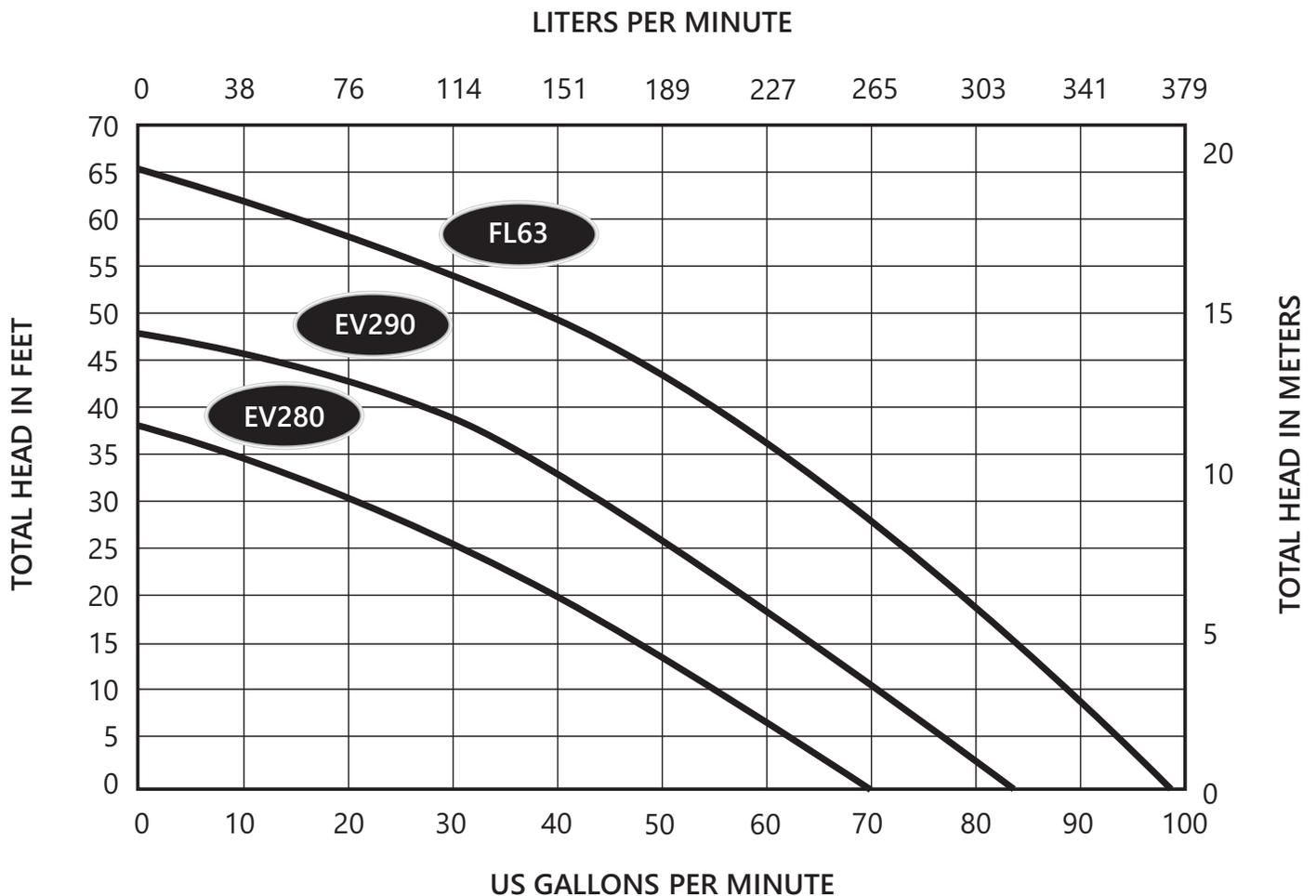


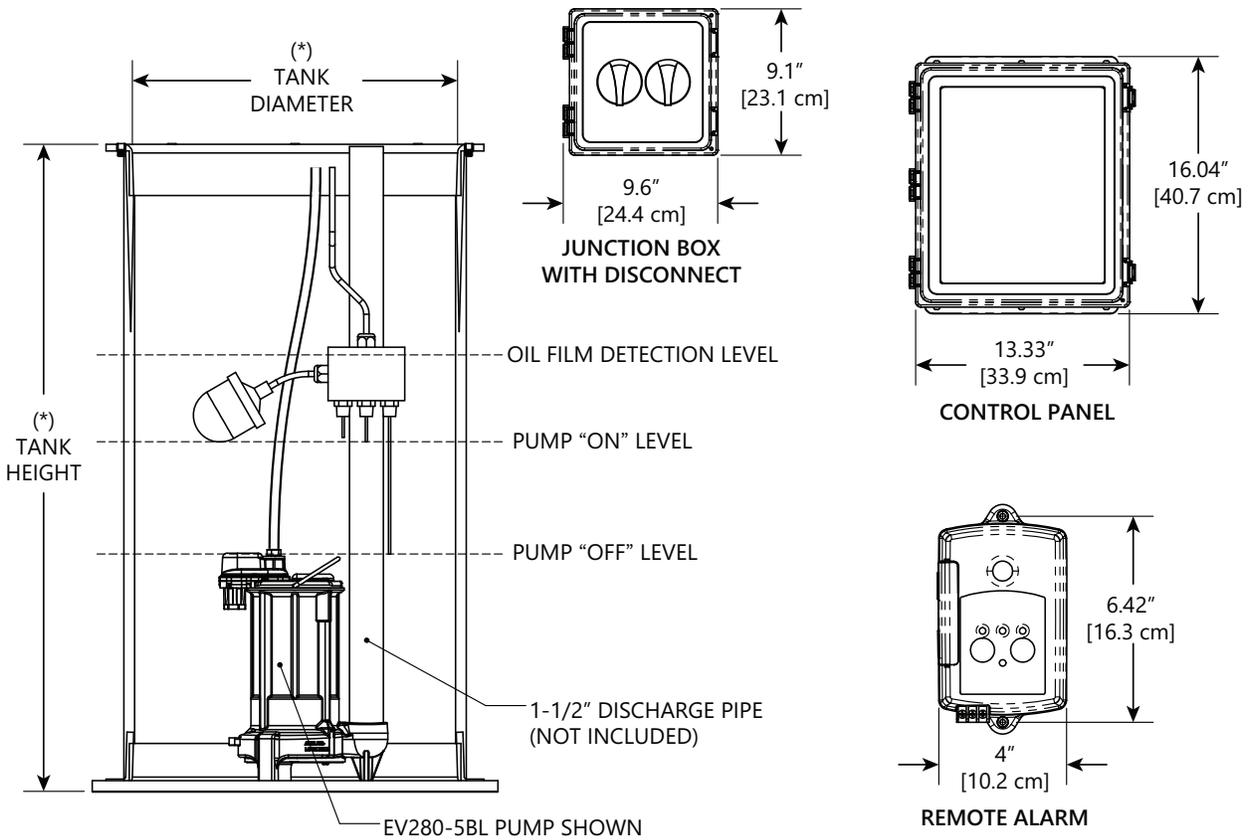
