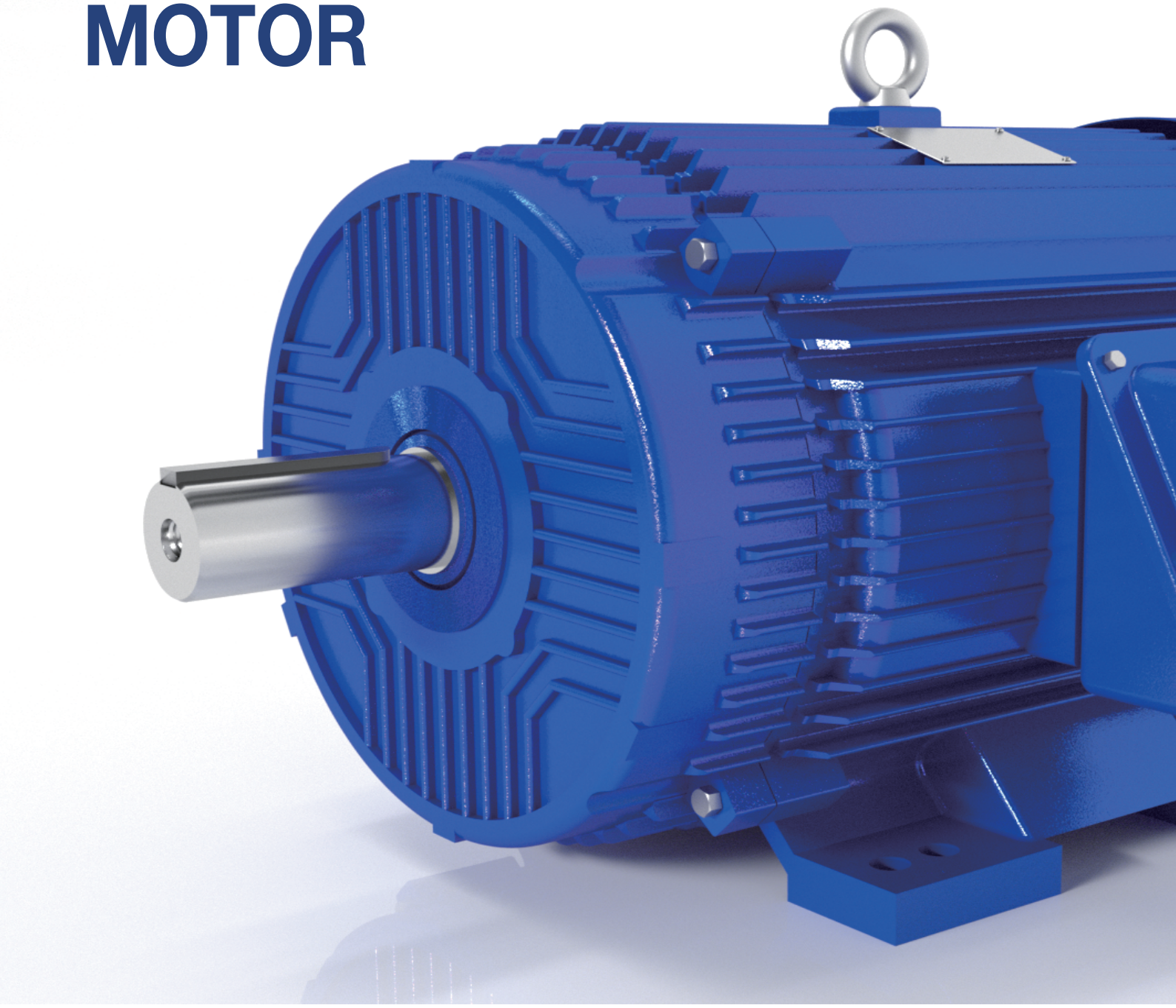
The Innovator In Premium Effciency Motor

LOW VOLTAGE INDUCTION MOTOR



HIGEN MOTOR

www.higenmotor.com

HIGEN MOTOR

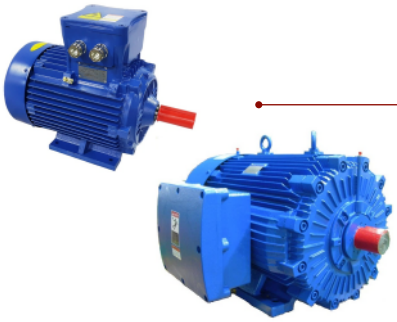
HISTORY

Higen Motor Co., Ltd. was established in 1962 based on the LG Electronics division, and has been a motor company with a tradition and history of consistently engaged in the motor business for more than 60 years since the first motor production in Korea.

LG

1962

Goldstar started to produce general-purpose motors



1963

Started to produce fan motors

1968

Cooperated with HITACHI (Japan) about compressor motor technology

1976

Started to produce elevator motors

HIGEN MOTOR

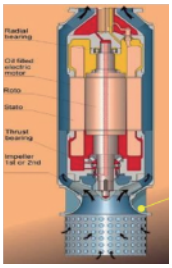
2008

Established Higen Motor Co., Ltd.
Developed EtherCAT-based Network servo-system

2009

Acquired certification of ATEX and IECEx pressure-resistant and explosion-proof
Developed transverse flux type motors
Acquired a certificate of a qualified supplier registration for KEPCO (South / Western / East-West / Middle Power Plant) list items
Acquired certificate of pumps production of pumps
Registered as a company for Public Procurement Service

2010



Quality working team received presidential award
Developed motors (1250kW) for seawater pumps used for deep water

2012

Acquired ISO/TS 16949 certification (Automotive parts quality certification system)

2018

Launched new design models of large frame sized low voltage motors (200~315 Fr.)

2019

Mass-produced premium efficiency (IE3) motors
Started articulated robot business

1979

Completed
Gimhae Factory

1986

Started to produce
general-purpose motors

1996

Developed
vector Inverter Duty Motor

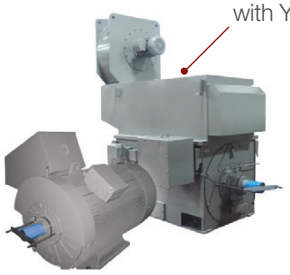
OTIS

2000

Launched LG-OTIS and
developed explosion-proof
motors for charging station CNG

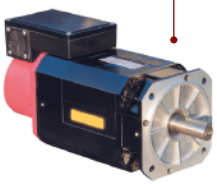
1998

Moved to Changwon Factory
and started to produce
high pressure motors



1997

Development of high speed
spindle motors for machine tools
and technical cooperation
with YASKAWA



2013

Registered as a Hyundai Motor SQ
Registered as a partner company
of Hyundai Mobis
Registered as a HITACHI partner
Acquired business license for
electric/mechanical works

2014

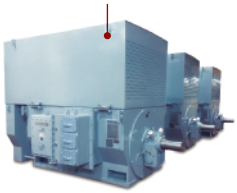
Developed dust explosion-proof
motors and acquired certification
Delivered 3500kW 12p
high voltage motors to
Korea Water Resources Corporation

2016

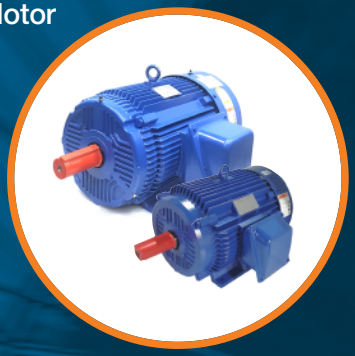
Acquired certification
of IECEx dustexplosion-proof motors
Exported low and high voltage
motors for power plants
- Morocco SAFI Power Plant
- Turkey SEYITOMER Power Plant

2015

Exported Pulverizer
high voltage (11kV) motors for pulverizer
(Vietnam Bintan Thermal Power Plant)



Low Voltage Motor



Vector Motor

Explosion-Proof Motor

High Voltage Motor

HIGEN
Product Portfolio

Motor/Inverter for Electric Vehicle

Spindle Motor

Servo motor/Servo drive

HIGEN MOTOR

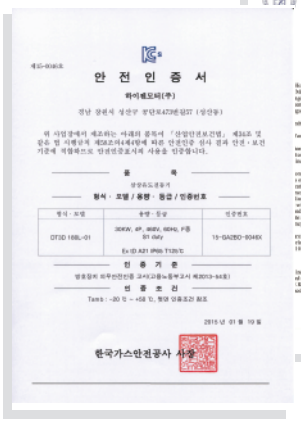
ENERGY
TRANSFER
SOLUTION
PROVIDER

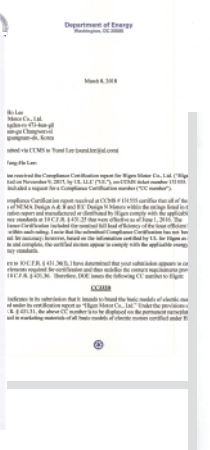
CONTENTS

HIGEN CERTIFICATES

NEMA_IEC UL (IE3) Certificate_K

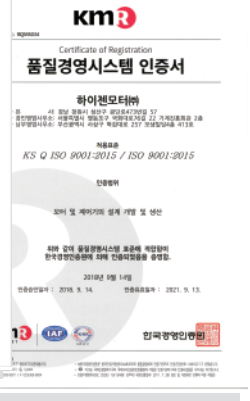
Dust Explosion-proof KGS Certificate

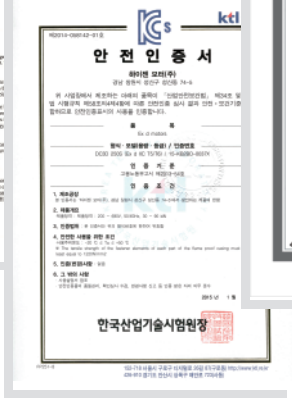




Premium Efficiency Certificate

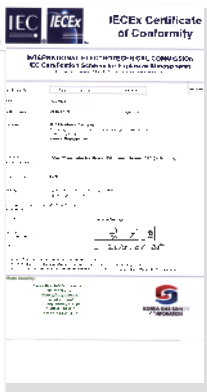
ISO9001 Certificate_K





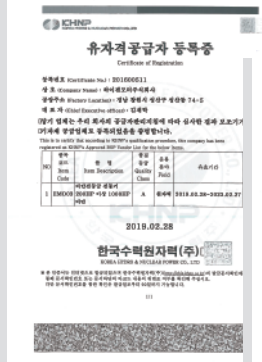
KTL certificate for explosion proof Ex d

IECEx International Explosion-Proof Certificate



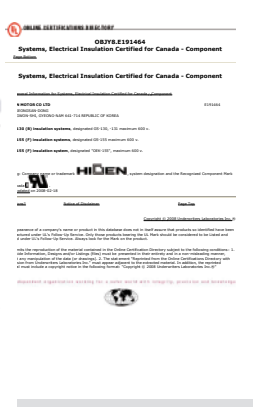
Minimum efficiency performance certificate

ATEX European Explosion-Proof Certificate

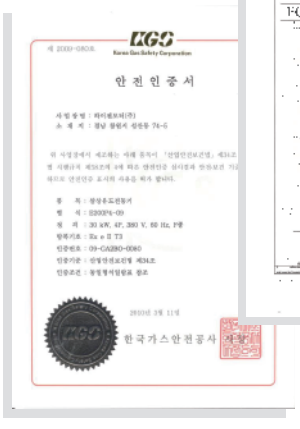


Equipment Supply Qualification Registration Certificate

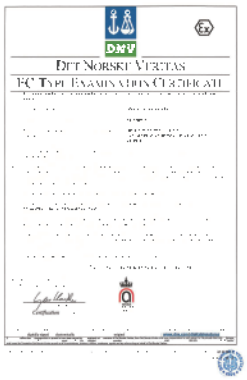
CE MARK Certificate

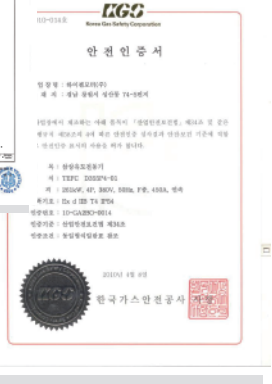


UL MARK Certificate

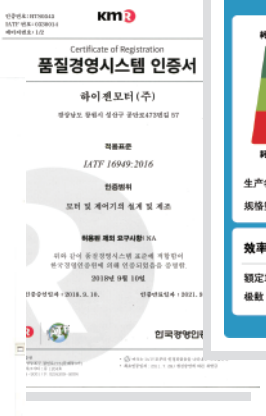


Increased Safety (Ex e) Explosion-Proof KGS Certificate





KGS certificate for explosion proof Ex d



TS16949 Certificate_K

CCIC China Efficiency Certificate

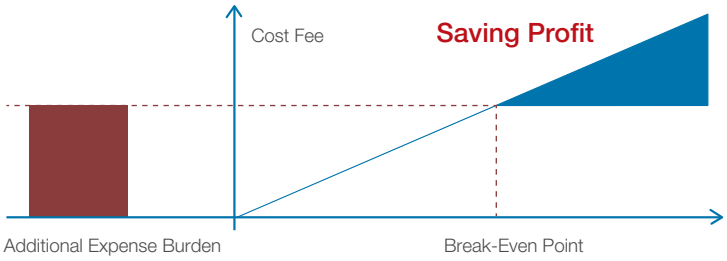
PREMIUM EFFICIENCY MOTOR

Power Saving Effect Calculation

$$S = C \times P \times N \times \left\{ \frac{100}{Eb} \times \frac{100}{Ea} \right\}$$

S	Annual Savings (₩/year)
N	Annual Operation Time (Hour/Year)
C	Power Rates
Eb	High Efficient Motor Efficiency
P	Required Output of Load (kW/Hour)
Ea	Premium Motor Efficiency

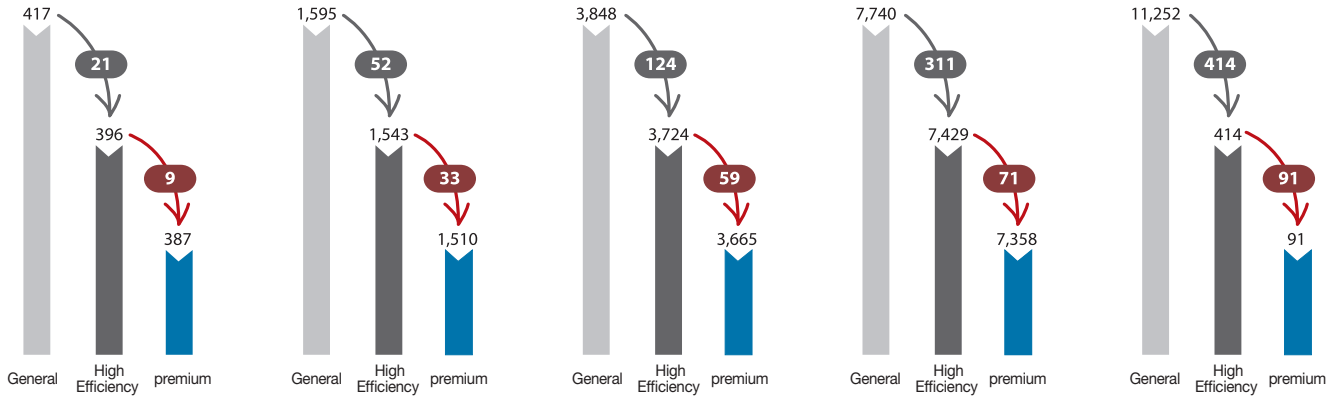
Investment Payback Period of Premium Motor



Payback Period (years) = Premium Purchase Price - High Efficiency Purchase Price / Annual Power Saving Money (KRW / Year)

Comparison of Annual Electricity Bill

(Unit : 10,000 KRW)



Condition

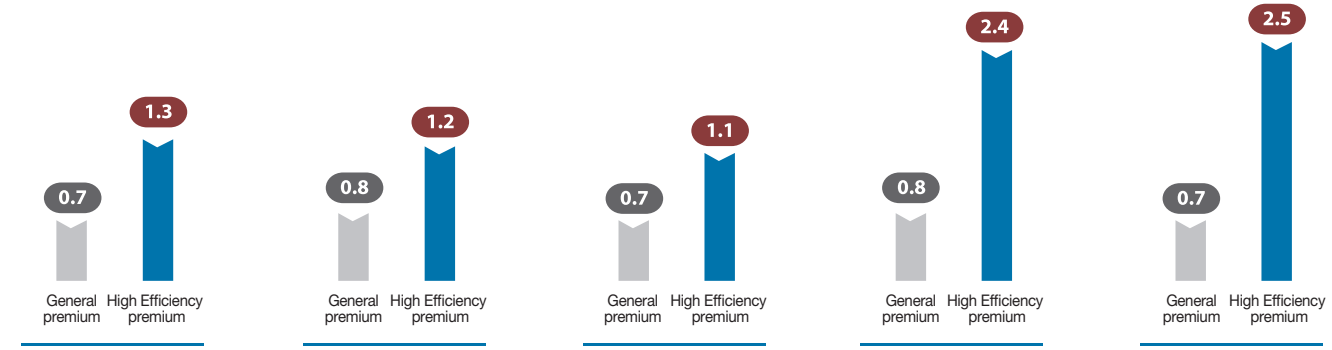
- Load rate: 100% - Annual operation time: 25 days x 12 months x 24 hours
- Electric charges: 130 won / kWh

Annual Power Saving Calculation

- Output (kW) x Operation Time (h/year) x Electric Charges (KRW / kWh) x (100/General Efficiency -100/Premium Efficiency)

Investment Payback Period

(Unit : 10,000 KRW)



Condition

- Load rate: 100% - Annual operation time: 25 days x 12 months x 24 hours
- Electric charges: 130won/kWh application

Investment Payback Period Calculation Method

= ((Premium Purchase Price - General Motor Purchase Price)/Annual Power Saving Money)
= ((Premium Purchase Price - High Efficiency Purchase Price)/Annual Power Saving Money)

SIZE AND EFFIVIENCY BY OUTPUT (KW)

