

# **HITACHI SUBMERSIBLE MOTORS**

*For Deep Well Pumps*

*Stainless Steel*  
**316**



# Hitachi's General Features



## 316 Stainless Construction

All external motor components are made of 316 stainless steel : including the housing, end bracket, end cover, shaft and bolts.

## High Quality Thrust Bearings

The thrust bearing is of the Kingsbury type lubricated by the internal fluid. During operation a wedge of water is drawn between the stainless steel pivot shoes and carbon disc to carry the thrust load generated by the pump. The bearing construction is achieved long motor life because of our quality construction based on our experience and field results.

## Sand Resistant Slinger and Lip Seals

A stainless steel slinger and slinger guide are also closely fit to help prevent sand entry. Double rubber seals are installed to prevent well water and contaminants from entering the motor.

## Rotor Core with Baked Epoxy Coating

A baked epoxy coating prevents rusting of the rotor core. All internal cast iron parts are coated with epoxy resin then baked for resistance to water and rust.

## Highly Reliable Carbon Bearing

Two water lubricated carbon bearings are used as guide bearings. These have extremely large surface area and result in extra alignment support-less whipping and acts as a steady bushing.

## Water-Filled Design

The motor lubrication is provided by the internal cooling water consisting of a water, antifreeze, and antirust mixture good to -22°F (-30°C). This mixture is installed at the factory. Water plugs are located near the top of the motor and are used by the installer to check the water level or to top off if needed before installation.

## Replaceable Plug-in Type Lead

The motor leads are stranded copper, extremely flexible, 150 inches (3.8m) in length and field replaceable.

## Durable Insulation

The motor stator coil of the canned type is mounted in a stainless steel frame and is completely sealed in a protective stainless steel cylinder. Complete water proofing insures long life for the moisture resistant insulation.

## Japan Made

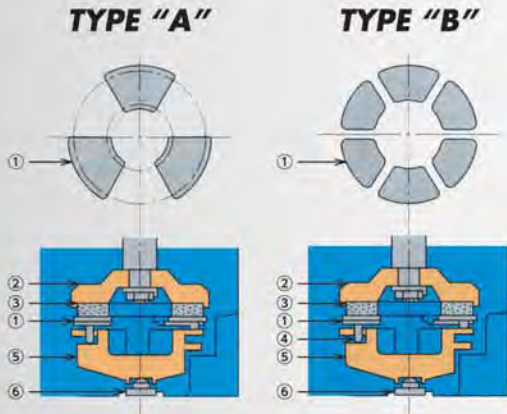
All Hitachi submersible motors are manufactured and tested under the most stringent quality control procedures in Japan, providing long service life and trouble-free operation.



# High Thrust Bearing

## High-Performance Thrust Bearing

The well-established Kingsbury design thrust bearing creates a wedge of water between the pivot shoe and carbon disc. Our innovative design permits high thrust loads to be placed on the bearings while showing no measurable wear after several years of severe duty operation. This allows for long pumping life, virtual trouble free operation and low maintenance. The 300lbs, Maximum continuous up-thrust is absorbed between the upper carbon sleeve bearing and the rotor balance ring.



Number	Part Name
1	Pivot Shoe
2	Bearing Frame
3	Carbon Disc
4	Metal Support
5	Metal Frame
6	Thrust Plate

Output		Bearing Type	Number of Shoes	Down Thrust		Up Thrust	
HP	kW			lbs.	kN	lbs.	kN
5-30	7.5-22	A	3	3,500	15.5	300*(450)	1.3*(2.0)
40	30	B	6	5,000	22.2	300*(450)	1.3*(2.0)

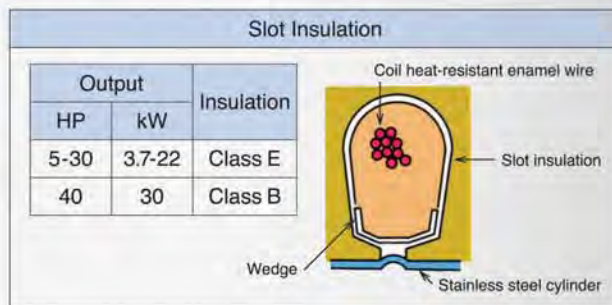
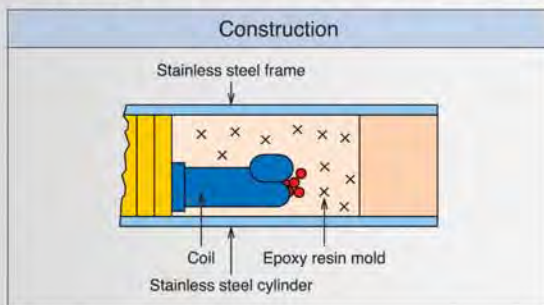
Note:  
 1. Thrust ratings showed are continuous except for values marked\*  
 2. \* Momentary rating (3 minutes MAX)

## Insulation

### Excellent Heat Resistance

Strength against thermal fluctuation and internal mechanical stress is assured by the use of a patented "Hi-canned Resin". The space between the stator, stainless steel protective cylinder and frame is filled with this epoxy resin, allowing faster and greater heat dissipation resulting in longer motor life.

