

Contents

	Page
Installation	2
Maintenance	5
Service (Fluid End)	6
Service (Hydraulic End)	10
Troubleshooting	13

Installation

Location

The D-12 and G-12 pumps are designed to run vertically with the head submersed in the fluid being pumped. The pump/motor can be hinged to a horizontal position, as shown below, for maintenance and for changing the oil. Allow enough space for the unit to be switched to either position.

Pump Motors

The pump shaft can rotate in either direction.

Determine motor size by consulting the Pump Specifications Manual; use the Flow Rate performance chart and apply the formula given to determine either the motor electric BHP or KW required.

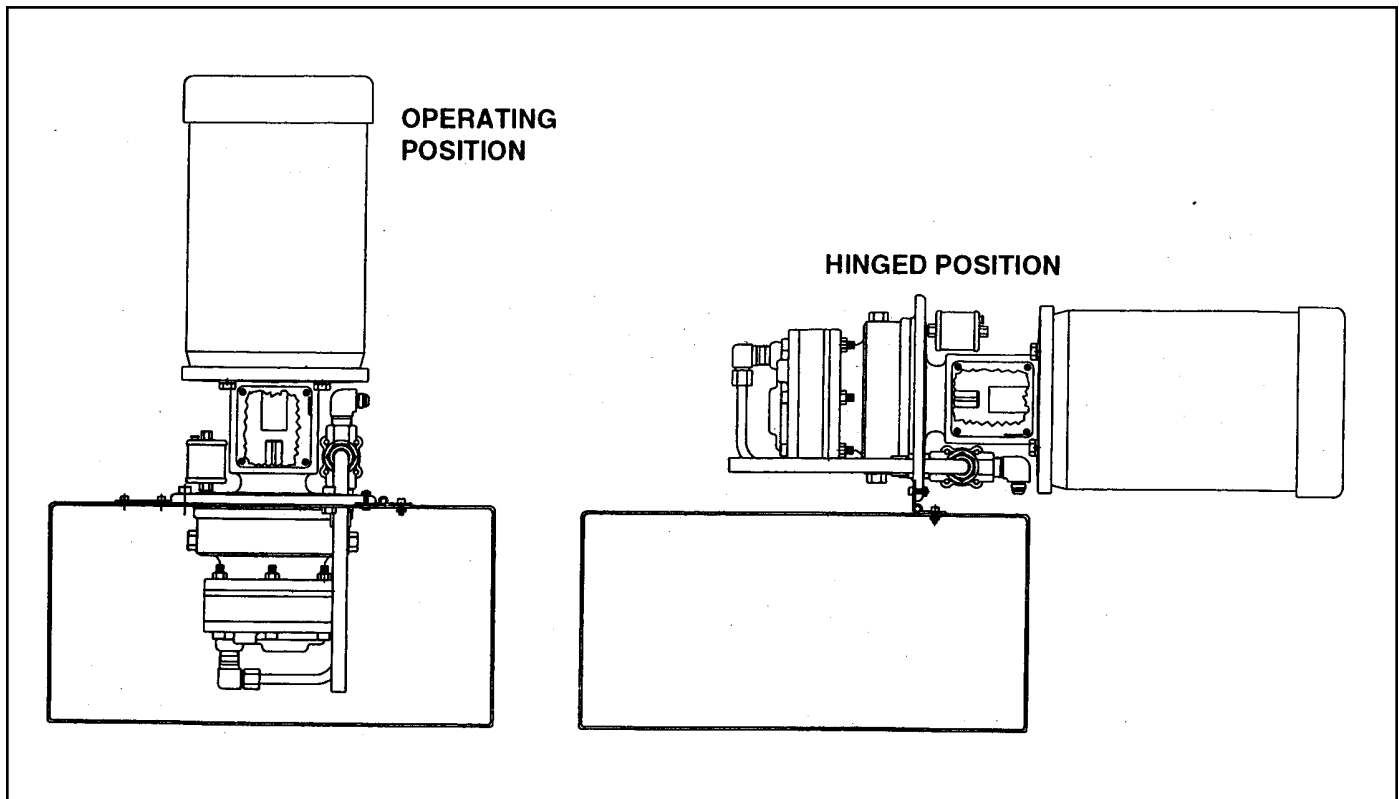
- The Model D-12 pump housing is designed to use a NEMA-frame, 182TC to 215TC, C-face motor without feet.
- The Model G-12 pump housing is designed to use an IEC-frame, type MT100LA, MT100LB, or MBT112M motor with a type D flange at the drive end and without feet.

