

# 4RH and 4RHX

4" Non-Clog Wastewater Pumps  
Standard (4RH) and Explosion-Proof (4RHX) Construction



APPROVED  
(4RHX only)

**T**HE 4RH AND 4RHX (EXPLOSION-PROOF) SUBMERSIBLE WASTEWATER PUMPS ARE THE RIGHT CHOICE WHEN DIFFICULT TO PUMP FIBEROUS OR STRINGY SOLIDS ARE TO BE EXPECTED. The 4RH/4RHX series provides smooth, vibration-free operation when operating at heads higher than peak efficiency. For use in municipal lift stations, treatment plants and industrial waste applications. Myers offers a complete line of wastewater pumps, lift-out rail assemblies, controls and accessories to meet your needs. Call your Myers distributor, or the Myers Ohio sales office at 419-289-1144 for more details.

## ADVANTAGES BY DESIGN

**PASSES STRINGY TRASH, FIBEROUS WASTES, SLURRIES AND OTHER DIFFICULT TO PUMP SOLIDS THAT STANDARD ENCLOSED OR SEMI-OPEN IMPELLERS CANNOT.**

- Recessed impeller design has completely open passage in volute.

- Pumping action is by vortex; solids can't get caught in impeller volute.
- Operates without vibration or cavitation over entire performance curve. Operates near shut-off without harming pump.

## DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE

- Recessed impeller greatly increases bearing life by reducing radial load.
- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- Heat sensor thermostats imbedded in windings protect motor from overheat conditions.
- Seal leak probes warn of moisture entry; helps prevent costly motor burn-out.

**AVAILABLE WITH OPTIONAL FM APPROVAL FOR USE IN CLASS 1, GROUPS C AND D HAZARDOUS LOCATIONS (4RHX ONLY).**

## PRODUCT CAPABILITIES

|                                          |                                                                                         |            |
|------------------------------------------|-----------------------------------------------------------------------------------------|------------|
| Capacities To                            | 450 gpm                                                                                 | 28.4 l/s   |
| Heads To                                 | 130 ft.                                                                                 | 39.5 m     |
| Solids Handling                          | 3 in.                                                                                   | 76 mm      |
| Liquids Handling                         | raw unscreened sewage, fibrous wastewater, effluent, storm water                        |            |
| Intermittent Liquid Temp.                | up to 140°F                                                                             | up to 60°C |
| Winding Insulation Temp. (Class H)       | 356°F                                                                                   | 180°C      |
| Available Motors                         | 3450 RPM<br>7½-15 HP, 200/230/460/575V<br>3Ø, 60 Hz<br>20 HP, 230/460/575V<br>3Ø, 60 Hz |            |
| Std. Third Party Approvals               | CSA                                                                                     |            |
| Optional Approvals                       | FM, Class 1, Groups C & D (4RHX only)                                                   |            |
| Acceptable pH Range                      | 6 - 9                                                                                   |            |
| Specific Gravity                         | .9 - 1.1                                                                                |            |
| Viscosity                                | 28 - 35 SSU                                                                             |            |
| Discharge, Horizontal Flanged Centerline | 4 in.<br>125 lb. ANSI                                                                   | 101.6 mm   |

NOTE: Consult factory for applications outside of these recommendations.

| Construction Materials                                |                                                                         |
|-------------------------------------------------------|-------------------------------------------------------------------------|
| Motor Housing, Seal Housing, Cord Cap and Volute Case | cast iron, Class30<br>ASTM A48                                          |
| Recessed Impeller                                     | ductile iron, Class 65<br>ASTM A536                                     |
| Power and Control Cord                                | 25 ft. SOOW                                                             |
| Mechanical Seals<br>Standard<br>Optional              | double tandem, type 21<br>carbon and ceramic<br>lower tungsten, carbide |
| Pump, Motor Shaft                                     | 416 SST                                                                 |
| Fasteners                                             | 300 Series SST                                                          |

WHERE INNOVATION MEETS TRADITION

**Myers**<sup>®</sup>

Pentair Water

**POWER & CONTROL CORDS**

SOOW, UL and CSA approved oil-resistant cable.

