	12.4	5	83.3	0.74	73	2.2	2.4	0.093	68	102
EM160L-8	7.5	10	720	17.7	16.8	16.2	5.7	85.9	0.75	99.5	2.1	2.3	0.126	68	122
EM180L-8	11	15	730	25.4	24.1	23.2	5.6	87.8	0.75	144	2.3	2.5	0.203	70	150
EM200L-8	15	20	730	34	32.3	31.1	5.5	88.3	0.76	196.3	2.1	2.4	0.339	73	212
EM225S-8	18.5	25	730	41	39	37.5	5.6	90.2	0.76	242.1	2.2	2.6	0.491	73	285
EM225M-8	22	30	740	47.2	44.8	43.2	5.4	90.8	0.78	284	2.1	2.4	0.547	73	385
EM250M-8	30	40	740	63.3	60.1	57.9	5.3	91.2	0.79	387.3	2.2	2.5	0.83	75	378
EM280S-8	37	50	740	77.5	73.6	71	5.6	91.8	0.79	477.7	2.3	2.7	1.39	76	485
EM280M-8	45	60	740	94.1	89.4	86.1	5.2	92.0	0.79	581	2.1	2.8	1.65	76	568
EM315S-8	55	75	740	110.8	105.3	101.5	5.7	93.1	0.81	710.1	1.9	2.5	4.79	82	745
EM315M-8	75	100	740	150.1	142.6	137.5	5.9	93.7	0.81	968.3	2.1	2.8	5.58	82	805
EM315LA-8	90	125	740	177.4	168.5	162.4	6.2	94.0	0.82	1162	2.3	2.9	6.37	82	998
EM315LB-8	110	150	740	216.4	205.6	198.1	6	94.2	0.82	1420	2.2	2.8	7.23	82	1175
EM355MA-8	132	180	740	259.4	246.4	237.5	6.4	94.3	0.82	1704	1.9	2.7	7.55	90	1580
EM355MB-8	160	220	740	313.7	298	287.3	6.3	94.5	0.82	2066	1.7	2.6	11.73	90	1680
EM355L-8	200	270	740	386.2	366.9	353.6	6.5	94.8	0.83	2582	1.8	2.9	12.86	90	1995

■ IFL = Full Load Current ■ IST = Locked Rotor Current ■ TST = Locked Rotor Torque ■ TM = Maximum Torque ■ TFL = Full Load Torque

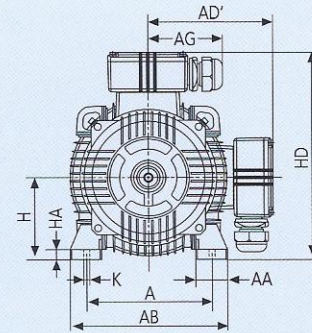
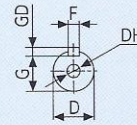
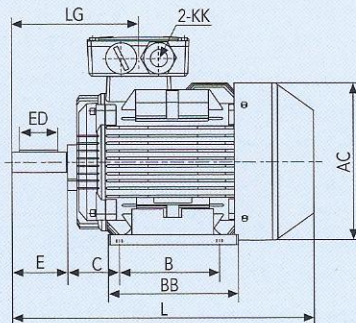
Mounting and Overall Dimensions (Foot Mount B3)

EMM HIGH EFFICIENCY
(EFF 2) AC MOTORS

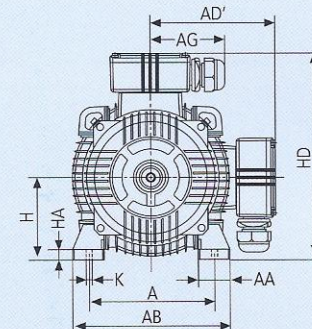
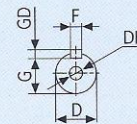
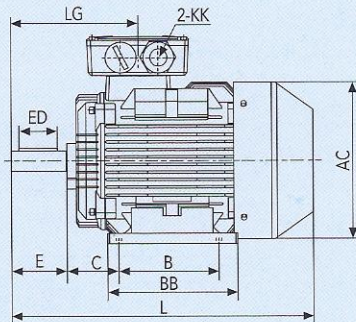
EM-80 ~ 132



