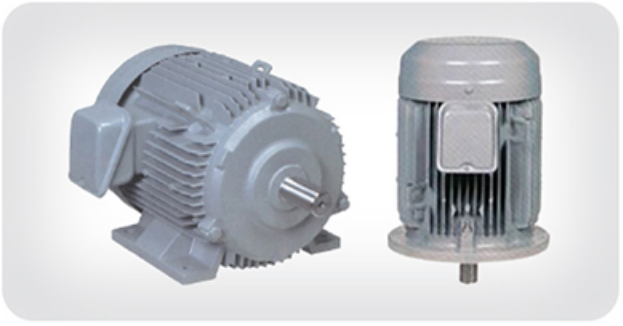
HITACHI INDUCTION MOTORS

HITACHI
Inspire the Next

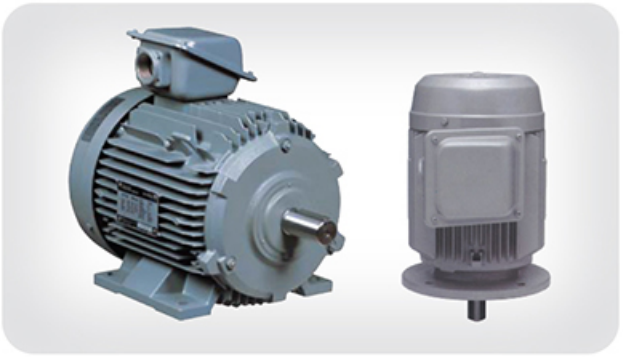
Hitachi Electric Motors
For Industrial application

Three-Phase Motors



IP44 Series

Foot / Flange Mount
1/7~175HP (0.1~132kW)
2 / 4 / 6 / 8 pole



IP55 Series

Foot / Flange Mount
1/2~175HP (0.4~132kW)
2 / 4 / 6 / 8 pole

Single-Phase Motors

Split-Phase Start

1/8~1/2HP (0.09~0.75kW)
4 pole

Capacitor Start

1/8~1HP (0.09~0.75kW)
4 pole

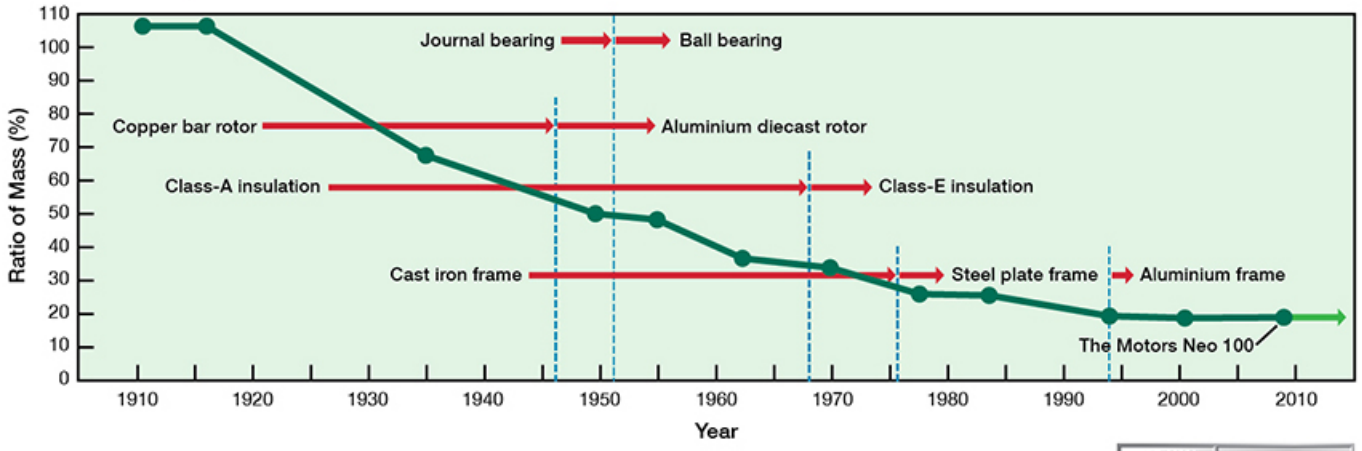
Capacitor Start Capacitor Run

1.5~10HP (1.1~7.5kW)
4 pole

Historical transition of Hitachi Motor Development.

