



HYOSUNG CORPORATION
Power & Industrial Systems Performance Group

2007. 10

■ HEAD OFFICE

450, Gongdeok-dong, Mapo-gu, Seoul, Korea
TEL : 82-2-707-6114, FAX : 82-2-714-0707

■ LOS ANGELES OFFICE

Hyosung America, Inc. L.A. Branch
18000 Studebaker Road, Suite 550, Cerritos Ca-90703, U.S.A.
TEL : 1-562-809-8851, FAX : 1-562-809-5251 / Mr. Ellis Chong

■ TOKYO OFFICE

Hyosung Japan, Co. Ltd.
SVAX TT Bldg., 11-15, 3-chome, Toranomon, Minato-ku,
Tokyo, 105 Japan
TEL : 81-3-3432-9317, FAX : 81-3-3459-9300 / Mr. D. Watarai

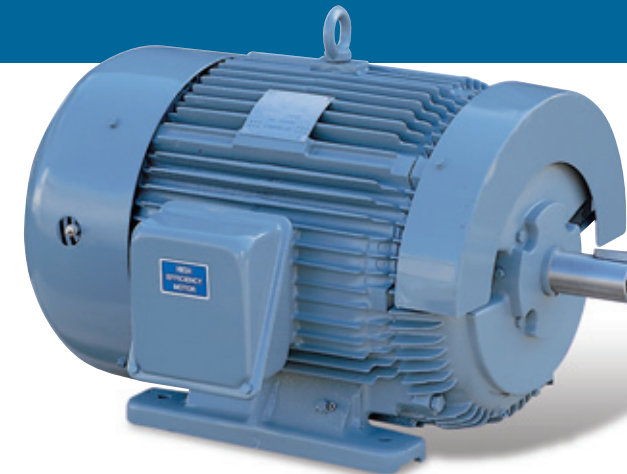
EASE TO CONTACT

TEL : 82-2-707-6181
FAX : 82-2-707-6117

Industrial Machinery PU

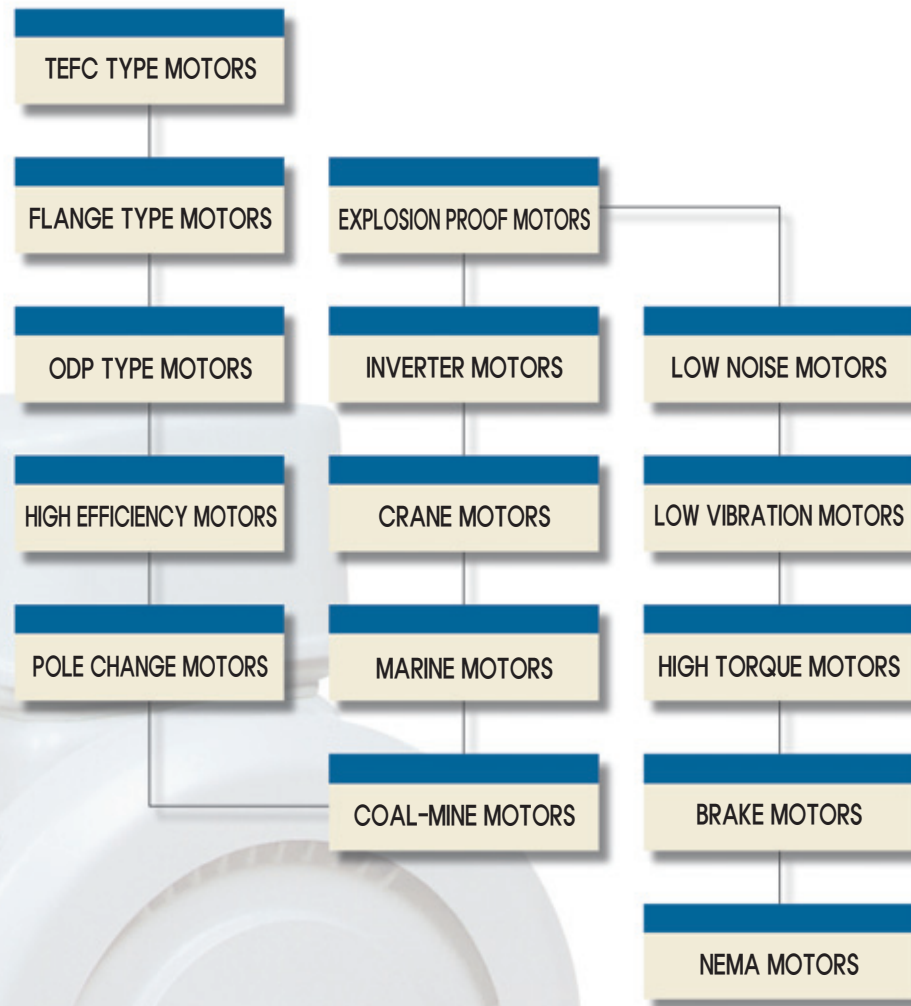


LOW VOLTAGE MOTORS



3PHASE 0.4 - 220KW 50/60Hz





Quality Assurance

From quotation to delivery, our complete order handling is effected on the basis of an approved quality assurance system complying with the following quality standards :
 DIN ISO 9001 / BVQI EN 29001 / BS 5750



Application Standard

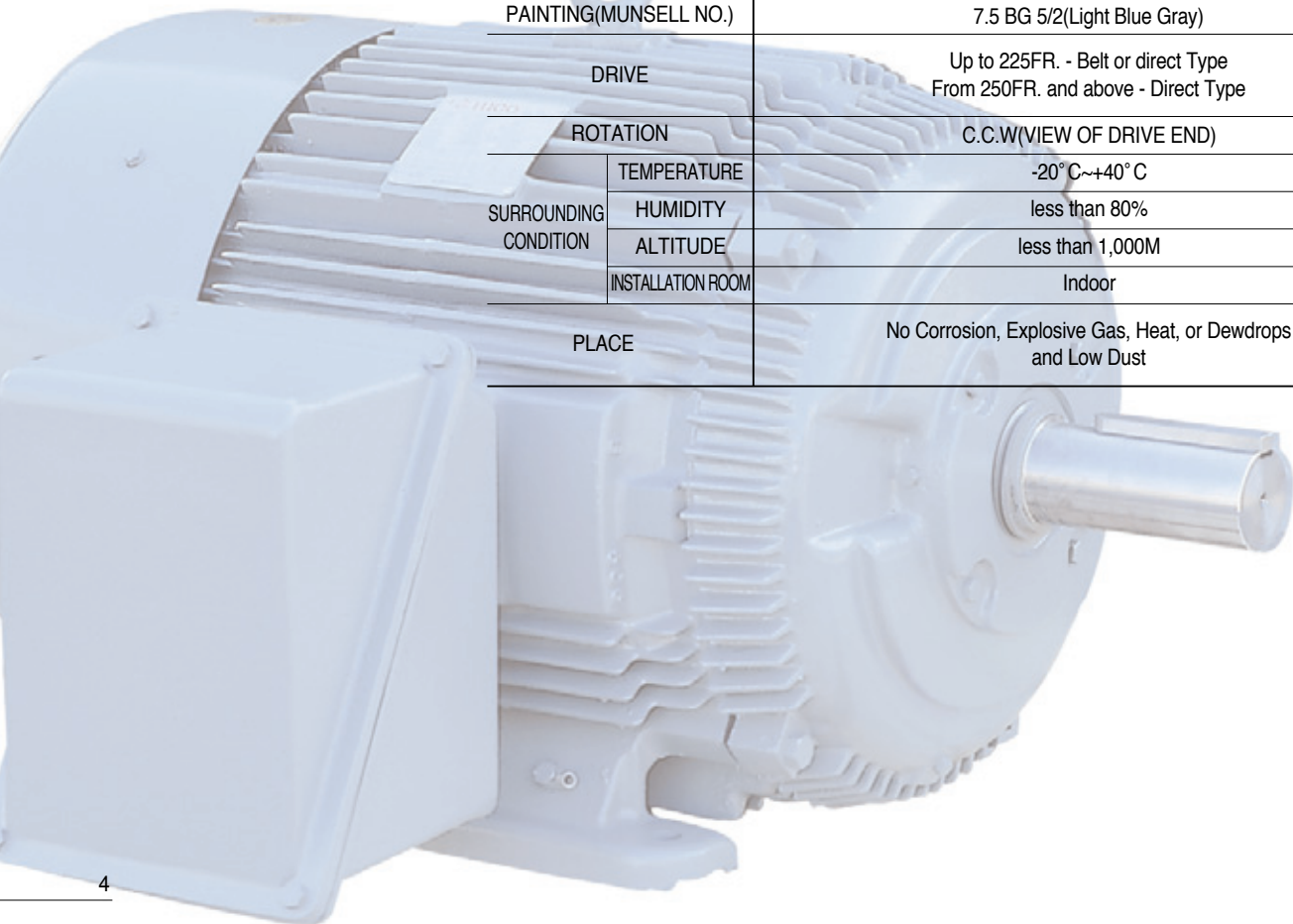
- International Standard : IEC 34, 72, 79, IEEE
- Country Standard : KS C4202, 0914, JIS C4210, 4004, CSA M390
- Association Standard : NEMA MG1, UL 674, JEM 1400, 1401, JEC 37

