Enviro-Equipment Inc.
10120 Industrial Drive
Pineville NC 28134

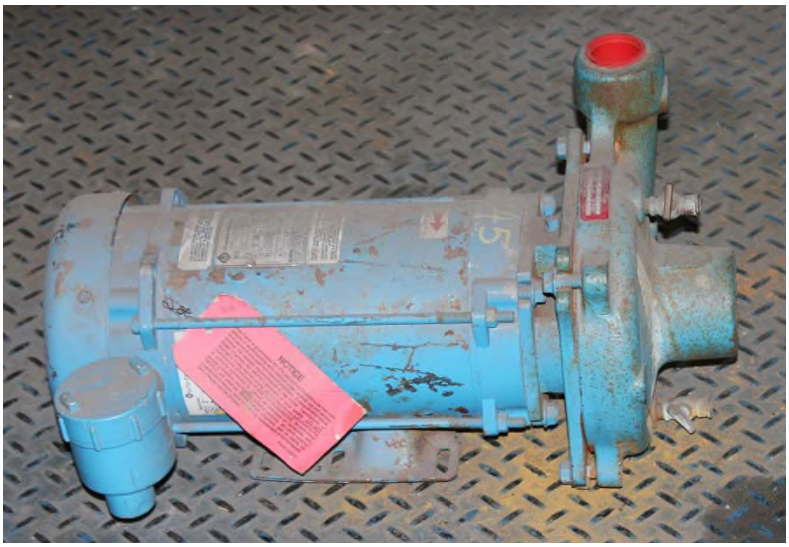
Stock#: 145

Status: In stock

Dimensions: 20”x10”x10”

Weight: 64 lbs

Description:
Pump:
MFG- Marshal Engineered products Co.
Model- RC06-12-015-34-1
Serial- 100773
Port size- 1.5” in/ 1.25” out
Motor:
MFG- Franklin Electric
Model- 1113007425
Serial- 51AE109096
CAT#-
Frame- 56
Class-
SF-1
AMB- 40C
HP- 1.5
RPM- 3450
Voltage- 115/230
AMP- 15/7.5
Phase- 1
Hz- 60
DUTY- Continuous
CODE- G



FORM 1603D

MARSHALL ENGINEERED PRODUCTS CO.

PUMP SECTION

Centrifugal Pumps, Type RC06 - Close Coupled, End Suction

General Service Pumps
Flows to 480 GPM, 75 PSI

FEATURES

The MEPCO Model R Series Pumps meet the latest standards for hydraulic performance and dimensional characteristics. The pump shall be close coupled to a NEMA standard JM motor. The pump incorporates a dry shaft design to prevent the fluid from contacting the shaft. The shaft shall be covered with a replaceable bronze (stainless steel) shaft sleeve.

The standardization and interchangeability for the R Series Pump line results in reduced parts inventories and lower costs for multiple pump installations. An easy-to-replace, slip-on shaft sleeve facilitates seal maintenance in the field and lowers costs. The dry shaft design protects the pump shaft by eliminating contact between the shaft and the fluid. Corrosion resistant shaft materials are not required. Standard brass sleeve or optional stainless steel sleeve will eliminate this maintenance problem.

MEPCO Model R Pumps are ideally suited for a variety of applications, including heating, air conditioning and pressure boosting.

Pump casing discharge can be located in any of six (6) positions. The pump shall be capable of being serviced without disturbing the system piping with pump back pull-out design.

The advanced impeller design maximizes hydraulic efficiency, dynamically balanced for vibration free operation.

MATERIALS OF CONSTRUCTION

ITEM	DESCRIPTION	MATERIAL	OPTION
1	CASE	CLASS 30 C. I.	BRONZE
2	ADAPTER	CLASS 30 C. I.	BRONZE
3	IMPELLER	BRONZE	CAST IRON
4	MECH. SEAL	BUNA N	EPT/VITON
5	SLEEVE	BRONZE	SST
6	O-RING	BUNA N	EPT/VITON
7	O-RING	BUNA N	EPT/VITON
8	WASHER	BUNA N	EPT/VITON
9	WASHER	SST	BRONZE
10	KEY	SST	
11	BOLT	STEEL	BRONZE
12	BOLT	STEEL	
13	BOLT	STEEL	
14	PIPE PLUG	CLASS 30 C. I.	BRONZE
15	MOTOR	NEMA (ODP)	TEFC/XPROOF

The mechanical seal is constructed of Buna N shaft seal rated for 250 degrees Fahrenheit and pressures up to 175 PSI ceramic seat and carbon seal face for long trouble free service. Alternative seals are available to suit temperatures and liquid.

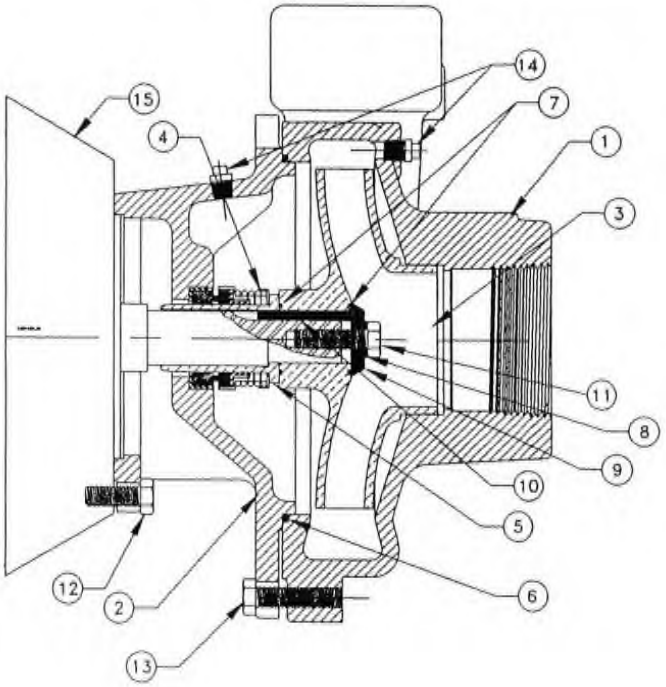
Dry shaft design ensures shaft is never exposed to the system fluid.

- Simplifies sleeve and seal removal/reassembly.
- Easy-to-replace slip-on shaft sleeve facilitates seal maintenance in the field and lowers long-term maintenance costs.