Motor Size: 5HP (3.7kW 4P)

Ratio of Weight



ISO 14001
Hitachi motors are produced at the factory registered under the ISO 14001 standard for environmental management system and the ISO 9001 standard for motor quality management system.
ISO 9001

Facilities of Production and Development.


Hitachi Narashino Plant in Japan


Central Research Laboratory


Administrative Division

Production Plant in Thailand.

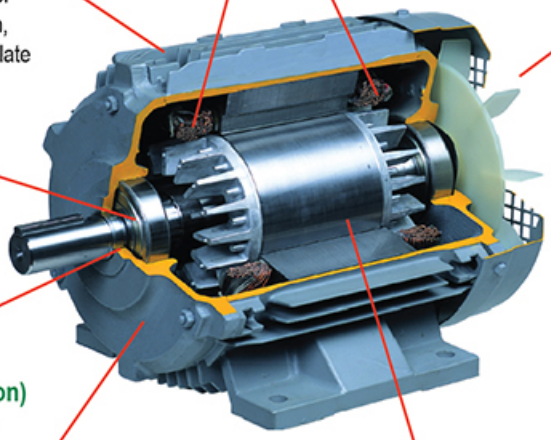
THAILAND
QMS 001
TLS 8001-2010
ISO 50001 SGS
ISO 9001 SGS
UKAS QUALITY MANAGEMENT 005

High performance with latest technologies.

2. The insulated lead-wire has high performance and efficiency.
In our high technology, we developed high quality insulated wire and varnish that can support various hostile environments, even under high temperature.

1. Aluminum-alloy frame is beneficial for light weight.
Aluminum-alloy is used as raw material of motor housing (Used in parts for airplane, shinkansen, etc), which makes the motor to effectively ventilate heat and provides light weight

3. Silent and 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.



4. Using high quality bearings also adopted high graded grease.
On of major importance for motor is quality of bearings. The Hitachi motors are used the high quality one with high graded grease.

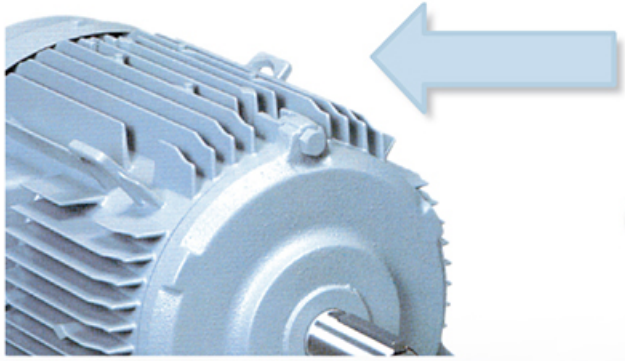
5. Liquid gasket seal (For IP55 construction)
Using high quality liquid seal for IP55 series in order to establish durability and long life for the motors.

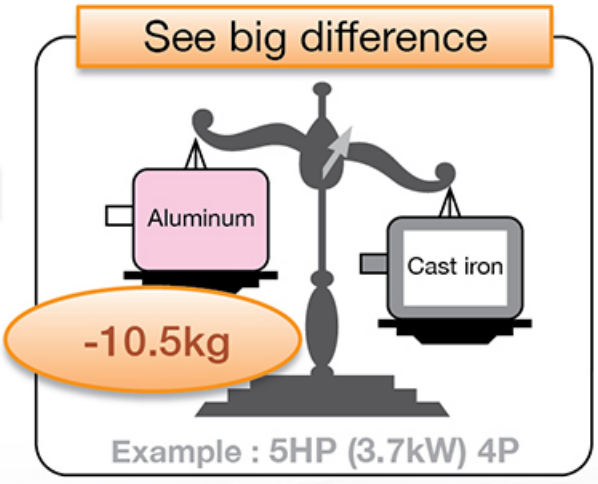
6. End brackets (Front and back) that have a robust construction for strength.
The end brackets are mode by cast iron in order to establish robustness for motor construction.