The Present Status of Certification Acquisition

COUNTRY	INITIALS & FILE NO.	APPLICATION	ISSUED DATE
CANADA	CSA LR61094 LR57819	General Motor	1986. 1
	CSA LR61094-6	Class I Group D & Class II Group E, F, G	1994. 2
	CSA EEV103030-1	High Efficiency Motor (1~200HP)	1995. 11
U.S.A	UL E79167	Class I Group D & Class II Group E, F, G	1983. 4
	UL E79167	Class I Group D (C-Face Motors)	1994. 6
	UL E79167	Class I Group D & Class II Group E, F, G (C-Face Motor)	1995. 3
FRANCE	ISO 9001	All Motors	1993. 12
KOREA	KSC NO. 1869	0.4 ~ 37kW	1979. 12
	KSC NO. 3860	55, 150kW	1985. 2
JAPAN	JMITI NO. 9681 ▽	0.7 ~ 2.2kW	1989. 7
GERMANY	TÜV CE	0.75 ~ 150kW	1997. 12

STANDARD SPECIFICATION

ITEMS	SPECIFICATION	
RATING	CONTINUOUS	
INSULATION	F CLASS or B CLASS	
CONSTRUCTION PROTECT	CONSTRUCTION	PROTECT GRADE
	ODP	IP 22
	TEFC	IP 44
VOLTAGE & FREQUENCY	220, 380, 400, 440, 220/380, 220/440V 50/60Hz	
LEADWIRE OUTPUT TYPE	Rubber Covered Leadwire(Mounted Ring Terminal)	
NUMBER OF LEADS (60Hz)	Single Voltage : 220, 380, 440V	Direct Startung(3wire) : 11kw below Y-Δ Stating(6wire) : 11kw above
	Combination Voltage : 220/380V	Direct Starting(6wire)
	Double Voltage : 220/440V	Direct Starting(9wire) : 11KW below Y-Δ Stating(12wire) : 11kw above
PAINTING(MUNSELL NO.)	7.5 BG 5/2(Light Blue Gray)	
DRIVE	Up to 225FR. - Belt or direct Type From 250FR. and above - Direct Type	
ROTATION	C.C.W(VIEW OF DRIVE END)	
SURROUNDING CONDITION	TEMPERATURE	-20°C~+40°C
	HUMIDITY	less than 80%
	ALTITUDE	less than 1,000M
	INSTALLATION ROOM	Indoor
PLACE	No Corrosion, Explosive Gas, Heat, or Dewdrops and Low Dust	



FEATURES AND SPECIFICATIONS

Construction

Cast iron. Fan guard hood is pressed steel and has a protective type grill that restricts the passage of a 12.7mm cylindrical rod.(Optional cast iron fan guard is available on special order.)

Couduit Box

Pressed steel, diagonally split and rotatable in 90° steps. Lead separator gasket seals conduit box from frame.(Optional cast iron conduit box is available on special order.)

Finish & Nameplate

Red oxide, zinc chromate primer with finish coat of semi-gloss, air drying, alkyd enamel. Stainless Steel nameplate furnished for resistance to corrosion.

Rotor

Die cast aluminum and closed slot design, surface teated for minimum rotor losses. Rotor and complete shaft assembly are dynamically balanced.

Hardware

Standard high strength, zinc plated fo, corrosion resistance.

Insulation

Class "F" nonhygroscopic system is standard and meets or exceeds NEMA and IEEE standards.

Leads

Stranded copper, suitably insulated for appropriate insulation class. All leads permanently identified.

Inner Bearing

TEFC frames 200M to 280M have an inner bearing cap of non-corrosive, zinc plated and chromated steel.

Drain Plugs

Pipe tap plugs are furnished at the low point of each end bracket. 3.18mm up to frame size 132M, and 6.35mm on frames 160M and over.

Bearings

Standard, double-shielded(one shield each side), regreasable, single row width, deep groove Conrad type made from improved, vacuum degassed steel for longer life expectancy.

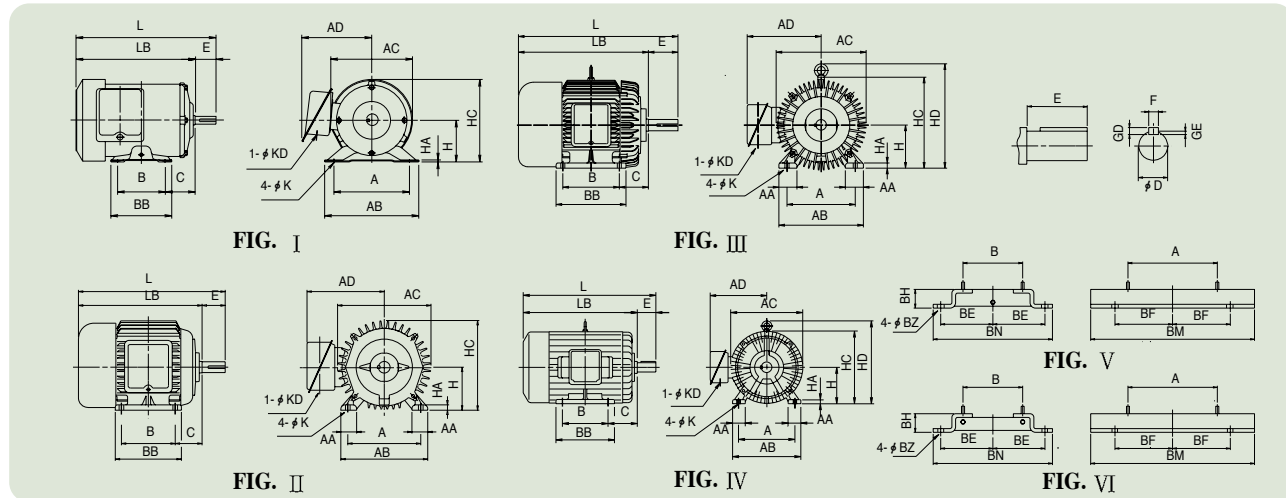
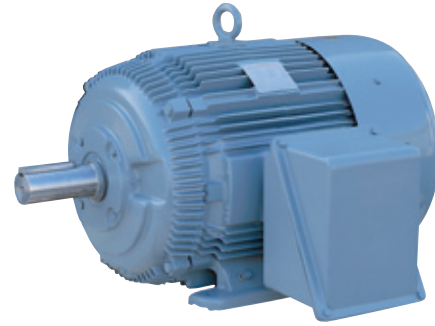
Bearings are pre-packed with grease for ambient temperatures of -30°C to +50°C (-22°F to +122°F). Other temperature ranges available on special order with single shielded temperature stabilized bearings. Bearing housing is also packed with grease at time of motor assembly.

Fan

Glass fiber reinforced polyester, suitable for bi-directional rotation. Exception: All 3600 RPM in frames 280S and larger are uni-directional only and made of corrosion resistant bronze alloy.

Grease Fittings

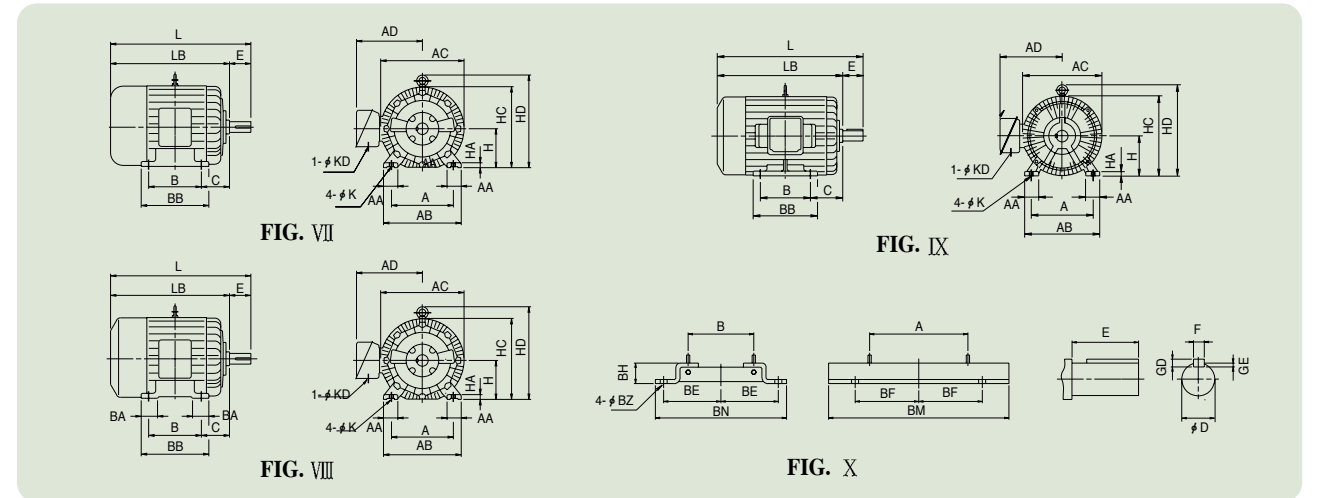
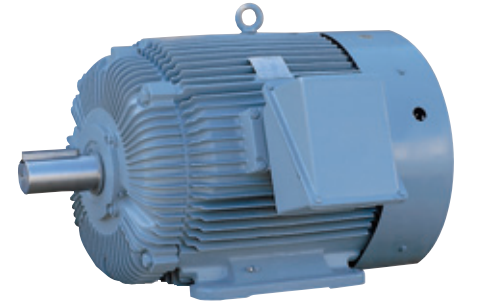
On the fan end, TEFC motors have a tube which extends through the fan guard hood for reasing for in-service lubrication. A standard 3.18mm pipe plug is used for inlet, and a separate pressure sensitive, spring-actuated relief plug is used at the grease outlet on the bracket hub. On the shaft end, TEFC motors have a pipe plug on inlet and relief.