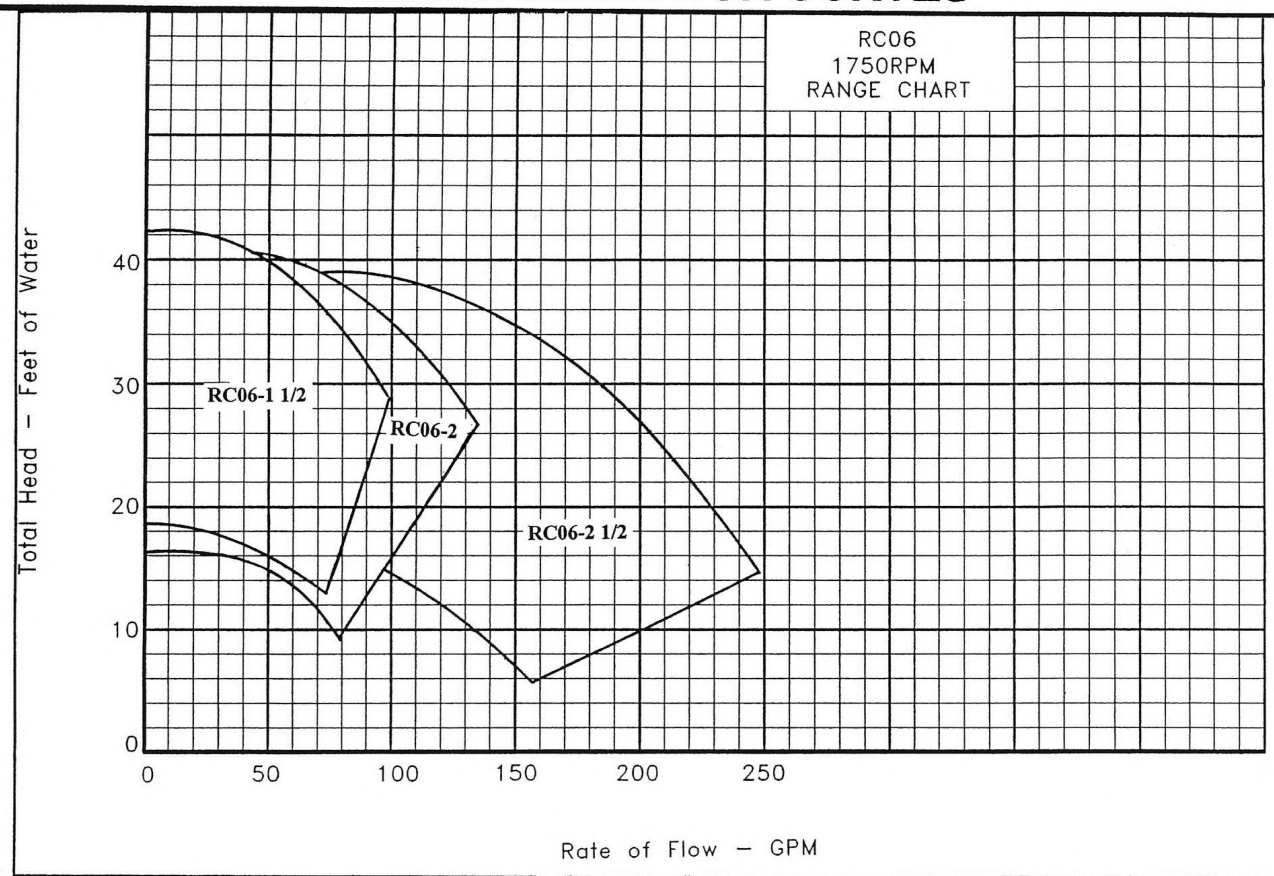
MAXIMUM OPERATING CONDITIONS

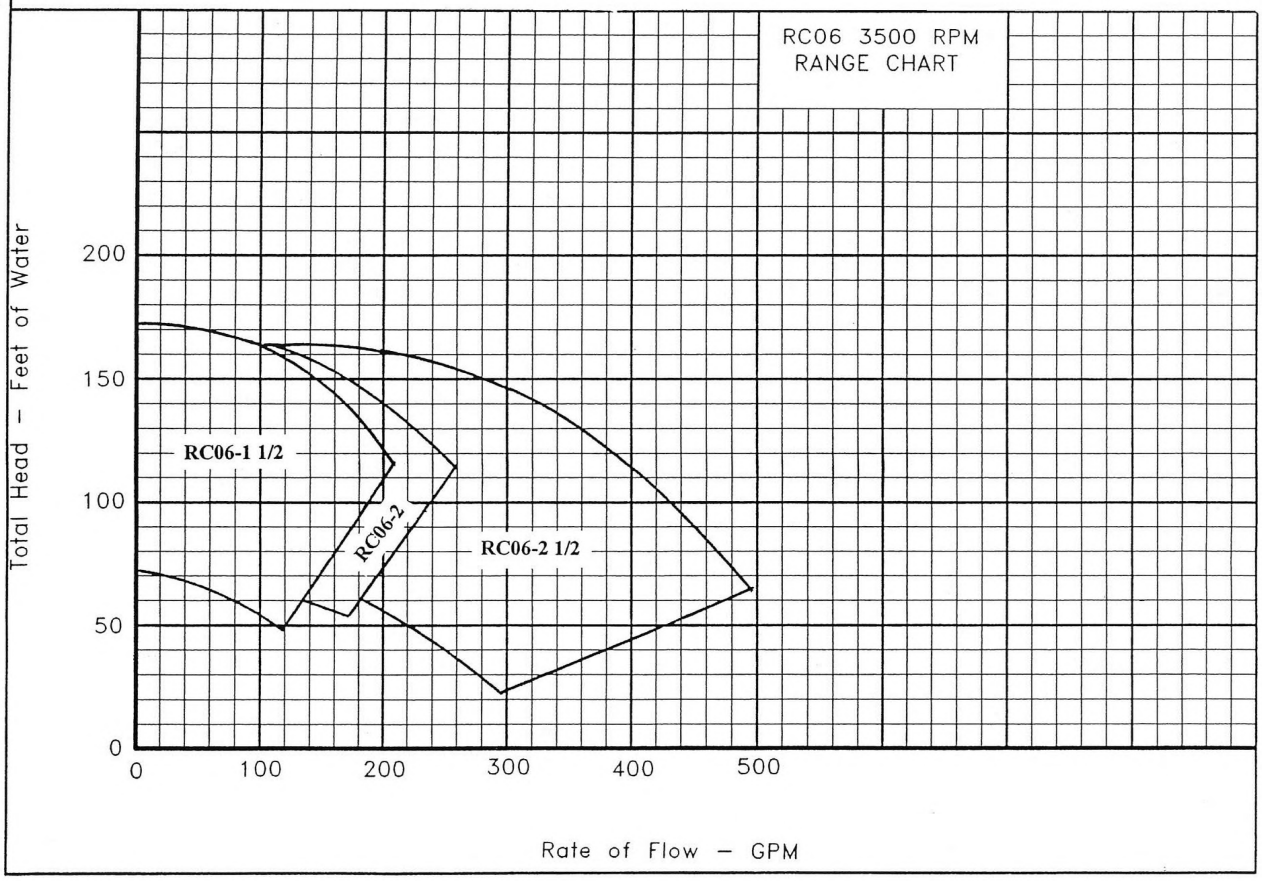
Based on Std. Construction & Pumping Clear Water

RPM -	1750, 3450
HORSEPOWER -	20
STD. SEAL TEMP. -	250° DEGREES FAHRENHEIT
OPT. SEAL TEMP.	300° F = EPT, 400° F = VITON
MODEL R6 -	150 LB. FLANGES
MAX. WORKING PRESS. -	175 PSI
HYDROSTATIC TEST PRESSURE -	265 PSI



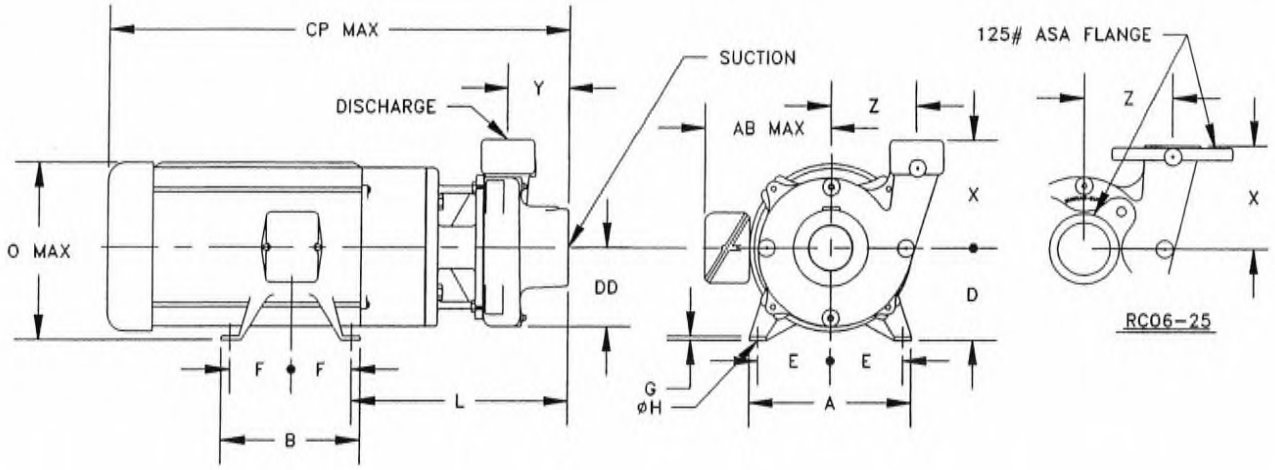
RAPID SELECTION CURVES





Computerized pump curves are available for sizing, Pump Flo[tm] program.