**CABLE ENTRY SYSTEM**

Provides double seal protection. Cable jacket sealed by compression grommet. Individual wires sealed by epoxy potting.

**HEAT SENSOR**

Protects motor from burn-out due to excessive heat from any overload condition. Automatically resets when motor has cooled.

**MOTOR STATOR**

Heat shrunk into housing for perfect alignment and best heat transfer. Oil-filled motor conducts heat and lubricates bearings.

**BALL BEARINGS**

Upper and lower ball bearings support shaft and rotor and take axial and radial loads.

**HEAVY 416 SST SHAFT**

Corrosion resistant.

**SHAFT SEALS**

Double tandem mechanical shaft seals protect motor. Oil-filled seal chamber provides continuous lubrications.

**SEAL LEAK PROBES**

Detect water in seal housing. Activates warning light in control panel.

**SLEEVE BEARING**

Takes radial shock load; provides flame path.

**VOLUTE CASE**

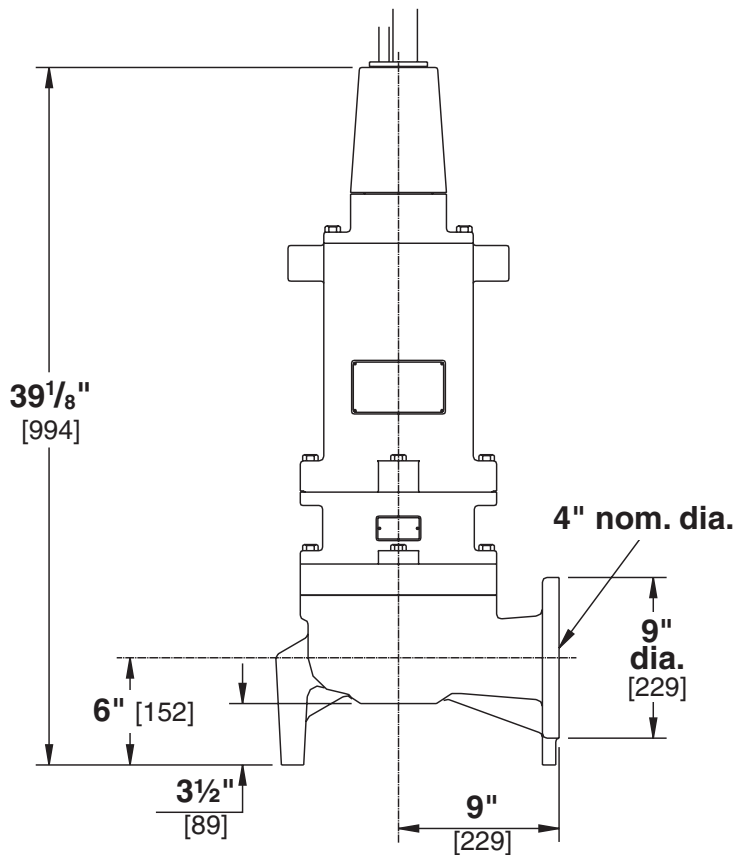
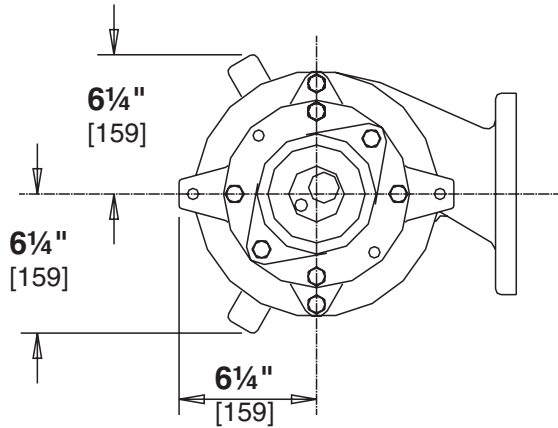
Handles 3" solids. Completely open from inlet to discharge. 4" ANSI 125 lb. flange.

