

AARDVARK PUMPS HTO SERIES

HTO 120 INSTALLATION AND SERVICE INSTRUCTIONS

This bulletin must be read completely before installing, operating, or servicing the pump.

**WARNING:**

If any of the items listed below are violated, serious injury or death from burns caused by hot oil may occur.

- **DO NOT** perform service or maintenance when the pumping system is pressurized or hot - serious injury or death from burns caused by hot oil may occur.
- **DO NOT** operate the pump in a manner that it was not intended to be use.
- **DO NOT** install for use in an open environment where people are present.
- **DO NOT** install in a rigid piping system that does not allow the pipe to expand and cause the pump to be strained.
- **DO NOT** continue to operate the pumping system when a known leak exists or the system continues to smoke.
- **DO NOT** continue to operate the pump when unusual noise or vibration occurs.
- **DO NOT** install or use near water where the pumping system may come into contact with water or is splashed by water.
- **DO NOT** operate beyond the pressure or temperature limits stated in the product literature, see form 9050.
- **DO NOT** allow severe temperature changes to occur in a short time period within the pumping system.
- **DO NOT** mix different types or grades of oil within the oil system.
- **DO NOT** use an oil that is not a recommended heat transfer oil by the manufacturer.
- **DO NOT** exceed the maximum oil temperature rated by the oil manufacturer at the hottest point in the pumping system.
- **DO NOT** mount the pump such that high piping loads exist on the pump flanges.

**MP PUMPS, INC.**

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APPLICATION AND INSTALLATION INSTRUCTIONS

Application assistance and technical information can be obtained by calling

The HTO pump is designed for pumping high temperature fluids that are non-corrosive, non-volatile and have good lubricating qualities.

The primary application for use is with heat transfer oils.

It is the users' responsibility to determine the pump and product compatibility with the materials of construction.

INSTALLATION AND START-UP

INSTALLATION

1. The pump must be installed in a horizontal shaft position.
2. The housing may be rotated to a horizontal or vertical discharge to fit the particular piping installation.
3. Rigid and supported piping must be used that will not strain the pump housing when temperature changes are made during the use of the pump.
4. The piping system must be free of foreign material and moisture before start-up.
5. Pipe thread sealing compound must be used on the NPT flanges that is compatible with the fluid being pumped and is rated for the temperature requirements.
6. The installation should permit adequate circulation of air to provide proper cooling of the motor and pump seal housing.
7. Do not install in a sealed enclosure or insulate the pump adapter and motor. The motor and/or pump seal may fail from excessive heat.
8. A good installation will have an enclosure that provides adequate air flow of ambient air to the motor of the pump.

START-UP

1. Follow all requirements and recommendations from the heat transfer fluid manufacturer for fill, start-up and use.
2. Check for leaks before insulating the piping system.
3. Check for proper shaft rotation by jogging the power and observing the fan clamp. Rotation arrows are provided on pump housing.
4. The seal cavity inside the pump will internally vent during fill and start-up.
5. A small amount of oil may leak from the seal cavity at the shaft; this is normal for a new installation and will stop after approximately one hour.
6. Do not allow the pump to run dry, or continue to operate the pump when it is noisy, vibrating, or leaks are observed. These noticeable signs give a warning that something is wrong with the equipment and must be investigated to avoid possible damage or injury from burns caused by hot oil.

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OPERATION AND MAINTENANCE

Thermal oil vapors leaking from a system can be highly flammable.

Any system leak should be repaired immediately.

Do not insulate the pump or system piping with porous flammable insulation. Fluid may wick, decompose and spontaneously ignite.

Ideal mechanical seal life is 20,000 hours. Reduced seal life may be experienced from extreme conditions.