DIMENSIONS

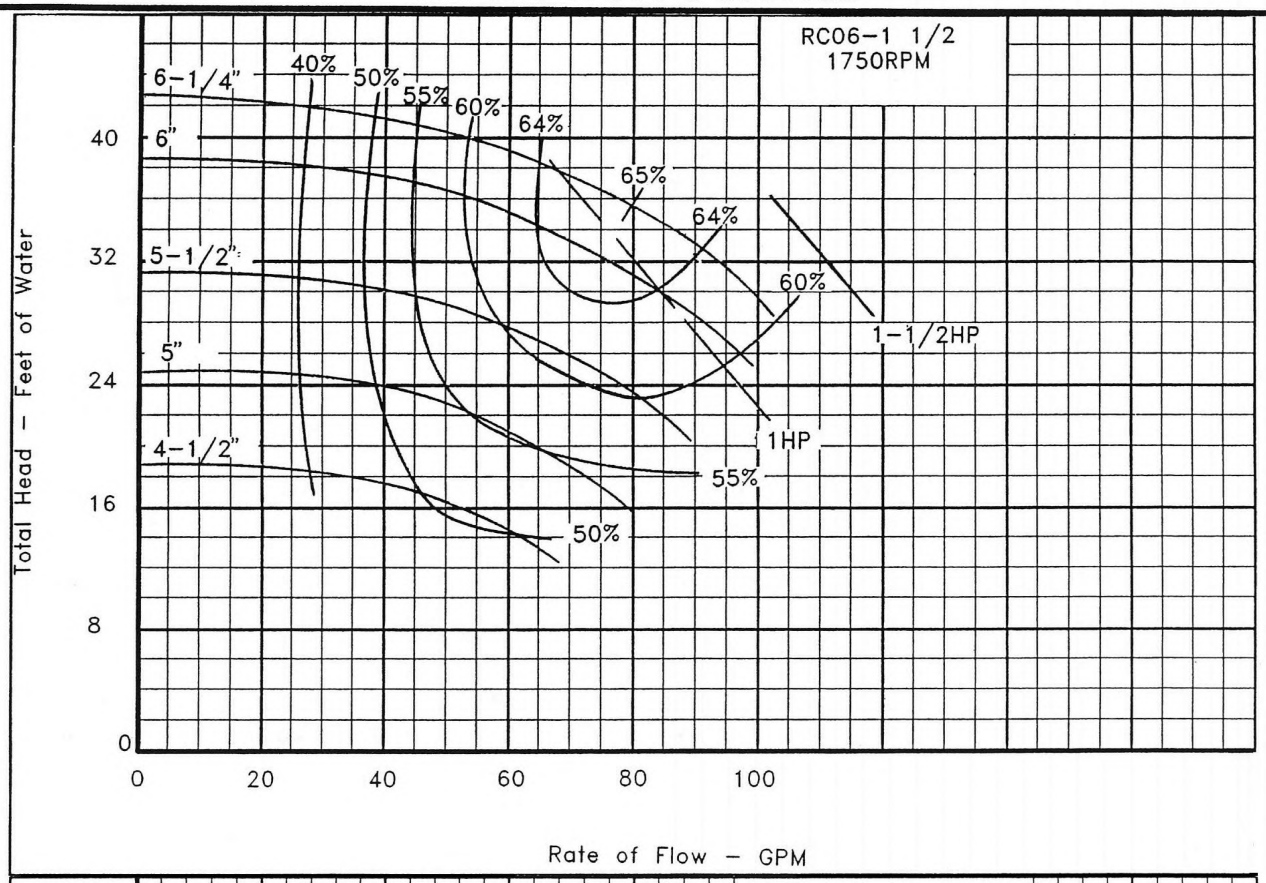


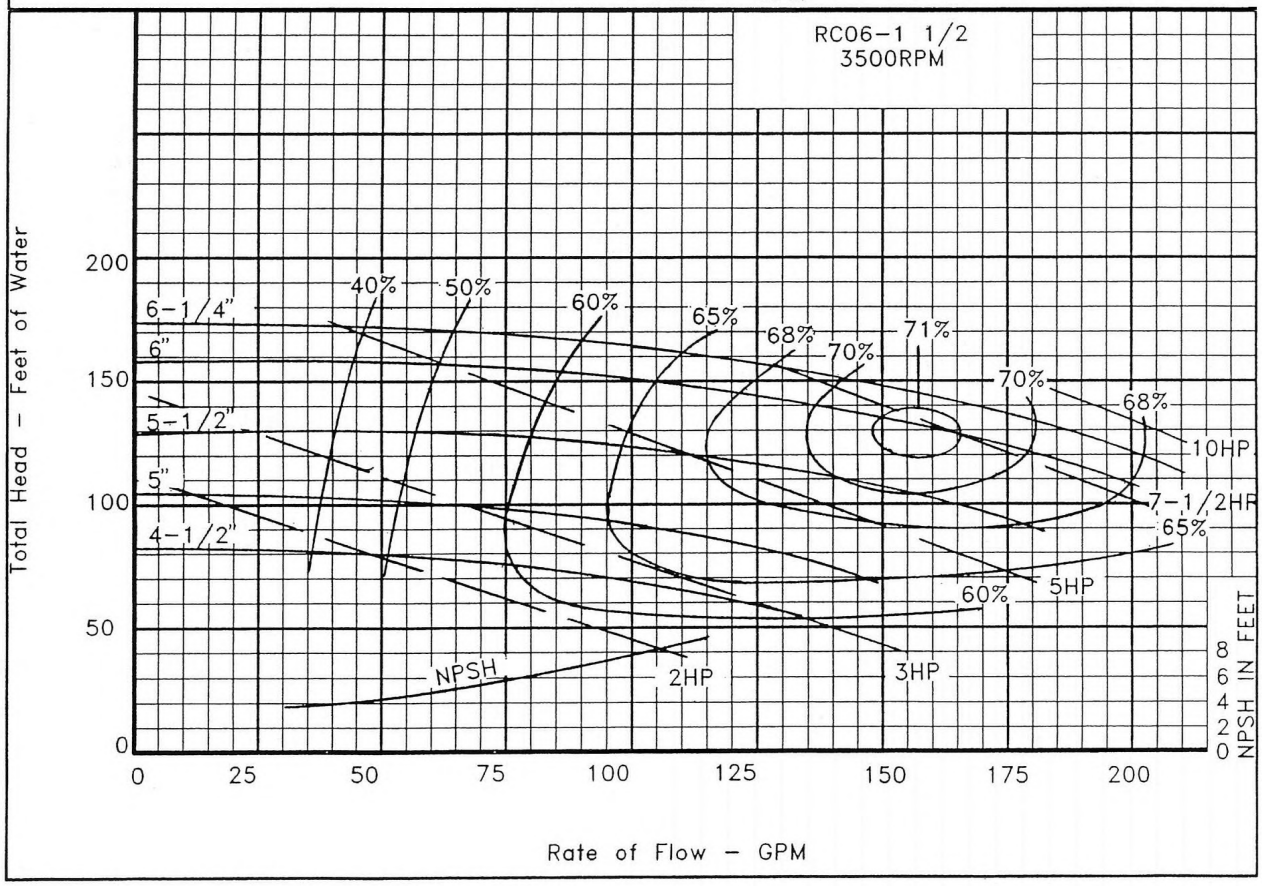
PUMP	MOTOR FRAME SIZE	DISC. NPT	SUCT. NPT	DIMENSIONS IN INCHES														
				A	AB	B	CP	D	DD	E	F	G	H	L	O	X	Y	Z
RC06 15	143JM	1 1/2	2	7	5 1/4	5 15/16	18 15/16	3 1/2	4 3/8	2 3/4	2	1/8	11/32	10 1/2	6 7/8	5 3/4	3 3/8	4 11/16
	145JM						19 11/16				2 1/2							
	182JM			9	5 7/8	6 1/2	19 7/8	4 1/2		3 3/4	2 1/4	3/16	13/32	11 1/8	8 7/16			
	184JM						21 3/8				2 3/4							
	213JM			10 1/2	7 3/8	8	22 7/16	5 1/4		4 1/4	2 3/4	1/4	13/32	12 1/8	10 1/16			
RC06 20	143JM	2	2 1/2	7	5 1/4	5 15/16	20 1/16	3 1/2	4 1/2	2 3/4	2	1/8	11/32	11	6 7/8	6 1/8	3 5/8	5 1/16
	145JM						20 7/8				2 1/2							
	182JM			9	5 7/8	6 1/2	21 1/16	4 1/2		3 3/4	2 1/4	3/16	13/32	11 5/8	8 7/16			
	184JM						22 9/16				2 3/4							
	213JM			10 1/2	7 3/8	8	23 5/8	5 1/4		4 1/4	2 3/4	1/4	13/32	12 5/8	10 1/16			
	215JM						25 5/8				3 1/2							
RC06 25	143JM	2 1/2 FLANGE	3 FLANGE	7	5 1/4	5 15/16	19 5/16	3 1/2	4 3/4	2 3/4	2	1/8	11/32	10 1/4	6 7/8	5 7/8	2 3/4	5 1/8
	145JM						20 1/16				2 1/2							
	182JM			9	5 7/8	6 1/2	20 5/16	4 1/2		3 3/4	2 1/4	3/16	13/32	10 7/8	8 7/16			
	184JM						21 13/16				2 3/4							
	213JM			10 1/2	7 3/8	8	22 7/8	5 1/4		4 1/4	2 3/4	1/4	13/32	12	10 1/16			
	215JM						24 7/8				3 1/2							
	254JM			11 1/4	8 15/16	9 1/2	28 1/8	6 1/4		5	4 1/8	1/2	17/32	13 1/8	12			

MOTOR DATA

	OPD - HP				TEFC - HP			
FRAME	1750 RPM 1ø	1750 RPM 3ø	3450 RPM 1ø	3450 RPM 3ø	1750 RPM 1ø	1750 RPM 3ø	3450 RPM 1ø	3450 RPM 3ø
143JM	1	1	1 1/2	1 1/2	1	1	1 1/2	1 1/2
145JM	1 1/2	1 1/2, 2	2	2, 3	1 1/2	1 1/2, 2	2	2, 3
182JM	2	3	3	5	2	3	3	
184JM		5	5	7 1/2		5	5	5
213JM		7 1/2		10		7 1/2		7 1/2
215JM		10		15		10		10
254JM		15		20				15
256JM		20		25				20
284JM		25		30				25
286JM		30		40				
324JM		40		50				
326JM				60				

