ZOELLER® PUMP COMPANY

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

SECTION: 5.10.290
FM0530
1223
Supersedes
0422

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SPECIFICATIONS
EFFLUENT/SUMP DUPLEX SYSTEM
ZOELLER SUBMERSIBLE DEWATERING OR EFFLUENT PUMPS

SEAL	SOLIDS	DISCHARGE	MATERIAL	MODELS						
Single	1/2"	1-1/2" NPT	Cast iron	53®	57	98	140	151		
Single	1/2"	1-1/2" NPT	Cast Bronze	55	59					
Single	5/8"	1-1/2" NPT	Cast iron	137	191					
Single	5/8"	1-1/2" NPT	Cast Bronze	139						
Single	3/4"	1-1/2" NPT	Cast iron	145	152	153				
Single	3/4"	1-1/2", 2", or 3 NPT	Cast iron	161	163	165	185	186	188	189
Double	1/2"	1-1/2"	Cast iron	4140						
Double	3/4"	1-1/2", 2", or 3 NPT	Cast iron	4145	4161	4163	4186	4188	4189	

DUPLEX SYSTEM

Furnish two Zoeller nonautomatic submersible pumps, Model _____ with an _____ Electrical or _____ Mechanical Alternating System. Pumps shall have a capacity of _____ GPM against a Total Dynamic Head of _____ feet. Motor specification: _____ Voltage, _____ Cycles, _____ Phase, _____ HP. Discharge to be ____ 1-1/2 inch NPT. Optional discharge ____ 2 inch NPT or ____ 3 inch NPT (161/4161 thru 189/4189). Cord length to be _____ feet. Pumps will pass _____ 1/2 inch solids (53®,55,57,59, 98, 140/4140 & 151 Series) or _____ 5/8 inch solids (137/139, 191) or _____ 3/4 inch solids (145/4145, 152, 153, 161/4161, 163/4163, 165, 185, 186/4186, 188/4188 & 189/4189 Series.) Pumps shall be _____ UL Listed, _____ CSA Certified, _____ SSPMA certified, _____ State of Wisc. approved, _____ other (Specify_____).

SINGLE PHASE PUMPS

GENERAL

Pump motor shall be hermetically sealed, submersible type, operating in a high quality dielectric oil for cooling the windings and for lubrication of the motor bearings and ceramic-carbon shaft seal. Single phase motor shall have internal automatically resetting, thermal overload protection. Construction shall be of _____ cast iron with 100% baked-on powder coated epoxy finish for corrosion resistance and longer casting durability or _____ cast bronze. All fasteners and external metal parts shall be of stainless steel. Impeller shall be of vortex non-clog design. (Addition noted below.) Check applicable series:

_____ 53® (cast iron) _____ 55 (cast bronze) series pump shall have a shaded pole motor. Impeller, with metal insert, and base shall be of glass reinforced molded material. Switch case shall be of cast or molded material. Guard and handle shall be of stainless steel.

_____ 57 (cast iron) _____ 59 (cast bronze) series pump shall have a shaded pole motor. Guard and handle shall be of stainless steel.

_____ 98 (cast iron) series pump shall have 1/2 HP PSC motor.

_____ 137 (cast iron) _____139 (cast bronze) series pump shall have 1/2 HP split phase motor with current sensing, starting relay enclosed in switch housing.

_____ 151 (.33 HP) _____152 (.4 HP) _____153 (1/2 HP) series pump shall have a permanent split capacitor motor. The impeller shall be "glass reinforced thermoplastic." Motor housing shall be cast iron.

_____ 145 (3/4 HP) _____140 (1 HP) series pump shall have a permanent split capacitor motor with capacitor in the switch housing attached to the pump. The impeller shall be "glass reinforced thermoplastic." Motor housing shall be cast iron. Discharge shall be a permanently affixed 1-1/2 inch female NPT hub.

_____ 4140 (1 HP cast iron) _____ 4145 (3/4 HP cast iron) series pump with double carbon/ceramic shaft seals shall have a permanent split capacitor motor with capacitor in the switch housing attached to the pump. The impeller shall be "glass reinforced thermoplastic." Motor housing shall be cast iron. Discharge shall be a permanently affixed 1-1/2 inch female NPT hub. The lower seal cavity shall be oil-filled.

