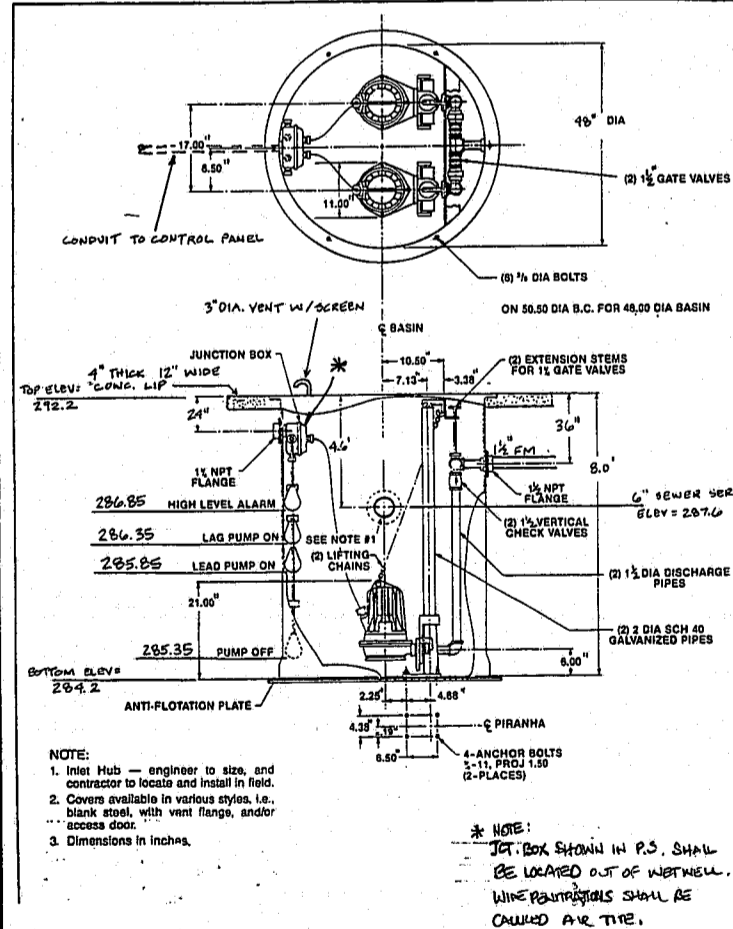


PUMP DIMENSIONS



VALVES
 A 1 1/2" fully ported 150 P.S.I. rated ball check valve with a corrosion resistant phenolic ball and a rubber seat shall be installed in the discharge line of each pump.
 A bronze fully ported 1 1/2" gate valve shall also be installed in the discharge line of each pump.

GENERAL

Furnish and install **2 EA.** Model **V2** ABS PIRANHA Grinder Pump(s) to deliver **2.25** USGPM against a total head of **65** feet. The motor shall be **2** HP, **3450** RPM connected for operation on a **208** volt, 60 HZ, **3** phase service. The motor shall be an integral part of the pumping unit. The pump discharge size shall be 1 1/4".

The grinder unit shall be capable of shearing and reducing to a fine slurry all material normally found in domestic and commercial sewage such as sanitary napkins, disposable diapers, cloth diapers, wash rags, wood, plastic, etc. The slurry shall be capable of freely passing through a 1 1/4" piping system including check and gate valves.

GRINDER PUMP CONSTRUCTION

The pump shall be of the centrifugal type with the rotating cutter mounted on the pump shaft directly against the impeller. The stationary cutter shall be mounted in an adjustable bottom plate. The bottom plate shall be cast with grooves threading outward from the center opening of the plate to the outer diameter. The impeller shall be a multiple vane centrifugal type. The cutter material shall be similar to an AISI 440C stainless steel with the addition of cobalt, vanadium, and molybdenum for superior abrasion resistance and a hardness of 58-62 Rockwell C.

The common pump and motor shaft shall be 420 stainless steel supported by a heavy duty lower single row ball bearing and an upper sealed single row ball bearing, all models. The cutting elements and impeller shall be designed to keep the overhung load distance to a minimum. All fasteners shall be 304 stainless steel.