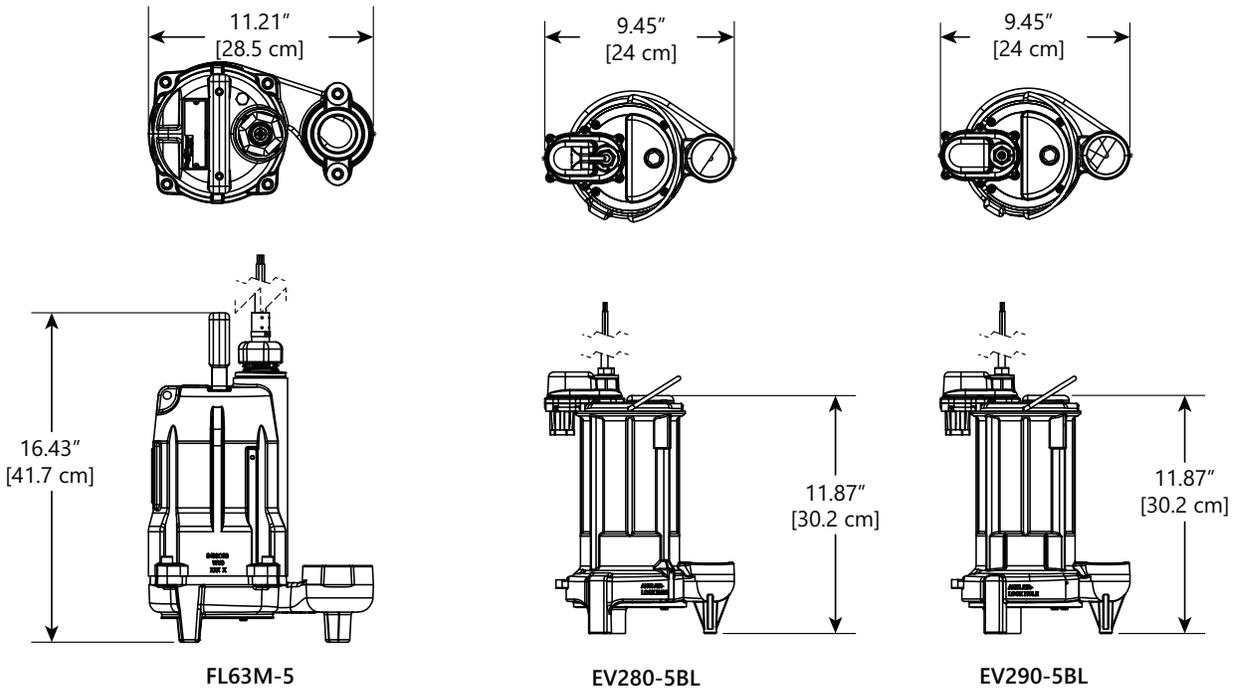
Product Specification

