Isochem®

CENTRIFUGAL PUMPS

Installation Operation Maintenance Instruction

Bulletin No. IMIC-94

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Burlington Pump Inc.

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PUMP MODEL # _____

PUMP SERIAL # _____

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INTRODUCTION

Isochem centrifugal pumps use sealless technology which eliminates the need for a rotary mechanical seal and enables the pump to handle hazardous fluids safely with zero leakage.

The Isochem Series pumps accept standard NEMA 56C and 145TC motors. This enables the pumps to be close coupled which provides greater assembled strength, complete enclosure of all moving parts and compact design. This also eliminates the need for special base plate mountings, couplings or complicated drives. An optional powerframe drive unit is available if the use of foot mounted motors is desired.

All Isochem pumps transmit rotation from the motor shaft to the pump shaft by means of a magnetic drive coupling. The principle of operation of the magnetic drive coupling is that an encapsulated driven magnet assembly is mounted on the end of the pump shaft. It is then contained by a closed end "can" which seals against the pump with a static teflon O-ring. Then a drive magnet assembly attached to an electric motor shaft rotates around the containment can. When the drive magnet assembly rotates, lines of magnetic force cause the driven magnet assembly to rotate which in turn causes the pump shaft to rotate.

The magnetic drive couplings for all Isochem series pumps are designed for satisfactory operation of the pump. The magnetic couplings have a built in safety feature which allows them to "decouple" if the coupling torque limit (listed in the pump specification chart) is exceeded. This could happen if a piece of foreign material were to jam the pump impeller or if unusually high torque was developed. Unlike many other magnetic drive pumps Isochem pumps use permanent, rare earth magnets which can run decoupled without losing their magnetic strength provided magnet temperature does not exceed 450°F (232°C). **Note: If the pump is allowed to run for an extended period of time decoupled, high temperatures could be generated which ultimately would cause the loss of magnetic strength.**

Isochem centrifugal single and multi-stage pumps are continuous duty industrial grade pumps capable of handling a wide range of service application. These pumps are primarily employed where viscosities range up to 100 centipoise with a maximum operating temperature of 400°F.

All pumps use silicon carbide bearings to support the pump shaft in the can area. Silicon carbide is one of the hardest and most chemical resistant bearing materials available. In addition all Isochem pumps incorporate an internal flush/cooling system to maintain a low fluid temperature rise in the can area.

The materials of construction for Isochem centrifugal pumps include:

316 Stainless Steel
316 Stainless Steel(Pickled & Passivated)
Alloy C

Consult Isochem's Liquid List for correct selection of metallurgy.

To achieve successful operation and maximum life from your pump make sure that the pump is compatible with the service and operating conditions of your application. The pump materials of construction and other details are specified by the pump model number. This along with the "Significant Model Numbering System Table" will fully describe the components of the pump.

EQUIPMENT INSPECTION

1. Check all equipment for completeness against the order and for any evidence of shipping damage. **Shortages or damage should be reported immediately to the carrier and to your Isochem supplier.**

2. If the pump is not going to be installed immediately, the following steps should be taken.

* Leave pump in original shipping carton.
* Store indoors in a dry ambient atmosphere. Avoid temperature variations.
* Leave all shipping plugs in place.
* Contact the motor manufacturer for specific motor storage information.

3. Occasionally during shipment, possible misalignment or other damage can occur. For this reason it is recommended that each unit be tested with water in some convenient area prior to piping into the actual process system.

4. These instructions should be read carefully by the personnel responsible for installation, operation and maintenance of the equipment and kept in a convenient place for ready reference. It is recommended that a copy of the Isochem order be kept with this manual as well as a written record of the pump model and serial number which is on the name tag attached to the pump motor adaptor. A space has been provided inside the front cover of the manual to record these numbers.

INSTALLATION (SEE FIGURE 1)

1. Pump installation site should provide easy access for routine maintenance and where possible to protect the pump from the elements and from leaks or drips from nearby process equipment.

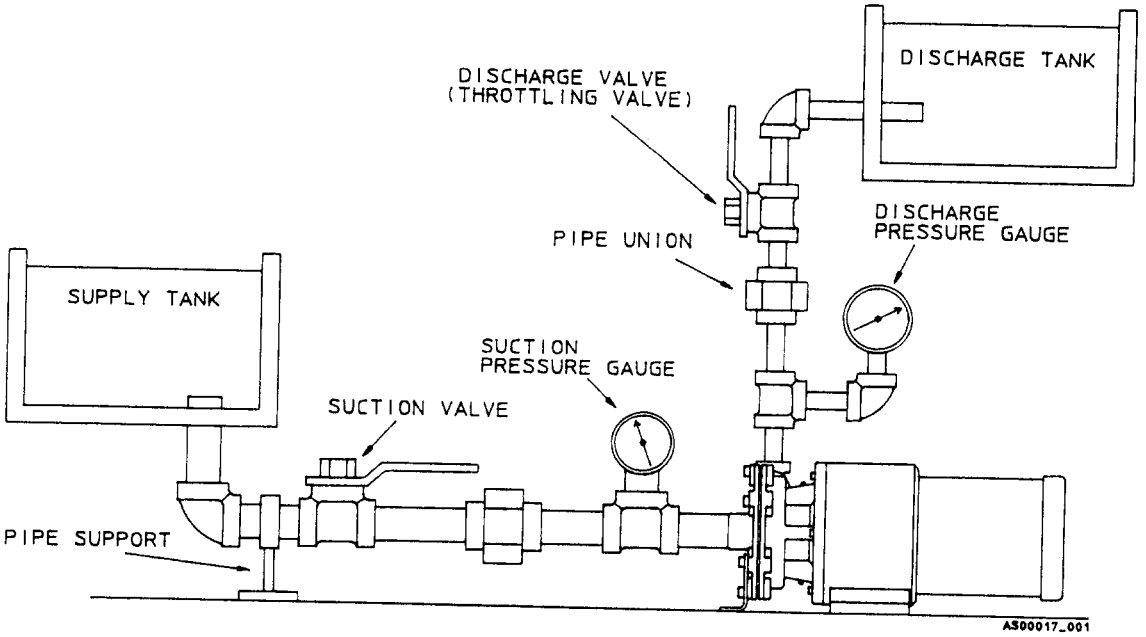
2. Bolt pump down firmly to mounting surface. Provide for air movement over electric motor.

3. Looking at the pump from the drive end, proper rotation is clockwise. An arrow is provided on the front cover.

4. To check system operation, installation of vacuum/pressure gauges in the suction and discharge lines is recommended.

5. Keep suction lines short and straight to minimize friction loss to the pump. Make sure that the pump will not starve or run dry. Flooded suction or gravity feed of fluid to pump inlet is generally preferred and eliminates manual priming.

6. Use only full-bore ball valves or gate valves in the suction piping. If



TYPICAL PUMP INSTALLATION
FIG. 1

suction strainers are used, size them to minimize pressure drop and select those of a type that are easily cleaned.

7. Arrange all suction piping and fittings to prevent formation of air pockets. Make sure all joints are air tight.

8. Flush and blow out all suction lines prior to mating up to pump. Use nipples and unions, for ease of maintenance.

9. Do not spring piping, either suction or discharge when mating up to the pump. Use supports or hangers at intervals as required. When necessary, provide for thermal expansion and contraction so no strain is placed upon the pump.