UNIT : mm, kg

No.	FR.No.	FIG.	OUT PUT(kW)				BEARING		A	AA	AB	AC	AD	B	BB	C	H	HA	HC
			2P	4P	6P	8P	DRIVE	NON DRIVE											
01	71	I	0.4	0.4	-	-	6203ZZ	6202ZZ	112	-	148	148	145	90	114	45	71	4	145
02	80	II	0.75	0.75	0.4	-	6204ZZ	6203ZZ	125	35	150	180	135	100	125	50	80	8	168
03	90L	II	1.5,2.2	1.5	0.75	-	6205ZZ	6204ZZ	140	35	167	200	150	125	150	56	90	10	190
04	100L	II	-	2.2	1.5	0.75	6206ZZ	6205ZZ	160	47	196	220	180	140	174	63	100	12	214
05	112M	II	3.7	3.7	2.2	1.5	6206ZZ	6205ZZ	190	41	226	244	190	140	172	70	112	14	234
06	132S	II	5.5,7.5	5.5	3.7	2.2	6208ZZ	6206Z	216	50	264	284	213	140	178	89	132	16	274
07	132M	II	-	7.5	5.5	3.7	-	-	-	-	-	-	178	216	-	-	-	-	-
08	160M	III	11.15	11	7.5	5.5	6309ZZ	6207ZZ	254	67	314	337	262	210	260	108	160	19	329
09	160L	III	18.5	15	11	7.5	-	-	-	-	-	-	254	304	-	-	-	-	-
10	180M	IV	22	-	-	-	6212ZZ	6212ZZ	279	63	338	374	290	241	300	121	180	20	367
11	180L	IV	30	-	-	-	6212ZZ	6212ZZ	279	63	338	374	290	279	338	121	180	20	367
12	200L	IV	37	-	-	-	6212ZZ	6212ZZ	318	70	382	414	317	305	370	133	200	22	407
			-	37.45	30.37	18.5,22	6313ZZ	6212ZZ	318	70	382	414	317	305	370	133	200	22	407

No.	FR.No.	FIG.	OUT PUT(kW)				BEARING		A	AA	AB	AC	AD	B	BB	C	H	HA	HC
			2P	4P	6P	8P	DRIVE	NON DRIVE											
13	225S	V	45	-	-	-	6314C3	6314C3	356	79	432	465	397	286	343	149	225	25	456
14	225M	V	55	-	-	-	6314C3	6314C3	356	79	432	465	397	311	368	149	225	25	456
15	250S-C	V	-	-	45	37	6312	6312	406	86	485	529	428	311	368	168	250	27	515
16	250M-C	V	75	75	55	45	6312	6312	406	86	485	529	428	349	406	168	250	27	515
17	280S-C	IX	90	90	75	55	6313	6313	457	89	546	610	510	368	439	190	280	32	585
18	280M-C	IX	110	110	90	75	6313	6313	457	89	546	610	510	419	490	190	280	32	585
19	280L-C	IX	132,150	132,150	-	-	6313	6313	457	89	546	610	510	508	580	190	280	32	585
20	280LL-C	IX	185	-	-	-	6313	6313	457	89	546	610	510	635	708	190	280	32	585



UNIT : mm, kg

No.	HD	L	LB	φ K	φ KD	SHAFT					WT	BASE								
						φ D	E	F	GD	GE		FIG.	BE	BF	BM	BN	BH	φ BZ	WT	
01	-	230	200	7	22	14f6	30	5	5	3	8.5	V	-	-	-	-	-	-	-	-
02	-	270	230	10	22	19f6	40	6	6	3.5	15	V	100	88	251	202	29	13	2.1	
03	-	328	278	10	22	24f6	50	8	7	4	24	V	103	95	268	228	29	10	2.7	
04	259	378	318	12	28	28f6	60	8	7	4	30	V	110	114	324	278	39	13	3.8	
05	282	382	322	12	28	28f6	60	8	7	4	39	V	121	114	324	278	39	13	4.3	
06	317	444	364	12	28	38k6	80	10	8	5	56	V	121	133	382	280	45	13	6.2	
07	-	482	402	12	28	38k6	80	10	8	5	70	V	140	140	318	318	45	13	7.0	
08	380	593	483	15	45	42k6	110	12	8	5	109	W	169	159	452	384	51	16	8.6	
09	-	637	527	15	45	42k6	110	12	8	5	136	W	190	190	430	430	51	16	9.0	
10	418	668	558	15	50.5	48k6	110	12	8	5	166	W	190	178	502	430	51	16	10	
11	418	706	596	15	50.5	55m6	110	14	9	5.5	182	W	210	178	502	468	51	16	10.5	
12	418	761	641	19	63	55m6	110	16	10	6	282	W	225	203	578	528	64	19	15	
		791	671	19	63	60m6	140	18	11	7	-	-	-	-	-	-	-	-	-	

No.	HD	L	LB	φ K	φ KD	SHAFT					WT	BASE							
						φ D	E	F	GD	GE		FIG.	BE	BF	BM	BN	BH	φ BZ	WT
13	527	787	677	19	91	55m6	110	15	10	5	380	X	232	229	648	522	64	19	20.5
14	527	812	702	19	91	60m6	140	15	10	5	420	X	244	229	648	528	64	19	21
15	586	842	736	24	91	55m6	110	15	10	5	522	X	251	254	730	570	77	23	29
16	586	846	736	24	91	75m6	140	20	12	7.5	575	X	270	254	730	616	77	23	29.5
17	656	884	774	24	91	55m6	110	15	10	5	750	X	280	280	790	626	77	29	39
18	656	1014	874	24	80	60m6	140	15	10	5	890	X	305	280	790	676	77	29	39.5
19	656	1044	925	24	80	85m6	170	24	16	8	1070	X	350	280	790	766	77	29	40.5
20	656	1154	1014	24	80	60m6	140	15	10	5	1280	X	414	280	790	893	77	29	41.5
		1184	1014	24	80	85m6	170	24	16	8	-	-	-	-	-	-	-	-	-
		1184	1014	24	80	85m6	170	24	16	8	-	-	-	-	-	-	-	-	-
		1184	1014	24	80	95m6	170	24	16	8	-	-	-	-	-	-	-	-	-
		1281	1114	24	80	60m6	140	15	10	5	-	-	-	-	-	-	-	-	-
		1311	1114	24	80	85m6	170	24	16	8	-	-	-	-	-	-	-	-	-
		1311	1114	24	80	85m6	170	24	16	8	-	-	-	-	-	-	-	-	-
		1311	1114	24	80	95m6	170	24	16	8	-	-	-	-	-	-	-	-	-