ELV-D-Series with Duplex OilTector® Control

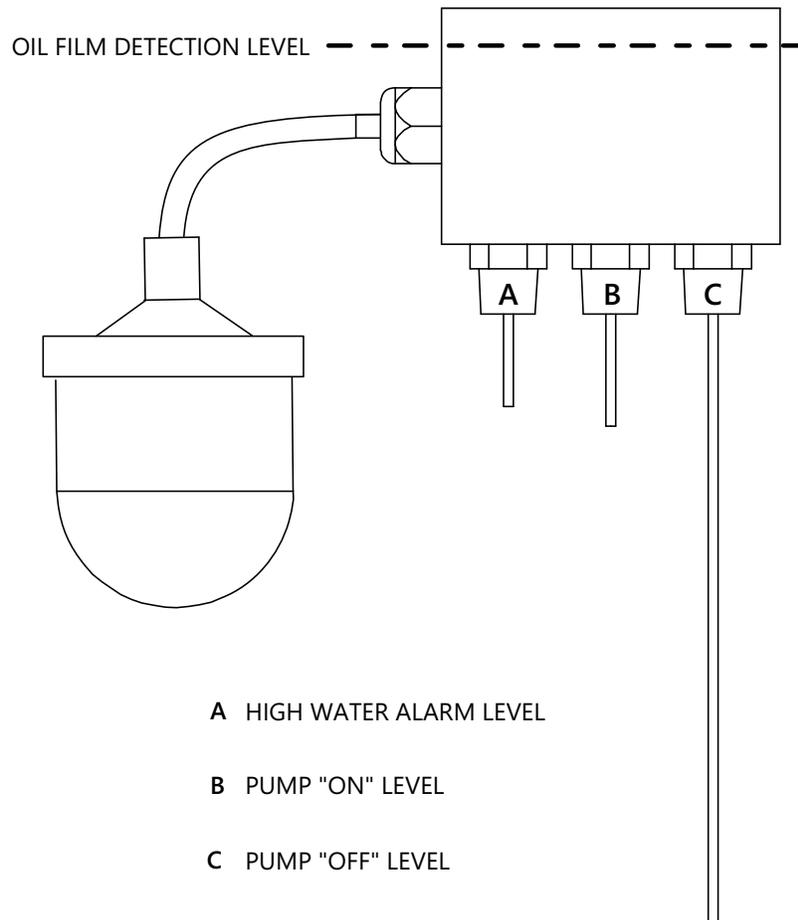
- ELV280-D/DT 1/2 hp
- ELV290-D/DT 3/4 hp
- ELVFL63-D/DT 6/10 hp



