



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.

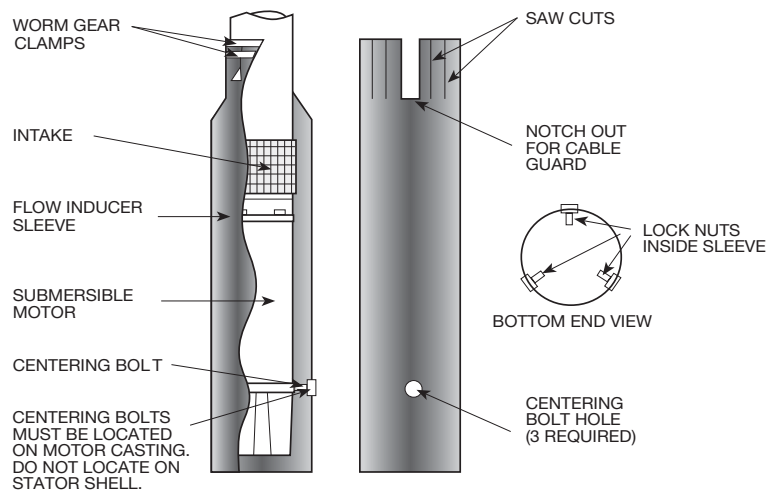


FIG. 1