**RECESSED IMPELLER**

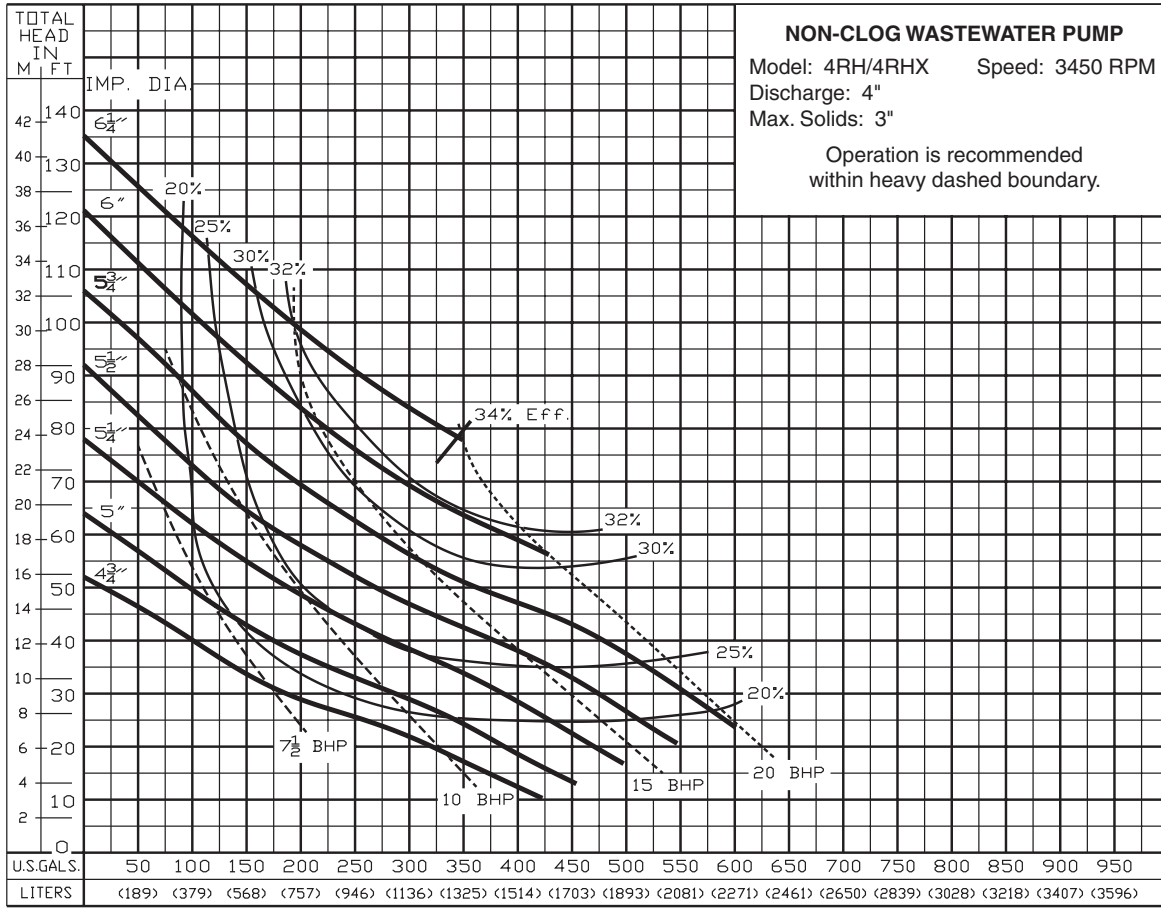
Handles stringy trash and slurries without clogging or binding. Pump-out vanes help keep trash from seal; reduces pressure at seal faces.