ELV-D-Series Dimensional Data



PRESET LEVEL SENSOR



ELV-D-Series Electrical Data - Pump

MODEL	HP	VOLTAGE	PHASE	FULL LOAD AMPS	LOCKED ROTOR AMPS	THERMAL OVERLOAD TEMP	STATOR WINDING CLASS	CORD LENGTH	DISCHARGE	AUTOMATIC
EV280-5BL	1/2	115	1	8	23	105°C / 221°F	B	50'	1-1/2"	YES, WITH CONTROL
EV280HV-5BL	1/2	208-230	1	4	12.5	105°C / 221°F	B	50'	1-1/2"	YES, WITH CONTROL
EV290-5BL	3/4	115	1	10.4	24	120°C / 248°F	B	50'	1-1/2"	YES, WITH CONTROL
EV290HV-5BL	3/4	208-230	1	5.3	13	120°C / 248°F	B	50'	1-1/2"	YES, WITH CONTROL
FL63M-5	6/10	208/230	3	5.6	25.3	—	B	50'	2"	YES, WITH CONTROL

ELV-D-Series Electrical Data - Controls

MODEL	INPUT VOLTAGE	PUMP VOLTAGE	MAX PUMP CURRENT	VALVE POWER
ELV280-D, ELV280-DT	120 VAC, 1-PHASE	115 VAC, 1-PHASE	15A	120 VAC, 1-PHASE
ELV280HV-D, ELV280HV-DT	120 VAC, 1-PHASE	208-230 VAC, 1-PHASE	15A	120 VAC, 1-PHASE
ELV290-D, ELV290-DT	120 VAC, 1-PHASE	115 VAC, 1-PHASE	15A	120 VAC, 1-PHASE
ELV290HV-D, ELV290HV-DT	120 VAC, 1-PHASE	208-230 VAC, 1-PHASE	15A	120 VAC, 1-PHASE
ELVFL63-D, ELVFL63-DT	N/A ¹	208/230 VAC, 3-PHASE	4-6.3A	120 VAC, 1-PHASE

1 3-phase models utilize a multi-tap transformer to power the controls and valves.

ELV-D-Series Technical Data

SYSTEM	MIN SUMP SIZE	Ø24" X 30"
	CONTROL PANEL	NEMA 4X
	ALARM	NEMA 1
	WEIGHT WITH NO HOLDING TANK	
	ELV280-D, ELV280HV-D, ELV290-D, ELV290HV-D	54 KG / 119 LB
	ELVFL63-D	71.7 KG / 158 LB
	WEIGHT WITH OPTIONAL HOLDING TANK	
	ELV280-DT, ELV280HV-DT, ELV290-DT, ELV290HV-DT	83.5 KG / 184 LB
	ELVFL63-DT	101.2 KG / 223 LB
	OPTIONAL OIL HOLDING TANK	18" x 54" FIBERGLASS WITH 18" STEEL COVER, 59 GALLONS
PUMP	IMPELLER	
	EV280-5BL, EV280HV-5BL, EV290-5BL, EV290HV-5BL	VORTEX ENGINEERED POLYMER
	FL63M-5	MULTI-VANE CAST IRON
	SOLIDS HANDLING SIZE	3/4"
	PAINT	POWDER COAT
	MAX LIQUID TEMP	60°C / 140°F
	MAX STATOR TEMP	CLASS B 130°C / 266°F
	THERMAL OVERLOAD	
	EV280-5BL, EV280HV-5BL	105°C / 221°F
	EV290-5BL, EV290HV-5BL	120°C / 248°F
	MOTOR HOUSING / VOLUTE	CLASS 25 CAST IRON
	SHAFT	STAINLESS
	HARDWARE	STAINLESS
	O-RINGS	BUNA-N
	MECHANICAL SEAL	CARBON CERAMIC
	WEIGHT	
	EV280-5BL, EV280HV-5BL	32 LBS / 14,5 KG
	EV290-5BL, EV290HV-5BL	33 LBS / 15 KG
	FL63M-5	65 LBS / 29,5 KG
	PUMP CERTIFICATIONS	SSPMA, cCSAus

