

Trusted. Tested. Tough.®



FM3572
0626
Supersees
0326

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
Tel: (502) 778-2731 • 1 (800) 928-PUMP

Visit our website:
zoellerpumps.com

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



MODEL 940 HYDRAULIC ELEVATOR SYSTEM SPECIFICATION



1.00 GENERAL:

Provide a complete elevator sump pump system designed to remove water while preventing oil discharge, in compliance with ASME A17.1 and local elevator codes.

Contractor shall furnish all labor, material, equipment and incidentals required to provide ____ (QTY.) 940-____ Oil Guard® elevator pump system including submersible centrifugal pump and controls as specified herein.

The Zoeller Model 940 Oil Guard® System shall include:

1. Submersible pump (cast iron construction)
2. Oil Smart® pump switch
3. Oil Smart® alarm panel with visual and audible indicators

2.00 PUMPS:

2.01 OPERATING CONDITIONS

Each submersible pump shall be rated at ____ H.P., ____ volts, ____ phase, 60 HZ., 3450 R.P.M. The unit shall produce ____ Gallons Per Minute (GPM) at ____' of Total Dynamic Head (TDH).

The submersible pump shall be non-overloading throughout the length of the curve and be capable of operating not submerged without damaging the pump. The reserve service factor shall be a minimum of 1.0. The submitted performance curve shall show the flow and head capacity of the pump.

The pump housing configuration shall have a

- ____ 1.5" N.P.T. vertical discharge (models 152, 153, or 161).
- ____ Optional bolt on discharge flange for model 161: ____ 2" (10-1305) or ____ 3" (10-1306)
- ____ 2.0" N.P.T. vertical discharge (models 284, 292, or 294).
- ____ Optional bolt on discharge flange for models 284, 292 or 294: ____ 3" (10-1306)

2.02 CONSTRUCTION

Each pump shall be of the close coupled cCSAus listed model submersible pump as manufactured by Zoeller Pump Company of Louisville, Ky. (800-928-7867). The castings shall be constructed of epoxy coated cast iron. The motor housing shall be oil-filled to dissipate heat. All external-mating parts shall be machined and sealed with a Neoprene square ring. All fasteners exposed to the liquid shall be 300 series stainless steel. The motor shall be protected on the lower side with a tandem mechanical seal arrangement being separated by a spring assembly. The upper and lower ball bearings shall be capable of handling all thrust loads. The pump housing shall be of the concentric design thereby equalizing the pressure forces inside the housing which will extend the service life of the seals and bearings. The top cap shall have a stainless steel lifting handle. The pump shall have support legs enabling it to be a freestanding unit. The castings shall be protected with a green powder-coated finish.

2.03 ELECTRICAL POWER CORD

The pump shall be supplied with ____ 6' / ____ 25' multiconductor power cord. It shall be SJOOW type cord capable of continued exposure to the pumped liquid. Power cord shall be sized for the rated full load amp loading of the pump in accordance with the National Electric Code. Power cable shall enter into the cap through a compression type-sealing gland. Water sealing and strain relief are separated. The entire cap shall be sealed off from the motor housing by thru wall terminals to protect the motor from moisture.

2.04 MOTOR

The motor shall be an oil filled NEMA B design. At maximum load, the winding temperature will stabilize below the insulation class. Since air-filled motors are not capable of dissipating heat, they shall not be considered equal. Single-phase motors shall include an integral thermal overload switch and the capacitor circuit shall be located in the pump assembly. Three phase motors shall use magnetic starters with overload relays in the control panel for further protection.

2.05 BEARINGS AND SHAFT

The upper and lower ball bearing are continually lubricated by the oil which fills the motor housing. The motor shaft shall be made of ____ AISI 1215 steel (152, 153) or ____ 416 stainless steel (161, 284, 292, 294).

2.06 SEALS

Pump shall have a single carbon / ceramic seal configuration that is constructed with buna-n elastomers and a 316 SS spring. It shall be equal to a Crane Type 6a configuration.

2.07 IMPELLER

The impeller shall be of a fully balanced ____ Thermoplastic (152, 153) or ____ cast iron (161, 284, 292, 294) vortex design. It shall have pump out vanes located on the back shroud to keep debris away from the seal area. Attempts to improve efficiency by coating impeller shall not be acceptable.

