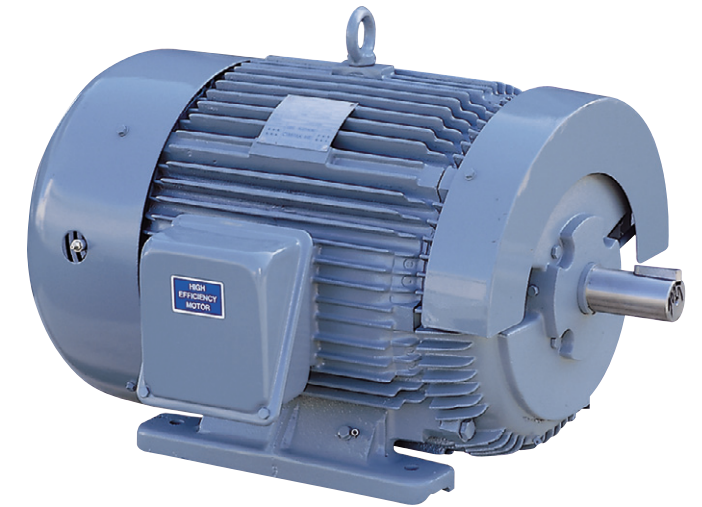


Low Voltage Motors

3PHASE 0.4-220KW 50/60Hz



www.hyosungpni.com

Global Top Energy, Machinery & Plant Solution Provider

HYOSUNG CORPORATION
Power & Industrial Systems Performance Group
HEAD OFFICE
119 Mapodaero, Mapo-gu, Seoul, Korea 121-720
TEL : 82-2-707-6344, FAX : 82-2-707-6039



About HYOSUNG



Hyosung Power & Industrial Systems PG is a division under Hyosung which consists of seven performance groups(PGs). In addition to establishing itself as a world-class manufacturer of electrical equipments, green technology and industrial machineries, Hyosung is also the largest producer of tire cords and spandex in the global market and the second largest supplier of ATMs in the USA.



Low Voltage Motors

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01 Our Business

Brief introduction of Hyosung Power & Industrial Systems

Hyosung Power & Industrial Systems Performance Group

Hyosung Power & Industrial Systems Performance Group, a comprehensive energy solution provider, boasts world-leading technology in the global power industry and has secured a competitive capability on par with that of top competitors in transformers, switchgears, motors, decelerators, industrial pumps, and wind energy business.

With globalization as one of our top priorities, we have achieved outstanding increase in sales over the past few years thanks to the enhancement in Hyosung's quality, technology, and brand recognition among overseas clients, which include North America, Europe, the Middle East, and Asia. We expect such robust performance, marked by an increasing number of orders from the overseas market, to continue in the future.

At the heart of our capability to grow as a comprehensive energy solution provider is our global organization structure. Hyosung Power & Industrial Systems Performance Group is divided into four business areas or performance units, depending on the types of flagship products: Power Systems Performance Unit, Industrial Machinery Performance Unit, Hyosung GoodSprings Performance Unit, and the Wind Energy Business Division.

Industrial Machinery Performance Unit

The Industrial Machinery Performance Unit Plays an important role in the infrastructure industry around the globe and is specialized in manufacturing all types of motors, gear reducers, generators, green energy, and industrial machines.

With the ability to produce motors with up to 20,000kW, we possess an automated production line capable of manufacturing more than 40,000 motors every month.

Our accumulated technologies and various experiences have made it possible to develop turnkey-based engineering projects including industrial plant, ropeways, energy solutions, and alternative refueling systems.

In addition, we anticipate that our efforts in innovation among rotary machinery will make significant contributions towards creating energy profitability as well as greater efficiency. With the goal to serve as a world-leading provider of industrial machinery and plant engineering, we will continue to focus on innovative energy conservation technology, enhanced reliability of new products, and development of new technologies.



02 Sustainability

Our sustainability principles are the backbone of the way we design and manufacture products

Hyosung Way

Hyosung Way is our core values and principles instilled in all of our employees across the globe. Enhance and enrich the quality of life for humanity with its leading technology and management capability

GLOBAL EXCELLENCE

- Maximize the competitiveness with ceaseless self-improvement effort to win in any situation
- Blaze new trails in markets around the world with a global outlook

INNOVATION

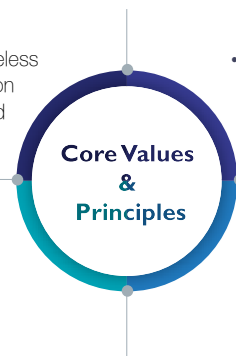
- Eliminate all inefficiencies that do not and value
- Challenge new possibilities with a positive mindser

INTEGRITY

- Uphold transparency and fairness based on facts and principles
- Respect and cooperate with each to make a great workplace

ACCOUNTABILITY

- Act like owners and take charge in actions
- Never give up until acheving the goal



Quality Assurance

Hyosung strives for excellence. We believe excellence can only be achieved through absolute quality and value for customers. In order to create quality products, we believe that all of the actions of every single employee must be focused in the highest level of quality. In order to achieve such levels, we have implemented a quality assurance policy and programs that make our philosophy into a reality.

Our Quality Assurance Policy was founded based on the management policy of the president and meets the demands of ISO 9001. As a globally active company, we are committed to comprehensive and quality management through three quality strategies: quality management system, customer-focused management system, and concentration on core competencies.

