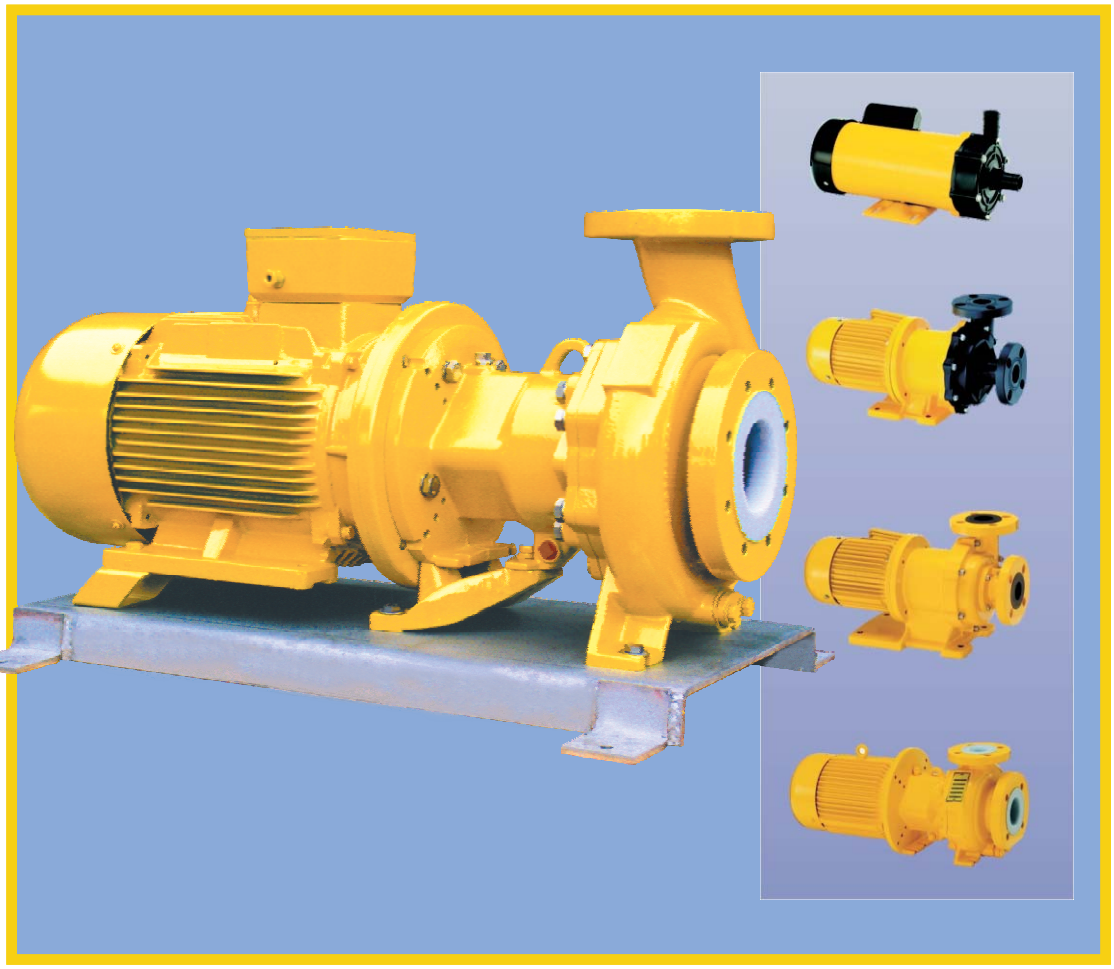
Installation, Operation & Maintenance Manual

TECHNIFLO



Installation, Operation & Maintenance Manual

for versions PX, PS, PW, PW-C, PH

Warning!

- Handle with care.
- Refer safety warning.
- Refer instruction manual.
- Before installation of pump, carfully read instruction manual.

S40080a-01

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Manufacturers Warranty

All TECHNIFLO pumps are covered by a 12 month warranty, from invoice date, against defects in materials or workmanship.

