

CORNELL PUMP COMPANY

# IMMERSIBLE



# IMMERSIBLE PUMPS

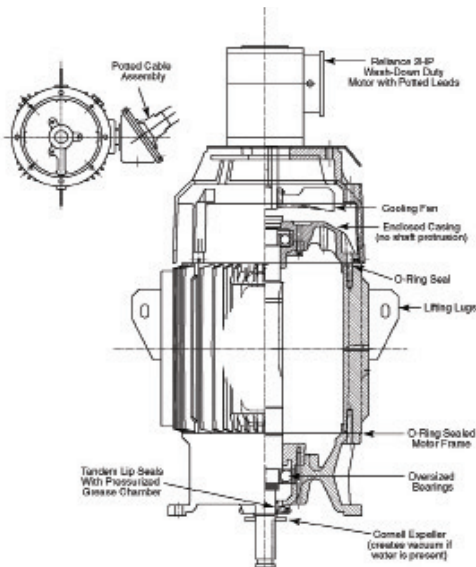
## THE IMMERSIBLE MOTOR CONCEPT:

Immersible motors are designed to be used in dry-pit applications where flooding is possible. Why take a submersible motor designed to run submerged 100% of the time and modify it to run in the air 99% (or most of the time) and submerged 1% of the time (in case of a flood)? This seems backward. The correct approach is to take a TEFC motor designed to run in the air 100% of the time and adapt it to run submerged 1% of the time (in case of a flood).

### IMMERSIBLE MOTOR BASIC DESIGN:

The basic design of the immersible pump/motor incorporates a premium efficient, inverter duty, P-Base or C-Face TEFC motor (totally enclosed, blower cooled). As the name implies, the motor is totally enclosed and cooled by a blower on top of the motor. If the motor becomes submerged, the blower motor fan shuts down without affecting the main motor. While the motor is temporarily submerged, the media cools the motor just like a true submersible. A special conduit box is used to prevent water leakage into the motor. The motor is designed to avoid water infiltration along the shaft and into the motor by utilizing a triple redundant sealing system, including a patented hydro seal design. The motor-end bell housing incorporates the 'inverted cup' principle, which traps an air bubble under the motor as the water rises, thus keeping water away from the shaft seal. The shaft is fitted with a hydro seal, which expels water and reduces the chance of water reaching the shaft seals.

The Immersible motor can withstand up to **30 feet of submergence depth for two weeks**. This exceeds the requirements of Immersible motors described in the industry standard "Index of Protection" IP67. Competitive designs allow immersion of the motor for 30 minutes at a submergence level of 3'. Hardly enough time to deal with a flooding emergency!





# IMMERSIBLE PUMP FEATURES

**Ease of maintenance:** With the immersible motor, you can remove the motor and send it to the service shop. Meanwhile, replace it with any motor brand with a P-Base flange, and you're up and running.

**Service:** Any motor shop can service the motor, while submersibles require a certified submersible motor shop.

**Lower initial cost:** Immersible motor installations do not require level controls and monitors, clean water, recirculating pump, and/or the piping required with other types of dry pit submersibles.

**Lower operating cost:** Motor efficiencies are inherently higher in T.E.B.C. motors than in traditional dry-pit submersible motors.

**No cooling jackets:** There are no jackets that might clog and need periodic maintenance and inspection.

**Seal options:** All standard pump sealing options are available.

**Bearing life:** The pump's bearing frame absorbs the hydraulic loading, which results in a longer motor running life due to lower thrust.

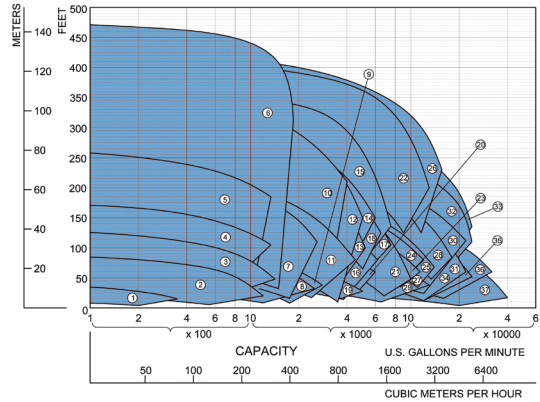
**Safety:** Using Immersibles eliminates the health and safety risk concerns (such as the possible presence of pathogens like HIV and Hepatitis B. etc., in sewage fluid) present during routine inspection and maintenance procedures. In comparison, other types require either extensive steam cleaning of the motor's outer shell if it is a wet-pit submersible or of the inside of the jacket in dry-pit submersibles, which constitutes a high-risk health hazard due to the nature of the effluents or sewage conveyed.

**Retrofit:** Easily retrofit all your existing frame-mounted installations with immersible motors without buying new pumps.

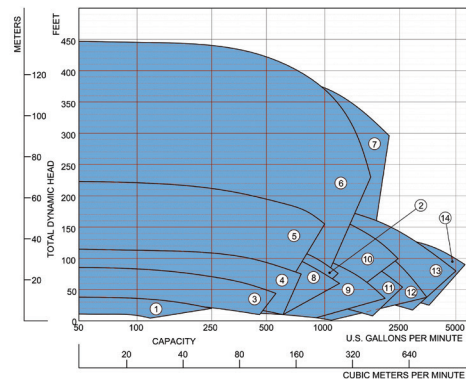
**Unique blower design:** Cornell's Immersible motors do not have the shaft protruding through the top of the motor. The shaft penetrates the bottom only and is sealed using a triple redundant sealing system.