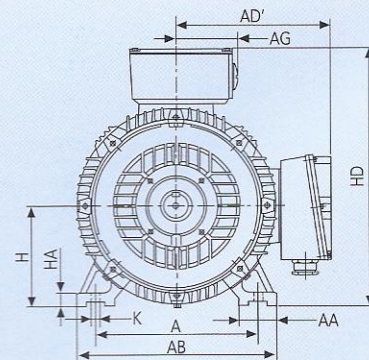
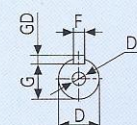
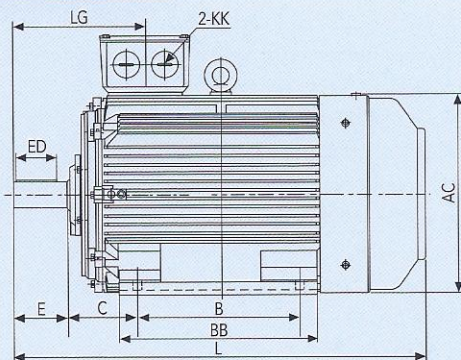
EM-160 ~ 200



EM-225 ~ 280



EM-315 ~ 355



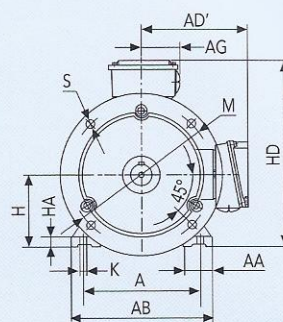
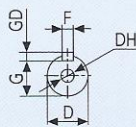
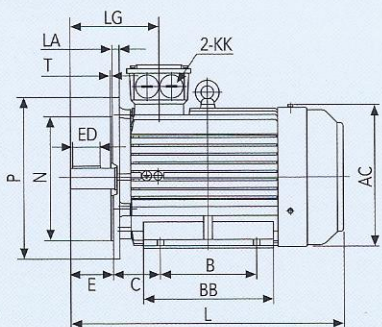
Frame Size	A	AA	AB	AC	AD'	AG	B	BB	C	D	DH	E	ED	F	G	GD	H	HA	HD	K	KK	L	LG
80M	125	34	160	175	140	51	100	130	50	19	M6X16	40	25	6	15.5	6	80	10	230	10	M25X1.5	295	106
90S	140	36	180	190	150	60	100	135	56	24	M8X19	50	40	8	20	7	90	12.5	260	10	M25X1.5	320	124
90L	140	36	180	190	150	60	125	160	56	24	M8X19	50	40	8	20	7	90	12.5	260	10	M25X1.5	345	124
100L	160	40	200	215	160	60	140	182	63	28	M10X22	60	45	8	24	7	100	14	275	12	M25X1.5	385	140
112M	190	45	230	236	185	75	140	195	70	28	M10X22	60	45	8	24	7	112	14	310	12	M32X1.5	410	145
132S	216	52	265	275	205	75	140	205	89	38	M12X28	80	63	10	33	8	132	16	350	12	M32X1.5	480	169
132M	216	52	265	275	205	75	178	245	89	38	M12X28	80	63	10	33	8	132	16	350	12	M32X1.5	520	169
160M	254	65	320	330	250	95	210	260	108	42	M16X36	110	90	12	37	8	160	19	425	14.5	M40X1.5	610	270
160L	254	65	320	330	250	95	254	305	108	42	M16X36	110	90	12	37	8	160	19	425	14.5	M40X1.5	655	270
180M	279	74	350	380	270	95	241	297	121	48	M16X36	110	90	14	42.5	9	180	22	460	14.5	M40X1.5	680	277
180L	279	74	350	380	270	95	279	327	121	48	M16X36	110	90	14	42.5	9	180	22	460	14.5	M40X1.5	720	277
200L	318	75	395	420	325	120	305	370	133	55	M20X42	110	90	16	49	10	200	25	515	18.5	M50X1.5	760	300
225S(4-8P)	356	75	436	465	335	120	286	355	149	60	M20X42	140	110	18	53	11	225	28	560	18.5	M50X1.5	825	340
225M(2P)	356	75	436	465	335	120	311	380	149	55	M20X42	110	90	16	49	10	225	28	560	18.5	M50X1.5	820	310
225M(4-8P)	356	75	436	465	335	120	311	380	149	60	M20X42	140	110	18	53	11	225	28	560	18.5	M50X1.5	850	340
250M(2P)	406	88	495	520	370	160	349	440	168	60	M20X42	140	110	18	53	11	250	33	620	24	M63X1.5	925	353
250M(4-8P)	406	88	495	520	370	160	349	440	168	65	M20X42	140	110	18	58	11	250	33	620	24	M63X1.5	925	353
280S(2P)	457	103	550	570	400	160	368	495	190	65	M20X42	140	110	18	58	11	280	35	685	24	M63X1.5	960	350
280S(4-8P)	457	103	550	570	400	160	368	495	190	75	M20X42	140	110	20	67.5	12	280	35	685	24	M63X1.5	975	350
280M(2P)	457	103	550	570	400	160	419	535	190	65	M20X42	140	110	18	58	11	280	35	685	24	M63X1.5	1000	350
280M(4-8P)	457	103	550	570	400	160	419	535	190	75	M20X42	140	110	20	67.5	12	280	35	685	24	M63X1.5	1015	350
315S(2P)	508	120	630	650	495	195	406	515	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1160	387
315M(2P)	508	120	630	650	495	195	457	625	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1270	387
315L(2P)	508	120	630	650	495	195	508	625	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1270	387
315S(4-8P)	508	120	630	650	495	195	406	515	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1190	417
315M(4-8P)	508	120	630	650	495	195	457	625	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1300	417
315L(4-8P)	508	120	630	650	495	195	508	625	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1300	417
355M(2P)	610	125	735	735	640	330	560	775	254	75	M24X50	140	110	20	67.5	12	355	49	1000	28	M63X1.5	1500	420
355L(2P)	610	125	735	735	640	330	630	775	254	75	M24X50	140	110	20	67.5	12	355	49	1000	28	M63X1.5	1500	420
355M(4-8P)	610	125	735	735	640	330	560	775	254	95	M24X50	170	140	25	86	14	355	49	1000	28	M63X1.5	1530	450
*355M(4-8P)	610	125	735	735	640	330	560	775	254	100	M24X50	210	160	28	90	16	355	49	1000	28	M63X1.5	1570	490
355L(4-8P)	610	125	735	735	640	330	630	775	254	95	M24X50	170	140	25	86	14	355	49	1000	28	M63X1.5	1530	450
*355L(4-8P)	610	125	735	735	640	330	630	775	254	100	M24X50	210	160	28	90	16	355	49	1000	28	M63X1.5	1570	490

