Special Instruction

V T F O A – K

Flange Mounted

- V = Vertical shaft
- Y = Horizontal shaft

Totally enclosed with ventilating fan

- T = Exterior design => Totally enclosed
- F = Ventilation System => Ventilation Fan
- O = Bearing => Ball bearing, Pin Bearing

Design

Three-phase Motor with Cylindrical Rotor

- K = Ordinary Squirrel cage rotor (< 5 HP)
- KK = Special Squirrel cage rotor (> 5 HP)

A = Outdoor Type (Installation outside of Building)

E F O U P – K Q

Water Proof Design

- E = Exterior design => Air circulation between outside and inside
- F = Ventilation System => Ventilation Fan
- O = Bearing => Ball bearing, Pin Bearing
- U = Drip Proof => Protect splashing water into system
- P = Protection => Prevent external materials into the system

Characteristics of starting single phase motor

- KT = Split phase start
- KR = Capacitor Start
- KQ = Capacitor start, Capacitor run
- KP = Capacitor run

Special Instruction

[Inspect the machine before usage]

Please inspect the following areas before turning on the switch:

- Inspect if the following areas are in good shape: point of electrical wiring, ground wiring, and insulation wiring.
- Inspect preventive apparatus and control circuit if they are working correctly
- Is the value of insulation resistance less than 1 MΩ(Yes or No)
- Inspect if machine installation (direct, belt) is correctly done

[Precaution list during usage]

- Should be careful in loading capacity and usage frequency in turning on the machine. Machine should not be on for a long period of time.
- If the motor rotates in a wrong direction, in the case of three-phase motor, please swap the two wires. However, for one-phase motor, please re-wiring following the connection circuit.
- Voltage Amp is in a correct limit
  - Is Voltage Amp correct as indicated in the instructional sign?
  - Is there a balance in voltage amp for all 3-phase motors
  - Is the electrical distribution higher than the indicated limit? It should be adjusted to an appropriate loading capacity.
  - Inspect to make sure there is no vibration sound and abnormal heating

Maintenance

[Daily]

- Surrounding environment: inspect the temperature around the entire machine, humidity, dust, gas, and ventilation system
- Working essentials: inspect the electrical distribution (loading capacity), usage frequency, and voltage amp
- Loading condition and machine connection: inspect the tension of belt.
- Condition around machine connection area, vibration, and sound for making sure if it is working correctly.

[period]

- must inspect bearing, insulating stator (no less than 1 MΩ, looseness of any bolt-nut, colors, etc. Including inspection of motor condition if it is working correctly at least once a year.

If you need more information, please contact sales agents.

SM-E251Q Ⓚ

HITACHI
Inspire the Next

ELECTRIC MOTORS

SINGLE-PHASE THREE-PHASE MOTORS

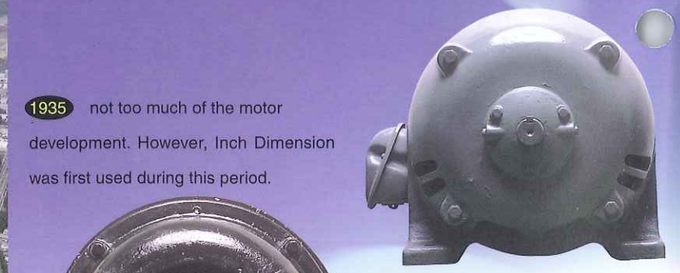
IP44 & IP55 Series

Meet the new motor series built from aluminum frame with the size from 0.4kW to 55kW. The new way for better solution.

In 1910, the first motor was invented in Japan. Until now, more than 90 years of experience, Hitachi will keep continue producing high-quality motors with high performance and efficiency. "The Motor" is the new series that has been developed to be small and light weight. We are very careful from the first manufacturing process with high-quality raw materials to the final process for high-performance motor, including the aluminum alloy materials for light weight, durability, rust free, and silent power. We are proud to present Hitachi technology with silent noise and low vibration, which developed from CAE (Computer -Aided Engineering). Hitachi motor has high precision with high performance because of continuing development of Hitachi technology team.

HITACHI PLANT NARASHINO JAPAN

1935 not too much of the motor development. However, Inch Dimension was first used during this period.



1955 VF Wire and Bearing are then used. As a result of the JIS standard, Drip Proof version was then developed.

History of motor 5HP (3.7kW)

1910 Motor was first manufactured in Japanese technology with no cooling fan and the use of bearing iron.

1991 the Silent Power was the first technology to be used in motor manufacturing at Hitachi with the Silent quality and low vibration.

1963 with the new standard NEMA, Hitachi comes with the development of Drip Proof.

1916 the motor core size is getting smaller with the development of cooling fan system.

1994 The aluminum-alloy motor was launched in Japan.

1970 the new standards under the influence of ICE called JEM Standard results in the smaller motor size. The development of polyester resin and insulation E was the next step for Hitachi.

Best Balance

Theory of Hitachi Motor

1977 the iron-Case core process was first modified to be manufactured from roll-iron. During this time, the net production exceeded 20 million, and in 1983, it was the beginning of the new JIS standards.

Prüfzeichen *Test Mark*

TÜV Rheinland Product Safety | BAUART GEPRÜFT | TYPE APPROVED

ISO 9001:2000 SGS ISO 14001:2004 SGS UKAS QUALITY MANAGEMENT 005

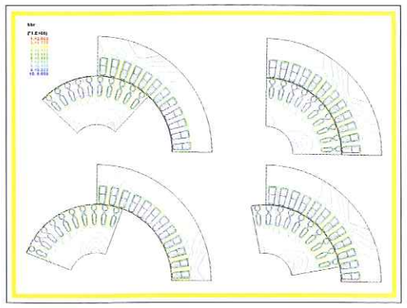
HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD. Cert. NO : NQ 088/99
610 Moo 1 Kabinburi-Korat Rd. T. Nongki A.Kabinburi, Prachinburi Thailand. 25110

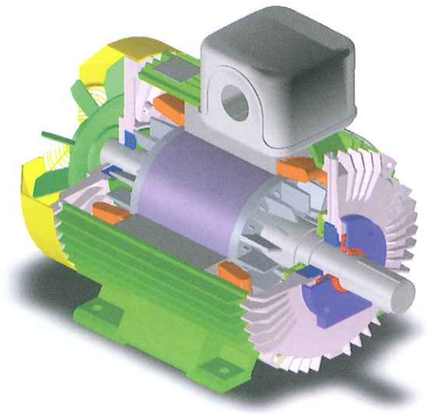
Satisfaction guaranteed for high-quality products

Quiet and low vibration

Secret formula of silence is energy

We have researched and found the right vibrational level and calculated the durabillity of motor structure by computer systems. You can rely upon our high-quality motors. We have also discovered and designed the methods that could reduce high frequency while machines are running. In addition, we have planned to utilize brand-new materials with high-precision machines, which pertain technology that could control silence and low vibration. We are proud to present our new technology and have strived to produce products that have the best quality.





High-power engine

with skillful teamwork from HITACHI

Reliability of high-power torque energy

Hitachi motors have been designed from slot in rotor for aluminum injection, which is a specific technique that provides high-power torque for better start. You can notice from the start to a running period. You would find that Hitachi motor have a very smooth start with an increase in usage capacity.

Energy source from Compact-Coil structure

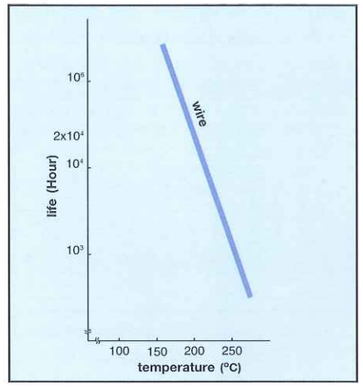
One of our new technologies is Compact Coil. When the Coil is small, it can control all system errors with high capability. Insulate has a round shape placed parallel to each other in which it reduces the space in between, which makes it to create high conserved energy. As a result, internal structure has an increase in space, which provides a better ventilating system for cooling efficiency.

Dependability

Insulated wire system that you can rely on

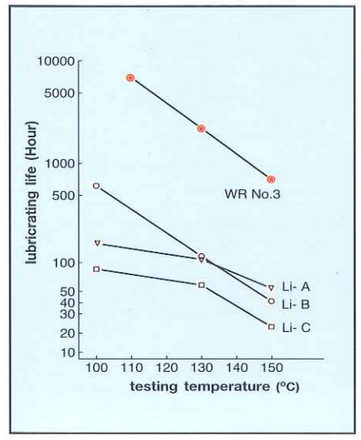
From lead wires to any insulated wires. we have wisely selected high-quality materials in every step of our production process. We use lead wires, which can tolerate high heat, humidity, and coldness. These lead wires can basically tolerate to any climates with high-quality standards, even when using in a very high temperature

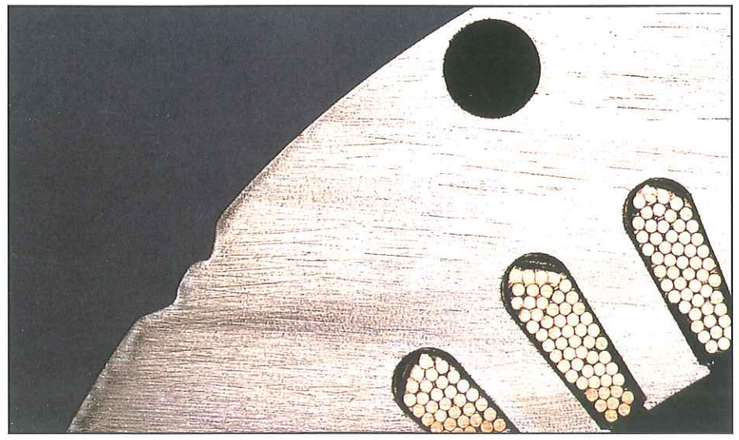
Usage life of lead wires in a heat situation



Hitachi **WR Grease** has capability of tolerating heat four times more than ordinary lithium. The grease can also be operated or tolerated from the highest temperature to the lowest temperature with excellent performance. On the other hand, it can extend the usage life of motors because of shield Bearing technology.

The test result of grease in high temperature





High Performance High Efficiency Small Size
Light Weight Use Simplify Three-Phase Motors

1. Aluminum-alloy frame is strong with light weight.

Aluminum-alloy (used in the manufacturing of airplane, Shinkansen train, etc.) is used for raw material of housing, which makes the motor to effectively ventilate heat and provides light weight.

2. The insulated lead wire has high performance and efficiency.

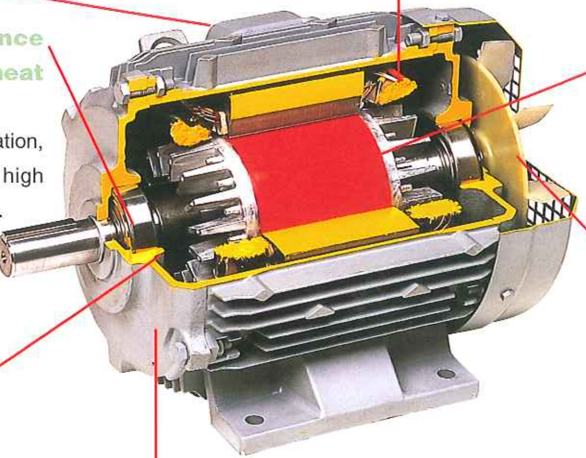
With our long history, we have developed high quality insulated lead wire and Wanis, that can support various hostile environments, even with very high temperature.

3. Special Slot and Compact Coil make the motor quiet with high performance.

From the start to running, it can smoothly start with high performance, which reduces the damage of machine because of low vibration. The motor does not harm the environment and the machine.

4. Bearing has high performance with the use of Grease for heat resistance.

We use high quality Grease for lubrication, which can be used effectively in low or high temperature because of the shield bearing.



5. Liquid Gasket Seal (for IP55)

We use high quality liquid seal for IP55 motor,which sustain high durable and long-life.

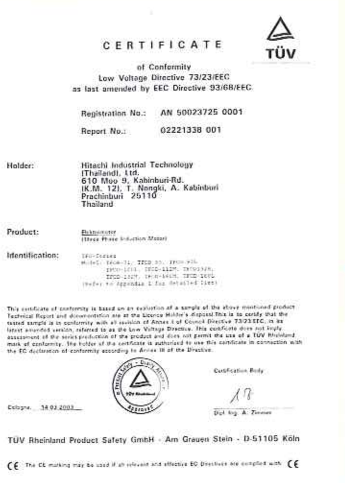
6. Front cover and back cover that support bearing and made by iron molding

Bearing maintains its optimal performance through usage life, of which its structure is recognized by our customers as the most reliable motor. As a result of our long research and experience, we have discovered and manufactured high-quality motors, which sustain low vibration and could tolerate vibration very nicely.

7. Quiet and has High Efficiency Fan for highest cooling efficiency.

The ventilation process is developed from CAE (Computer Aided Engineering) and has high efficiency fan with quietness. This high quality motor is accomplished through the effective use aluminum alloy.

