# DATA SHEET

## Dura**Quench™ PUMP SKID**

### DESCRIPTION

The DuraQuench pump skid unit is the self-contained control center for the water mist system. The compact skid unit is designed to meet the requirements of NFPA 750, *Standard on Water Mist Fire Protection Systems* and NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*.

The skid unit is factory assembled, including wiring and piping, and is functionally tested prior to shipment from the factory to reduce time and labor required for field installation of the skid.

The primary components of the pump skid unit include a fire pump controller coupled to an electric motor and centrifugal pump. Pumps and controllers require three-phase, 50 Hz or 60 Hz power, and are available in all common voltage.

For wet pipe system arrangements, a jockey pump kit is available. The kit includes a factory-installed and tested jockey pump and remote-mounted jockey pump controller. See Optional Pressure Maintenance Pump.

### APPROVALS

FM APPROVED

The Fike DuraQuench system is FM Approved for deluge and wet pipe system arrangements. All system components, including commercial off-the-shelf industry accepted components shall meet the requirements of NFPA 750 and NFPA 20.

### OPERATION

The DuraQuench pump controller provides a means to start the fire pump automatically or manually. Automatic start is activated either by the activation of a fire detection system (deluge system), the flow of water through the system piping, or a drop in system pressure (wet pipe system). Manual start can be initiated from a manual release switch associated with the fire detection system. Once active, the fire pump will run continuously until stopped manually by pressing the “stop” button on the fire pump controller.

### PLANNING

The following considerations and preparations must be made prior to the installation and use of the DuraQuench pump skid unit:

- A suitable fire pump room shall be constructed in accordance with NFPA 20 to house the pump skid unit. The location of an access to the fire pump room shall be preplanned with the fire department and/or local authority having jurisdiction. Planning shall include considerations for equipment access, heating (minimum ambient temperature of 40°F/4°C), lighting, emergency lighting and ventilation.
- Power feed circuit(s) and final hookup to the pump controller(s).
- Installation of FM Approved detection and releasing panel (when required).
- Power feed circuit(s) to the releasing panel.
- Installation of pump test header.
- Installation of pump Fire Department Connection (when required).
- Installation of a suitably sized water supply to the pump skid.



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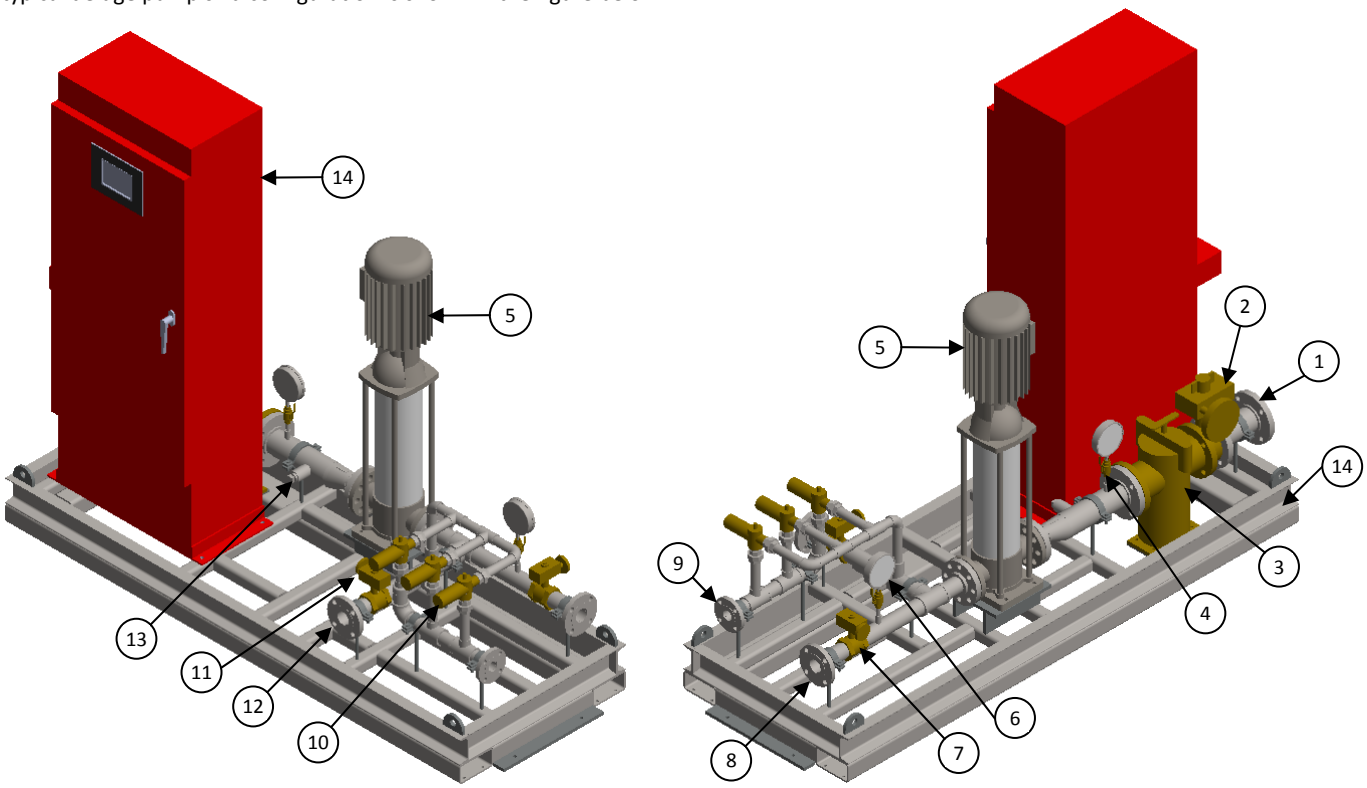
## SYSTEM COMPONENTS

