OPERATION AND
SERVICE GUIDE
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SERIES 'TM-VT'
VERTICAL MAG-DRIVE PUMPS

Refer to Bulletin P-314

NON-METALLIC VERTICAL MAG-DRIVE PUMPS

To obtain optimum performance from your Serfilco TMVT pump please review these instructions carefully. Failure to follow these recommendations may result in severe pump damage and premature failure, along with voiding your factory warranty.

IN-TANK INSTALLATION

1. The pump should be located with tank liquid levels as follows:
   - Maintain min. 3" vertical clearance between pump bottom and tank bottom
   - Maintain min. tank liquid level no more than 7" below the top of the column mounting flange (motor C-face)
   - Maintain max. tank liquid level no less than 3" below the top of the column mounting flange (motor C-face)
2. Discharge piping should be properly aligned and supported to prevent pump discharge piping stress.
3. A motor starter is recommended to:
   - Prevent accidental re-start after a power failure
   - Provide a safe, moisture-proof switch enclosure
   - Protect the motor with a correctly sized overload
   - Withstand high starting current and prevent arcing & contact wear

OUT-OF-TANK INSTALLATION

1. Locate the pump as close to the liquid supply source as possible.
2. The pump inlet should min. 10" below the supply tank liquid level to avoid vortexing.
3. The suction line should be rigid (vacuum service), and as straight and short as possible. Over-thetank-top suction piping (with a u-bend) will trap air and should be avoided.
4. Long radius elbows are preferred and increased size (compared to suction port) is recommended.

START-UP AND RUNNING

1. Check that the suction side valve (out-of-tank) is open and liquid supply is sufficient.
2. Bump start the motor to check that rotation is in the correct direction. Although the pump is completely reversible, the liquid must travel 90% around the pump periphery.

ESSENTIAL RUNNING PRECAUTIONS

1. **DO NOT RUN DRY**
   Mag-drive pumps are cooled and lubricated with product.
2. Avoid pumping liquids containing abrasive particles.
   NOTE: SERFILCO TMVT pumps are suitable for filter feed of plating solutions containing small solids.
   Consult your local area distributor or the factory for guidance.
3. To reduce flow partially close the discharge valve.
4. If the fluid being pumped tends to crystallize, the pump should be flushed prior to extended shut down.

OPERATING LIMITS

1. FLOW: Pumps may be operated at any point along the related published performance curves. The minimum flow required is indicated by the minimum flow dashed line to the left, and maximum flow by the end of the curve to the right.
2. OPERATING PRESSURE: 110 psi maximum internal pressure
3. TEMPERATURE: Polypropylene Pumps - 160°F continuous, 180°F intermittent

SERFILCO TMVT pumps are intended for use with liquids up to 45 cPs viscosity and 1.8 S.G. For services beyond these limits contact SERFILCO for engineered support.

MAINTENANCE

In General, SERFILCO TMVT pumps require no routine or regular maintenance. Depending on the nature of the process fluid, a periodic check of the internal sleeve bearings is advised. Excessive wear may result in misalignment of the impeller/internal magnet assembly and if left unchecked, interference with the rear casing.

DISASSEMBLY

1. Remove column assembly from the motor/shaft extension/ external magnet assembly.
2. Remove the pump pump casing bolts and carefully separate pump head from the column and internal assembly.
3. Remove impeller-magnet-shaft assembly.
4. Examine shafts/sleeve bearings for excessive radial play and remaining components for integrity.

RE-ASSEMBLY

1. Replace worn components.
2. Place pump head on a flat surface with pumping end facing upward. Insert impeller/magnet/rear ring/shaft into pump head, making sure that the ports on the rear ring are properly aligned with the pump head ports (a locating pin fits into place when correct, leaving no axial gap between the pump head and the rear ring. Inspect the ports to ensure that the rear ring is not disoriented.
3. Place O-ring in the pump head O-ring seat and then cover the assembly with the rear casing. With the shaft properly seated in the sleeve bearing, the rear casing flange should be snug with the pump head.
4. Stand the column on the motor mounting flange and place the column O-ring in its seat. Orient the pump assembly onto the column.
5. Check position of the pump ports port in relation to motor
6. Secure casing bolts.

DO NOT OVER TIGHTEN.

7. Set assembly on to motor flange (tap into place with rubber mallet if necessary).
8. Secure four motor adapter bolts. Again, do not over tighten.

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PUMP ASSEMBLY TO MOTOR

IT IS NOT NECESSARY TO DISASSEMBLE PUMP

1. Remove any packing from inside the pump/motor adapter housing.
2. Remove shaft extension/external magnet from pump assembly. Note: the external magnet is held in place with magnetic attraction to internal magnet so there will be some resistance.
3. Place shaft extension onto motor shaft so that it bottoms out. Tighten collar fasteners.
4. Stand motor on end.
5. Holding it tightly (the magnets will attract during assembly) carefully place the entire assembly onto motor.
6. Locate housing bolt holes on the column flange adapter with tapped motor bolt holes and thread in screws by hand several threads. Be certain to place discharge in desired position.
7. Use rubber mallet to snug down motor adapter flush to motor. **DO NOT ATTEMPT TO SNUG TIGHT WITH BOLTS AS THIS COULD DISTORT THE PUMP MOTOR ADAPTER AND CAUSE MISALIGNMENT.**
8. Secure adapter bolts to motor. **DO NOT OVER TIGHTEN**

The unit is now ready for installation. **DO NOT RUN DRY**

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