CE certified motor



- **Exportable for EU**
- **Certified by TÜV Rheinland [4 pole 0.4~30 kW (IP55)]**

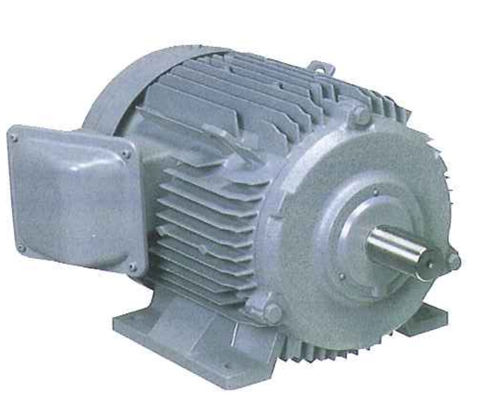
THREE PHASE INDUCTION MOTOR
HITACHI
MODEL : TFO-K (TFOD-112M)-4P
5HP 4POLE
VOLTS 220 380
HERTZ 50 50
AMP'S 13.8 8.0
RPM 1410 1410
STANDARD EN 60034-1
RATING S1
TH. CLASS F
AMB. TEMP. 40 °C
PROTECTION IP55
COOLING IC411
BRG. D. S. 6306ZZ
BRG. O. S. 6306ZZ
WEIGHT 28 kg.
Hitachi Industrial Technology (Thailand), Ltd.

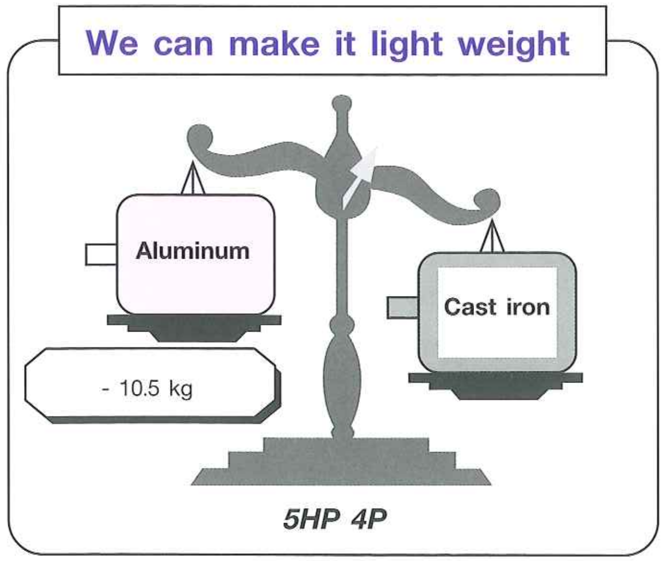
Certificate of Origin

- Applied with CEPT Form D
- Able to reduce the intro-regional tariff at AFTA

(Requested to add Form D require on each purchase order.)

Model	Single phase 4 Pole	Three phase 4 Pole
1/4 HP (0.185 kW)	○	—
1/3 HP (0.25 kW)	○	—
1/2 HP (0.4 kW)	○	○
1 HP (0.75 kW)	—	○
2 HP (1.5 kW)	—	○
3 HP (2.2 kW)	○	○
5 HP (3.7 kW)	—	○





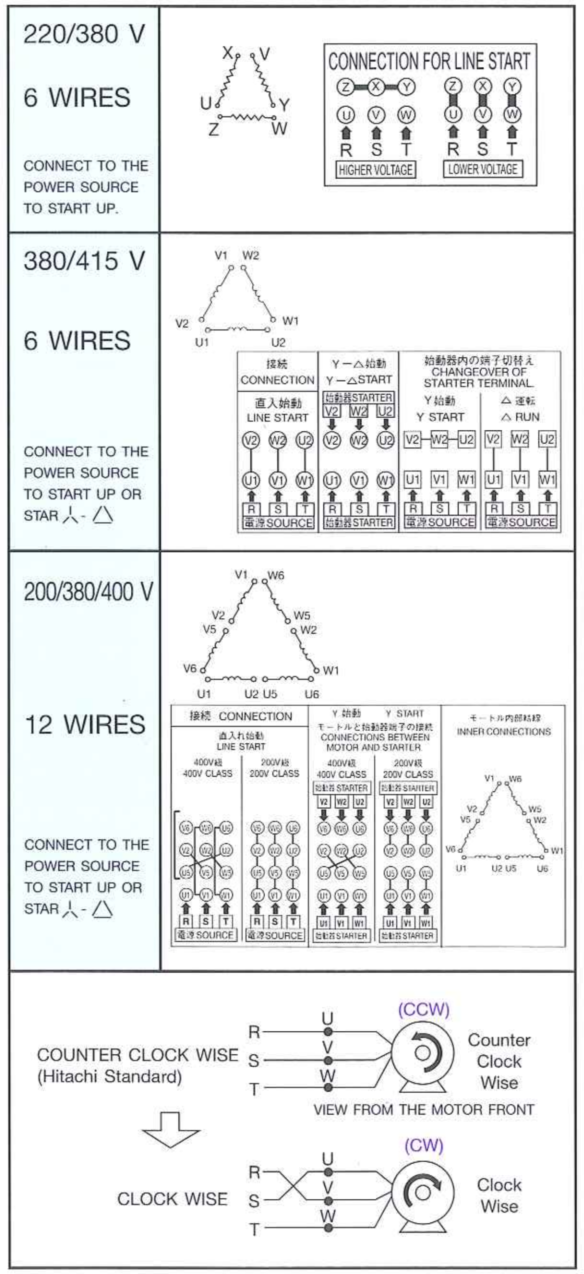
The average weight decreased by 30%

SPECIFICATIONS

ITEM	SPECIFICATIONS
STANDARD	JIS C4210, 4034, JEC2137 etc.
RATING	CONTINUOUS [S1]
INSULATION CLASS	2 POLE 4 POLE 6 POLE B TYPE: ∼180 M. F TYPE: 180 L. ∼
ENCLOSURES TYPE PROTECTION IEC STANDARD	ENCLOSURES / TYPE / PROTECTION INDOOR: FAN COOLED TYPE – TFO-K, KK; VERTICAL FAN COOLED TYPE – VTFO-K, KK – IP 44 OUTDOOR: FAN COOLED TYPE – TFOA-K, KK; VERTICAL FAN COOLED TYPE – VTFOA-K, KK – IP 55
VOLTAGE, FREQUENCY	1/2 ~ 5 HP : 220/380 V 50 Hz 7.5 ~ 30 HP : 380/415 V 50 Hz 40 HP~ : 200/380/415 V 50 Hz
NUMBER OF CABLE	~ 5 HP 6 WIRES (Direct starting 220 V or 380 V) 7.5 HP~ 6 WIRES (Star 人−△ Delta Starting) 2 pole 30 HP~, 4 pole 40 HP~, 6 pole 20 HP~ : 12 WIRES (Star人−△ Delta Starting)
COLOUR	Rigail gray (MUNSAELL 8.9Y5.1/0.3)
TRANSMISSION	2 pole 15 HP ∼ DIRECT COUPLING 2 pole ∼ 10 HP and 4 pole ∼ DIRECT COUPLING OR BELT DRIVE
ROTATION	CCW (VIEW FROM MOTOR DRIVE END)
ENVIRONMENT – TEMPERATURE	-30 ~ 40 °C
ENVIRONMENT – HUMIDITY	Enclosed type MAX 95% RH
ENVIRONMENT – ALTITUDE	MAX 1,000 m
ENVIRONMENT – ESTABLISHMENT	[IP44] IN DOOR, [IP55] OUT DOOR
ATMOSPHERE	NO CORROSIVE GAS, NO EXPLOSIVE GAS, NO STEAM, NO DEW, LITTLE DUST

The Wiring Connection and Propelling Direction

Circuit Diagram for the use of motor wiring connection



220/380 V
6 WIRES
CONNECT TO THE POWER SOURCE TO START UP.
CONNECTION FOR LINE START
HIGHER VOLTAGE
LOWER VOLTAGE
380/415 V
6 WIRES
CONNECT TO THE POWER SOURCE TO START UP OR STAR 人-△
CONNECTION
LINE START
Y−△START
Y START
△ RUN
CHANGEOVER OF STARTER TERMINAL
200/380/400 V
12 WIRES
CONNECT TO THE POWER SOURCE TO START UP OR STAR 人-△
CONNECTION
LINE START
CONNECTIONS BETWEEN MOTOR AND STARTER
INNER CONNECTIONS
COUNTER CLOCK WISE (Hitachi Standard)
(CCW)
Counter Clock Wise
VIEW FROM THE MOTOR FRONT
CLOCK WISE
(CW)
Clock Wise

IP44 Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
FAN-COOLED TYPE
1/7 HP → 175 HP
(0.1 kW → 132 kW)

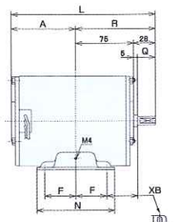
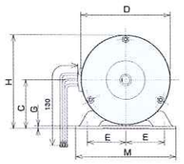
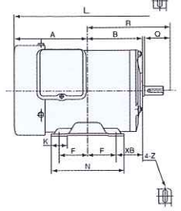


Fig.1





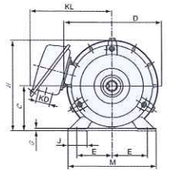


Fig.2

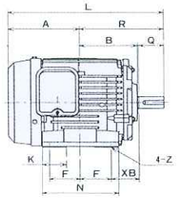


Fig.3

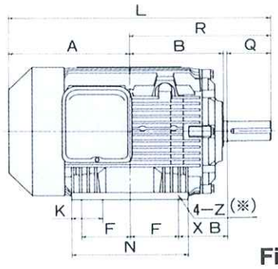


Fig.4

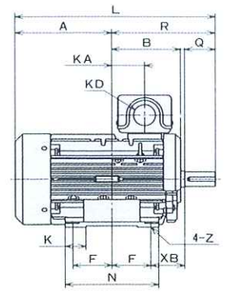


Fig.5

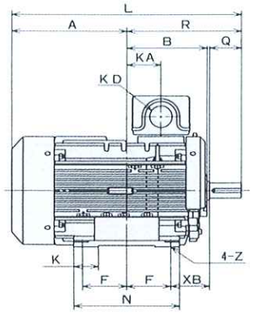


Fig.6

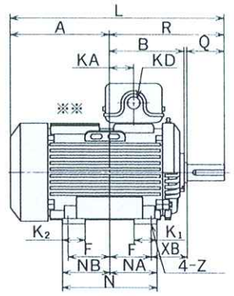
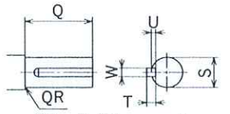


Fig.7



Shaft Dimension

DIMENSIONS (in mm)

Type Form	Frame size	Out Put(HP)			Insulation	Fig. No	Dimension in mm													
		2pole	4pole	6pole			L	R	A	B	D	KL	K	KD	J	H	C	F	E	N	M
TO-K	63M	-	1/7	-	B	1	186	103	80	-	116	-	-	-	-	121	63 0 -0.5	40	50	100	130
		-	1/4	-	B	1	186	103	90	-	116	-	-	-	-	121	63 0 -0.5	40	50	100	130
TFO-K	71M	1/2	1/2	-	B	2	236	120	116	87	145	129	25	22	30	146.5	71 0 -0.5	45	56	115	140
	80M	1	1	1/2	B	2	268.5	140	128.5	97	163	135	25	22	35	161.5	80 0 -0.5	50	62.5	125	160
	90L	2/3	2	1	B	3	315	168.5	146.5	116	180	145	49	22	35.5	180	90 0 -0.5	62.5	70	155	170
	100L	-	3	2	B	3	356	193	163	130.5	199	153	51.5	28	45	199.5	100 0 -0.5	70	80	175	195
	112M	5	5	3	B	3	372	200	172	137.5	223	166.5	51.5	28	45	223.5	112 0 -0.5	70	95	175	224
TFO-KK	132S	7.5 10	7.5	5	B	4	427.5	239	188.5	153	250	197	56	36	50	257	132 0 -0.5	70	108	175	250
	132M	-	10	7.5	B	4	465.5	258	207.5	172	250	197	56	36	50	257	132 0 -0.5	89	108	212	250
	160M	15 20	15	10	B	4	595	323	272	198	292	256	107	52	60	303.5	160 0 -0.5	105	127	300	300
	160L	25	20	15	B	4	595	345	250	220	292	256	107	52	60	303.5	160 0 -0.5	127	127	300	300
	180M	30	25 30	20	B	4	643	351.5	291.5	226.5	340	279	75	52	90	350	180 0 -0.5	120.5	139.5	300	350
TFO-KK	180L	40	40	25 30	F	5	716	370.5	345.5	245.5	340	-	75	52	90	494	180 0 -0.5	139.5	139.5	335	350
	(200LB) 200L	50 60	50 60	40 50	F	(6) 5	(790) 820	(395.5) 425.5	394.5	(276.5) 270.5	391	-	85	78	110	541.5	200 0 -0.5	152.5	159	365	400
	(225SB) 225S	75	75	60	F	(6) 5	(826.5) 856.5	(402) 432	424.5	(283) 270.5	391	-	85	78	110	566.5	225 0 -0.5	143	178	350	450
	(250SD) 250S	100	100	75	F	7	(909) 939	(433.5) 463.5	475.5	(313.5) 312.5	490	-	-	78	100	735	250 0 -0.5	155.5	203	428	500
	(250MD) 250M	120	120	100	F	7	(909) 939	(452.5) 482.5	456.5	(332.5) 331.5	490	-	-	78	100	735	250 0 -0.5	174.5	203	428	500
	(280SD) 280S	150	150	120	F	7	(1008) 1068	(484) 544	524	(364) 363	550	-	-	92	100	795	280 0 -1.0	184	228.5	501	550
	(280MD) 280M	175	175	150	F	7	(1008) 1068	(509.5) 569.5	498.5	(389.5) 388.5	550	-	-	92	100	795	280 0 -1.0	209.5	228.5	501	550
	315S	-	-	175	F	7	1178	589	589	408	633	-	-	92	125	865	315 0 -1.0	203	254	540	615

