



# Application - All Motors

## Wells-Large Diameter, Uncased, Top Feeding & Screened Sections

Franklin Electric submersible motors are designed to operate with a cooling flow of water over the motor.

If the pump installation does not provide the minimum flow shown in Table 6, a flow inducer sleeve (flow sleeve) must be used. The conditions requiring a flow sleeve are:

- Well diameter is too large to meet Table 6 flow requirements.

- Pump is in an open body of water.
- Pump is in a rock well or below the well casing.
- The well is “top-feeding”.
- Pump is set in or below screens or perforations.

## Water Temperature and Flow

Franklin Electric submersible motors are designed to operate up to full load horsepower in water up to 30°C. A flow of 7.62 cm/sec for 4” motors rated 2.2kW and higher, and 15.24 cm/sec for 6 and 8 inch motors is required for proper cooling. Table 6 shows minimum flow rates, in l/m, for various well diameters and motor sizes.

If the motor is operated in water over 30°C, water flow past the motor must be increased to maintain safe motor operating temperatures. See HOT WATER APPLICATIONS on Page 7.

**TABLE 6 Required Cooling Flow**

Minimum l/m required for motor cooling in water up to 30°C			
Casing or Sleeve I.D. (mm)	4” Motor (2.2-7.5kW) 7.62 cm/sec. l/m	6” Motor 15.24cm/sec l/m	8” Motor 15.24cm/sec l/m
102	4.5	-	-
127	26.5	-	-
152	49	34	-
178	76	95	-
203	114	170	40
254	189	340	210
305	303	530	420
356	416	760	645
406	568	1060	930

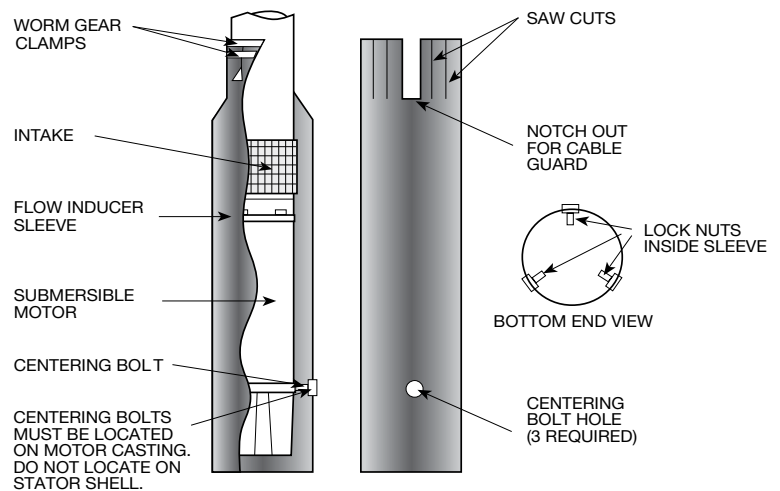
.25 ft/sec = 7.62 cm/sec  
1 inch = 2.54 cm

.50 ft/sec = 15.24 cm/sec

## Flow Inducer Sleeve

If the flow rate is less than specified or coming from above the pump, then a flow inducer sleeve must be used. A flow sleeve is always required in an open body of water. FIG 1 shows a typical flow inducer sleeve construction.

**EXAMPLE:** A six-inch motor and pump that delivers 200 l/m will be installed in a 254 mm well. From Table 6, 340 l/m would be required to maintain proper cooling. In this case adding an 203 mm or smaller flow sleeve provides the required cooling.



**FIG. 1**