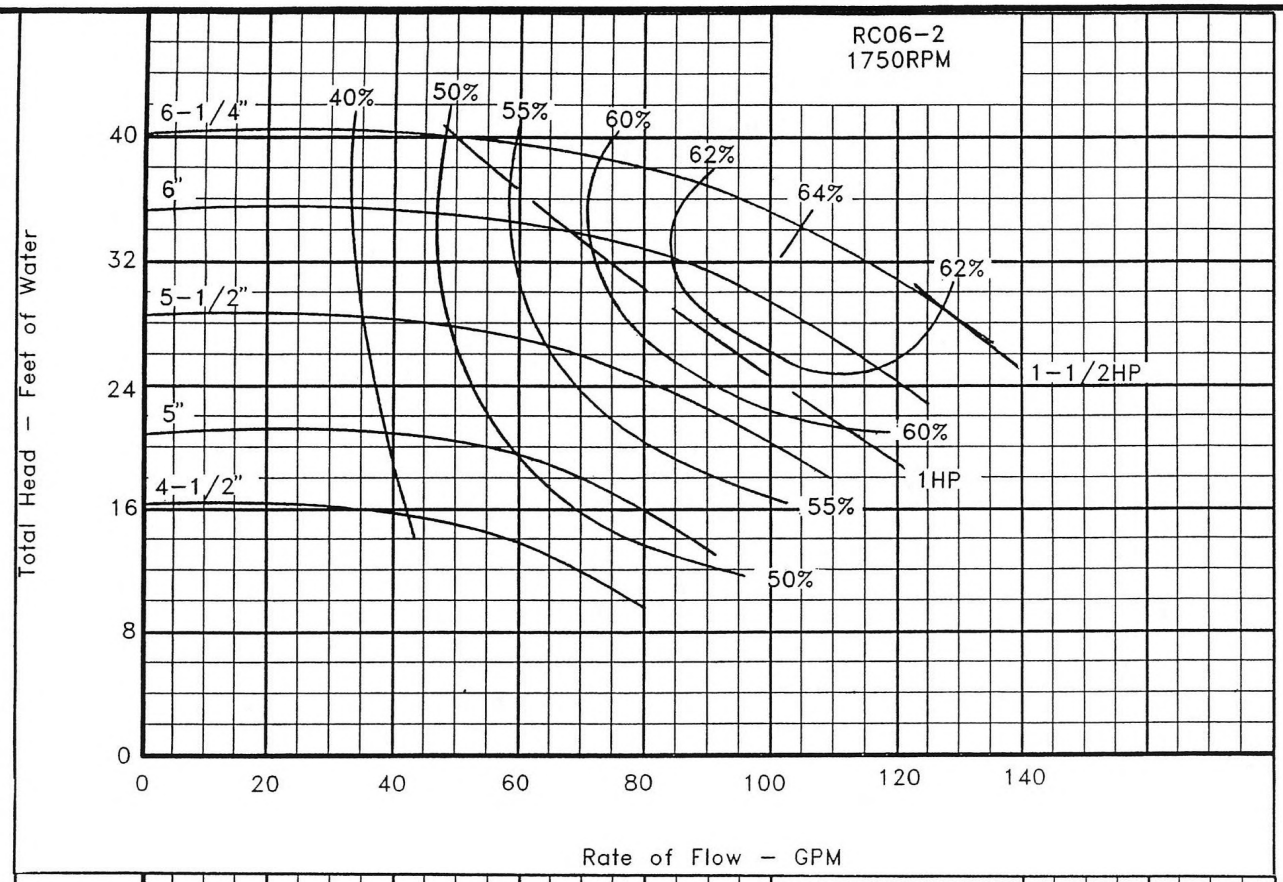
SELECTION CURVES

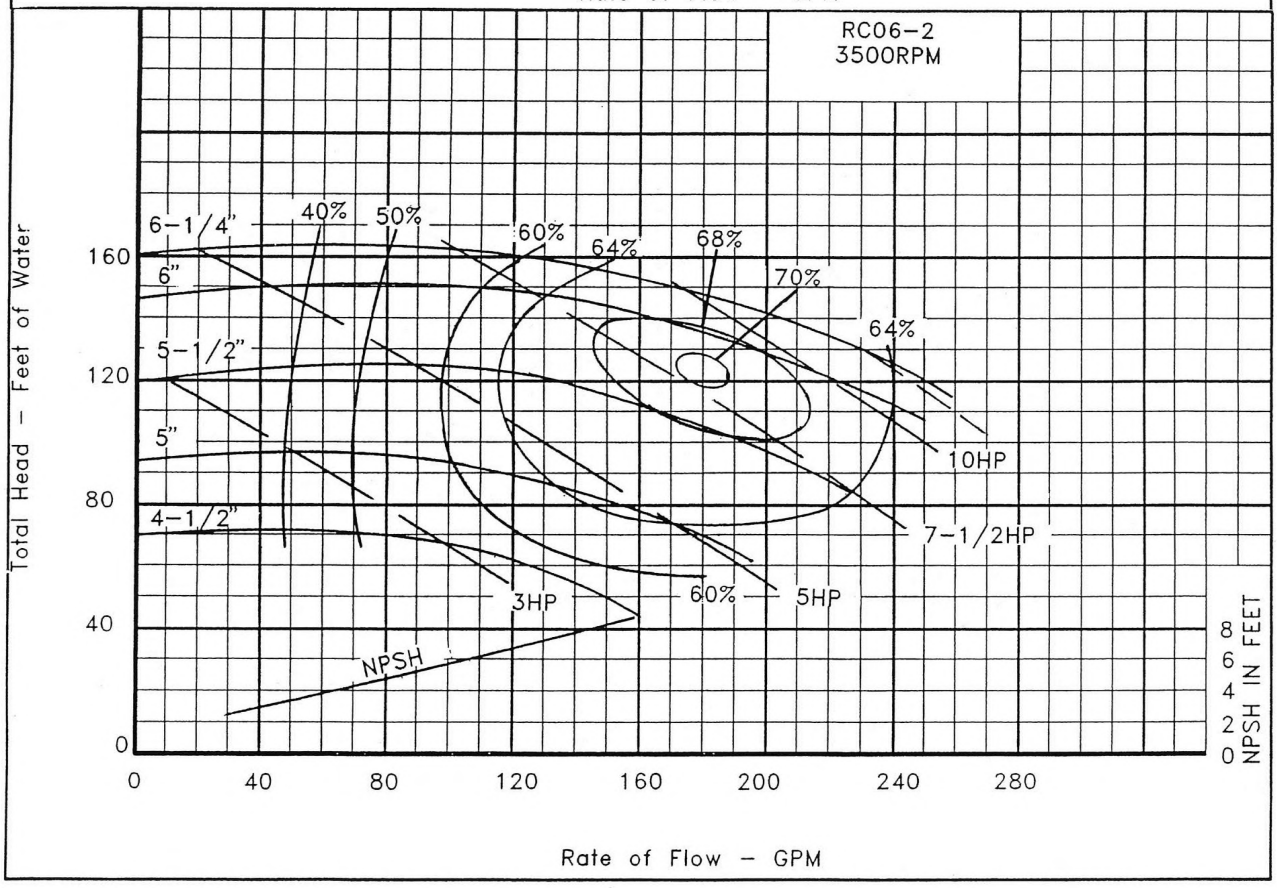




Computerized pump curves are available for sizing, Pump Flo[tm] program.

SELECTION CURVES