Dimension in mm								Shaft Dimension Bearing No.		Approx Weight (kg)			Approx Packing Dimension(cm)
G	Z	XB	S	W	U	T	Q	QR	Drive end Side	Opposite Side	2pole	4pole	6pole	H× W× L
3.2	7x21	40	14 +0 -0.011	-	1	-	23	-	6202ZZ	6202ZZ	-	5	-	14.5×15×26
3.2	7x21	40	14 +0 -0.011	-	1	-	23	-	6202ZZ	6202ZZ	-	5.5	-	14.5×15×26
3.2	7x20	45	14 +0.008 -0.003	5	3	5	30	1	6203ZZ	6203ZZ	9.5	8.2	-	16×22×27
3.2	10x25	50	19 +0.009 -0.004	6	3.5	6	40	0.3	6204ZZ	6204ZZ	13.5	12.5	16	18×24×31
10	10	56	24 +0.009 -0.004	8	4	7	50	0.3	6205ZZ	6205ZZ	15.0 16.0	16	16	20×27×37
12.5	12	63	28 +0.009 -0.004	8	4	7	60	0.5	6206ZZ	6206ZZ	-	21	23	25×29×39
14	12	70	28 +0.009 -0.004	8	4	7	60	0.5	6306ZZ	6306ZZ	27.5	28	30	27×32×41
16	12	89	38 +0.018 +0.002	10	5	8	80	0.5	6308ZZ	6306ZZ	39.0 44.0	40	41	34.2×45.5×57.5
16	12	89	38 +0.018 +0.002	10	5	8	80	0.5	6308ZZ	6306ZZ	-	48	52	34.2×45.5×57.5
18	14.5	108	42 +0.018 +0.002	12	5	8	110	1	6309ZZ	6307ZZ	70 79	73	75	39×51×72.5
18	14.5	108	42 +0.018 +0.002	12	5	8	110	1	6309ZZ	6307ZZ	85	85	90	39×51×72.5
20	14.5	121	48 +0.018 +0.002	14	5.5	9	110	1.5	6311ZZ	6309ZZ	115	120 130	130	53×60×73
20	14.5	121	55 +0.030 +0.011	16	6	10	110	1.5	6312ZZ	6309ZZ	140	155	150 160	64×45×86
23	18.5	133	55 60 +0.030 +0.011 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(-) 1.5	(6312) 6313ZZ	(6312ZZ) 6312ZZ	200 210	210 230	220 240	67×50×91
23	18.5	149	(55 65 +0.030 +0.011) +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(-) 2.5	(6312) 6315ZZ	(6312ZZ) 6312ZZ	235	260	265	72×56×96
30	24	168	(55 75 +0.030 +0.011) +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	-	(6313C3) NU316	(6313C3) 6313ZZ	430	450	420	84×63×108
30	24	168	(55 75 +0.030 +0.011) +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	-	(6313C3) NU316	(6313C3) 6313ZZ	450	515	500	84×63×108
30	24	190	(55 85 +0.030 +0.011) +0.030 +0.011	(16) 22	(6) 9	(10) 14	(110) 170	-	(6313C3) NU318	(6313C3) 6315ZZ	615	625	630	94×70×123
30	24	190	(55 85 +0.030 +0.011) +0.035 +0.013	(16) 22	(6) 9	(10) 14	(110) 170	-	(6313C3) NU318	(6313C3) 6315ZZ	630	680	720	94×70×123
28	28	216	95 +0.035 +0.013	25	9	14	170	-	NU320	6318	-	-	930	97×73 ×134

Manufactured at HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD.

( ) : 2 Pole

IP44 Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
VERTICAL FAN-COOLED TYPE
1/7 HP → 175 HP
(0.1 kW → 132 kW)

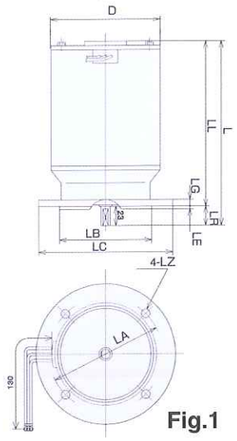


Fig.1

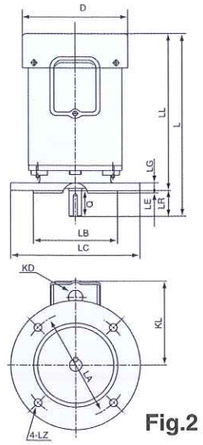


Fig.2

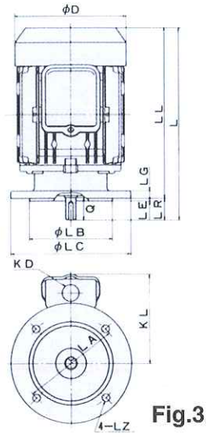


Fig.3

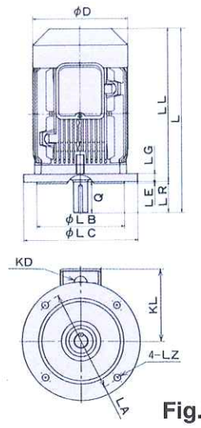


Fig.4

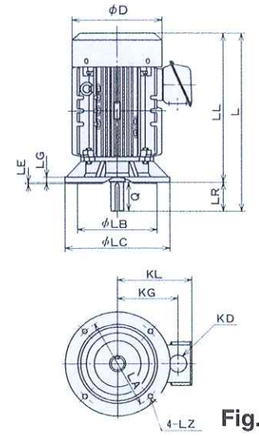
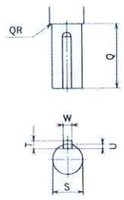


Fig.5



Shaft Dimension

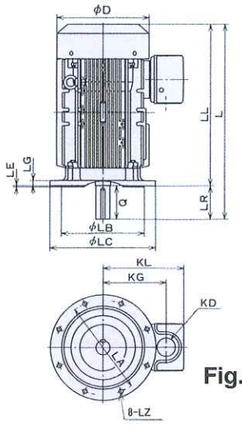


Fig.6

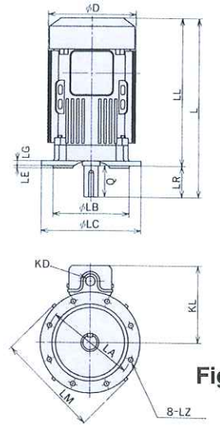


Fig.7

DIMENSIONS (in mm)

Type Form	Flange size	Frame size	Out Put(HP) 2pole	4pole	6pole	Insulation	Fig. No	Dimension in mm LA	LB	LC	LE	LG	LZ	D
VTO-K	FF130	63M	-	1/7 1/4	-	B	1	130	110 +0.013 -0.009	160	3.5	8	10	130
VTFO-K	FF130	71M	1/2	1/2	-	B	2	130	110 +0.013 -0.009	160	3.5	10	10	145
	FF165	80M	1	1	1/2	B	2	165	130 +0.014 -0.011	200	3.5	12	12	163
		90L	2 3	2	1	B	3	165	130 +0.014 -0.011	200	3.5	12	12	180
	FF215	100L	-	3	2	B	4	215	180 +0.014 -0.011	250	4	16	14.5	199
		112M	5	5	3	B	4	215	180 +0.014 -0.011	250	4	16	14.5	223
VTFO-KK	FF265	132S	7.5 10	7.5	5	B	5	265	230 +0.016 -0.013	300	4	20	14.5	250
		132M	-	10	7.5	B	5	265	230 +0.016 -0.013	300	4	20	14.5	250
	FF300	160M	15 20	15	10	B	5	300	250 +0.016 -0.013	350	5	20	18.5	290
		160L	25	20	15	B	5	300	250 +0.016 -0.013	350	5	20	18.5	290
	FF350	180M	30	25 30	20	B	5	350	300 +0.016 -0.016	395	5	20	18.5	340
VTFO-KK	FF350	180L	40	40	25 30	F	5	350	300 +0.016 -0.016	395	5	20	18.5	340
	FF400	(200LB) 200L	50 60	50 60	40 50	F	6	400	350 +0.018 -0.018	445	5	22	18.5	391
	FF500	(225SB) 225S	75	75	60	F	6	500	450 +0.020 -0.020	545	5	22	18.5	391
		(250MD) 250M	100 120	100 120	75 100	F	7	500	450 +0.020 -0.020	545	5	22	18.5	490
	FF600	(280MD) 280M	150 175	150 175	120 150	F	7	600	550 +0.022 -0.022	655	6	25	24	550
		315M	-	-	175	F	7	600	550 +0.022 -0.022	655	6	25	24	633

Dimension in mm L	LL	KL	KD	LR	S	W	U	T	Q	QR	Bearing No. Drive end Side	Opposite Side	Approx Weight (kg) 2 Pole	4 Pole	6 Pole	Approx Packing Dimension(cm) H×W×L
219	196	-	-	23	11 +0 -0.011	-	1	-	23	-	6202ZZ	6202ZZ	6.9	-	-	23×21.5×31.5
256	226	123	22	30	14 +0.008 -0.003	5	3	5	30	1	6203ZZ	6203ZZ	10.5	9	-	32×25×28
283	243	131	22	40	19 +0.009 -0.004	6	3.5	6	40	0.3	6204ZZ	6204ZZ	15.5	14.4	17.5	34×30×32
324	274	145	22	50	24 +0.009 -0.004	8	4	7	50	0.3	6205ZZ	6205ZZ	17 18	18	17	40×30×33
356	296	153	28	60	28 +0.009 -0.004	8	4	7	60	0.5	6206ZZ	6206ZZ	–	24	25	41×35×37
372	312	166.5	28	60	28 +0.009 -0.004	8	4	7	60	0.5	6306ZZ	6306ZZ	30	32	32	47×35×37
427.5	347.5	197	36	80	38 +0.018 +0.002	10	5	8	80	0.5	6308ZZ	6306ZZ	43 48	44	45	55×41×43
465.5	385.5	197	36	80	38 +0.018 +0.002	10	5	8	80	0.5	6308ZZ	6306ZZ	–	52	57	59×41×43
595	485	256	52	110	42 +0.018 +0.002	12	5	8	110	1.0	6309ZZ	6307ZZ	83 89	85	82	70×42×52
595	485	256	52	110	42 +0.018 +0.002	12	5	8	110	1.0	6309ZZ	6307ZZ	90	90	96	70×42×52
670	560	279	52	110	48 +0.018 +0.002	14	5.5	9	110	1.0	6312ZZ	6309ZZ	130	130 140	140	80×50×56
743	633	314	52	110	55 +0.030 +0.011	16	6	10	110	1.5	6312ZZ	6309ZZ	140	165	160 170	87×50×59
(790) 820	680	341.5	52	(110) 140	(55 +0.030 +0.011) 60 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(–) 1.5	(6312) 6313ZZ	(6312ZZ) 6312ZZ	210 220	220 240	230 250	(90×53×64) 93×53×64
(826.5) 856.5	716.5	341.5	78	(110) 140	(55 +0.030 +0.011) 65 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(–) 2.5	(6312) 6315ZZ	(6312ZZ) 6312ZZ	245	270	275	(93×65×68) 96×65×68
(909) 939	799	485	78	(110) 140	(55 +0.030 +0.011) 75 +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	–	(6313C3) 6316	(6313C3) 6313ZZ	470 490	490 540	490 550	(103×71×91) 106×71×91
(1012) 1068	(902) 898	515	92	(110) 170	(55 +0.030 +0.011) 85 +0.035 +0.013	(16) 22	(6) 9	(10) 14	(110) 170	–	(6313C3) 6318	(6313C3) 6315ZZ	660 680	675 730	680 750	(113×81×100) 119×81×100
1228	1058	550	92	170	95 +0.035 +0.013	25	9	14	170	–	6320	6318	–	–	980	135×96×110

( ) : 2 Pole

Manufactured at HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD.

IP55 Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
FAN-COOLED TYPE
1/7 HP → 175 HP
(0.1 kW → 132 kW)

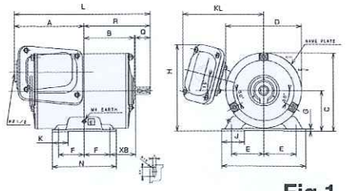


Fig.1

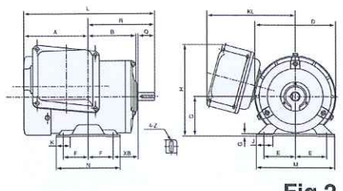


Fig.2

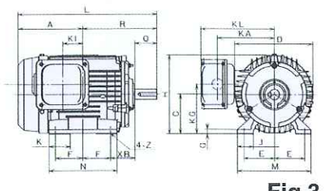


Fig.3

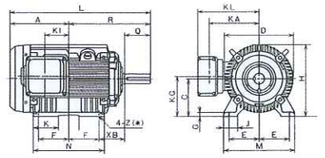


Fig.4

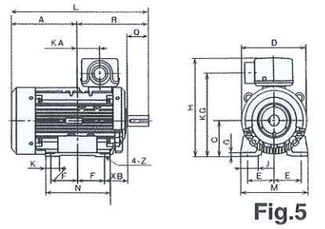


Fig.5

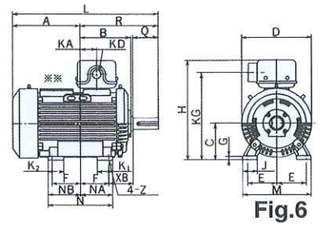
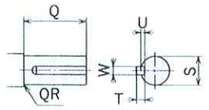


Fig.6



Shaft Dimension

Motor installation outside a building

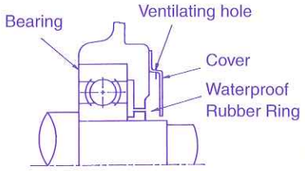
・Use a motor that has a totally enclosed with cooling fan and can be placed outside a building. The motor can be installed outside because it can prevent any water droplets in between core structure The covering and bearing should have Cover and the Terminal should have waterproof protection and seal that can prevent water coming into lead wire connection. Insulated wires can tolerate humidity and seal that can prevent water seeping into lead wire connection.