_____ 161 (1/2 HP) _____163 (1/2 HP) _____165 (1 HP) cast iron series pump shall have a permanent split capacitor motor with run capacitor enclosed in switch housing. Impeller shall be of cast iron. Motor housing shall be finned for extra cooling capability.

_____ 4161 (1/2 HP) _____4163 (1/2 HP) cast iron series pump with double carbon/ceramic shaft seals shall have a permanent split capacitor motor with run capacitor enclosed in the switch housing.

Impeller shall be cast iron. Motor housing shall be finned for extra cooling capability. The lower seal cavity shall be oil-filled.

_____ 185 (1 HP) _____ 186 (1-1/2 HP) _____ 188 (1-1/2 HP) _____ 189 (2 HP) _____ 191 (2 HP) cast iron series pump shall have a permanent split capacitor motor with run capacitor enclosed in switch housing. Impeller shall be of cast iron. Motor housing shall be finned for extra cooling capability.

_____ 4186 (1-1/2 HP) _____4188 (1-1/2 HP) _____4189 (2 HP) cast iron series pump with double carbon/ceramic shaft seals shall have a permanent split capacitor motor with run capacitor enclosed in the switch housing. Impeller shall be cast iron and pump housing shall be epoxy coated. Motor housing shall be finned for extra cooling capability. The lower seal cavity shall be oil-filled.

_____ 191 (2 HP) cast iron series pump with carbon/ceramic shaft seals shall have a permanent split capacitor motor with run capacitor enclosed in the switch housing. Impeller shall be cast iron. Impeller shall be of a closed type construction. Motor housing shall be finned for extra cooling capability. The lower seal cavity shall be oil-filled.

THREE PHASE PUMPS

Pump motor shall be hermetically sealed, submersible type, operating in a high quality dielectric oil for cooling the windings and for lubrication of the motor bearings and ceramic-carbon shaft seal. Pump motor shall have external magnetic contactor and overload protection. All fasteners and external metal parts shall be of stainless steel. Impeller shall be of vortex non-clog design.

(Addition noted below.)

_____ 137 (cast iron) series _____ 139 (cast bronze) series shall have a 4-pole squirrel cage induction motor.

_____ 161 (1/2 HP) _____ 163 (1/2 HP) _____ 165 (1 HP) cast iron series shall have a 2-pole squirrel cage induction motor. Impeller shall be of cast iron. Motor housing shall be finned for extra cooling capability.

_____ 4161 (1/2 HP) _____4163 (1/2 HP) cast iron series pump with double carbon/ceramic shaft seals shall have a 2-pole squirrel cage induction motor. Impeller shall be cast iron. Motor housing shall be finned for extra cooling capability. The lower seal cavity shall be oil-filled.

_____ 185 (1 HP) _____ 186 (1-1/2 HP) _____ 188 (1-1/2 HP) _____ 189 (2 HP) cast iron Series shall have a 2-pole squirrel cage induction motor. Impeller shall be of cast iron. Motor housing shall be finned for extra cooling capability.

_____ 4186 (1-1/2 HP) _____4188 (1-1/2 HP) _____4189 (2 HP) cast iron series pump with double carbon/ceramic shaft seals shall have a 2-pole squirrel cage induction motor. Impeller shall be cast iron. Motor housing shall be finned for extra cooling capability. The lower seal cavity shall be oil-filled.

ALTERNATING SYSTEM

ELECTRICAL ALTERNATING SYSTEM

Alternator - Single Phase

A Zoeller _____ Electrical Alternator Panel with three float switches shall be furnished. Panel shall be _____ UL Listed or _____ CSA Certified and shall include an alternating circuit, separate contact relays, run lights, circuit breakers and H-O-A switches for each pump. Also included shall be a numbered terminal strip and a high water alarm and light. Overload protection shall be furnished in the pump motor. Panel shall have a NEMA _____ rating. Electrical components shall be sized for Zoeller model _____, _____ volt, _____ cycle, _____ phase, _____ HP pump, _____ FLA.