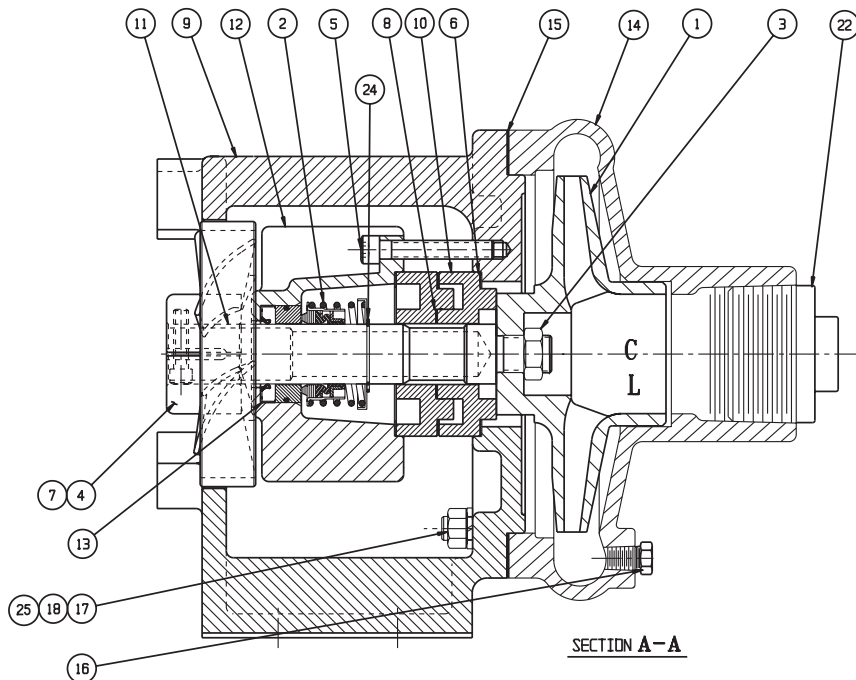
Recommended spare parts and service parts to rebuild the HTO-120 are:

At disassembly, check the impeller and other wear items for unusual wear. Replace if necessary.

When servicing the pump, care should be taken that the pump has cooled to a sufficient temperature to permit disassembly. The product should be drained from the pump housing and disposed in accordance with the fluid manufacturer's recommendations. Operating personnel should be warned to exercise care and utilize eye and skin protection when servicing the pump.

PART NO.	DESCRIPTION	QTY.
29781	DRIVE SLEEVE	1
25662	GASKET	1
29158	ISOLATOR	2
29774	LIP SEAL	1
29773	SEAL ASSEMBLY	1
29165	GASKET	3
29230	O-RING	1

HTO PUMP CROSS-SECTION AND DETAIL



DET.	DESCRIPTION
1	IMPELLER - CAST IRON
2	SEAL ASSEMBLY 1"
3	HEX JAM NUT - S.S.
4	COOLING FAN CLAMP
5	CAPSCREW STL
6	GASKET - KLINGERSIL
7	CAPSCREW STL
8	O-RING - VITON
9	ADAPTOR - DUCTILE IRON
10	ISOLATOR - CARBON GRAPHITE
11	DRIVE SLEEVE - STAINLESS STEEL
12	SEAL HOUSING - DUCTILE IRON
13	LIP SEAL - VITON (CR#9937)
14	HOUSING - DUCTILE IRON
15	GASKET
16	PIPE PLUG S.S. 1/8 N.P.T.
17	LOCKWASHER S.S.
18	STUD 3/8-16 X 1.63
20	HTO WARNING STICKER (NOT SHOWN)
22	PIPE PLUG 2" NPT
24	SNAP RING - STL
25	HEX NUT 3/8-16

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HTO 120 ASSEMBLY INSTRUCTIONS

1. Assemble drive sleeve #11 (29781), impeller #1 (29770) and nut #3 (22655).
2. Thread pipe plug #16 (21255) into housing #14 (26587).
3. With the housing on the bench, suction down, place the impeller and drive sleeve assembly into the housing.
4. Assemble the adaptor #9 (29160) to the housing with gasket #15 (31518) between them. Use six 3/8-16 studs #18 (21261), washers #17 (21266), and hex nuts #25 (21241).
5. Install three gaskets #6 (29165), two carbon isolators #10 (29158) and one O-ring #8 (29230) onto drive sleeve. The O-ring and one gasket go between the two carbon isolators. The second gasket goes between the carbon isolators and the adaptor. The third gasket goes between the carbon isolator and the seal housing.
6. Assemble seal #2 (29773) onto the drive sleeve with a liberal amount of grease to prevent the seal from being damaged.
7. Press the lip seal #13 (29774) into the seal housing #12 (29772), flat side down. Press the seal seat into the seal housing flush against the lip seal.
8. Assemble the seal housing #12 (29772) to the adaptor #9 (29160) with three 5/16-18 screws #5 (29178). As steady pressure is applied to the seal housing to hold it in place, thread the three 5/16-18 screws in and torque them to 25 inch-lbs. each. Working around the bolt circle tighten the screws in 25 inch-lbs. increments until each screw is tightened to 150 inch-lbs.
9. Assemble fan clamp #4 (29775) to drive sleeve.
10. Assemble the pump to the motor. Slide the motor onto the pump. Install and tighten the four mounting screws. Push the impeller towards the motor until it stops (contact with the impeller and isolater). Tighten the drive clamp screws to 120/140 inch-lbs. and install piping.

**NOTE:**

Follow oil manufacturers guide for fill and start-up. The seal cavity will vent internally during start-up.

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