Constructing the Tank

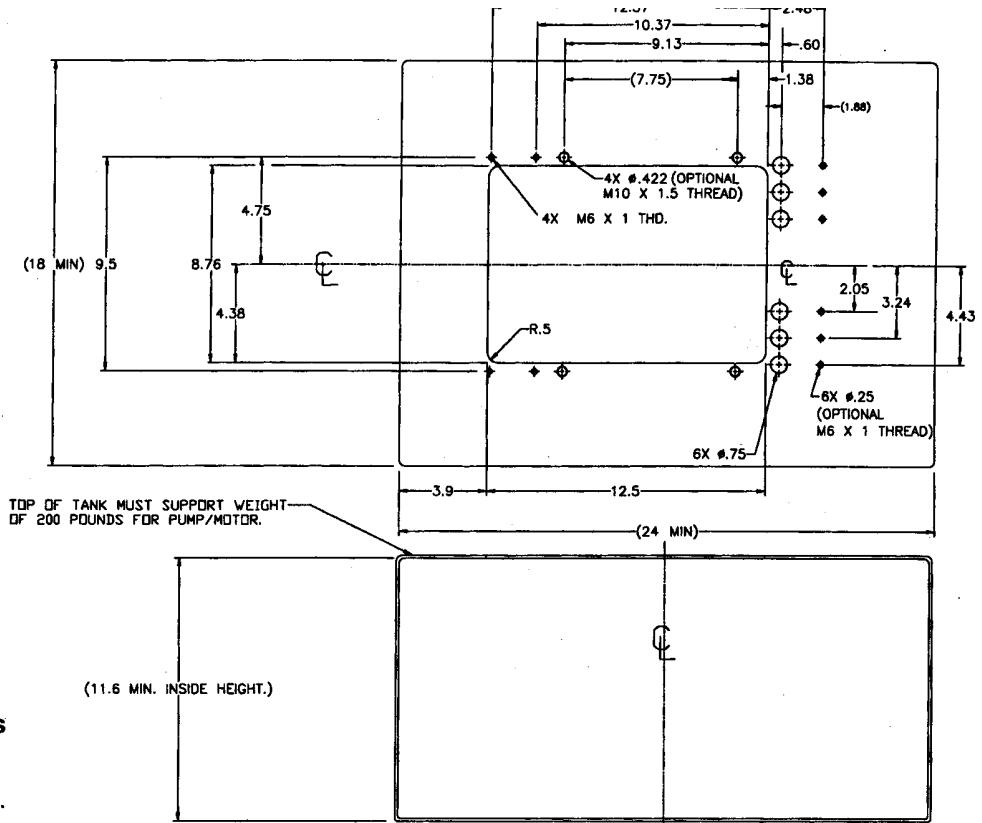
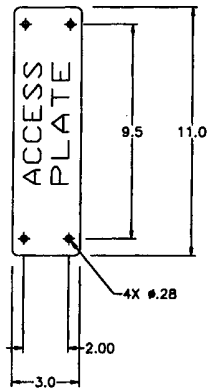
The illustrations on page 3 show the minimum inside height, top cutout, access plate size, and hole size and locations required to mount the pump and hinges.

Construct the tank so it will support the weight of the pump/motor, approximately 200 lbs (90 kg). It must not tip in normal operation, or when the pump/motor is hinged for maintenance.

The tank should be large enough to avoid aerating the fluid.

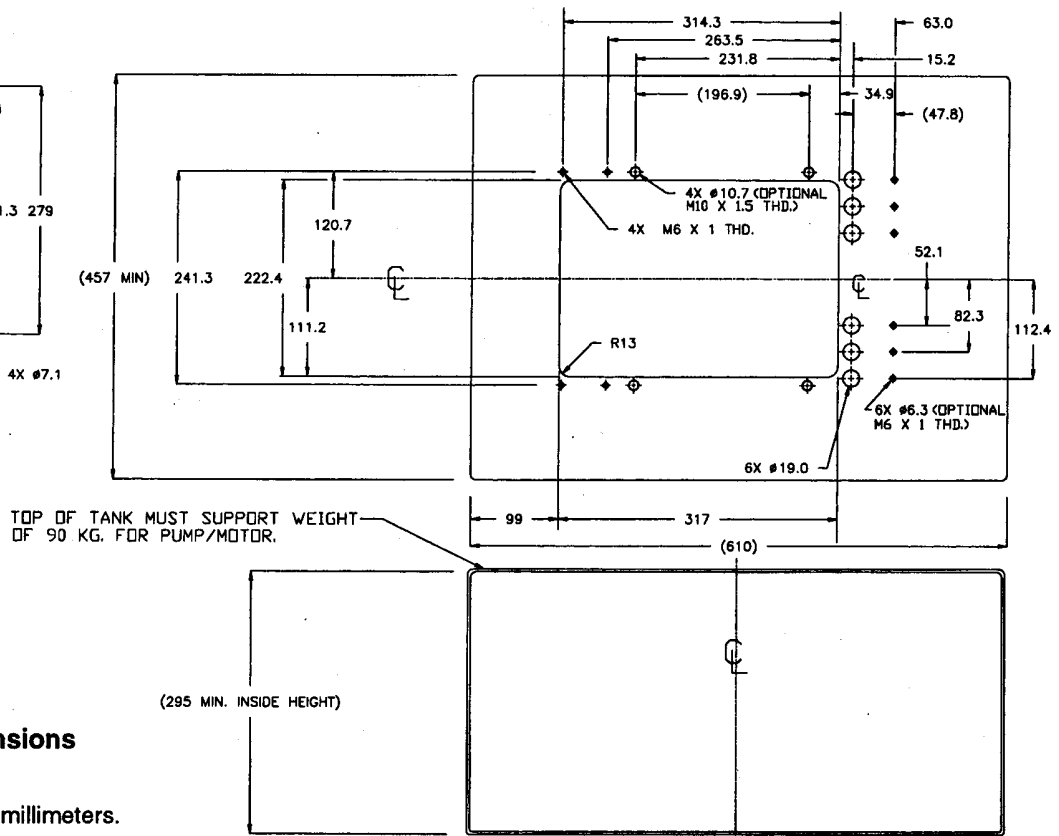
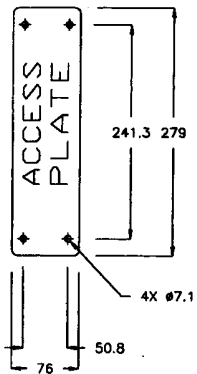


