INSTRUCTIONS for OPERATION and MAINTENANCE

Graymills

VP SERIES CENTRIFUGAL PUMPS

I DESCRIPTION AND OPERATING CHARACTERISTICS

a) VP Series pumps are of centrifugal type designed for liquids of light viscosity. Standard pumps are made to operate at viscosities no higher than 400 SSU. Special models may operate at a higher viscosity.

b) Liquid is drawn in through the bottom intake and discharged at relatively low pressure. Because of the low pressure, restrictions such as small I.D. tubing and heavy viscosity will reduce flow drastically.

II MAXIMUM VISCOSITY RANGE FOR "SAFE" OPERATION

a) Series VP 1/15 H.P. 3000 R.P.M. or 1/25 H.P. 1500 R.P.M. motors can operate with liquids having a maximum viscosity of 400 SSU (oil) No. 2 Zahn Cup Centistokes.

b) Series VPX with 1/15 H.P. 3000 R.P.M. can operate with liquids having a maximum viscosity of 400 SSU but the flow must be limited to 2 G.P.M. or the motor will overheat and the thermal overload device will cut out.

c) Series VP with Airmotors cannot be overloaded but a reasonable maximum viscosity is 500 SSU.

d) The pump will deliver less flow as the viscosity increases. Temperature may affect viscosity. The viscosity of a 100 SSU oil, for example, may increase substantially as it gets colder. If liquids are too heavy, the motor will slow down and stall. 3000 R.P.M. motors have thermal-overload which automatically prevents burn out by cutting out the motor. The motor will start up again when it cools but will cut out again until the condition causing the overload is eliminated. Continued overloading is to be avoided.

e) 1500 R.P.M. motors do not have thermal-overload protection and, if stalled, they will burn out.

f) Rotary air motors cannot be overloaded or injured by heavy viscosity or binding. They will merely stop turning.

III CHEMICAL RESISTANCE OF PLASTICS

Graymills VP pumps are made of high strength plastics suitable for many liquids. GM2GG is identified by the white color and may be used with water, detergents, oil, brine, coolants, many solvents and a wide range of other liquids. Refer to the Graymills catalog or other data for more specific information on chemical resistance of plastics. It may be used with drinking water.

Consult the factory on specific applications of these pumps with chemicals which may have an effect on materials of construction. Our chemical resistant information is based upon data supplied by the basic plastic manufacturer and/or Graymills tests. The user should conduct his own tests where there is any question about the suitability of plastics or metals.

IV TEMPERATURE LIMITATION

a) Pumps should not be used continuously with temperatures exceeding 150° F. without consultation with the factory. (Actual maximum temperature for GM2GY is substantially higher; however, pumping some liquids at elevated temperatures for long periods may cause gradual deterioration of the plastic, brittleness or crazing or loss of strength in wall thickness. GM2GY may be used with water up to 170° F.

b) Example: A pump made of GM2GG plastic was operated for 1400 hours in oil at a temperature of 194° F. No malfunction or leaks were evident but the plastic parts had decreased in thickness. The same type of pump operated in 150° F. oil showed absolutely no loss. Obviously, if a user were to operate occasionally at the higher temperature and then remove the pump or permit the oil to cool, many years of service could be expected before the breakdown point was reached.

Where chemical and/or temperature resistance is not definitely known, Graymills will supply a sample plastic part for customer's evaluation.

c) While GM2GG is a high impact strength plastic, care should be exercised in making hose or tubing connections. A flexible type of connection is advisable. Reducing hose or tubing sizes will greatly reduce the flow from these centrifugal pumps. Keep the tubing size as large as possible as close as possible to the point of application. If reduction must be made do so at the end of hose or pipe where the liquid is discharged.

V MOUNTING: IMPELLER MUST BE COVERED WITH LIQUID

a) Some pumps will be shipped with a plastic shaft protector which should be removed and discarded. The intake filter can then be attached by the screens provided.

b) The bottom of the pump must be immersed in at least 1" of liquid to operate properly. Mounting brackets described in the Graymills catalog may be used if the round mounting plate is not suitable. These angle brackets can be attached to the holes on the round plate. Pumps without lower bearings may be run dry without harm.

VI ELECTRICAL CONNECTIONS

a) It is advisable to ground the pump motor.

b) Check the name plate on the pump motor and be sure that it corresponds to the electrical current being used. These pumps will operate on 50 cycle current at a reduced flow. Do not operate 115 V. motors on 230 volt. If a 1/8 H.P. 3 phase motor is used, make sure it is wired to run in a counter clockwise direction looking down on the top of the motor.

VII MAINTENANCE: KEEP PUMP CLEAN.

a) If the pump is used with liquids like adhesives, abrasive slurries, polishing compounds or ink, flush throughly after use to prevent sticking. Keep solvents or cleaners away from the motor and wiring.

b) Electric motors require no lubrication. Air ports ventilating the motor, however, should not be closed off or blocked in any way.

c) Airmotors require clean air with some oil mist. Always use an air line oiler connected to the air line near the motor.

d) Most VP pumps have no bearings other than those in the motor. Some long models have an extended shaft which runs in a small bushing mounted in a retainer at the bottom of the pump.

VIII WHAT TO CHECK IF FLOW IS REDUCED BELOW RATED OUTPUT

a) Check the intake and screen to make sure nothing is blocking the entrance of liquid into the pump.

b) Check hoses to make sure there is no crimping or unusual restriction. Check viscosity of the liquid.