10. Check all bolts and nuts for tightness. Correct any conditions which could cause destructive vibration or leakage.

11. Where required, provide proper system for can flush and/or drain.

12. If start-up screens are used, be sure they do not clog and starve suction. Start up screens should be removed prior to placing system into regular operation.

13. If flexible suction lines are used, be sure their selection and installation will prevent wall collapse and thus a starved suction condition.

14. When taking suction from a tank or vessel, avoid entry of sludge, solids, etc. into suction line by placing suction line inlet above maximum expected level of solids.

15. When a by-pass system is used to control flow from the pump, the by-passed fluid should be piped back to the suction vessel to prevent heat build-up due to recirculation. If it is absolutely necessary to pipe by-pass back to the pump suction line, the point of entry should be at least 10 pipe diameters away from the suction inlet. Provision for cooling should be made in the event of excessive heat buildup through fluid recirculation.

16. Where pumped fluids may solidify, crystallize, precipitate etc., provision should be made to thoroughly flush pump and piping prior to periods of shutdown. Pay particular attention to proper flushing and draining of the magnetic coupling area because this area will not self drain. There is a drain plug in the rear housing for access to this area.

OPERATION

1. Prior to operation, recheck the suction system to be sure NPSH available to the pump is adequate. Make sure all suction piping is air tight and clean. Turn pump over by hand. If any mechanical binding or other trouble is detected, determine cause and correct. Check that electrical service to motor agrees with name plate ratings. Jog to check rotation and reconnect motor if necessary. **Use proper care near exposed rotating parts.**

2. Isochem pumps are designed to handle clear fluids at viscosities no greater than 100 cps.

   * **No centrifugal pump should be run dry. Damage to bearings will result.**
   * **In the case of single stage pumps equipped with a can flush, the pump itself may run "dry" as long as the flush stream to the can area is maintained in order to keep the bearing surfaces wet.**
   * **Multiple stage pumps should never be run dry.**

3. All centrifugal pumps must be primed before operation and any air must be vented from the casing. If foot valves are used, the valve should be of the flapper type and sized to minimize friction loss. Threaded and plugged vents can be provided as an option.

4. Centrifugal pumps are able to operate against a closed discharge valve without overloading the drive. However, heat builds up very quickly. Do not operate against a closed discharge valve for more than one minute. Where requirements dictate operating close to shut off, check for excessive temperature rise in pump chamber and can area. A by-pass system is recommended rather than a heavily throttled pump.

5. Start pump with discharge valve slightly open and check for proper operation. Excessive noise or vibration is an indication of harmful cavitation which is due to insufficient NPSH.

MAINTENANCE

The timing for maintenance of the pump is established primarily on past performance. Each installation is different. Therefore detailed maintenance records of past performance can be invaluable for determining future preventative maintenance intervals. During routine pump inspections pay particular attention to the bearing areas because those areas will determine future maintenance intervals. For motor maintenance instructions consult the motor manufacturer.

CAUTION

Before performing any maintenance requiring pump disassembly, be sure to flush and drain pump/magnetic drive thoroughly with a neutralizing fluid. Wear protective clothing and handle equipment with proper care.

1. When changing a pump from one service to another, be sure to check that all wetted parts of the pump are compatible with the fluid to be handled and that the motor is sufficiently sized for the application. If in doubt contact your Isochem supplier.

2. **All magnetic drive couplings have a specific maximum torque limit. If this torque is exceeded the drive will decouple. Operation in the decoupled mode should be avoided as high temperatures could be generated.**

3. General maintenance precautions to observe are:

   * Drain and flush pump and magnetic drive before any pump disassembly. Access to the magnetic drive area is provided by a drain connection in the pump housing.
   * The exposed magnets on the drive magnet assembly are very fragile and will chip easily. Use extreme care in handling them.
   * Don't wear a wrist watch in the vicinity of the drive or driven magnets as it may be damaged.
   * Take care to avoid particles or objects from attaching themselves to the drive magnets. It is difficult to remove small particles and larger objects could be attracted with enough force to break the magnets.
   * Be careful during disassembly and reassembly of the drive and driven magnet assemblies. Assembly and disassembly can best be described as a feat of strength. The attraction forces are high and when the magnets come close together there is a strong tendency to snap together suddenly, possibly causing pinching or worse to fingers. The attraction forces are strongest on the H Series pumps. Your pump supplier is fully equipped and prepared to provide maintenance support. See Figure 2 on next page.

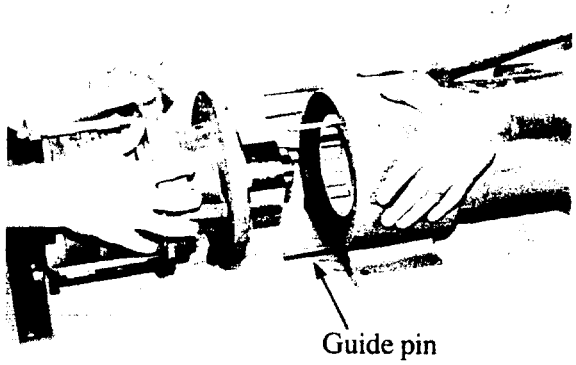


FIGURE 2

5. **Caution. Do not machine the magnets in the drive or driven magnet assemblies. The dust that would be produced is highly inflammable.**

6. The significant model number stamped on the pump name plate, identifies the pump type and other details. Refer to the significant model number chart if you are unsure of exactly what type of pump you have.

   Always refer to the full model and serial number in any correspondence with your Isochem supplier. Drawings and a consolidated bill of materials for each Isochem pump is included in this manual. Recommended spare parts are denoted on the composite bill of materials.

MODEL C SERIES

REFERENCE DRAWING: Y1024

DISASSEMBLY

1. Close discharge and suction valves.

2. Disconnect power source to motor.

3. Flush and drain pump then remove pump from the piping. Do not forget to drain the can area through the rear housing drain plug (Item 17).

4. Remove the rear housing bolts (Item 20) and separate the rear housing (Item 3) from the motor adaptor (Item 15). This will take physical force because you are pulling against the magnetic attraction of the drive to the driven magnet. Do not pry but pull straight apart.

5. Do not remove the drive magnet assembly (Item 4) from the motor unless it or the motor are to be replaced. This will make reassembly easier later. The drive magnet assembly is removed by loosening the setscrews (Item 27) and sliding it off the motor shaft. Access to the setscrews is provided through a slot in the motor adaptor or more direct access is provided by removing the motor adaptor first.

6. Remove front cover bolts (Item 18) and front cover (Item 1).

7. Remove impeller bolt and washer (Items 25, 26).

8. Remove impeller (Item 5) by unscrewing it from the pump shaft (Item 7).

9. Remove the containment can bolts (Item 8) and containment can ring (Item 34). Then remove the containment can (Item 33) from pump.

10. Using a small screw driver, pry the retaining ring (Item 40) off the pump shaft. The driven magnet assembly (Item 23) can now be slid off the pump shaft (Item 7).

11. Remove the bearing retainer bolts (Item 39) and then remove the bearing retainer (Item 38) taking care not to let the outer bearing (Item 13) fall out.