You can connect wires in iron tube Conduct that has a big size and wire connection on the side.

(For wire connection of motor outside the building, you should follow the instructional pictures in preventing rain from iron pipe seeping into the Termination Box)

・Motor TFO Protection [IP44]

General type of totally enclosed motor with cooling fan is [IP44]. If installing in high dust area, you should use [IP54]. And, in a level that has water injecting into the machine, you should use the waterproof type [IP55].



Connecting installation

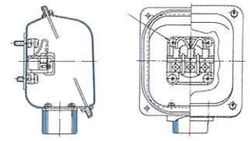
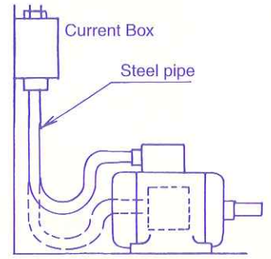


Illustration of outside wire connection



DIMENSIONS (in mm)

Type Form	Frame Size	Output (HP) 2pole	4pole	6pole	Insulation	Fig. NO	Dimension in mm L	R	A	B	D	KL	KD	K	J	H	C
TO-K	63M	–	1/7	–	B/F	1	212	103	109	78.5	116	125	PF1/2	25	25	134.5	63 -0.5
	63M	–	1/4	–	B/F	1	212	103	109	78.5	116	125	PF1/2	25	25	134.5	63 -0.5
TFO-K	71M	1/2	1/2	–	B/F	2	236	120	116	87	145	158	PF3/4	25	30	164	71 -0.5
	80M	1	1	1/2	B/F	2	268.5	140	128.5	97	163	166	PF3/4	25	35	175	80 -0.5
	90L	2 3	2	1	B/F	3	315	168.5	146.5	116	180	168	PF3/4	49	35.5	180	90 -0.5
	100L	–	3	2	B/F	3	356	193	163	130.5	199	176	PF 1	51.5	45	199.5	100 -0.5
	112M	5	5	3	B/F	3	372	200	172	137.5	223	190	PF 1	51.5	45	223.5	112 -0.5
TFO-KK	132S	7.5 10	7.5	5	B/F	4	427.5	239	188.5	153	250	234	PF1¼	56	50	257	132 -0.5
	132M	–	10	7.5	B/F	4	465.5	258	207.5	172	250	234	PF1¼	56	50	257	132 -0.5
	160M	15 20	15	10	B/F	4	595	323	272	198	292	260	PF1½	107	60	303.5	160 -0.5
	160L	25	20	15	B/F	4	595	345	250	220	292	260	PF1½	107	60	303.5	160 -0.5
	180M	30	25 30	20	B/F	4	643	351.5	291.5	226.5	340	283	PF 2	75	90	350	180 -0.5
TFO-KK	180L	40	40	25 30	F	5	716	370.5	345.5	245.5	340	–	PF2½	75	90	494	180 -0.5
	(200LB) 200L	50 60	50 60	40 50	F	(6) 5	(790) 820	(395.5) 425.5	394.5	(276.5) 270.5	391	–	PF2½	85	110	541.5	200 -0.5
	(225SB) 225S	75	75	60	F	(6) 5	(826.5) 856.5	(402) 432	424.5	(283) 270.5	391	–	PF2½	85	110	566.5	225 -0.5
	(250SD) 250S	100	100	75	F	6	(909) 939	(433.5) 463.5	475.5	(313.5) 312.5	490	–	PF2½	–	100	735	250 -0.5
	(250MD) 250M	120	120	100	F	6	(909) 939	(452.5) 482.5	456.5	(332.5) 331.5	490	–	PF2½	–	100	735	250 -0.5
	(280SD) 280S	150	150	120	F	6	(1008) 1068	(484) 544	524	(364) 363	550	–	PF 3	–	100	795	280 -1.0
	(280MD) 280M	180	180	150	F	6	(1008) 1068	(509.5) 569.5	498.5	(389.5) 388.5	550	–	PF 3	–	100	795	280 -1.0
	315S	–	–	180	F	6	1178	589	589	408	633	–	PF 3	–	125	865	315 -1.0

Dimension in mm F	E	N	M	G	Z	XB	S	W	U	T	Q	QR	Approx Weight (kg.) 2 pole	4 pole	6 pole	Approx Packing Dimension(cm) H×W×L
40	50	100	130	3.2	7X21	40	11 -0.011	—	1	—	23	1.5	8	8.5	–	
40	50	100	130	3.2	7X21	40	11 -0.011	—	1	—	23	1.5	8	8.5	–	
45	56	115	140	3.2	7X20	45	14 +0.008 -0.003	5	3	5	30	1.0	8	8.5	–	16×22×27
50	62.5	125	160	3.2	10X25	50	19 +0.009 -0.004	6	3.5	6	40	0.3	10	12	12	18×24×31
62.5	70	155	170	10	10	56	24 +0.009 -0.004	8	4	7	50	0.3	15 16	16	16	20×27×37
70	80	175	195	12.5	12	63	28 +0.009 -0.004	8	4	7	60	0.5	–	21	23	25×29×39
70	95	175	224	14	12	70	28 +0.009 -0.004	8	4	7	60	0.5	27.5	28	30	27×32×41
70	108	175	250	16	12	89	38 +0.018 +0.002	10	5	8	80	0.5	39 44	40	41	34.2×45.5×57.5
89	108	212	250	16	12	89	38 +0.018 +0.002	10	5	8	80	0.5	–	48	52	34.2×45.5×57.5
105	127	300	300	18	14.5	108	42 +0.018 +0.002	12	5	8	110	1	70 79	73	75	39×51×72.5
127	127	300	300	18	14.5	108	42 +0.018 +0.002	12	5	8	110	1	85	85	90	39×51×72.5
120.5	139.5	300	350	20	14.5	121	48 +0.018 +0.002	14	5.5	9	110	1.5	115	120 130	130	54×60×73
139.5	139.5	335	350	20	14.5	121	55 +0.030 +0.011	16	6	10	110	1.5	140	155	150 160	64×45×86
152.5	159	365	400	23	18.5	133	(55 +0.030 +0.011) 60 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(–) 1.5	200 210	210 230	220 240	67×50×91
143	178	350	450	23	18.5	149	(55 +0.030 +0.011) 65 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(–) 2.5	235	260	265	72×56×96
155.5	203	428	500	30	24	168	(55 +0.030 +0.011) 75 +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	–	430	450	420	84×63×108
174.5	203	428	500	30	24	168	(55 +0.030 +0.011) 75 +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	–	450	515	500	84×63×108
184	228.5	501	550	30	24	190	(55 +0.030 +0.011) 85 +0.030 +0.011	(16) 22	(6) 9	(10) 14	(110) 170	–	610	625	630	94×70×123
209.5	228.5	501	550	30	24	190	(55 +0.030 +0.011) 85 +0.035 +0.013	(16) 22	(6) 9	(10) 14	(110) 170	–	630	680	720	94×70×123
203	254	540	615	28	28	216	95 +0.035 +0.013	25	9	14	170	–	–	–	930	97×73×134

( ) : 2 Pole

IP55 Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
VERTICAL FAN-COOLED TYPE
1/7 HP → 175 HP
(0.1 kW → 132 kW)

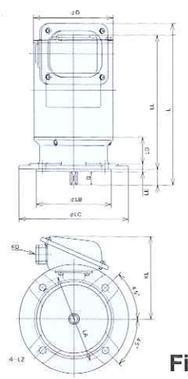


Fig.1

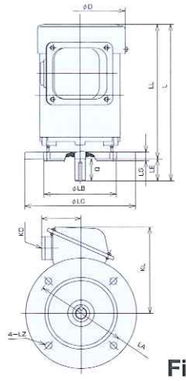


Fig.2

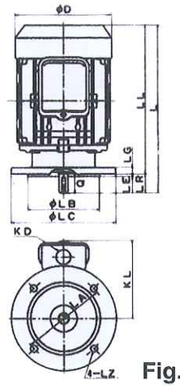


Fig.3

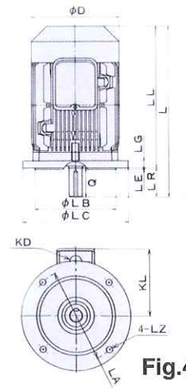


Fig.4

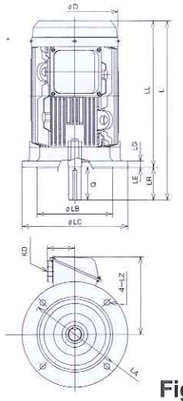
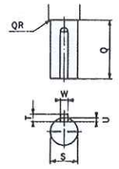


Fig.5



Shaft Dimension

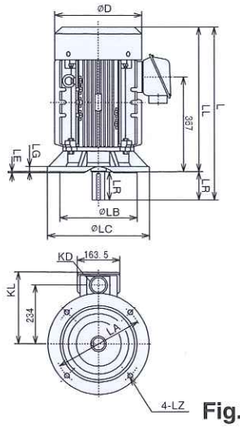


Fig.6

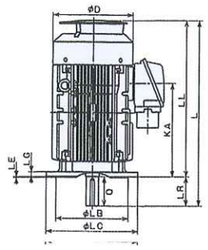


Fig.7

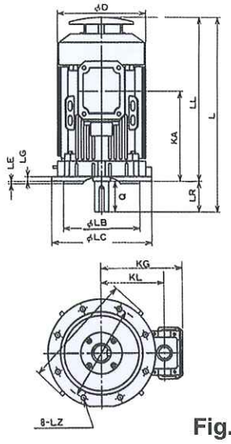


Fig.8

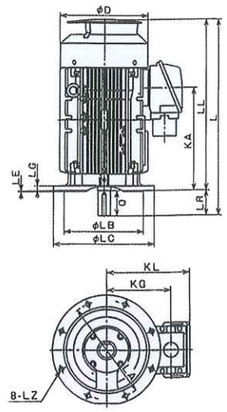


Fig.9

DIMENSIONS (in mm)

Type Form	Flange size	Frame size	Output (HP) 2 Pole	4 Pole	6 Pole	Insuration	Fig. NO	Dimension in mm LA	LB	LC	LE	LG	LZ	D	L
VTO-K	FF130	63M	–	1/7	–	B/F	1	130	110 $^{+0.013}_{-0.009}$	160	3.5	8	10	116	236.5
	FF130	63M	–	1/4	–	B/F	1	130	110 $^{+0.013}_{-0.009}$	160	3.5	8	10	116	236.5
VTFO-K	FF130	71M	1/2	1/2	–	B/F	2	130	110 $^{+0.013}_{-0.009}$	160	3.5	10	10	145	256
	FF165	80M	1	1	1/2	B/F	2	165	130 $^{+0.014}_{-0.011}$	200	3.5	12	12	163	283
		90L	2 3	2	1	B/F	3	165	130 $^{+0.014}_{-0.011}$	200	3.5	12	12	180	324
	FF215	100L	–	3	2	B/F	4	215	180 $^{+0.014}_{-0.011}$	250	4	16	14.5	199	356
		112M	5	5	3	B/F	4	215	180 $^{+0.014}_{-0.011}$	250	4	16	14.5	223	372
VTFO-KK	FF265	132S	7.5 10	7.5	5	B/F	5	265	230 $^{+0.016}_{-0.013}$	300	4	20	14.5	250	427.5
		132M	–	10	7.5	B/F	5	265	230 $^{+0.016}_{-0.013}$	300	4	20	14.5	250	465.5
	FF300	160M	15 20	15	10	B/F	5	300	250 $^{+0.016}_{-0.013}$	350	5	20	18.5	290	595
		160L	25	20	15	B/F	5	300	250 $^{+0.016}_{-0.013}$	350	5	20	18.5	290	595
	FF350	180M	30	25 30	20	B/F	6	350	300 $^{+0.016}_{-0.013}$	395	5	20	18.5	340	670
VTFO-KK	FF350	180L	40	40	25 30	F	6	350	300 $^{+0.016}_{-0.016}$	395	5	20	18.5	340	745
	FF400	(200LB) 200L	50 60	50 60	40 50	F	7	400	350 $^{+0.018}_{-0.018}$	445	5	22	18.5	391	(790) 820
	FF500	(225SB) 225S	75	75	60	F	(9)7	500	450 $^{+0.020}_{-0.020}$	545	5	22	18.5	391	(826.5) 856.5
		(250MD) 250M	100 120	100 120	75 100	F	(9)8	500	450 $^{+0.020}_{-0.020}$	545	5	22	18.5	490	(909) 939
	FF600	(280MD) 280M	150 180	150 180	120 150	F	8	600	550 $^{+0.022}_{-0.022}$	655	6	25	24	550	(1012) 1068
		315M	–	–	180	F	8	600	550 $^{+0.022}_{-0.022}$	655	6	25	24	633	1228