Output	2 poles					4 poles					6 poles				
	Frame		Efficiency			Frame		Efficiency			Frame		Efficiency		
[kW]	KS	NEMA	IE 1 Standard efficiency	IE 2 High efficiency	IE 3 Premium	KS	NEMA	IE 1 Standard efficiency	IE 2 High efficiency	IE 3 Premium	KS	NEMA	IE 1 Standard efficiency	IE 2 High efficiency	IE 3 Premium
0.75	80M	143T(90L)	70.0	75.5	77.0	80M	143T(90L)	71.5	82.5	83.5	90L	145T (90L)	70.0	80.0	82.5
1.1	-	145T(90L)	76.0	82.5	84.0	-	145T(90L)	-	84.0	86.5	-	182T(112S)	75.0	85.5	87.5
1.5	90L	145T(90L)	76.0	84.0	85.5	90L	145T(90L)	78.0	84.0	86.5	100L	184T(112M)	76.5	86.5	88.5
2.2	90L	182T(112S)	79.5	85.5	86.5	100L	182T(112S)	81.0	87.5	89.5	112M	213T(132S)	79.5	87.5	89.5
3.7	112M	184T(112M)	82.5	87.5	88.5	112M	184T(112M)	83.0	87.5	89.5	132S	215T(132M)	82.5	87.5	89.5
5.5	132S	213T(132S)	84.5	88.5	89.5	132S	213T(132S)	85.0	89.5	91.7	132M	254T(160M)	84.5	89.5	91.0
7.5	132S	215T(132M)	85.5	89.5	90.2	132M	215T(132M)	86.0	89.5	91.7	160M	256T(160L)	85.5	89.5	91.0
11	160M	254T(160M)	86.5	90.2	91.0	160M	254T(160M)	87.0	91.0	92.4	160L	284T(180M)	86.5	90.2	91.7
15	160M	256T(160L)	88.0	90.2	91.0	160L	256T(160L)	88.0	91.0	93.0	180M	286T(180L)	87.5	90.2	91.7
18.5	160L	284T(180M)	88.0	91.0	91.7	180M	284T(180M)	88.5	92.4	93.6	180L	324T(200M)	88.0	91.7	93.0
22	180M	286T(180L)	89.0	91.0	91.7	180M	286T(180L)	89.0	92.4	93.6	180L	326T(200L)	88.5	91.7	93.0
30	180L	324T(200S)	89.0	91.7	92.4	180L	324T(200S)	89.5	93.0	94.1	200L	364T(225S)	89.0	93.0	94.1
37	200L	326T (200L)	90.0	92.4	93.0	200L	326T (200L)	90.0	93.0	94.5	200L	365T(225M)	90.0	93.0	94.1
45	200L	364T(225S)	90.2	93.0	93.6	200L	364T(225S)	90.5	93.6	95.0	225S	404T(250S)	90.0	93.6	94.5
55	225S	365T(225M)	90.2	93.0	93.6	225S	365T(225M)	90.5	94.1	95.4	250S	405T(250M)	90.5	93.6	94.5
75	250S	405T(250M)	90.5	93.6	94.1	250S	405T(250M)	90.7	94.5	95.4	250M	444T(280S)	90.7	94.1	95.0
90	250M	444T(280S)	90.7	94.5	95.0	250M	444T(280S)	91.2	94.5	95.4	280S	445T(280M)	91.0	94.1	95.0
110	280S	445T(280M)	91.0	94.5	95.0	280S	445T(280M)	91.5	95.0	95.8	280M	447T(280L)	91.0	95.0	95.8
132	280M	-	91.2	94.5	95.4	280M	-	91.7	95.0	95.8	315S	-	91.5	95.0	95.8
150	-	447T(280L)	91.5	95.0	95.4	-	447T(280L)	92.0	95.0	96.2	-	449T(280LL)	91.5	95.0	95.8
160	315S	-	91.5	95.0	95.8	315S	-	92.0	95.0	96.2	315M	-	91.5	95.0	95.8
185	-	449T(280LL)	91.7	95.4	95.8	-	449T(280LL)	92.4	95.4	96.2	-	449T(280LL)	-	95.0	95.8
200	315M	-	91.7	95.4	95.8	315M	-	92.4	95.4	96.2	-	449T (280LL)	-	95.0	95.8
220	315L	449T(280LL)	-	95.4	95.8	-	449T(280LL)	-	95.4	96.2	-	S449LS(280T)	-	95.0	95.8
250	-	S449LS(280T)	-	95.4	95.8	-	S449LS(280T)	-	95.4	96.2	-	-	-	95.0	95.8
300	315L	S449LS(280T)	-	95.4	95.8	-	S449LS(280T)	-	95.4	96.2	-	-	-	95.0	95.8
330	-	-	-	95.4	95.8	-	-	-	95.4	96.2	-	-	-	95.0	95.8
375	315L	-	-	95.4	95.8	-	-	-	95.4	96.2	-	-	-	95.0	95.8

PERFORMANCE DATA

Three Phase Induction Motor

Output (kW)	POLE	FULL LOAD CURRENT(A)		STARTING CURRENT(A)		EFFICIENCY (%)	POWER FACTOR(%)	FULL LOAD Torque(kg.m)	SLIP (%)	SPEED (r/min)
		220V	380V	A	A					
0.75	2	3.3	1.9	24.9	14.4	77.0	77.0	0.2	3.9	3460
	4	3.4	1.9	25.3	14.6	83.5	70.0	0.4	3.9	1730
	6	3.8	2.2	24.6	14.3	82.5	63.0	0.6	5.0	1140
1.5	2	5.7	3.3	51.5	29.8	85.5	80.5	0.4	3.9	3460
	4	6.1	3.5	42.5	24.6	86.5	75.0	0.8	3.3	1740
	6	6.4	3.7	41.9	24.3	88.5	69.0	1.3	4.2	1150
2.2	2	8.2	4.7	73.7	42.7	86.5	81.5	0.6	3.9	3460
	4	8.4	4.9	67.0	38.8	89.5	77.0	1.2	2.8	1750
	6	9.1	5.3	59.1	34.2	89.5	71.0	1.8	3.3	1160
3.7	2	13.3	7.7	106 .4	61.6	88.5	82.5	1.0	2.5	3510
	4	13.9	8.1	111. 3	64.4	89.5	78.0	2.1	2.8	1750
	6	14.9	8.6	96.6	55.9	89.5	73.0	3.1	4.2	1150
5.5	2	20.3	11.7	152.1	88.1	89.5	79.5	1.5	2.2	3520
	4	20.4	11.8	143.1	82.8	91.7	77.0	3.1	2.8	1750
	6	22.0	12.8	143.2	82.9	91.0	72.0	4.7	4.2	1150
7.5	2	27.1	15.7	203.3	117.7	90.2	80.5	2.1	1.9	3530
	4	27.5	15.9	206.4	119.5	91.7	78.0	4.2	2.8	1750
	6	29.6	17.2	207.4	120.1	91.0	73.0	6.4	5.0	1140
11	2	38.7	22.4	328.8	190.4	91.0	82.0	3.0	1.3	3555
	4	39.5	22.9	276.8	160.3	92.4	79.0	6.1	1.7	1770
	6	42.3	24.5	316.9	183.5	91.7	74.5	9.1	2.1	1175
15	2	52.4	30.4	340.8	197.3	91.0	82.5	4.1	1.3	3555
	4	53.2	30.8	372.7	215.8	93.0	79.5	8.3	1.7	1770
	6	56.9	32.9	426.4	246.9	91.7	75.5	12.4	2.1	1175
18.5	2	63.8	36.9	478.4	277.0	91.7	83.0	5.1	1.1	3560
	4	64.8	37.5	486.3	281.5	93.6	80.0	10.2	1.7	1770
	6	68.7	39.8	515.2	298.3	93.0	76.0	15.3	2.1	1175
22	2	75.4	43.7	565.5	327.4	91.7	83.5	6.0	1.1	3560
	4	76.6	44.4	574.7	332.7	93.6	80.5	12.1	1.4	1775
	6	80.6	46.7	604.7	350.1	93.0	77.0	18.2	2.1	1175
30	2	101.4	58.7	760.8	440.4	92.4	84.0	8.2	1.1	3560
	4	103.3	59.8	774.7	448.5	94.1	81.0	16.5	1.4	1775
	6	107.3	62.1	697.2	403.7	94.1	78.0	24.8	1.7	1180
37	2	123.6	71.5	803.2	465.0	93.0	84.5	10.1	1.4	3550
	4	126.1	73.0	819.5	474.5	94.5	81.5	20.4	1.7	1770
	6	131.5	76.1	854.4	494.7	94.1	78.5	30.5	1.7	1180
45	2	143.4	83.0	932.0	539.6	93.6	88.0	12.3	1.4	3550
	4	149.8	86.7	973.5	563.6	95.0	83.0	24.8	1.7	1770
	6	153.3	88.8	996.7	577.0	94.5	81.5	37.5	2.5	1170
55	2	175.2	101.5	1139.1	659.5	93.6	88.0	15.2	1.9	3530
	4	181.2	104.9	1178	682	95.4	83.5	30.3	1.7	1770
	6	186.3	107.8	1210.8	701.0	94.5	82.0	45.4	1.7	1180
75	2	235.0	136.1	1527.7	884.4	94.1	89.0	20.6	1.4	3550
	4	245.6	142.2	1596.5	924.3	95.4	84.0	41.3	1.7	1770
	6	251.1	145.4	1632.4	945.1	95.0	82.5	61.9	1.7	1180
90	2	279.4	161.7	1815.8	1051.3	95.0	89.0	24.5	0.8	3570
	4	291.3	168.6	1893.3	1096.1	95.4	85.0	49.2	1.1	1780
	6	296.0	171.4	1923.9	1113.8	95.0	84.0	74.3	1.7	1180
110	2	339.5	196.6	2206.9	1277.7	95.0	89.5	30.1	1.1	3560
	4	350.4	202.9	2277.6	1318.6	95.8	86.0	60.3	1.4	1775
	6	350.4	202.9	2277.6	1318.6	95.8	86.0	90.8	1.7	1180
132	2	405.7	234.9	2637.2	1526.8	95.4	89.5	36.1	1.1	3560
	4	415.6	240.6	2701.7	1564.1	95.8	87.0	72.4	1.4	1775
	6	420.5	243.4	2733.1	1582.3	95.8	86.0	108.9	1.7	1180
160	2	489.1	283.1	3178.9	1840.4	95.4	90.0	43.8	1.1	3560
	4	496.0	287.2	3224.1	1866.6	96.2	88.0	87.5	1.1	1780
	6	509.7	295.1	3312.8	1918.0	95.8	86.0	132.0	1.7	1180
200	2	608.8	352.4	3957.0	2290.9	95.8	90.0	55.0	1.7	3540
	4	620.0	359.0	4030.1	2333.2	96.2	88.0	109.4	1.1	1780
	6	637.1	368.8	4141.0	2397.4	95.8	86.0	165.0	1.7	1180

Single Phase Motor

START METHOD	POLES	OUTPUT (kw)	FRAME NO.(V)	VOLTAGE	FULL LOAD				START		BREAKDOWN TORQUE	CAPACITOR (μF)
					TORQUE(kg·m)	EFFICIENCY(%)	CURRENT(A)	SPEED(rpm)	TORQUE(%)	CURRENT(A)		
CAPACITOR START (open type)	4	0.2	71	220	0.112	50	2.8	1750	260	12.5	260	180
		0.25	71		0.139	57	3	1750	260	15.0	260	200
		0.3	71		0.167	55	3.6	1750	260	20.0	260	200
		0.4	90		0.222	59	4.5	1740	230	21.0	250	200
		0.55	90		0.306	63	5.6	1750	230	30.0	250	310
		0.75	90		0.415	63	6.9	1760	240	40.0	240	400
		1.1	90		0.608	65	12	1755	270	57.0	250	400
		1.5	112		0.830	70	14	1775	230	92.0	280	800
		2.2	112		1.209	75	20	1755	230	154.0	280	1200

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ The performance values in this table are actual measurements and may differ from the technical spacifications.

TERMINAL BOX DIMENSION TABLE

Steel plate type

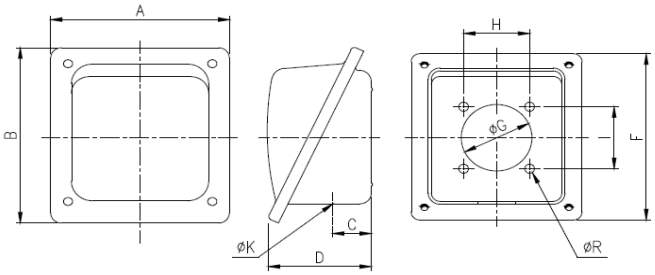


FIG. 1

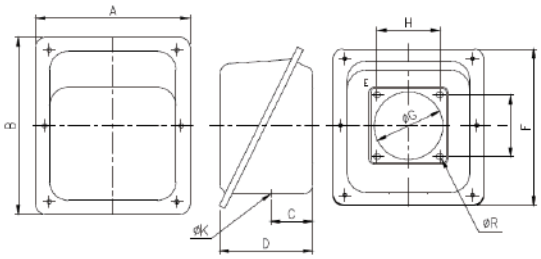


FIG. 2

NO.	FRAME NO.	FIG. NO.	A	B	C	D	F	ØG	H	I	ØR	ØK	T(thickness)
1	71~112M	1	102	115	22	60	106	40	37.5	37.5	5.5	22	1.8
2	132S,M	1	137	166	30	76	155	52	80	80	7	42	1.8
3	160M~180L	1	169	189	54	106	175	65	80	80	7	45	1.8
4	200L~250M	2	245	285	67	146	253	110	100	100	10	80	2.0

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

Casting Type

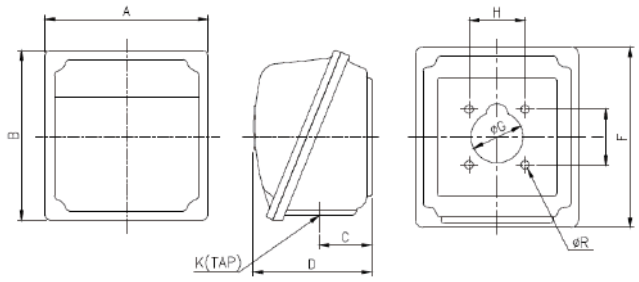


FIG. 1

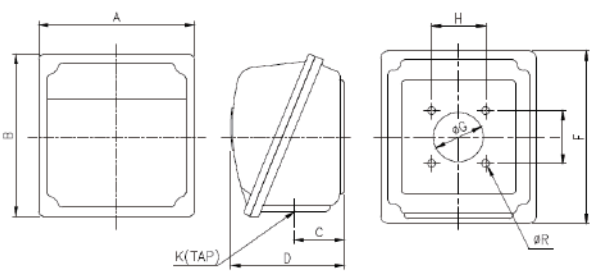


FIG. 2

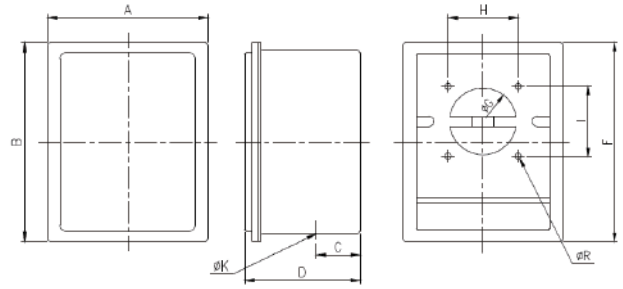


FIG. 3

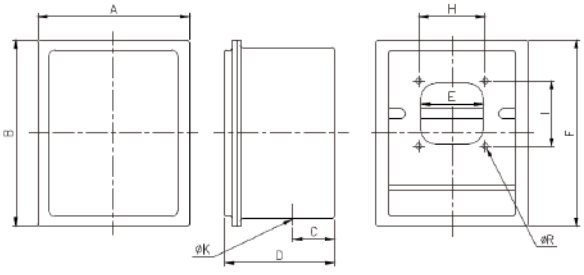


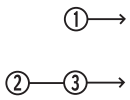
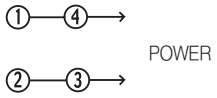
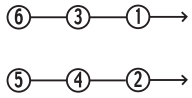
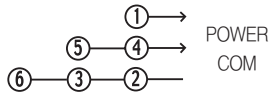
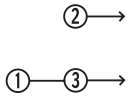
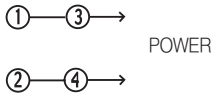
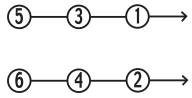
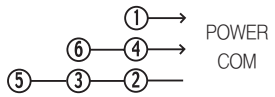
FIG. 4

NO.	FRAME NO.	FIG. NO.	A	B	C	D	E	F	ØG	K	H	I	ØR
1	71~112	1	109	122	35	78	-	111	Ø35	PF OR NPT3/4~1¼	37.5 OR 60	37.5 OR 60	5.5
2	132~180	2	156	177	50	110	-	166	Ø60	PF OR NPT3/4~2	80	80	8
3	132~180	2	200	210	56	137	-	204	Ø60	PF OR NPT3/4~2	80	80	8
4	200~250	3	260	296	80	185	-	296	Ø110	PF OR NPT2~3	100	100	10
5	280	4	320	399	92	235	130	399	-	PF OR NPT2½~3	140	140	12

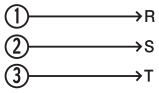
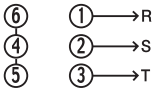
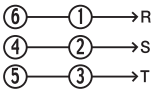
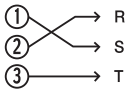
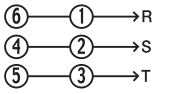
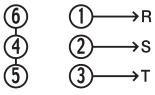
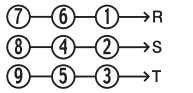
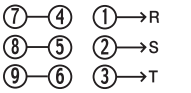
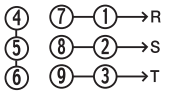
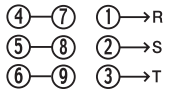
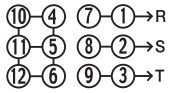
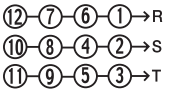
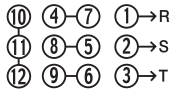
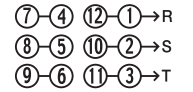
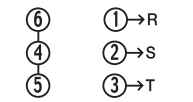
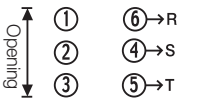
❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ The lower part of the casting terminal box has a structure to which two cable glands can be attached.
❸ Aluminum Type FRAME for No.71~160 is available.

CONNECTION DIAGRAM

Single Phase Motor

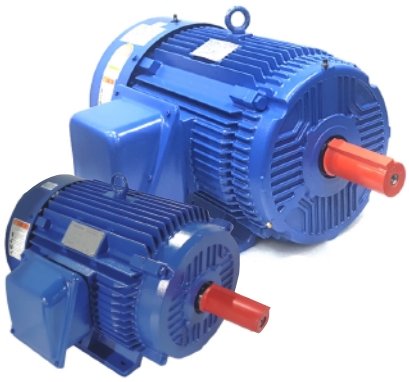
	SINGLE VOLTAGE		DUAL VOLTAGE	
	3 Leadwire	4 Leadwire	Low voltage (110V)	High voltage (220V)
CW				
CCW				

Three Phase Motor

Single Voltage	3 Leadwire	6 Leadwire			Reverse Rotation (CW)
	Direct Start	Y Start		△Operation (Direct Start)	
					
Dual Voltage 220/380V	Low voltage: 220V (△connection)		high voltage: 380V (Y connection)		
		Y-△ Start possible Connection is same as single voltage of 6 leadwire		Y-△ Start impossible	
Double Voltage(1) 220 /440V ※Y-△ Start impossible	9 Leadwire				
	Low voltage(220V)	high voltage(440V)	Low voltage(220V)	high voltage(440V)	
					
	Motor's Inside Connection (△-connection)		Motor's Inside Connection (Y-connection)		
Double Voltage(2) 220 /440V ※Y-△ Start	12 Leadwire				
	Low voltage(220V)		high voltage(440V)		
	Y Start	△Operation (Direct Start)	Y Start	△Operation (Direct Start)	
					
pole change(1) Single winding 2/4, 4/8, 6/12 Poles	Constant Torque		Constant Horsepower		
	Low speed operation	High speed operation	Low speed operation	High speed operation	
					
pole change(2) Double winding	※ ① Connect it according to the connection diagram written on the motor nameplate. ② 4/6, 6/8, 4/16, 6/18, other pole changing motors are manufactured using double windings according to user's requirements, so the connection can be changed according to the manufacturing (requirements).				