12. Slide the entire shaft/bearing assembly out of the rear housing. If disassembly to the component level is desired this can be done by removing the pump shaft nut (Item 32). Note: This nut is left handed. Do not clamp or hold onto the bearings as these parts can be easily broken.

13. Inspect the bearings for damage or wear. The maximum diametral clearance (Outer Bearing I.D. - Inner Bearing O.D.) that is acceptable is .008 inches (.20mm). The maximum acceptable assembled, pump shaft endplay is .015 inches (.38mm). Replace bearings as necessary.

14. Thoroughly clean all parts before reassembly.

REASSEMBLY

1. Assemble the bearings (Items 16,22), inner bearing sleeves (Item 14), keys (Item 24) and bearing lock pins (Items 10, 11) onto the pump shaft as per exploded drawing Y1024. Assemble the pump shaft washer (Item 30) and pump shaft nut (Item 32) onto the pumpshaft and tighten. Note: The pump shaft nut is left handed.

2. With the outer bearing (Item 13) and bearing lock pins (Item 10) installed in the rear housing (Item 3), slide the pump shaft assembly into the back of the rear housing. The fluted end of the outer bearing must be towards the thrust bearing.

3. Install the o-ring (Item 37) into the rear housing groove. Install the bearing retainer (Item 38) with bearing (fluted end out) onto the back of the rear housing. Use retainer bolts(Item 39).

4. Slide the driven magnet assembly (Item 23), key (Item 24) and retaining ring (Item 40) onto the pump shaft.

5. Install the containment can o-ring (Item 35) into the bearing retainer groove then install the containment can (Item 33), can ring (Item 34) and can bolts and washers (Items 8, 9).

6. Screw the impeller (Item 5) onto the pump shaft.

7. Install the impeller bolt and washer (Item 25, 26) and tighten to 36 inch lbs (407 Ncm).

8. Install the front cover O-ring (Item 12), the cover (Item 1) and the cover bolts and lockwashers (Items 18, 19). Tighten cover bolts evenly to 6 ft lbs (813 Ncm).

9. Start the drive magnet setscrews (Item 27) into the drive magnet assembly (Item 4) and slip the drive magnet and key over the motor shaft until the inside counterbore surface is flush with the end of the motor shaft. Tighten the drive magnet setscrews.

10. Bolt the motor or powerframe whichever is used to the motor adaptor (Item 15) using motor adaptor bolts and lockwashers (Items 28, 29). When using a 145TC frame motor (7/8 inch shaft), a spacer (Item 41) must be used between the motor and motor adaptor.

11. Carefully assemble the motor/adaptor/drive magnet assembly to the pump assembly. Be careful not to chip the drive magnets when slipping them over the can or to pinch your fingers when the two assemblies snap together. The use of (4) assembly guide pins is suggested. These pins can be made from 1/4 - 20 UNC threaded rod or cut-off bolts. See Figure #2. Install rear housing bolts and lockwashers (Items 20, 21).

12. Check to see pump turns freely. Reinstall pump and reconnect wiring to motor. Check for proper rotation, prime and start pump. Give pump time to purge all air then check performance. If problems are encountered see the **Troubleshooting Section.**

MODEL H SERIES

REFERENCE DRAWINGS: **Y1020**
Y1021

DISASSEMBLY

1. Close discharge and suction valves.

2. Disconnect power source to motor.

3. Flush and drain pump then remove pump from the piping. Do not forget to drain the can area through the rear housing drain plug (Item 17).

4. Remove the rear housing bolts (Item 20) and separate the rear housing (Item 3) from the motor adaptor (Item 15). This will take physical force because you are pulling against the magnetic attraction of the drive to the driven magnet. Do not pry but pull straight apart.

5. Do not remove the drive magnet assembly (Item 4) from the motor unless it or the motor are to be replaced. This will make reassembly easier later. The drive magnet assembly is removed by loosening the setscrews (Item 27) and sliding it off the motor shaft. Access to the setscrews is provided through a slot in the motor adaptor. Use an 1/8 inch Allen wrench.

6. Remove front cover bolts (Item 18) and front cover (Item 1).

7. Remove impeller bolt and washer (Items 25, 26).

8. Remove impeller (Item 5) and impeller key (Item 24) from the pump shaft (Item 7). If the pump is multiple stage next remove the impeller spacer (Item 6), housing assembly (Item 2), impeller and impeller key. Repeat this process if there are more stages. Use care in removing the housing assembly from the impeller so as not to chip or damage the bearing.

9. Remove the containment can bolts (Item 8) and containment can ring (Item 34). Then slide the containment can (Item 33) off the pump taking care not to let the outer bearing (Item 13) fall out.

10. Slide the entire shaft/bearing/driven magnet assembly out of the rear housing. If disassembly to the component level is desired, this can be done by removing the pump shaft nut (Item 32). Do not clamp or hold onto the bearings or driven magnet assembly (Item 23) as these parts can be easily broken or bent respectively. Hold onto the impeller end of the shaft instead.

11. Inspect the driven magnet bearings for damage or wear. The maximum diametral clearance (Outer Bearing I.D. - Inner Bearing O.D.) that is acceptable is .008 inches (.20mm). the maximum acceptable assembled, pump shaft endplay is .025 inches (.63mm). Replace bearings as necessary.

12. If the pump is multiple stage inspect the bearings in the housing assembly for damage or wear and also inspect the mating wear area on the impeller. If scoring, cracking or excessive wear exists the parts should be replaced. The maximum diametral clearance (Bearing I.D. - Impeller O.D.) that is acceptable is .020 inches (.51mm).

13. Thoroughly clean all parts before reassembly.

REASSEMBLY

1. Assemble the bearings (Items 16,22), inner bearing sleeves (Item 14), driven magnet assembly (Item 23), keys (Item 24) and bearing lock pins (Items 10, 11) onto the pump shaft as per exploded drawing Y1020 or Y1021. Assemble the pump shaft washer (Item 30) and pump shaft nut (Item 32) onto the pumpshaft and tighten.

2. With the outer bearing (Item 13) and bearing lock pins (Item 10) installed in the rear housing (Item 3), slide the pump shaft assembly into the back of the rear housing. The fluted end of the outer bearing must be towards the thrust bearing.

3. Install the o-ring (Item 35) into the rear housing groove. Install the

containment can (Item 33) with bearing (fluted end out) onto the back of the rear housing. Clamp the can into place using the containment can ring (Item 34) and can ring bolts and lockwashers (Items 8, 9).

4. Place a key (Item 24) in the pump shaft keyway and slide the impeller (Item 5) onto the shaft. If the pump is single stage proceed to Step 5. Next install a housing O-ring (Item 12), housing assembly (Item 2), impeller spacer (Item 6), key and impeller. Repeat this again if the pump has more stages. Be careful when installing housing assemblies over the ends of impellers so as not to damage the bearing. Pumps of four or more stages assemble easier when assembled vertically.

5. Install the impeller bolt and washer (Item 25, 26) and tighten to 60 inch lbs (678 Ncm). Pumps with four or more stages may require Step #6 be preformed first to account for O-ring stack height.

6. Install a housing O-ring, the cover (Item 1) and the cover bolts and lockwashers (Items 18, 19). Tighten cover bolts evenly to 20 ft lbs (2700 Ncm).

7. Bolt the motor or powerframe whichever is used to the motor adaptor (Item 15) using motor adaptor bolts and lockwashers (Items 28, 29).