*These motors can also be supplied. Please state the dimensions of the shaft extension on order.

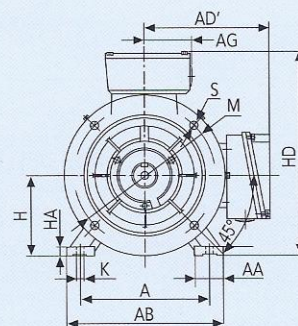
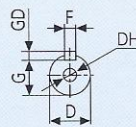
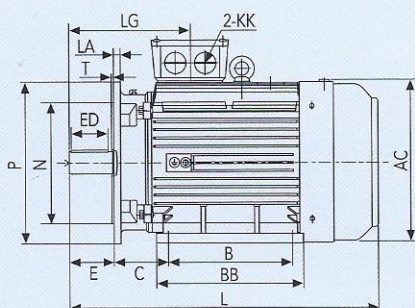
Mounting and Overall Dimensions (Foot-Flange Mount B35)

EMM HIGH EFFICIENCY
(EFF 2) AC MOTORS

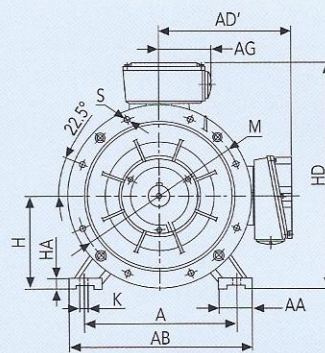
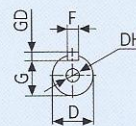
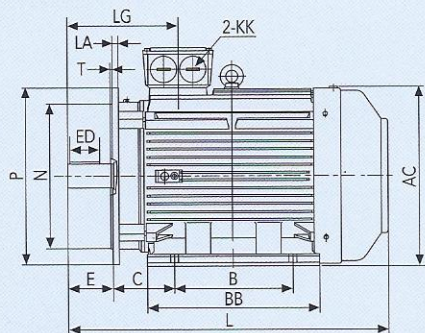
EM-80 ~ 132