THREE PHASE TOTALLY UNCLOSED HORIZONTAL MOTOR

Totally Enclosed Fan
Cooled (Horizontal Type)



We produce the highest quality motors
with the last equipments
and accumulated technology.

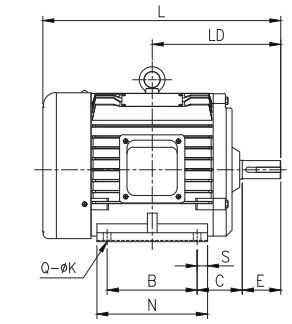
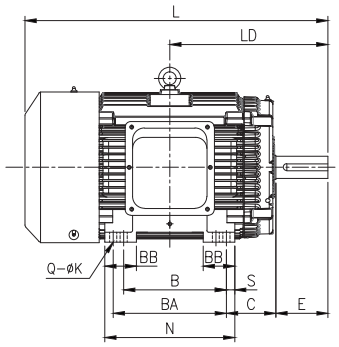


FIG. 1



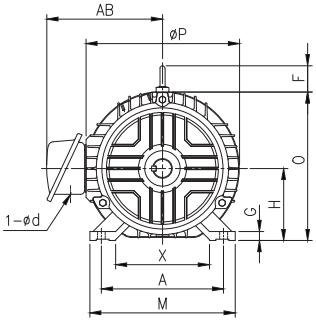
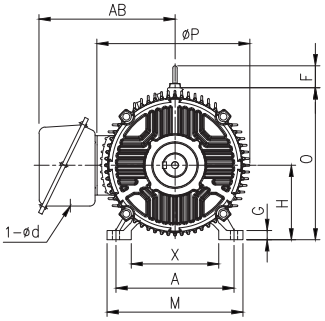
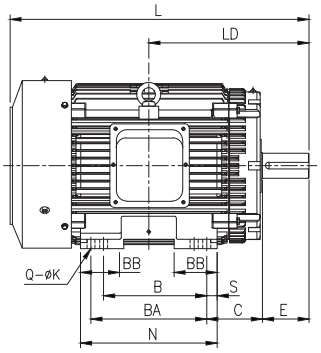


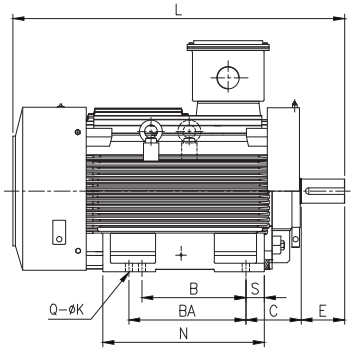
FIG. 2

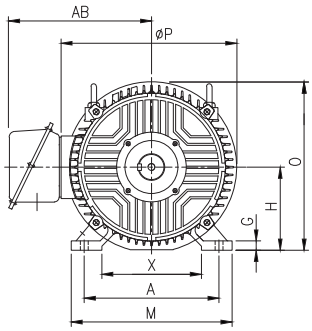


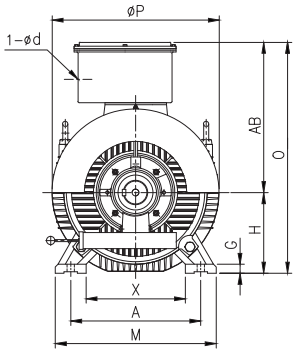
FRAME NO.	FIG NO.	OUTPUT(kW)				DIMENSIONS(mm) MOTOR BODY												
		2P	4P	6P	8P	H	G	A	X	M	B	BA	BB	N	S	C	Q	ΦK
71M	1	0.2/0.4	0.2/0.4	-	-	71	8	112	75	135	90	-	-	110	10	45	4	7
80M	1	0.75	0.4/0.75	0.2/0.4	0.2	80	11	125	80	150	100	-	-	125	12.5	50	4	10
90L	1	1.5/2.2	1.5	0.75	0.4	90	10	140	102	172	125	-	-	150	12.5	56	4	10
100L	1	-	2.2	1.5*	0.75	100	13	160	110	200	140	-	-	174/194*	17	63	4	12
112M	1	3.7	3.7	2.2*	1.5*	112	14	190	146	226	140	-	-	172	16	70	4	12
132S	1	5.5/7.5	5.5	3.7	2.2	132	16	216	160	250	140	-	-	175	17.5	89	4	12
132M		-	7.5	5.5	3.7	132	16	216	160	250	178	-	-	215	18.5	89	4	12
160M	1	11/15	11	7.5	5.5	160	18	254	200	300	210	-	-	250	20	108	4	15
160L		18.5	15	11	7.5	160	18	254	200	300	254	-	-	300	23	108	4	15
180M	1	22	18.5/22	15	11	180	23	279	200	321	241	-	-	280	19.5	121	4	15
180L		30	30	18.5/22	15	180	23	279	200	321	279	-	-	318	19.5	121	4	15
200L	2	37/45	-	-	-	200	25	318	236	366	305	-	85	350	22.5	133	4	19
		-	37/45	30/37	18.5/22	200	25	318	236	366	305	-	85	350	22.5	133	4	19
225S	2	55	-	-	-	225	30	356	275	425	286	(311)	110	365	27	149	8	19
		-	55	45	30	225	30	356	275	425	286	(311)	110	365	27	149	8	19
250S	3	75	-	-	-	250	28	406	300	485	311	(349)	130	412	31.5	168	8	24
		-	75	55	37	250	28	406	300	485	311	(349)	130	412	31.5	168	8	24
250M	3	90	-	-	-	250	28	406	300	485	(311)	349	130	412	31.5	168	8	24
		-	90	75	45	250	28	406	300	485	(311)	349	130	412	31.5	168	8	24
280S	3	110	-	-	-	280	30	457	365	521	368	(419)	160	488	34.5	190	8	24
		-	110	90	55	280	30	457	365	521	368	(419)	160	488	34.5	190	8	24
280M	3	132	-	-	-	280	30	457	365	521	(368)	419	160	488	34.5	190	8	24
		-	132	110	75	280	30	457	365	521	(368)	419	160	488	34.5	190	8	24
315S	4	160	-	-	-	315	35	508	388	628	406	(457)	-	631	72	216	6	28
		-	160	132	90	315	35	508	388	628	406	(457)	-	631	72	216	6	28
315M	4	200	-	-	-	315	35	508	388	628	(406)	457	-	631	72	216	6	28
		-	200	160	110	315	35	508	388	628	(406)	457	-	631	72	216	6	28

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ The weight (kg) is the average weight of the same frame number.
❸ ※is the bearing spec for DOL and BELT (PULLEY) motor uses ROLLER (NU***) bearing.
❹ 160M and above are available with as a custom-made and the terminal box on-top is available.
❺ Please contact us if you need 280LL for 315M.









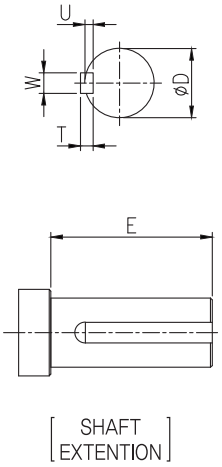


FIG. 3

FIG. 4

DIMENSIONS(mm)												BEARING NO.		WEIGHT(kg)		
MOTOR BODY							SHAFT									
L	LD	ΦP	AB	O	F	Φd (Iron plate/Casting)	E	ΦD	W	U	T	DE	NDE	2P	4P	6P/8P
232	120	152	134	150	-	Φ22 / PF 3/4"	30	14j6	5	3	5	6203ZZ	6203ZZ	9	11	11
264	140	174	148	168	-	Φ22 / PF 3/4"	40	19j6	6	3.5	6	6204ZZC3	6203ZZC3	18	18	-
318	168.5	192	158	186	-	Φ22 / PF 3/4"	50	24j6	8	4	7	6205ZZC3	6204ZZC3	25	25	25
357/377*	193/203*	218	171	209	34	Φ22 / PF 3/4"	60	28j6	8	4	7	6206ZZC3	6205ZZC3	-	34	37
370/395*	200	240	180	232	42	Φ22 / PF 3/4"	60	28j6	8	4	7	6206ZZC3	6205ZZC3	45	45	47
447	239	280	220	269	42	Φ42 / PF 11/4"	80	38k6	10	5	8	6208ZZC3	6206ZZC3	64/70	68	75
486	258	280	220	269	42	Φ42 / PF 11/4"	80	38k6	10	5	8	6208ZZC3	6206ZZC3	-	82	90
595	323	320	265	320	50	Φ45 / PF 11/2"	110	42k6	12	5	8	6309ZZC3	6307ZZC3	117	117	117
639	345	320	265	320	50	Φ45 / PF 11/2"	110	42k6	12	5	8	6309ZZC3	6307ZZC3	140	140	145
645	350	365	297	366	60	Φ45 / PF 2"	110	48k6	14	5.5	9	6311ZZC3	6309ZZC3	200	185/200	190
673	370.5	365	297	366	60	Φ45 / PF 2"	110	55m6	16	6	10	6312ZZC3	6309ZZC3	210	235	235/245
790	396	412	366	409	60	Φ80 / PF 21/2"	110	55m6	16	6	10	6212ZC3	6212ZC3	270/295	-	-
820	426	412	366	409	60	Φ80 / PF 21/2"	140	60m6	18	7	11	6313ZC3	6212ZC3	-	280/305	315
795	415	465	400	450	60	Φ80 / PF 21/2"	110	55m6	16	6	10	6312C3	6312C3	365	-	-
825	445	465	400	450	60	Φ80 / PF 21/2"	140	65m6	18	7	11	※6314C3	6312C3	-	385	400
880	453	522	435	501	-	Φ80 / PF 21/2"	110	55m6	16	6	10	6313C3	6313C3	470	-	-
910(950)	483	522	435	501	-	Φ80 / PF 21/2"	140	75m6	20	7.5	12	※6316C3	6313C3	-	480	500
880	453	522	435	501	-	Φ80 / PF 21/2"	110	55m6	16	6	10	6313C3	6313C3	490	-	-
910(950)	483	522	435	501	-	Φ80 / PF 21/2"	140	75m6	20	7.5	12	※6316C3	6313C3	-	515	515
1040	512	615	549	588	-	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	750	-	-
1100	572	615	549	588	-	- / PF 3"	170	85m6	22	9	14	※6318C3	6315C3	-	730	750
1040	512	615	549	588	-	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	800	-	-
1100	572	615	549	588	-	- / PF 3"	170	85m6	22	9	14	※6318C3	6315C3	-	800	855
1236	-	654	587	658	-	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	1190	-	-
1296	-	654	587	658	-	- / PF 3"	170	95m6	25	9	14	※6320C3	6318C3	-	1180	1180
1236	-	654	587	658	-	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	1300	-	-
1296	-	654	587	658	-	- / PF 3"	170	95m6	25	9	14	※6320C3	6318C3	-	1300	1300

THREE PHASE TOTALLY UNCLOSED VERTICAL MOTOR

Totally Enclosed Fan
Cooled (Flange Type)

We produce the highest quality motors
with the lastest equipments
and accumulated technology.

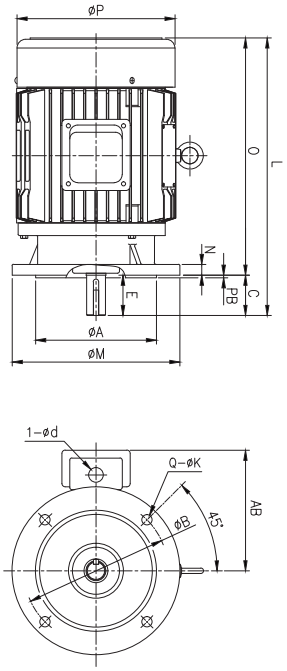


FIG. 1

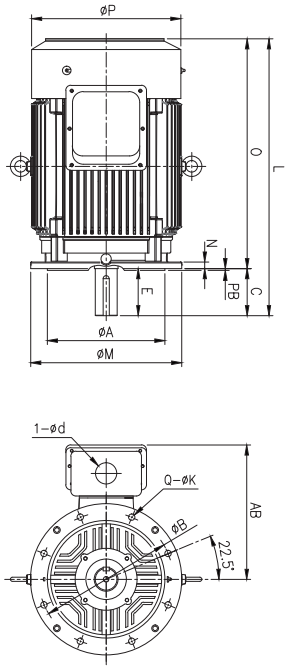


FIG. 2

FLANGE NO.	FRAME NO.	FIG NO.	OUTPUT(kW)				DIMENSIONS(mm) MOTOR BODY							
			2P	4P	6P	8P	ΦA	ΦB	ΦM	C	N	PB	Q	ΦK
FF130	71M	1	0.2/0.4	0.2/0.4	-	-	110j6	130	200	30	10	3.5	4	10
FF165	80M	1	0.75	0.4/0.75	0.2/0.4	0.2	130j6	165	200	40	12	3.5	4	12
FF165	90L	1	1.5/2.2	1.5	0.75	0.4	130j6	165	200	50	12	3.5	4	12
FF215	100L	1	-	-	1.5	0.75	180j6	215	250	60	16	4	4	15
FF215	112M	1	3.7	2.2/3.7	2.2*	1.5*	180j6	215	250	60	16	4	4	15
FF265	132S	1	5.5	5.5	3.7	2.2	230j6	265	300	80	18	4	4	15
	132M		7.5	7.5	5.5	3.7	230j6	265	300	80	18	4	4	15
FF300	160M	1	11/15	11	7.5	5.5	250j6	300	350	110	20	5	4	19
	160L		18.5	15	11	7.5	250j6	300	350	110	20	5	4	19
FF300	180M	1	22	18.5/22	15	11	250j6	300	350	110	20	5	4	19
	180L		30	30	18.5/22	15	250j6	300	350	110	20	5	4	19
FF400	200L	2	37/45	-	-	-	350j6	400	450	110	20	5	8	19
			-	37/45	30/37	18.5/22	350j6	400	450	140	20	5	8	19
FF400	225S	2	55	-	-	-	350j6	400	450	110	20	5	8	19
			-	55	45	30	350j6	400	450	140	20	5	8	19
FF500	250S	2	75	-	-	-	450j6	500	550	110	25	5	8	19
			-	75	55	37	450j6	500	550	140	25	5	8	19
FF500	250M	2	90	-	-	-	450j6	500	550	110	25	5	8	19
			-	90	75	45	450j6	500	550	140	25	5	8	19
FF500	280S	3	110	-	-	-	450j6	500	550	110	25	5	8	19
			-	110	90	55	450j6	500	550	170	25	5	8	19
FF500	280M	3	132	-	-	-	450j6	500	550	110	25	5	8	19
			-	132	110	75	450j6	500	550	170	25	5	8	19
FF600	315S	4	160	-	-	-	550j6	600	660	110	25	5	8	24
			-	160	132	90	550j6	600	660	170	25	5	8	24
FF60	315M	4	200	-	-	-	550j6	600	660	110	25	5	8	24
			-	200	160	110	550j6	600	660	170	25	5	8	24

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ The weight (kg) is the average weight of the same frame number.
❸ ※ is the bearing spec for DOL and BELT (PULLEY) motor uses ROLLER (NU***) bearing.

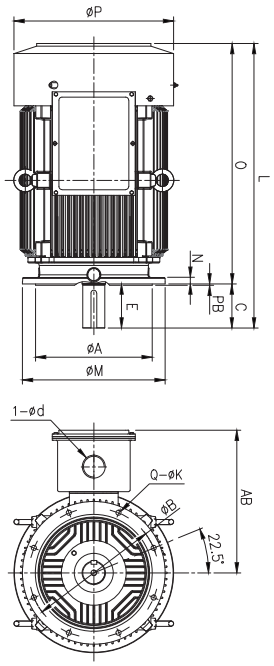


FIG. 3

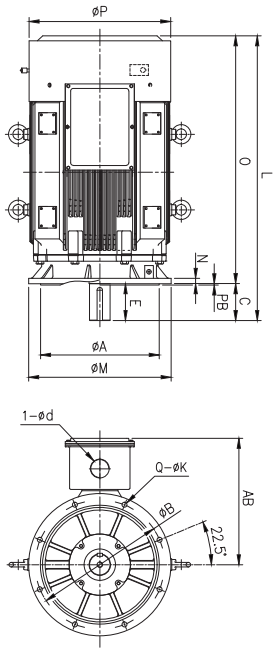
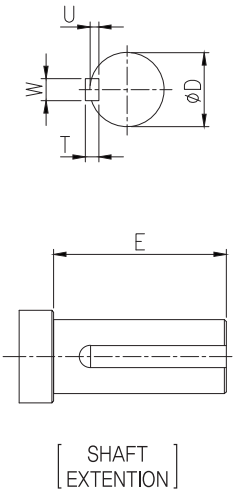


FIG. 4



DIMENSIONS(mm)										BEARING NO.		WEIGHT(kg)		
MOTOR BODY					SHAFT									
L	O	P	AB	Φd (Iron plate/Casting)	E	ΦD	W	U	T	DE	NDE	2P	4P	6P/8P
257	227	158	130	Φ22 / PF 3/4"	30	14j6	5	3	5	6203ZZ	6203ZZ	8/11	13	-
293	253	175	148	Φ22 / PF 3/4"	40	19j6	6	3.5	6	6204ZZC3	6203ZZC3	18	18	-
361	311	193	158	Φ22 / PF 3/4"	50	24j6	8	4	7	6205ZZC3	6204ZZC3	28	28	26
398	338	214	170	Φ22 / PF 3/4"	60	28j6	8	4	7	6206ZZC3	6205ZZC3	-	40	40
414/439*	354/379*	236	180	Φ22 / PF 3/4"	60	28j6	8	4	7	6207ZZC3	6205ZZC3	47	47	49
458/498	378/418	274	220	Φ42 / PF 11/4"	80	38k6	10	5	8	6208ZZC3	6206ZZC3	71	80	86
498	418	274	220	Φ42 / PF 11/4"	80	38k6	10	5	8	6208ZZC3	6206ZZC3	75	86	95
595	485	317	265	Φ45 / PF 11/2"	110	42k6	12	5	8	6309ZZC3	6307ZZC3	120/125	120	120
639	529	317	265	Φ45 / PF 11/2"	110	42k6	12	5	8	6309ZZC3	6307ZZC3	145	145	145
658	548	365	300	Φ45 / PF 2"	110	48k6	14	5.5	9	6312ZZC3	6309ZZC3	200	185/200	190
687	577	365	300	Φ45 / PF 2"	110	55m6	16	6	10	6312ZZC3	6309ZZC3	210	235	235/245
790	680	418	370	Φ80 / PF 21/2"	110	55m6	16	6	10	6212ZC3	6212ZC3	270/295	-	-
820	680	418	370	Φ80 / PF 21/2"	140	60m6	18	7	11	6313ZC3	6212ZC3	-	280/305	315
795	685	453	400	Φ80 / PF 21/2"	110	55m6	16	6	10	6312C3	6312C3	365	-	-
825	685	453	400	Φ80 / PF 21/2"	140	65m6	18	7	11	6314C3	6312C3	-	385	400
880	770	510	435	Φ80 / PF 21/2"	110	55m6	16	6	10	6313C3	6313C3	470	-	-
910(950)	770(810)	510	435	Φ80 / PF 21/2"	140	75m6	20	7.5	12	6316C3	6313C3	-	480	500
880	770	510	435	Φ80 / PF 21/2"	110	55m6	16	6	10	6313C3	6313C3	490	-	-
910(950)	770(810)	510	435	Φ80 / PF 21/2"	140	75m6	20	7.5	12	6316C3	6313C3	-	515	515
1040	927	617	550	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	750	-	-
1100	987	617	550	- / PF 3"	170	85m6	22	9	14	※6318C3	6315C3	-	730	750
1040	927	617	550	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	800	-	-
1100	987	617	550	- / PF 3"	170	85m6	22	9	14	※6318C3	6315C3	-	800	855
1395	1285	650	587	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	1190	-	-
1455	1345	650	587	- / PF 3"	170	95m6	25	9	14	※6320C3	6318C3	-	1180	1180
1395	1285	650	587	- / PF 3"	110	55m6	16	6	10	6314C3	6314C3	1300	-	-
1455	1345	650	587	- / PF 3"	170	95m6	25	9	14	※6320C3	6318C3	-	1300	1300

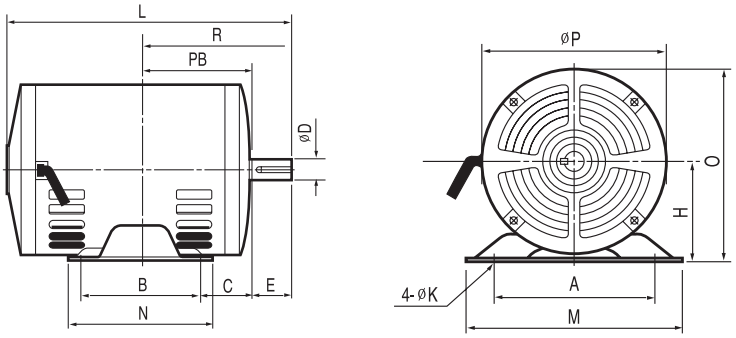
❹ The 'd' is the dimension of the steel plate terminal box/casting terminal box. For 280S Fr. and above, the casting terminal box is the standard, while for the rest, the steel plate terminal box is the standard.