7. Special slot and compact coil effect to lower sound and high performance.
From a start for running, the motor can smoothly start with high torque and reduces a damage for machine because of low vibration. The motor does not harm construction in the motor and the machine.

Easy handing on site because of light weight.

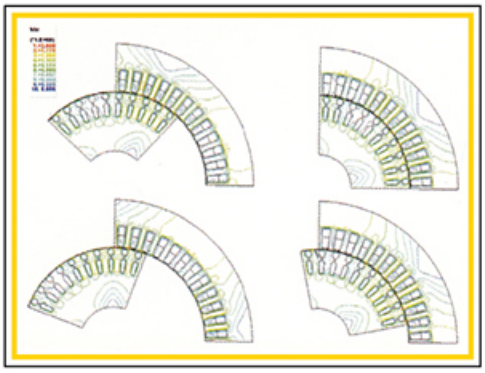
Aluminum alloy housing realize light weight.

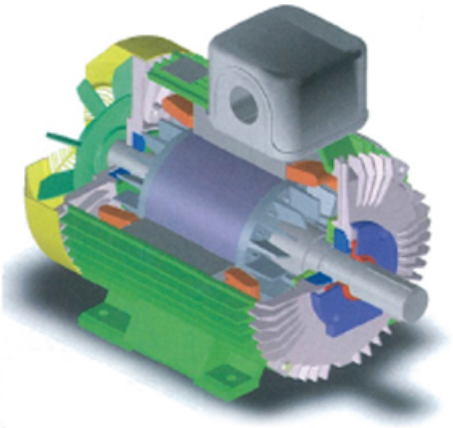


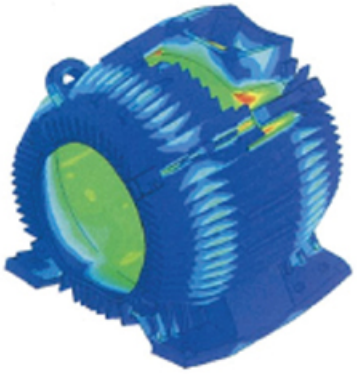


The average weight decreased by 30%

Furthermore technologies on motor design & development.







Secret formula of silence is energy

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

Reliability of high-power torque energy

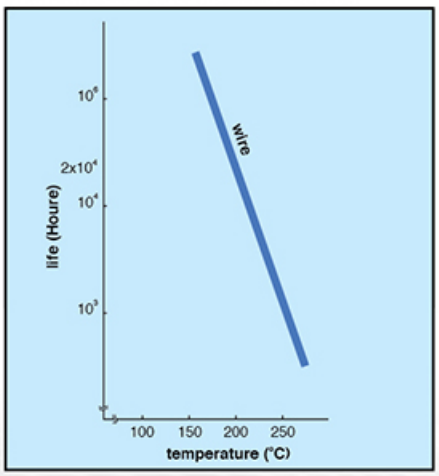
Hitachi motors have been designed from slot in rotor for aluminum injection, which is a specific technique that provides high-power torque for betle start. You can notice from the start to a running period. You would find that Hitachi motor have a very smooth start with an increase in usage capacity.

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.

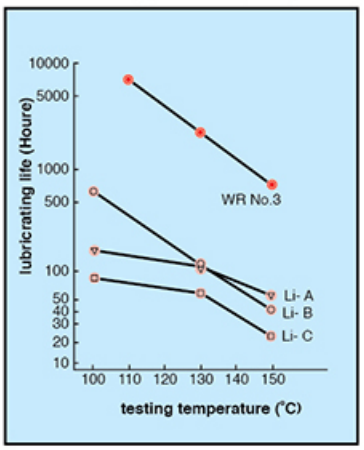
Energy source Compact-Coil structure

One of our new technologies is Compact Coil. When the Coil is small, It can control all system errors with high capacility. Insulate has a round shape placed parallel to each other in which 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.

Usage life of lead wires in a heat situation



The test result of grease in high temperature



Main Feature for Single-phase motors.