The comprehensive quality management system ensures that we completely comply with all compliances and applicable legislation, codes, and standards in addition to implementing efficient operation of our management resources to eliminate unnecessary waste.

Our customer-focused management system clarifies and simplifies our first priority which is customer satisfaction. All of our work is aimed to exceed customer needs and provide exceptional value through quality standards, flexibility, and innovation.

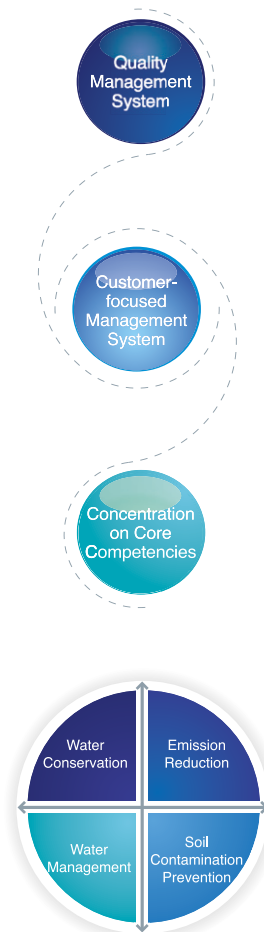
Finally, we concentrate on our core competencies for strict quality control and continual improvement which provides quality products and cost-saving to our clients via advancement in technical capacity and technological innovation.

We implement our policy via a Quality Management Team manages research laboratories, including the Measurement Standard Laboratory, the Chemical Analysis Laboratory and the Material Analysis Laboratory to maintain a strict control over quality.

Environment Protection Policy

Hyosung understands the impact of Hyosung's activities in the environment and works to protect the environment from pollution, manages the environmental impacts of Hyosung's products and technologies, and prevents future pollution and harmful effects in the environment by investing in environmentally-friendly products and solutions.

Based on this eco-philosophy of shared responsibility, Hyosung has implemented a comprehensive environmental protection program that aims to minimize our impact on the environment and conserve resources. Our environmental policy fulfils all requirements of the ISO 14001.



03 R&D

Inspiring innovation, creation and expertise

Hyosung R&D Center identifies innovation, creation, and expertise as core value, and concentrates on world class R&D activities in the 21st century with a philosophy aspiring after customer satisfaction, quality priority, and performance orientation. Hyosung pursues to be the world's best company in the field of heavy electrical machinery, industrial & electrical electronics engineering, and energy system. Ever since establishment in 1978, R&D Center had led the development of domestic technology. Along with the Anyang and Changwon labs, the group has endeavored to produce core technology and world-class products in the areas of heavy electrical machinery, energy system, electrical electronics engineering, and industrial automation system.

Research Areas

Hyosung R&D Center engages in the activities in the field of energy system, solution & service, applied electrical and electronic technology, basic core technology, technology of improved reliability, core components, and new materials.

Energy System

- Renewable energy (wind system, wind turbine, wind PCS, solar system, PV PCS, fuel cell, co-generation)
- Electric Vehicle (EV charger, EV motor)

Solution & Service

- Power facility diagnosis algorithm and system
- Power facility lifecycle evaluation system
- Service solution for remote diagnosis for prevention

Applied Electrical & Electronic Technology

- Power conversion system
- Flexible AC transmission system and high voltage direct current
- Power quality solution

Basic Core Technology

- Fortified technology in structural dynamics, electromagnetics, heat transfer analysis, etc.
- Skills for system simulation, analysis and evaluation
- Business support technology

Technology with Improved Reliability

- Test data analysis and testing facility
- Analysis of lifecycle and cause of error
- Reliability assessment (environment-friendliness, durability, long-term degradation, and more)

Core Components and New Materials

- Organic and inorganic insulation materials
- Silicon forming technology
- Intelligent sensor (facility diagnosis, CT, PT, VT, LA, and more)

Low Voltage Motors



Hyosung Motors Range Includes

TEFC Type Motors	Flange Type Motors	ODP Type Motors	High Efficiency Motors	Pole Change Motors
Explosion Proof Motors	Inverter Motors	Crane Motors	Marine Motors	Coal-Mine Motors
Low Noise Motors	Low Vibration Motors	High Torque Motors	Brake Motors	NEMA Motors