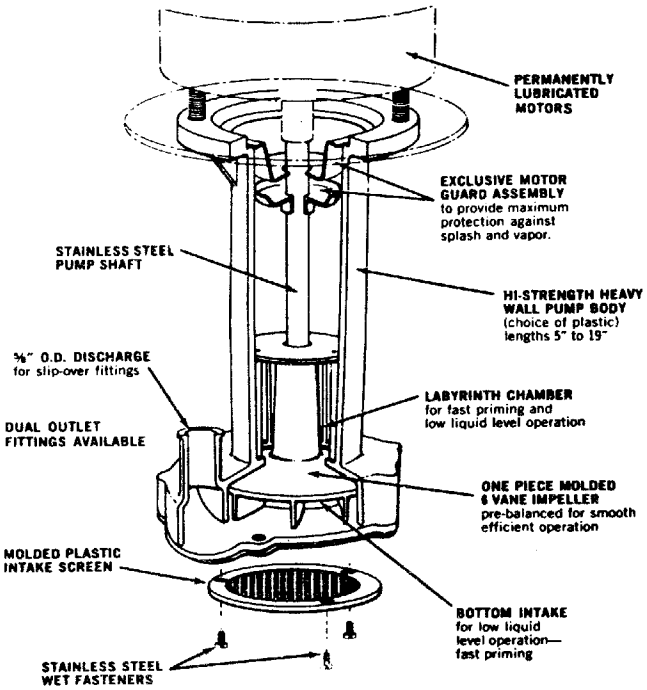
c) Check voltage and cycle. (Low voltage will cause a reduction in R.P.M.)

d) Check direction of rotation if 3 phase motor is used.

e) Make sure pump impeller section is immersed in the liquid.

f) Check for binding within the body caused by rags, string or chips.

g) Make sure pump intake is not in sludge, slurry or directly on the bottom of the container.



IX DISASSEMBLY

a) Remove bottom bushing housing if this is included.

b) Remove bottom plate along with filter screen.

c) Through the screen hole at the bottom of the pump column, loosen the set screw and remove the impeller.

After set screw is withdrawn part way and clear of the shaft, use the allen wrench in the set screw to pry the impeller loose so it can be grasped by hand and completely removed.

d) Pump will now be completely disassembled.

X ASSEMBLY

a) In reassembling, tighten motor bolts holding pump to the motor with care to avoid stripping threads. Excess tightening will distort the lower motor housing and cause the bearing to bind. Minor alignment adjustments may be necessary so shaft is in the direct center of impeller housing.

b) On 1500 RPM motors, replace impeller snugly – but don't force – against the pump housing and tighten set screw. A slight play in the shaft will permit the impeller to drop very slightly providing the clearance between the top of the impeller and the pump housing which is desirable for "no contact" operation. When replacing impeller on 3000 & 3450 RPM motors, it must be installed with a 1/32" clearance between the upper side of impeller and the pump body.

c) Replace the bottom plate and gasket. Use care in tightening screws into the plastic housing.

d) If the pump has a bottom bushing, replace if necessary, and reassemble.

e) Now run the pump to make sure impeller is not rubbing.

HOW TO ORDER PARTS

Give model number of pump. If model number cannot be determined, the motor serial number, horsepower, speed and type will help. Approximate date of purchase will also help.

Give serial or lot number of pump.

WARRANTY

GRAYMILLS CORPORATION warrants that the product contained herein conforms to the description in GRAYMILLS' catalogue and that if this product shall fail to conform to the description thereof or to any express or implied warranty, GRAYMILLS CORPORATION shall, upon written notice of such nonconformity within ninety days of the date on which this product is first put to use or within one year of the date of its shipment from GRAYMILLS CORPORATION'S plant, whichever of these dates shall occur sooner repair or replace such non-conforming material at the original point of delivery. GRAYMILLS CORPORATION will furnish instructions for disposition of the goods. If, however, GRAYMILLS CORPORATION provides a written warranty, as to this specific product, which is not in conformity to the above warranty, then as to such specific product, the specific written warranty shall prevail.

In addition to the warranty that this product will conform to the description in GRAYMILLS' catalogue and that any such non-conforming material will be repaired or replaced, as above stated, GRAYMILLS CORPORATION further warrants that it conveys good title to this product, free of all liens of any kind whatever unknown to the first Buyer. These are the sole warranties of GRAYMILLS CORPORATION with respect to this product.GRAYMILLS CORPORATION MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESTATED OBLIGATION ARE HEREBY DISCLAIMED BY GRAYMILLS CORPORATION AND EXCLUDED FROM THIS SALE.

The Buyer's exclusive and sole remedy on account or in respect of the product herein contained that does not conform to the description thereof, or to any express or implied warranty, shall be to secure replacement thereof as aforesaid. GRAYMILLS CORPORATION shall not in any event be liable for the cost of any labor expended on any such material or for any special, direct, indirect, incidental or consequential damages to anyone by reason of the fact that such goods do not conform to the description thereof or to any express or implied warranty.

It is the responsibility of our customers to report damage in shipment. This damage must be reported to the carrier who delivered the equipment, and claims must be filed by the customer. Any other failure on the part of this equipment to operate properly for reasons other than shipping damage should be reported directly to the distributor from whom you purchased the equipment. Always state the correct serial number, model number, and the date purchased.

3705 N. Lincoln Ave. Graymills Chicago, Ill. 60613