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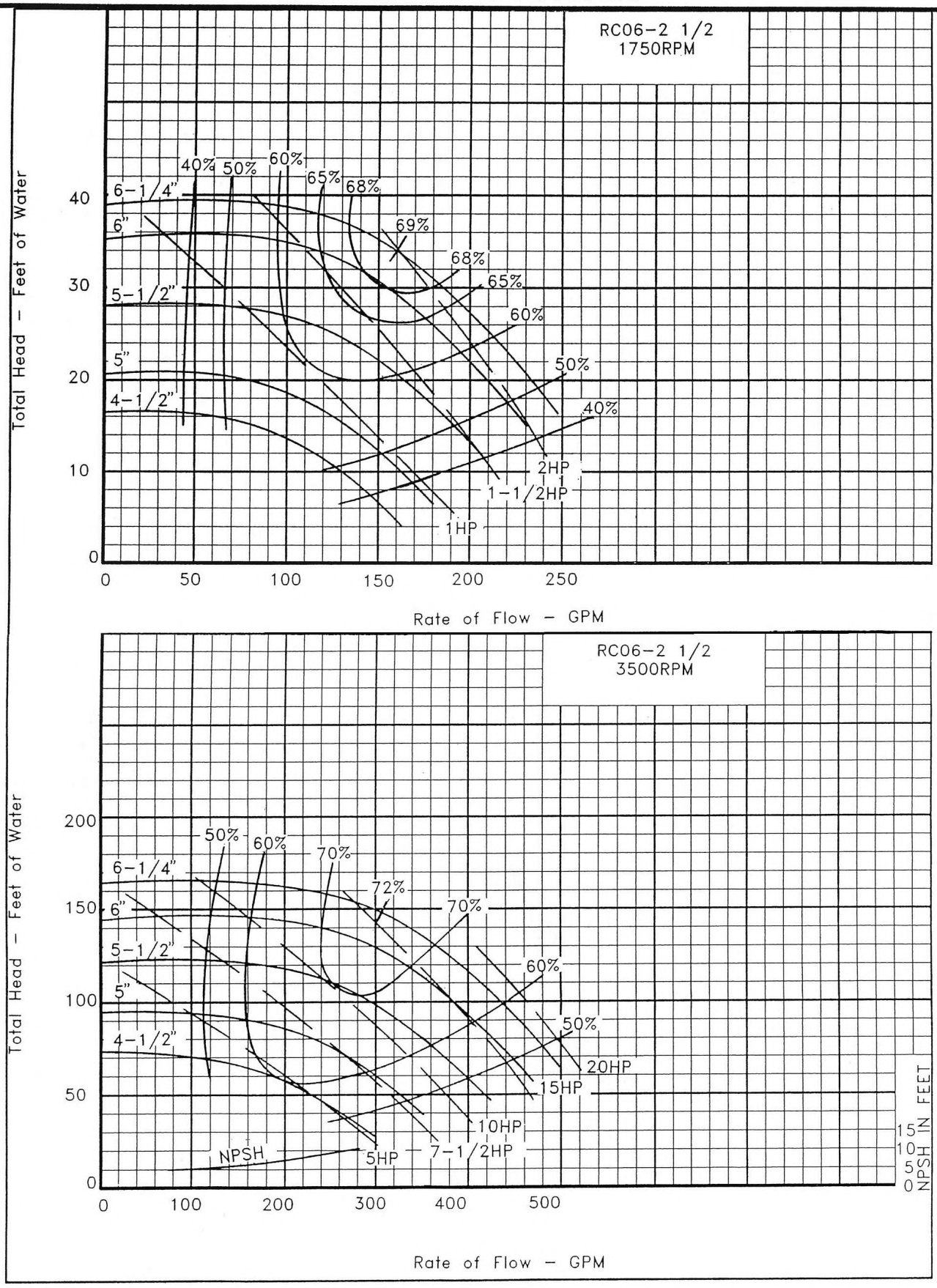
SELECTION CURVES



Computerized pump curves are available for sizing, Pump Flo[tm] program.