8. Start the drive magnet setscrews (Item 27) into the drive magnet assembly (Item 4) and slip the drive magnet over the motor shaft until the first inside counterbore surface is flush with the end of the motor shaft. Tighten the drive magnet setscrews with a 1/8 inch Allen wrench. Access is provided by a slot in the motor adaptor.

9. Carefully assemble the motor/adaptor/drive magnet assembly to the pump assembly. Be careful not to chip the drive magnets when slipping them over the can or to pinch your fingers when the two assemblies snap together. The use of (4) assembly guide pins is suggested. These pins can be made from 1/4 - 20 UNC threaded rod or cut-off bolts. See Figure #2. Install rear housing bolts and lockwashers (Items 20, 21).

10. Check to see pump turns freely. Reinstall pump and reconnect wiring to motor. Check for proper rotation, prime and start pump. Give pump time to purge all air then check performance. If problems are encountered see the **Troubleshooting Section.**

ASSEMBLY OF WET END TO DRIVE

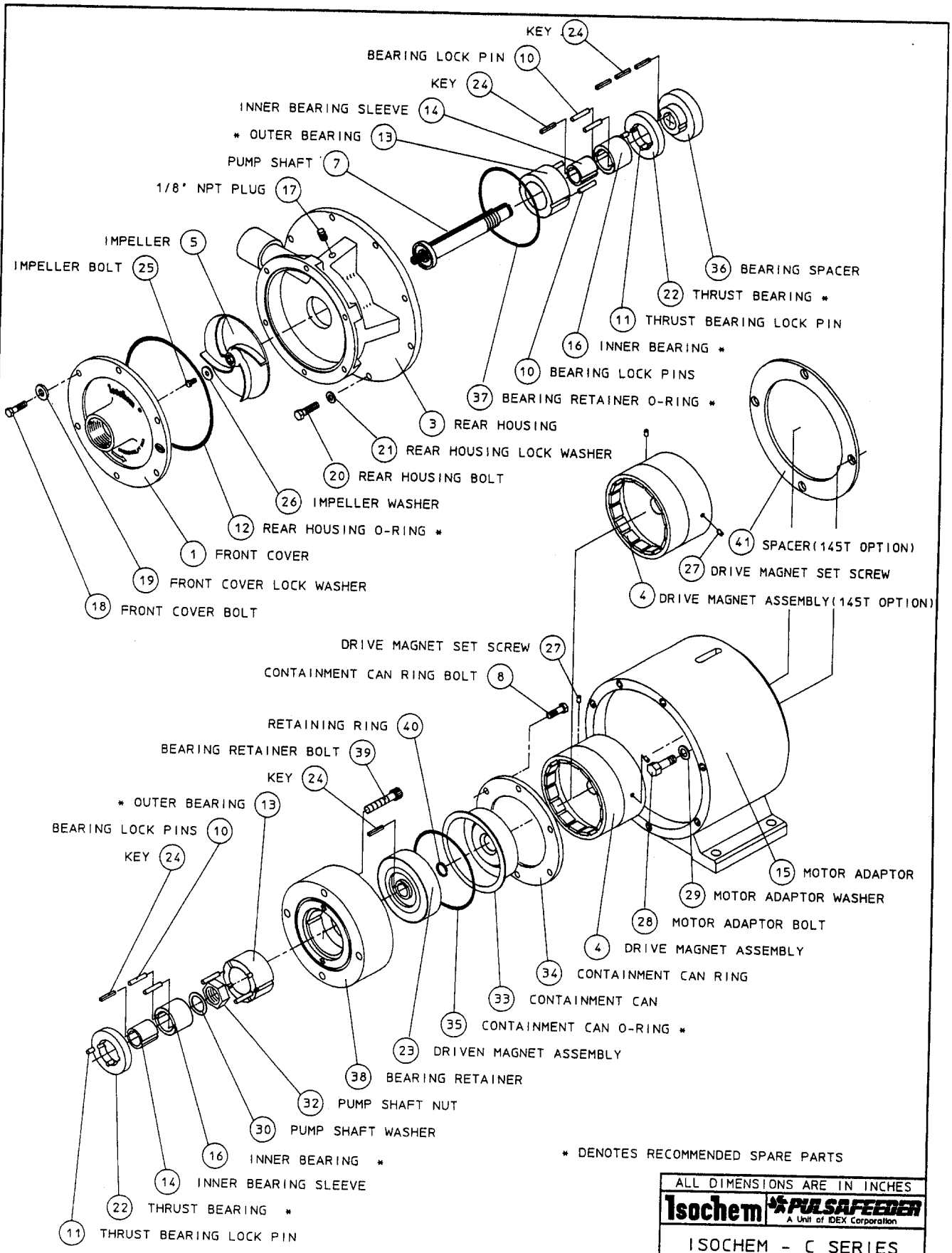
All pumps purchased as wet ends only include their respective motor adaptor and drive magnet allowing them to be close coupled with a standard NEMA electric motor or powerframe. By performing the following assembly procedures the pump wet end in all cases can be coupled to the motor without disassembly of the pump.

Series C - Slide the drive magnet over the motor shaft until the end of the shaft is flush with the inside surface of the drive magnet and setscrew in place. Next bolt the motor adaptor to the motor. Note 145TC frame motors require a spacer (provided) to be used between the motor and adaptor. Assemble the motor adaptor to the pump taking care to align the adaptor with the pump to avoid chipping the drive magnet facets.

Series H - Bolt the motor adaptor to the motor. Slide the drive magnet onto the motor shaft until the end of the motor shaft is flush with the inside surface of the drive magnet counterbore. Tighten the drive magnet setscrews. Access is provided by a slot in the motor adaptor. Next assemble the motor adaptor to the pump taking care to align the adaptor with the pump to avoid chipping the drive magnet facets.

TROUBLESHOOTING

Difficulty	Probable Cause	Remedy
No Liquid Delivered	1.Pump not primed.	Prime pump.
	2.Motor incorrectly wired	Check wiring diagram.
	3.Air leak in suction	Locate and repair.
	4.Rotation direction incorrect	Check rotation against arrow provided on front cover.
	5.Suction and/or discharge discharge valves closed	Open valves.
	6.Suction lift too high	Do not exceed vapor pressure of liquid.
	7.Magnetic coupling decoupled	Stop motor, eliminate blockage or jamming and restart. If no blockage exists verify operating conditions do not exceed capabilities of pump.
Low Liquid Delivery	1.Discharge head higher than calculated	Reduce discharge restrictions eg: Open throttle valve.
	2.Air leak in suction	Seal leak.
	3.Rotational speed not correct	Check speed and wiring.
	4.Rotation direction incorrect	Check rotation against arrow provided on front cover.
	5.Suction lift too high	Increase suction pressure.
	6.Impeller worn	Replace impeller.
Low Discharge Pressure	1.Rotational speed incorrect	Check speed.
	2.Air leak in suction	Repair leak.
	3.Air or gas in liquid	Eliminate air or gas.
	4.Worn impeller	Replace impeller.
Pump Gradually Loses Prime	1.Air leak in suction	Locate and repair.
	2.Air pocket in suction line	Eliminate pocket
	3.Air entering suction line	Keep suction inlet submerged at all times.
	4.Air or gas in liquid	Eliminate air or gas.
Motor Runs Hot or Overloads	1.It is normal for motors to feel hot even when not overloaded	No action required.
	2.Motor wired incorrectly	Check wiring diagram.
	3.Voltage or frequency low	Correct condition.
	4.Motor not sized correctly for the flow	Higher flows may require more power than the motor is capable of. Flow can be reduced by using a throttle valve in discharge line.
	5.Heavy or viscous liquid being pumped	Pumping fluids heavier or more viscous than water requires a larger motor.
	6.Binding internal pump parts.	Inspect and correct condition.