❺ 180Fr can be also manufactured with FF350.

THREE PHASE OPEN DRIP PROOF MOTOR

ODP TYPE

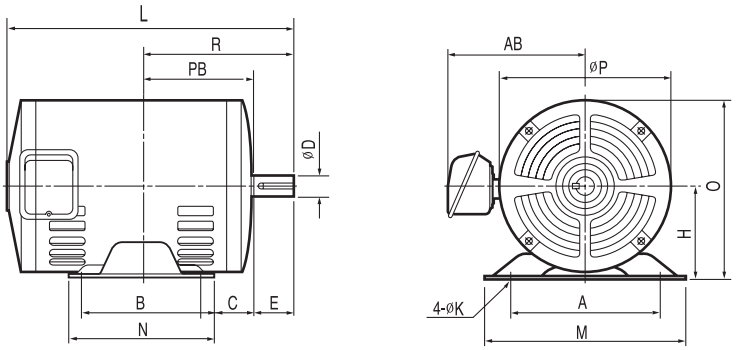
FIG. 1



Features

- Low temperature rise by maximizing suction rate at inlet
- Minimization of vibration through precision balancing
- Excellent packaging for storage, transport, moisture resistance and impact resistance
- Prevention of damage to motors with the design free from moisture, dust and other contaminants.
- Excellent maneuverability with high torque characteristics

FIG. 2

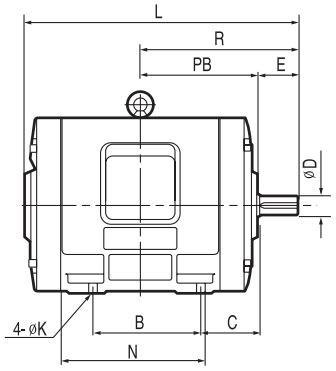


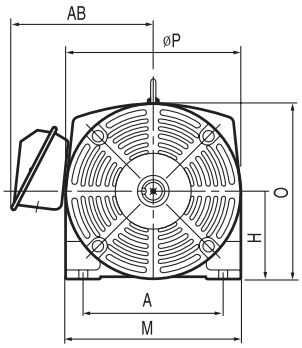
FRAME NO.	OUTPUT(kW)			FIG. NO.	DIMENSIONS(mm)										
					MOTOR BODY										
	2P	4P	6P		H	A	B	C	E	L	M	N	O	P	R
63	-	0.2	-	1	63	100	80	40	23	206	131	106	129	118	103
71	0.2/0.4	0.2/0.4	-	1	71	112	90	45	30	206	150	110	130	118.5	120
80	0.75	0.75	0.4	2	80	125	100	50	40	241.5	172	130	150	140	140
90L	1.5/2.2	1.5	0.75	2	90	140	125	56	50	282	187	150	170	160	168.5
112S	-	2.2	-	2	112	190	114	70	60	329	222	174	212.5	201	200
112M	3.7	2.2/3.7	2.2	2	112	190	140	70	60	329	222	174	232	201	200
132S	5.5/7.5	5.5	3.7	3	132	216	140	89	80	396	250	212	263	262	239
132M	-	7.5	5.5	3	132	216	178	89	80	412	250	212	263	262	258
160M	11/15	11	7.5	3	160	254	210	108	110	530	311	254	320	320	323
160L	18.5	15	11	3	160	254	254	108	110	574	311	298	320	320	345
	22	18.5	-												
180M	30	22/30	15/18.5	3	180	279	241	121	110	585	346	292	363	360	351.5
180L	37/45	-	-	3	180	279	279	121	110	632	346	378	363	360	370.5
	-	37/45	22/30						140	662					400.5
200M.L	55	-	-	3	200	318	267/305	133	110	685	375	358	403	405	391
	-	55	37/45						140	715					429
225S.M	75/90	-	-	3	225	356	286/311	149	110	780	432	390	452	459	429.5
	-	75/90	55/75						140	810					459.5
250S	110	-	-	3	250	406	311	168	110	787	490	410	503	506	433.5
	-	110	90						110	787					433.5
250M	132	-	-	3	250	406	349	168	110	877	490	500	503	506	497.5
	-	132	110						110	877					497.5
280S	160	-	-	4	280	457	368	190	110	1120	570	490	805	570	484
	-	160	132						170	1180					544
280M	200	-	-	4	280	457	419	190	110	1120	570	490	805	570	509.5
	-	200	160						170	1180					569.5

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

❷ The weight (kg) is the average weight of the same frame number.

FIG. 3





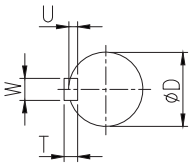
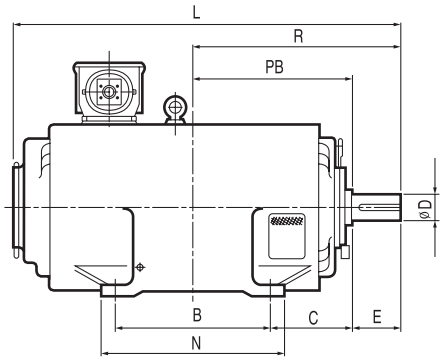
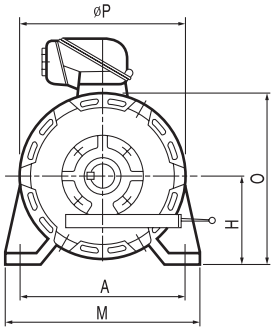
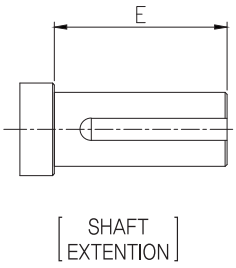


FIG. 4







DIMENSIONS(mm)							BEARING NO.				WEIGHT(kg)		
MOTOR BODY			SHAFT				2P		4P/ 6P				
PB	AB	ΦK	ΦD	W	U	T	DRIVE	OPP.DRIVE	DRIVE	OPP.DRIVE	2P	4P	6P
80	-	7*21	11j6	-	1	-	-	-	6202ZZ	6202ZZ	-	5.7	-
90	-	7*27	14j6	5	3	5	6202ZZ	6202ZZ	6202ZZ	6202ZZ	6.9	6.9	11
100	125	10*28	19j6	6	3.5	6	6204ZZ	6204ZZ	6204ZZ	6204ZZ	9.5	11	11
118.5	135	10*32	24j6	8	4	7	6205ZZ	6203ZZ	6205ZZ	6203ZZ	16	17	17
140	175	12*27	28j6	8	4	7	-	-	6206ZZ	6205ZZ	-	34	-
140	175	12*27	28j6	8	4	7	6206ZZ	6205ZZ	6206ZZ	6205ZZ	35.5	37	37
159	213	12	38k6	10	5	8	6208ZZ	6206ZZ	6208ZZ	6206ZZ	55/60	63	63
178	213	12	38k6	0	5	8	-	-	6208ZZ	6206ZZ	-	75	75
213	265	15	42k6	12	5	8	6310ZZ	6309ZZ	6310ZZ	6309ZZ	102/118	118	120
235	265	15	42k6	2	5	8	6310ZZ	6309ZZ	6310ZZ	6309ZZ	129	129	149
			48k6	4	5.5	8					149	149	-
241.5	287	15	55m6	6	6	10	6313ZZC3	6310ZZ	6313ZZ	6310ZZ	230	215/230	230
260.5	287	15	55m6	6	6	10	6313ZZC3	6310ZZ	-	-	225/265	-	-
260.5	287	15	60m6	8	7	11	-	-	6313ZZ	6310ZZ	-	255/265	255/265
281	359	19	55m6	6	6	10	6313ZZC3	6212ZZ	-	-	300	-	-
289	359	19	60m6	8	7	11	-	-	6314ZZ	6212ZZ	-	300	300
319.5	385	19	55m6	6	6	10	6313C3	6313C3	-	-	420/600	-	-
319.5	385	19	75m6	8	7	11	-	-	※6218	6313	-	450/620	450/620
323.5	410	24	55m6	6	6	10	6315C3	6315C3	-	-	620	-	-
323.5	410	24	85m6	22	9	14	-	-	※6318	6315	-	640	640
387.5	410	24	55m6	8	7	11	6315C3	6315C3	-	-	670	-	-
387.5	410	24	85m6	22	9	14	-	-	※6318	6315	-	690	690
374	-	24	55m6	6	6	10	6312C3	NU312	-	-	920	-	-
374		24	85m6	5	9	14	-	-	※6320	6316	-	920	920
399.5	-	24	55m6	6	6	10	6312C3	NU312	-	-	1020	-	-
399.5		24	95m6	5	9	14	-	-	※6320	6316	-	1020	1020

❸ ※ is the bearing spec for DOL and BELT (PULLEY) motor uses ROLLER (NU***) bearing.

❹ We are improving the product appearance, so please contact the head office or sales department for exact dimensions.

INCREASED SAFETY EXPLOSION-PROOF MOTOR

(Ex e type)

We produce reliable motors with excellent stability and precision.

This product is manufactured in accordance with the minimum efficiency performance of regulations for the operation of equipment for efficiency management under Article 15 of the "Energy Use Rationalization Act".

Features

- Excellent safety
- Compact size and lightweight
- Reliable insulation
- Excellent operating characteristics
- Easy maintenance and inspection
- Robust design

Standard specification

Item	
Description of the structure	It is the structure that enhances safety especially for structural or temperature rise where electric sparks or high temperatures should not occur during normal operation.
Explosionproof symbol	Ex
Type of explosionproof structure	e
Group symbol	II
Temperature grade	T3
Outer structure	Totally unclosed external type
Ambient conditions	Operating ambient temperature : -20 ~ +40℃
Dangerous places when using	Class 1, Class 2 place
Mark	Ex e II T3

FRAME NO.	FIG. NO.	OUTPUT(kW)			DIMENSIONS(mm)											
					MOTOR BODY											
		2P	4P	6P	H	A	B	BA	C	Q	ΦK	L	ΦP	AB	O	F
80M	1	0.4/0.75	0.4/0.75	0.4	80	125	100	-	50	4	10	264	174	168	168	-
90L	1	1.5/2.2	1.5	0.75	90	140	125	-	56	4	10	318	192	180	186	-
100L	1	-	2.2	1.5	100	160	140	-	63	4	12	357/377*	218	191	209	34
112S	1	2.2	2.2	1.5	112	190	140	-	70	4	12	370/395*	240	213	232	42
112M	1	3.7	3.7	2.2	112	190	140	-	70	4	12	370/395*	240	213	232	42
132S	1	5.5	5.5	3.7	132	216	140	-	89	4	12	447	280	213	269	42
132M		7.5	7.5	5.5	132	216	178	-	89	4	12	486	280	213	269	42
160M	1	11	11	7.5	160	254	210	-	108	4	15	595	320	265	320	50
160L		15	15	11	160	254	254	-	108	4	15	639	320	265	320	50
180M	1	18.5	18.5	15	180	279	241	-	121	4	15	645	365	286	366	60
180L		22	22	15	180	279	279	-	121	4	15	673	365	286	366	60
200L	2	22/30/37	30/37	18.5/22	200	318	305	-	133	4	19	820(790)	412	407	409	60
225S	2	37/45/55	37/45/55	30/37	225	356	286	(311)	149	8	19	825(795)	465	440	450	60
250S,M	3	75	75	45/55	250	406	311	(349)	168	8	24	910(880)	522	470	501	-
280S,M	3	95/110/132	95/110/132	75/90	280	457	368	(419)	190	8	24	1100(1040)	615	549	588	-

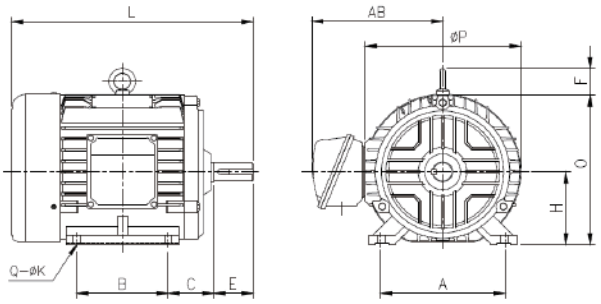
❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

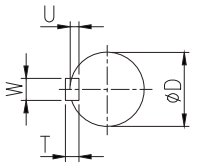
❷ This dimension is based on the existing standard model. However, it is necessary to confirm the design-improved New Model because the appearance and dimensions may be different.

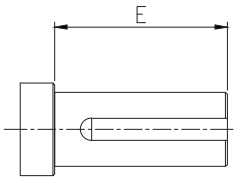
❸ Data in ( ) is for 2 poles.

When using electrical equipment in places with explosive gases and vapors including chemical plants, explosion-proof electrical equipment needs to be used to prevent damage to life and facilities due to explosion. Based on our long years of motor production experience and with new technology and the latest facilities, we are producing reliable increased safety and explosion-proof motors in accordance with the standards set by the certification bodies such as the Korea Occupational Safety & Health Agency.

FIG. 1







SHAFT EXTENTION

FIG. 2

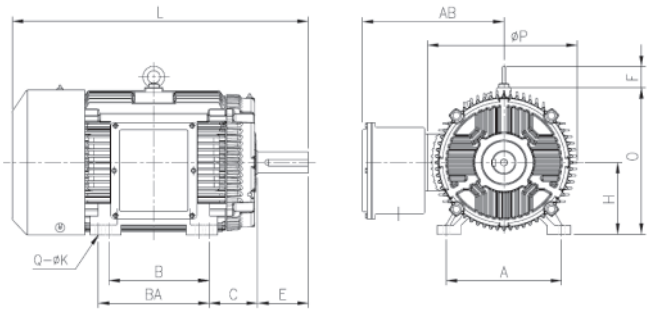
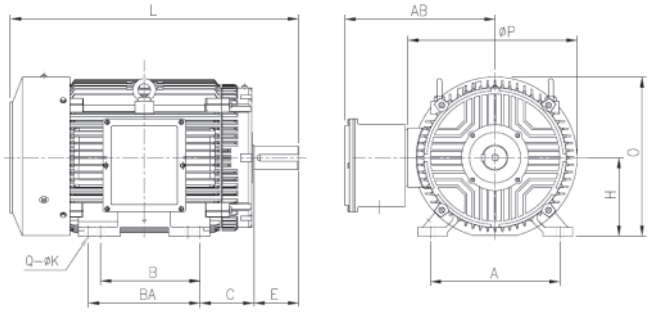


FIG. 3



Conduit Screw Standard Specification by Fr. NO (KD)	
Fr. NO.	Conduit Screw
80 ~ 112	PF ¾ (22)
132S, 132M	PF 1 ¼ (36)
160M,160L	PF 1 ½ (42)
180M,180L	PF 2 (54)
200L	PF 2 ½ (70)
225, 250M.S	PF 2 ½ (70)
280M.L	PF 3 (82)

DIMENSIONS(mm) SHAFT					BEARING NO.		WEIGHT(kg)		
E	ΦD	W	U	T	DE	NDE	2P	4P	6P
40	19j6	6	3.5	6	6204ZZC3	6203ZZC3	18	18	-
50	24j6	8	4	7	6205ZZC3	6204ZZC3	25	25	25
60	28j6	8	4	7	6206ZZC3	6205ZZC3	-	34	37
60	28j6	8	4	7	6206ZZC3	6205ZZC3	45	45	47
60	28j6	8	4	7	6206ZZC3	6205ZZC3	45	45	47
80	38k6	10	5	8	6208ZZC3	6206ZZC3	64/70	68	75
80	38k6	10	5	8	6208ZZC3	6206ZZC3	-	82	90
110	42k6	12	5	8	6309ZZC3	6307ZZC3	117	117	117
110	42k6	12	5	8	6309ZZC3	6307ZZC3	140	140	145
110	48k6	14	5.5	9	6311ZZC3	6309ZZC3	200	185/200	190
110	55m6	16	6	10	6312ZZC3	6309ZZC3	210	235	235/245
140(110)	60m6(55m6)	18(16)	7(6)	11(10)	6313ZC3(6212ZC3)	6212ZC3(6212ZC3)	230/250/270	260/280	295/315
140(110)	65m6(55m6)	18(16)	7(6)	11(10)	6314C3(6312C3)	6312C3(6312C3)	325/345/365	345/365/385	360/380
140(110)	75m6(55m6)	20(16)	7.5(6)	12(10)	6316C3(6313C3)	6313C3(6313C3)	470	480	460/500
170(110)	85m6(55m6)	22(16)	9(6)	14(10)	6318C3(6314C3)	6315C3(6314C3)	700/750/800	660/730/800	710/750

FRAME PROOF / DUST IGNITION EXPLOSION-PROOF MOTOR

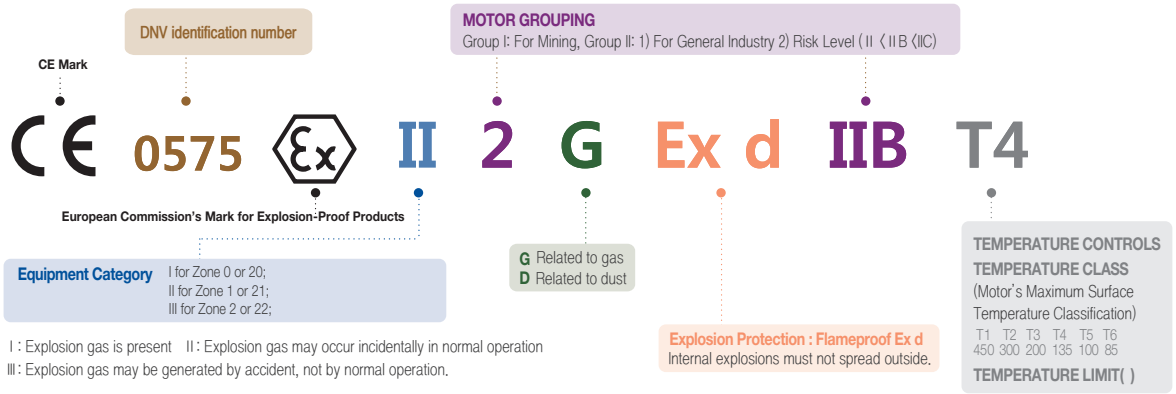
EXPLOSION-PROOF MOTOR (Ex d type / Ex tb type)

This product is manufactured in accordance with the lowest efficiency system of regulations for the operation of equipment for efficiency management under Article 15 of the "Energy Use Rationalization Act".