TYPICAL SPECIFICATIONS

- Furnish and install pumps with capacities as shown on plans. Pumps shall be MEPCO close coupled, single-stage, vertically-split case design, capable of being serviced without disturbing piping connections. Pump volute shall be Class 30 cast iron, and impeller shall be enclosed type, dynamically balanced.
- Seal shaft shall be of rotary type and suitable for water temperatures up to 250 degrees Fahrenheit.
- Pumps shall be rated for minimum of 175 PSI working pressure. Casings shall have vent and drain ports at top and bottom casing.
- Motor shall meet NEMA specifications and shall be of the size, voltage and enclosure called for on the plans. It shall have heavy-duty sealed ball bearings, completely adequte for the maximum load for which the motor is designed. Each pump shall be factory tested. It shall then be thoroughly cleaned and painted with at least one coat of high-grade lacquer prior to shipment.
- Each pump shall be factory tested and thoroughly cleaned and painted with high-grade lacquer prior to shipment.
- Each pump shall be checked by the contractor and regulated for proper pressure, voltage and amperage draw. This data shall be noted on a permanent tag or label and fastened to pump for owner's reference. Pumps shall be Series RC06 as manufactured by MEPCO

MARSHALL ENGINEERED PRODUCTS CO.
3695 44th Street SE, Grand Rapids, Michigan 49512
Phone 616.971.3420 Fax 616.971.3421 www.mepcollc.com

MEPCO

Form 3628D

Centrifugal Pump, Type RC05 1", RC05 1-1/4"
Centrifugal Pump, Type RC06 1-1/4"

Installation, Operation and Maintenance Instructions

NOMENCLATURE

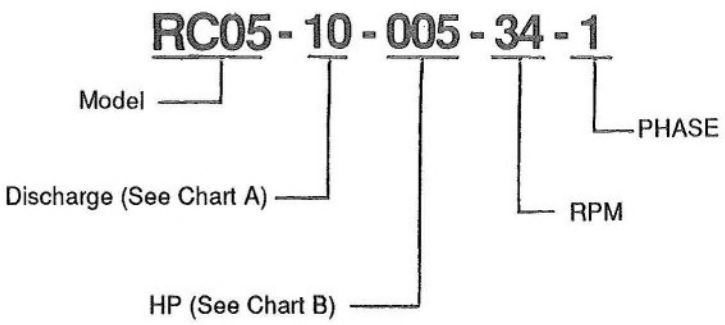


CHART A

10 = 1"
12 = 1-1/4"
15 = 1-1/2"
20 = 2"

CHART B

003 = 1/3 HP
005 = 1/2 HP
007 = 3/4 HP
010 = 1 HP
015 = 1-1/2 HP
020 = 2 HP
030 = 3 HP

INTRODUCTION

The MEPCO Type RC05 and RC06 are radially split, single stage, motor mounted centrifugal pumps. These pumps are supplied with an end face mechanical shaft seal installed, which is especially selected for reliability and life on the particular pump application. All pumps are supplied as complete units including motor.

SECTION 1 - PUMP INSTALLATION

A) LOCATION

1. For satisfactory operation of any centrifugal pump it is necessary that adequate "Net Positive Suction Head" (NPSH) be available at the pump suction connection (NPSH is the total head in feet absolute, less the vapor pressure of the liquid in feet absolute, available to the pump). For this reason the pump should be located as close to the liquid source as possible.

2. Adequate head room should be provided for the use of installing equipment.

3. Adequate space should be allowed for inspection during pump operation.

B) FOUNDATION

1. The foundation must be solid and substantial enough to absorb mechanical vibration. In general

FIG. 1

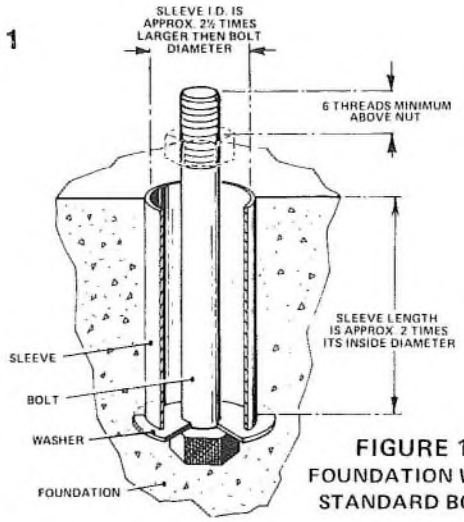


FIGURE 1
FOUNDATION WITH
STANDARD BOLT

concrete foundations are the most satisfactory and when used, bolts should be supplied which are imbedded for pump footing. Bolts should be long enough to insure proper tightening (minimum of six (6) threads should protrude beyond nut), and it is recommended that each bolt (standard or "J" type) be fitted with a pipe sleeve that is approximately 2-1/2 times the bolt diameter of the sleeve. When using a standard bolt (figure 1) a washer should be used to support the head of the bolt in the sleeve. After the concrete foundation has been poured, the pipe sleeve remains in place allowing for alignment with the holes in the motor feet.

FIG. 2

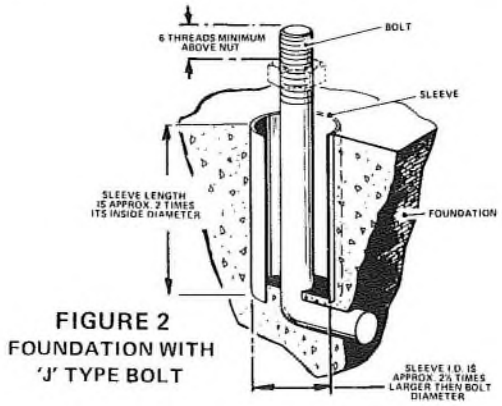


FIGURE 2
FOUNDATION WITH
'J' TYPE BOLT

2. When "J" type bolts (figure 2) are used the same procedure is used except that no washer is needed.

3. If the foundation has been laid, holes may be drilled and expansion bolts used to anchor the pump to the foundation.

C) MOUNTING PUMP - Foot Mounted

1. Uncrate the pump leaving all instructions attached and install at its' place of operation.

2. Locate the leveling plates and shims at each foundation bolt.

3. Level the motor perpendicular to shaft, shimming as necessary.

4. Level the motor parallel to shaft and tighten the nuts on the foundation bolts evenly.

C) MOUNTING PUMP - Pipe Mounted

1. Horizontal Lines - Normally the pump is mounted with the motor perpendicular to the ground with the motor end up. The piping must be adequate to support both the piping and pump.

2. Vertical Lines - The motor will be parallel to the floor and may require additional support other than that offered by the piping.

D) PIPING

1. Both suction and discharge piping should be as short and as direct as possible. There should be as few fittings and bends as possible. Bends, where used should be of the long radius variety.

2. Piping should be supported near the pump to prevent strains from being transmitted to the pump, and piping at the pump suction and discharge should be as large or larger than the openings in the pump.

3. Gate valves and pressure guages should be installed in both the suction and discharge line to facilitate pump maintenance and performance checks.