### Cutaway Construction for Stator Core



## Cable Size and Type 150 inches (3.8m) Lead Wire Standard Length

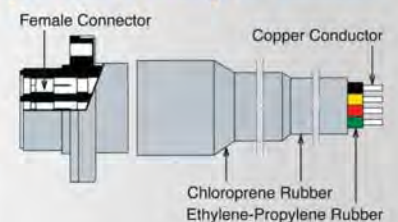
### Type of Lead Wire-600V Class

Ethylene-Propylene Rubber Insulated Chloroprene Denatured Cabtyre Cable.  
 Plug-in (Field replaceable)  
 Color coded  
 USA Standard  
 (Black, Yellow, Red, Green)



Voltage	Output		Lead Wire Size		AxB inch(mm)
	HP	kW	AWG	mm <sup>2</sup>	
460V, 415V 400V, 380V	5-40	3.7-30	#10	5.5	0.99x0.38 (25.1x9.6)
230V	5-25	3.7-18.5	#10	5.5	0.99x0.38 (25.1x9.6)
	30	22	#8	8	1.09x0.41 (27.7x10.4)

### Chloroprene Cabtyre Cable

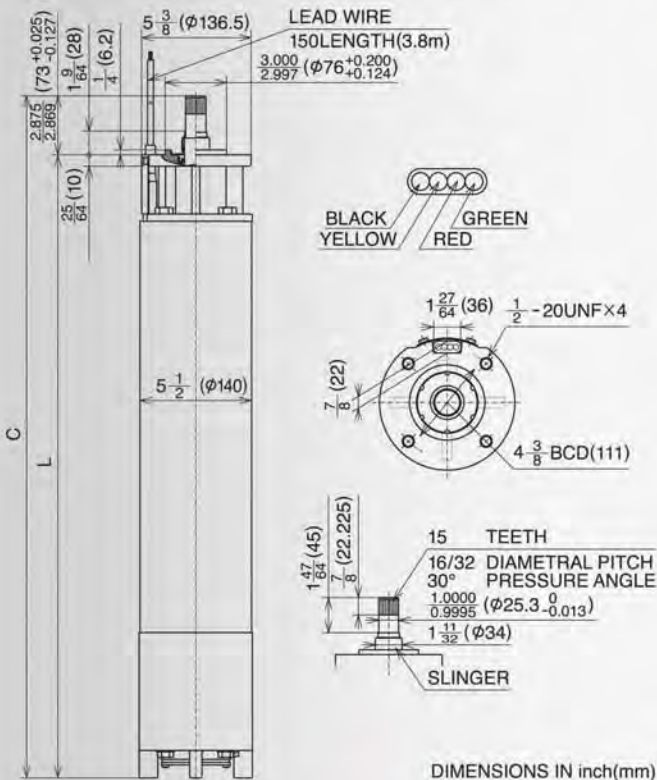




# Standard Specifications

Output	5-40HP		5-30HP
Voltage / Frequency	460V / 60Hz	380, 400, 415V / 50Hz	230V / 60Hz
Speed	3600rpm	3000rpm	3600rpm
Service Factor	1.15	1.0	1.15
Phase	3 phase		
Max Ambient Temp	95°F (35°C)		
Cable Connection	Plug-in Type		
Cable Length	150inch (3.8m)		
Shaft	6" NEMA Splined		
Flange	6" NEMA Standard		
Flow Rate	0.5ft / sec. (0.15m / sec.)		

# Dimensional Data



Output		C		L		Shipping Weight	
HP	kW	inch	mm	inch	mm	lbs.	kg.
5	3.7	25.8	656	23.0	583	95	43
7.5	5.5	27.7	703	24.8	630	99	45
10	7.5	29.8	758	27.0	685	110	50
15	11	32.8	833	29.9	760	128	58
20	15	34.4	873	31.5	800	137	62
25	18.5	39.1	993	36.2	920	161	73
30	22	41.1	1043	38.2	970	176	80
40	30	44.6	1133	41.7	1060	198	90



## Production Plant in Japan

Production plant named Narashino division has the traditional motor technologies inheriting from Hitachi, Ltd. since its establishment in 1910, and has manufactured highly reliable products as a driving force of all industries. The quality of industrial equipment that requires high reliability is supported by strict quality assurance activities, from the evaluation of raw materials to the final inspection after the production under severe conditions. The plant will continue to produce various type of products as many kind of motors, frequency inverters, fans and water pumps in the same site to fully utilize our advanced technologies for each product.

 **Hitachi Industrial Equipment Systems Co., Ltd.**

For future information, please contact your nearest sales representative.