Alternator - Three Phase

A Zoeller _____ Electrical Alternator Panel with three float switches shall be furnished. Panel shall be _____ UL Listed or _____ CSA Certified and shall include an alternating circuit, separate magnetic starters with overload protection, run lights, and H-O-A switches for each pump. The control panel shall include a transformer to reduce control voltage to 115 volts. Also included shall be a numbered terminal strip and a high water alarm and light. Panel shall have a NEMA 4X rating. Electrical components shall be sized for a Zoeller Model _____, _____ volt, _____ cycle, _____ phase, _____ HP pump, _____ FLA.

Variable Level Float Controls- Single Phase or Three Phase

Float Controls shall provide automatic operation of pumps and alarm. Two controls shall close circuit for on/off operation at selected levels as required to rotate operation of pumps. The third variable level float shall close an override circuit to operate both pumps and to activate alarm. Control shall be omnidirectional, normally open and shall include a SJOWA neoprene cord. All controls shall be fastened to variable level float mounting pipe with plastic tie mounting strap. The pipe, attached to the underside of the removable inspection plate on the basin cover, shall be furnished and installed by the contractor.

ACCESSORIES/MISCELLANEOUS

UNICHECK

_____30-0200, (Clamp Union Valve) (1-1/4, 1-1/2 inch) full flow check valve, rated at 4.3 psi pressure (10 feet TDH) at 130 °F shall be furnished to fit 1-1/4 inch or 1-1/2 inch ABS, PVC, CPVC, steel or copper piping. Unicheck shall have valve body and seat of PVC plastic and shall be assembled with thru bolts. Gasket and flapper shall be neoprene with brass backing plates and stainless steel rivet. Unicheck shall include two (2) neoprene unions and four (4) stainless steel clamps and fasteners.

_____30-0021, (Clamp Union Valve) (2 inch) full flow check valve, rated at 4.3 psi pressure (10 feet TDH) at 130 °F shall be furnished to fit 2 inch ABS, PVC, CPVC, steel or copper piping. Unicheck shall have valve body and seat of PVC plastic and shall be assembled with thru bolts. Gasket and flapper shall be neoprene with brass or stainless steel backing plates and stainless steel rivet. Unicheck shall include two (2) neoprene unions and four (4) stainless steel clamps and fasteners.

_____30-0015, (Compression Union Valve) 1-1/2 inch IPS full flow check valve shall be furnished to fit 1-1/2 inch IPS pipe. Unicheck body and compression and fittings shall be constructed of PVC. Flapper and end seals shall be Buna-N. Valve shall include no metallic parts. Pressure rated at 25 PSI (57 feet TDH) at 130 °F.

_____ 30-0152, (2 inch) cast iron full flow check valve with 2 inch female N.P.T. Rated at 50 PSI (115 feet TDH) at 130 °F. Neoprene polyester reinforced flapper with cast iron and brass backing plates and stainless steel fastener.

_____30-0160, (3 inch) cast iron full flow check valve with 3 inch female N.P.T. Rated at 50 PSI (115 feet TDH) at 130 °F. Neoprene polyester reinforced flapper with cast iron and brass backing plates and stainless steel fastener.

SUMP BASIN

A Zoeller IAMPO approved _____ polyethylene basin, .230 inch thick, .949 G/CC dense, or Zoeller _____ fiberglass basin, 3/16 inch thick, .058 pounds/cubic feet dense, _____ inches inside diameter by _____ inches deep shall be furnished. The basin shall include _____ four (4) inch cast iron caulk inlet hubs with anticorrosion coating, Combo Hub or pipe seal. The centerline of the hub(s) shall be located nine (9) inches from the top of the basin. The basin shall also include a .125 inch thick steel sump cover. Cover shall have two (2) pump installation plates and an inspection plate. Optional anti-flotation ring can also be provided. Also included shall be two (2) neoprene seals for pump cords, neoprene seal for vent and discharge flanges, foam cover seal and plated steel fasteners. Cover shall include a _____ inch vent and two (2) _____ inch discharge flanges with mounting hardware.

PIPING & POWER WIRING

All piping shall be rigid and permanent in nature and shall be furnished and installed by the contractor. A Unicheck shall be installed in the discharge pipe. A 3/16" vent hole shall be drilled in the discharge pipe below the check valve and pit cover to purge the system of trapped air. Power wiring shall be supplied by electrical contractor. Power wiring for pumping system and alarm system shall be connected to separate circuits.