The warranty is conditional upon the pump being used in a manner, and under conditions, for which it is designed.

Pump damage caused by user negligence will void this warranty.

No liability shall apply for incidental or consequential damages, however caused, such as loss of use, loss of anticipated profit or revenues, facility down time, cost to remove pump from services, cost to reinstall pump into service or responsibility for transportation to or from our plant.

No express warranties and no implied warranties, whether of merchantability or fitness for any particular purpose or otherwise, other than those expressly set forth herein (which are made in lieu of all other warranties), shall apply to product line with respect to distributor and/or end user.

INVOICE NO _____

PUMP MODEL NO _____

INVOICE DATE _____

JOB NO _____

Section A - Safety

SAFETY FIRST - IMPORTANT DEFINITIONS

For your protection, and the protection of others, learn and always follow the safety rules outlined in this booklet. Observe warning signs on machines and act accordingly. Form safe working habits by reading the rules and abiding by them. INSTALLATION, OPERATION AND MAINTENANCE MUST BE DONE BY THOROUGHLY QUALIFIED PERSONNEL IN STRICT ACCORDANCE WITH THIS MANUAL AND MUST COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES. Keep this booklet handy and review it from time to time to refresh your understanding of the rules.

Techniflo Pumps are designed for safe and reliable operation.

However, like any mechanical device, the proper and safe performance of this equipment depends upon using sound and prudent operating, maintenance and servicing procedures performed by properly trained personnel. Instructions and safety procedures contained herein must always be followed. As such, Techniflo shall not be liable for any damages or delays caused by failure to observe any instructions or warnings in this manual.

DANGER

The use of the word “DANGER” always signifies an immediate hazard with a high likelihood of severe personal injury or death if instructions, including recommended precautions, are not followed.

CAUTION

The use of the word "CAUTION"signifies possible hazards or unsafe practices which could result in minor injury, product or property damage if instructions, and recommended precautions are not followed.

WARNING

The use of the word “WARNING” signifies the presence of hazards or unsafe practices which could result in severe personal injury or death if instructions, including recommended precautions, are not followed.

MAGNETIC

The use of the word “MAGNETIC” indicates the persistent presence of a magnetic field. Such fields present immediate danger to individuals having electronic medical devices, metallic heart valves, metallic prosthetics or metallic surgical clips.

Section A - Safety (cont)

OPERATING SAFETY BASICS

Protect yourself, and your new Techniflo pump, by following accepted engineering practices in the installation, operation and maintenance of this equipment. Listed below are some of basics you should keep in mind in addition to your own company rules regarding installation, operation and maintenance:

- NEVER start this pump without proper prime (casing must be full of liquid).
- NEVER run this pump dry.
- NEVER operate this pump with the suction valve closed.
- NEVER operate this pump with the discharge valve closed.
- NEVER use heat (risk of explosion) to disassemble any portion of the pump.
- NEVER change pump conditions of service without approval of Distributor or Techniflo Agent.
- NEVER remove "Warnings" lables that are displayed on the pump.
- NEVER operate pump if there are questionsigns of leakage.
- NEVER loosen flange connection while system is under pressure.
- ALWAYS remove casing drain and purge casing of liquid before service.
- ALWAYS keep a clean work environment.
- ALWAYS perform "Tag & Lockout" on power source before service.
- ALWAYS make certain pressure gauges, indicating lights and safety devices are in working order.
- ALWAYS know the EMERGENCY STOP for this pump.
- ALWAYS have this service manual available during any installation or maintenance.
- NEVER attempt to clean the pump while it is operating.

PUMP CLEANING PRECAUTIONS

- ALWAYS perform "Tag & Lockout" on power source before cleaning.
- ALWAYS remove casing drain and purge casing of liquid before cleaning internals.
- ALWAYS make certain that no toxic or flammable fumes and/or vapours remain in the pump casing or surrounding area.
- ALWAYS clean up any spills immediately according to local, state and federal codes.
- ALWAYS have this service manual available during installation and maintenance.