ELV-D-Series Specifications

1.01 GENERAL

The contractor shall provide labor, material, equipment, and incidentals required to provide _____ (QTY) Duplex OilTector® Systems as specified herein. The pump models covered in this specification are ELV-D-Series pumps. The pump furnished for this application shall be model _____ as manufactured by Liberty Pumps.

2.01 OPERATING CONDITIONS

Each submersible pump shall be rated at _____ hp, _____ volts, _____ phase, 60 Hz, 3450 RPM. The unit shall produce _____ GPM at _____ feet of total dynamic head.

The submersible pump shall be capable of handling water with _____ solids handling capability. The submersible pump shall have a shut-off head of _____ feet and a maximum flow of _____ GPM @ 5 feet of total dynamic head.

The OilTector duplex pump system pairs a touch screen controller with two proven Liberty Pumps sump pumps to eliminate unwanted water from elevator sumps, garages, vaults and other areas where preventing the unwanted discharge of oil to the environment is required.

The OilTector controller features a pre-set level sensor which consists of 3 metal probes and a float switch that will control two Liberty Pumps sump pumps, one designated for water service, and one for oil service. When water collects in the sump and contacts both the lowest and middle probe, the water service sump pump will discharge the water until the level is below the lowest probe. If the water level increases to the highest probe, the high water alarm sounds signifying a high inflow condition or faulty pump.

In the event of an oil leak, the spilled oil will collect in the sump and float on the surface of the water. Once the layer is thick enough to trip the high oil float, the pump will eliminate the oil and water in the sump; the water will be pumped to the drain and then the oil will be routed to the waste oil storage tank preventing unwanted contamination.

The OilTector controller additionally provides a means for manual selection and operation, dry contacts for alarm conditions, and data logging to document all operational activity.

3.01 CONSTRUCTION

Each centrifugal sump pump shall be equal to the  Certified ELV-D-Series pumps as manufactured by Liberty Pumps, Bergen NY. The castings shall be constructed of Class 25 cast iron. The motor housing shall be oil-filled to dissipate heat. Air-filled motors shall not be considered equal since they do not properly dissipate heat from the motor. All mating parts shall be machined and sealed with a Buna-N O-ring. All fasteners exposed to the liquid shall be stainless steel. The motor shall be protected on the top side with sealed cord entry plate with molded pins to conduct electricity, eliminating the ability of water to enter internally through the cord. The motor shall be protected on the lower side with a unitized carbon ceramic seal with stainless steel housings and spring or engineered double lip seal with stainless steel springs. The pump shall be furnished with a stainless steel handle.

4.01 ELECTRICAL POWER CORD

The submersible pump shall be supplied with length of multiconductor power cord as per **Electrical Data** table. It shall be cord type BLACK, UL 16/3 SJEOOW 300V 105°C or BLACK 14-4 SEOOOW 600V 105°C. The power cord shall be sized for the rated full load amps of the pump in accordance with the National Electric Code. The power cord shall not enter the motor housing directly but will conduct electricity to the motor by means of a watertight compression fitting cord plate assembly with molded pins to conduct electricity. This will eliminate the ability of water to enter internally through the cord via a damaged or wicking cord.