HIGH TEMPERATURE PUMPS

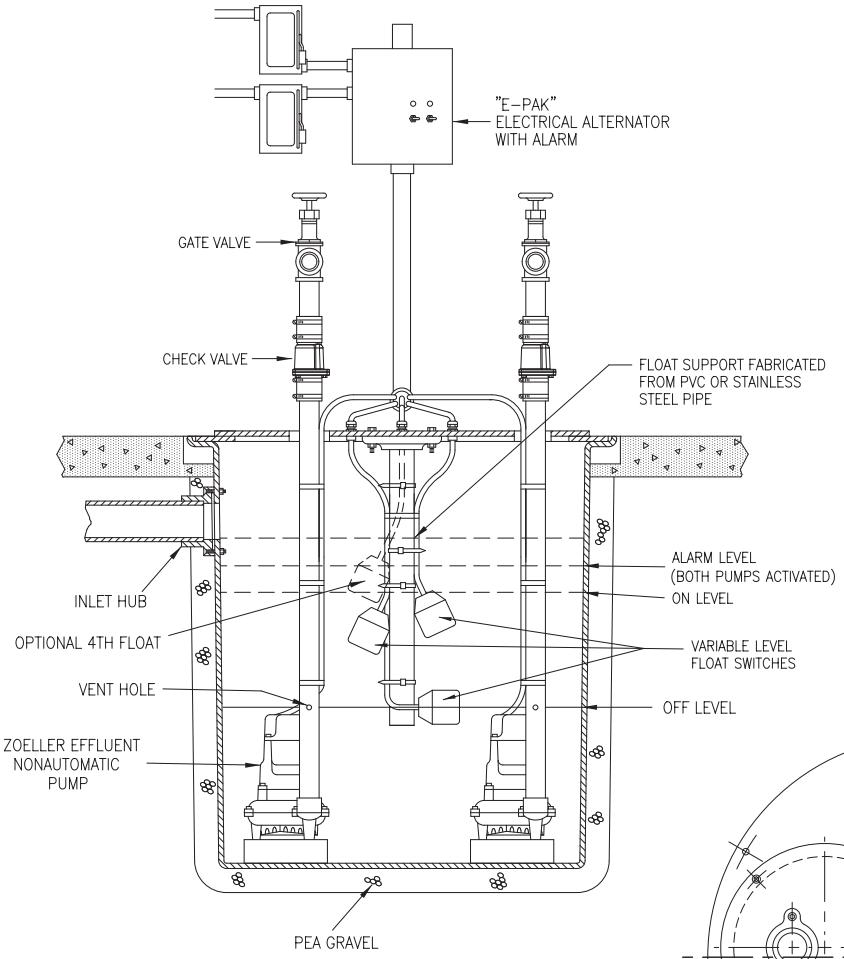
For applications up to 200°F continuous operation, specify High Temperature Zoeller Pump Co. models. See literature on High Temperature pumps, FM2811, for additional information.

PUMP DISCONNECTS AND RAIL SYSTEMS

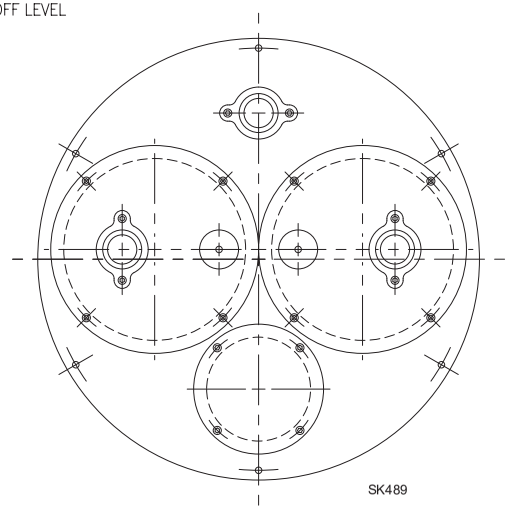
Where conditions, due to safety, health and the economy of maintenance require pump disconnects or rail systems specify:

_____ 39-0001, 1-1/2" NPT Disconnect (Non-pump Supporting)
_____ 39-0002, 2" Disconnect (Non-pump Supporting)
_____ 39-0131, 1-1/2" NPT Galv. Z-Rail (Pump Supporting)
_____ 39-0132, 1-1/2" NPT S.S. Z-Rail (Pump Supporting)
_____ 39-0128, 2" NPT Galv. Z-Rail (Pump Supporting)
_____ 39-0129, 2" NPT S.S. Z-Rail (Pump Supporting)
_____ 39-0122, 3" NPT Galv. Z-Rail (Pump Supporting)
_____ 39-0123, 3" NPT S.S. Z-Rail (Pump Supporting)

EFFLUENT DUPLEX ELECTRICAL ALTERNATING SYSTEM 1 OR 3 PHASE



SK500



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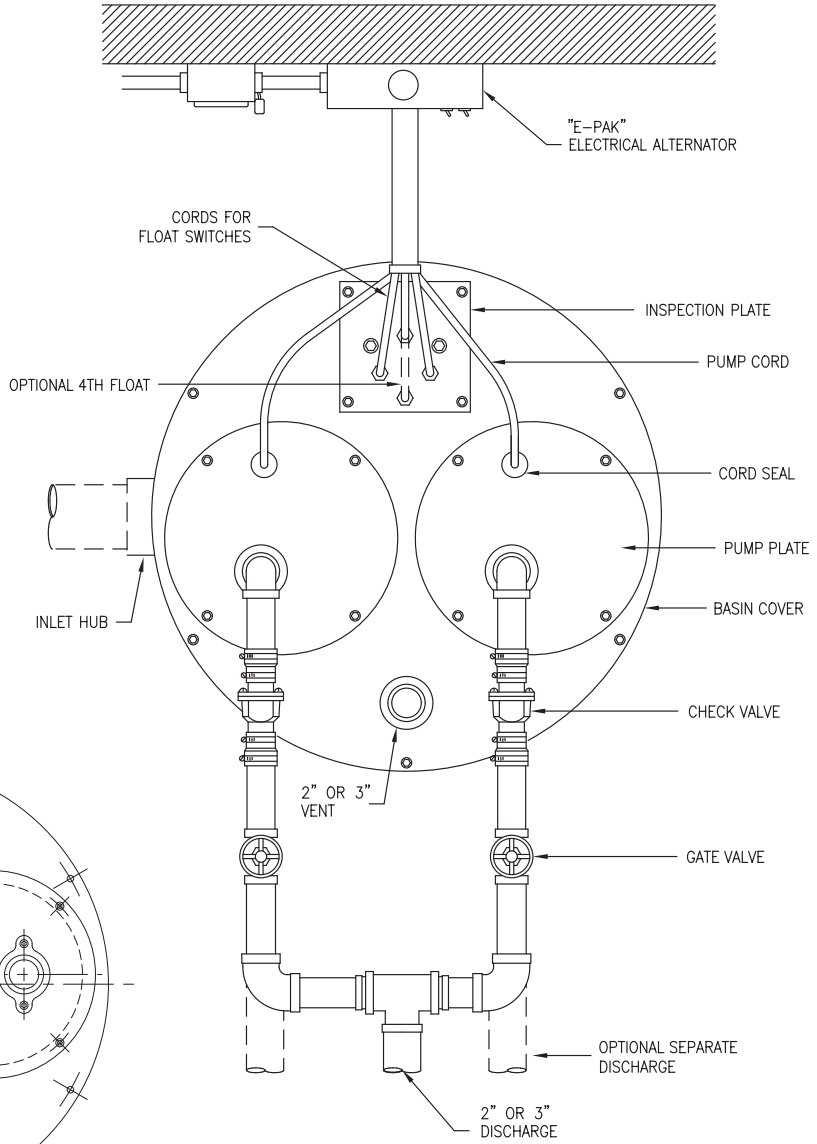
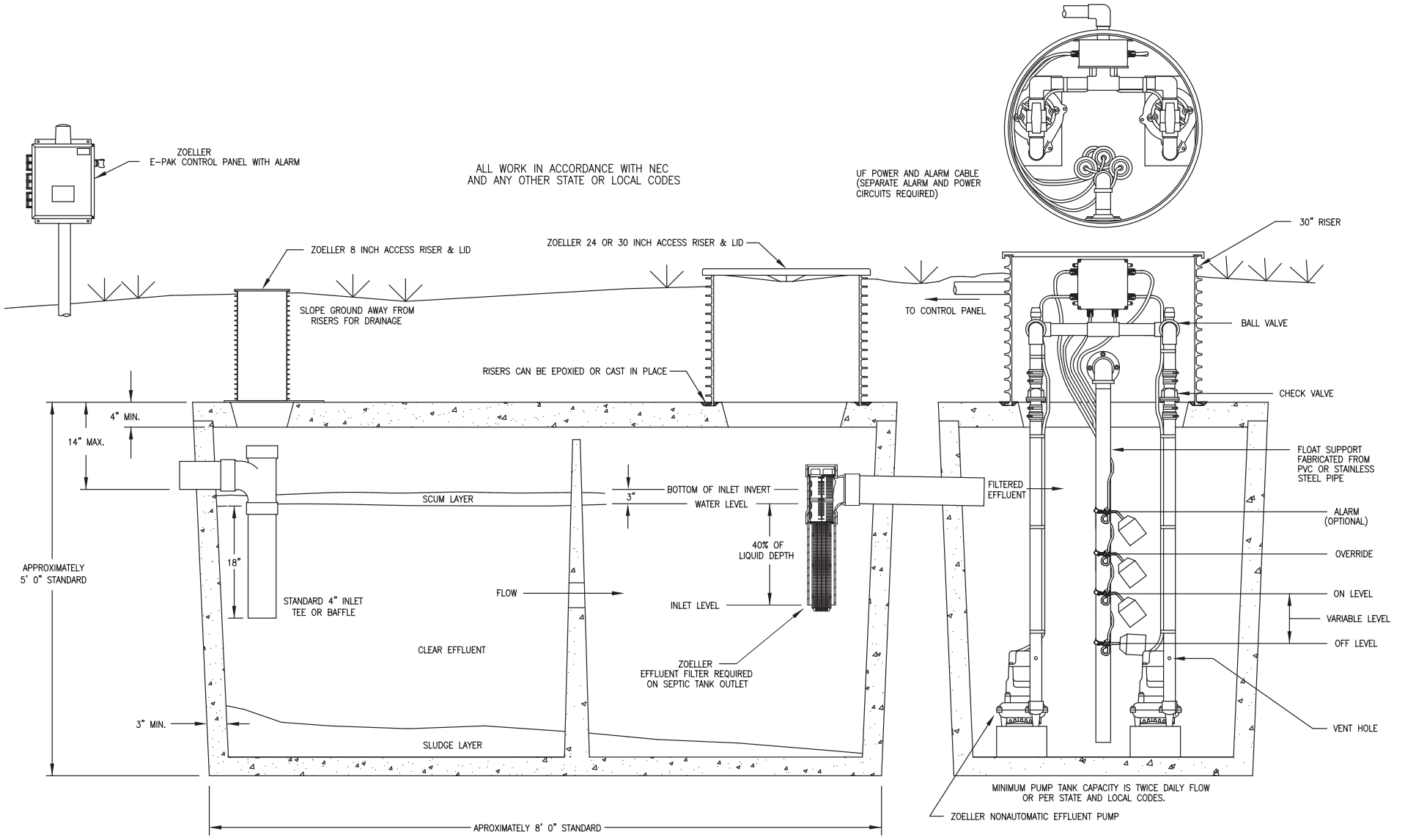
DUPLEX ELECTRICAL ALTERNATING SYSTEM 1 OR 3 PHASE EFFLUENT SYSTEM TOP VIEW