2.08 SERVICEABILITY

Components required for the repair of the pump shall be readily available within 24 hours. Components such as mechanical seals and bearings shall not be of a proprietary design and be available from local industrial supply houses. Special tools shall not be required to service the pump. A network of service stations shall be available nationwide in those cases where service requirements are beyond the scope of in-house service mechanics.

2.09 TESTING

Each pump shall run in liquid before being shipped. It shall be checked at its maximum running point for performance, amps, grounding, winding insulation, and water tightness.

3.00 OIL GUARD® CONTROLS:

3.10 115V 1PHASE OIL GUARD ALARM AND OIL GUARD PUMP SWITCH

3.11 GENERAL

These specifications describe the Oil Guard Alarm Panel and Oil Guard Pump Switch. The contractor shall furnish and install the Oil Guard as specified herein.

The Oil Guard Pump Switch and Oil Guard Alarm System shall each plug into a Single Phase, 60Hz. 120VAC common receptacle. The Oil Guard Pump Switch shall not allow pumping if oil is detected. The Oil Guard Alarm System shall alert of a high liquid presence and differentiate between water and oil.

3.12 CERTIFICATION

The system shall be built by a UL 508A approved control systems manufacturer and 100% tested at the factory prior to shipping. Additionally, the panel shall be certified by a second certification company (CSA International or approved equal).

3.13 CONSTRUCTION

The enclosure shall be a wall-mount style type 3R. The control panel shall be UL listed and CSA approved. The control panel shall feature visible high liquid level alarm red beacon light, high water level white light, and high oil level yellow light. A high liquid level condition shall activate the 85 decibel alarm. The front panel shall include alarm test and silence buttons. The panel shall be equipped with remote monitoring dry contacts including high liquid, high oil and high water present conditions. The pump controller shall be UL listed as an across the line starter type pump switch and rated for the pump's full load amps.

The system shall incorporate an Oil Guard Pump Switch and Liquid Smart Alarm Sensor. The Oil Guard Pump Switch shall include "on" and "off" sensors providing a specific water pumping range and shall not pump oil. The Liquid Smart Alarm Sensor shall detect a high liquid level condition and differentiate between oil and water. The controls shall both be able to differentiate between oil and water and consist of no moving parts. The alarm component shall be completely separate from the pump control component to prevent nuisance alarms and so alarm component can be placed at the actual high liquid level. An alarm component connected to the pump control shall not be acceptable.

3.20 200 or 230V 1 PHASE SIMPLEX OIL SMART CONTROL PANEL AND SWITCH

3.21 GENERAL

These specifications describe the simplex oil smart 1 phase control panel. The contractor shall furnish and install the Oil Smart® Single Phase Simplex Control Panel as specified herein.

Incoming pump power shall be Single Phase, 60 Hz., 120/208/240 VAC. Incoming voltage to power Alarm Circuit shall be Single Phase, 60Hz., 120 VAC. The Oil Smart® Pump Switch shall differentiate between oil and water and shall not allow pumping if oil is detected. The Liquid Smart® Alarm Sensor shall alert of a high liquid presence and differentiate between oil and water.

3.22 CERTIFICATION

The system shall be built by a UL 508A approved control systems manufacturer and 100% tested at the factory prior to shipping. Additionally, the panel shall be certified by a second certification company (CSA International or approved equal).

3.23 CONSTRUCTION

The panel enclosure shall be Polycarbonate NEMA 4X rated with lockable latches approved for indoor and outdoor environments. The enclosure shall have a clear front door so control panel indicators are visible. The front panel indicators shall include red power on light, green pump run light, yellow high oil light, and white high water light. A high liquid level condition shall activate a red beacon light and 85 decibel alarm. The front panel shall include pump hand-off-auto (H.O.A.) switch, alarm test and silence buttons. The panel shall be equipped with remote monitoring dry contacts including high liquid, high oil, and high water present conditions. The motor contactor shall be general purpose type rated for the pump's full load amps. The coil operating voltage shall be 12 VDC. The system shall incorporate an Oil Smart® Pump Switch and Liquid Smart® Alarm Sensor. The Oil Smart® Pump Switch shall include "on" and "off" sensors providing a specific water pumping range and shall not pump oil. The Liquid Smart® Alarm Sensor shall detect a high liquid level presence and differentiate between oil and water. Both controls shall differentiate between oil and water and consist of no moving parts. The alarm component shall be mounted completely separate from the pump control component to prevent nuisance alarms and so alarm component can be placed at the actual high liquid level. An alarm component connected to the pump control shall not be acceptable. All components shall be hardwired into the panel. A plug-in type system shall not be acceptable.