Quality Assurance Standards

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

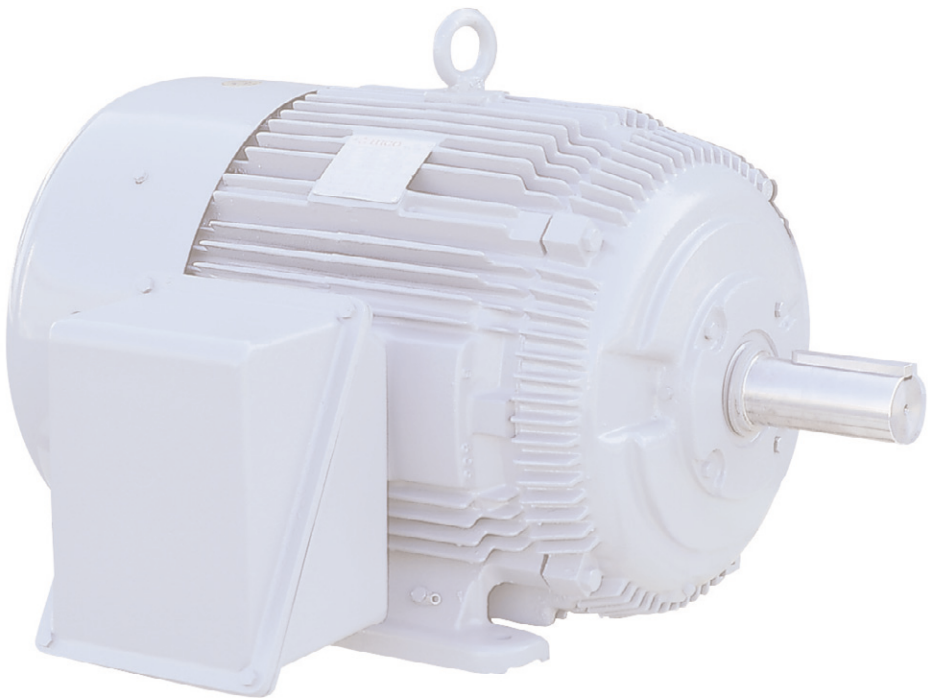
The Present Status of Certification Acquisition

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



Standards 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 Specification

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.

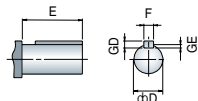
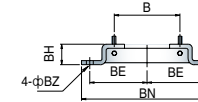
Fan

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.

Leading the World best

UNIT : mm, kgUNIT : mm, kg

Performance Data I | 2Pole

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

Power (kW)	Frame	Spees (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	2.1	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	3.8	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	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	16.1	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	20.61	24.8	45.34	30.10	575
90	280S	3545	91.0	90.0	288.4	1909	24.73	29.68	51.93	33.60	750
110	280M	3550	91.5	90.0	350.5	2138	30.18	33.2	63.38	38.20	890
132	280L	3550	92.0	90.0	418.4	2780	36.22	38.03	72.44	40.70	1070
150	280L	3550	92.0	90.0	475.4	3140	41.15	43.2	82.30	47.80	1070

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

Power (kW)	Frame	Spees (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	1.3	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	3.1	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 | 4Pole

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

Power (kW)	Frame	Spees (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	18.3	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 4Pole = 1500 r/min. (220V), 50Hz

Power (kW)	Frame	Spees (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	0.5	1.05	1.30	3.15	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	1.5	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

TEFC Type Motors

Leading the World best

Performance Data III | 6Pole

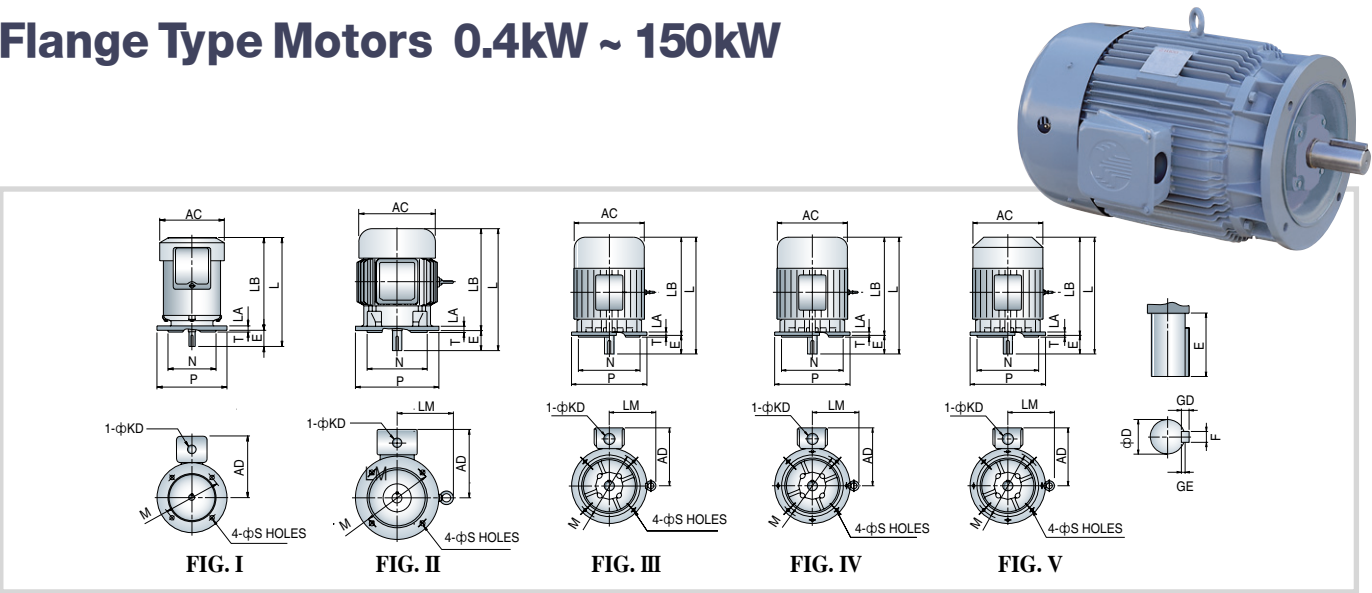
Squirrel Cage 6Pole = 1200 r/min. (220V), 60Hz

Power (kW)	Frame	Spees (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 6Pole = 1000 r/min. (220V), 50Hz

Power (kW)	Frame	Spees (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	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	86.39	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