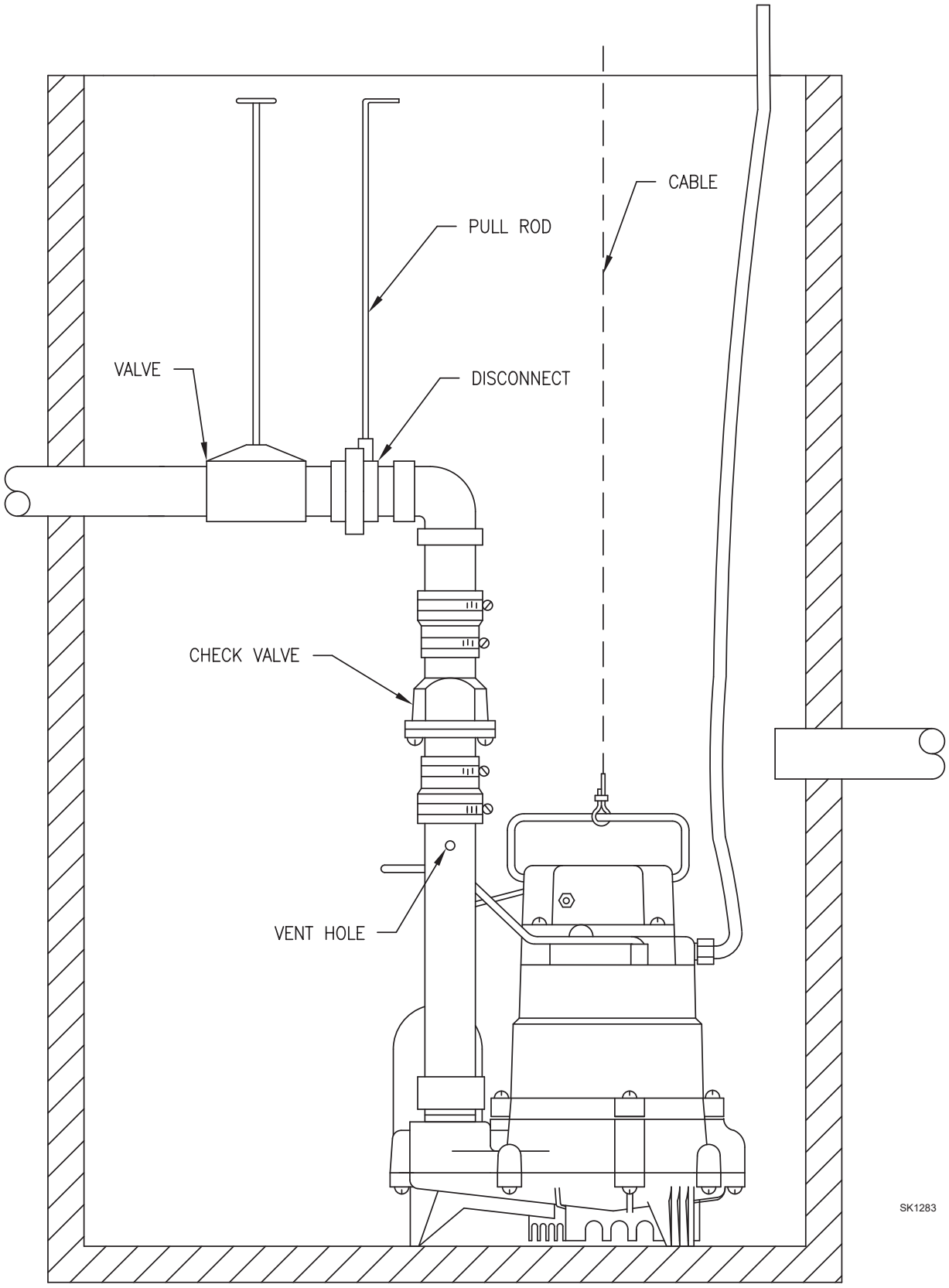
SK501

EFFLUENT DUPLEX SYSTEM WITH ELECTRICAL ALTERNATOR (Single Phase)