PERFORMANCE DATA I

2 POLE

■ Squirrel Cage 2 Pole = 3600 r/min. (220V), 60Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	71	3400	65.0	78.0	2.1	12.6	0.11	0.22	0.28	0.420	9
0.75	80	3420	70.0	81.0	3.5	22.7	0.21	0.46	0.53	0.513	15
1.5	90L	3420	76.5	82.0	6.3	39.3	0.43	0.86	1.08	0.951	24
2.2	90L	3430	79.5	83.5	8.7	56.5	0.62	1.12	1.43	1.212	24
3.7	112M	3450	82.5	85.0	13.8	89.7	1.05	2.10	2.63	2.147	39
5.5	132S	3460	84.5	84.0	20.3	131.9	1.55	2.33	3.10	4.631	56
7.5	132S	3470	85.5	85.0	27.1	176.1	2.11	3.80	4.85	5.843	56
11	160M	3500	86.5	85.0	39.3	255.4	3.06	4.59	6.12	6.198	109
15	160M	3500	88.0	85.0	52.6	341.9	4.18	7.11	9.20	7.097	109
18.5	160L	3500	88.5	85.0	65.0	422.5	5.14	7.71	9.77	7.500	136
22	180M	3520	89.0	85.0	76.4	544.0	6.09	9.14	12.18	11.20	166
30	180L	3540	89.0	86.5	102.3	717.0	8.25	12.37	16.50	12.30	182
37	200L	3540	90.0	86.5	124.8	874.0	10.18	15.27	20.36	16.00	282
45	225S	3540	90.5	87.0	150.0	900.0	12.40	16.10	28.52	16.30	380
55	225M	3540	90.5	88.0	181.2	1178.0	15.13	19.67	34.80	18.80	420
75	250M	3545	90.5	88.0	247.2	1483.0	20.61	24.80	45.34	30.10	575
90	280S	3545	91.0	90.0	288.4	1909.0	24.73	29.68	51.93	33.60	750
110	280M	3550	91.5	90.0	350.5	2138.0	30.18	33.20	63.38	38.20	890
132	280L	3550	92.0	90.0	418.4	2780.0	36.22	38.03	72.44	40.70	1070
150	280L	3550	92.0	90.0	475.4	3140.0	41.15	43.20	82.30	47.80	1070

■ Squirrel Cage 2 Pole = 3000 r/min. (220V), 50Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	71	2880	63.0	80.0	2.1	10.5	0.13	0.26	0.33	0.603	15
0.75	80	2880	72.0	83.0	3.4	19.7	0.25	0.55	0.63	0.724	15
1.5	90L	2885	78.0	90.0	5.7	34.2	0.50	1.10	1.30	1.337	24
2.2	90L	2885	81.0	85.0	8.5	42.5	0.74	1.48	1.85	1.698	24
3.7	112M	2895	82.5	86.0	13.9	83.4	1.24	2.48	3.10	3.010	39
5.5	132S	2910	83.0	85.0	20.7	124.2	1.84	2.76	3.68	6.528	56
7.5	132S	2910	85.0	87.0	26.9	161.4	2.49	4.48	5.73	8.279	56
11	160M	2925	85.0	88.0	38.9	229.5	3.66	5.49	7.32	8.694	109
15	160M	2925	86.5	88.0	52.3	313.8	4.96	8.43	10.91	10.019	109
18.5	160L	2935	85.0	86.5	66.0	495	6.18	8.65	12.36	10.500	136
22	180M	2930	86.0	87.0	77.2	618	7.3	8.0	14.6	17.1	166
30	180L	2930	86.0	87.0	105.2	843	9.9	10.9	19.8	18.3	188
37	200L	2950	86.0	88.0	128.3	1036	12.3	13.5	24.6	22.5	282
45	225S	2950	86.0	88.0	156.0	1244	14.7	16.2	29.4	22.8	380
55	250S	2960	87.0	86.0	192.9	1211	18.0	21.6	36.0	26.3	522
75	250M	2960	86.0	85.0	269.3	1791	24.5	24.5	49.0	42.1	575
90	280S	2960	90.0	85.0	308.7	2161	29.6	29.6	59.2	47.0	750
110	280M	2960	90.0	85.0	377.4	2642	36.2	36.2	72.4	53.5	890
132	280L	2960	91.0	86.0	442.6	3098	43.4	43.4	86.8	57.0	1070
150	280L	2960	91.0	86.0	503.0	3521	49.4	49.4	98.8	66.9	1090

PERFORMANCE DATA II

4 POLE

■ Squirrel Cage 4 Pole = 1800 r/min. (220V), 60Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	71	1685	66.0	66.0	2.4	14.4	0.23	0.48	0.63	1.464	9
0.75	80	1690	72.0	72.0	3.8	24.7	0.43	0.86	1.08	2.248	15
1.1	90L	1710	76.5	72.0	4.9	31.8	0.63	1.26	1.58	2.983	24
1.5	90L	1710	79.0	76.0	6.6	42.9	0.85	1.87	2.38	4.033	24
2.2	100L	1720	81.0	79.0	9.0	55.8	1.26	2.52	3.15	6.373	24
3.7	112M	1730	83.0	82.0	14.3	92.9	2.08	4.16	5.20	10.49	39
5.5	132S	1740	85.0	81.0	21.0	136.5	3.08	5.54	7.08	16.84	56
7.5	132M	1750	86.0	80.0	28.6	185.9	4.18	8.36	10.45	23.24	56
11	160M	1755	87.0	83.0	40.0	260.0	6.11	11.00	14.05	27.62	109
15	160L	1750	88.0	83.0	53.9	350.3	8.30	14.94	19.09	39.24	109
18.5	180M	1750	89.0	82.0	67.0	435.5	10.30	15.45	20.60	42.01	136
22	180M	1750	90.0	83.0	78.0	507.0	12.20	18.30	24.40	42.75	166
30	180L	1750	89.5	89.5	104.8	734.0	16.69	25.04	33.38	50.70	182
37	200L	1760	90.0	90.0	128.5	1028.0	20.47	30.71	40.94	72.80	282
45	225S	1770	92.0	92.0	150.2	1050.0	24.76	39.62	56.95	75.50	380
55	225M	1770	92.0	92.0	183.4	1186.0	30.27	54.48	71.13	91.50	420
75	250M	1770	92.5	92.5	241.8	1572.0	41.27	53.65	90.79	189.7	575
90	280S	1770	92.5	92.5	290.0	1884.0	49.53	64.38	104.01	210.8	750
110	280M	1775	93.0	93.0	348.8	2266.0	60.53	78.69	127.11	259.0	890
132	280L	1770	93.0	93.0	418.6	2720.0	72.64	94.43	145.28	300.0	1070
150	280L	1775	93.0	93.0	475.6	3090.0	82.31	98.77	164.62	370.6	1070

■ Squirrel Cage 4 Pole = 1500 r/min. (220V), 50Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	71	1425	73.0	70.0	2.3	11.5	0.25	0.50	0.63	2.051	15
0.75	80	1440	75.0	72.0	3.7	21.1	0.50	1.05	1.30	3.150	15
1.5	90L	1430	79.0	80.0	6.4	38.4	1.02	2.24	2.75	5.618	24
2.2	100L	1450	81.5	80.0	8.9	53.4	1.50	3.00	4.05	11.448	30
3.7	112M	1450	84.0	81.0	14.4	86.4	2.49	4.98	6.23	14.715	39
5.5	132S	1455	85.0	82.0	21.0	126.0	3.70	5.92	7.40	23.688	56
7.5	132M	1455	85.0	82.0	28.5	171.0	4.98	9.96	12.50	32.956	70
11	160M	1455	86.0	83.0	40.7	244.2	7.34	11.01	14.68	38.71	109
15	160L	1460	87.0	84.0	54.1	324.6	9.98	14.97	19.96	55.655	136
18.5	180M	1460	87.0	81.0	68.9	551	12.3	18.5	24.6	58.8	166
22	180M	1470	87.0	83.0	80.0	639	14.7	22.1	29.4	71.1	166
30	180L	1470	87.0	83.0	109.0	872	19.9	29.9	39.8	75.9	188
37	200L	1470	88.0	82.0	134.6	1076	24.5	36.8	49.0	101.9	282
45	225S	1470	88.0	83.0	161.7	1213	29.8	44.7	59.6	105.7	380
55	225M	1470	89.0	84.0	193.1	1352	36.4	51.0	72.8	128.1	420
75	250M	1470	89.0	84.0	263.2	1712	49.7	69.6	99.4	265.3	575
90	280M	1470	89.5	84.0	313.3	2038	59.6	83.4	119.2	295.1	930
110	280M	1470	90.0	85.0	377.4	2453	72.9	102.1	145.8	362.6	930
132	280L	1470	89.0	85.0	457.9	3206	87.5	113.8	175.0	420.0	1120
150	280L	1475	91.0	88.0	491.6	3195	99.1	118.9	198.2	445.0	1280