UNIT : mm, kg

No.	FR.No.	FIG.	AC	AD	L	LB	M	N	P	LA	T	øS	øKD	LM	Shaft						WT
															øD	E	F	GD	GE		
01	71	I	148	140	249	215	130	110	160	9	3	10	22	-	14j6	30	5	5	3	11	
02	80	II	180	135	300	260	165	130	200	10	3.5	12	22	-	19j6	40	6	6	3.5	30	
03	90L	II	199	150	363	313	165	130	200	12	3.5	12	22	-	24j6	50	8	7	4	32	
04	100L	II	220	160	405	345	215	180	250	13	4	15	28	145	28j6	60	8	7	4	48	
05	112M	II	244	180	400	340	215	180	250	13	4	15	28	170	28j6	60	8	7	4	52	
06	132S	II	284	200	462	382	265	230	300	16	4	15	28	185	38k6	80	10	8	5	80	
07	132M	II	284	200	500	420	265	230	300	16	4	15	28	185	38k6	80	10	8	5	87	
08	160M	II	337	266	602	492	300	250	350	16	5	19	45	220	42k6	110	12	8	5	138	
09	160L	II	337	266	646	536	300	250	350	16	5	19	45	220	42k6	110	12	8	5	146	
10	180M	III	374	288	668	558	350	300	400	20	5	19	50.5	238	48k6	110	14	9	5.5	161	
11	180L	III	374	288	706	596	350	300	400	20	5	19	50.5	238	55m6	110	16	10	6	177	
12	200L	IV	414	317	791	651	400	350	450	20	5	19	63	267	60m6	140	18	11	7	277	
13	225S-C	IV	465	406	787	677	400	350	450	21	5	19	63	302	55m6	110	15	10	5	390	
14	225S	IV	465	406	817	677	400	350	450	21	5	19	63	302	60m6	140	15	10	5	390	
15	225M-C	IV	465	406	812	702	400	350	450	21	5	19	63	302	55m6	110	15	10	5	422	
16	225M	IV	465	406	842	702	400	350	450	21	5	19	63	302	60m6	140	15	10	5	422	
17	250S-C	V	529	434	846	736	500	450	550	22	5	19	63	336	55m6	110	15	10	5	549	
18	250S	V	529	434	876	736	500	450	550	22	5	19	63	336	75m6	140	20	12	7.5	549	
19	250M-C	V	529	434	884	774	500	450	550	22	5	19	63	336	55m6	110	15	10	5	602	
20	250M	V	529	434	914	774	500	450	550	22	5	19	63	336	75m6	140	20	12	7.5	602	
21	280S-C	V	610	465	1014	874	500	450	550	22	5	19	63	376	60m6	140	15	10	5	780	
22	280C	V	610	465	1044	874	500	450	550	22	5	19	63	376	85m6	170	24	16	8	780	
23	280M-C	V	610	465	1065	925	500	450	550	22	5	19	63	376	60m6	140	15	10	5	930	
24	280M	V	610	465	1095	925	500	450	550	22	5	19	63	376	85m6	170	24	16	8	930	
25	280L-C	V	610	465	1154	1014	500	450	550	22	5	19	63	376	60m6	140	15	10	5	1120	
26	280L	V	610	465	1184	1014	500	450	550	22	5	19	63	376	85m6	170	24	16	8	1120	
27	280L'	V	610	465	1184	1014	500	450	550	22	5	19	63	376	95m6	170	24	16	8	1122	

D-Flange

UNIT : mm, kg

No.	FR.No.	FIG.	AC	AD	L	LB	M	N	P	LA	T	øS	øKD	LM	Shaft						WT
															øD	E	F	GD	GE		
01	90L	II	199	150	363	313	254	229	279	13	5	13	22	-	24j6	50	8	7	4	32	
02	100L	II	220	160	405	345	254	229	279	13	4	13	28	145	28j6	60	8	7	4	48	
03	112M	II	244	180	400	340	254	229	279	13	5	13	28	170	28j6	60	8	7	4	52	
04	132S	II	284	200	462	382	254	229	279	16	5	13	28	185	38k6	80	10	8	5	80	
05	132M	II	284	200	500	420	254	229	279	16	5	13	28	185	38k6	80	10	8	5	87	
06	160M	II	337	266	602	492	318	279	356	16	5	21	45	220	42k6	110	12	8	5	138	
07	160L	II	337	266	646	536	318	279	356	16	5	21	45	220	42k6	110	12	8	5	146	
08	180M	III	374	288	668	558	318	279	356	16	5	21	50.5	238	48k6	110	14	9	5.5	161	
09	180L	III	374	288	706	596	318	279	356	16	5	21	50.5	238	55m6	110	16	10	6	177	
10	200L	IV	414	317	791	651	406	356	457	19	6	21	63	267	60m6	140	18	11	7	277	
11	225S-C	IV	465	406	787	677	406	356	457	19	6	21	63	302	55m6	110	15	10	5	390	
12	225S	IV	465	406	817	677	406	356	457	19	6	21	63	302	60m6	140	15	10	5	390	
13	225M-C	IV	465	406	812	702	406	356	457	19	6	21	63	302	5						

Features and Specification

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 prime with finish coat of semi-gloss, air drying, alkylated 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.