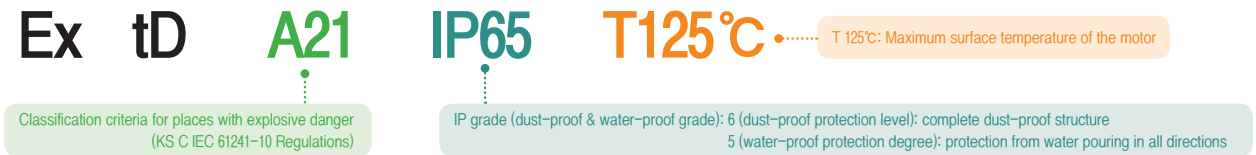
Standard specification

Standard specification	Frame Proof	Dust Ignition Explosion-Proof Type
Description of the structure	It is an explosion-proof structure in which the enclosure can withstand the explosion pressure when an internal explosion occurs due to the explosive gas penetrating into it or prevent the spread of external explosive sparks.	It is an explosion-proof structure for explosive dust and is applied to electrical equipment protected by enclosures and surface temperature limitations which prevent dust from penetrating the electrical installation.
Explosion-proof symbol	Ex d	Ex tb
Group symbol	ⅡB, ⅡC	ⅢB, ⅢC
Maximum surface temperature	T4 / T5 / T6	T125℃ Db
Outer cover & attachment structure	Totally closed (TEFC, TEAO, TENV), Horizontal (B3), Vertical (B5, V1), B3B5	
Ambient conditions	Operating ambient temperature: -20~50℃	
Dangerous places when using	Class 1 place, class 2 place	
Protection grade	IP55, 56, 65&66	IP 65 or 66

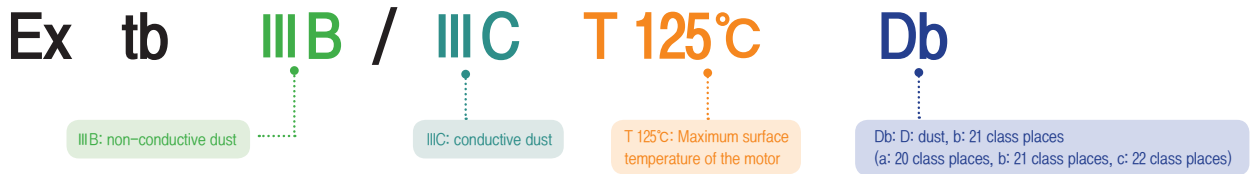
Meaning of frame proof symbols



Meaning of dust explosion-proof symbols (KGS)



Meaning of dust explosion-proof symbols (IECEx)



IMB3 (Horizontal)

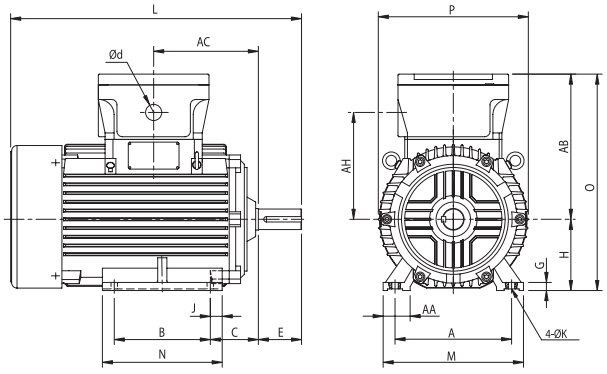


FIG. 1

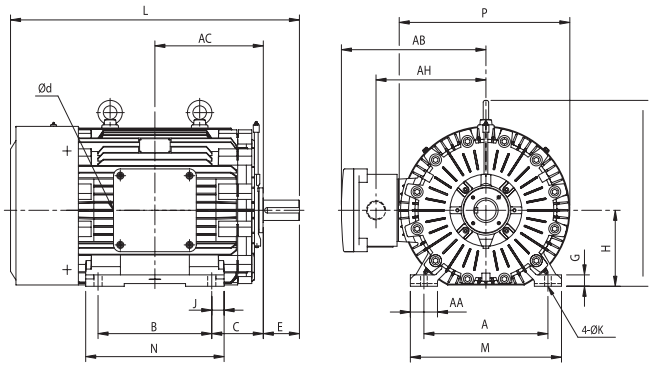
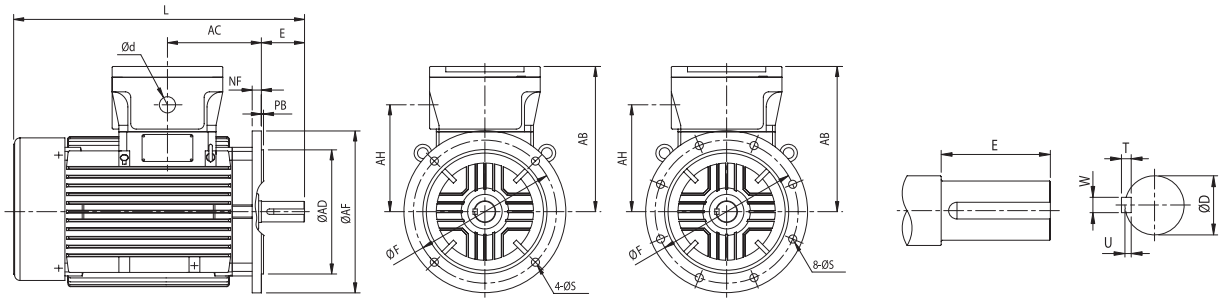


FIG. 2

IMB5 (Vertical Flange)



71M...180L
(FF130...FF300)

200L...250M
(FF400...FF500)

[SHAFT EXTENTION]

SPECIFICATIONS

FRAME NO.	FLANGE NO.	OUTPUT(kW)				DIMENSIONS(mm)																										WEIGHT (Kg)	Fig.
		2P	4P	6P	8P	A	B	C	ΦD	E	W	U	T	G	H	J	ΦK	M	N	AA	AB	AC	AH	O	P	ΦAD	ΦF	ΦAF	NF	PB	ΦS	L	D		
71M	FF130	0.4	0.2/0.4	-	-	112	90	45	Φ14j6	30	5	3	5	7	71	9	Φ7	135	140	30	163		110	234	156	110j6	130	160	10	3.5	10	293	1*M25	22	
80M	FF165	0.75	0.75	0.4	-	125	100	50	Φ19j6	40	6	3.5	6	9	80	10.5	Φ10	150	150	35	260	129.5	123	253	176	130j6	165	200	10	3.5	12	328.5	1*M25	25	
90L	FF165	1.5/2.2	1.5	0.75	0.4	140	125	56	Φ24j6	50	8	4	7	9	90	10	Φ10	170	180	35	265	150	133	273	196	130j6	165	200	10	3.5	12	391.5	1*M25	35	
100L	FF215	-	2.2	1.5	0.75	160	140	63	Φ28j6	60	8	4	7	11	100	11	Φ12	200	185	45	202	148	159	302	223	180j6	215	250	10	4	15	430	1*M25	45	
112M	FF215	3.7	2.2/3.7	2.2	1.5	190	140	70	Φ28j6	60	8	4	7	13	112	11	Φ12	226	192	40	219	143	176	331	242	180j6	215	250	10	4	15	444	1*M25	65	
132S	FF265	5.5/7.5	5.5	3.7	2.2	216	140	89	Φ38k6	80	10	5	8	15	132	22	Φ12	260	184	50	269	174	198	401	278	230j6	265	300	17	4	15	499	2*M32	90	
132M	FF265	-	7.5	5.5	3.7	216	178	89	Φ38k6	80	10	5	8	15	132	22	Φ12	260	222	50	269	174	198	401	278	230j6	265	300	17	4	15	539	2*M32	95	
160M	FF300	11/15	11	7.5	5.5	254	210	108	Φ42k6	110	12	5	8	20	160	20	Φ15	300	250	55	370	174	220	451	320	250j6	300	350	18	5	19	635	2*M32	135	
160L	FF300	18.5	15	11	7.5	254	254	108	Φ42k6	110	12	5	8	20	160	20	Φ15	300	294	55	370	174	220	451	320	250j6	300	350	18	5	19	675	2*M32	155	1
180M	FF300	22	18.5/22	15	11	279	241	121	Φ48k6	110	14	5.5	9	23	180	19.5	Φ15	320	280	60	385	194	245	503	366	250j6	300	350	16	5	19	723	2*M40	200	
180L	FF300	30	30	18.5/22	15	279	279	121	Φ55m6	110	16	6	10	23	180	19.5	Φ15	320	318	60	385	194	245	503	366	250j6	300	350	16	5	19	744	2*M40	240	
200L	FF400	30/37	-	-	-	318	305	133	Φ55m6	110	16	6	10	29	200	-	Φ19	400	365	83	365	229	287	565	419	350	400	450	18	5	18	880	2*M40	310	
		-	30/37	30	18.5/22	318	305	133	Φ60m6	140	18	7	11	29	200	-	Φ19	400	365	83	365	229	287	565	419	350	400	450	18	5	18	910	2*M40	310	
225S	FF400	45/55	-	-	-	356	286	149	Φ55m6	110	14	5.5	9	32	225	-	Φ19	432	362	79	375	219	297	600	454	350	400	450	20	5	18	850	2*M40	390	
		-	45/55	37/45	30	356	286	149	Φ60m6	140	18	7	11	32	225	-	Φ19	432	362	79	375	519	297	600	454	350	400	450	20	5	18	880	2*M40	390	
250S	FF500	75	-	-	-	406	311	168	Φ60m6	110	18	7	11	30	250	-	Φ24	485	415	87.5	408	239	297	660	454	450	500	550	20	5	18	935	2*M40	450	
		-	75	55	37	406	311	168	Φ75m6	140	20	7.5	12	30	250	-	Φ24	485	415	87.5	408	239	297	660	454	450	500	550	20	5	18	965	2*M40	450	
250M	FF500	90	-	-	-	406	349	168	Φ60m6	110	18	7	11	30	250	-	Φ24	485	460	87.5	408	239	297	660	454	450	500	550	20	5	18	995	2*M40	495	
		-	90	75	45	406	349	168	Φ75m6	140	20	7.5	12	30	250	-	Φ24	485	460	87.5	408	239	297	660	454	450	500	550	20	5	18	1025	2*M40	495	
280M	-	110/132	-	-	-	457	368/419	190	Φ55m6	110	16	6	10	42	280	-	Φ24	557	510	100	535	400	405	690	-	-	-	-	-	-	-	1045	2*M63	1100	
		-	110/132	90/110	75	457	368/419	190	Φ85m6	170	22	9	14	42	280	-	Φ24	557	510	100	535	400	405	690	-	-	-	-	-	-	-	1110	2*M63	1150	2
315M	-	-	150/160	132	90	508	457	216	Φ95m6	170	25	9	14	45	315	-	Φ28	628	558	120	575	445	435	750	-	-	-	-	-	-	-	1205	2*M63	1600	
355L	-	-	260	200		610	630	254	Φ100m6	210	28	10	16	45	355	-	Φ28	710	770	110	720	445	565	875	-	-	-	-	-	-	-	1520	2*M63	2100	

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

❷ If you order a short time rated motor, the dimensions may change. Please contact our sales team

MOTOR FOR GENERAL-PURPOSE INVERTER

INVERTER DUTY MOTOR

It is designed to be self-power ventilated to drive centrifugal machinery such as pumps and fans efficiently and to be used within the operating speed range of 20 ~ 60Hz. This product is manufactured in accordance with the minimum efficiency performance of regulations for the operation of equipment for efficiency management under Article 15 of the "Energy Use Rationalization Act".

What is Inverter Duty Motor?

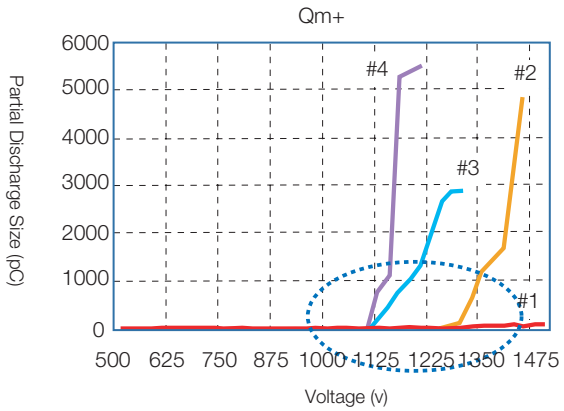
It is a motor that can be operated at any rotational speed by means of an input of a variable voltage and variable frequency (AC) rather than a rated voltage and frequency. It also refers to a motor designed to fully exhibit the required speed-torque characteristics according to the load, considering the cooling capacity and mechanical strength depending on the speed change.

Considerations for Inverter Duty Motors

- The electrical breakdown of Inverter Duty Motor is caused by thermal, electrical, environmental, and mechanical factors. In particular, the electrical part directly affects the burning and deterioration of motor life.

Degradation Factor	Major causes	Degradation state
Thermal	▶ Motor loss ▶ Cooling decline	- Changes in appearance (discoloration, cracks) - Change of electrical properties (insulation resistance, breakdown voltage) - Dimensional change (expansion, contraction) - Changes in chemical properties (water resistance, chemical resistance) - Change in mechanical properties (strength, brittleness)
Electrical	▶ Surge voltage generated from inverter power supply	- Insulation breakdown due to partial electric discharge within slot - Corona(electric discharge phenomenon) occurrence
Environmental (chemical)	▶ Chemicals ▶ Gas, oil, water, etc	- Change of mechanical/electrical properties - Cracks - Corrosion/Erosion - Dissolution and appearance change
Mechanical	▶ Electromagnetic force at start ▶ Vibration / Stress / Corrosion ▶ Abrasive dust	- Peeling - Sever - Cracks - Corrosion(erosion)

- Partial Discharge Inception Voltage Test Result
  Insulation system for inverters shows very good performance in surge voltage.

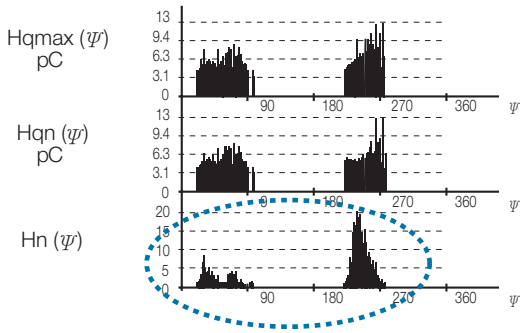


Sample NO. / Item	#1	#2	#3	#4
Sample classification	HIGEN Insulation system for inverter	Insulation System Type"A"	Insulation System Type"B"	Insulation System Type"C"
DIV (10pC기준)	1200V	1150V	1075V	1075V

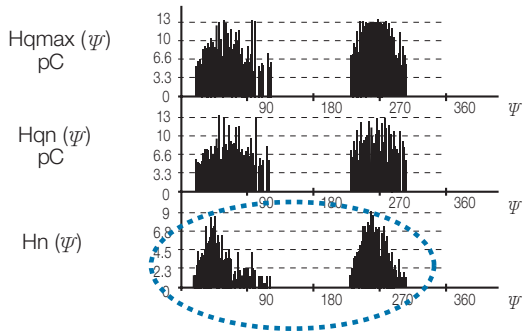
1. DIV : Discharge Inception Voltage
2. It is the Data Coming from Self Test.

- Partial Discharge Quantity Test Results (Comparison of Discharge Quantity: # 1 << # 2)

#1 (HIGEN Inverter Duty Motor Application System)



#2 (Application System Type A)



Features and Benefits

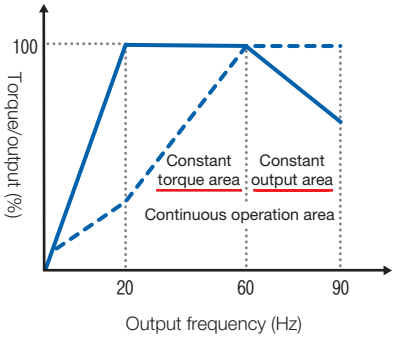
Best Quality

- Fast response to input signal
- High torque with good load response
- Guarantee of long life due to Insulation system for inverter
- Low vibration thanks to precision machining
- Harmonics reduction core application for low noise

Best Reliability

- Accumulated Know-how through the experience of producing elevator motor for inverter (130,000 units)
- Optimal technical compatibility with domestic and foreign inverters
- Equipped with all the motors for control including vector, spindle, servo motor, etc.

The Standard of Self Ventilated Type



General Specifications

- Protection method: totally unclosed fan cooled type
- Protection grade: IP44 or IP54 / IP55
- Overload enduring capacity: 150%, 1 minute
- Insulation class: class F or class F/B
- Cooling method: Self Ventilated type or forced ventilated type

Please contact us for other details and we will help you to choose the right specification for your needs.