**DIMENSIONS**

[ ] dimensions in mm



# Pump Performance



Pump performance is based on clear water (1.0 specific gravity @ 68°F) and pump fluid end (hydraulic) efficiency. Motor data based on 40°C ambient temperature.

| Available Models |                 | Motor Electrical Data |       |       |    |            |          |                     |        |                   |           |         |                 |                |
|------------------|-----------------|-----------------------|-------|-------|----|------------|----------|---------------------|--------|-------------------|-----------|---------|-----------------|----------------|
| Standard         | Explosion-Proof | HP                    | Volts | Phase | Hz | Start Amps | Run Amps | Service Factor Amps | Run KW | Service Factor KW | Start KVA | Run KVA | NEC Code Letter | Service Factor |
| 4RH75M2-03       | 4RHX75M2-03     | 7.5                   | 200   | 3     | 60 | 128.6      | 27.0     | 30.5                | 8.1    | 9.5               | 44.5      | 6.3     | G               | 1.2            |
| 4RH75M2-23       | 4RHX75M2-23     | 7.5                   | 230   | 3     | 60 | 111.8      | 23.5     | 26.5                | 8.1    | 9.5               | 44.5      | 6.3     | G               | 1.2            |
| 4RH75M2-43       | 4RHX75M2-43     | 7.5                   | 460   | 3     | 60 | 55.9       | 11.8     | 13.3                | 8.1    | 9.5               | 44.5      | 6.4     | G               | 1.2            |
| 4RH75M2-53       | 4RHX75M2-53     | 7.5                   | 575   | 3     | 60 | 44.7       | 9.4      | 10.6                | 8.1    | 9.5               | 44.5      | 6.3     | G               | 1.2            |
| 4RH100M2-03      | 4RHX100M2-03    | 10                    | 200   | 3     | 60 | 192.7      | 33.9     | 39.7                | 10.2   | 11.9              | 66.8      | 7.9     | H               | 1.2            |
| 4RH100M2-23      | 4RHX100M2-23    | 10                    | 230   | 3     | 60 | 167.6      | 29.5     | 34.5                | 10.2   | 11.9              | 66.8      | 7.9     | H               | 1.2            |
| 4RH100M2-43      | 4RHX100M2-43    | 10                    | 460   | 3     | 60 | 83.8       | 14.8     | 17.3                | 10.2   | 11.9              | 66.8      | 8.0     | H               | 1.2            |
| 4RH100M2-53      | 4RHX100M2-53    | 10                    | 575   | 3     | 60 | 67.0       | 11.8     | 13.8                | 10.2   | 11.9              | 66.8      | 7.9     | H               | 1.2            |
| 4RH150M2-03      | 4RHX150M2-03    | 15                    | 200   | 3     | 60 | 256.2      | 50.4     | 60.3                | 14.7   | 17.6              | 88.7      | 11.8    | G               | 1.2            |
| 4RH150M2-23      | 4RHX150M2-23    | 15                    | 230   | 3     | 60 | 222.8      | 43.8     | 52.4                | 14.7   | 17.6              | 88.8      | 11.8    | G               | 1.2            |
| 4RH150M2-43      | 4RHX150M2-43    | 15                    | 460   | 3     | 60 | 111.4      | 21.9     | 26.2                | 14.7   | 17.6              | 88.8      | 11.8    | G               | 1.2            |
| 4RH150M2-53      | 4RHX150M2-53    | 15                    | 575   | 3     | 60 | 89.1       | 17.5     | 21.0                | 14.7   | 17.6              | 88.7      | 11.8    | G               | 1.2            |
| 4RH200M2-23      | 4RHX200M2-23    | 20                    | 230   | 3     | 60 | 222.8      | 59.5     | 59.5                | 19.7   | 19.7              | 88.8      | 16.0    | D               | 1.0            |
| 4RH200M2-43      | 4RHX200M2-43    | 20                    | 460   | 3     | 60 | 111.4      | 29.8     | 29.8                | 19.7   | 19.7              | 88.8      | 16.0    | D               | 1.0            |
| 4RH200M2-53      | 4RHX200M2-53    | 20                    | 575   | 3     | 60 | 89.1       | 23.8     | 23.8                | 19.7   | 19.7              | 88.7      | 16.0    | D               | 1.0            |