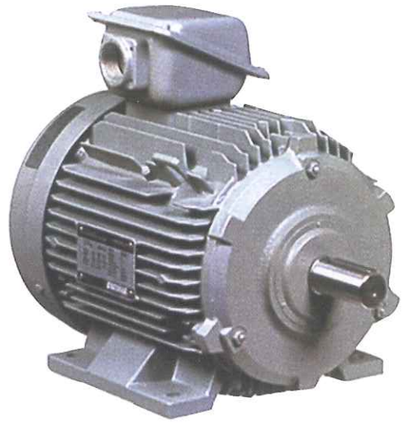
Dimension in mm LL	KL	KD	LR	S	W	U	T	Q	QR	Approx Weight (kg.) 2 Pole	4 Pole	6 Pole	Approx Packing Dimension(cm) H×W×L
213.5	121.5	PF 1/2	23	11 $^{0}_{-0.011}$	—	1	—	23	1.5				
213.5	121.5	PF 1/2	23	11 $^{0}_{-0.011}$	—	1	—	23	1.5				
226	123	PF 3/4	30	14 $^{+0.008}_{-0.003}$	5	3	5	30	1.0	10.5	9	–	32×25×28
243	131	PF 3/4	40	16 $^{+0.009}_{-0.004}$	6	3.5	6	40	0.3	15.5	14.4	17.5	34×30×32
274	145	PF 3/4	50	24 $^{+0.009}_{-0.004}$	8	4	7	50	0.3	17 18	18	17	40×30×33
296	153	PF 1	60	28 $^{+0.009}_{-0.004}$	8	4	7	60	0.5	–	24	25	41×35×37
312	166.5	PF 1	60	28 $^{+0.009}_{-0.004}$	8	4	7	60	0.5	30	32	32	47×35×37
347.5	197	PF 1¼	80	38 $^{+0.018}_{+0.002}$	10	5	8	80	0.5	43 48	44	45	55×41×43
385.5	197	PF 1¼	80	38 $^{+0.018}_{+0.002}$	10	5	8	80	0.5	–	52	57	59×41×43
485	256	PF 1¼	110	42 $^{+0.018}_{+0.002}$	12	5	8	110	1.0	83 89	85	82	70×42×52
485	256	PF 1¼	110	42 $^{+0.018}_{+0.002}$	12	5	8	110	1.0	90	90	96	70×42×52
560	279	PF 2	110	48 $^{+0.018}_{+0.002}$	14	5.5	9	110	1.5	130	130 140	140	80×50×56
633	314	PF 2½	110	55 $^{+0.030}_{+0.011}$	16	6	10	110	1.5	140	165	160 170	87×50×59
680	341.5	PF 2½	(110) 140	(55 $^{+0.030}_{+0.011}$) 60 $^{+0.030}_{+0.011}$	(16) 18	(6) 7	(10) 11	(110) 140	(–) 1.5	210 220	220 240	230 250	(90×53×64) 93×53×64
716.5	341.5	PF 2½	(110) 140	(55 $^{+0.030}_{+0.011}$) 65 $^{+0.030}_{+0.011}$	(16) 18	(6) 7	(10) 11	(110) 140	(–) 2.5	245	270	275	(93×65×68) 96×65×68
799	485	PF 3	(110) 140	(55 $^{+0.030}_{+0.011}$) 75 $^{+0.030}_{+0.011}$	(16) 20	(6) 7.5	(10) 12	(110) 140	–	470 490	490 540	490 550	(103X71X91) 106X71X91
(902) 898	515	PF 3	(110) 170	(55 $^{+0.030}_{+0.011}$) 85 $^{+0.035}_{+0.013}$	(16) 22	(6) 9	(10) 14	(110) 170	–	660 680	675 730	680 750	(113×81×100) 119×81×100
1058	550	PF 3	170	95 $^{+0.035}_{+0.013}$	25	9	14	170	–	–	–	980	135×96×110

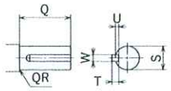
Manufactured at HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD.

( ) : 2 Pole

IP55 CE Model Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
FAN-COOLED TYPE
0.4 kW → 132 kW
(1/2 HP → 175 HP)





Shaft Dimension

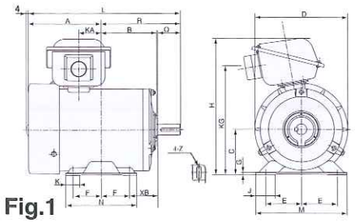


Fig.1

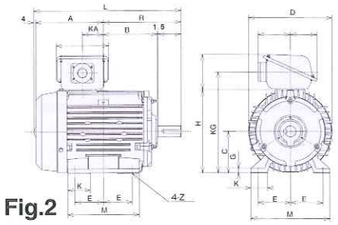


Fig.2

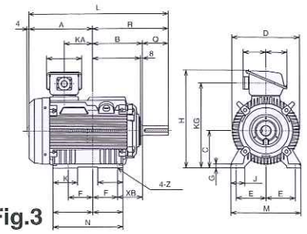


Fig.3

DIMENSIONS (in mm)

Type Form	Frame Size	Output (kw) 2 pole	Output (kw) 4 pole	Output (kw) 6 pole	Insulation	Fig. NO	Dimension in mm. L	R	A	B	D	KD	K	J	H	C	F	E
TFO-K	71M	0.4	0.4	—	F	1	239	120	119	90	145	PF 3/4	25	30	225	71 $^{0}_{-0.5}$	45	56
	80M	0.75	0.75	0.4	F	1	271.5	140	131.5	100	163	PF 3/4	25	35	240	80 $^{0}_{-0.5}$	50	62.5
	90L	1.5 2.2	1.5	0.75	F	2	320	168.5	151.5	118.5	180	PF 3/4	49	35.5	258	90 $^{0}_{-0.5}$	62.5	70
	100L	—	2.2	1.5	F	2	361	193	168	133	199	PF 1	51.5	45	258	100 $^{0}_{-0.5}$	70	80
	112M	3.7	3.7	2.2	F	2	377	200	177	140	223	PF 1	51.5	45	301	112 $^{0}_{-0.5}$	70	95
TFO-KK	132S	5.5 7.5	5.5	3.7	F	3	431.5	239	192.5	158	252	PF 1 1/4	56	50	359.5	132 $^{0}_{-0.5}$	70	108
	132M	—	7.5	5.5	F	3	469.5	258	211.5	177	252	PF 1 1/4	56	50	359.5	132 $^{0}_{-0.5}$	89	108
	160M	11 15	11	7.5	F	3	599	323	276	213	292	PF 1 1/2	107	60	413.5	160 $^{0}_{-0.5}$	105	127
	160L	18.5	15	11	F	3	599	345	254	225	292	PF 1 1/2	107	60	413.5	160 $^{0}_{-0.5}$	127	127
	180M	22	18.5 22	15	F	4	644	348.5	295.5	238.5	340	PF 1 1/2	75	90	462	180 $^{0}_{-0.5}$	120.5	139.5
TFO-KK	180L	30	30	18.5 22	F	5	717	367.5	349.5	257.5	340	PF 1 1/2	75	90	494	180 $^{0}_{-0.5}$	139.5	139.5
	(200LB) 200L	37 45	37 45	30 37	F	5	(794) 824	(395.5) 425.5	398.5	(276.5) 285.5	389.2	PF 2 1/2	85	110	541.5	200 $^{0}_{-0.5}$	152.5	159
	(225SB) 225S	55	55	45	F	5	(830.5) 860.5	402 432	428.5	(283) 285.5	389.2	PF 2 1/2	85	110	566.5	225 $^{0}_{-0.5}$	143	178
	(250SD) 250S	75	75	55	F	6	(913) 943	(433.5) 463.5	479.5	(313.5) 312.5	520	PF 2 1/2	—	100	745	250 $^{0}_{-0.5}$	155.5	203
	(250MD) 250M	90	90	75	F	6	(913) 943	(452.5) 482.5	460.5	(332.5) 331.5	520	PF 2 1/2	—	100	745	250 $^{0}_{-0.5}$	174.5	203
	(280SD) 280S	110	110	90	F	6	(1016) 1072	(484) 544	(532) 528	(364) 363	575	PF 3	—	100	805	280 $^{0}_{-1.0}$	184	228.5
	(280MD) 280M	132	132	110	F	6	(1016) 1072	(507.5) 569.5	(506.5) 502.5	(389.5) 388.5	575	PF 3	—	100	805	280 $^{0}_{-1.0}$	209.5	228.5
	315S	—	—	132	F	6	1182	589	593	408	633	PF 3	—	125	865	315 $^{0}_{-1.0}$	203	254

Manufactured at HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD.

( ) : 2 Pole

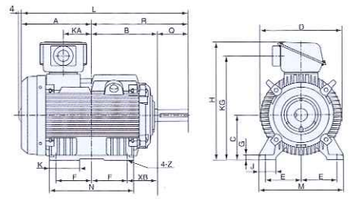


Fig.4

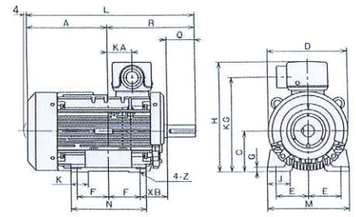


Fig.5

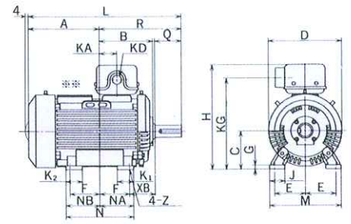


Fig.6

To apply the World Wide Market.

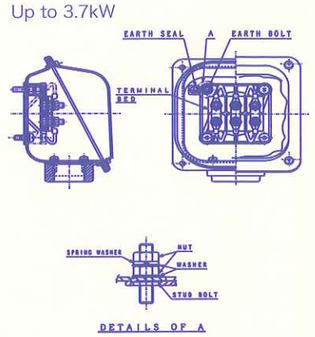
IP55 CE model has certified by TUV Rheimland as last ammended by EEC Directive 93/68/EEC.

To be safty and easy connecting,

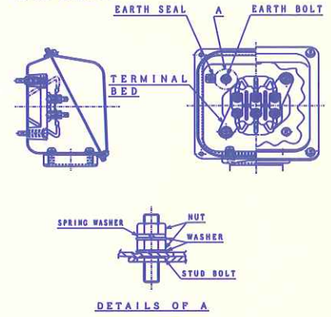
- Earth Seal
- Earth Bolt
- Terminal Bed

are available on terminal box of the motor as standard.

Up to 3.7kW



Over 5.5kW



Dimension in mm. N	M	G	Z	XB	S	W	U	T	Q	QR	Approx,Weight (kg.) 2 pole	4 pole	6 pole	Approx,Packing Dimension(cm) H×W×L
115	140	3.2	7×20	45	14 $^{+0.008}_{-0.003}$	5	3	5	30	1	9.5	8.2	—	29×19×30
125	160	3.2	10×25	50	19 $^{+0.009}_{-0.004}$	6	3.5	6	40	0.3	13.5	12.5	16	30×20×34
155	170	10	10	56	24 $^{+0.009}_{-0.004}$	8	4	7	50	0.3	15 16	16	16	32×23×39
175	195	12.5	12	63	28 $^{+0.009}_{-0.004}$	8	4	7	60	0.5	—	21	23	36×30×40
175	224	14	12	70	28 $^{+0.009}_{-0.004}$	8	4	7	60	0.5	27.5	28	30	36×32×41
175	250	16	12	89	38 $^{+0.018}_{-0.002}$	10	5	8	80	0.5	39 44	40	41	42×35×52
212	250	16	12	89	38 $^{+0.018}_{-0.002}$	10	5	8	80	0.5	—	48	52	42×35×56
300	300	18	14.5	108	42 $^{+0.018}_{-0.002}$	12	5	8	110	1	70 79	73	75	50×51×66
300	300	18	14.5	108	42 $^{+0.018}_{-0.002}$	12	5	8	110	1	85	85	90	50×51×66
300	350	20	14.5	118	48 $^{+0.018}_{-0.002}$	14	5.5	9	110	1.5	115	120 130	130	61×45×73
335	350	20	14.5	118	55 $^{+0.030}_{+0.011}$	16	6	10	110	1.5	145	160	155 165	64×45×86
365	400	23	18.5	133	(55 $^{+0.030}_{+0.011}$) 60 $^{+0.030}_{+0.011}$	(16) 18	(6) 7	(10) 11	(110) 140	(—) 1.5	205 215	215 235	225 245	67×50×94
350	450	23	18.5	149	(55 $^{+0.030}_{+0.011}$) 65 $^{+0.030}_{+0.011}$	(16) 18	(6) 7	(10) 11	(110) 140	(—) 2.5	240	265	270	72×56×96
420	500	30	24	168	(55 $^{+0.030}_{+0.011}$) 75 $^{+0.030}_{+0.011}$	(16) 20	(6) 7.5	(10) 12	(110) 140	—	470	490	475	85×62×112
420	500	30	24	168	(55 $^{+0.030}_{+0.011}$) 75 $^{+0.030}_{+0.011}$	(16) 20	(6) 7.5	(10) 12	(110) 140	—	490	535	555	85×62×112
490	550	30	24	190	(55 $^{+0.030}_{+0.011}$) 85 $^{+0.035}_{+0.013}$	(16) 22	(6) 9	(10) 14	(110) 170	—	630	645	685	92×67×122
490	550	30	24	190	(55 $^{+0.030}_{+0.011}$) 85 $^{+0.035}_{+0.013}$	(16) 22	(6) 9	(10) 14	(110) 170	—	675	725	745	92×67×122
540	615	28	28	216	95 $^{+0.035}_{+0.013}$	25	9	14	170	—	—	—	930	97×73×134

IP55 CE Model Series

THREE-PHASE INDUCTION MOTORS
TOTALLY ENCLOSED
VERTICAL FAN-COOLED TYPE
0.4 kW → 132 kW
(1/2 HP → 175 HP)

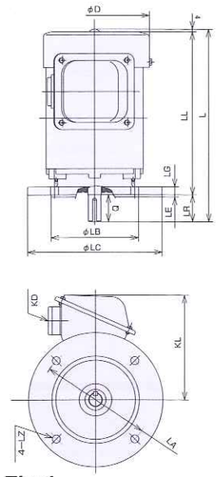


Fig.1

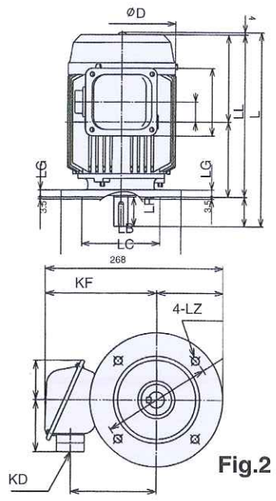


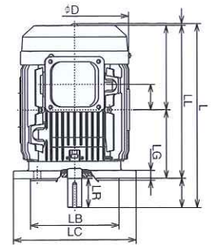
Fig.2

DIMENSIONS (in mm)