The DuraQuench pump skid unit is available in multiple configurations, including alternate pump capacities and electrical configurations (i.e., alternate controller and pump voltages and frequencies) to suit specific project requirements.

A typical deluge pump skid configuration is shown in the figure below.




**Typical DuraQuench Pump Skid Configuration without Jockey Pump**

1. **Supply Pipe Connection** – Pipe flange allows easy connection of water supply piping to pump skid. See System Piping Connections for flange size.
2. **Suction Isolation Valve** – Allows the water supply to the system to be turned off for service or maintenance of the pump skid unit. Valve shall be monitored by the releasing control panel and shall provide an alarm signal when the valve is not in the fully open position.
3. **Suction Basket Strainer** – Prevents debris from entering the pump impeller. Strainer basket can be easily removed for cleaning.
4. **Suction Pressure Gauge** – Indicates pressure of the water supply feeding the pump inlet.
5. **Pump and Motor** – Centrifugal pump available in three different flow/pressure capacities. When activated, the pump boosts both the flow and pressure of the supplied water source to the level required by the nozzles to generate the fine water spray.
6. **Discharge Pressure Gauge** – Indicates pressure of the water supply being generated by the pump at its outlet.
7. **Discharge Isolation Valve** – Allows the water supply to the system piping network to be turned off for service or maintenance of the pump skid unit. Valve is monitored by the releasing control panel and provides an alarm signal when the valve is not in the fully open position.
8. **Discharge Pipe Connection** – Pipe flange allows easy connection of system distribution piping. See System Piping Connections for flange size.
9. **Pressure Relief Drain Pipe Connection** – Pipe flange allows easy connection of pressure relief drain piping to the pump skid. See System Piping Connections for flange size.
10. **Pressure Relief Valve** – Prevents an excessive increase in pressure and temperature in the system by providing pressure relief. Excessive pressure is discharged through a dedicated drain pipe connection. Number of pressure relief valves varies with pump capacity.
11. **Test Header Isolation Valve** – Allows the water supply from the fire pump to be routed to a connected test header for the purpose of measuring the system flow rate during acceptance testing and during annual testing.
12. **Test Header Pipe Connection** – Pipe flange allows easy connection of test header piping to the pump skid. See System Piping Connections for flange sizes.
13. **Jockey Pump Connection** – Plugged outlet provides a connection point for an optional jockey pump to be added to the pump skid.