| Motor Efficiencies and Power Factor |       |                     |           |          |          |                     |           |          |          |
|-------------------------------------|-------|---------------------|-----------|----------|----------|---------------------|-----------|----------|----------|
| HP                                  | Phase | Motor Efficiency %  |           |          |          | Power Factor %      |           |          |          |
|                                     |       | Service Factor Load | 100% Load | 75% Load | 50% Load | Service Factor Load | 100% Load | 75% Load | 50% Load |
| 7.5                                 | 3     | 70.8                | 69.5      | 65.2     | 58.8     | 89                  | 89        | 87       | 83       |
| 10                                  | 3     | 74.9                | 73.6      | 71.7     | 64.9     | 87                  | 85        | 82       | 76       |
| 15                                  | 3     | 75.9                | 75.8      | 73.9     | 69.0     | 85                  | 83        | 78       | 70       |
| 20                                  | 3     | 75.4                | 75.4      | 75.8     | 72.9     | 85                  | 85        | 83       | 76       |

# 4RH and 4RHX

## SPECIFICATIONS

**PUMP MODEL** – Pump shall be Myers Model Number 4RH/4RHX Non-Clog Submersible Pump with recessed type impeller. All openings in pump shall be large enough to pass a 3" diameter sphere. Discharge flange shall be four (4) inch standard. The pump and motor assembly shall be FM listed for Class 1, Groups C and D explosion-proof service.

**OPERATING CONDITIONS** – Pump shall have a capacity of \_\_\_\_\_ GPM at a total head of \_\_\_\_\_ feet and shall use a \_\_\_\_\_ HP motor operating at 3450 RPM.

**MOTOR** – Pump motor shall be of the sealed submersible type rated \_\_\_\_\_ HP at 3450 RPM, 60 Hertz. Motor shall be for three phase 200 volts \_\_\_\_\_, 230 volts \_\_\_\_\_, 460 volts \_\_\_\_\_ or 575 volts \_\_\_\_\_. Motor shall be NEMA B type.

Stator winding shall be of the open type with Class H insulation good for 180°C (356°F) maximum operating temperature. Winding housing shall be filled with a clean high dielectric oil that lubricates bearings and seals and transfers heat from windings and rotor to outer shell. Air-filled motors that do not have the superior heat dissipating capabilities of oil-filled motors shall not be considered equal.

Motor shall have two heavy duty ball bearings to support pump shaft and take radial and thrust loads and a sleeve guide bushing directly above the lower seal to take radial load and act as flame path for seal chamber. Ball bearings shall be designed for 50,000 hours B-10 life. Stator shall be heat shrunk into motor housing.

A heat sensor thermostat shall be attached to and imbedded in the winding and be connected in series with the motor starter contactor coil to stop motor if temperature of winding is more than 150°C (302°F) 4RH and 120°C (248°F) 4RHX. Thermostat to reset automatically when motor cools to safe operating temperature. Three heat sensors to be used on 3 phase motors. The common pump motor shaft shall be of 416 stainless steel.

**SEALS** – Motor shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell.

Seal face shall be carbon and ceramic and lapped to a flatness of one light band. Lower seal faces shall be \_\_\_\_\_ carbide (optional).

A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. This signal shall not stop the motor but shall act as a warning only, indicating service is required.

**IMPELLER** – The impeller shall be ductile iron and of the recessed type. Pump-out vanes shall be used on back shroud. Impeller shall be dynamically balanced. Impeller shall be driven by stainless steel key and impeller held in position with lock screw and washer.

Impeller and motor shall have top lift-out of case so that the assembly can be removed without disturbing any piping.

**PUMP CASE** – The volute case shall be of cast iron and have a flanged center line discharge. Discharge flange shall be 4" standard with bolt holes straddling center line.

**PUMP AND MOTOR CASTINGS** – All castings shall be of high tensile cast iron and shall be treated with phosphate and chromate rinse.

**BEARING END CAP** – Upper motor bearing cap shall be a separate casting for easy mounting and replacement.

**POWER CABLES** – Power cord and control cord shall be double sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal bushing to seal outer jacket against leakage and to provide for strain pull. Cords shall withstand a pull of 300 pounds to meet FM requirements.

Insulation of power and control cords shall be type SOOW. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame.