

SYSTEM RECEIVING AND INSTALLATION GUIDE

NOTE: The information contained in this booklet is intended to assist the system installing personnel by providing basic information for a safe and effective installation. It does not relieve the user of the responsibility of using accepted trade practices in the handling, anchoring and connecting of this equipment.



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I. RECEIVING THE EQUIPMENT

All SyncroFlo Prefabricated water Pressure Booster Systems are assembled, wired and factory tested prior to shipment. A protective plastic wrapping has been attached. Upon arrival of your system, should you find the plastic wrapping has been removed or any other indication of mishandling or breakage during transit, note this immediately on the carrier's Bill of Lading.

Note: *Plastic wrapping is not designed for use as a weather proof covering if the unit is to be stored and installed at a later date, refer to the temporary storage procedure in this guide.*

CAUTION: *SyncroFlo systems are best handled using a fork lift under the skid base. Never use motor lifting eyes to lift the entire weight of the system.*

Due to shipping height limitations, it may have been necessary to remove the motors from the top of the vertical turbine pumps prior to shipment. In this case the motors will be bolted to the shipping skid. Refer to the specific manual on vertical motors and vertical turbine pumps for care, handling, and installation of these motors. Motor headshafts have been strapped to the suction header prior to shipment. The headshafts should not be removed from this location until your SyncroFlo representative arrives for initial start-up of your system. If it is necessary to remove the headshafts, handle them with extreme care.

Some systems may contain items for field installation. Make sure these items are accounted for. Protect these components from damage if you are installing at a later date.

An electrical schematic is supplied with the system to serve as a reference for all electrical connections. Please contact your local SyncroFlo representative with any questions about installation or assistance with start-up.

CAUTION: *SyncroFlo systems are easily handled by fork lifting from under the skid base. Never use motor or controller lifting eyes to lift the entire weight of the system.*

II. TEMPORARY STORAGE

If your SyncroFlo system is not to be installed or operated immediately after arrival, the system must be stored in a clean, dry location. It should not be exposed to excess moisture, extreme weather conditions, corrosive fumes or other harmful conditions.

Motors should be rotated by hand monthly to coat the bearing with lubricant to retard corrosion, oxidation and to prevent formation of "flat spots". Further, monthly rotation will minimize the possibility of seal damage during start-up. Some motors are equipped with oil lubricated bearings. On these units, the oil reservoir should be filled to the maximum level with suitable oil and also rotated monthly. The unit should be covered during storage and should be inspected from time to time for damage due to abuse, vandalism or vermin infestation.

III. LOCATION

The area in which the system is installed must be large enough to allow three feet of clear space in front and in back of the system. Consult your local AHJ (authority having jurisdiction) for the required clearance in front of the control panel. There must also be ample room above the system for installation and removal of the motor shafts from vertical hollow shaft motors.

The HydroCumulator tank (if supplied) requires easy access to a location which is twice the length of the tank so that the bladder and distribution tube can be removed for maintenance.

IV. ANCHORING

Prefabricated units should be installed on a level housekeeping pad and bolted to a firm foundation using all of the anchoring holes provided in the skid base, or hold down clips. These holes are typically 13/16" diameter.

It is recommended that the skid base be grouted. The following securing and grouting procedures are recommended after the system is level. Grouting decreases the amplitude of any vibration.

Securing Procedure

- A) Verify housekeeping pad (foundation) is level, smooth and free of any loose material.
- B) Position the system on the housekeeping pad so the headers line up with the building piping connections.
- C) Level the system using a torpedo level and leveling shims.
- D) Install wedge type anchor bolts in the anchor holes located in the skid.

Grouting Procedure

NOTE: Grout must be non-shrink non-ferrous type

- A) Build a strong form around the foundation to contain the grout. The skid base of some systems is designed to contain the grout, so a form may not be necessary.
- B) Soak the top of the foundation thoroughly, and then remove the surface water.
- C) Pour grout and make sure it does not rise above the top of the skid.

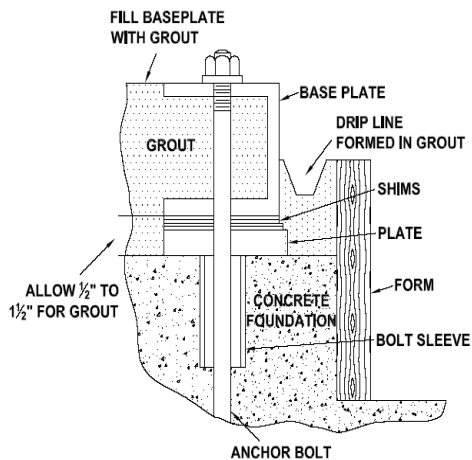


Fig 1: Setting Base Plate and Grouting

- D) After grout has thoroughly hardened, install anchoring bolt nuts and tighten.
- E) Check the pump and motor shaft alignment on systems utilizing horizontal pumps with flexible couplings. Check after the package is anchored and the piping is filled with water.
- F) Approximately 14 days after the grout has been poured, or when the grout has thoroughly dried, apply an oil base paint to the exposed surfaces of the grout to prevent air and moisture from coming in the contact with the grout.

V. PIPING

CAUTION: PUMPING SYSTEMS DISCHARGE HOT SCALDING WATER.

Locate a floor drain adjacent to the pumping system, with a minimum three-inch drainage pipe. This floor drain area must be kept clear and clean to receive various discharges from the pumping system. Significant water damage might occur if adequate drainage is not provided. Locate drains at the low point in the mechanical room floor. Provide barriers so that water cannot reach areas that are not properly flashed.

Vibration Isolation

SyncroFlo recommends rubber flex connectors for maximum vibration isolation. The #1 cause for sound complaints is a combination of (1) setting the skid on a vibration isolation base and (2) a rigid connection from the headers to the building piping.

A) Pipe connections

Pipe connections to the system must be equal to the diameter of the headers themselves. SyncroFlo recommends that isolation valves be installed in both the suction and discharge sides of the unit as well as bypass valve and piping in the event that major maintenance works is required. Globe type valves are excessively restrictive and should never be used for this purpose.

Note: On some systems, it is required to install the suction header pipe support(s) as shown below. This must be done per the following steps and before the headers are connected to the building piping.



- a) Remove pipe support(s) from header.
- b) Locate support(s) against the header and bolt to housekeeping pad using wedge type anchor bolts.
- c) Gently pull up on header (5 to 10 lbs max) and tighten pipe strap(s).
- d) Verify installation by loosening anchor bolts and check endplay on top of pipe support. If any end play is evident repeat step c.
- e) Retighten anchor bolts.

Connections to SyncroFlo manifolds should be made after all other piping connections in the system are drawn up tight. Be careful not to force connections.

Use pipe hangers or other supports at proper intervals to provide complete piping support near the unit. Both suction and discharge piping should be independently supported to the pumps. **CAUTION: Excessive strain can severely damage the pumps, piping, or system components.**

All purge lines should be piped to a floor drain to avoid equipment room flooding. Pipe to atmosphere; do not connect with any other drain connections. When all piping is complete, check the system for leaks by opening the suction & discharge valves and bleeding the air from the pressure regulating valves, pressure gauges, pumps and barrels, if applicable. Check for leaks again when the system is started and before insulation is installed. Purge system of air one more time once flow has been established for a period of time.

VI. ELECTRICAL

CAUTION: Connection should be made by a qualified electrician. Once connected, an electrocution hazard may exist.



A) Fasteners

ALL FASTENERS SHOULD BE TIGHTENED. Vibration in shipping and handling can cause bolts and screws to loosen. Tighten all fasteners, especially those in the control panel.

Most SyncroFlo systems require a three phase power source connection to either the main power block near the High Voltage warning label or to the top of individual disconnect switch(es). An earth ground must also be connected to the terminal lug provided in the control enclosure.

NOTE: SyncroFlo recommends uses of copper stranded wire for wiring of field installed control devices. Refer to National Electric Code and local code for correct wire selection.

All wiring and grounding should be done by qualified electricians to comply with the National Electrical Code and local codes.

Caution: incorrect wiring can cause damage to equipment and possible injury or death to personnel, or damage to property.

System operation requires that the voltage variance be no more than +/- 7 percent of that which is stated on the panel nameplate.

B) Power Connections

All electrical connections must be made by a qualified electrician.

SyncroFlo prefabricated systems are completely wired and tested prior to shipment. The only field wiring required is as follows:

Check the motor rotation after connecting the system to the power source. This can be done by switching the pump into the hand position just for a split second and observing. If the rotation is incorrect, simply reverse any two of the incoming leads. If system has VFD's, check rotation first across the line, then in variable frequency mode. Incorrect rotation from VFD can only be corrected by changing two output leads to motor.

NOTE: See pump manual for correct rotation.

If indicated on the electrical drawing, SyncroFlo has provided isolated “dry” alarm relay contacts(s) for field wiring to building system monitoring stations. These contacts are factory wired to terminals shown on the electrical drawing using “yellow” wire. Remote alarm devices to be activated through these contacts must not exceed current or voltage rating listed on the electrical schematics.

In addition, based on System Design, it may be necessary to field wire equipment supplied with your system which could not be system mounted and wired at the factory. Refer to electrical drawing for terminal identification and for wiring of field installed components.

VII. START-UP ASSISTANCE

Upon completion of installation, contact your SyncroFlo representative for verification of proper installation and assistance with system start-up.