More reliable in various fields.

Economical and High Efficiency

Following IEC standard, insulation class E comes with lcw vibration level and low noice, 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. Therefor, 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

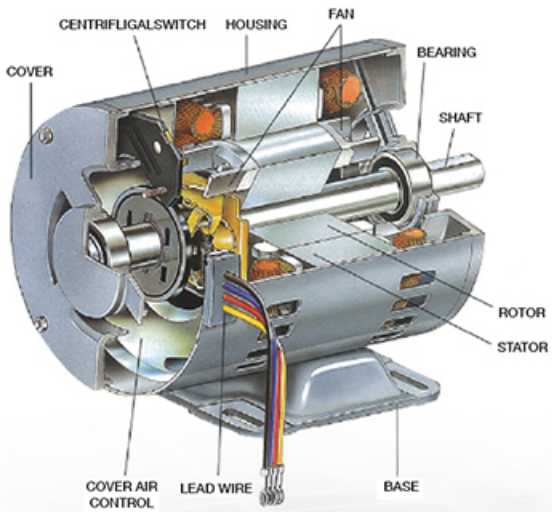
We use a high-performance ventilation system that effectively exchanges air from inside to outside environment with dust protection into the centrifugal switch. All of these features contribute to a high performance machine.

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

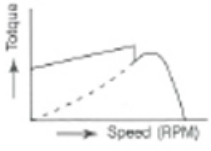
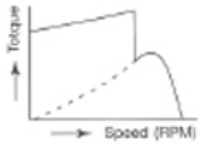
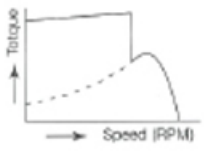
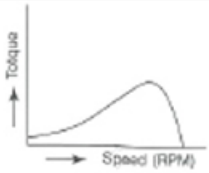
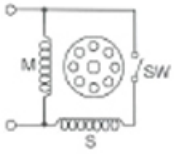
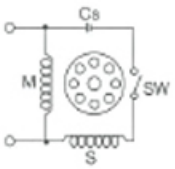
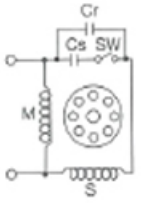
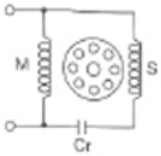
We carefully choose to use plastic insulation that can support high heat, which is one of the components that makes Hitachi Motor one of the safest motor used in industries.



SPECIFICATIONS

ITEM	SPECIFICATION
STANDARD	JIS C4203, 4034
RATING	CONTINUOUS [S1]
INSULATION CLASS	E TYPE
ENCLOSURES TYPE PROTECTION	ENCLOSURES: OPEN TYPE – DRIP: TYPE EFOU-KT, KA, KQ; PROOF: TYPE EFOUP-KT, KA, 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	Regal gray (MUNSELL 8.9Y5.1/0.3)
TRANSMISSION	DIRECT COUPLING OR BELT DRIVE
RATATION	CW (VIEW FROM MOTOR DRIVE END)
ENVIRONMENT – TEMPERATURE	-20 °C - 40 °C
ENVIRONMENT – HUMIDITY	MAX 90%RH
ENVIRONMENT – ALTITUDE	MAX 1,000 m
ENVIRONMENT – ESTABLISHMENT	IN DOOR
ATMOSPHERE	NO CORROSIVE GAS, NO EXPLOSIVE GAS, NO STEAM, NO DEW, LITTLE DUST

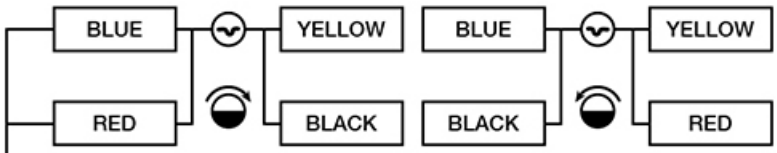
Variety of motor

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 : Certrifugal Switch	Gs : 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	Conveyer Pump	Compressor	Fan