* DENOTES RECOMMENDED SPARE PARTS

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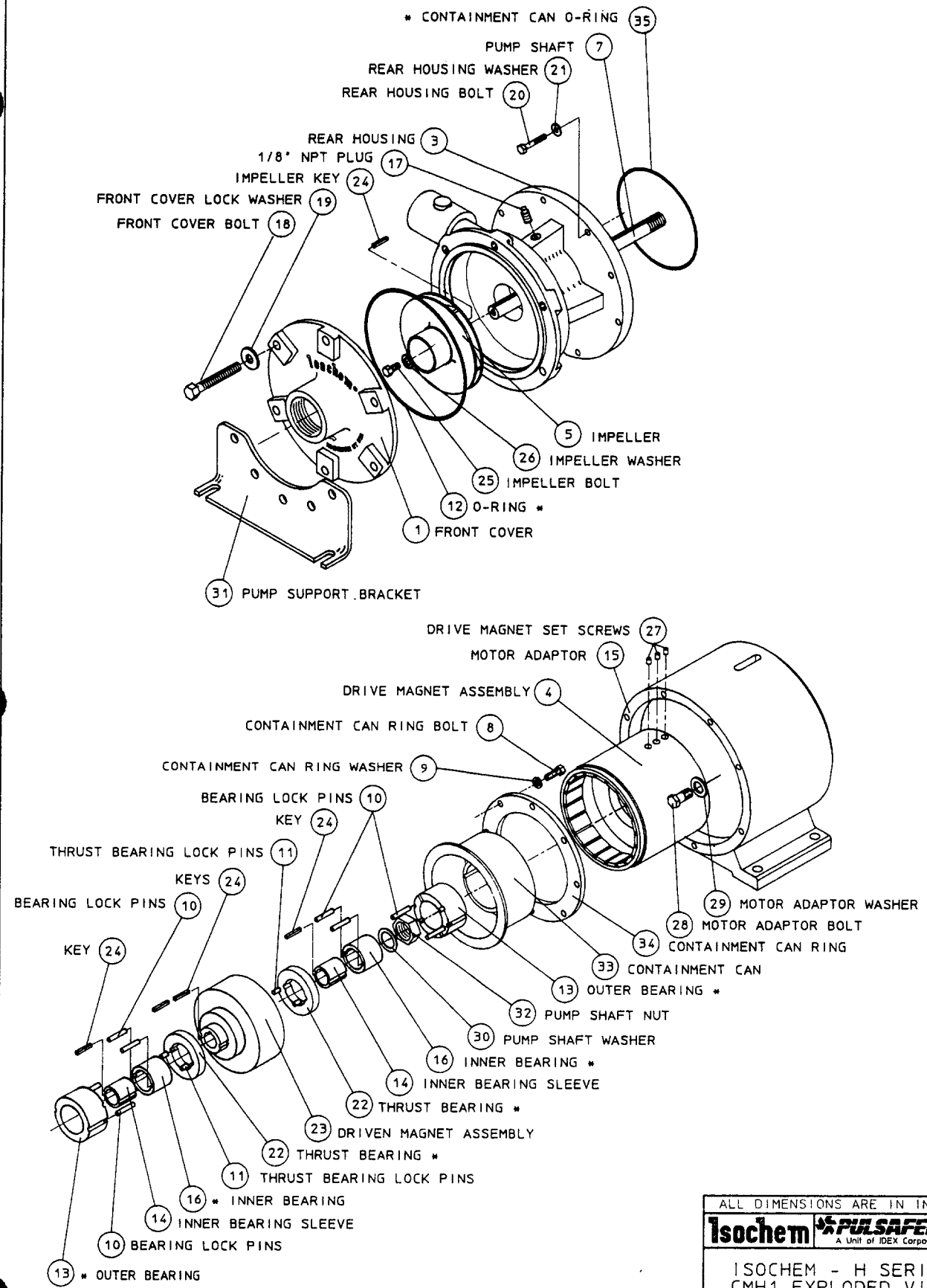
ALL DIMENSIONS ARE IN INCHES