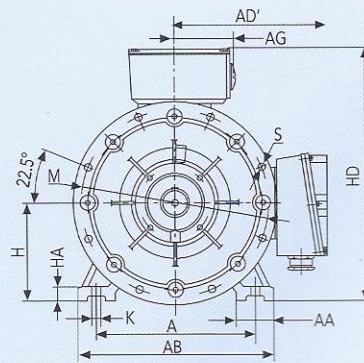
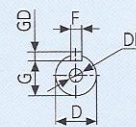
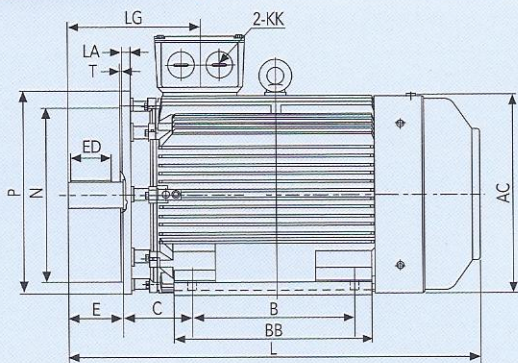
EM-160 ~ 200



EM-225 ~ 280



EM-315 ~ 355



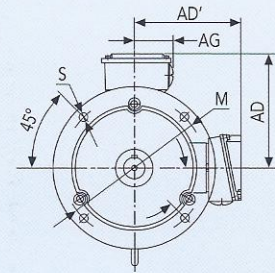
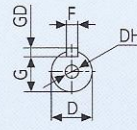
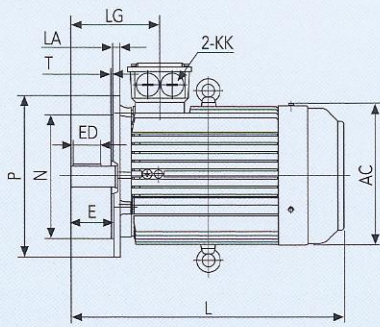
Frame Size	A	AA	AB	AC	AD'	AG	B	BB	C	D	DH	E	ED	F	G	GD	H	HA	HD	K	KK	L	LG	LA	M	N	P	S	T
80M	125	34	160	175	140	51	100	130	50	19	M6X16	40	25	6	15.5	6	80	10	230	10	M25X1.5	295	106	12	165	130	200	12	3.5
90S	140	36	180	190	150	60	100	135	56	24	M8X19	50	40	8	20	7	90	12.5	260	10	M25X1.5	320	124	12	165	130	200	12	3.5
90L	140	36	180	190	150	60	125	160	56	24	M8X19	50	40	8	20	7	90	12.5	260	10	M25X1.5	345	124	12	165	130	200	12	3.5
100L	160	40	200	215	160	60	140	182	63	28	M10X22	60	45	8	24	7	100	14	275	12	M25X1.5	385	140	14	215	180	250	14.5	4
112M	190	45	230	236	185	75	140	195	70	28	M10X22	60	45	8	24	7	112	14	310	12	M32X1.5	410	145	14	215	180	250	14.5	4
132S	216	52	265	275	205	75	140	205	89	38	M12X28	80	63	10	33	8	132	16	350	12	M32X1.5	480	169	14	265	230	300	14.5	4
132M	216	52	265	275	205	75	178	245	89	38	M12X28	80	63	10	33	8	132	16	350	12	M32X1.5	520	169	14	265	230	300	14.5	4
160M	254	65	320	330	250	95	210	260	108	42	M16X36	110	90	12	37	8	160	19	425	14.5	M40X1.5	610	270	15	300	250	350	18.5	5
160L	254	65	320	330	250	95	254	305	108	42	M16X36	110	90	12	37	8	160	19	425	14.5	M40X1.5	655	270	15	300	250	350	18.5	5
180M	279	74	350	380	270	95	241	297	121	48	M16X36	110	90	14	42.5	9	180	22	460	14.5	M40X1.5	680	277	15	300	250	350	18.5	5
180L	279	74	350	380	270	95	279	327	121	48	M16X36	110	90	14	42.5	9	180	22	460	14.5	M40X1.5	720	277	15	300	250	350	18.5	5
200L	318	75	395	420	325	120	305	370	133	55	M20X42	110	90	16	49	10	200	25	515	18.5	M50X1.5	760	300	17	350	300	400	18.5	5
225S(4-8P)	356	75	436	465	335	120	286	355	149	60	M20X42	140	110	18	53	11	225	28	560	18.5	M50X1.5	825	340	20	400	350	450	18.5	5
225M(2P)	356	75	436	465	335	120	311	380	149	55	M20X42	110	90	16	49	10	225	28	560	18.5	M50X1.5	820	310	20	400	350	450	18.5	5
225M(4-8P)	356	75	436	465	335	120	311	380	149	60	M20X42	140	110	18	53	11	225	28	560	18.5	M50X1.5	850	340	20	400	350	450	18.5	5
250M(2P)	406	88	495	520	370	160	349	440	168	60	M20X42	140	110	18	53	11	250	33	620	24	M63X1.5	925	353	20	500	450	550	18.5	5