Section B - Receiving the Pump

RECEIVING

All Techniflo pumps are inspected prior to shipping and packaged for safe transportation. Techniflo cannot, however, guarantee the safe arrival at the user's plant. Therefore, upon receipt of this equipment….

- Check the received items against the packing list for missing parts or damage.
- Check the packing material thoroughly for small parts.

If there are any parts missing or if the pump is damaged, a claim must be filed ***against the carrier*** immediately.

Pump ends without motors require assembly of the outer drive magnet and motor. Refer to drive end assembly procedures in the manual.

WARNING

Failure to properly lift and support equipment could result in serious injury or damage to pumps.

WARNING

These pumps use ceramic and/or silicon carbide components. Do not drop pump or subject it to shock loads, this may damage internal components.

Section C - Pump Identification

IDENTIFICATION TAG

Every Techniflo pump unit has a nameplate to provide information on your pump. The nameplates are located on the side of each casing. It is recommended that the purchaser records the serial number and use it for reference when requesting information or service parts from Techniflo.

Permanent records for this pump are kept by the serial number and therefore, can be used with all correspondence and spare parts orders.

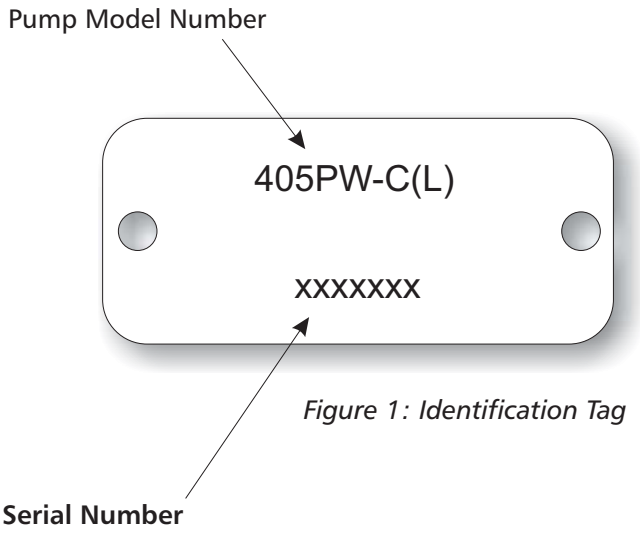

Figure 1: Identification Tag

Section D - Piping Connections

GENERAL

Techniflo pumps are designed with all the necessary strength factors for long, reliable service life. Some general guidelines are described here for your pump installation needs.

CAUTION

It is good practice to install a throttling type shut-off valve in the discharge piping. Throttling the discharge during initial start-up is recommended to protect against "water hammer," which is most likely to happen when there are long pipe runs at high flow velocity.

- Piping should be arranged to allow pump flushing prior to removal of the unit if handling corrosive liquids.
- When Teflon or similar lined pipe is used, flange alignment should be carefully checked. Spacer ring gaskets are recommended to assure parallel alignment of pipe and pump flanges.
- Piping should be supported independently of the pump and line up naturally to pump flanges.
- Pressure gauges can be installed in both the suction and discharge piping. Gauges will enable the operator to easily observe the operation of the pump , and to determine if the pump is operating in conformance with the performance curve. If cavitation or other unstable operation should occur, widely fluctuating discharge pressures will be noticed.

SUCTION PIPING

If reducers are used they should be eccentric and installed at the pump suction flange with eccentric side on the bottom.

The length of the suction pipe should be kept to a minimum.

Suction piping should be installed with a gradual rise to the pump to eliminate any air pockets.

The diameter of the suction pipe should always be as large or larger than the pump suction.

Elbows or fittings should be avoided at suction flange. Allow at least 10 pipe diameter In length for straight run into the pump.

If a valve is used in the suction, use only full flow valves. These valves should be for shut-off only when the pump is not running, not for throttling or controlling flow. A valve designed for flow control should be installed in the discharge. This valve can be used for throttling.

Suction strainers, when used, must have a net free area of the least three times the suction pipe area.

An isolation valve should be installed in the suction line at least two pipe diameters from the suction to permit closing of the line for pump inspection and maintenance.