**A new way of thinking:** Immersible motors are designed to run submerged for a limited time. Therefore, the pump station will operate as usual even in a flood situation.

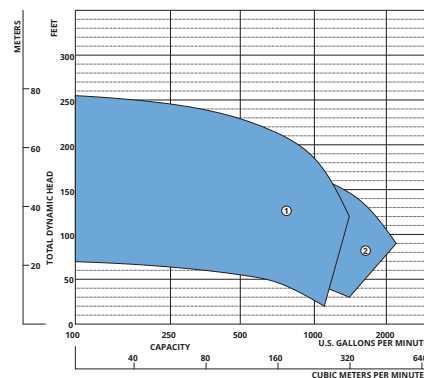
**Unique design:** Immersible designs by other manufacturers have a float switch that will shut those motors down until the flood water has been removed.



- |            |             |             |
|------------|-------------|-------------|
| 1. 3NLT    | 14. 8NHTR   | 27. 16NHGH  |
| 2. 4NNTL   | 15. 8NHGA   | 28. 16NHG22 |
| 3. 4NNT    | 16. 10NHTB  | 29. 16NHG32 |
| 4. 4NHTA   | 17. 10NHTBH | 30. 18NHG   |
| 5. 4414T   | 18. 10NHTA  | 31. 18NHFL  |
| 6. 4NHTB   | 19. 12NHTL  | 32. 18NHF34 |
| 7. 6NHTA   | 20. 12NHTM  | 33. 18NHG34 |
| 8. 6NNT    | 21. 12NNTF  | 34. 20NHFL  |
| 9. 6NHT/TH | 22. 12NHG28 | 35. 20NHF   |
| 10. 6NHTB  | 23. 14NHG   | 36. 24NNG   |
| 11. 8NNT   | 24. 14NHGA  | 37. 30NNT   |
| 12. 8NHTA  | 25. 14NHGH  |             |
| 13. 8NHHT  | 26. 14NHG28 |             |



- |          |           |            |
|----------|-----------|------------|
| 1. 3NLA  | 4. 4NHHDH | 8. 6NNDH   |
| 2. 4NLDL | 5. 4NHM   | 9. 8NNDH   |
| 3. 4NNDH | 6. 6NHHDH | 10. 10NNDH |
|          | 7. 6NHM   |            |



- |        |        |
|--------|--------|
| 1. 4NC | 2. 6NC |
|--------|--------|

# CORNELL PUMP COMPANY MARKET & PRODUCT LINE



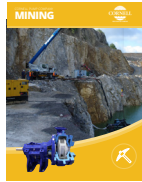
AGRICULTURE



FOOD PROCESS



INDUSTRIAL



MINING



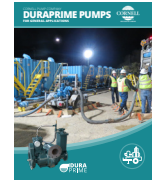
MUNICIPAL



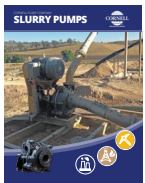
WATER TRANSFER



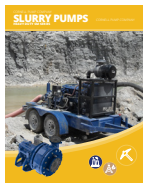
REFRIGERATION



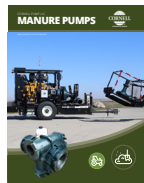
CONSTRUCTION



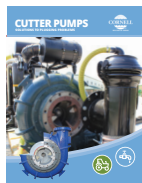
SLURRY



SLURRY SM



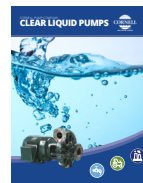
MANURE



CUTTERS



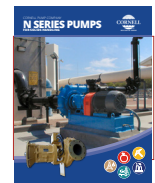
SELF PRIMING



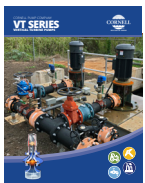
CLEAR LIQUIDS



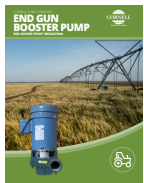
MX SERIES



N SERIES



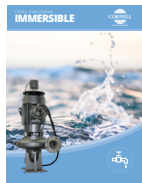
CYCLONE™



EDGE™



HYDRAULIC SUBS



IMMERSIBLE



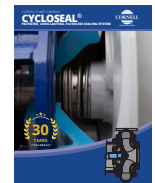
CD4MCU



RUN-DRY™



PRIMING SYSTEMS



CYCLOSEAL®

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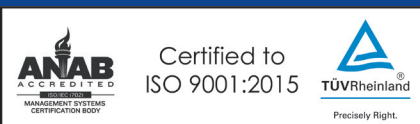
Cornell pumps and products are the subject of one or more of the following U.S. and foreign patents:

6,074,554; 6,036,434; 6,079,958; 6,309,169; 6,104,949.

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Cornell Pump Company  
Clackamas, Oregon, USA  
P: +1 (503) 653-0330  
F: +1 (503) 653-0338