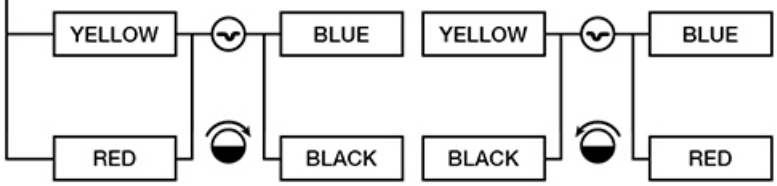
The Wiring Connection and Propelling Direction

1/4HP, 1-3HP-KT

4 LEAD WIRE



1/2HP-KT - 10HP-KQ



3 LEAD WIRE

Three-phase Motors
Basic Specifications

Item		Specifications			
Standard		JEC-2137-2000, JIS C 4210, 4034, ect.			
Rating		Continuous [S1]			
Insulation Class		2, 4, 6 Pole (8 Pole for same range)			
		B Type		~180 M	
		F Type		180 L~	
Enclosures Type Protection		Enclosures		Type	Protection
	Indoor	Fan cooled type Vertical Fan cooled type		TFO-K, KK VTFO-K, KK	IP44
	Outdoor	Fan cooled type Vertical Fan cooled type		TFO-K, KK VTFO-K, KK	IP55
Voltage, Frequency		1/2 ~ 5 HP : 220/380V 50Hz 7.5HP ~ : 380/415V 50 Hz			
Number of Cable		~ 5 HP 6 Wires (Direct starting 220V or 380V)			
		7.5 HP ~ 6 Wires (Star 人-厶 Delta starting)			
		2 pole 30 HP ~ 4 pole 40 HP ~ 6 pole 50 HP ~		12 Wires (Star人-厶 Delta starting)	
Color		Alcron gray			
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)			
Environ ment	Temperature Humidity Altitude Establishment	-30 ~ 40°C Enclosed type Max 95% RH Max 1,000 m [IP44] Indoor type, [IP44 Special, IP55] Outdoor type			
Atmosphere		No corrosive gas, No explosive gas No Steam, No dew, little dust			

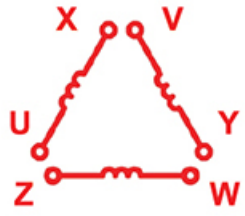
Nameplate on motors
Model : CE Version

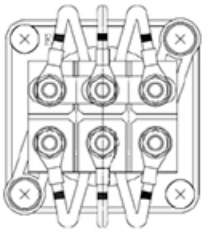
The Wiring Connection and Propelling Direction

Circuit Diagram for the use of motor wiring connection

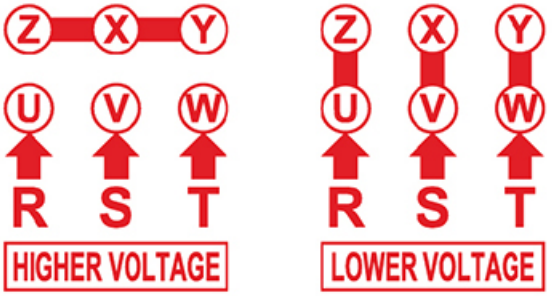
6-wire 220/380V

Connect to power source to start-up



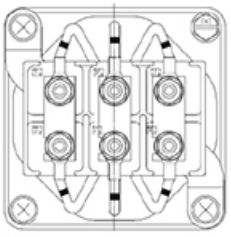


Direct on Line Start

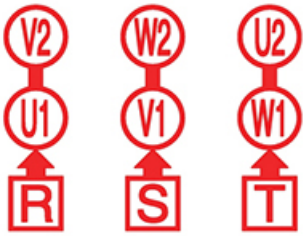


6-wire 380/415V

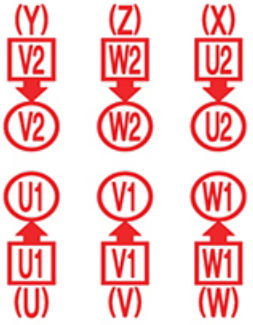
Connect to power source to start-up or start