Appearance and Dimensions

Inverter Duty Motor (Self Ventilated type) Frame Size

Output		Poles	
HP	kW	4P	6P
1	0.75	80	90L
2	1.5	90L	100L
3	2.2	112S	112M
5	3.7	112M	132S
7.5	5.5	132S	132M
10	7.5	132M	160M
15	11	160M	160L
20	15	160L	180M
25	18.5	180M	180L
30	22	180M	180L

Output		Poles	
HP	kW	4P	6P
40	30	200L	200L
50	37	200L	225M
60	45	225M	250M
75	55	225M	250M
100	75	250M	280M
125	95	280M	280L
150	110	280L	315M
175	132	315M	315M
200	150	315M	-

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

Special Note

- The self ventilated type inverter duty motor has the same external dimensions as the three phase totally unclosed outer portion of this catalog.
- When the range of mainly used frequency (rotating speed) is out of 40~75Hz, you can choose the motor which is more suitable for the load condition if you contact us in advance.

MOTOR FOR VECTOR INVERTERS

Features

It is one kind of Inverter Duty Motor that can be operated at any rotating speed by input of variable voltage and variable frequency.
This motor is applied to the method to control the current by separating the current into the magnetic flux current and the torque current using the speed sensor, and the forced cooling fan is basically attached to it.

Application of Vector Inverter Duty Motor

Major Use of the Vector Inverter Duty Motor

Vector Inverter Duty Motors continue to be used more and more because they can replace traditional power transmission and mechanical speed converters as they become more versatile and more precise. In particular, direct current and winding type motors used for loads requiring high starting torque are increasingly being replaced by vector Inverter Duty Motors that have a large energy saving effect and are easy to maintain and repair.

Advantages of Vector Inverter Duty Motor

- It has a wide variable speed range.
- It allows constant power operation at high speed.
- It makes sufficient torque at low speeds and allows continuous operation.
- It can maintain low noise through frequency control.

Motor Comparison (Contained Drives for Driving)

Division	DC Motor	Wound-Type Motor	Motor for General-Purpose Inverter	Vector Inverter Duty Motor
Speed Control	⦿	△	○	⦿
Energy Saving Effect	△	△	○	⦿
Maintenance	X	X	○	○
price	○	○	○	△
Load-Resistant Power	○	○	○	⦿

※ X : Not good △ : Normal ○ : Good ⦿ : Excellent

Advantages of HIGEN Vector Inverter Duty Motor

Superior Insulation Performance

The high surge voltage and voltage build-up rate (dt/dv) caused by the increased use of IGBTs, a highspeed switching device to improve the performance of the inverter, adversely affect motor insulation.
It satisfies the VOLTAGE SPIKES regulations of NEMA MG-1 Part 31 by applying an isolation system dedicated to vector Inverter Duty Motors.

- Use of magnet wire resistant to surge voltage
- Use of insulator with high insulation strength
- Varnish vacuum impregnated processing
- Expansion of insulation distance between live part and non-live part

Best Quality & High Reliability

- Fast response to input signal
- Guarantee of long life due to the insulation system for inverters
- Low vibration thanks to precision machining
- Optimal technical compatibility with domestic and foreign inverters
- High torque with good load response
- Stable torque characteristics in all areas
- Harmonics reduction core application for low noise

Fast Delivery & Perfect Service

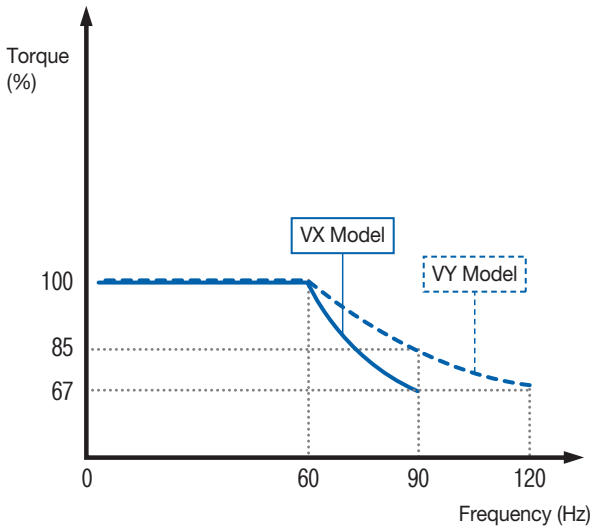
- Fast delivery response
- Convenient nationwide dealer network
- Technical support for customers (seminars and technical briefing sessions)
- Thorough A/S management

Excellent Delivery Performance & Various Models

- It has the best delivery performance in Korea.
- It is equipped with all the motors for control including vector, spindle, servo motor, etc.
- It has an accumulated Know-how through the experience of producing elevator motor for inverter (130,000 units)

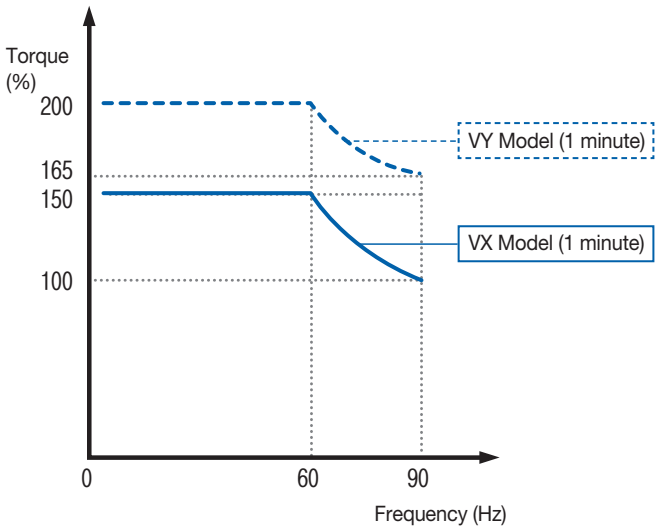
Characteristic Curve of Vector Inverter Duty Motor

1. Continuous OperationTorque Area Comparison



Division	VX model	VY model
Continuous Operation Torque Area	The response is narrow	The response is wide
Short Time Operation Torque Area	150%, 1 minute	200%, 1 minute

2. Short Time OperationTorque Area Comparison



VX Model Vector Motor

VY Model Vector Motor

Standard Specifications of Vector Inverter Duty Motor

Division / Rated Output (kW)	Continuous Rated Torque (kg · fm)		Rotor GD² (kg · fm²)				Base Speed (rpm)		Maximum Speed (rpm)		Vibration / Noise	Overload Capacity	Parts	Others things
			4P		6P									
	4P	6P	VX	VY	VX	VY	4P	6P	4P	6P				
0.75	0.41	0.63	0.04	0.04	0.05	0.05	1800	1200	3600	2400	Vibration V15 Noise 75dB (A) Or less	VX Series Standard 150% 1 minut	Cooling fan encoder Temperature Sensor for Overheat Protection (NTC)	Installation: indoor Altitude: 1000 m or less Ambient temperature: -20 ~ +40℃
1.5	0.83	1.27	0.04	0.04	0.07	0.08								
2.2	1.22	1.86	0.04	0.07	0.15	0.17								
3.7	2.06	3.13	0.06	0.14	0.20	0.23								
5.5	3.06	4.66	0.11	0.35	0.33	0.49								
7.5	4.17	6.30	0.14	0.45	0.58	0.64								
11	6.09	9.23	0.39	0.49	0.85	1.15								
15	8.30	12.59	0.49	0.54	1.20	1.29								
18.5	10.24	15.53	0.79	0.90	2.10	2.44								
22	12.17	18.47	0.90	1.19	2.44	2.69								
30	16.60	25.18	1.23	1.43	3.80	4.25								
37	20.47	31.06	1.43	2.10	5.75	6.06								
45	24.90	37.77	2.55	2.90	6.06	6.55								
55	30.43	46.17	3.20	3.20	6.55	7.15								
75	42.0	63.0	4.50	4.90	10.70	-								
90	53.0	80.0	6.80	-	11.60	-								
110	62.0	92.0	7.50	-	12.00	-								
132	74.0	110.0	8.40	-	13.50	-								
160	84.0	125.0	9.60	-	15.00	-								
185	103.0	154.0	15.00	-	23.00	-								

※ Please contact our sales team or factory separately, if you want to know the details including environment, operating conditions, options, etc.

VECTOR INVERTER DUTY MOTOR (HORIZONTAL TYPE)

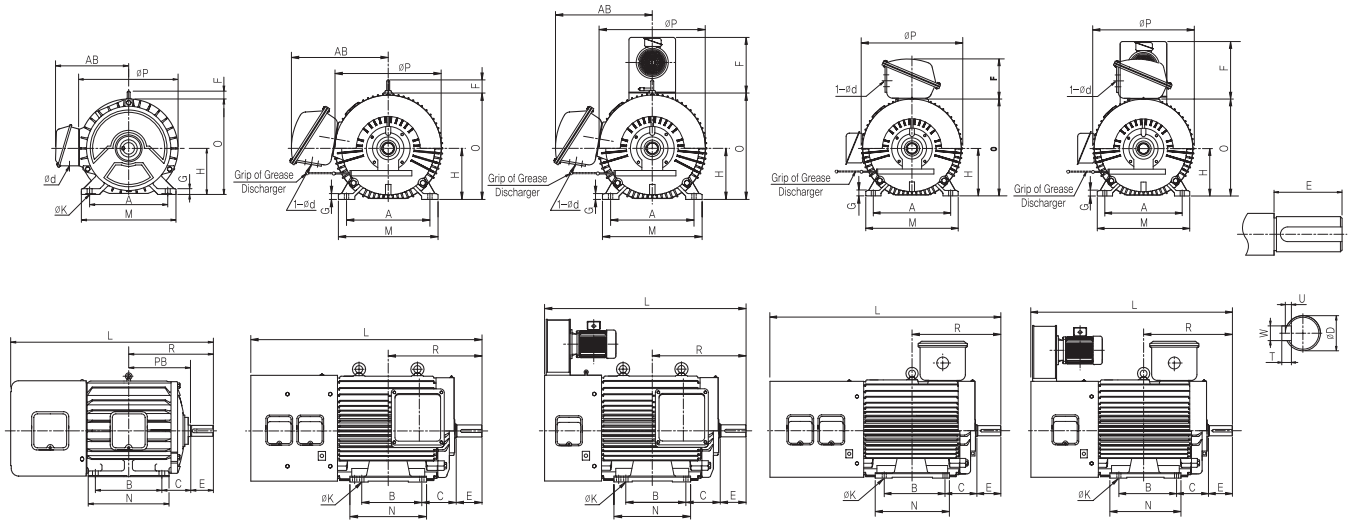


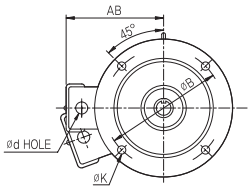
FIG 1 FIG 2 FIG 3 FIG 4 FIG 5

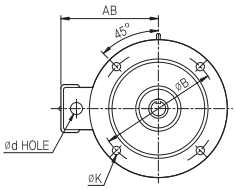
FRAME NO.	OUTPUT(kW)				FIG. NO.	DIMENSIONS(mm)																			WEIGHT(kg)			
	4P		6P			BODY															SHAFT				4P		6P	
	VX	VY	VX	VY		H	L	R	E	C	B	N	K	AB	P	F	O	A	M	G	d	ΦD	T	U	W	VX	VY	VX	VY
112S	0.75 1.5 2.2	0.75 1.5	0.75 1.5	0.75	1	112	420	187	60	70	114	148	12	187	240	42	232	190	226	13	22	28j6	7	4	8	35	35	35	35
112M	3.7	2.2	2.2	1.5	1	112	449	200	60	70	140	172	12	187	240	42	232	190	226	13	22	28j6	7	4	8	45	45	45	45
132S	5.5	3.7	3.7	2.2	1	132	520	239	80	89	140	175	12	250	280	42	269	216	250	15	42	38k6z	8	5	10	70	-	65	72
132M	7.5	-	5.5	3.7	1	132	560	258	80	89	178	215	12	250	280	42	269	216	250	15	42	38k6z	8	5	10	85	85	80	88
160M	11	5.5	7.5	5.5	1	160	778	323	110	108	210	250	15	265	323	51	316	254	300	18	45	42k6	8	5	12	120	120	120	130
160L	15	7.5 11 15	11	7.5	1	160	824	345	110	108	254	300	15	265	323	51	316	254	300	18	45	42k6	8	5	12	145	140 145 160	140	150
180M	18.5	18.5	15	11	1	180	849	351.5	110	121	241	280	15	286	365	60	366	279	321	25	45	48k6	9	5.5	14	200	240	180	210
180L	22	22	18.5	15	1	180	876	370.5	110	121	279	318	15	286	365	60	366	279	321	25	45	55m6	10	6	16	240	255	250	250
200L	30 37	30 37	22	18.5 22	1	200	970	426	140	133	305	365	19	368	416	60	396	318	400	25	80	60m6	11	7	18	295 320	295 320	305	305 340
225M	45 55	45 55	30 37	30 37	2	225	1115	444.5	140	149	311	410	19	425	475	60	464	356	432	30	80	65m6	11	7	18	380 420	380	420 450	450 500
250M	75	75	45 55	45 55	2	250	1260	513.5	140	168	349	444	24	428	522	71	511	406	485	30	80	75m6	12	7.5	20	580	600	550 600	600 650
280S	90	-	75	-	2	280	1350	544	170	190	368	518	24	544	600	90	583	457	546	37	80	85m6	14	9	22	780	-	770	-
280S	90	-	75	-	3	280	1255	544	170	190	368	518	24	544	600	505	583	457	546	37	80	85m6	14	9	22	780	-	770	-
280L	110 132 150	-	90 110	-	2	280	1480	588.5	170	190	457	577	24	544	600	90	583	457	521	37	80	85m6	14	9	22	800 860 880	-	800 860	-
280L	110 132 150	-	90 110	-	3	280	1345	588.5	170	190	457	577	24	544	600	505	583	457	521	37	80	85m6	14	9	22	800	860	800 860	-
315M	185	-	132 160	-	4	315	1540	614.5	170	216	457	605	28	-	648	249	635	508	628	35	80	95m6	14	9	25	1130	-	1130 1150	-
315M	185	-	132 160	-	5	315	1445	614.5	170	216	457	605	28	-	648	505	635	508	628	35	80	95m6	14	9	25	1130	-	1130 1150	-

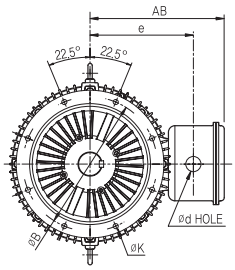
❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

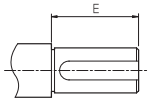
❷ The property values in this table are actual measurements and may differ from the approved data.

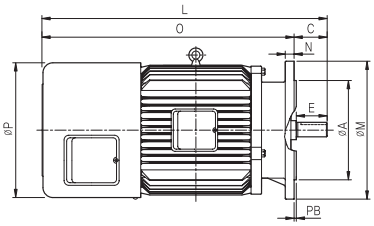
VECTOR INVERTER DUTY MOTOR (FLANGE TYPE)

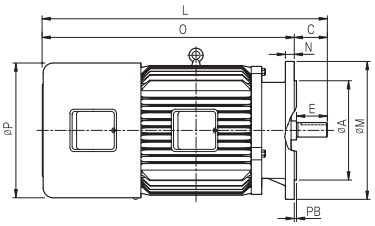


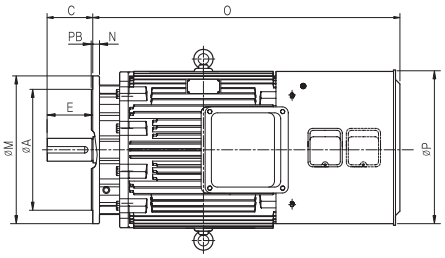












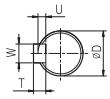
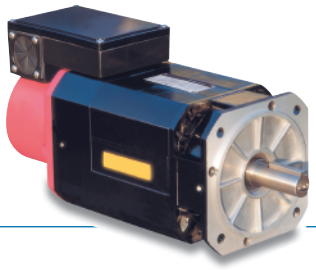
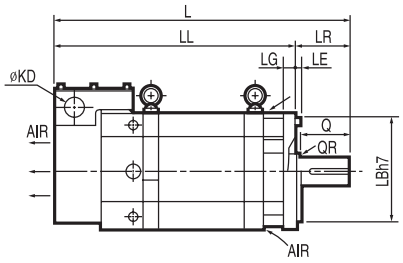


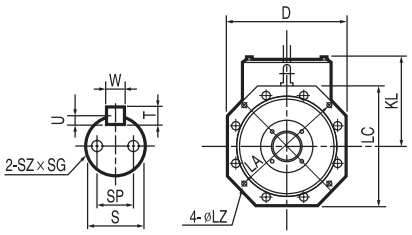
FIG 1 **FIG 2** **FIG 3**

FRAME NO.	OUTPUT(kW)				FIG. NO.	DIMENSIONS(mm)																		WEIGHT(kg)			
	4P		6P			BODY													SHAFT				4P		6P	
	VX	VY	VX	VY		Fr.No	L	A	B	C	E	AB	N	M	O	P	PB	K	d	e	ΦD	T	U	W	VX	VY	VX	VY
FF215	0.75 1.5 2.2	0.75 1.5	0.75 1.5	0.75	1	112S	463	180j6	215	60	60	182	16	250	403	235	4	15	22	-	28j6	7	4	8	42	42	42	42
FF215	3.7	2.2	2.2	1.5	1	112M	486	180j6	215	60	60	182	16	250	426	235	4	15	22	-	28j6	7	4	8	52	48	52	52
FF265	5.5	3.7	3.7	2.2	2	132S	536	230j6	265	80	80	255	15	300	456	274	4	15	42	-	38k6	8	5	10	78	72	78	80
FF265	7.5	-	5.5	3.7	2	132M	576	230j6	265	80	80	255	15	300	496	274	4	15	42	-	38k6	8	5	10	92	-	92	94
FF300	11	5.5	7.5	5.5	2	160M	778	250j6	300	110	110	265	20	350	668	317	5	19	45	-	42k6	8	5	12	125	110	135	135
FF300	15	7.5 11 15	11	7.5	2	160L	822	250j6	300	110	110	265	20	350	712	317	5	19	45	-	42k6	8	5	12	150	130 150 160	155	155
FF350	18.5	18.5	15	11	2	180M	862	300j6	350	110	110	286	20	395	752	365	5	19	45	-	48k6	9	5.5	14	205	205	215	215
FF350	22	22	18.5	15	2	180L	891	300j6	350	110	110	286	20	395	781	365	5	19	45	-	55m6	10	6	16	240	255	245	255
FF400	30 37	30 37	22	18.5 22	2	200L	950	350j6	400	110	110	368	21	450	840	384	5	19	80	-	60m6	11	7	18	300 325	325 345	300 310	310 345
FF400	45 55	45 55	30 37	30 37	2	225M	1145	350j6	400	140	140	425	21	450	1005	454	5	19	80	-	65m6	11	7	18	385 455	455 480	385 455	455 480
FF500	75	75	45 55	45 55	3	250M	1240	450j6	500	140	140	428	25	550	1017	510	5	19	80	-	75m6	12	7.5	20	535	585	555 605	555 605
FF500	90	-	75	-	3	280M	1380	450j6	500	170	170	528	25	560	1210	560	5	19	80	394	85m6	14	9	22	720	-	750	-
FF500	110 132 160	-	95 110 -	-	3	280L	1430	450j6	500	170	170	528	25	560	1260	560	5	19	80	394	85m6	14	9	22	750 800 860	-	780 820 -	-

SPINDLE MOTOR



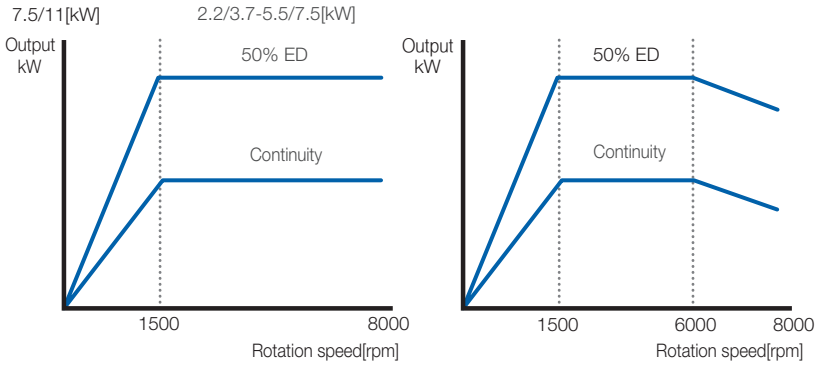




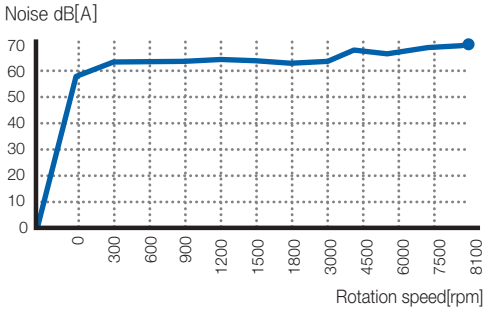
Features

- It has wide area constant output using Korea's first Frameless Type (Standard: 8,000 [rpm]).
- StatorCore direct-cooling method greatly extends motor life by minimizing temperature rise
- High torque & low inertia design provides excellent response and acceleration & deceleration performance.
- It shows minimized temperature transfer due to the use of high temperature & high-speed bearings and effective cooling of the machine joint.
- Low vibration of the V5 is realized even at high speeds thanks to the precision balancing.
- It has an enclosed structure that is made with our company's proprietary sealing technology and can be used even in environments where IP54 protection grade is required.
- Full localization makes it possible to produce customized products of various specifications.
- The products become smaller using our own frameless type (30% less volume and 30% less weight than before).