Shaft Seals: Each pump shall be equipped with two seals. The lower seal (pump side) shall be of the mechanical type with silicon carbide faces. The upper seal shall be a lip seal mounted at a slight angle to the shaft.

Seal Failure Warning System: The seals shall be separated by an oil chamber. An electronic probe shall be provided in the oil chamber to detect the leakage of water. A solid-state device mounted in the pump control panel or in a separate enclosure shall send a low voltage, low ampere signal to the probe. If water enters the oil chamber the probe shall activate a warning light in the control panel.

MOTOR CONSTRUCTION

The motor shall be of the submersible type rated for **2** HP at 3450 RPM. The full load current shall not exceed **6.1** amps at **208** volts. Single phase motors shall be of the capacitor start capacitor run type for high starting torque.

The motor shall be oil-filled and shall have Class "F" insulation. The rotor and stator shall be enclosed in a Type 316 stainless steel outer housing. Bi-metallic thermal switches shall be imbedded in each phase of the winding to sense high temperature. The rating of the switch shall be 120°C ± 5°C. The control current shall be connected through the bi-metallic switches so the motor is shut down should a high temperature condition exist. The switches shall be self-resetting when the motor cools.

ELECTRICAL CONTROLS

All control elements shall be housed in a NEMA 4X fiberglass door-in-door enclosure. The enclosure shall be fully gasketed. The enclosure shall be suitable for wall or pole mounting.

A combination motor starter and thermal magnetic circuit breaker shall be provided for each pump. The unit shall have instantaneous trip magnetic overcurrent protection.

The control circuit shall be 115 volts. The control circuit shall be connected through the heat sensing switches in the pump and shall disconnect the control circuit in case of a high temperature condition in the grinder pump motor.

A HP rated contactor for each pump shall be provided.

Single phase controls to have start and run capacitors and start relays mounted in control cabinet.

A seal failure warning light shall be mounted on the dead front door.

Duplex units only: An alternator relay shall be supplied to alternate pumps on each successive cycle. A lag float switch shall be used to start both pumps if inflow is greater than one pump can handle and shall also start the second pump in case operating pump fails.

A terminal strip shall be supplied to make all power and control connections for the pump. All terminals shall be marked for easy identification. A ground terminal strip shall also be provided.

A high level alarm light shall be mounted on the top of the control cabinet. The light shall be enclosed in a red polycarbonate enclosure. The light shall be activated by the high level alarm float installed in the pump station as shown on the drawings. As an option, the high level alarm float can be connected to the lag pump float. The high level alarm light will operate when the lag pump float is activated.

INSTALLATION

Guide Rail Installation: A cast iron guide rail base shall be mounted on the floor of the pump station. The grinder pump shall be guided onto the cast iron discharge base by a single guide rail supported at the top by an upper guide bracket and at the bottom by the discharge base. The pump base shall be equipped with a straightening vane which properly aligns the pump on the discharge base just prior to final seating. When the pump is in position, the weight of the pump shall compress the gasket and seal the connection. The area under the pump shall be free and clear of any additional support legs or guide pipes to insure free entrance of solids to the impeller.

FIBERGLASS BASINS

ABS Piranha grinder pumps or equal shall be supplied in a model 6648096, 48" diameter, 8" deep duplex fiberglass basins. Basins shall come complete with 1 1/4" galvanized piping, check valves, gate valves, discharge connection and inlet hub. Lift out chain junction boxes and all necessary fittings shall be provided by the Contractor for a complete packaged system.

Basin covers shall be capable of carrying a live load of 150 pounds per square foot, and be epoxy painted.

FLOAT SWITCHES

The ABS mercury float is a direct acting float switch. The float is a chemical resistant polypropylene air filled casing with a single pole mercury switch and electrical cable permanently encapsulated in the float to form a completely watertight and impact resistant unit. The switch actuates when the longitudinal axis of the float is horizontal and deactuates when the float falls 1" below the actuation level. Switch rating 4.5A @ 120V, 2.2A @ 230V. UL recognized.

A float mounting bracket is available for attachment to the access cover or to the wet well wall. The ABS float bracket is constructed of 1/2" x 1/2" thick aluminum bar and incorporates a PVC cable gland for securing each float. This permits simple float length adjustment using standard tools. The bracket is available in either a 3 or 4 float support combination. Either version is capable of being mounted with a 3/4" or 8" reach from the mounting surface by simple disassembly and reversal of the float support mounting bracket.