Type Form	Flange Size	Frame Size	Output (kw)			Insulation	Fig. NO	Dimension in mm.							
			2 pole	4 pole	6 pole			LA	LB	LC	LE	LG	LZ	D	L
VTFO-K	FF130	71M	0.4	0.4	—	F	1	130	110 +0.013 -0.009	160	3.5	10	10	145	260
	FF165	80M	0.75	0.75	0.4	F	1	165	130 +0.014 -0.011	200	3.5	12	12	163	287
		90L	1.5 2.2	1.5	0.75	F	2	165	130 +0.014 -0.011	200	3.5	12	12	180	327
	FF215	100L	—	2.2	1.5	F	2	215	180 +0.014 -0.011	250	4	16	14.5	199	360
		112M	3.7	3.7	2.2	F	3	215	180 +0.014 -0.011	250	4	16	14.5	223	376
VTFO-KK	FF265	132S	5.5 7.5	5.5	3.7	F	4	265	230 +0.014 -0.011	300	4	20	14.5	250	431.5
		132M	—	7.5	5.5	F	4	265	230 +0.016 -0.013	300	4	20	14.5	250	469.5
	FF300	160M	11 15	11	7.5	F	4	300	250 +0.016 -0.013	350	5	20	18.5	285	599
		160L	18.5	15	11	F	4	300	250 +0.016 -0.013	350	5	20	18.5	285	599
	FF350	180M	22	18.5 22	15	F	5	350	300 +0.016 -0.013	395	5	20	18.5	340	674
VTFO-KK	FF350	180L	30	30	18.5 22	F	5	350	300 +0.016 -0.013	395	5	20	18.5	340	747
	FF400	(200LB) 200L	37 45	37 45	30 37	F	(7) 6	400	350 +0.018 -0.018	445	5	22	18.5	391	(790) 820
	FF500	(225SB) 225S	55	55	45	F	(7) 6	500	450 +0.020 -0.020	545	5	22	18.5	391	(826.5) 856.5
		(250MD) 250M	75 90	75 90	55 70	F	8	500	450 +0.020 -0.020	545	5	22	18.5	490	(909) 939
	FF600	(280MD) 280M	110 132	110 132	90 110	F	8	600	550 +0.022 -0.022	655	6	25	24	550	(1012) 1068
		315M	—	—	132	F	8	600	550 +0.022 -0.022	655	6	25	24	633	1228

Manufactured at HITACHI INDUSTRIAL TECHNOLOGY (THAILAND) LTD.

( ) : 2 Pole



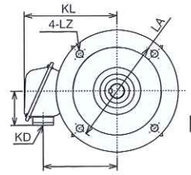
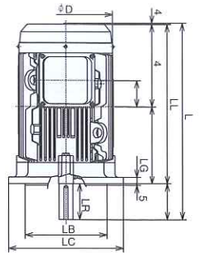
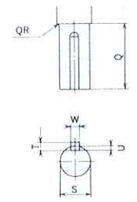


Fig.3





Shaft Dimension

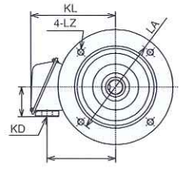


Fig.4

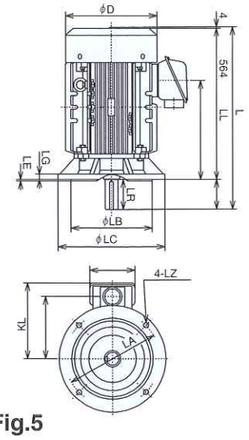


Fig.5

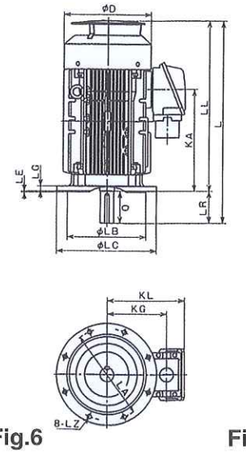


Fig.6

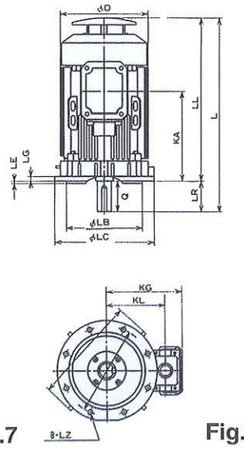


Fig.7

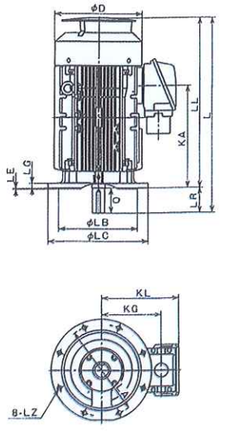


Fig.8

Dimension in mm.										Approx.Weight (kg.)			Approx Packing Dimension(cm)
LL	KD	KL	LR	S	W	U	T	Q	QR	2 pole	4 pole	6 pole	H×W×L
230	PF 3/4	148	30	14 +0.008 -0.003	5	3	5	30	1	10.5	9	—	32×25×28
247	PF 3/4	156	40	19 +0.009 -0.004	6	3.5	6	40	0.3	15.5	14.4	17.5	34×30×32
277	PF 3/4	168	50	24 +0.009 -0.004	8	4	7	50	0.3	17 18	18	17	40×30×33
300	PF 1	176	60	28 +0.009 -0.004	8	4	7	60	0.5	—	24	25	41×35×37
316	PF 1	166.5	60	28 +0.009 -0.004	8	4	7	60	0.5	30	32	32	47×35×37
351.5	PF 1 1/4	197	80	38 +0.018 +0.002	10	5	8	80	0.5	43 48	44	45	55×41×43
389.5	PF 1 1/4	197	80	38 +0.018 +0.002	10	5	8	80	0.5	—	52	57	59×41×43
489	PF 1 1/2	259.5	110	42 +0.018 +0.002	12	5	8	110	1.0	83 89	85	82	70×42×52
489	PF 1 1/2	259.5	110	42 +0.018 +0.002	12	5	8	110	1.0	90	90	96	70×42×52
564	PF 2	282.5	110	48 +0.018 +0.002	14	5.5	9	110	1.0	130	130 140	140	80×50×56
637	PF 2 1/2	317.5	110	55 +0.030 +0.011	16	6	10	110	1.5	140	165	160 170	87×50×59
680	PF 2 1/2	341.5	(110) 140	(55 +0.030 +0.011) 60 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(—) 1.5	210 220	220 240	230 250	(90×53×64) 93×53×64
716.5	PF 2 1/2	341.5	(110) 140	(55 +0.030 +0.011) 65 +0.030 +0.011	(16) 18	(6) 7	(10) 11	(110) 140	(—) 2.5	245	270	275	(93×65×68) 96×65×68
799	PF 2 1/2	485	(110) 140	(55 +0.030 +0.011) 75 +0.030 +0.011	(16) 20	(6) 7.5	(10) 12	(110) 140	—	470 490	490 540	490 550	(103×71×91) 106×71×91
(902) 898	PF 3	515	(110) 170	(55 +0.030 +0.011) 85 +0.035 +0.013	(16) 22	(6) 9	(10) 14	(110) 170	—	660 680	675 730	680 750	(113×81×100) 119×81×100
1058	PF 3	550	170	95 +0.035 +0.013	25	9	14	170	—	—	—	980	135×96×110

High Efficiency and Low Vibration

Can make you trust - Single-Phase Motors

Economical and High Efficiency

Following IEC standard, insulation class E comes with low vibration level and low noise, which is the advantage of 3-phase motor developed from 1-phase motor of Hitachi. Your satisfaction is guaranteed because it can be used in a variety of industries with high engine performance. We believe in high quality products in which we strictly control our manufacturing process for high quality and performance. Therefore, high engine performance with low vibration level makes our Hitachi motor one of the best and highly satisfies our customers worldwide.

Compact size

Hitachi Motor uses housing-steel iron (state of the art technology used widely), aluminum alloy cover for impact protection, and the modern shape.

Efficient Ventilation System

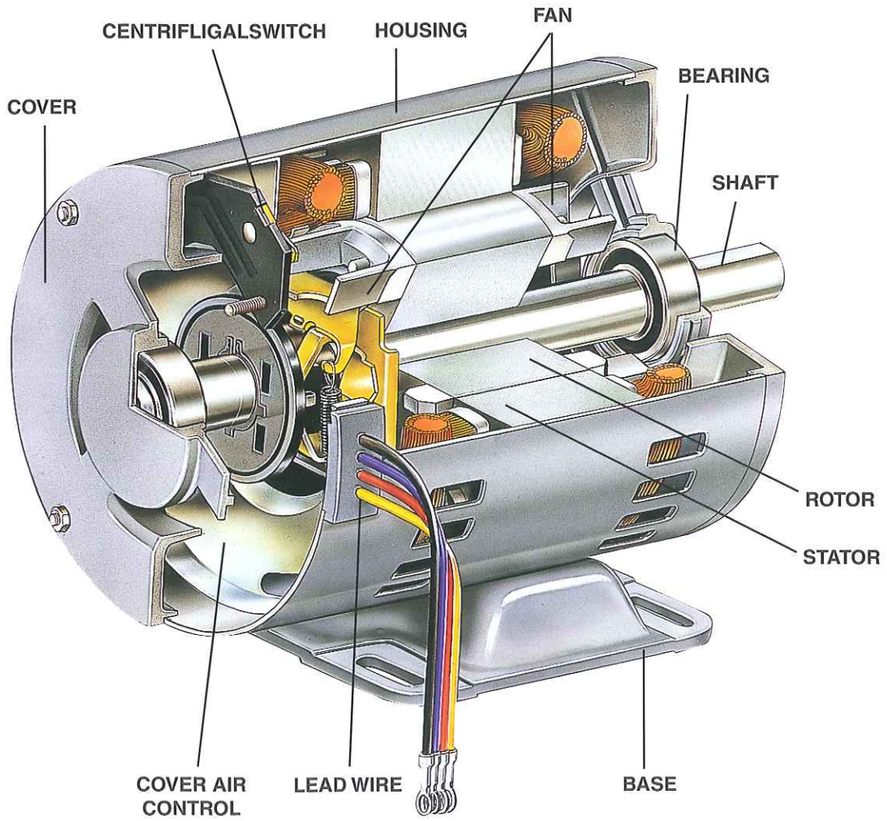
We use a high-performance ventilation system that effectively exchanges air from inside to outside environment with dust protection into the centrifugal switch. All of these features contribute to a high performance machine.

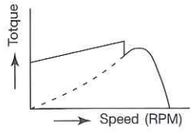
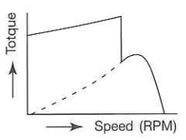
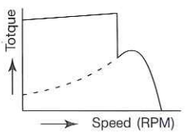
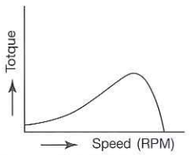
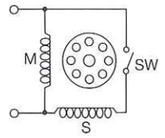
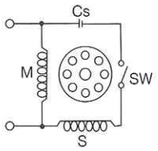
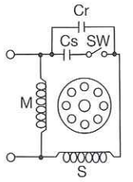
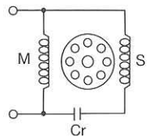
Switch works constantly

The centrifugal switch was developed that install to the rotor. It can be guaranteed that the switch will work constantly.

High temperature resistance plastic insulator

We carefully choose to use plastic insulation that can support high heat, which is one of the components that makes Hitachi Motor one of the safest motor used in industries.