Direct on Line Start

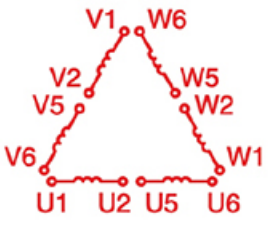


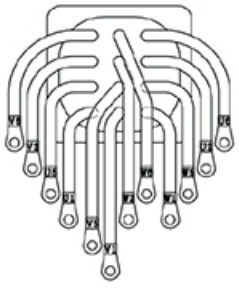
Star-Delta Start



12-wire 200/380/400V

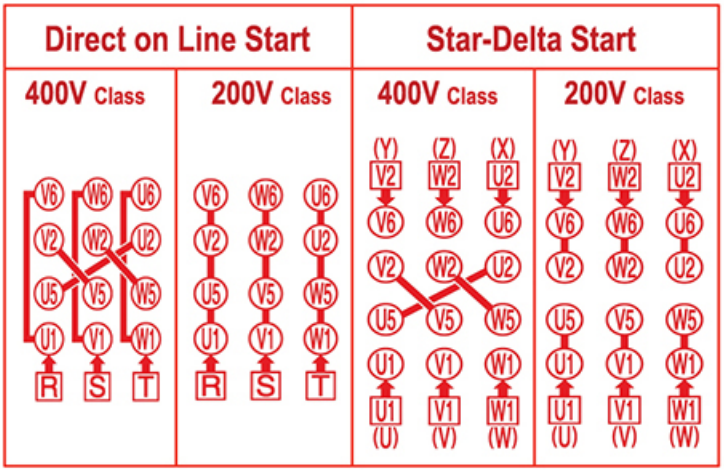
Connect to power source to start-up or start





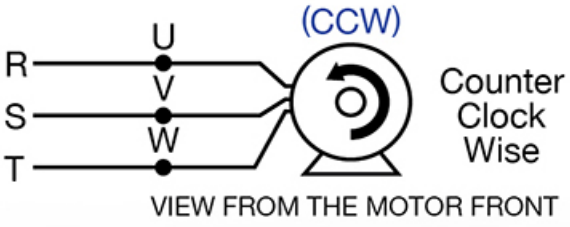
Direct on Line Start

Star-Delta Start



Rotation

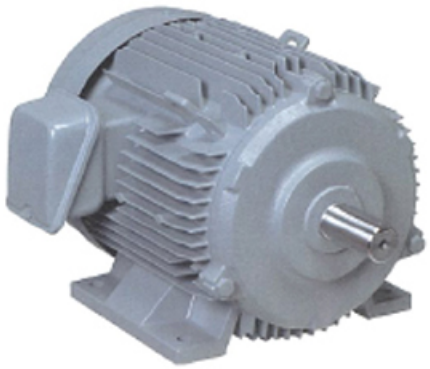
COUNTER CLOCK WISE
(Hitachi Standard)



CLOCK WISE

Three-Phase Induction Motors

Totally Enclosed Fan-Cooled Type (TEFC)
IP44 Series / Foot Mount Type [TFO-K(KK)]
1/7~175HP (0.1~132kW)



Model:
xxHP or kW TFO-K(KK) xP IP44
Output — No of pole

Item		Specifications	
Motor Output		1/4~175HP (0.2~132kW)	
Rating		Continuous [S1]	
Number of pole		2, 4, 6 pole [8 Pole : only some range]	
Insulation Class		B type	~180 M
		F type	180 L~
Enclosure		IP44 (Outdoor type is also available)	
Voltage, Frequency		Consult to nearest representative	
Number of Cable		~5 HP 6 Wires (Direct starting 220V or 380V)	
		7.5 HP ~ 6 Wires (Star 人-△ Delta Starting)	
		2 pole 30 HP ~ 4 pole 40 HP ~ 6 pole 50 HP ~	12 Wires (Star 人-△ Delta Starting)
Color		Alcron gray	
Rotation		CCW (View from motor drive end)	
Environment	Temperature	-30 ~ 40 °C	
	Humidity	Enclosed type Max 95% RH	
	Altitude	Max 1,000 m	

Type From	Frame size	Out Put(HP)			Insulation	Flg. 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) 250M	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