Isochem | PULSAFEEDER — A Unit of IDEX Corporation

ISOCHEM - C SERIES
CMC1 EXPLODED VIEW

DWN BY: DJF
DATE: 08/09/88

Y1024



REF	REVISION UPDATE	DATE
6	REVISE ITEM #31, UPDATE FORMAT	06/09/93

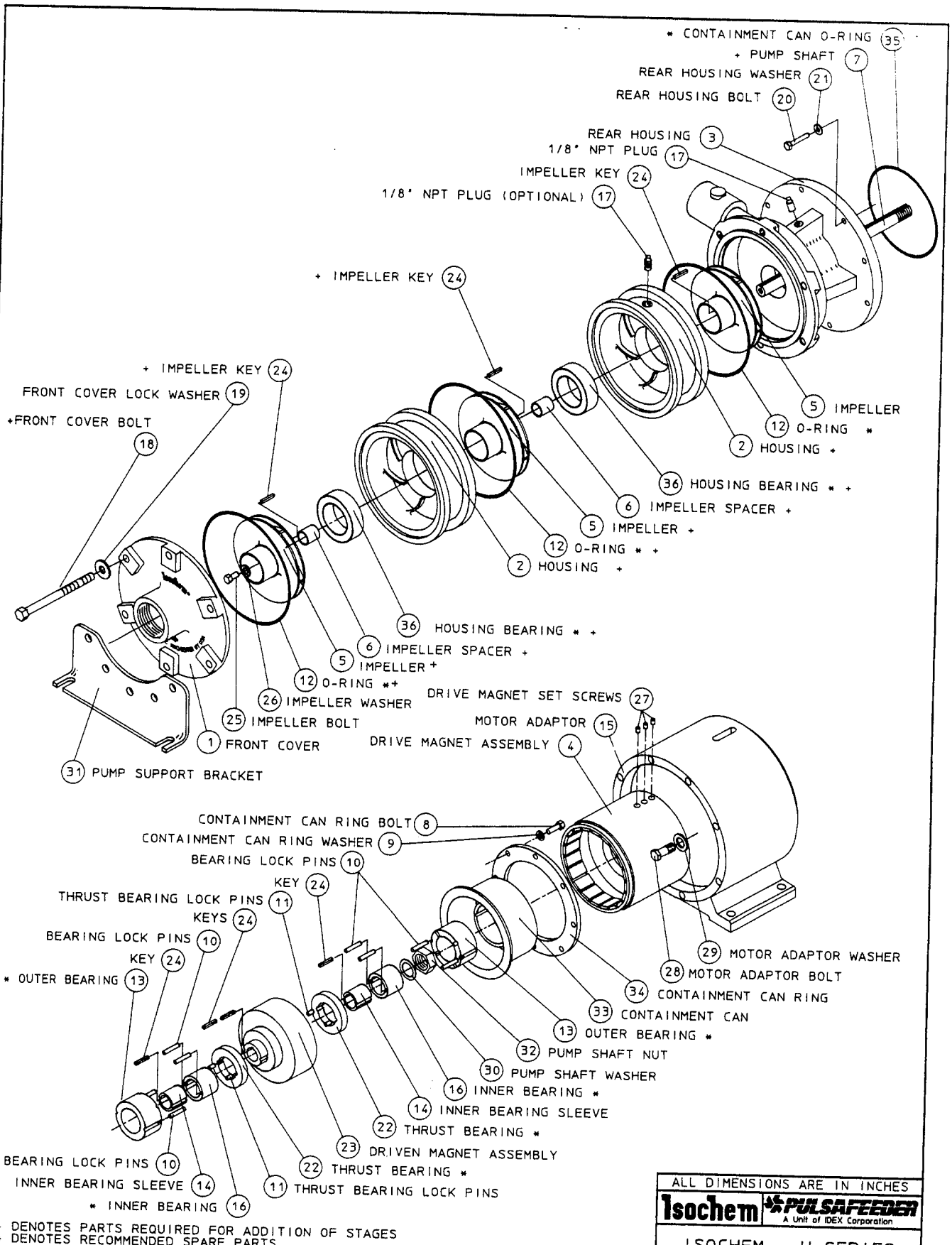
ALL DIMENSIONS ARE IN INCHES

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ISOCHEM - H SERIES
CMH1 EXPLODED VIEW

DWN BY: DJF
DATE: 03/28/88

Y1021



+ DENOTES PARTS REQUIRED FOR ADDITION OF STAGES
* DENOTES RECOMMENDED SPARE PARTS

REF	REVISION UPDATE	DATE
A	REVISE ITEM #31, UPDATE FORMAT	06/09/93

ALL DIMENSIONS ARE IN INCHES

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ISOCHEM - H SERIES
CMH3 EXPLODED VIEW

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DATE: 03/28/88

Y1020

GENERAL MAINTENANCE:

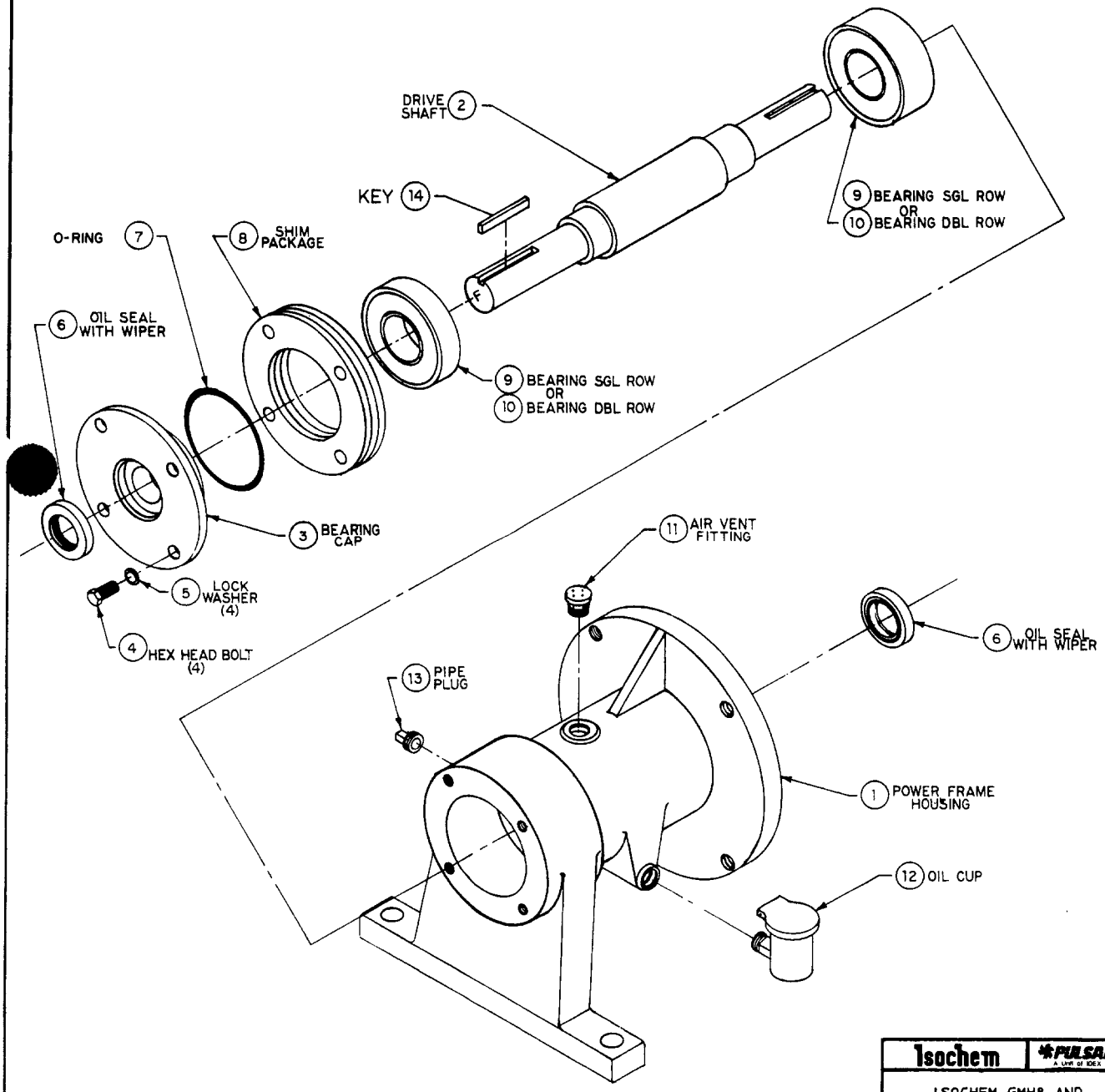
1. FILL POWER FRAME OIL CUP (ITEM #12) TO THE "OIL LEVEL" LINE, ABOUT 1/2 INCH FROM THE TOP OF THE CUP. USE STANDARD MOTOR OIL SAE 10W-40, 10W-30 OR 5W-30.
2. DRAIN AND CHANGE OIL AFTER EVERY 1000 HRS. OF OPERATION. SOONER IF WATER OR OTHER CONTAMINATION OCCURS.

DISASSEMBLY:

1. REMOVE BEARING CAP BOLTS (ITEMS #4 & 5)
2. SLIDE BEARING CAP (ITEM #3) OUT OF HOUSING (ITEM #1) AND OVER END OF SHAFT (ITEM #2).
3. REMOVE SHAFT / BEARING ASSEMBLY BY SLIDING OUT OF HOUSING.