Output Characteristic (SPEED-OUTPUT CURVE)



Noise level change according to rotation speed
(5.5[kW]/ 7.5[kW])



Standard specifications

Item \ type	S05HC1BF	S05HQ1BF	S08HC1BF	S08HQ1BF	S10HC1BF	S10HQ1BF	S15HC1BF	S15HQ1BF
	220V	380V	220V	380V	220V	380V	220V	380V
RATED OUTPUT[kW] 50% ED	3.7		5.5		7.5		11	
RATED OUTPUT [CONSTANT]	2.2		3.7		5.5		7.5	
CONSTANT RATED TORQUE [kgf · m]	1.43		2.40		3.57		4.87	
BASE SPEED [rpm]	1,500							
MAX SPEED [rpm]	8,000							
WITHSTANDING FOR OVER LOAD	50% ED Rated X 120% 1 minute							
ROTOR GD^2[kg · m^2]	0.035		0.057		0.086		0.11	
VIBRATION	V5							
NOISE	70dB [A] or less							
ACCESSORIES	Cooling Fan, Encoder (1024 [P/R]), Temperature sensor for overheat protection [NTC]							
OTHER INSTALLATION	Indoor/Altitude: below 1000 [m] / Ambient temperature -20 ~ + 40 ℃							

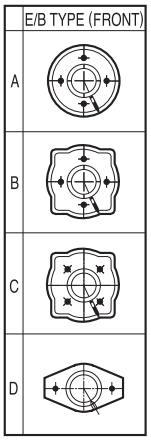
OUTPUT (kW)	DIMENSIONS(mm)																SHAFT					WEIGHT
	FR	FL	D	L	LL	LR	KD	KL	LA	LB	LC	LE	LG	LZ	Q	S	T	U	W	SP	SZ	SG	(kg)
2.2/3.7	112	F215	204	435	375	60	43	162	215	180	204	5	12	15.5	55	28j6	7	4	8	18	M5	10	35
3.7/5.5	112	F215	204	490	410	80	43	162	215	180	204	5	12	15.5	75	32h6	8	5	10	18	M5	12	48
5.5/7.5	112	F215	204	540	460	80	43	162	215	180	204	5	12	15.5	75	32h6	8	5	10	18	M5	12	56
7.5/11	112	F215	204	590	510	80	43	162	215	180	204	5	12	15.5	75	38h6	8	5	10	18	M5	12	73

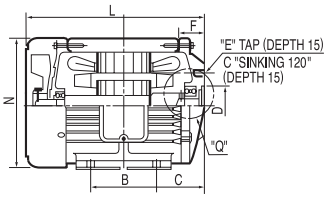
❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ 50% ED turns on for 5 minutes and turns off for 5 minutes with 10 minutes as 1 cycle. It is the output during operation.
❸ If it is necessary to change the ventilation direction from the semi-drive side to the drive side, please contact us separately for inquiry.

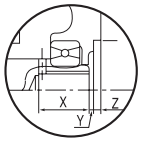
HYDRAULIC UNIT MOTOR

Based on the accumulated technology over 50 years, we manufacture motors with safety and high reliability in accordance with Korean Industrial Standards (KS) using new technologies and the latest facilities. Furthermore, we can manufacture and supply non-standard motors applied for a wide range of load conditions.

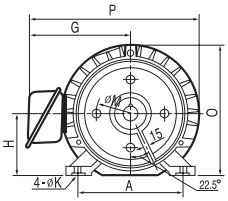
This product is manufactured in accordance with the minimum efficiency performance of regulations for the operation of equipment for efficiency management under Article 15 of the "Energy Use Rationalization Act".

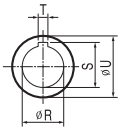






SHAFT





DETAILED OF SHAFT END DRIVE

Model			FRAME NO.	HP(kW)	DIMENSIONS(mm)										
IE1	IE2	IE3			A	B	C	ØD	E	G	H	ØK	L IE2	L IE3	ØM
I01HK1DUDP	I01HK1HDUP	P01HK1DUDP	80	1(0.75)	125	100	55	50.9	4-M8	144	80	10	229	249	83
I01HK1DUTS	I01HK1HDUS	P01HK1DUTS	80	1(0.75)	125	100	55	82.55	4-M10	144	80	10	229	249	106.4
I01HK1DUD	I01HK1HDUD	P01HK1DUD	90S	1(0.75)	140	100	60.5	70	2-M8	156	90	10	271		98
I01HK1DUS	I01HK1DUSH	P01HK1DUS	90S	1(0.75)	140	100	60.5	82.55	2-M10	156	90	10	271		106.4
I01HK1DUP	I01HK1DUPH	P01HK1DUP	90S	1(0.75)	140	100	60.5	82.55	2-M10	156	90	10	271		106.4
I02HK1DUP	I02HK1HDUP	P02HK1DUP	90L	2(1.5)	140	125	60.5	95.05	4-M10	156	90	10	271		127.0
I02HK1DUS	I02HK1HDUS	P02HK1DUS	90L	2(1.5)	140	125	60.5	82.55	4-M10	156	90	10	271		106.4
I02HK1DUK	I02HK1HDUK	P02HK1DUK	90L	2(1.5)	140	125	60.5	82.55	2-M10	156	90	10	271		106.4
I02HK1DUDP	I02HK1DDPH	P02HK1DUDP	90L	2(1.5)	140	125	60.5	50.9	2-M8	156	90	10	271		83
I02HK1DUD	I02HK1HDUD	P02HK1DUD	90L	2(1.5)	140	125	60.5	82.55	2-M10	156	90	10	271		106.4
I03HK6DUP	I03HK6HDUP	P03HK6DUP	100L	3(2.2)	160	140	63	95.05	4-M10	168	100	12	293	318	127.0
I03HK1DUK	I03HK1HDUK	P03HK1DUK	112S	3(2.2)	190	114	58	82.55	2-M10	187	112	12	269	294	106.4
I03HK1DUDP	I03HK1HDDP	P03HK1DUDP	112S	3(2.2)	190	114	58	50.9	4-M8	187	112	12	269	294	83
I03HK1DUT	I03HK1DUTH	P03HK1DUT	112S	3(2.2)	190	114	58	101.6	4-M12	187	112	12	269	294	146
I03HK1DUS	I03HK1DUSH	P03HK1DUS	112S	3(2.2)	190	114	58	82.55	4-M10	187	112	12	269	294	106.4
I05HK1DUK	I05HK1HDUK	P05HK1DUK	112M	5(3.7)	190	140	60	82.55	2-M10	187	112	12	299	324	106.4
I05HK1DUT	I05HK1HDUT	P05HK1DUT	112M	5(3.7)	190	140	60	101.6	4-M12	187	112	12	299	324	146.0
I05HK1DUS	I05HK1HDUS	P05HK1DUS	112M	5(3.7)	190	140	60	82.55	4-M10	187	112	12	299	324	106.4
I08HK1DUS	I08HK1HDUS	P08HK1DUS	132S	7.5(5.5)	216	140	85.5	101.6	4-M12	213	132	12	354		146.0
I08HK1DUT	I08HK1HDUT	P08HK1DUT	132S	7.5(5.5)	216	140	85.5	127.0	2-M16	213	132	12	354		181.0
I10HK1DUS	I10HK1HDUS	P10HK1DUS	132M	10(7.5)	216	178	86.5	127.0	4-M12	213	132	12	394		146.0

Model			DIMENSIONS(mm)						E/B(F)	SHAFT			BEARING NO.	
IE1	IE2	IE3	N	O	P	X	Y	Z	TYPE	ØR	S	T	DRIVE	OPP.DRIVE
I01HK1DUDP	I01HK1HDUP	P01HK1DUDP	165	168	231	30	1.5	7.5	A	12.7	14.3	3.2	6206ZZ	6203ZZ
I01HK1DUTS	I01HK1HDUS	P01HK1DUTS	165	168	231	30	0.5	8.5	A	15.88	17.7	4	6206ZZ	6203ZZ
I01HK1DUD	I01HK1HDUD	P01HK1DUD	185	186	252	32	4	5	D	16.00	18.2	5	6206ZZ	6204ZZ
I01HK1DUS	I01HK1DUSH	P01HK1DUS	185	186	252	29	2	7	D	12.7	14.3	3.2	6206ZZ	6204ZZ
I01HK1DUP	I01HK1DUPH	P01HK1DUP	185	186	252	30	2	7	D	16	17.7	4	6206ZZ	6204ZZ
I02HK1DUP	I02HK1HDUP	P02HK1DUP	185	186	252	30	3	6	C	19.05	21.4	4.8	6207ZZ	6204ZZ
I02HK1DUS	I02HK1HDUS	P02HK1DUS	185	186	252	38	1.5	7.5	B	19.05	21.4	4.8	6207ZZ	6204ZZ
I02HK1DUK	I02HK1HDUK	P02HK1DUK	185	186	252	30	2	7	D	15.88	17.7	4.0	6206ZZ	6204ZZ
I02HK1DUDP	I02HK1DDPH	P02HK1DUDP	185	186	252	29	2.5	6.5	D	12.7	14.3	3.2	6206ZZ	6204ZZ
I02HK1DUD	I02HK1HDUD	P02HK1DUD	185	186	252	25	2	7	D	16	17.7	4	6206ZZ	6204ZZ
I03HK6DUP	I03HK6HDUP	P03HK6DUP	211	208	276	44	0.5	12	C	19.05	21.5	4.76	6207ZZ	6205ZZ
I03HK1DUK	I03HK1HDUK	P03HK1DUK	230	232	307	38	4.5	7.5	A	15.88	17.7	4	6207ZZ	6205ZZ
I03HK1DUDP	I03HK1HDDP	P03HK1DUDP	230	232	307	29	2.5	6.5	A	12.7	14.3	3.2	6206ZZ	6205ZZ
I03HK1DUT	I03HK1DUTH	P03HK1DUT	230	232	307	47	1.5	10.5	A	22.23	25.5	6.35	6207ZZ	6205ZZ
I03HK1DUS	I03HK1DUSH	P03HK1DUS	230	232	307	38	4.5	7.5	A	19.05	21.4	4.8	6207ZZ	6205ZZ
I05HK1DUK	I05HK1HDUK	P05HK1DUK	230	232	307	38	4.5	7.5	A	15.88	17.7	4	6207ZZ	6205ZZ
I05HK1DUT	I05HK1HDUT	P05HK1DUT	230	232	307	47	1.5	10.5	A	22.23	25.5	6.35	6207ZZ	6205ZZ
I05HK1DUS	I05HK1HDUS	P05HK1DUS	230	232	307	38	4	7.5	A	19.05	21.4	4.8	6207ZZ	6205ZZ
I08HK1DUS	I08HK1HDUS	P08HK1DUS	272	269	353	47	4	10	A	22.23	25.5	6.35	6207ZZ	6206ZZ
I08HK1DUT	I08HK1HDUT	P08HK1DUT	272	269	353	45	4	10	D	31.77	35.4	7.98	6209ZZ	6206ZZ
I10HK1DUS	I10HK1HDUS	P10HK1DUS	272	269	353	47	4	10	A	22.23	25.5	6.35	6207ZZ	6206ZZ

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

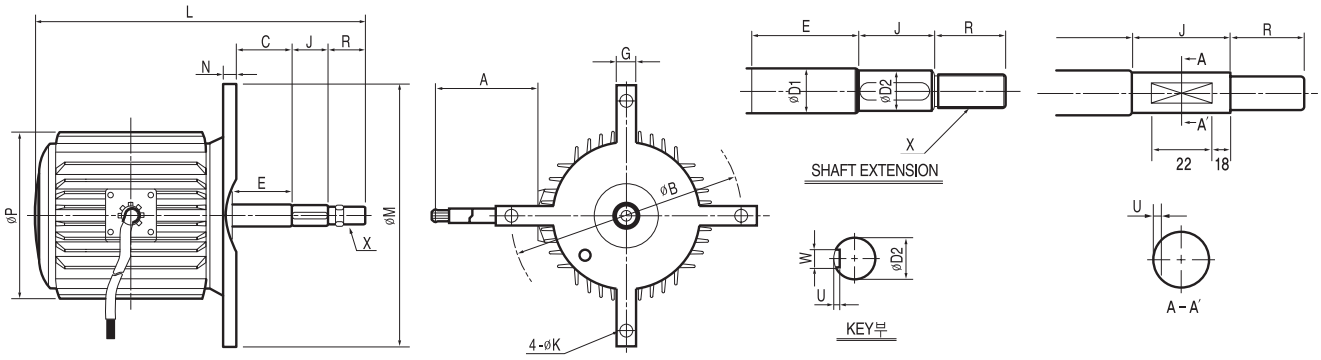
MOTOR FOR COOLING TOWER (AOC)

AIR OVER COOLING TYPE (AOC)

It is the motor in which the wind of the relative load fan runs through the motor surface. This product is used for cooling towers in high-rise buildings and factories, and it is specially designed so that the mechanical extranal gaps are completely waterproof for use in humid and water-dispersive environments.

Features

- Perfect wet-proof processing
- Excellent operating characteristics
- Low vibration & low noise
- Used ball bearings with long life



Frame NO. 132S

Frame NO. 80~100L

NO.	FRAME NO.	OUTPUT(kW)		INS. CLASS	DIMENSIONS (mm)										
		6P	8P		L	C	J	R	ØP	ØM	ØB	N	G	ØK	A
1	80	0.2	-	B.F	302	50	50	30	172	230	200	15	18	10	500
2	80	0.4	0.2	B.F	332	80	50	30	172	230	200	15	18	10	500
3	90L	0.75	0.4	B.F	348	50	50	30	189	230	200	19	30	10	500
4	100L	1.1/1.5	0.75	B.F	356	50	50	30	213	310	255	26	36	14	500
7	132S	3.7	2.2	B.F	475	70	80	30	271	350	285	18	36	14	900
8	132S	3.7	3.0	B.F	505	100	80	30	271	350	285	18	36	14	900

NO.	DIMENSIONS(mm)					BEARING NO.	
	ØD1	ØD2	X	W	U	DRIVE	OPP.DRIVE
1	20	19h6	5/8″ 11UNC (Right-Handed Thread)	-	4	6204ZZ	6203ZZ
2	20	19h6	5/8″ 11UNC (Right-Handed Thread)	-	4	6204ZZ	6203ZZ
3	25	22h6	3/4″ 10UNC (Right-Handed Thread)	-	4	6205ZZ	6204ZZ
4	29.5	28h6	3/4″ 10UNC (Right-Handed Thread)	-	4	6206ZZ	6205ZZ
7	37	35h6	3/4″ 10UNC (Right-Handed Thread)	10	4.5	6208ZZ	6206ZZ
8	37	35h6	3/4″ 10UNC (Right-Handed Thread)	10	4.5	6208ZZ	6206ZZ

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

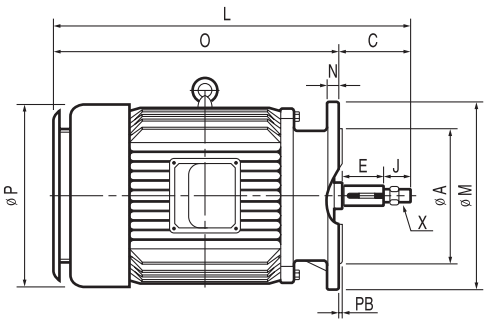
MOTOR FOR COOLING TOWER(FWP)

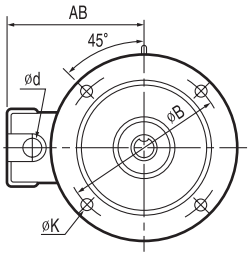
FLANGE WATER PROTECTION TYPE (FWP)

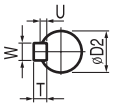
Outdoor motor can be used for the equipment which is always installed outdoor. It is a totally enclosed electric motor with a structure that can withstand rain, wind, and dust. The rating is the same as a typical low pressure three phase standard motor.