250M(4-8P)	406	88	495	520	370	160	349	440	168	65	M20X42	140	110	18	58	11	250	33	620	24	M63X1.5	925	353	20	500	450	550	18.5	5
280S(2P)	457	103	550	570	400	160	368	495	190	65	M20X42	140	110	18	58	11	280	35	685	24	M63X1.5	960	350	22	500	450	550	18.5	5
280S(4-8P)	457	103	550	570	400	160	368	495	190	75	M20X42	140	110	20	67.5	12	280	35	685	24	M63X1.5	975	350	22	500	450	550	18.5	5
280M(2P)	457	103	550	570	400	160	419	535	190	65	M20X42	140	110	18	58	11	280	35	685	24	M63X1.5	1000	350	22	500	450	550	18.5	5
280M(4-8P)	457	103	550	570	400	160	419	535	190	75	M20X42	140	110	20	67.5	12	280	35	685	24	M63X1.5	1015	350	22	500	450	550	18.5	5
315S(2P)	508	120	630	650	495	195	406	515	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1160	387	24	600	550	660	24	6
315M(2P)	508	120	630	650	495	195	457	625	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1270	387	24	600	550	660	24	6
315L(2P)	508	120	630	650	495	195	508	625	216	65	M20X42	140	110	18	58	11	315	45	820	28	M63X1.5	1270	387	24	600	550	660	24	6
315S(4-8P)	508	120	630	650	495	195	406	515	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1190	417	24	600	550	660	24	6
315M(4-8P)	508	120	630	650	495	195	457	625	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1300	417	24	600	550	660	24	6
315L(4-8P)	508	120	630	650	495	195	508	625	216	80	M20X42	170	140	22	71	14	315	45	820	28	M63X1.5	1300	417	24	600	550	660	24	6
355M(2P)	610	125	735	735	640	330	560	775	254	75	M24X50	140	110	20	67.5	12	355	49	1000	28	M63X1.5	1500	420	25	740	680	800	24	6
355L(2P)	610	125	735	735	640	330	630	775	254	75	M24X50	140	110	20	67.5	12	355	49	1000	28	M63X1.5	1500	420	25	740	680	800	24	6
355M(4-8P)	610	125	735	735	640	330	560	775	254	95	M24X50	170	140	25	86	14	355	49	1000	28	M63X1.5	1530	450	25	740	680	800	24	6
*355M(4-8P)	610	125	735	735	640	330	560	775	254	100	M24X50	210	160	28	90	16	355	49	1000	28	M63X1.5	1570	490	25	740	680	800	24	6
355L(4-8P)	610	125	735	735	640	330	630	775	254	95	M24X50	170	140	25	86	14	355	49	1000	28	M63X1.5	1530	450	25	740	680	800	24	6
*355L(4-8P)	610	125	735	735	640	330	630	775	254	100	M24X50	210	160	28	90	16	355	49	1000	28	M63X1.5	1570	490	25	740	680	800	24	6

The "R" dimension is zero. *These motors can also be supplied. Please state the dimensions of the shaft extension on order.