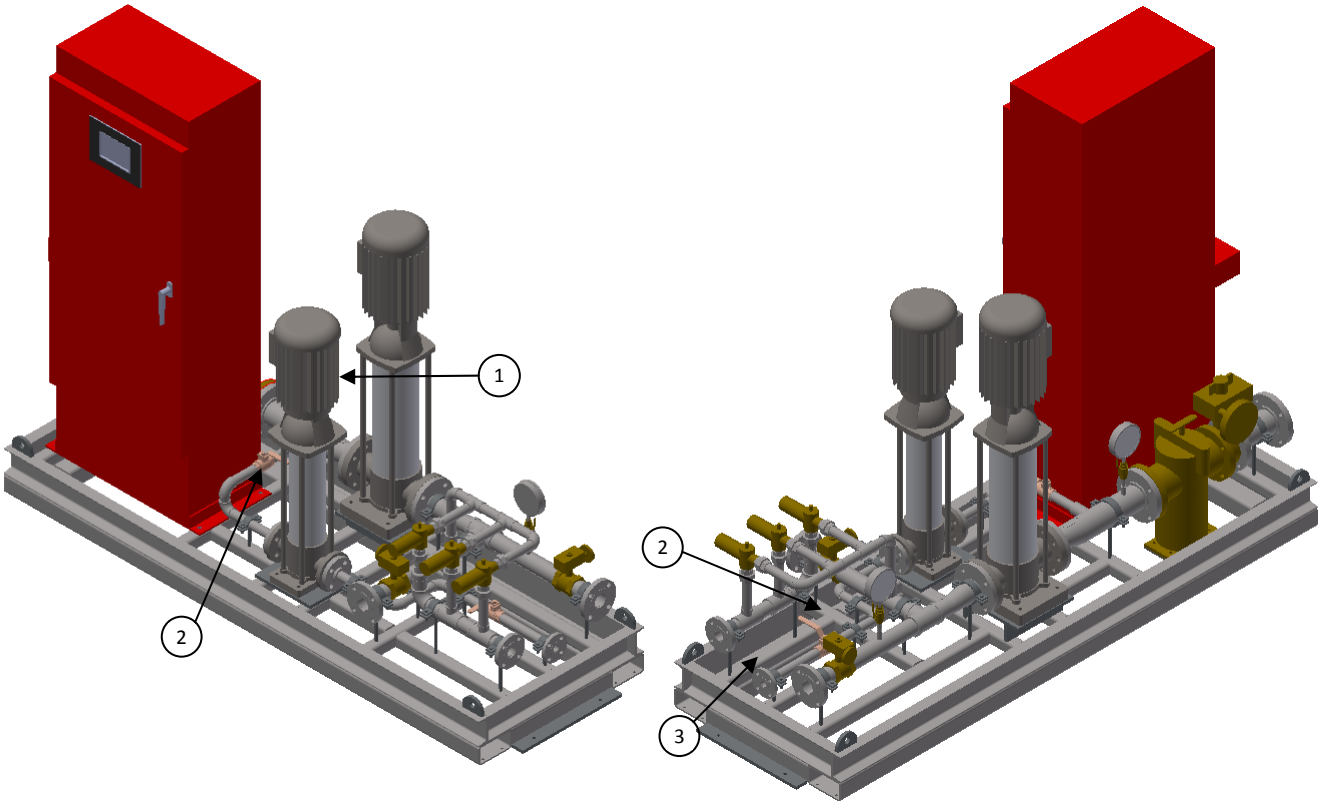
14. **Pump Controller** – Provides a means to start the fire pump automatically or manually in response to a fire event. Provides remote alarm connections for fire pump monitoring (i.e., pump running, AC power failure, phase reversal, etc.). Controller can be activated via a normally closed remote contact from a releasing control panel (deluge system) or via a pressure sensing line connection (wet pipe system).

## OPTIONAL PRESSURE MAINTENANCE PUMP*

The DuraQuench pump skid provides mounting and connection points for a pressure maintenance (jockey or make-up) pump (P/N 02-15270), which is commonly used in wet system applications. A pressure maintenance pump is not required by code, but may be required by the local authority having jurisdiction. The general purpose of the jockey pump is to maintain a uniform or relatively high pressure on the distribution piping system to help prevent fire pump activation due to water surges or leaks in the pipe network and to lower the initial high pressure surge in the pipe network caused by activation of the fire pump.