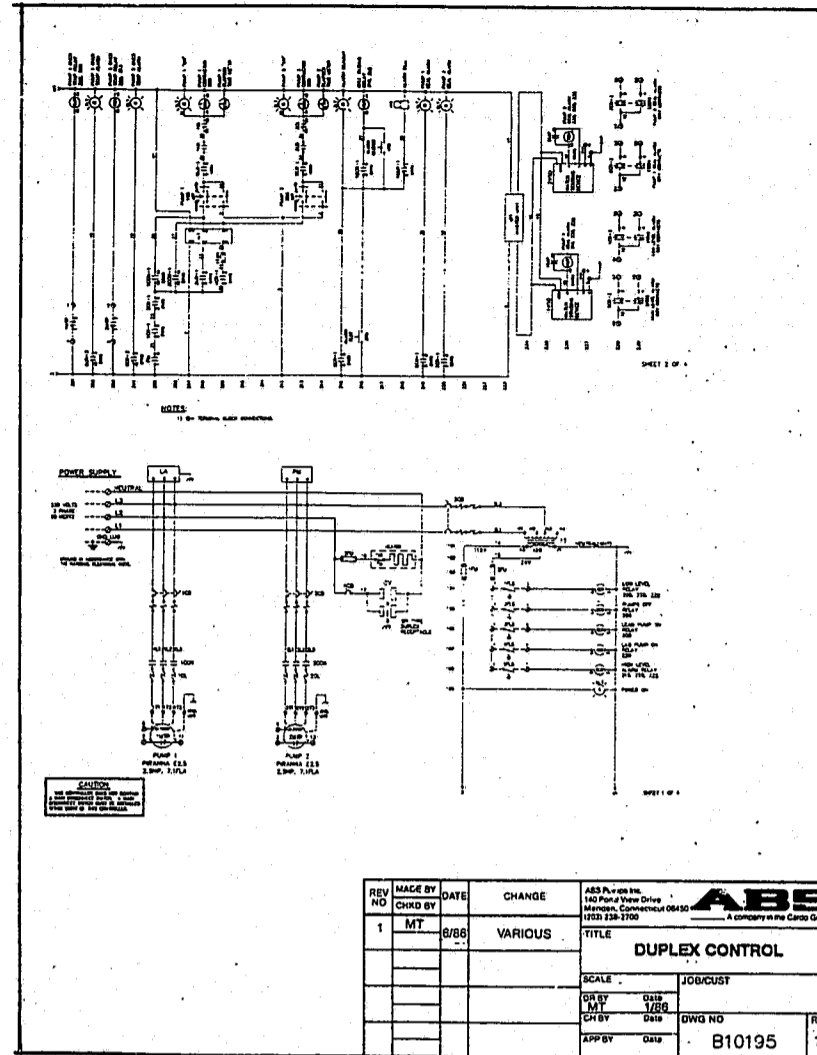
FT. OF CABLE	PART NO.
15	3288880

PART NO.
4142526Y - 4 FLOATS

ENGINEERING SPECIFICATIONS FOR ABS/QC SIMPLEX & DUPLEX PIRANHA CONTROLS

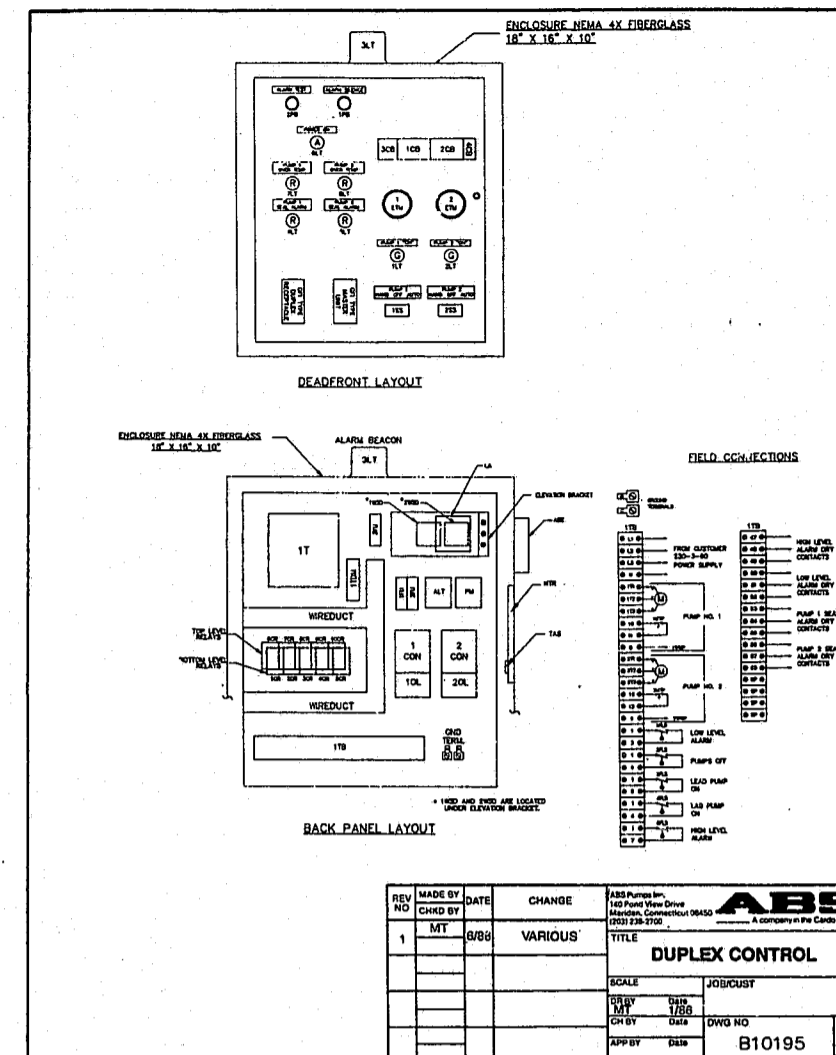
- A fully gasketed NEMA 3R door in door enclosure with a built-in drip shield and a stainless steel combination door latch/padlock hasp shall be provided to house the grinder pump controls. The enclosure shall be finished in epoxy powdered resin over phosphatized steel for protection against corrosion and shall be light grey in color.
 - A back panel shall be provided for the purpose of mounting all major control components inside of the enclosure. The back panel shall be finished in epoxy powdered resin over phosphatized steel and shall be white in color.
 - A removable inner door shall be provided and finished in epoxy powdered resin over phosphatized steel and shall also be white in color. All indicating lights, switches and circuit breaker operators shall be mounted on the inner door. The inner door shall also have a high quality latching mechanism to keep the door in the closed position. Thumb screws, wing nuts, and other such devices will not be acceptable.
 - Each pump motor shall have its own 2 pole, thermal magnetic circuit breaker, rated for 10,000 A.I.C. for short circuit protection. Circuit breaker operating mechanism to extend through the inner door and have a built-in visual trip indicator.
 - Over current protection for each motor is to be provided by the use of an ambient compensated Class "10" overload relay. The overload relay is to have a built-in manual reset button, an overload test button, a visual trip indicator, and provided with at least 2 pole protection. Single pole overload protection will not be acceptable.
 - A horsepower rated, across-the-line, magnetic contactor, shall be provided for each pump motor. Definite purpose contactors are not acceptable.