TYPE	SPLIT-PHASE START	CAPACITOR START	CAPACITOR START CAPACITOR RUN	CAPACITOR RUN
MODEL	KT	KR	KQ	KP
APPEARANCE				
CHARACTERISTIC -CURVE				
CONNECTION				
	M : Main Coil S : Starting coil SW : Centrifugal Switch	Cs : Starting Capacitor	Cr : Running Capacitor	
FEATURES	Simple Structure	High Starting Torque	High Starting Torque Lower Running Current	Low starting Torque Lower Running Current
APPLICATION	Drilling Machine Blower	Conveyor Pump	Compressor	Fan

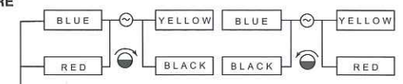
SPECIFICATIONS

ITEM		SPECIFICATION
STANDARD		JIS C4203, 4034
RATING		CONTINUOUS [S1]
INSULATION CLASS		E TYPE
ENCLOSURES TYPE PROTECTION		ENCLOSURES: OPEN TYPE – DRIP: EFOU-KT, KR, KQ; PROOF: EFOUP-KT, KR, KQ — PROTECTION: JP22
VOLTAGE, FREQUENCY		220V 50Hz
TYPE OF CABLE		Made from high temperature resistance plastic (end of pole conduct electric current)
NUMBER OF CABLE		4 WIRES (1/4~1/3 HP-KT,-KR, 2~10 HP-KQ) 3 WIRES (1/2~1.5 HP-KR,-KQ)
COLOUR		Rigail gray (MUNSELL 8.9Y5.1/0.3)
TRANSMISSION		DIRECT COUPLING OR BELT DRIVE
ROTATION		CW (VIEW FROM MOTOR DRIVE END)
ENVIRON-MENT	TEMPERATURE	-20°C ~ 40°C
	HUMIDITY	MAX 90%RH
	ALTITUDE	MAX 1,000 m
	ESTABLISHMENT	IN DOOR
ATMOSPHERE		NO CORROSIVE GAS, NO EXPLOSIVE GAS, NO STEAM, NO DEW, LITTLE DUST

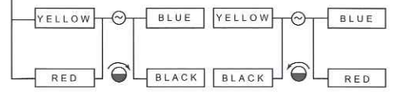
The Wiring Connection and Propelling Direction

4 LEAD WIRE

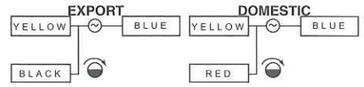
1/4HP, 1-3HP-KT



1/2HP-KT - 10HP-KQ



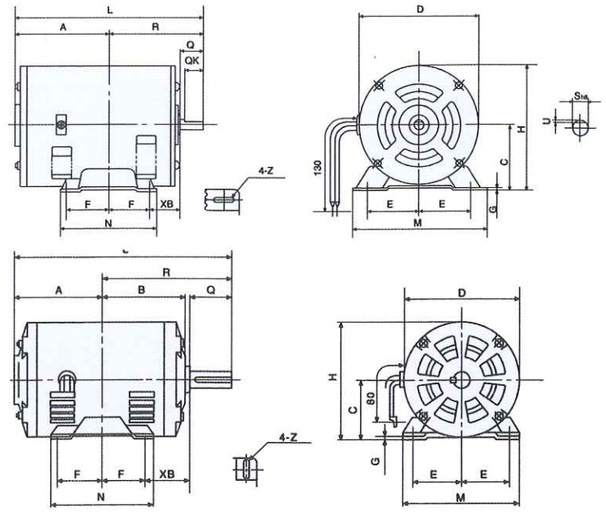
3 LEAD WIRE



DRIP PROOF TYPE SPLIT-PHASE START SINGLE-PHASE MOTORS CAPACITOR START, CAPACITOR START CAPACITOR RUN 1/8 HP → 10 HP

Fig.1

Fig.2



DIMENSIONS (in mm)

Type-Form	Output (HP)	Fig. No.	Ins. Class	Dimension in mm.																						Bearing No.	
				L	R	A	B	D	KL	J	H	C	F	E	N	M	G	Z	XB	S	W	U	T	Q	QK	QR	Drive end Side	Opposite Side
EFOU-KT	1/8	1	E	195.5	120	76	–	131	–	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOU-KT	1/4	1	E	205	120	85	–	131	–	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOU-KT	1/3	1	E	215	120	95	–	131	–	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOUP-KT	1/2	2	E	256	140	116	97	145	–	–	153	80 $^{0}_{-0.5}$	50	62.5	125	160	3.2	10x25	50	16 $^{+0.008}_{+0.003}$	5	3	5	40	–	0.3	6203 ZZ	6202 ZZ
EFOU-KR	1/8	3	E	205.5	120	86	–	131	80	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOU-KR	1/4	3	E	215.5	120	96	–	131	85	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOU-KR	2/5	3	E	225.5	120	106	–	131	85	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOU-KR	1/3	3	E	235.5	120	116	–	131	85	–	137	71 $^{0}_{-0.5}$	45	56	110	150	3.2	7x26	45	14 $^{0}_{-0.001}$	–	1	–	30	27	–	6202 ZZ	6202 ZZ
EFOUP-KR	1/2	4	E	256	140	116	97	144.5	79	35	169.5	80 $^{0}_{-0.5}$	50	62.5	125	160	3.2	10x25	50	16 $^{+0.008}_{+0.003}$	5	3	5	40	–	0.3	6203 ZZ	6202 ZZ
EFOUP-KR	1	4	E	274.5	158.5	116	115.5	162	89	40	192	90 $^{0}_{-0.5}$	62.5	70	155	175	40	10x25	56	19 $^{+0.009}_{+0.004}$	6	3.5	6	40	–	0.3	6204 ZZ	6202 ZZ
EFOUP-KQ	1.5	5	E	289	158.5	130.5	115.5	162	96	40	217	90 $^{0}_{-0.5}$	62.5	70	155	175	40	10x25	56	19 $^{+0.009}_{+0.004}$	6	3.5	6	40	–	0.3	6204 ZZ	6202 ZZ
EFOUP-KQ	2	6	B	396	193	203	128	182	169	45	224	100 $^{0}_{-0.5}$	70	80	175	200	4	12x25	63	28 $^{+0.009}_{+0.004}$	8	4	7	60	–	0.5	6206 ZZ	6206 ZZ
EFOUP-KQ	3	6	B	411.5	200	211.5	136.5	203	180	45	265.5	112 $^{0}_{-0.5}$	70	95	175	224	7.5	12	70	28 $^{+0.009}_{+0.004}$	8	4	7	60	–	0.5	6306 ZZ	6306 ZZ
EFOUP-KQ	5	7	B	496	258	238	173	269	236	45	263	132 $^{0}_{-0.5}$	89	108	212	250	16	12	89	38 $^{+0.018}_{+0.002}$	10	5	8	80	–	0.5	6308 ZZ	6306 ZZ
EFOUP-KQ	7.5	7	B	496	258	238	173	269	236	45	263	132 $^{0}_{-0.5}$	89	108	212	250	16	12	89	38 $^{+0.018}_{+0.002}$	10	5	8	80	–	0.5	6308 ZZ	6306 ZZ
EFOUP-KQ	10	7	B	496	258	238	173	269	236	45	263	132 $^{0}_{-0.5}$	89	108	212	250	16	12	89	38 $^{+0.018}_{+0.002}$	10	5	8	80	–	0.5	6308 ZZ	6306 ZZ

Shaft Dimension

Fig.3

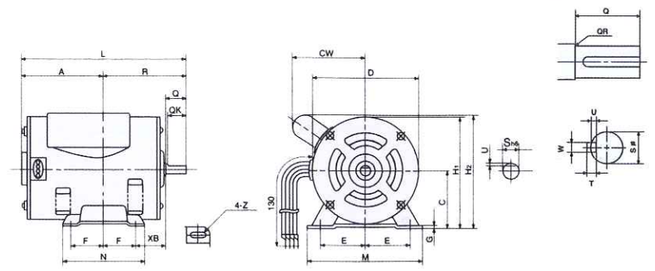


Fig.4

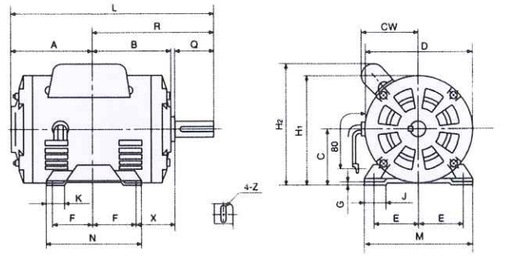


Fig.5

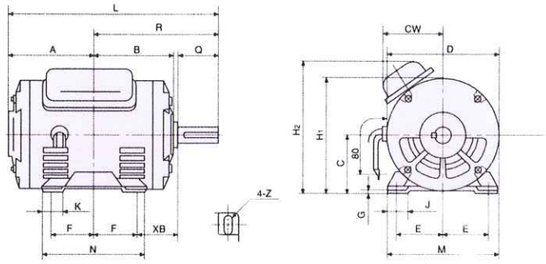


Fig.6

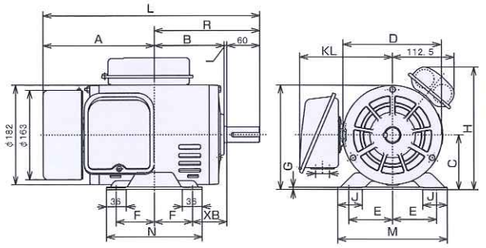
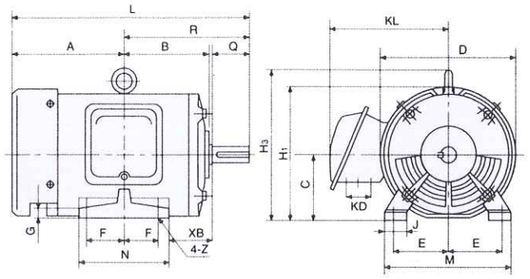


Fig.7



Characteristics and Performance of Three Phase Motor

1. The figures are reference data. If you need guaranteed performance data, please contact (Sales agent)
2. Only torque (full-load, starting, maximum, accelerating) and starting current are actual measurement value. Other data are equivalent circuit measures.
3. Not only current but also other characteristics may be changed under different voltage specifications. Please contact (Sales agent), if required any clarification.

2 pole

Rated Output		Volt	Hz	Rated Speed	Torque			Current				Efficiency			Power Factor			Moment of Inertia J
HP	kW			(min⁻¹)	Rated (Nm)	Start (%)	Max (%)	50% (A)	75% (A)	100% (A)	Start (A)	50% (%)	75% (%)	100% (%)	50% (%)	75% (%)	100% (%)	(kg • m²)
1/2	0.4	220	50	2910	1.34	265	295	1.3	1.5	1.8	11.0	68.0	72.5	73.5	61.5	74.5	83.5	0.000675
		380		2910	1.34	265	295	0.73	0.84	1.0	6.5	68.0	72.5	73.5	61.5	74.5	83.5	
		415		2920	1.33	320	350	0.82	0.90	1.0	7.0	63.0	69.0	71.5	54.0	67.0	76.5	
1	0.75	220	50	2900	2.51	210	275	1.9	2.4	3.0	19.0	76.0	78.0	77.5	67.0	79.5	86.0	0.000973
		380		2900	2.51	210	275	1.1	1.4	1.7	11.0	76.0	78.0	77.5	67.0	79.5	86.0	
		415		2900	2.49	255	335	1.3	1.5	1.7	12.0	71.5	76.0	77.0	58.0	71.0	79.5	
2	1.5	220	50	2900	5.03	220	260	3.3	4.3	5.4	33.0	80.5	81.5	80.5	73.5	84.0	89.5	0.00170
		380		2900	5.03	220	260	1.9	2.5	3.1	19.0	80.5	81.5	80.5	73.5	84.0	89.5	
		415		2900	5.05	265	310	2.1	2.5	3.0	21.0	78.0	81.0	81.0	64.0	76.5	84.0	
3	2.2	220	50	2860	7.41	300	290	5.0	6.3	8.0	61.0	83.5	84.0	83.0	70.0	82.0	87.5	0.00190
		380		2860	7.41	300	290	2.9	3.6	4.6	35.0	83.5	84.0	83.0	70.0	82.0	87.5	
		415		2870	7.34	370	355	3.5	4.0	4.8	39.0	79.5	82.0	82.0	55.5	69.5	78.0	
5	3.7	220	50	2860	12.4	270	300	7.1	9.7	12.5	90.0	84.0	85.0	84.5	81.5	88.5	91.5	0.00520
		380		2860	12.4	270	300	4.1	5.6	7.2	52.0	84.0	85.0	84.5	81.5	88.5	91.5	
		415		2890	12.7	335	375	4.5	5.7	6.9	58.0	82.0	84.0	84.5	69.5	80.0	86.0	
7.5	5.5	380	50	2890	17.9	250	300	5.9	8.1	10.7	76.0	87.5	88.5	88.5	81.0	87.0	89.5	0.00920
		415		2900	17.8	310	380	6.4	8.1	10.7	85.0	86.0	88.0	88.5	70.0	80.0	85.0	
10	7.5	380	50	2900	24.3	240	275	7.7	10.7	14.0	105.0	88.5	90.0	89.5	83.5	89.0	90.5	0.0111
		415		2910	24.2	300	345	8.2	10.7	13.7	120.0	87.5	89.5	89.5	73.0	82.0	86.5	
15	11	380	50	2900	35.7	260	295	11.7	16.0	21	150.0	88.5	90.0	90.0	80.5	87.0	89.5	0.0193
		415		2910	35.6	320	365	13.2	16.6	21	165.0	87.0	89.0	89.5	66.5	77.5	83.0	
20	15	380	50	2900	49.0	300	325	15.8	21.6	28	210.0	90.5	91.0	90.5	80.0	87.0	89.5	0.0234
		415		2910	48.8	375	410	17.9	22.5	28	235.0	89.0	90.5	90.5	65.5	77.0	82.5	
25	18.5	380	50	2910	59.9	300	320	19.0	26.2	34	260.0	90.5	91.5	91.5	81.5	88.0	90.5	0.0264
		415		2930	59.8	375	395	21.5	27.2	34	290.0	89.0	91.0	91.0	67.0	78.0	83.5	
30	22	380	50	2920	71.0	280	330	23.5	31.8	41	320.0	89.5	91.0	91.0	79.5	86.5	89.5	0.0537
		415		2920	70.8	340	405	26.6	33.1	41	350.0	87.0	89.5	90.5	66.0	77.0	83.0	
40	30	380	50	2920	97.6	245	280	30.0	42.0	55	385.0	89.0	90.0	89.5	85.5	90.5	92.0	0.0613
		415		2930	97.3	290	335	33.2	42.9	54	420.0	87.5	89.5	89.5	72.0	81.5	86.0	
50	37	380	50	2930	120	230	230	37.3	52.4	69	445.0	88.5	90.0	90.5	85.0	89.0	90.0	0.111
		415		2940	120	30	280	40.7	53.1	67	490.0	87.5	90.0	90.5	72.0	81.0	84.5	
60	45	380	50	2920	146	250	245	45.3	63.5	84	575.0	88.5	90.0	90.5	85.0	89.5	90.5	0.120
		415		2930	146	305	300	49.1	64.0	81	635.0	88.0	90.0	90.5	72.5	81.5	85.5	
75	55	380	50	2920	178	275	270	53.8	76.0	100	730.0	90.5	92.0	91.5	85.5	90.0	91.0	0.140
		415		2940	178	340	340	58.6	76.8	98	805.0	90.0	91.5	91.5	72.5	81.5	85.5	