The pressure maintenance pump kit consists of a centrifugal pump, a motor, pump controller, and miscellaneous check and isolation valves. If initially ordered as part of the pump skid, the kit components will be added to the pump skid prior to shipment from the factory or they can be ordered separately and field installed onto the pump skid for retrofit applications. Almost all of the jockey pump components, except the pump controller, will mount directly onto the pump skid.

***NOTE:** DuraQuench systems configured with a pressure maintenance pump are not within the scope of the FM approval.




**Typical DuraQuench Pump Skid Configuration with Jockey Pump**

1. **Jockey Pump and Motor** – Used only on wet pipe systems were required by code to maintain the pressure in the piping network to avoid non-emergency starting of the main fire pump. Pump is activated by its pump controller (not shown) via a pressure sensing line connection (Item 4).
2. **Isolation Valves** – Allows the jockey pump to be isolated for service or maintenance. Valves are not required to be monitored but shall be secured and locked in the fully open position during normal system operation.
3. **Jockey Pump Pressure Sensing Line Pipe Connection** – Pipe flange allows easy connection of pressure sensing line piping for the jockey pump. See System Piping Connections for flange size.
4. **Jockey Pump Controller (not shown)** – Provides a means to start and stop the jockey pump automatically in response to a drop in pressure in the system piping. Jockey pump controller shall be located as close as practical to the pump skid.

## SYSTEM PIPING CONNECTIONS

The DuraQuench pump skid is equipped with the following flanged pipe connections: water supply inlet; system supply outlet; over pressure relief outlet; test header outlet, and optional jockey pump outlet. The size of each outlet is shown in the table below for reference purposes. Piping connections must be made in accordance with NFPA 750, NFPA 20, and other installation codes acceptable to the authority having jurisdiction.

| FIKE Part Number | Pump Description | Shipping Weight | Pump Skid Flange Connection Sizes | | | | |
|---|---|---|---|---|---|---|---|
| | | | Inlet | Outlet | Over Pressure | Test | Jockey Pump |
| 02-14909-1-1 | 53 gpm (200 lpm) | 1,205 lbs. (546 kg) | 2” | 2” | 1” | 2” | 1” |
| 02-14909-2-1 | 53 gpm (200 lpm) HP | 1,289 lbs. (585 kg) | 2” | 2” | 1” | 2” | 1” |
| 02-14909-3-1 | 111 gpm (420 lpm) | 1,643 lbs. (745 kg) | 3” | 2” | 1 1/2” | 2” | 1” |
| 02-14909-2-2 | 75 gpm (284 lpm) | 1,619 lbs. (734 kg) | 3” | 2” | 1” | 2” | 1” |
| 02-14909-3-2 | 133 gpm (503 lpm) | 1,768 lbs. (802 kg) | 3” | 2” | 1 1/2” | 2” | 1” |

## PUMP SKID ORDERING FORMAT

**P/N 02-14909-X-X-X**

Pump Skid Base P/N
Includes electric pump controller rated for 25 horsepower pump.

Pump Capacity
1 = 53 gpm (200 lpm)
2 = 53 gpm (200 lpm), High Pressure
3 = 111 gpm (420 lpm)
4 = 75 gpm (284 lpm)
5 = 133 gpm (503 lpm)