 - A direct acting "see-through" moisture sensing device is to be provided for each pump. It shall be required to sense moisture in the pump oil chamber and winding housing. The output of the moisture sensing device will be 24 VDC and energize a red indicating light mounted on the inner door.
 - A high intensity, heavy duty, red Luxon, alarm beacon with 40 watt lamp shall be top mounted on the exterior of the enclosure. The alarm beacon is to be fully gasketed to prevent water from entering the enclosure and be attached by mounting screws from inside the enclosure to prevent tampering. Also provide an alarm horn with a silence switch. The alarm horn is to be mounted on the exterior of the enclosure and rated 90dB @ 3 feet.
- The alarm beacon and alarm horn are to be activated by the high level alarm float mounted inside the wet well. The alarm beacon shall be required to flash and remain activated should alarm horn be silenced until high level condition is corrected.
- In addition to the above mentioned specification, the following shall be supplied:
- Hand-off-auto selector switches for each pump. Note: All switches provided with the control are to be sealed for protection against dirt, dust, moisture and mounted on inner door.
 - Green pump run indicating lights for each pump. Note: All indicating lights provided with the control are to be 7/8" or 1" light type mounted on inner door.
 - Necessary start relays, run capacitors and start capacitors.
 - A separate indicating type circuit breaker shall be mounted on the inner door to provide short circuit protection to the control circuit. Control circuit to be 115V/1Ø0 and remain activated should pump failure occur.
 - Box type, numbered, terminal blocks are to be provided for all incoming and outgoing connections. Ground tags shall also be provided.
 - All conductors are to be properly numbered or marked to match elementary wiring diagram provided with each control.
- Duplex controls shall be provided with automatic pump alternation and elapsed time meters for each pump.
- All pump controls to operate with a 230/115 volt - 1 phase - 60 hertz power supply.