REASSEMBLY:

1. PRESS NEW BEARINGS (ITEMS #9 & 10) ONTO SHAFT (ITEM #2) IF REPLACEMENT IS REQUIRED.
2. PRESS NEW OIL SEALS (ITEM #6) INTO HOUSING (ITEM #1) AND BEARING CAP (ITEM #3). APPLY GREASE TO AREA BETWEEN THE SEAL AND WIPER LIPS.
3. INSTALL A NEW O-RING (ITEM #7) ONTO THE BEARING CAP.
4. SLIDE SHAFT / BEARING ASSEMBLY INTO POWERFRAME HOUSING. THE END STAMPED "F" MUST BE TOWARDS THE BEARING CAP.
5. DETERMINE THE CORRECT SHIM COMBINATION NECESSARY TO OBTAIN AN END PLAY OF .000 - .004 INCHES.
6. REPLACE BEARING CAP BOLTS (ITEMS #4 & 5) AND TIGHTEN.



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SECTION / PAGE	DRIVES / 180	
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SUPERSEDES	12/01/88	

Isochem | PULSAFEEDER (A Unit of IDEX Corporation)

ISOCHEM GMH8 AND CENTRIFUGAL PUMP POWER FRAME ASSEMBLY EXPLODED VIEW

DWN BY DJF

DATE: 08/13/88

Y1028

ISOCHEM PUMP SPECIFICATIONS	PUMP MODEL					
	CMC1	CMH1	CMH2	CMH3	CMH4	CMH5
BEST EFFICIENCY POINT (BEP)	30 GPM @ 58 FT	51 GPM @ 78 FT	51 GPM @ 132 FT	51 GPM @ 178 FT	51 GPM @ 225 FT	51 GPM @ 273 FT
MAXIMUM FLOW (GPM)	54	94	94	94	94	94
SHUT-OFF HEAD (FT)	72	93	165	235	297	365
BEST EFFICIENCY (%)	45	45	46	47	48	49
MAXIMUM POWER @ MIN DIFF (BHP)	1.55	2.93	5.05	6.95	9.12	10.62
MAXIMUM TEMPERATURE (°F)	400	400	400	400	400	400
MAXIMUM VISCOSITY (CPS)	100	100	100	100	100	100
MAXIMUM SPECIFIC GRAVITY	1.5	1.5	1.5	1.5	1.5	1.5
MAXIMUM CASING PRESSURE (PSIG)	150	250	250	250	250	250
NPSHR @ BEP (FT)	8	10	10	10	10	10
IMPELLER DIAMETER (INCH)	3.88	4.56	4.56	4.56	4.56	4.56
INLET SIZE	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
OUTLET SIZE	3/4	1	1	1	1	1
FLUSHING PORTS SIZE (NPT)	1/8 F	1/8 F	1/8 F	1/8 F	1/8 F	1/8 F
ROTATIONAL SPEED (RPM)	3450	3450	3450	3450	3450	3450
MAX COUPLING TORQUE @ 68°F (IN LBS)	55	200	200	200	200	200
MAX COUPLING TORQUE @ 392°F (IN LBS)	37	132	132	132	132	132
ROTATION VIEWING PUMP SHAFT	CW	CW	CW	CW	CW	CW
MOTOR FRAME SIZE (NEMA)	56C,145TC	145TC,184C	145TC,184C	145TC,184C	145TC,184C	145TC,184C
STANDARD WET END CONSTRUCTION	316SS	316SS	316SS	316SS	316SS	316SS
OPTIONAL WET END CONSTRUCTION	316P&P, ALLOY C	316P&P, ALLOY C	316P&P, ALLOY C	316P&P, ALLOY C	316P&P, ALLOY C	316P&P, ALLOY C
STANDARD SEALING MATERIAL	TEFLON	TEFLON	TEFLON	TEFLON	TEFLON	TEFLON
IMPELLER BOLT TORQUE (INCH LBS)	36	60	60	60	60	60
COVER BOLT TORQUE (FOOT LBS)	6	20	20	20	20	20
PUMP & ADAPTOR HxWxL (INCH)	8.5 x 8 x 9.56	8.5 x 10 x 10.7	8.5 x 10 x 12.8	8.5 x 10 x 14.8	8.5 x 10 x 16.9	8.5 x 10 x 19.0
PUMP & ADAPTOR WEIGHT (LBS)	50	70	79	88	107	116

ISOCHEM CENTRIFUGAL PUMP
SIGNIFICANT MODEL NUMBERING SYSTEM AND SELECTION TABLE

POSITION NO. :

1	2	3	4	-	5	6	7	8	9	10	11	12
□	□	□	□	-	□	□	□	□	□	□	□	□

POSITION	NO. 1 & 2	CM = ISOCHEM CENTRIFUGAL PUMP		
POSITION	NO. 3	MODEL	STANDARD IMPELLER DIAMETER	
		C	3.88"	
		H	4.56"	
POSITION	NO. 4	PUMP STAGE	MODEL C	MODEL H
		1 = SINGLE STAGE	X	X
		2 = TWO STAGE		X
		3 = THREE STAGE		X
		4 = FOUR STAGE		X
		5 = FIVE STAGE		X
POSITION	NO. 5	AVAILABLE PUMP MATERIALS		
		A = 316SS	X	X
		B = 316SS (PICKLE & PASSIVATE)	X	X
		C = ALLOY C	X	X
		D = ALLOY 20	X	X
POSITION	NO. 6	IMPELLER DIAMETER		
		S = STANDARD IMPELLER	X	X
		A = 3.44"	X	
		B = 3.06"	X	
		C = 4.15"		X
POSITION	NO. 7	N = NON-VARIABLE	X	X
POSITION	NO. 8	INLET PORT		
		E = 1" FNPT	X	
		F = 1 1/2" FNPT		X
		L = 1" -150# FLANGE	X	
		M = 1 1/2" -150# FLANGE		X
POSITION	NO. 9	OUTLET PORT		
		D = 3/4" FNPT	X	
		E = 1" FNPT		X
		K = 3/4" -150# FLANGE	X	
		L = 1" -150# FLANGE		X
POSITION	NO. 10	MOTOR		
		Y = PUMP AND MOTOR	X	X
		N = PUMP WET END ONLY	X	X
POSITION	NO. 11 & 12	OPTIONS		
		SS = NO OPTIONS	X	X
		AX = VENTS AND DRAINS	X	X
		MA = 140T FR MOTOR MOUNTING	X	
		MW = WELDED MAGNET	X	X