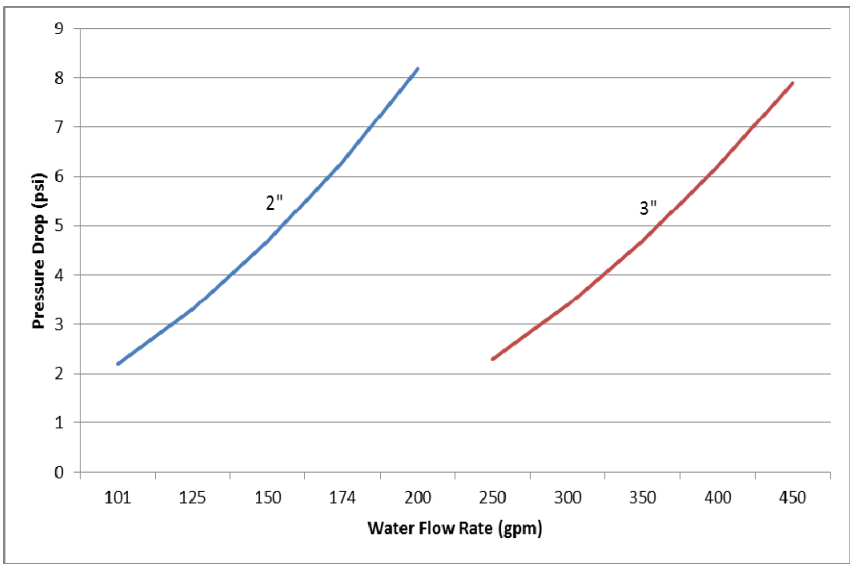
Controller Voltage

| | |
|---|---|
| 1 = 200 | 6 = 380 |
| 2 = 208 | 7 = 400 |
| 3 = 220 | 8 = 415 |
| 4 = 230 | 9 = 460 |
| 5 = 240 | 10 = 575 |