WIRING DIAGRAM



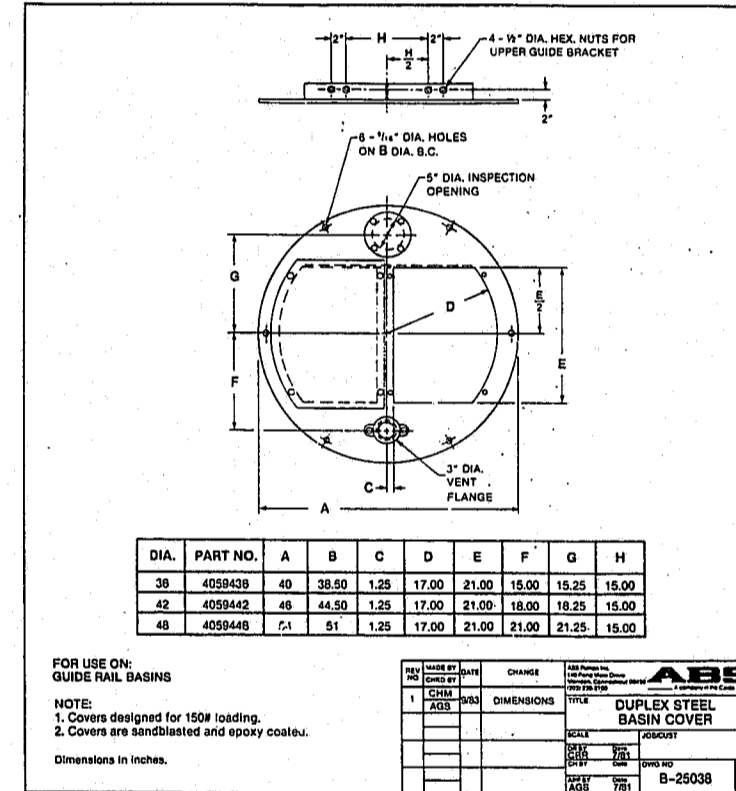
REV	MADE BY	DATE	CHANGE	DESCRIPTION	REVISED BY	DATE	SCALE	PROJECT	DWG NO	REV
1	MT	08/01	VARIOUS	DUPLEX CONTROL					B10195	1

WIRING DIAGRAM



REV	MADE BY	DATE	CHANGE	DESCRIPTION	REVISED BY	DATE	SCALE	PROJECT	DWG NO	REV
1	MT	08/01	VARIOUS	DUPLEX CONTROL					B10195	1

Basin Covers



DIA.	PART NO.	A	B	C	D	E	F	G	H
36	4058438	40	38.50	1.25	17.00	21.00	15.00	15.25	15.00
42	4058442	46	44.50	1.25	17.00	21.00	18.00	18.25	15.00
48	4058446	52	51	1.25	17.00	21.00	21.00	21.25	15.00

REV	MADE BY	DATE	CHANGE	DESCRIPTION	REVISED BY	DATE	SCALE	PROJECT	DWG NO	REV
1	MT	08/01	VARIOUS	DUPLEX STEEL BASIN COVER					B-26038	1



Revisions	No.	Description	Date	By
1	1	REVISE PUMP STATION	11/25/92	MT