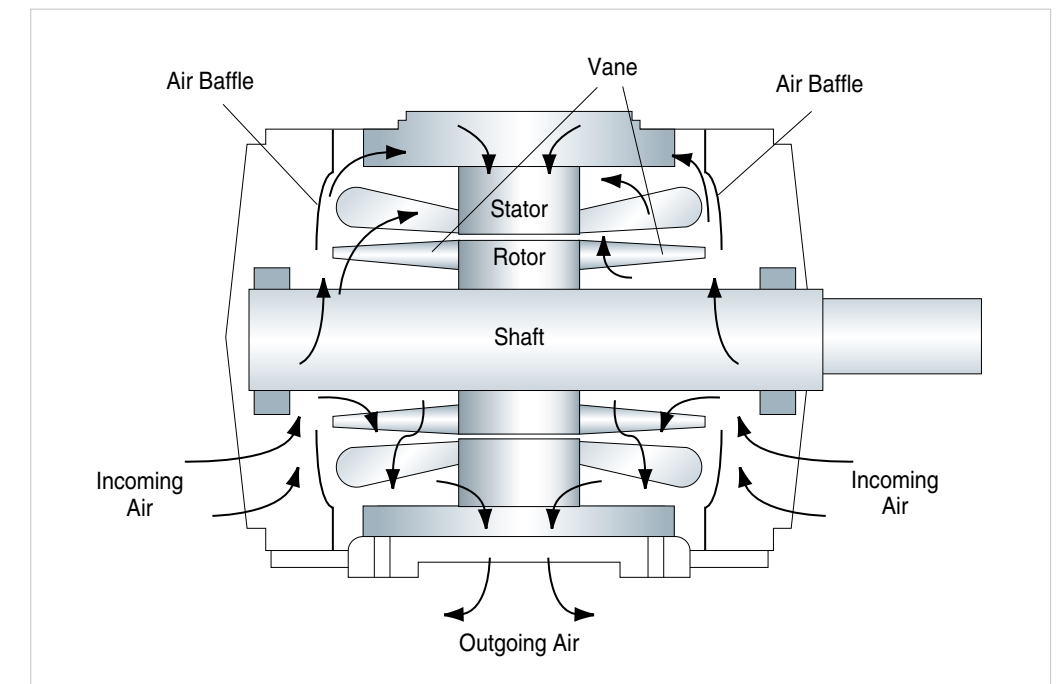
Bearings are pre-packed with grease for ambient temperatures of -30°C to +50°C(-22°F to +122°F). Other temperature ranges available on special order with single shielded temperature stabilized bearings. Bearing housing is also packed with grease at time of motor assembly.

Bearings

Pipe plugs on inlet and relief.

Improved Ventilation System

Hyosung 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 machine provides ample cooling and assures against localized heating or hot spots.



Application

Standard applications for indoor and outdoor use include clean and dry locations 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.

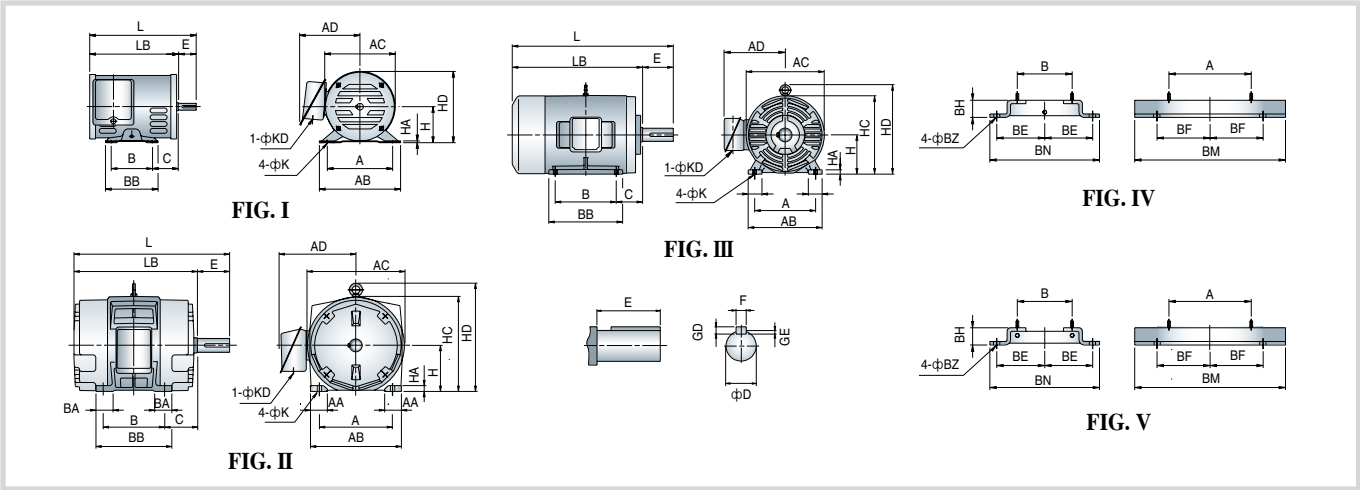
For gravel plants, pulverizers of non-combustible and non-clogging materials, additional abrasion and dust-resistant protection can be supplied.