PERFORMANCE DATA III

6 POLE

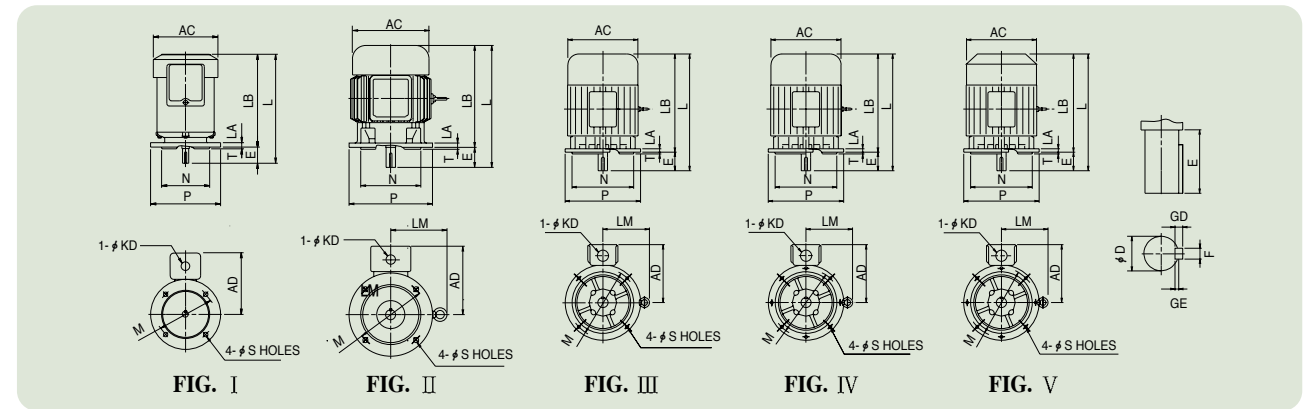
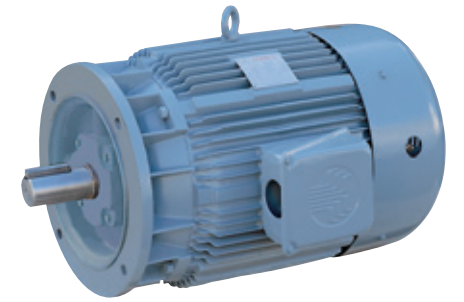
■ Squirrel Cage 6 Pole = 1200 r/min. (220V), 60Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	80	1110	64.0	66.0	2.5	15.0	0.35	0.60	0.70	3.789	15
0.75	90L	1120	70.5	67.0	4.2	25.2	0.65	1.11	1.30	6.391	24
1.5	100L	1135	77.0	72.0	7.1	43.3	1.29	2.20	2.97	10.03	30
2.2	112M	1140	79.5	73.0	9.9	59.4	1.88	3.01	3.76	14.23	39
3.7	132S	1140	82.5	75.0	15.7	98.9	3.16	5.06	6.32	23.74	56
5.5	132M	1150	84.5	72.5	23.6	141.6	4.66	6.99	9.32	39.66	70
7.5	160M	1150	85.5	76.0	30.3	196.9	6.35	9.53	13.97	45.57	109
11	160L	1160	86.5	76.0	43.3	281.4	9.24	13.86	20.33	61.71	136
15	180M	1160	88.0	77.0	58.1	389.0	12.59	18.89	25.18	70.20	166
18.5	180L	1160	88.5	77.0	71.2	484.0	15.53	23.30	31.06	80.60	182
22	180L	1160	90.5	77.5	82.3	562.0	18.47	27.71	36.94	82.20	182
30	200L	1160	90.5	78.5	110.8	742.0	25.18	35.25	50.36	132.0	282
37	200L	1160	90.0	79.5	135.8	910.0	31.06	46.59	62.12	140.0	282
45	250S	1180	92.0	87.0	147.6	960.0	37.14	50.14	81.71	334.8	522
55	250M	1180	92.0	86.0	182.5	1186.0	45.40	59.02	99.88	372.9	575
75	280S	1180	92.5	86.0	247.5	1540.0	61.91	77.39	130.01	420.2	750
90	280M	1180	92.5	85.0	300.5	1954.0	74.29	92.86	156.01	517.0	890
110	280L	1180	92.5	85.0	367.2	2386.0	90.80	113.50	190.68	679.0	1070
132	280L	1180	93.0	85.0	438.3	2848.0	108.96	136.20	228.82	701.0	1070
150	280LL	1180	93.0	85.5	495.1	3216.0	123.81	154.76	260.00	743.0	1280

■ Squirrel Cage 6 Pole = 1000 r/min. (220V), 50Hz

POWER (kW)	FRAME	SPEED (rpm)	EFF.(%)	P.F.(%)	F.L.A.(A)	L.R.A.(A)	F.L.T.(kg.m)	L.R.T.(kg.m)	B.D.T.(kg.m)	LOAD GD ² (kg.m ²)	WT(kg)
0.4	80	920	65.0	60.0	2.7	13.5	0.39	0.66	0.78	8.946	15
0.75	90L	945	72.0	64.5	4.3	21.5	0.77	1.39	1.69	8.950	24
1.5	100L	935	76.5	75.0	7.0	42.0	1.55	1.48	3.57	19.74	30
2.2	112M	940	79.0	71.5	10.4	57.2	2.28	3.65	4.56	33.281	39
3.7	132S	945	82.0	75.0	15.8	94.8	3.82	5.73	7.64	55.317	56
5.5	132M	940	85.0	76.0	22.5	135.0	5.70	8.55	11.40	63.714	70
7.5	160M	950	85.0	76.0	30.7	184.2	7.64	11.46	15.28	86.122	109
11	160L	965	85.0	77.0	44.5	267.0	11.10	16.65	22.20	86.390	136
15	180M	970	85.0	77.0	59.1	444	14.9	22.4	29.8	112.0	166
18.5	180L	975	86.0	77.0	73.9	554	18.6	27.9	35.2	170.2	182
22	200L	975	86.0	78.0	87.2	611	22.3	33.5	44.6	190.8	282
30	200L	975	87.0	80.0	114.0	798	29.7	40.1	59.4	267.7	282
37	250S	960	88.0	81.0	136.3	953	37.5	52.5	75.0	363.9	522
45	250S	960	87.5	81.5	165.1	1156	45.6	54.7	91.2	468.7	522
55	280S	970	88.0	82.0	200.0	1401	55.2	66.2	110.4	522.1	780
75	280M	970	88.0	82.0	272.7	1909	75.2	90.2	150.4	588.3	930
90	280L	975	89.0	82.0	323.7	2427	95.0	114.0	190.0	723.8	1120
110	280L	970	90.0	81.5	359.1	2643	111.0	133.2	222.0	950.6	1120

FLANGE TYPE MOTORS 0.4kW ~ 150kW



■ IEC - FLANGE

No.	FR.No.	FIG.	AC	AD	L	LB	M	N	P	LA	T	φ S	φ KD	LM	SHAFT				WT	
															φ D	E	F	GD		GE
01	71	I	148	140	249	215	130	110	160	9	3	10	22	-	146	30	5	5	3	11
02	80	II	180	135	300	260	165	130	200	10	3.5	12	22	-	196	40	6	6	3.5	30
03	90L	II	199	150	363	313	165	130	200	12	3.5	12	22	-	246	50	8	7	4	32
04	100L	II	220	160	405	345	215	180	250	13	4	15	28	145	286	60	8	7	4	48
05	112M	II	244	180	400	340	215	180	250	13	4	15	28	170	286	60	8	7	4	52
06	132S	II	284	200	462	382	265	230	300	16	4	15	28	185	386	80	10	8	5	80
07	132M	II	284	200	500	420	265	230	300	16	4	15	28	185	386	80	10	8	5	87
08	160M	II	337	266	602	492	300	250	350	16	5	19	45	220	426	110	12	8	5	138
09	160L	II	337	266	646	536	300	250	350	16	5	19	45	220	426	110	12	8	5	146
10	180M	III	374	288	668	558	350	300	400	20	5	19	50.5	238	486	110	14	9	5.5	161
11	180L	III	374	288	706	596	350	300	400	20	5	19	50.5	238	486	110	16	10	6	177
12	200L	IV	414	317	791	651	400	350	450	20	5	19	63	267	606	140	18	11	7	277
13	225S-C	IV	465	406	787	677	400	350	450	21	5	19	63	302	556	110	15	10	5	390
14	225S	IV	465	406	817	677	400	350	450	21	5	19	63	302	606	140	15	10	5	390
15	225M-C	IV	465	406	812	702	400	350	450	21	5	19	63	302	556	110	15	10	5	422
16	225M	IV	465	406	842	702	400	350	450	21	5	19	63	302	606	140	15	10	5	422
17	250S-C	V	529	434	846	736	500	450	550	22	5	19	63	336	556	110	15	10	5	549
18	250S	V	529	434	876	736	500	450	550	22	5	19	63	336	756	140	20	12	7.5	549
19	250M-C	V	529	434	884	774	500	450	550	22	5	19	63	336	556	110	15	10	5	602
20	250M	V	529	434	914	774	500	450	550	22	5	19	63	336	756	140	20	12	7.5	602
21	280S-C	V	610	465	1014	874	500	450	550	22	5	19	63	376	606	140	15	10	5	780
22	280C	V	610	465	1044	874	500	450	550	22	5	19	63	376	856	170	24	16	8	780
23	280M-C	V	610	465	1065	925	500	450	550	22	5	19	63	376	606	140	15	10	5	930
24	280M	V	610	465	1095	925	500	450	550	22	5	19	63	376	856	170	24	16	8	930
25	280L-C	V	610	465	1154	1014	500	450	550	22	5	19	63	376	606	140	15	10	5	1120
26	280L	V	610	465	1184	1014	500	450	550	22	5	19	63	376	856	170	24	16	8	1120
27	280L'	V	610	465	1184	1014	500	450	550	22	5	19	63	376	956	170	24	16	8	1122