Installation



Minimum Dimensions D-12 TANK

Dimensions are in inches.



Minimum Dimensions G-12 TANK

Dimensions are in millimeters.

Installation

Mounting the Pump

Refer to page 3 for illustrations that show the tank top cutout, access plate, and hole sizes and locations. The cutout is larger than the pump housing base to allow for hinging the complete pump and motor assembly. Install the access plate after the pump is mounted vertically, to cover the remaining opening. The access plate must be removed before the pump/motor can be hinged horizontally for maintenance.

Isolate the tank from the system with flexible hose for the piping and flexible wiring to the motor. Allow long-enough flexible hose and wiring for hinging the pump/motor, or attach “quick-connect” fittings for easy maintenance.

With the unit vertical, fasten the pump housing to the tank using four 3/8-in. or 10-mm bolts into the holes in the square mounting base of the housing. Use six 1/4-in. or 6-mm bolts to fasten the two hinges to the tank.

Inlet Piping

Before entering the section of the tank where the pump inlet is submersed, the fluid being pumped should be prefiltered to one size smaller than the smallest nozzle or tool orifice in the system. Set up baffling in the tank that will allow large particles and chips to settle out before they get close to the pump inlet. Also, install at least two stages of filtering to ensure an adequate supply of fluid to the pump inlet; a coarse mesh followed by a fine mesh to section off the tank closest to the pump. Install the filters in the tank where they can be checked and cleaned regularly; plugged filters can result in pump cavitation, drop in volume or pressure output, and damage to the pump.

If the fluid being pumped gets too hot, a chiller may be required. If pumping machine-tool coolant, operate below the manufacturer’s maximum temperature rating for the coolant.

Discharge Piping

Hose Size and Routing

Use the shortest, most-direct route for the discharge line.

Select pipe or hose that meets the pressure requirements of the system (working pressure of the hose should not exceed 1/4 of the bursting pressure).

Use flexible hose between the pump and rigid piping to isolate the pump/motor/tank from the system.

Pressure Regulation

Install a pressure regulator in the discharge line.

There is an accessory kit that allows a Hydra-Cell C-22 Regulating Valve to be mounted on the pump housing, so the bypass fluid goes back to the tank. Bypass pressure must not exceed the pressure limit of the pump, 1000 psi (69 bar).

If the pump may be run for a long time with the discharge closed and fluid bypassing, the fluid in the tank will heat up. If the fluid

gets too hot, a heat exchanger or chiller may be required.

Caution: Never install shutoff valves in the bypass line or between the pump outlet and pressure regulator.

Provide for permanent or temporary installation of a pressure gauge to monitor the discharge pressure at the pump.

For additional system protection, install a “pop-off” safety relief valve in the discharge line, downstream from the pressure regulator.

Before Initial Start-Up

Before you start the pump, be sure that:

- The pipe plug on the pump housing has been removed and the oil reservoir has been installed. The reservoir allows for oil expansion during pump operation. At startup, there is normally no oil in the reservoir; during operation, oil rises in the reservoir (the level will depend on operating conditions).
- All shut-off valves are open, and the pump has an adequate supply of fluid.
- All connections are right.
- The pressure regulator on the pump outlet is adjusted so the pump starts under minimum pressure. This allows air in the system to be expelled easily, and fluid to enter the pump and system.
- The coupler that connects the pump and motor has been sized and installed correctly.
- All guards and safety covers have been installed.
- All electrical wiring has been done correctly to electrical codes.

Important Precautions

Adequate Fluid Supply. To avoid cavitation and premature pump failure, be sure that the pump will have an adequate fluid supply and that the inlet line will not be obstructed. See “Inlet Piping”.

Shut-Off Valves. Never install shut-off valves between the pump outlet and discharge pressure regulator, or in the regulator bypass line.

Freezing Conditions. Protect the pump from freezing. See also the Maintenance Section.

Initial Start-Up Procedure

1. Turn on power to the pump motor.
2. Listen for any erratic noise, and look for unsteady flow.
3. Adjust the discharge pressure regulator to the desired operating and bypass pressures.
4. After the pressure regulator is adjusted, set the “pop-off” safety relief valve at 100 psi (7 bar) higher than the desired operating pressure.