ODP Type Motors

Leading the World best

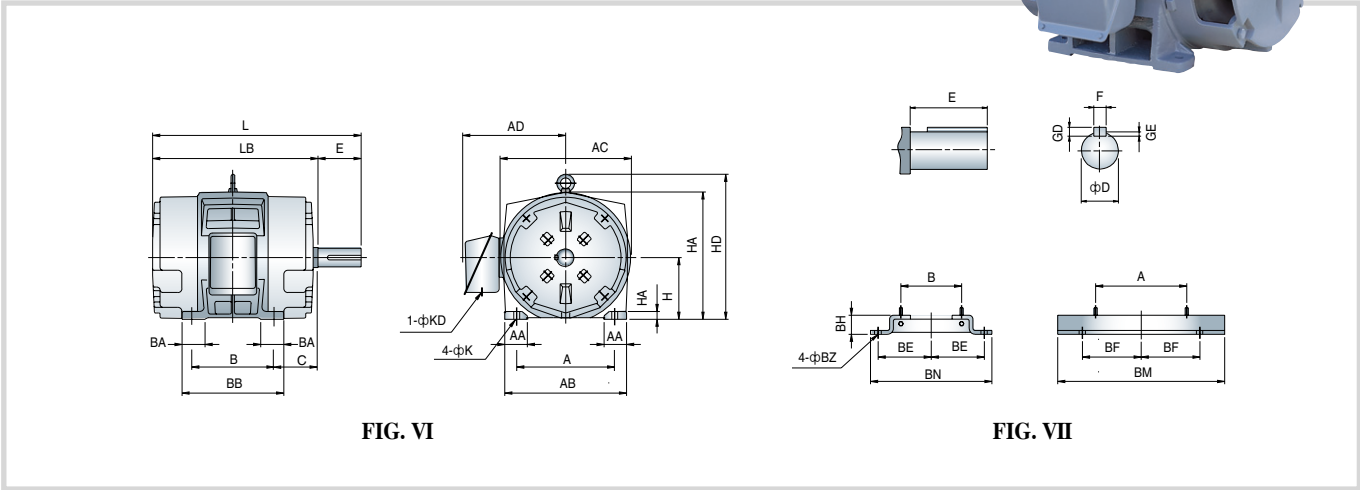
Open Drip Proof Type 0.75kW ~ 220kW



No.	FR.No.	FIG.	Ouy 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								178	106	212			
07	160M	II	11,15	11	7.5	5.5	6309ZZ	6207ZZ	254	60	311	333	261	210	127	254	108	160	20
08	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						254	149	298			
09	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	-	-	-	6212ZZ	6212ZZ	279	63	338	358	288	279	-	338	121	180	20
			-	37	22,30	15,18.5	6313ZZ												
11	200M	III	-	-	37	30	6314ZZ	6212ZZ	318	70	382	397	317	267	-	332	133	200	22

No.	FR.No.	FIG.	Ouy Put(kW)				Bearing		A	AA	AB	AC	AD	B	BA	BB	C	H	HA
			2P	4P	6P	8P	Drive	Non Drive											
01	225S	VI	55	-	-	-	6314C3	6314C3	356	69	439	473	393	286	67	330	149	225	25
02	225M	VI	75	-	-	-	6314C3	6314C3	356	69	439	473	393	311	67	356	149	225	25
			-	55	37	30	6314	6314											
03	250S-C	VI	90	75	45	37	6312	6312	406	78	496	530	424	311	76	368	168	250	27
04	250M-C	VI	-	75	45	37	6317												
05	280S-C	VI	110	90	55	45	6312	6312	406	78	496	530	424	349	76	406	168	250	27
			-	90	55	45	6317												
06	280M-C	VI	150	110	75	55	6313	6313	457	85	552	597	450	368	95	444	190	280	28
			-	110	75	55	NU319												
07	280L-C	VI	185	150	90	75	6313	6313	457	85	552	597	450	419	95	495	190	280	28
			-	-	110	90	NU319												
08	280L-C'	VI	-	185	150	110	6319	6313	457	85	552	598	450	508	95	585	190	280	28
			-	-	-	-	NU319												
09	280L-P	VI	-	-	185	150	NU222	6313	457	85	552	600	450	635	95	712	190	280	28
			-	-	-	-	NU319												
10	280L-P'	VI	-	-	185	150	NU222	6313	457	85	552	600	450	635	95	712	190	280	28
			-	-	-	-	NU319												

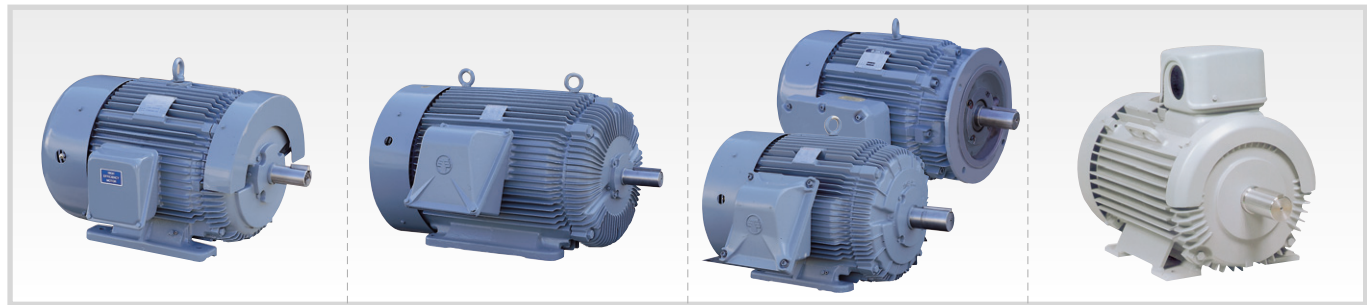
Open Drip Proof Type 0.75kW ~ 220kW (cont'd)