4 pole

Rated Output		Volt	Hz	Rated Speed	Torque			Current				Efficiency			Power Factor			Moment of Inertia J
HP	kW			(min⁻¹)	Rated (Nm)	Start (%)	Max (%)	50% (A)	75% (A)	100% (A)	Start (A)	50% (%)	75% (%)	100% (%)	50% (%)	75% (%)	100% (%)	(kg • m²)
1/2	0.4	220	50	1410	2.77	245	260	1.4	1.6	1.9	8.0	70.0	73.0	72.5	55.5	69.5	79.0	0.000973
		380		1410	2.77	245	260	0.78	0.90	1.1	4.5	70.0	73.0	72.5	55.5	69.5	79.0	
		415		1425	2.72	300	320	0.88	1.0	1.1	5.0	65.5	70.5	72.0	48.0	61.0	71.0	
1	0.75	220	50	1410	5.10	220	265	1.9	2.4	3.0	15.0	79.0	80.0	78.0	64.5	76.5	83.0	0.00213
		380		1410	5.10	220	265	1.1	1.4	1.7	8.5	79.0	80.0	78.0	64.5	76.5	83.0	
		415		1425	5.03	270	330	1.2	1.4	1.7	9.5	76.5	79.0	78.5	57.0	70.0	78.0	
2	1.5	220	50	1420	10.3	225	250	4.0	4.9	6.1	31.0	79.5	80.5	78.0	61.5	74.5	82.0	0.00330
		380		1420	10.3	225	250	2.3	2.9	3.5	18.0	79.5	80.5	78.0	61.5	74.5	82.0	
		415		1435	10.2	275	305	2.6	3.0	3.5	20.0	76.5	79.0	78.5	51.5	65.5	74.5	
3	2.2	220	50	1430	15.1	230	250	5.5	6.9	8.5	48.0	82.5	82.5	80.5	64.0	76.5	83.0	0.00570
		380		1430	15.1	230	250	3.2	4.0	4.9	28.0	82.5	82.5	80.5	64.0	76.5	83.0	
		415		1440	14.9	280	310	3.6	4.2	4.8	31.0	80.0	82.0	81.0	54.0	67.5	76.0	
5	3.7	220	50	1410	25.4	220	240	8.4	10.8	13.9	80.0	84.5	84.0	81.5	69.0	80.0	85.5	0.0110
		380		1410	25.4	220	240	4.8	6.3	8.0	46.0	84.5	84.0	81.5	69.0	80.0	85.5	
		415		1430	25.1	270	300	5.5	6.6	8.0	52.0	81.5	83.0	82.0	57.0	70.5	78.5	
7.5	5.5	380	50	1435	36.1	240	290	6.7	8.8	11.5	67.0	87.5	88.0	87.0	70.5	81.0	86.0	0.0171
		415		1440	35.9	285	345	7.5	9.1	11.5	73.0	85.5	87.0	87.0	59.5	72.5	80.0	
10	7.5	380	50	1430	49.1	275	295	9.0	11.8	15.5	98.0	88.5	89.0	88.0	71.5	82.0	86.5	0.0214
		415		1440	48.9	335	365	9.9	12.1	15.5	105.0	86.5	88.0	88.0	61.0	73.5	80.5	
15	11	380	50	1440	71.8	240	265	12.9	17.1	22	135.0	88.5	89.0	88.0	73.0	82.0	86.0	0.0345
		415		1450	71.5	285	315	14.6	17.9	22	145.0	86.0	88.0	88.0	61.0	73.0	79.5	
20	15	380	50	1450	98.3	260	295	17.2	22.8	29	195.0	90.5	90.5	89.5	73.5	82.5	86.5	0.0446
		415		1450	97.8	315	355	19.3	23.7	29	215.0	88.0	89.5	89.0	61.5	74.0	80.5	
25	18.5	380	50	1455	121	245	265	21.5	28.4	37	240.0	89.0	90.0	89.5	73.5	82.5	86.5	0.0876
		415		1455	120	295	320	25.0	30.3	37	265.0	86.5	88.5	89.0	59.5	72.0	78.5	
30	22	380	50	1455	143	275	300	24.9	33.2	43	305.0	90.0	91.0	90.5	74.5	83.0	86.5	0.101
		415		1460	142	335	370	27.9	34.5	43	340.0	88.0	90.0	90.5	62.0	74.0	80.0	
40	30	380	50	1460	196	275	310	33.1	44.5	58	420.0	90.5	91.0	90.5	76.0	84.5	87.5	0.127
		415		1460	195	340	385	36.9	46.0	57	465.0	89.5	90.5	90.5	63.5	75.0	81.0	
50	37	380	50	1450	240	245	270	40.8	55.0	72	470.0	90.5	91.5	91.0	76.0	84.0	86.5	0.208
		415		1460	239	300	335	44.6	56.1	70	520.0	89.5	91.0	91.0	64.5	75.5	81.0	
60	45	380	50	1450	292	235	265	48.5	66.0	86	570.0	91.0	92.0	91.5	77.0	84.5	87.0	0.230
		415		1465	292	285	330	53.0	67.1	84	630.0	90.0	91.5	91.5	65.5	76.5	81.5	
75	55	380	50	1455	356	280	275	60.2	81.1	105	735.0	92.0	93.0	92.5	75.0	83.5	86.5	0.280
		415		1460	355	340	340	70.1	86.3	107	810.0	90.5	92.0	92.0	60.0	72.0	78.5	
100	75	380	50	1470	486	295	300	72.7	102.3	135	1124	92.0	93.0	93.0	85.5	90.0	91.5	1.00
		415		1475	484	365	375	72.6	97.9	130	1248	91.5	92.5	93.0	78.5	86.0	89.0	
120	90	380	50	1470	579	355	405	86.3	121.3	160	1547	93.5	94.5	94.5	85.0	89.5	91.0	1.25
		415		1475	578	440	505	86.3	116.3	150	1720	92.5	94.0	94.0	78.0	86.0	89.0	
150	110	380	50	1475	712	345	305	105.2	148.8	200	1548	93.0	94.0	93.5	85.0	89.5	91.0	1.98
		415		1480	710	430	380	104.4	141.9	185	1710	92.5	93.5	94.0	79.0	86.0	89.0	
175	132	380	50	1475	855	385	345	125.9	177.6	240	2002	93.5	94.0	94.0	85.0	90.0	91.5	2.30
		415		1480	852	480	410	123.8	168.4	220	2213	93.5	94.0	94.5	79.5	86.5	89.5	

6 pole

Rated Output		Volt	Hz	Rated Speed	Torque			Current				Efficiency			Power Factor			Moment of Inertia J
HP	kW			(min^{-1})	Rated (Nm)	Start (%)	Max (%)	50% (A)	75% (A)	100% (A)	Start (A)	50% (%)	75% (%)	100% (%)	50% (%)	75% (%)	100% (%)	(kg · m^2)
1/2	0.4	220	50	940	4.13	225	270	1.6	1.8	2.1	9.0	66.5	70.5	70.5	49.0	62.5	72.5	0.00215
		380		940	4.13	225	270	0.93	1.0	1.2	5.0	66.5	70.5	70.5	49.0	62.5	72.5	
		415		950	4.06	280	330	1.0	1.1	1.2	5.5	63.5	69.0	70.5	43.5	56.0	66.0	
1	0.75	220	50	930	7.97	220	240	2.9	3.2	3.8	15.0	68.5	71.0	69.5	50.5	64.0	73.5	0.00460
		380		930	7.97	220	240	1.7	1.9	2.2	8.5	68.5	71.0	69.5	50.5	64.0	73.5	
		415		940	7.79	260	285	1.9	2.0	2.3	9.5	64.0	69.0	69.5	43.5	56.0	66.0	
2	1.5	220	50	930	15.4	210	240	4.6	5.5	6.6	32.0	76.5	77.5	74.5	56.0	69.5	77.0	0.00870
		380		930	15.4	210	240	2.7	3.2	3.8	18.0	76.5	77.5	74.5	56.0	69.5	77.0	
		415		930	15.4	250	285	3.0	3.4	3.9	19.0	71.5	74.5	73.5	49.0	62.5	71.5	
3	2.2	220	50	940	22.5	260	270	6.2	7.4	9.4	52.0	80.0	81.5	80.0	58.5	72.0	79.5	0.0132
		380		940	22.5	260	270	3.6	4.3	5.4	30.0	80.0	81.5	80.0	58.5	72.0	79.5	
		415		950	22.2	325	340	4.0	4.5	5.4	33.0	77.0	80.0	80.0	50.0	63.5	72.5	
5	3.7	220	50	930	38.2	210	255	8.9	11.4	14.5	80.0	85.0	84.5	82.0	64.5	76.0	81.0	0.0256
		380		930	38.2	210	255	5.1	6.6	8.4	46.0	85.0	84.5	82.0	64.5	76.0	81.0	
		415		940	38.5	265	320	5.6	6.7	8.2	52.0	83.0	84.0	83.0	55.0	68.0	75.5	
7.5	5.5	380	50	940	54.9	265	285	7.6	9.7	12.7	71.0	88.0	88.0	86.5	62.5	73.5	78.5	0.0343
		415		950	54.5	315	340	8.6	10.2	12.6	77.0	85.0	87.0	86.5	52.5	65.0	72.0	
10	7.5	380	50	960	73.2	245	340	10.3	12.8	16.5	115.0	87.0	88.0	87.0	63.5	76.0	82.5	0.0551
		415		960	72.9	305	425	12.1	14.0	17.0	125.0	83.0	85.5	86.0	51.5	65.5	74.0	
15	11	380	50	960	108	250	345	13.7	17.6	23	160.0	89.0	89.0	88.0	68.5	80.0	85.0	0.0727
		415		960	107	310	430	15.3	18.4	23	175.0	86.5	88.0	88.0	57.5	71.0	78.5	
20	15	380	50	965	146	235	265	18.3	23.9	31	190.0	90.5	90.5	90.0	69.0	79.0	83.0	0.140
		415		965	145	285	315	20.8	25.1	31	205.0	87.0	89.0	89.0	57.5	70.0	76.5	
25	18.5	380	50	965	181	240	265	22.1	29.0	38	220.0	89.5	90.0	89.5	71.0	80.5	84.5	0.164
		415		965	180	295	325	24.6	30.1	37	245.0	87.0	89.0	89.0	60.0	72.0	78.5	
30	22	380	50	965	214	265	295	26.4	34.5	45	280.0	90.0	90.5	90.0	70.5	80.0	84.5	0.190
		415		965	213	325	370	29.9	36.2	44	310.0	87.5	89.5	89.5	58.5	71.0	77.5	
40	30	380	50	965	291	225	280	36.2	47.1	61	380.0	90.5	91.5	91.0	69.5	79.5	84.0	0.333
		415		970	291	275	345	41.3	49.7	61	420.0	88.5	90.5	90.5	57.0	69.5	76.5	
50	37	380	50	970	360	230	275	43.8	57.5	74	455.0	91.5	92.0	91.5	70.0	80.0	84.0	0.382
		415		970	359	285	340	49.0	59.7	74	505.0	90.0	91.0	91.0	58.5	71.0	77.5	
60	45	380	50	970	438	250	275	50.8	67.8	88	535.0	92.0	92.0	91.0	73.5	82.5	86.0	0.430
		415		975	437	300	330	57.8	71.1	88	590.0	90.0	91.0	91.0	60.0	72.5	79.0	
75	55	380	50	975	533	255	265	58.7	80.1	105	695.0	93.0	93.0	92.5	76.5	84.0	86.5	0.880
		415		975	532	310	325	62.4	79.9	105	770.0	92.0	93.0	92.5	66.5	77.0	82.0	

kW and HP comparable table

HP	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	120	150	175
kW	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132

Type - Form	Rated Output		INS. Class	Voltage (V)	Frequency (Hz)	Current (A)	Speed (min^{-1})
	HP	kW					
EFOU-KT	1/8	0.1	E	220	50	1.4	1450
EFOU-KT	1/4	0.2	E	220	50	2.3	1450
EFOU-KT	1/3	0.25	E	220	50	2.7	1430
EFOUP-KT	1/2	0.4	E	220	50	3.7	1400
EFOU-KR	1/8	0.1	E	220	50	2.2	1450
EFOU-KR	1/4	0.2	E	220	50	2.2	1450
EFOU-KR	2/5	0.3	E	220	50	2.6	1440
EFOU-KR	1/3	0.25	E	220	50	2.6	1440
EFOU-KR	1/2	0.4	E	220	50	3.4	1430
EFOU-KR	1	0.75	E	220	50	6.6	1410
EFOUP-KQ	1.5	1.1	B	220	50	10.0	1430
EFOUP-KQ	2	1.5	B	220	50	10.0	1430
EFOUP-KQ	3	2.2	B	220	50	13.0	1440
EFOUP-KQ	5	3.7	B	220	50	26.0	1450
EFOUP-KQ	7.5	5.5	B	220	50	33.0	1450
EFOUP-KQ	10	7.5	B	220	50	42.0	1440

RESILIENT BASE MOUNTING MOTOR

The Motor is supported by synthetic-rubber ring called Absorber, which can absorb vibration stimuli. For motor resilient, it is suited for use in business industries and household. It can be adapted to use in chemical tools, medical apparatus, office supplies, preservatives, air conditioning, and other appliances consisted of propellers that can absorb vibration

- **Rugged under most severe operating conditions - Totally enclosed fancooled type (TFO)**

TFO-KQ (0.4, 0.55, 0.7kW)

TFO-KQ (0.4 kW)