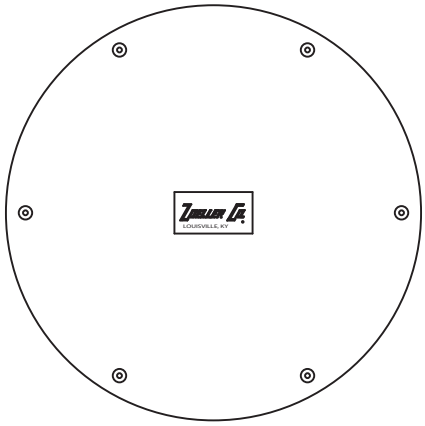


SK2090

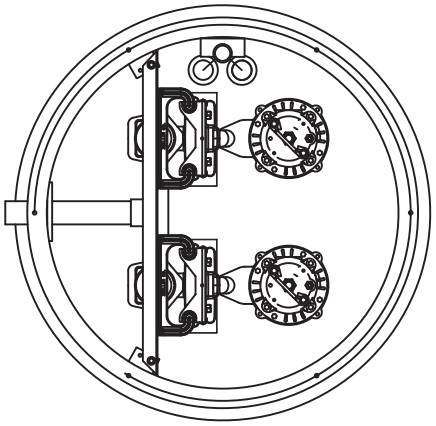
PUMP DISCONNECT SYSTEM

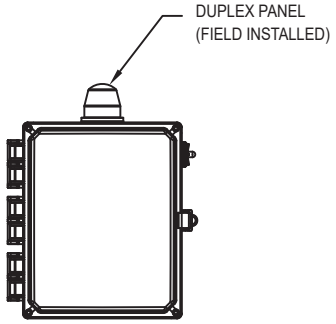


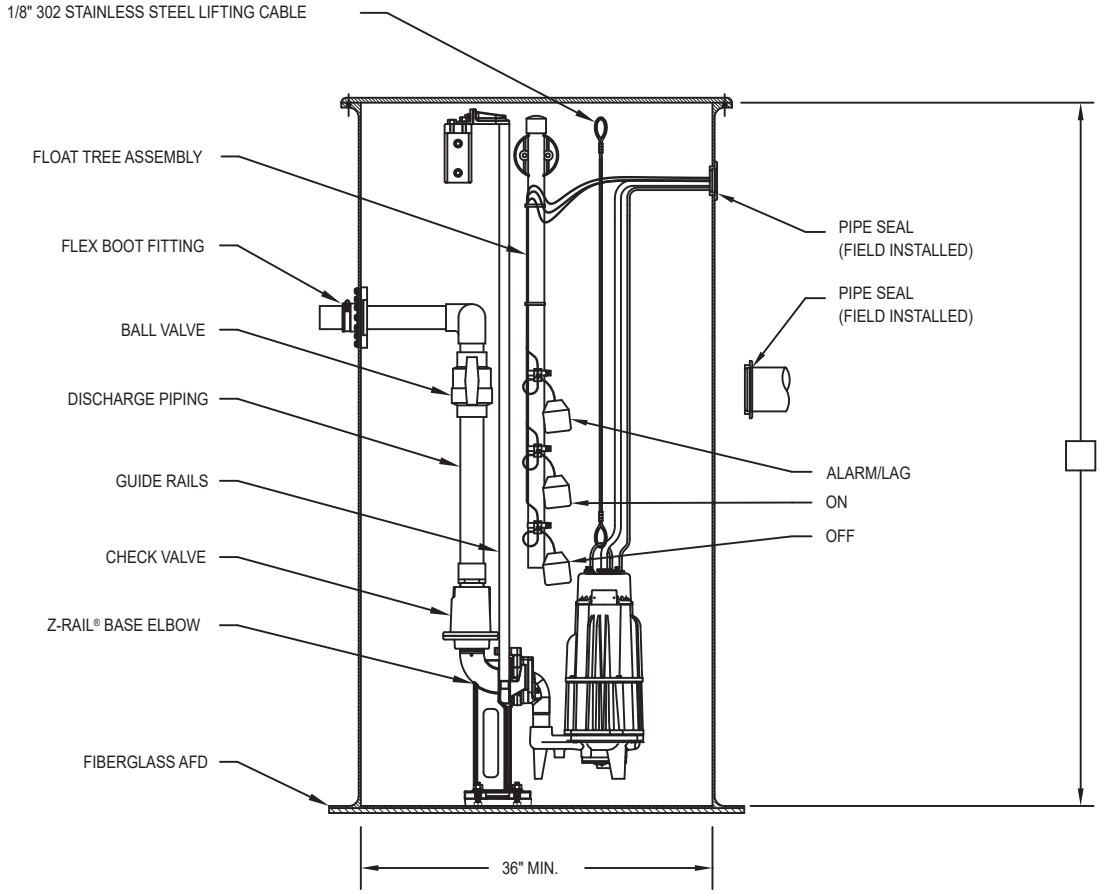
Z-RAIL® DISCONNECT SYSTEM



SOLID FIBERGLASS COVER







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