UNIT : mm, kg																				
No.	HA	HD	L	LB	øK	øKD	SHAFT					WT	BASE							WT
							øD	E	F	GD	GE		FIG	BE	BF	BM	BN	BH	øBZ	
01	153	-	235	195	7	22	19j6	40	6	6	3.5	10	IV	100	88	251	202	29	13	2.1
02	170	-	284	234	10	22	24j6	50	8	7	4	16	IV	103	95	268	228	29	10	2.7
03	191	-	321	261	10	28	28j6	60	8	7	4	26	IV	110	114	324	278	39	13	3.8
04	231	279	335	275	12	28	28j6	60	8	7	4	34	IV	121	114	324	278	39	13	4.3
05	272	320	395	315	12	28	38k6	80	10	8	5	51	IV	121	133	382	280	45	13	6.2
06			433	353								57	IV	140			318			7.0
07	327	386	528	418	15	45	42k6	110	12	8	5	93	V	169	159	452	384	51	16	8.6
																				9.0
08	327	386	527	462	15	45	42k6	110	12	8	5	106	V	190	159	452	430	51	16	10
							48k6	110	14	9	5.5									
09	359	410	668	558	15	50.5	55m6	110	16	10	6	147	V	190	178	502	430	51	16	
10	359	410	706	596	15	50.5	55m6	110	16	10	6	179	V	190	178	502	468	51	16	10.5
			736				60m6	140	18	11	7									
11	399	459	791	651	19	63	65m6	140	18	11	7	225	V	216	203	578	490	64	19	14.5

UNIT : mm, kg																							
No.	HA	HD	L	LB	øK	øKD	SHAFT					WT	BASE								WT		
							øD	E	F	GD	GE		FIG	BE	BF	BM	BN	BH	øBZ				
01	462	533	690	580	19	63	55m6	110	15	10	5	285	VII	232	229	648	522	64	19	20.5			
			720				60m6	140															
02	462	533	715	605	19	63	55m6	110	15	10	5	313	VII	244	229	648	528	64	19	21			
			745				60m6	140															
03	515	586	752	642	24	63	55m6	110	15	10	5	378	VII	251	254	730	570	77	23	29			
			782				75m6	140													20	12	7.5
04	515	586	790	680	24	63	55m6	110	15	10	5	416	VII	270	254	730	616	77	23	29.5			
			820				75m6	140													20	12	7.5
05	579	650	882	742	24	63	60m6	140	15	10	5	478	VII	280	280	790	626	77	29	39			
			912				85m6	170													24	16	8
06	579	650	933	793	24	63	60m6	140	15	10	5	570	VII	305	280	790	676	77	29	39.5			
			963				85m6	170													24	16	8
			963				85m6	170													24	16	8
			963				95m6	170													24	16	8
07	579	650	1022	882	24	63	60m6	140	15	10	5	655	VII	350	280	790	766	77	29	40.5			
			1052				85m6	170													24	16	8
			1052				85m6	170													24	16	8
			1052				95m6	170													24	16	8
08	580	651	1149	1009	24	63	60m6	140	15	10	5	840	VII	414	280	790	893	77	29	41.5			
			1179				85m6	170													24	16	8
			1179				85m6	170													24	16	8
			1179				95m6	170													24	16	8

AC Motors for Specific use



Premium Efficiency Motors Two-Speed Motors

- High Efficiency
- Low Noise
- CSA Approved
- Constant Torque
- Constant Horsepower
- Variable Torque