Controller Frequency
1 = 60 Hz
2 = 50 Hz*

**Example:** 02-14909-3-1-4 is a 111 gpm (420 lpm) DuraQuench pump skid with a 60 Hz, 230 volt pump controller.

## NOMINAL PRESSURE LOSS VS. FLOW FOR SYSTEM BASKET STRAINER



**MOTOR AND PUMP SPECIFICATIONS**

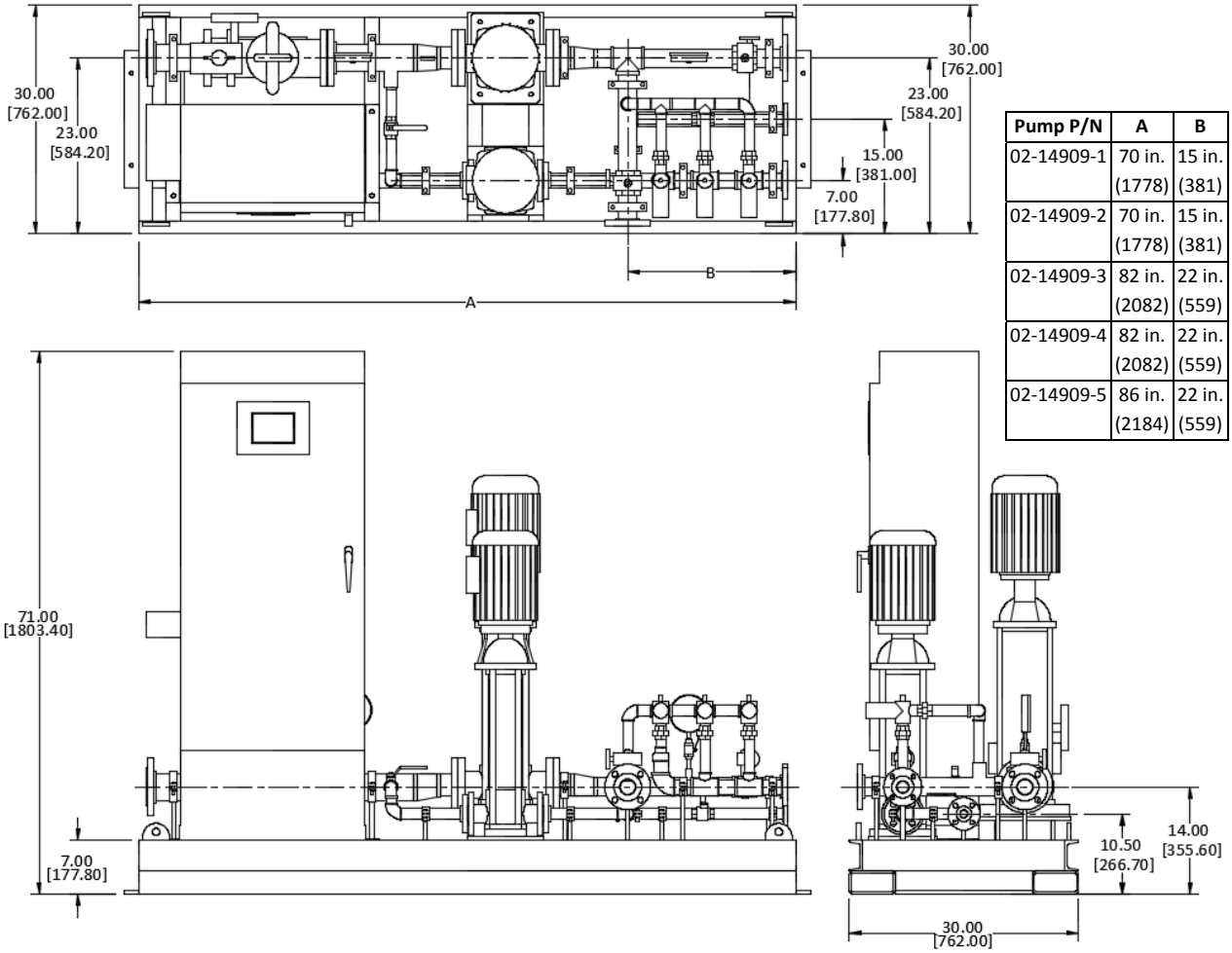
| | Primary Pumps | | | | | Jockey Pump |
|---|---|---|---|---|---|---|
| Pump Size | P/N 02-14909-1 | P/N 02-14909-2 | P/N 02-14909-3 | P/N 02-14909-4 | P/N 02-14909-5 | P/N 02-15270 |
| Pump Speed | 3,470 rpm | 3,470 rpm | 3,521 rpm | 2,924 rpm | 2,934 rpm | 3,450 rpm |
| Rated Flow (duty point) | 53 gpm (200 lpm) | 53 gpm (200 lpm) | 111 gpm (420 lpm) | 75 gpm (284 lpm) | 133 gpm (503 lpm) | 4.4 gpm (16.7 lpm) |
| Rated Head | 447 ft. (136 m) | 513 ft. (156 m) | 561 ft. (171 m) | 444.9 ft.(136 m) | 500 ft. (152 m) | 336 ft. (102 m) |
| Shaft Seal | HQQE | HQQE | HQQE | HQQV | HQQV | HQQE |
| Pump Housing | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Cast Iron |
| Impeller | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| Maximum Ambient Temperature | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 140°F (60°C) | 104°F (40°C) |
| Maximum Pressure at Stated Temp | 363 psi / 248°F (25 bar / 120°C) | 363 psi / 248°F (25 bar / 120°C) | 362 psi / 248°F (25 bar / 120°C) | 363 psi / 194°F (25 bar / 90°C) | 435 psi / 194°F (30 bar / 90°C) | 363 psi / 250°F (25 bar / 121°C) |
| Motor Type | BALDOR | BALDOR | BALDOR | BALDOR | BALDOR | BALDOR |
| Motor Locked-Rotor Code (KVA/HP)* | K (8.0-8.99) | G (5.6-6.29) | J (7.1-7.99) | H (6.3-7.09) | H (6.3-7.09) | |
| Rated Power – P2 | 7.5 kW (10 HP) | 11 kW (15 HP) | 19 kW (25 HP) | 11 kW (15 HP) | 19 kW (25 HP) | 1.12 kW (1.5 HP) |
| Main Frequency | 60 Hz | 60 Hz | 60 Hz | 50 Hz | 50 Hz | 50/60 Hz |
| Rated Voltage | 3 x 208-230 YY/ 460 Y V | 3 x 208-230/ 460 V | 3 x 230/460 V | 3 x 220-240 D/ 380-415 Y V | 3 x 220-240 D/ 380-415 Y V | 1 x 115/ 208-230 V |
| Rated Current | 26.5-24.6/ 12.4 A | 37.5-34/17 A | 56/28 A | 36-34.5/ 20.8-19.8 A | 59.5-56.5/ 34.5-32.5 A | 17/9.5-8.6 A |

*The motor's inrush current, also known as locked-rotor amps or LRA, can be calculated by inserting the KVA/HP value into the following formula:
LRA = KVA/HP x Motor HP x 1000 / 1.732 x Motor Voltage