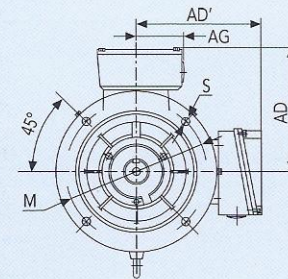
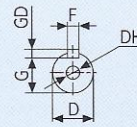
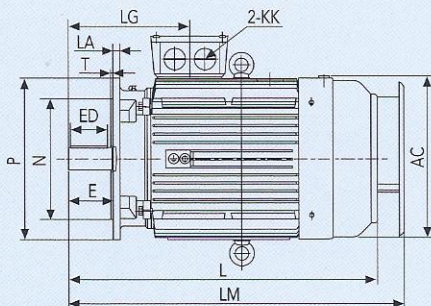
Mounting and Overall Dimensions (Flange Mount B5 and V1)

EMM HIGH EFFICIENCY
(EFF 2) AC MOTORS

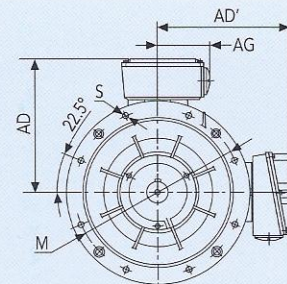
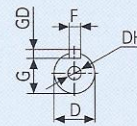
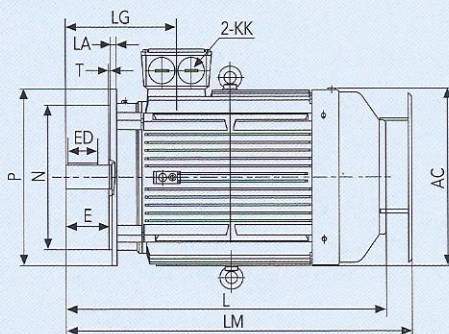
EM-80 ~ 132



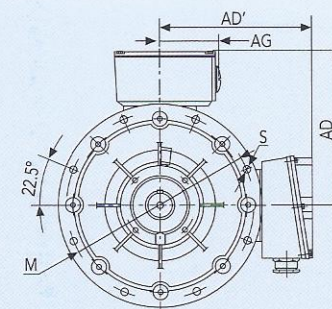
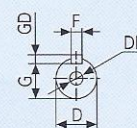
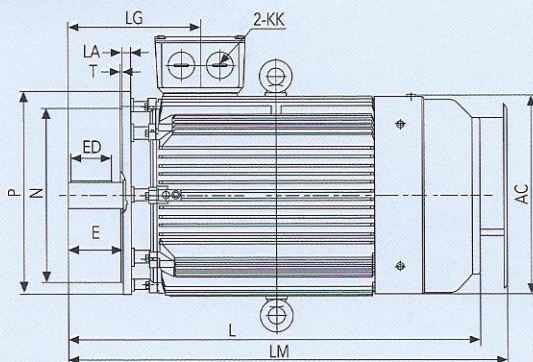
EM-160 ~ 200