E) SUCTION PIPING

1. Suction piping must be free of vapor trapping pockets.

2. In horizontal piping leading to the pump only eccentric-reducers should be used (see figures 3 & 4).

FIG. 3

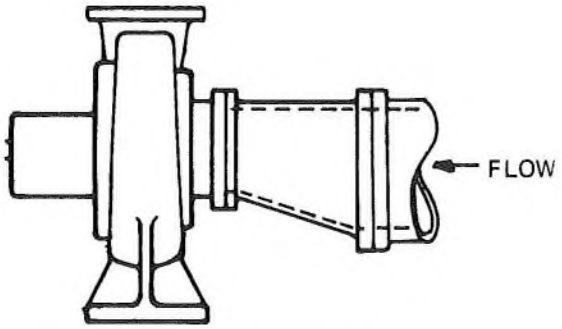


FIGURE 3
CORRECT SUCTION PIPING FOR
ECCENTRIC REDUCER

FIG. 4

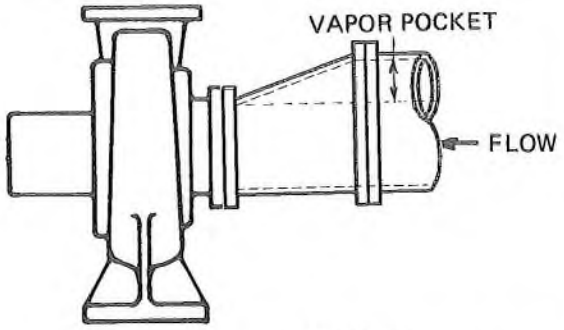


FIGURE 4
INCORRECT SUCTION PIPING FOR ECCENTRIC REDUCER

3. The suction pipe must be free from the expansion of hot lines.

4. It is recommended that a strainer be installed near the pump suction inlet to catch scale or other foreign material. A pressure gauge installed on each side of the strainer can be used for measuring the pressure drop across the strainer.

5. If a strainer or foot valve is to be used on the inlet end of the suction line, the free area through the strainer or valve should be approximately 2-1/2 to 4 times the area of the suction pipe.

F) DISCHARGE PIPING

1. On some installations, a check valve and balancing cock in addition to a gate valve may be required in the discharge piping. The check valve would be used to prevent liquid from running back through the pump in case of failure of the motor. The balancing cock is used to control the pumps' operating capacity by providing a changeable control in the piping system. The gate valve would be used in priming, starting and shutting down the pump.

2. When valves are required in the discharge line, they should be located as near as possible to the pump.

3. In some applications when the pump may be operated with zero flow, provisions should be made for recirculating a portion of the liquid from the discharge to the suction of the pump to reduce the possibility of overheating.

G) PIPING FOR SPARE PUMPS

1. Spare pumps in high temperature service should be piped so that hot liquid from the discharge of the operating pump circulates continuously through a by-pass to the spare pump and back to the suction of the operating pump. This can greatly reduce thermal shock when the spare pump is started.

H) INSTALLING PUMP

1. Make up the piping to the suction and discharge connections of the pump. All piping must be properly supported by hangers and not by the pump.

2. Wire the pump motor for the voltage required as specified on the wiring diagram located on the motor nameplate, or in cover of the motor terminal box. All wiring must be in accordance with local regulations. If the motor is damaged due to improper wiring, the guarantee is void.

SECTION 2 - PUMP OPERATION

A) Starting Pump

1. Open the suction and discharge valves to the pump. These pumps have a mechanical seal and must NOT be run dry. Open the cock at the top of the pump case to vent out any air.

NOTE: a. If the pump is above the level of the liquid to be pumped, close the discharge valve. If the pump is below the level of the liquid, open the discharge valve 1-1/2 to 2 turns.

b. Prime the pump. All air and vapor must be removed. The pump case and suction pipe must be filled with liquid before the pump is started.

2. Rotate the pump shaft by hand (if possible) to be sure the pump is not binding. On some models the end of the motor shaft has a screwdriver slot. It may be used to turn the shaft. A check for sticking of the shaft should also be made after a prolonged pump shutdown. Close discharge valve, then open slightly.

3. Start the pump and check for correct rotation according to the arrow on the case. If it is running in the wrong direction on three phase current, change any two leads to the motor. You must disconnect the power before changing the wiring.

4. Lack of capacity and head may indicate the passageways of the pump impeller have become clogged with foreign matter or that the motor speed is low. If speed of the motor is low, the wiring connections at the motor should be checked for miswiring or looseness. If the pump is wired for 460 volt current, but is actually

operating on 230 volt current, the motor will never come up to proper speed and may burn out. If low voltage occurs, notify local power company. Slugging of air is another cause of low capacity and head on a closed system. Be sure the system is properly vented of all air - see further notes under Trouble Shooting - Section IV.

WARNING - DO NOT ATTEMPT TO OPERATE PUMP WITH SUCTION VALVE CLOSED!

5. As soon as the pump is up to full speed, slowly open the discharge valve until it is completely open. Do not let the pump run with the discharge valve closed.

6. Check the pressure gauges on each side of the strainer in the suction line. A pressure drop across the strainer indicates it is becoming clogged with dirt or scale. In this case, the pump should be shut down and the strainer screen cleaned or replaced. A clogged strainer can cause damage to the pump.

7. Shut the pump down if motor bearings overheat, if there is undue vibration or noise, or if it fails to develop its rated discharge pressure at operating speed.

B) OPERATING AT REDUCED CAPACITY

1. If the pump is connected to a constant speed driver or motor, capacity of the pump can be reduced by throttling the discharge. When throttling the discharge, a connection may be used to by-pass sufficient liquid back to the suction inlet to prevent overheating.

C) OPERATING ROUTINE

1. Check the bearing temperatures periodically. If there is overheating, check the motor to insure adequate lubrication. Normal inspection consists of periodic checks of motor lubrication.

2. Lubricating the pump motor should be done in accordance with manufacturer's recommendations.

3. Check all seals for leakage.

4. Check the suction and discharge pressure gauges. If the differential pressure drops critically, shut down the pump at once.

D) STOPPING

1. The pump should be shut down rapidly to keep liquid in the pump and to prevent the parts from seizing. After stopping the driver, close the discharge valve and then the inlet valve, in that order. Sometimes it is necessary to close the discharge valve immediately after stopping the driver to prevent reverse rotation. If the pumps are to remain idle under freezing conditions, precautions, such as draining the case, should be taken to avoid damage.

SECTION 3 - MAINTENANCE INSTRUCTIONS

A) RC05 & RC06 PUMP DISASSEMBLY AND ASSEMBLY (Refer to Figures 5 & 6)

1. Disconnect the power to pump.

2. Close the valves in suction and discharge lines or drain the system.

3. Remove the 4 hex head screws (7), holding the adapter (2), to the case (1). Disassemble the adapter (2), from the case (1), by sliding the motor back.

4. Remove the case O-Ring (5) and clean the O-Ring surfaces on the case (1), and adapter (2).

5. Remove the plug covering the shaft end in motor.

6. Hold motor shaft from turning by using a large blade screwdriver in slot of motor shaft end and remove the impeller by turning it counter clockwise. Three phase pumps require heat on shaft to loosen.

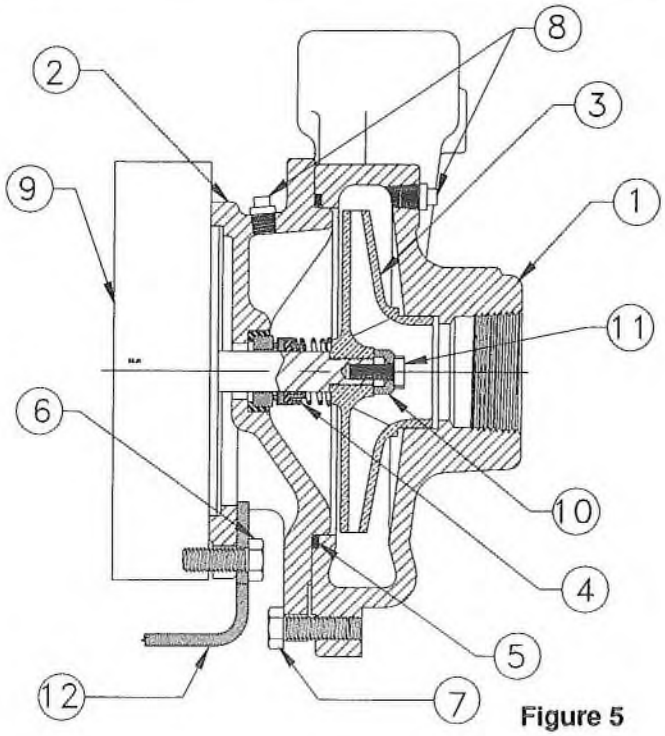


Figure 5

7. Remove the adapter (2), and mechanical seal (4), from the shaft by first removing 4 hex cap screws (6), and then pulling the adapter (2), from the motor (9).