■ D - FLANGE

No.	FR.No.	FIG.	AC	AD	L	LB	M	N	P	LA	T	φ S	φ KD	LM	SHAFT				WT	
															φ D	E	F	GD		GE
01	90L	II	199	150	363	313	254	229	279	13	5	13	22	-	246	50	8	7	4	32
02	100L	II	220	160	405	345	254	229	279	13	4	13	28	145	286	60	8	7	4	48
03	112M	II	244	180	400	340	254	229	279	13	5	13	28	170	286	60	8	7	4	52
04	132S	II	284	200	462	382	254	229	279	16	5	13	28	185	386	80	10	8	5	80
05	132M	II	284	200	500	420	254	229	279	16	5	13	28	185	386	80	10	8	5	87
06	160M	II	337	266	602	492	318	279	356	16	5	21	45	220	426	110	12	8	5	138
07	160L	II	337	266	646	536	318	279	356	16	5	21	45	220	426	110	12	8	5	146
08	180M	III	374	288	668	558	318	279	356	16	5	21	50.5	238	486	110	14	9	5.5	161
09	180L	III	374	288	706	596	318	279	356	16	5	21	50.5	238	486	110	16	10	6	177
10	200L	IV	414	317	791	651	406	356	457	19	6	21	63	267	606	140	18	11	7	277
11	225S-C	IV	465	406	787	677	406	356	457	19	6	21	63	302	556	110	15	10	5	390
12	225S	IV	465	406	817	677	406	356	457	19	6	21	63	302	606	140	15	10	5	390
13	225M-C	IV	465	406	812	702	406	356	457	19	6	21	63	302	556	110	15	10	5	422
14	225M	IV	465	406	842	702	406	356	457	19	6	21	63	302	606	140	15			

Ventilation

All frames are two-way end ventilated. Air enters through openings in both end brackets and discharges through frame openings at the bottom.

Service factor

Standard 1.15 service factor at 40°C (104°F) ambient for 60 cycle NEMA Design B. Design A, C and D are also available upon request.

Construction

Frame and end brackets are rugged cast iron. (Frame 90 is steel)

Conduit box

Diagonally split, rotatable in 90° steps, and made of pressed steel. Lead separator gasket seals conduit box from fram. (Optional cast iron conduit box is available on special order.)

Finish & Nameplate

Red oxide, zinc chromate primate with finish coat of semi-gloss, air drying, alkyed enamel. Stainless Steel for resistance to corrosion.

Rotor

Die cast aluminum, closed slot design and surface treated for minimum rotor losses. Rotor and complete shaft assembly are dynamically balanced.

Hardware

High strength, zinc plated and chromated for resistance to corrosion.

Insulation

Class "B" nonhygroscopic system is standard and IEEE standards. Stator coil conductors receive multiple coatings of premium grade insulating enamel. Slot cell is made from a laminated material which provides high dielectric strength, great mechanical strength, and affords a positive moisture barrier. Glass one of the materials used, affords positive protection against "thermal cut through" between the wire and the lamination stack. Complete wound stator core receives multiple dips and backs of special insulating varnish.

Leads

Stranded copper, suitably insulated for appropriate insulation class. All leads permanently identified.

Bearings

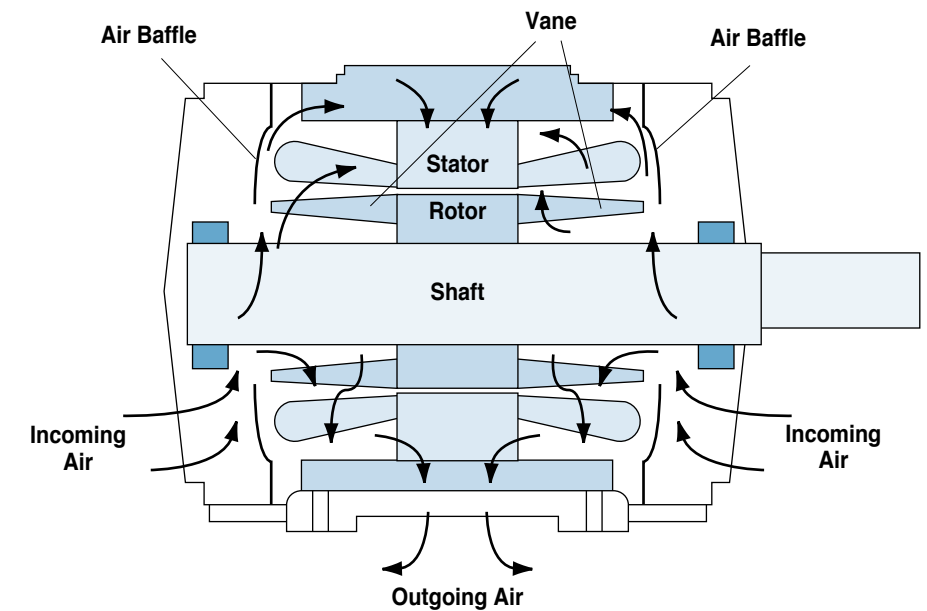
Standard, double-shielded (one shield each side), regreasable, single row width, deep groove Conrad type made from improved, vacuum degassed steel for longer life expectancy. Bearings are pre-packed with grease for ambient temperatures of -30°C to +50°C (-22°F to +122°F). Other temperature ranges available on special order with single shielded temperature stabilized bearings. Bearing housing is also packed with grease at time of motor assembly.

Bearings

Pipe plugs on inlet and relief.



HICO motors are designed for improved heat dissipating capacity adopting a double end ventilation system. The gain in heat dissipating capacity is about 60% for small frames and about 30% for the larger. The generous even flow of cooling air throughout the machining provides ample cooling and assures against localized heating or hot spots.



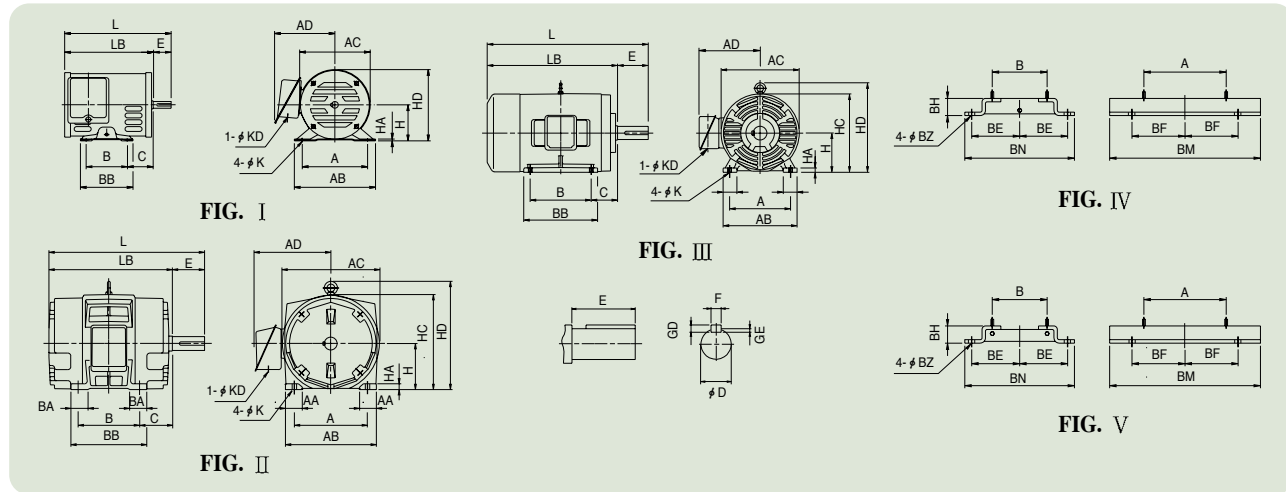
APPLICATION

Standard applications for indoor and outdoor use include clean and dry location as separate motor rooms, well kept factories where metallic and non-metallic dusts are NOT present, and office buildings, etc.