The control panel shall be operator and maintenance friendly to ensure ease of system set up. All internal wiring shall be of the highest quality and craftsmanship to assure proper routing of conductors and to prevent interference with operating devices. A panel nameplate shall be permanently affixed inside the enclosure displaying panel model number, drawing number, voltage, phase, and ampere ratings. There shall be a schematic drawing located inside the enclosure for field personnel. Control panel shall be an Oil Smart® Single Phase Simplex or approved equal.

3.30 3 PHASE SIMPLEX OIL SMART CONTROL PANEL AND SWITCH

3.31 GENERAL

These specifications describe the simplex oil smart 3 phase control panel. The contractor shall furnish and install the Oil Smart® Three Phase Simplex Control Panel as specified herein.

Incoming pump power shall be Three Phase, 60 Hz., 208/240/480 VAC. A Multi-Tap transformer (208/240/480VAC Primary) shall provide 120V control power for the "Smart Board". The Oil Smart® Pump Switch shall differentiate between oil and water and shall not allow pumping if oil is detected. The Liquid Smart® Alarm Sensor shall alert of a high liquid presence and differentiate between oil and water.

3.32 CERTIFICATION

The system shall be built by a UL 508A approved control systems manufacturer and 100% tested at the factory prior to shipping. Additionally, the panel shall be certified by a second certification company (CSA International or approved equal).

3.33 CONSTRUCTION

The enclosure shall be Polycarbonate NEMA 4X rated with lockable latches approved for indoor and outdoor environments. The enclosure shall have a clear front door so control panel indicators are visible. The front panel indicators shall include a green power on light, green pump run light, red pump fault light, yellow high oil light, and white high water light. A high liquid level condition shall activate the red beacon light and 85 decibel alarm. The front panel shall include a pump hand-off-auto (H.O.A.) switch, pump reset button, alarm test and silence buttons. The panel shall be equipped with remote monitoring dry contacts for high liquid, high oil, high water, and pump fault. Upgraded pump(s) protection: motor protective switch (branch circuit protection, adjustable overload and disconnect), and a thermal cutout with indicator. The motor starters shall be non-reversing general purpose type rated for the pump's full load amps. The coil operating voltage shall be 12 VDC. The system shall incorporate an Oil Smart® Pump Switch and Liquid Smart® Alarm Sensor. The Oil Smart Pump Switch shall include "on" and "off" sensors providing a specific water pumping range. The Oil Smart® Pump Switch shall not pump oil. The Liquid Smart® Alarm Sensor shall detect a high liquid level and differentiate between oil and water. The alarm component shall be mounted completely separate from the pump control component to prevent nuisance alarms and so alarm component can be placed at the actual high liquid level. An alarm component connected to the pump control shall not be acceptable. All components shall be hardwired into panel. A plug-in type system shall not be acceptable. A simplex control circuit board (See Water Smart Board or approved equal) shall be provided to avoid conventional incidental wiring. The board shall provide redundant indicator LEDs to indicate all circuit board functions: power, pump run, pump fault and alarm status. The printed circuit board shall be manufactured by a UL approved company.

The control panel shall be operator and maintenance friendly to ensure ease of system set up. All internal wiring shall be of the highest quality and craftsmanship to assure proper routing of conductors and to prevent interference with operating devices. A panel nameplate shall be permanently affixed inside the enclosure displaying panel model number, drawing number, voltage, phase, and ampere ratings. There shall be a schematic drawing located inside the enclosure for field personnel. Control Panel shall be an Oil Smart® Three Phase Simplex Control Panel or approved equal.

4.00 WARRANTY:

4.01 PUMPS

Standard warranty shall be 18 months from date of manufacture or 12 months from date of installation with proof of purchase required.

4.02 CONTROLS

Standard warranty shall be 5 years from date of manufacture or 5 years from date of installation with proof of purchase required.