DISCHARGE PIPING

Isolation and check valves should be installed in the discharge line. The isolation valve allows for regulation of the flow and for inspection of the Pump. The check valve prevents pump damage by water hammer.

Section E - Operation

ELECTRICAL

DANGER

- ***Only a qualified electrician should make the electrical connections to the pump drive motor.***
- ***Read motor manufacturers instructions before making installation.***
- ***Check motor nameplate data to be certain that all wiring, switches, starter, and overload protection are correctly sized.***

Install the motor according to statutory requirements and local electrical codes. Check all connections to motor and starting devices with wiring diagram. Check voltage, phase, and frequency on motor nameplate with line circuit.

Special electrical requirements

Install a flexible electrical coupling on the motor. Allow for movement of at least 300mm. This is necessary to service and inspect the pump.

START UP

1. Fully open the suction valve. Pump requires a flooded suction.

WARNING

- ***Do not operate pump with suction valve closed. Operating pump more than a few minutes with the suction valve closed can cause bearing failure.***

2. Open the discharge valve. Techniflo pumps operate safely with the discharge valve partially open.

CAUTION

- ***Continous operation against a closed discharge valve may cause pump to overheat.***

3. Briefly jog the motor to determine the direction of rotation. Correct rotation viewed from the suction port is CCW as indicated by the arrow on the front of the casing. Improper rotation won't damage the pump , but performance will be greatly reduced.
4. Start the pump.

CAUTION

- ***Immediately check pressure gauges. If discharge pressure is not quickly reached stop the driver, re-prime and attempt to restart.***

PUMP PERFORMANCE

1. Set flow rate and pressure by regulating the discharge valve.

CAUTION

- ***Never throttle pump using the suction valve.***

2. Check the pump and piping to assure that there are no leaks
3. Check and record pressure gauge readings for future reference.

CAUTION

- ***Never operate pump above rated temperature.***
- ***Never operate pump above rated pressure***
- ***Never operate pump below minimum flow rate.***

It is recommended that a power monitor be used to prevent pump damage under unusual operating conditions, such as dry running.

WARNING

- ***Driver may overload and decouple if liquid specific gravity is greater than originally specified. Prolonged running while decoupling will damage the driver magnets.***
- ***Maximum casing pressure must not exceed 1.5x the maximum discharge pressure of the pump.***

Section F - Preventative Maintenance

The preventative maintenance and disassembly procedures are intended for use during standard field inspection or service.

WARNING

The disassembly can take place with the pump still piped in or in a maintenance shop. Lockout the driver power to prevent accidental start-up that could result in serious personal injury.

1.Lockout and/or disconnect power.

2.Shut off all valves controlling flow to and from the pump. Isolate the pump from the system and relieve any remaining system pressure.

3.Drain and decontaminate the pump in accordance with all national, state, local and company environmental regulations.

WARNING

When handling hazardous and/or toxic fluids, skin, eye and respiratory protection are required. If pump is being drained, precautions must be taken to prevent injury and/or environmental contamination.

WARNING **MAGNETIC**

Techniflo pumps contain extremely strong magnets. The use of non-magnetic tools and work surface is highly recommended.

DISASSEMBLY

1.Drain the liquid from the pump. At this time completely flush the inside of the pump.

2.Remove the bolts from the front casing and remove the front casing from the bracket.

3.Pull the impeller forward for removal. Careful handling of each part should ensure that no damage can occur.

4. Pull the rear casing forward for removal.

ASSEMBLY

1.Assemble the pump in the reverse order to disasembly.

2. Before assembly clean all the parts so that no foreign particles are present in or around the parts. Make sure that the parts are not scratched and that the magnets are not contaminated with metallic particles.

3. Always mount new O-Rings after disassembly.

4. Tighten all bolts equally, ensuring they are not over-tightened.

CAUTION

Be careful when installing the magnetic capsule / impeller as the strong magnets can pull in very quickly. Ensure that fingers are clear to prevent personal injury.

For more details please contact

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