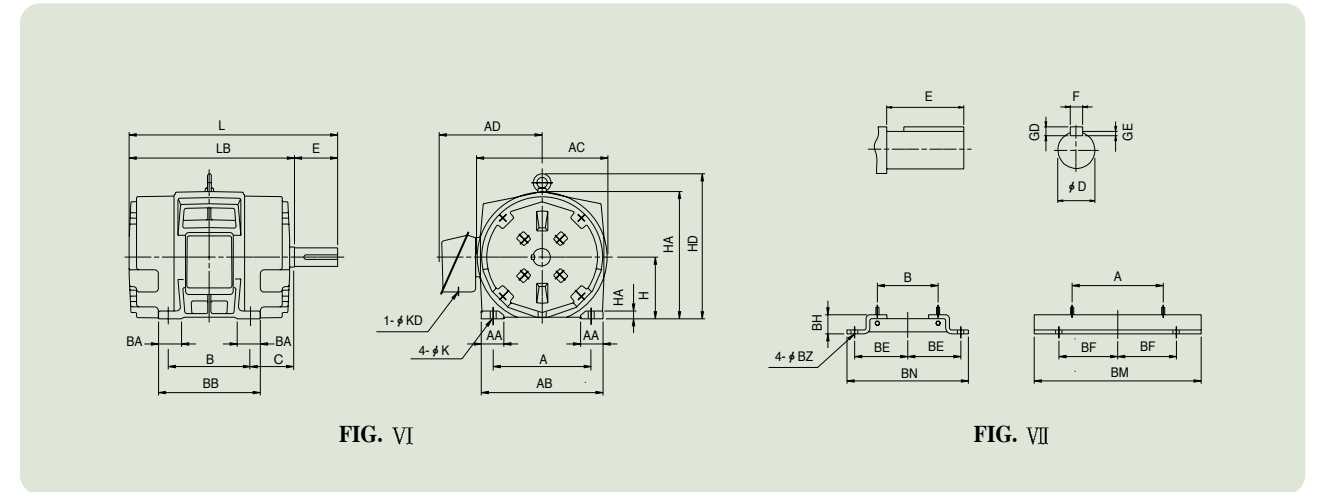
For moist, hot tropical climates where fungi could form, special protection can be provided as an option, and at extra cost. Unless otherwise specified, tropical protection includes moisture resistant insulation, plus fungus protection on all electrical parts, windings, rotor outside diameter and stator inside diameter.

For gravel plants, pulverizers of non-combustible and non-clogging materials, additional abrasion and dust resistant protection can be supplied.

OPEN DRIP PROOF TYPE 0.75kW ~ 220kW



OPEN DRIP PROOF TYPE 0.75kW ~ 220kW (cont'd)



UNIT : mm, kg

No.	FR.No.	FIG.	OUT PUT(kW)				BEARING		A	AA	AB	AC	AD	B	BA	BB	C	H	HA
			2P	4P	6P	8P	DRIVE	NON DRIVE											
01	80	I	0.75	0.75	-	-	6204ZZ	6204ZZ	125	35	164	145	135	100	-	125	50	80	2.3
02	90L	I	1.5,2.2	1.5	0.75	-	6205ZZ	6205ZZ	140	38	176	159	142	125	-	152	56	90	3
03	100L	I	-	2.2	1.5	0.75	6206ZZ	6205ZZ	160	40	200	182	152	140	-	180	63	100	5
04	112M	II	3.7	3.7	2.2	1.5	6206ZZ	6205ZZ	190	40	230	198	161	140	90	180	70	112	6
05	132S	II	5.5,7.5	5.5	3.7	2.2	6208ZZ	6206ZZ	216	41	260	279	215	140	86	172	89	132	17
06	132	II	-	7.5	5.5	3.7													
07	160M	II	11,15	11	7.5	5.5	6309ZZ	6207ZZ	254	60	311	333	261	210	127	254	108	160	20
8	160L	II	18.5	15	11	7.5	6309ZZ	6207ZZ	254	60	311	333	261	254	149	298	108	160	20
			22	18.5	-	-	6310ZZ	6208ZZ											
9	180M	III	30	-	-	-	6212ZZ	6212ZZ	279	63	338	358	288	241	-	300	121	180	20
			-	22,30	15,18.5	11	6312ZZ												
10	180L	III	37	-	22,30	15,18.5	6212ZZ	6212ZZ	279	63	338	358	288	279	-	338	121	180	20
11	200M	III	-	-	-	-	6314ZZ	6212ZZ	318	70	382	397	317	267	-	332	133	200	22

UNIT : mm, kg

No.	HC	HD	L	LB	φ K	φ KD	SHAFT					WT	BASE						WT	
							φ D	E	F	GD	GE		FIG.	BE	BF	BM	BN	BH		φ BZ
01	153	-	235	195	7	22	19φ	40	6	6	3.5	10	IV	100	88	251	202	29	13	2.1
02	170	-	284	234	10	22	24φ	50	8	7	4	16	IV	103	95	268	228	29	10	2.7
03	191	-	321	261	10	28	28φ	60	8	7	4	26	IV	110	114	324	278	39	13	3.8
04	231	279	335	275	12	28	28φ	60	8	7	4	34	IV	121	114	324	278	39	13	4.3
05	272	320	395	315	12	28	38φ	80	10	8	5	51	IV	121	133	382	280	45	13	6.2
													IV	140	318	318	7.0			
07	327	386	528	418	15	45	42φ	110	12	8	5	93	V	169	159	452	384	51	16	8.6
													V	190	159	452	430			
8	327	386	527	462	15	45	42φ	110	12	8	5	106	V	190	159	452	430	51	16	9.0
													V	190	178	502	430			
9	359	410	668	558	15	50.5	55φ	110	16	10	6	147	V	190	178	502	430	51	16	10
													V	190	178	502	468			
10	359	410	706	596	15	50.5	55φ	110	16	10	6	179	V	190	178	502	468	51	16	10.5
													V	190	178	502	468			
11	399	459	791	651	19	63	65φ	140	18	11	7	225	V	216	203	578	490	64	19	14.5

No.	FR.No.	FIG.	OUT PUT(kW)				BEARING		A	AA	AB	AC	AD	B	BA	BB	C	H	HA
			2P	4P	6P	8P	DRIVE	NON DRIVE											
01	225S	II	55	-	-	-	6314C3	6314C3	356	69	439	473	393	286	67	330	149	225	25
02	225M	II	-	45	-	22	6314	6314	356	69	439	473	393	311	67	356	149	225	25
			75	-	-	-	6314C3	6314C3											
03	250S-C	II	90	75	45	37	6312	6312	406	78	496	530	424	311	76	368	168	250	27
			250S-P	-	75	45	37	6317											
04	250M-C	II	110	90	55	45	6312	6312	406	78	496	530	424	349	76	406	168	250	27
			250M-P	-	90	55	45	6317											
05	280S-C	II	150	110	75	55	6313	6313	457	85	552	597	450	368	95	444	190	280	28
			280S-P	-	110	75	55	NU319											
06	280M-C	II	185	150	90	75	6313	6313	457	85	552	597	450	419	95	495	190	280	28
			280M-C	-	110	90	75	6319											
07	280L-C	II	-	-	-	-	6313	6313	457	85	552	598	450	508	95	585	190	280	28
			280L-C	-	185	150	110	6319											
08	280LL-C	II	220	-	-	-	6313	6313	457	85	552	600	450	635	95	712	190	280	28
			280LL-C	-	220	185	150	6319											
08	280LL-P	II	-	-	-	-	6313	6313	457	85	552	600	450	635	95	712	190	280	28
			280LL-P	-	220	185	150	NU222											

No.	HC	HD	L	LB	φ K	φ KD	SHAFT					WT	BASE						WT	
							φ D	E	F	GD	GE		FIG.	BE	BF	BM	BN	BH		φ BZ
01	462	533	690	580	19	63	55φ	110	15	10	5	285	III	232	229	648	522	64	19	20.5
							60φ	140												
02	462	533	715	605	19	63	55φ	110	15	10	5	378	III	251	254	730	570	77	23	29
			60φ				140	15												
03	515	586	752	642	24	63	55φ	110	15	10	5	478	III	280	280	790	626	77	29	39
			75φ				140	20												
04	515	586	790	680	24	63	55φ	110	15	10	5	478	III	280	280	790	626	77	29	39
			75φ				140	20												
05	579	650	882	742	24	63	60φ	140	15	10	5	478	III	280	280	790	626	77	29	39
			85φ				170	24												
06	579	650	963	793	24	63	60φ	140	15	10	5	478	III	280	280	790	626	77	29	39
			85φ				170	24												
07	579	650	1052	882	24	63	60φ	140	15	10	5	478	III	280	280	790	626	77	29	39
			85φ				170	24												
08	580	651	1149	1009	24	63	60φ	140	15	10	5	478	III	280	280	790	626	77	29	39
			85φ				170	24												

AC MOTORS FOR SPECIFIC USE



Premium Efficiency Motors

- High Efficiency
- Low Noise
- CSA Approved



Two-Speed Motors

- Constant Torque
- Constant Horsepower
- Variable Torque



Explosion Proof Motors

- Ex e II T3
- Ex d II B T4
- Class I, Group D & Class II, Group E.F.G
- UL Approved