**PUMP CONTROLLER SPECIFICATIONS**

| | Primary Pump Controller | Jockey Pump Controller |
|---|---|---|
| Approvals | ANSI/UL 218 and FM 1321/1323 | |
| NFPA Standards | Complies with NFPA 20, IEC62091 | |
| Voltage Rating | See Pump Skid Ordering Format (-15% and +10%) | |
| Short Circuit Current Rating | 100,000 symmetrical RMS amps at 200 VAC to 480 VAC | |
| Horsepower Rating | Specific name plated motor horsepower rating | Specific name plated motor horsepower rating |
| Motor Service Factor | 1.15 maximum | 1.15 maximum |
| Remote Contacts | Voltage free contacts rated for 2 amps (resistive) at 30 VDC, or 1 amp (resistive) at 125 VAC | |
| Pressure Rating | 300 PSI (20.7 bar) standard | 300 PSI (20.7 bar) standard |
| Pressure Sensing Line | ½" nominal, brass | ¼"-18 NPT, brass |
| Enclosure | NEMA Type 2 with drip lip | NEMA Type 2 with drip lip |
| Ambient Operating Temperature | 122° F (50° C) provided input and output cable has a temperature rating of 221°F (105°C)<br>104° F (40° C) provided input and output cable has a temperature rating of 194°F (90°C)<br>*No direct sunlight allowed on the enclosure.* | |
| Electromagnetic Compatibility | Tested to comply with EN 61000-6-2 for immunity and EN 6100-6-4 for emissions | |

## PUMP SKID DIMENSIONAL INFORMATION



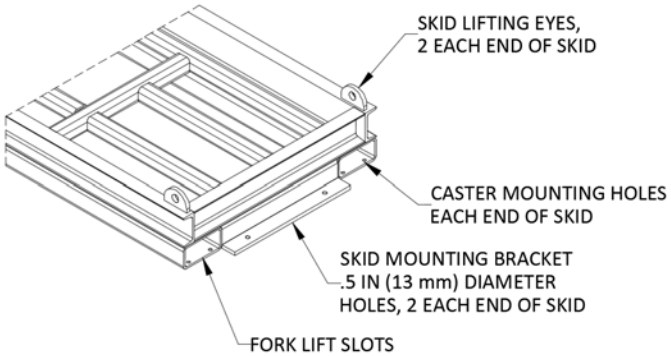

| Pump P/N | A | B |
|---|---|---|
| 02-14909-1 | 70 in. (1778) | 15 in. (381) |
| 02-14909-2 | 70 in. (1778) | 15 in. (381) |
| 02-14909-3 | 82 in. (2082) | 22 in. (559) |
| 02-14909-4 | 82 in. (2082) | 22 in. (559) |
| 02-14909-5 | 86 in. (2184) | 22 in. (559) |

**DuraQuench Pump Skid Dimensions**

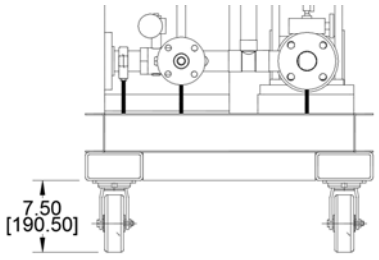
## PUMP SKID LIFTING AND MOUNTING

The DuraQuench pump skid is constructed with following features that enable the pump skid to be easily maneuvered to its final installation location and secured in place:

1) The skid is equipped with fork lift slots at each end of the skid to allow it to be easily lifted using a standard forklift with adjustable forks.
2) Two lifting eyes are provided at each end of the skid to allow it to be lifted using lifting devices such as a crane or hoist.
3) Optional rolling casters (P/N 02-15334) can be ordered and mounted to the skid in the field to allow the unit to be rolled into its mounting location.
4) A skid mounting bracket with two through holes is provided at each end of the skid for securing the skid to the mounting surface.




**DuraQuench Pump Skid Lifting and Mounting Points**




**End View of Pump Skid with Casters Installed**



**Form No. W.1.08.01**, July, 2015. Specifications are subject changes without notice.