EM-225 ~ 280

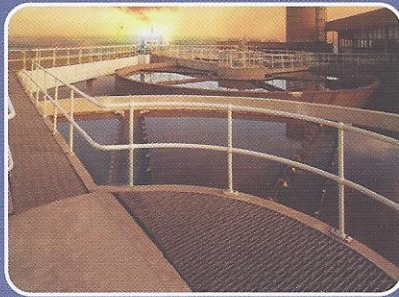


EM-315 ~ 355



Frame Size	AC	AD	AD'	AG	D	DH	E	ED	F	G	GD	KK	L	LA	LG	M	N	P	S	T
80M	175	150	140	51	19	M6X16	40	25	6	15.5	6	M25X1.5	295	12	106	165	130	200	12	3.5
90S	190	165	150	60	24	M8X19	50	40	8	20	7	M25X1.5	320	12	124	165	130	200	12	3.5
90L	190	165	150	60	24	M8X19	50	40	8	20	7	M25X1.5	345	12	124	165	130	200	12	3.5
100L	215	170	160	60	28	M10X22	60	45	8	24	7	M25X1.5	385	14	140	215	180	250	14.5	4
112M	236	195	185	75	28	M10X22	60	45	8	24	7	M32X1.5	410	14	145	215	180	250	14.5	4
132S	275	215	205	75	38	M12X28	80	63	10	33	8	M32X1.5	480	14	169	265	230	300	14.5	4
132M	275	215	205	75	38	M12X28	80	63	10	33	8	M32X1.5	520	14	169	265	230	300	14.5	4
160M	330	265	250	95	42	M16X36	110	90	12	37	8	M40X1.5	610	15	270	300	250	350	18.5	5
160L	330	265	250	95	42	M16X36	110	90	12	37	8	M40X1.5	655	15	270	300	250	350	18.5	5
180M	380	280	270	95	48	M16X36	110	90	14	42.5	9	M40X1.5	680	15	277	300	250	350	18.5	5
180L	380	280	270	95	48	M20X42	110	90	14	42.5	9	M40X1.5	720	15	277	300	250	350	18.5	5
200L	420	315	325	120	55	M20X42	110	90	16	49	10	M50X1.5	760	17	300	350	300	400	18.5	5
225S(4-8P)	465	335	335	120	60	M20X42	140	110	18	53	11	M50X1.5	825	20	340	400	350	450	18.5	5
225M(2P)	465	335	335	120	55	M20X42	110	90	16	49	10	M50X1.5	820	20	310	400	350	450	18.5	5
225M(4-8P)	465	335	335	120	60	M20X42	140	110	18	53	11	M50X1.5	850	20	340	400	350	450	18.5	5
250M(2P)	520	375	370	160	60	M20X42	140	110	18	53	11	M63X1.5	925	20	353	500	450	550	18.5	5
250M(4-8P)	520	375	370	160	65	M20X42	140	110	18	58	11	M63X1.5	925	20	353	500	450	550	18.5	5
280S(2P)	570	405	400	160	65	M20X42	140	110	18	58	11	M63X1.5	960	22	350	500	450	550	18.5	5
280S(4-8P)	570	405	400	160	75	M20X42	140	110	20	67.5	12	M63X1.5	975	22	350	500	450	550	18.5	5
280M(2P)	570	405	400	160	65	M20X42	140	110	18	58	11	M63X1.5	1000	22	350	500	450	550	18.5	5
280M(4-8P)	570	405	400	160	75	M20X42	140	110	20	67.5	12	M63X1.5	1015	22	350	500	450	550	18.5	5
315S(2P)	650	500	495	195	65	M20X42	140	110	18	58	11	M63X1.5	1160	24	387	600	550	660	24	6
315M(2P)	650	500	495	195	65	M20X42	140	110	18	58	11	M63X1.5	1270	24	387	600	550	660	24	6
315L(2P)	650	500	495	195	65	M20X42	140	110	18	58	11	M63X1.5	1270	24	387	600	550	660	24	6
315S(4-8P)	650	500	495	195	80	M20X42	170	140	22	71	14	M63X1.5	1190	24	417	600	550	660	24	6
315M(4-8P)	650	500	495	195	80	M20X42	170	140	22	71	14	M63X1.5	1300	24	417	600	550	660	24	6
315L(4-8P)	650	500	495	195	80	M20X42	170	140	22	71	14	M63X1.5	1300	24	417	600	550	660	24	6
355M(2P)V1	735	645	640	330	75	M24X50	140	110	20	67.5	12	M63X1.5	1500	25	420	740	680	800	24	6
355L(2P)V1	735	645	640	330	75	M24X50	140	110	20	67.5	12	M63X1.5	1500	25	420	740	680	800	24	6
355M(4-8P)V1	735	645	640	330	95	M24X50	170	140	25	86	14	M63X1.5	1530	25	450	740	680	800	24	6
*355M(4-8P)V1	735	645	640	330	100	M24X50	210	160	28	90	16	M63X1.5	1570	25	490	740	680	800	24	6
355L(4-8P)V1	735	645	640	330	95	M24X50	170	140	25	86	14	M63X1.5	1530	25	450	740	680	800	24	6
*355L(4-8P)V1	735	645	640	330	100	M24X50	210	160	28	90	16	M63X1.5	1570	25	490	740	680	800	24	6

The "R" dimension is zero. The motors of B5 are supplied only up to frame size 315. *These motors can also be supplied. Please state the dimensions of the shaft extension on order.



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