Inverter Duty Motors

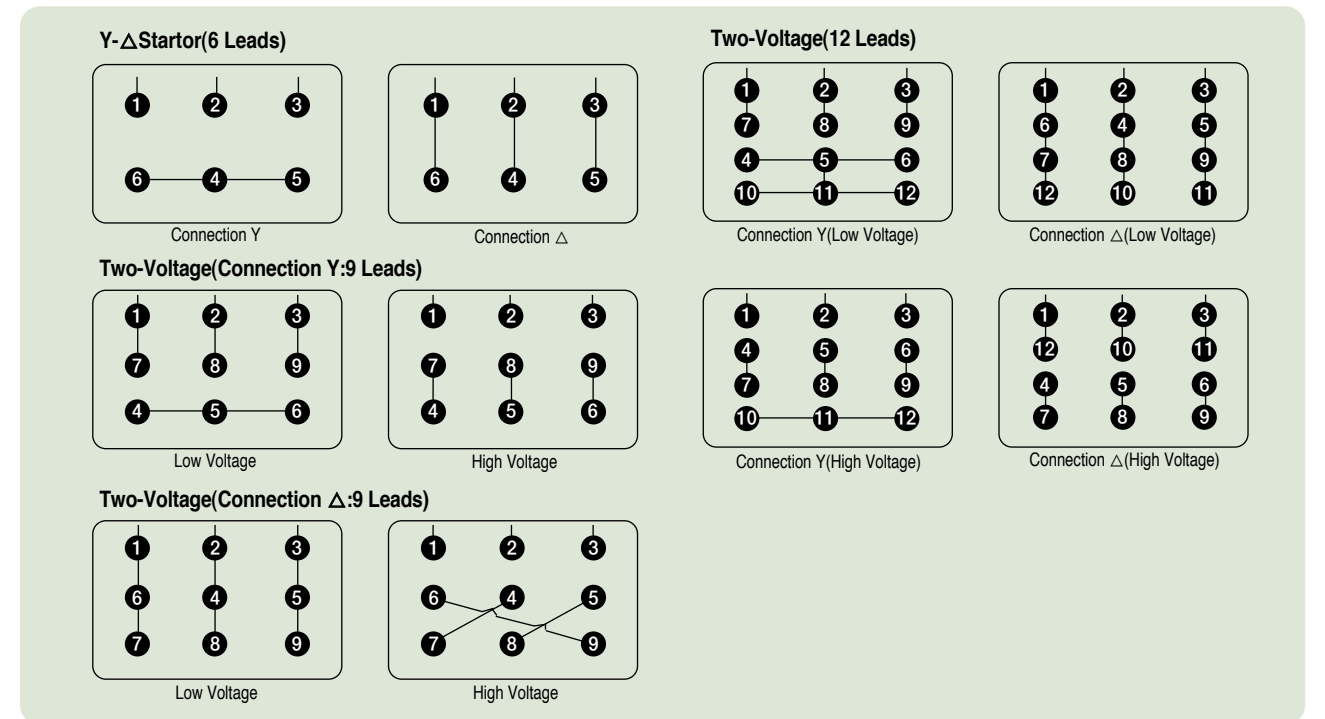
- Frequency Range : 6~60Hz, 6~90Hz, 6~100Hz
- Low Operating Cost
- Various Application

TECHNICAL FEATURES

Starting Methods

TYPE	VOLTAGE	STARTING TORQUE	CURRENT
DIRECT ON-LINE	100%	100%	100%
Y-Δ STARTOR	57.5%	33.3%	33.3%
SOFT START WITH AUTOTRANSFORMER DIRECT	80% Tap	64%	68%
	65% Tap	42%	46%
	50% Tap	25%	30%
SOFT START WITH RESISTRANCES DIRECT	80%	64%	80%
REACTOR	50% Tap	25%	50%
	45% Tap	20%	45%
	37.5% Tap	14%	37.5%
PART WINDING STARTOR (SINGLE LOW VOLTAGE)	75% Winding	75%	75%
	50% Winding	50%	50%

Connection Diagrams



TECHNICAL FEATURES (cont'd)

■ Noise Data

The measuring surface sound pressure L_{pA} as well as the sound power level L_{WA} of single-speed motors are shown in the table below.













Measuring surface sound pressure level and sound power level(dBA at 1 m From motor)

HP	SPEED	TEFC						ODP					
		3600		1800		1200		3600		1800		1200	
1		70	71	56	58	56	59	61	62	56	58	55	57
1.5		-	-	-	-	-	-	-	-	-	-	-	-
2		70	73	56	65	56	59	65	67	56	58	56	59
3		70	73	58	68	56	59	65	68	58	61	61	64
5		74	80	58	68	61	64	68	70	58	61	61	64
7.5		77	83	64	70	61	64	72	74	64	67	63	65
10		77	84	64	70	66	69	73	75	64	67	63	65
15		82	86	68	76	66	69	75	76	68	70	66	69
20		82	86	68	76	66	69	76	78	68	70	66	69
25		79	87	72	78	66	71	80	82	72	75	66	71
30		79	87	72	78	66	71	82	84	72	75	66	71
40		80	87	73	80	69	75	80	87	73	80	69	75
50		80	87	73	80	69	75	80	87	73	80	69	75
60		80	87	74	82	74	77	80	87	74	82	74	77
75		80	87	74	82	74	77	80	87	74	82	74	77
100		81	87	75	82	76	83	81	87	75	82	76	83
125		92	98	85	92	76	83	92	98	85	92	76	83
150		92	98	85	92	76	83	92	98	85	92	76	83
200		92	98	85	92	76	83	92	98	85	92	76	83

Values in shade area are for standard efficiency ratings.

■ Symbols for mounting arrangements and the installation of rotating electric machines

■ Packing dimensions and weights (Mounting IM B3 standard design)

Mounting	
Horizontal Mounting	Vertical Mounting
B3 (IM 1001) 	B6 (IM 1071) 
B6 (IM 1051) 	V5 (IM 2011) 
B7 (IM 1061) 	V6 (IM 2031) 
B5 (IM 1001) 	B3/B5 (IM 1071) 
V1 (IM 1051) 	V1/V5 (IM 2011) 
V3 (IM 1061) 	V3/V6 (IM 2031) 

Frame size	Overseas shipment (Seaworthy packing) Crate dimensions mm	Tare kg (Approx.)
90S		26
90L	420 × 325 × 222	32
100L		
112M		
132S	469 × 391 × 317	41
132M	526 × 431 × 352	58
160M		
160L		
180M	749 × 564 × 404	111
180L		
200L		
225S		
225M	820 × 680 × 675	168
250M	980 × 830 × 805	184
280S		
280M		
280S	1060 × 850 × 880	287
280M	1280 × 1050 × 955	385
280L		
280LL		
280LL		
280LL	1350 × 1050 × 955	425
280LL	1280 × 1050 × 955	580
280LL		
280LL		
280LL		
280LL	1350 × 1050 × 955	755
280LL	1280 × 1050 × 955	900
280LL		
280LL		
280LL		
280LL	1350 × 1050 × 955	1100
280LL	1350 × 1050 × 955	1300
280LL		

NOTE : All data throughout the catalog subject to change without notice.

INFORMATION SLIP

Company : _____

Name and Nature of Project : _____

Please fill the questions below as your inquiries and orders are allowed.

TYPE		QUANTITY	
KW		INSULATION CLASS	
VOLTAGE		TEMPERATURE RISE	°C at Full Load
HZ		HUMIDITY	%
RPM		LOCATION	
TYPE OF DRIVEN MACHINE		AMBIENT TEMPERATURE	°C
STANDARDS	<input type="checkbox"/> IEC <input type="checkbox"/> NEMA <input type="checkbox"/> Others()	MOTOR DATA	
		Current	No Load : Full Load : Starting :
STARTING METHOD	<input type="checkbox"/> Direct-on <input type="checkbox"/> Reactor <input type="checkbox"/> Star-Delta <input type="checkbox"/> Others()	Power Factor	%
		Efficiency	%
TERMINAL BOX LOCATION	Viewing on Drive End <input type="checkbox"/> Left <input type="checkbox"/> Right	Noise Level	dB(A)
		Vibration Level	
ENCLOSURE	<input type="checkbox"/> TE <input type="checkbox"/> ODP <input type="checkbox"/> Others()	Torque	Full Load : Locked Rotor : Breakdown :
		MOUNTING	<input type="checkbox"/> B3 <input type="checkbox"/> B5 <input type="checkbox"/> V1 <input type="checkbox"/> V3 <input type="checkbox"/> V5 <input type="checkbox"/> V6 <input type="checkbox"/> Others()
<input type="checkbox"/> Placed in air stream of driven fan			
<input type="checkbox"/> Forced Ventilation			
<input type="checkbox"/> Water Cooling <input type="checkbox"/> Fan Cooling			
DRIVE TYPE			
Coupling Drive	Type of Coupling :	Belt Drive	Pulley diameter(motor) : mm
	Axial Force F_A = N		Pulley width(motor) : mm
	Downthrust :		Radial Force F_R = N
	Upthrust :		Point where applied From shaft collar : mm
<input type="checkbox"/> SPACE HEATER	PAINTING (MUNSELL NO.)	<input type="checkbox"/> 7.5BG 5/2 <input type="checkbox"/> Others()	

REMARKS