Explosion Proof Motors

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

Inverter Duty Motors

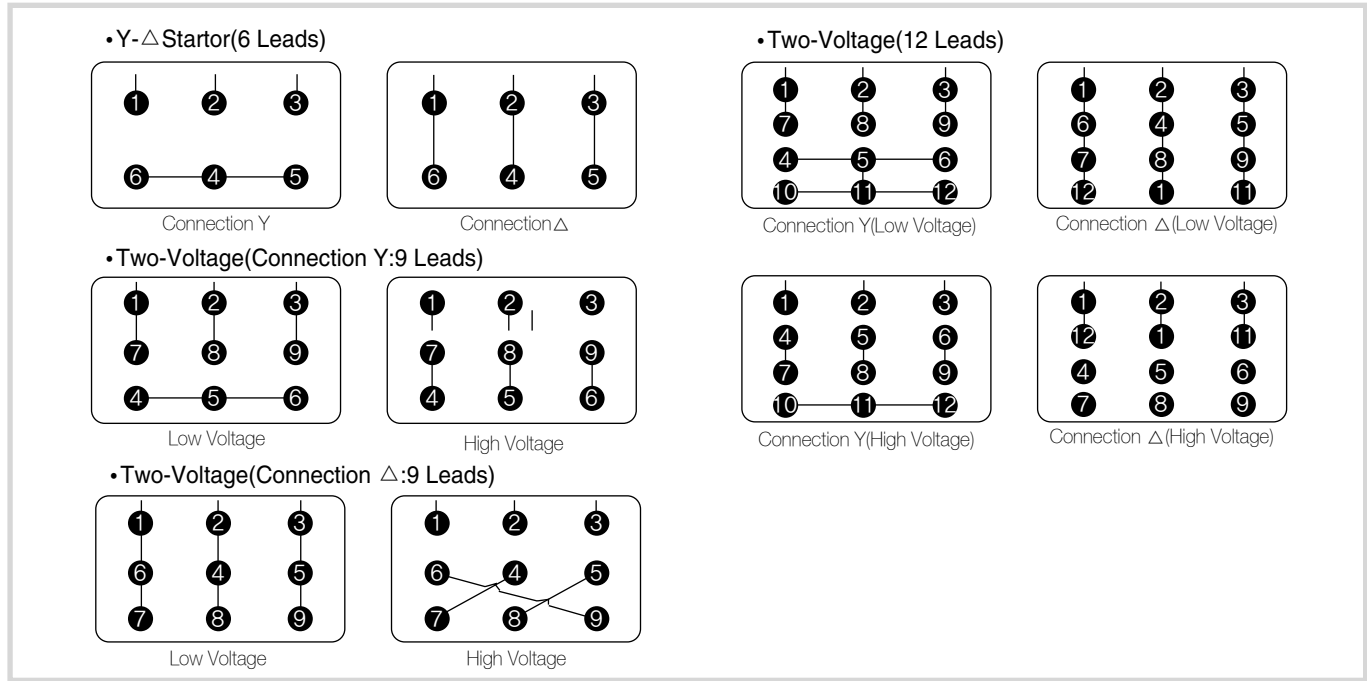
- Frequency Range : 6~60Hz, 6~90Hz, 6~100Hz
- Low Operating Cost
- Various Application

Technical Features

Starting Methods

Type		Voltage	Starting Torque	Current
Direct On-line	100%	100%		100%
Y-Δ Starter		57.50%	33.30%	33.30%
Soft Start with Autotransformer	80% Tap	80%	64%	68%
	65% Tap	65%	42%	46%
Direct	50% Tap	50%	25%	30%
Soft start with Resistances Direct		80%	64%	80%
	50% Tap	50%	25%	50%
Reactor	45% Tap	45%	20%	45%
	37.5% Tap	37.50%	14%	37.50%
Part Winding Starter (Single Low Voltage)	75% Winding	100%	75%	75%
	50% Winding	100%	50%	50%

Connection Diagrams



Noise Data

The measuring surface sound pressure LPA as well as the sound power level LWA 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)

Speed HP	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

Horizontal Mounting		Vertical Mounting	
B3 (IM 1001)		B8 (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)	

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

Packing dimensions and weights

(Mounting IM B3 standard design)

Frame size	Overseas shipment (Seaworthy packing) Crate dimensions mm	Tare kg (Approx.)
90S	420 x 325 x 222	26
90L		
100L		32
112M	469 x 391 x 317	41
132S	526 x 431 x 352	58
132M	564 x 431 x 352	72
160M	749 x 564 x 404	111
160L		138
180M		168
180L	820 x 680 x 675	184
200L		287
225S	980 x 830 x 805	385
225M		425
250M		580
280S	1280 x 1050 x 955	755
280M		900
280L		1100
280LL	1350 x 1050 x 955	1300

Information Slip

Company : _____

Name and Nature of Project : _____

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

Type		Quantity	
kW		Indulation Class	
Voltage		Temperature Rise	°C at Full Load
HZ		Humidity	%
RPM		Location	
Type of Driven Machine		Ambient Temperature	°C
Standards	☐ IEC ☐ NEMA ☐ Others()	Motor Data	
Starting Method	☐ Direct-on ☐ Reactor ☐ Star-Delta ☐ Others()	Current	No Load : Full Load : Starting :
		Power Factor	%
		Efficiency	%
Terminal Box Location	Viewing on Drive End ☐ Left ☐ Right	Noise Level	dB(A)
		Vibration Level	
Enclosure	☐ TE ☐ ODP ☐ Others()	Torque	Full Load : Locked Rotor : Breakdown :
		Cooling	☐ Non-Ventilation
☐ Placed in air stream of driven fan			
☐ Forced Ventilation			
☐ Water Cooling ☐ 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
☐ Space Heater		Painting (Munsell No.)	☐ 7.5BG 5/2 ☐ Others()

Remarks

Product Development History

Year	Milestones
2007	Supplied 4,900kW 6P 6.0kV motor for Europe
2006	Supplied 3,900kW 12P 11kV motor for Middle East
2004	Developed 10MVA MG-SET
2003	Manufactured 2,800kW 18P 6,600V motor
2002	Developed 6,000rpm vector inverter motor (560HP 2P) Developed 9,000kW 6P wound rotor motor
2001	Developed Q-Class motor (ESWP, CCWP)
2000	Manufactured 2,150kW, 22P, 13.2kV motor

Year	Milestones
1999	Developed 4,400kW 10P wound rotor motor
1988	Developed heavy weight torpedo propulsion motor (C.R.M)
1987	Manufactured A,C 250kW traction motor (C class) Developed 8,500kW 4P motor for BFP
1996	Fabricated the 3 millionth motor
1995	13.2kV motor for nuclear power plant (1,600HP, 24P, 13.2kV)
1994	Developed Vector Inverter Motor
1993	Developed wound rotor pole change motor (1,500kW / 750kW, 6/12P)

Global Network