8. Remove stationary mechanical seal cup and mating ring from the adapter (2).

9. Clean the motor shaft and seal bore on adapter with solvent and inspect for scrapes, nicks and scratches. Lightly polish the shaft if necessary to remove blemishes.

10. Lightly lubricate the O.D. of the stationary member of the new seal. With the seal seat towards the impeller, press the seal firmly into the adapter recess. Make sure that the seat is level and square. **NOTE: EXTREME CAUTION MUST BE EXERCISED NOT TO SCRATCH, GOUGE OR OTHERWISE MAR THE SEALING SURFACE OF THE MECHANICAL SEAL OR LEAKAGE WILL LIKELY RESULT. DO NOT LUBRICATE EPT SEALS WITH OIL OR VASOLINE.**

11. Mount the adapter (2), on the motor (9), by using four hex head cap screws (6).

12. To assemble mechanical seal rotating element (4), onto the shaft; Lightly lubricate the I.D. of new bellows and slide it over shaft with the carbon seal face towards the stationary seal face until seal faces meet. Place spring (6), on the rotating member retainer so it seats properly against the shoulder.

Place spring holder (8), against the spring. Be sure the rolled edge faces toward the spring.

13. Screw the impeller (3), onto the shaft while holding shaft stationary with screwdriver placed in motor shaft slot. Make sure impeller is snugged up tight. Use a screwdriver to pry the spring holder (8), away from the impeller to be sure that the retainer isn't caught between the shaft shoulder and impeller.

14. Place the O-Ring (5), in the case and assemble pump and motor to case (1), using 4 hex head cap screws (7).

15. Remount motor to base.

16. Open valve to pump and refill the system and check for leaks.

17. Reconnect power to pump

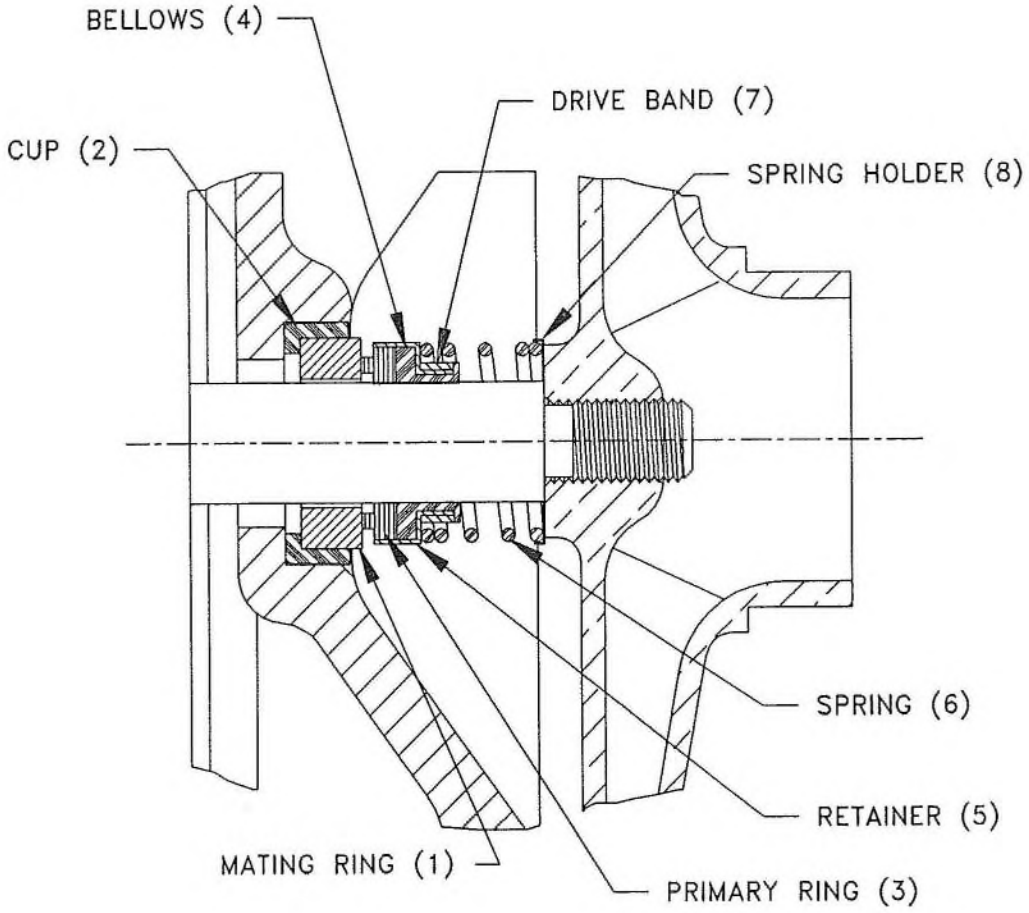


Figure 6

SECTION 4 - TROUBLE SHOOTING

Operating troubles and their probable causes are as follows:

A) INSUFFICIENT OR NO DISCHARGE PRESSURE

1. Wrong direction of rotation.
2. Pump not primed.
3. Air or vapor in suction line.
4. Suction pipe not submerged enough.
5. Available NPSH not sufficient.
6. Pump not up to rated speed.
7. Too much system head.

B) INSUFFICIENT PRESSURE

1. Wrong direction of rotation.
2. Air or vapor in suction line.
3. Air leaks in suction line.
4. Suction line not submerged enough.
5. Available NPSH not sufficient.
6. Pump not up to rated speed.
7. Mechanical defects; Impeller damaged, or Internal leakage (clearances).

C) CAVITATION OR NOISE

1. Air or gas in liquid.
2. Suction line not filled with liquid.
3. Suction line not submerged enough.
4. Available NPSH not sufficient.

D) PUMP LOSES SUCTION AFTER STARTING

1. Air leaks in suction line.
2. Air or vapor in suction line.
3. Suction line not submerged enough.
4. Available NPSH not sufficient.

E) EXCESSIVE POWER CONSUMPTION

1. Speed too high.
2. Insufficient back pressure.
3. Mechanical Defects; shaft bent, rotating element dragging, piping improperly supported.

F) VIBRATION

1. Air or vapor in suction line.
2. Worn or loose motor bearings.
3. Rotating element out of balance.
4. Shaft bent.
5. Foundation not rigid.
6. Vibration in the driver.
7. Wrong location of control valve.
8. Piping improperly supported

NOTES

Replacement Seal Kits*
Quick Reference

R series & G series (all w/56 frame/motor) ‡

Bronze fitted & all Iron w/ Buna(standard)	ML11763
Bronze fitted & all Iron w/ EPT(300°F water)	ML11764
Bronze fitted & all Iron w/ Viton(400°F & Oils)	ML11765
All bronze w/ Buna(standard)	ML11766
All bronze w/ EPT(300°F water)	ML11767
All bronze w/ Viton(400°F & Oils)	ML11768

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