Features

- Perfect sealed structure
- PAINT coating strong for rust and corrosion
- The beautiful appearance makes the attached product look luxurious
- Premium effiviency and cost savings







FRAME NO.	OUTPUT(kW)			INS. CLASS	DIMENSIONS(mm)																BEARING NO.	
					MOTOR BODY														SHAFT			DRIVE	OPP. DRIVE
	4P	6P	8P		L	ØA	O	C	J	ØP	PB	AB	ØM	ØB	N	ØK	Ød	E	X	ØD2	W	U	T		
112S	2.2	1.5	0.75	B	459	229	359	100	40	235	5	208	279	254	16	13	PF¾	60	M16 * P1.5	28h6	7	4	7	6207ZZ	6205ZZ
112M	3.7	2.2	1.5	B	482	229	382	100	40	235	5	212	279	254	16	13	PF¾	60	M16 * P1.5	28h6	7	4	7	6207ZZ	6205ZZ
132S	5.5	3.7	2.2	B	546	229	418	128	48	274	5	234	279	254	16	13	PF¾ ~	73	M25 * P2	38h6	10	5	8	6208ZZ	6206ZZ
132M	7.5	5.5	3.7	B	586	229	458	128	48	274	5	234	279	254	16	13	PF¾ ~	73	M25 * P2	38h6	10	5	8	6208ZZ	6206ZZ
160M	11	7.5	5.5	B	710	279	545	165	55	317	5	265	356	318	20	21	PF¾ ~	110	M30 * P3.5	42h6	12	5	8	6309ZZ	6307ZZ
160L	15	11	7.5	B	754	279	589	165	55	317	5	265	356	318	20	21	PF¾ ~	110	M30 * P3.5	42h6	12	5	8	6309ZZ	6307ZZ
180M	22	15	11	B	750	279	580	170	60	365	5	290	356	318	20	21	PF¾ ~	110	M30 * P3.5	48h6	12	5	8	6312ZZ	6309ZZ
180L	30	18.5	15	F	795	279	625	170	60	365	5	290	356	318	20	21	PF¾ ~	110	M30 * P3.5	48h6	12	5	8	6312ZZ	6309ZZ

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

POLE CHANGING MOTOR

(TEFC)

Combination of Poles & Rotation Speed

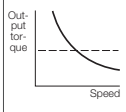
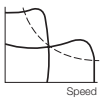
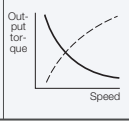
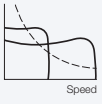
Pole changing motor can change the rotation speed by changing the number of poles.
Refer to the table below and select the appropriate combination for your machine.

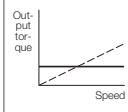
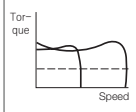
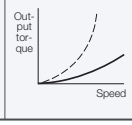
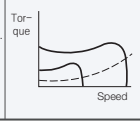
We guarantee excellent performance and accurate delivery time.

Speed Ratio	POLE	SPEED (rpm)	
		50Hz	60Hz
Dual Speed	2/4	3000/1500	3600/1800
	4/6	1500/1000	1800/1200
	4/8	1500/750	1800/900
	6/8	1000/750	1200/900
	6/12	1000/500	1200/600

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ Rotation aspeed is synchronous rotation speed.
❸ We can produce the products for pole combination except the list mentioned above.(order made goods)

Use (Types of Loads and Examples of Use)

DIVISION	LOAD PROPERTY	MOTOR PROPERTY	APPLIED EXAMPLE
CONSTANT OUTPUT	 Output is constant and torque is inversely proportional to speed Example) rpm / Output kw / Torque kgm 1500 / 7.5 / 5 750 / 7.5 / 10		Machine tools Rolling mill Centrifuge Balancing machine / Winder
VARIABLE OUTPUT	 The middle between constant output property and constant torque property Example) rpm / Output kw / Torque kgm 1500 / 7.5 / 5 750 / 5.5 / 7.1		

DIVISION	LOAD PROPERTY	MOTOR PROPERTY	APPLIED EXAMPLE
CONSTANT OUTPUT	 Output is proportional to speed and torque is constant Example) rpm / Output kw / Torque kgm 1500 / 7.5 / 5 750 / 3.7 / 5		Lift, Conveyor Wood milling machine, traction machine
VARIABLE OUTPUT	 The torque is proportional to the square of the revolution and the output is proportional to the cube of the revolution. Example) rpm / Output kw / Torque kgm 1500 / 7.5 / 5 750 / 1.0 / 1.35		Pump Air blower

Note) The broken line displayed in the speed-torque property of the motor shows the torque trend when the pole number is changed.

CONSTANT TORQUE

WNDING TYPE		OUTPUT(kW) SINGLE WINDING			DOUBLE WINDING	
POLES		2/4	4/8	6/12	4/6	6/8
SYN.SPEED(rpm)	50Hz	3000/1500	1500/750	1000/500	1500/1000	1000/750
	60Hz	3600/1800	1800/900	1200/600	1800/1200	1200/900
FRAME NO.	71	0.4/0.2	-	-	-	-
	80	0.75/0.4	0.4/0.2	-	0.4/0.25	-
	90L	1.5/0.75	0.75/0.4	0.4/0.2	0.75/0.5	0.4/0.25
	100L	2.2/1.1	1.5/0.75	-	1.5/1.0	0.75/0.55
	112M	3.7/1.9	2.2/1.1	0.75/0.4	2.2/1.5	1.5/1.1
	132S	-	3.7/1.9	1.5/0.75	-	1.5/1.12
	132M	5.5/2.8	5.5/2.8	2.2/1.1	3.7/2.5	2.2/1.5
	160M	7.5/3.7	7.5/3.75	3.7/1.9	5.5/3.7	3.7/2.8
	160L	11/5.5	11/5.5	5.5/2.8	7.5/5.0	5.5/4.0
	180M	15/7.5	15/7.5	7.5/3.7	11/7.5	7.5/5.5
	180L	18.5/9.0	18.5/9.0	11/5.5	15/10 18.5/12	11/8
	200L	22/11 30/15	22/11 30/15	15/7.5	22/15 30/20	15/11 18.5/14
	225M	37/18.5	37/18.5	18.5/9	37/25	22/16.5
	250M	45/22	45/22	22/11	45/30	30/22
	280S	55/28	55/28	30/15	55/37	37/28
	280M	-	75/37	37/18.5	-	45/34

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.
❷ If you want to know the external dimensions of each frame, please refer to the external dimensions of general low pressure 3-phase standard motor.
❸ The above output table is based on the totally enclosed fan cooled type.

CONSTANT TORQUE (HORSEPOWER)

OUTPUT(kW)						
WINDING TYPE		SINGLE WINDING			DOUBLE WINDING	
POLES		2/4	4/8	6/12	4/6	6/8
SYN.SPEED(rpm)	50Hz	3000/1500	1500/750	1000/500	1500/1000	1000/750
	60Hz	3600/1800	1800/900	1200/600	1800/1200	1200/900
FRAME NO.	80	0.4	-	-	-	-
	90L	0.75	0.4	-	0.4	-
	100L	1.5	0.75	0.4	0.75	0.4
	112M	2.2	-	0.75	1.5	0.75
	132S	3.7	1.5	-	-	-
	132M	5.5	2.2	1.5	2.2	1.5
	160M	7.5	3.7	2.2	3.7	2.2
	160L	11	5.5	3.7	5.5	3.7
	180M	15	7.5	-	7.5	5.5
	180L	-	11	5.5	11.0/15.0	7.5
	200L	18.5	15	7.5	18.5	11
		22	18.5		22	15
	225M	30	22	11	30	18.5
	250M	37	30	15	37	22
	280S	45	37	18.5/22.0	45	30
	280M	55	45	30	55	37

❶ If you want to know the external dimensions of each frame, please refer to the external dimensions of general low pressure 3-phase standard motor (totally enclosed fan cooled type).
❷ The above output table is based on the totally enclosed fan cooled type.
❸ The frame dimensions by output may change without prior notice to improve its performance.

VARIABLE TORQUE

OUTPUT(kW)					
WINDING TYPE		SINGLE WINDING		DOUBLE WINDING	
POLES		2/4	4/8	4/6	4/6/8
SYN.SPEED(rpm)	50Hz	3000/1500	1500/750	1500/1000	1500/1000/750
	60Hz	3600/1800	1800/900	1800/1200	1800/1200/900
FRAME NO.	71	0.4/0.05	0.4/0.05	0.4/0.1	-
	80	0.75/0.1	0.75/0.1	0.75/0.2	-
	90L	1.5/0.2	1.5/0.2	1.5/0.5	-
	100L	2.2/0.3	2.2/0.3	2.2/0.65	-
	112M	3.7/0.5	3.7/0.5	3.7/1.1	-
	132S	5.5/0.75	5.5/0.75	5.5/1.6	-
	132M	7.5/1.0	7.5/1.0	7.5/2.2	-
	160M	11/1.4	11/1.4	11/3.3	-
	160L	15/2.0	15/2.0	-	-
	180M	-	-	15/5.0	11/3.3/1.4
	180L	18.5/2.5	18.5/2.5	18.5/6.2	15/5.0/2.0
	200L	22/3.0	22/3.0 30/4.0	22/6.5	18.5/6.2/2.5
	225M	30/4.0 37/5.0	37/5.0	30/10	22/6.5/3.0
	250S	45/6.0	45/6.0 55/7.5	37/11	30/10/4.0
	250M	55/7.5	-	45/15	37/11/5.0, 45/15/6.0
	280S	75/10	75/10	-	45/15/6
	280M	-	-	75/22	55/16/7.5

❶ If you want to know the external dimensions of each frame, please refer to the external dimensions of general low pressure 3-phase standard motor (totally enclosed fan cooled type).
❷ The above output table is based on the totally enclosed fan cooled type.
❸ The frame dimensions by output may change without prior notice to improve its performance.

SINGLE PHASE MOTOR

Features

- **Excellent Operating Characteristics**
  It is economical as it seeks to reduce losses by adopting new technologies, such as high space factor winding
- **Quiet Operation**
  High precision machining with suitable electrical design and state-of-the-art manufacturing equipment significantly reduces noise and vibration and enables quiet operation.
- **High Reliability**
  The structural design into which dust is difficult to penetrate improves the reliability of the centrifugal force switch portion, which is critical for single-phase motors.
- **Small Size and Lightweight**
  Small size and light weight has been realized by the improvement of cooling method and new technologies such as the reasonable structure of high mark stator coil. Not only is it easy to use, it is also simple to assemble, repair, and inspect.
- **KS, JIS**
  We adopt the attachment dimensions specified in KS and JIS standards for compatibility.
- **Various Applied Models**
  You can choose from a wide range of models including flange attachment, totally enclosed fan cooled type, dust-proof type, etc., according to your purpose.

Optimal Power Factor!
Powerful Starting Torque

SPECIFICATION	CONTENTS
Voltage, frequency	220V 60Hz
Outer structure	Open type, spinning type
Power transmission method	4 poles- direct connection, common belt rack
Rotating direction	Counterclockwise (CCW) as viewed from the shaft end
Standard ambient temperature	Temperature -20~40 ℃, Humidity 85% or less
Altitude	Altitude: 1000 m or less
Draw lead position	Left side from the shaft end
Draw lead	Direct draw, outside length more than 60mm
Insulation rank	Class B
Standard dimensions	KSC 4204

STARTING METHOD (protection method)	OUTPUT(kW) 4P	INS. CLASS	FRAME NO.	FIG. NO.	DIMENSIONS(mm) H	ØP	A	B	C	E	CH
CAPACITOR START (open type)(ODP)	0.2	B	71	2	71	131	56	45	45	30	130
	0.25	B	71	1	71	131	56	45	45	30	136
	0.3	B	71	1	71	131	56	45	45	30	136
	0.4	B	90	2	90	160	70	50	56	40	162
	0.55	B	90	1	90	160	70	50	56	40	192
	0.75	B	90	2	90	160	70	50	56	50	168
	0.75	B	90	3	90	160	70	50	56	50	192
	1.1	B	90	3	90	160	70	62.5	72	50	180
	1.5	B	112	3	112	201	85	62.5	70	50	223
	2.2	B	112		112	201	85	62.5	80	60	223

❶ The appearance and dimensions of the product may change without prior notice to improve its performance.

FIG. 1

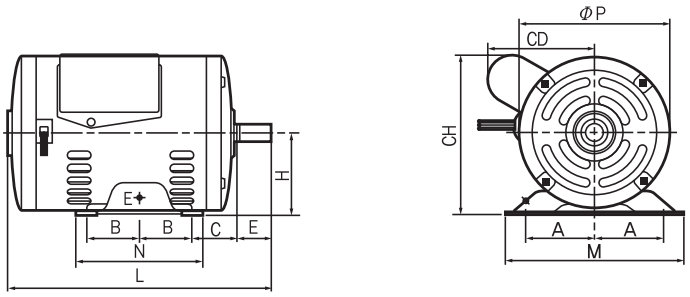


FIG. 2

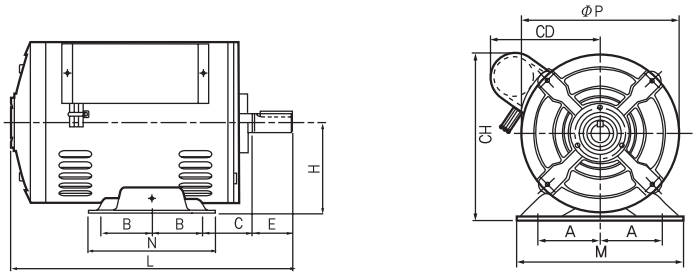
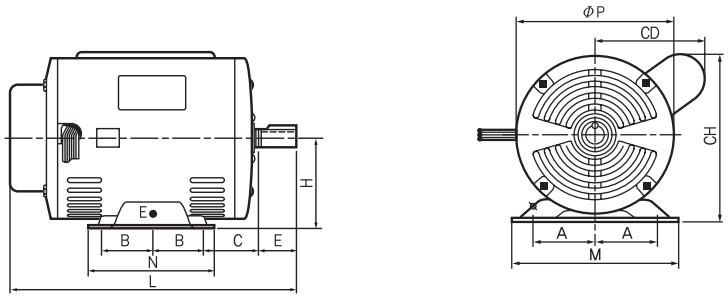
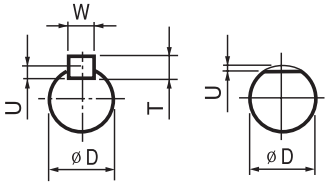
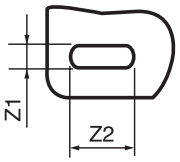


FIG. 3







SHAFT END

LEG Hole

DIMENSIONS (mm)										BEARING NO.		WEIGHT (kg)
CD	M	N	L	Z1	Z2	SHAFT						
						ØD	W	T	U	DRIVE	OPP.DRIVE	
90	150	110	215	7	27	14	-	-	1	6202ZZ	6202ZZ	8.5
93	150	110	226	7	27	14	-	-	1	6202ZZ	6202ZZ	9.4
93	150	110	235	7	27	14	-	-	1	6202ZZ	6202ZZ	10
88	187	125	256	10	32	19	5	5	3	6204ZZ	6203ZZ	13.5
88	187	125	281	10	32	19	5	5	3	6204ZZ	6203ZZ	16
110	187	125	288	10	32	22	7	7	4	6205ZZ	6203ZZ	16
88	187	125	321	10	32	22	7	7	4	6205ZZ	6204ZZ	16.7
116	187	150	356	10	32	22	7	7	4	6205ZZ	6204ZZ	22
144	222	157	358	12	32	22	7	7	4	6205ZZ	6205ZZ	32
144	222	157	378	12	32	28	7	7	4	6206ZZ	6205ZZ	37

MOTOR/INVERTER FOR ELECTRIC VEHICLES

EV Traction Motor / Inverter

Golf Cart, NEV

- Realization of small size and light weight through high power density
- High speed drive is possible
- Simple structure and air-cooling structure
- Equipped with temperature sensor and speed sensor (Hall Effect Sensor)

Output(kW)	Rated 4.5 / Peak 9	Rated 7.5 / Peak 17
Torque(N.m)	19.4/80	26/7110
Voltage(V)	48, 72	48, 72
Max. Speed(r/min)	4,000	6,000

Passenger Car

- Realization of small size and light weight through high power density
  - Maximization of cooling effect through optimum water cooling design
  - Use of high-quality electrical steel sheet with low iron loss
- Use of high speed area by securing structural strength safety
- Spline or Round Shaft
- Use of high temperature insulators and design for inverter surge
- NTC temperature sensor & speed sensor (Resolver or hall effect sensor)

Output(kW)	Rated 15 / Peak30	Rated 30 / Peak60	Rated 40 / Peak80	Rated 50 / Peak100
Torque(N.m)	40/115	89/190	115/240	160/300
Voltage(V)	330, 650	330, 650	330, 650	330, 650
Max. Speed(r/min)	9,000~12,000	9,000~12,000	9,000~12,000	9,000~12,000

Bus, Truck, Yacht etc

- Optimized design for Series HEV bus, truck, etc.
- Realization of small size and light weight through high power density
  -Maximization of cooling effect through optimum water cooling design
  -Use of high-quality electrical steel sheet with low iron loss
- Use of high speed area by securing structural strength safety
- Spline or Round Shaft
- Use of high temperature insulators and design for inverter surge
- NTC temperature sensor & speed sensor (Resolver or Hall Effect sensor)

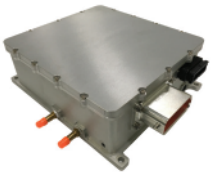
Motor Output(kW)	Rated 60 / Peak 110	Rated 55 / Peak 90
Torque(N.m)	160/330	240/660
Voltage(V)	360, 650	360, 650
Max. Speed(r/min)	11,000	4,500
Inverter Output(kW)	Rated 90/Peak 180, water cooling	
Interface	2 CAN channel	
Control Mode	Torque mode, Speed mode, Power mode	

EV Motor Design Types

ITEM					
Max. Output(kW)	4.5	7.5	100	120	80
Max. Speed	6,000	8000 r/min	12,500 r/min	9,000 r/min	10,000
Torque(N·m)	90	190	300	600	250
Type	IM	IM	IM	IM	Pma_SynRM
Cooling	Self Coolded	Self Cooled	Water	Water	Water
Application	Golf Car	Micro Mobility	SUV(FCEV)	Delivery Truck	Compact Car

ITEM					
Max. Output(kW)	25	110	100	120	150
Max. Speed	10,000 r/min	10,000 r/min	5,000 r/min	9,000 r/min	3,500
Torque(N·m)	40	330	660	600	600
Type	IPMSM	IPMSM	IPMSM	IPMSM	PMSM
Cooling	Water	Water	Water	Water	Water
Application	HEV Generator	Truck	Truck	Small Bus	Motor Car

EV Motor Design Types

ITEM					
Model	eVi1P08-V35	eVi2P10-V65	eVi3P15-V65	eVi4P20-V65	PHEVP20-V65
Output [kW]	40/80	50/100	75/150	100/200	100/200
Rated Voltage [Vdc]	350	650	650	650	650
Operation Voltage [Vdc]	12~24	12~24	12~24	12~24	12~24
Output Current [Arms]	150/300	150/300	200/400	300/600	300/600
Cooling	Water	Water	Water	Water	Water
Protection Level	IP67	IP67	IP67	IP67	IP67
Dimension [mm]	267*284*107	301*362*112	301*420*120	498*374*129	499*315*174
Weight [kg]	9.4	12	16	25	28

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