5.01 MOTORS

Single-phase motors shall be oil-filled, capacitor start, class B insulated NEMA B design rated for continuous duty. Since air-filled motors are not capable of dissipating heat, they shall not be considered equal. At maximum load, the winding temperature shall not exceed 135°C un-submerged. Single-phase motors shall have an integral thermal overload switch in the windings for protecting the motor. Three-phase motors shall be used with an appropriate controller with integral overload protection. The capacitor circuit on single-phase motors shall be mounted internally in the pump.

6.01 BEARINGS AND SHAFT

An upper and lower ball bearing shall be required. Both the upper and lower bearing shall be a single ball/race type bearing. Both bearings shall be permanently lubricated by the oil that fills the motor housing. The motor shaft shall be made of 300 or 400 series stainless steel.

7.01 SEALS

The pump shall have a unitized carbon ceramic seal with stainless steel housings and spring or engineered double lip seal with stainless steel springs. The motor plate/housing interface shall be sealed with a Buna-N O-ring.

8.01 IMPELLER

The impeller shall be vortex style made of an engineered polymer or gray cast iron with pump out vanes on the back shroud to keep debris away from the seal area. It shall be threaded to the motor shaft.

9.01 CONTROLS

The controls shall be housed in a NEMA 4X rated enclosure with a transparent hinged door. The door shall be closed with hasps which are capable of being padlocked. The enclosure shall have a painted steel dead front to protect the user from the panel wiring while also allowing access to the touchscreen controls and power breakers.

The primary means of operator interface shall be by a touchscreen interface. This interface shall provide graphic feedback of the system status as well as allow for selection of Auto/Manual control of the pump and valves. The controls shall include dry contact for the alarm status of the system.

The controls shall have a method to electronically record the operation and status of the system while saving this record to a removable USB storage device. The data which has been logged shall be downloadable via USB connection in a CSV format.

The single-phase control panel shall be wired such that the pump and the controls are on two separate power circuits. These circuits shall each be protected by a circuit breaker sized in accordance to the loading of the circuit. The three-phase control panel shall utilize a single three-phase power source. These circuits shall each be protected by a circuit breaker sized in accordance to the loading of the circuit.

The control unit has three probes and a float ball switch. The water pump will activate when the middle probe contacts water, and will remain on until the first (longest) probe no longer is in contact with water. A high water alarm is activated when the third (shortest) probe contacts water.

When the oil layer present is thick enough to change the state of the float switch, and there is no water in the sump, the controller shall turn on the oil pump to evacuate the oil from the sump. When the oil layer present is thick enough to change the state of the float switch, and water is detected in the sump, the controller shall run the water pump to evacuate the water from the sump, and subsequently run the oil pump moving the oil to the holding tank for safe disposal.

10.01 VALVES

The system shall utilize two 2" swing-type brass check valves with NPT connections. These valves shall be installed in the discharge lines, as close to the pump as possible, in a manner to prevent backflow through the pump.

11.01 ALARM

The alarm is an indoor rated alarm panel, powered by a standard 120 VAC wall outlet. The green power LED illuminates when powered. The alarm panel is equipped with audible and visual alarm indication for high oil, high water, and trouble alarm events. A preset level sensor is wired to the control panel from the monitoring area and the control panel auxiliary contacts are wired to the terminal block on the alarm panel. A 9-volt battery (not included) provides battery backup during power outages. Auxiliary contacts can connect to building automation systems (BAS) and phone dialers.

12.01 PAINT

The exterior of the casting shall be protected with powder coat paint.

13.01 SUPPORT

The pump shall have cast iron support legs enabling it to be a freestanding unit.

14.01 SERVICEABILITY

Components required for the repair of the pump shall be shipped within a period of 24 hours.

15.01 TESTING

The pump shall have a ground continuity check and the motor chamber shall be hi-potted to test for electrical integrity, moisture content and insulation defects. The motor and volute housing shall be pressurized and an air leak decay test performed to ensure integrity of the motor housing. The pump shall be run at rated voltage to verify current, performance curve and monitor operation.

16.01 QUALITY CONTROL

The pump shall be manufactured in an ISO 9001 certified facility.

17.01 WARRANTY

Standard limited warranty shall be 3 years.