CMC ISOCHEM PUMP
COMPOSITE BILL OF MATERIALS

		STANDARD PUMP MATERIALS								
		316SS (A)		316SS PICKLE & PASSIVATE (B)		ALLOY C (C)		ALLOY 20 (D)		
DESCRIPTION	QTY	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	ITEM
POSITION NO. 3 STANDARD PUMP COMPONENTS										
MOTOR ADAPTOR	1	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	15
BEARING RETAINER	1	Y1700600 - 316	316SS	Y1700600 - 316	316SS	Y1700600 - HC0	ALLOY C	Y1700600 - 020	ALLOY 20	38
BEARING SPACER	1	Y1700500 - 316	316SS	Y1700500 - 316	316SS	Y1700500 - HC0	ALLOY C	Y1700500 - 020	ALLOY 20	36
INNER BEARING	*2	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	16
OUTER BEARING	*2	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	13
THRUST BEARING	*2	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	22
INNER BEARING SLEEVE	2	Y0801100 - 316	316SS	Y0801100 - 316	316SS	Y0801100 - HC0	ALLOY C	Y0801100 - 020	ALLOY 20	14
THRUST BEARING LOCK PIN	4	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	11
BEARING LOCK PIN	8	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	10
PUMP SHAFT	1	Y0703500 - 316	316SS	Y0703500 - 316	316SS	Y0703500 - HC0	ALLOY C	Y0703500 - 020	ALLOY 20	7
CONTAINMENT CAN	1	79631	ALLOY C	79631 - PHC	ALY C(P&P)	79631	ALLOY C	79631	ALLOY C	33
CONTAINMENT CAN RING	1	Y9901200 - STL	STL	Y9901200 - STL	STL	Y9901200 - STL	STL	Y9901200 - STL	STL	34
PUMP SHAFT WASHER	1	Y9900800 - 316	316SS	Y9900800 - 316	316SS	Y9900800 - HC0	ALLOY C	Y9900800 - 020	ALLOY 20	30
PUMP SHAFT NUT	1	Y9901300 - 316	316SS	Y9901300 - 316	316SS	Y9901300 - HC0	ALLOY C	Y9901300 - 020	ALLOY 20	32
RETAINING RING	1	Y9901400 - 020	ALLOY 20	Y9901400 - 316	316SS	Y9901400 - HC0	ALLOY C	Y9901400 - 020	ALLOY 20	40
IMPELLER BOLT	1	W770517 - 316	316SS	W770517 - 316	316SS	W770517 - HC0	ALLOY C	W770517 - 020	ALLOY 20	25
IMPELLER WASHER	1	W771006 - 316	316SS	W771006 - 316	316SS	W771006 - HC0	ALLOY C	W771006 - 020	ALLOY 20	26
DRIVEN COMPONENTS KEY	6	W773097 - 029	316SS	W773097 - 029	316SS	W773097 - 030	ALLOY C	W773097 - 031	ALLOY 20	24
REAR HOUSING O-RING	*1	W209729 - TFE	TFE	W209729 - TFE	TFE	W209729 - TFE	TFE	W209729 - TFE	TFE	12
CONTAINMENT CAN O-RING +	*1	W209787 - TFE	TFE	W209787 - TFE	TFE	W209787 - TFE	TFE	W209787 - TFE	TFE	35
BEARING RETAINER O-RING +	*1	W209787 - TFE	TFE	W209787 - TFE	TFE	W209787 - TFE	TFE	W209787 - TFE	TFE	37
BEARING RETAINER BOLT	4	W770041 - 188	188SS	W770041 - 188	188SS	W770041 - 188	188SS	W770041 - 188	188SS	39
MOTOR ADAPTOR BOLT	4	W770426 - STL	STL	W770426 - STL	STL	W770426 - STL	STL	W770426 - STL	STL	28
MOTOR ADAPTOR LOCK WASHER	4	W771108 - STL	STL	W771108 - STL	STL	W771108 - STL	STL	W771108 - STL	STL	29
FRONT COVER BOLT +	6	W770403 - 188	188SS	W770403 - 188	188SS	W770403 - 188	188SS	W770403 - 188	188SS	18
FRONT COVER LOCK WASHER +	6	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	19
REAR HOUSING BOLT +	8	W770403 - 188	188SS	W770403 - 188	188SS	W770403 - 188	188SS	W770403 - 188	188SS	20
REAR HOUSING LOCK WASHER +	8	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	21
CONTAINMENT CAN RING BOLT	6	W770021 - 188	188SS	W770021 - 188	188SS	W770021 - 188	188SS	W770021 - 188	188SS	8
DRIVE MAGNET SET SCREW	2	W771004 - 019	STL	W771004 - 019	STL	W771004 - 019	STL	W771004 - 019	STL	27
DRIVE MAGNET KEY	1	W773098 - 010	STL	W773098 - 010	STL	W773098 - 010	STL	W773098 - 010	STL	24
NAME TAG	1	41210	188SS	41210	188SS	41210	188SS	41210	188SS	--
NAME TAG DRIVE SCREW	2	W771000 - 188	188SS	W771000 - 188	188SS	W771000 - 188	188SS	W771000 - 188	188SS	--
DRIVEN MAGNET HOUSING ASSY O-RING (STANDARD - SS)	1	Y1801000 - 316	316SS	Y1801000 - 316	316SS	Y1801000 - HC0	ALLOY C	Y1801000 - 020	ALLOY 20	23
DRIVEN MAGNET HOUSING ASSY WELDED (OPTION - MW)		Y1801100 - 316	316SS	Y1801100 - 316	316SS	Y1801100 - HC0	ALLOY C	Y1801100 - 020	ALLOY 20	23
DRIVE MAGNET ASSEMBLY 56 FR (STANDARD - SS)	1	79604	STL	79604	STL	79604	STL	79604	STL	4
DRIVE MAGNET ASSEMBLY 140T FR (OPTION - MA)		79636	STL	79636	STL	79636	STL	79636	STL	4
SPACER, 140T FR (OPTION-MA)	1	Y9901600 - 060	PLASTIC	Y9901600 - 060	PLASTIC	Y9901600 - 060	PLASTIC	Y9901600 - 060	PLASTIC	41

+ COMPONENT QUANTITY MAY BE CUMULATIVE OVER ENTIRE B/M

* DENOTES RECOMMENDED SPARE PARTS

CMC ISOCHEM PUMP
COMPOSITE BILL OF MATERIALS

			STANDARD PUMP MATERIALS								
			316SS (A)		316SS PICKLE & PASSIVATE (B)		ALLOY C (C)		ALLOY 20 (D)		
	DESCRIPTION	QTY	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	ITEM
POSITION NO. 4 PUMP STAGE NON-VARIABLE POSITION NO. 4 IS ALWAYS 1											
POSITION NO. 5 AVAILABLE PUMP MATERIALS - AS SHOWN											
POSITION NO. 6 IMPELLER DIAMETER											
S	IMPELLER 3.88 DIA	1	Y0100700 - 316	316SS	Y0100700 - P16	316SS(P&P)	Y0100700 - HC0	ALLOY C	Y0100700 - 020	ALLOY 20	5
A	IMPELLER 3.44 DIA	1	Y0100706 - 316	316SS	Y0100706 - P16	316SS(P&P)	Y0100706 - HC0	ALLOY C	Y0100706 - 020	ALLOY 20	5
B	IMPELLER 3.06 DIA	1	Y0100710 - 316	316SS	Y0100710 - P16	316SS(P&P)	Y0100710 - HC0	ALLOY C	Y0100710 - 020	ALLOY 20	5
POSITION NO. 7 NON-VARIABLE = N											
POSITION NO. 8 INLET PORT SIZE											
E	FRONT COVER 1" FNPT	1	Y0201000 - 316	316SS	Y0201000 - P16	316SS(P&P)	Y0201000 - HC0	ALLOY C	Y0201000 - 020	ALLOY 20	1
L	FRONT COVER 1"-150# FLG	1	Y0202000 - 316	316SS	Y0202000 - P16	316SS(P&P)	Y0202000 - HC0	ALLOY C	Y0202000 - 020	ALLOY 20	1
POSITION NO. 9 OUTLET PORT SIZE											
D	PIPE PLUG 1/8" NPT	2-4	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
D	REAR HOUSING 3/4" FNPT 2 PLUGS (STANDARD-SS)	1	Y0501800 - 316	316SS	Y0501800 - P16	316SS(P&P)	Y0501800 - HC0	ALLOY C	Y0501800 - 020	ALLOY 20	3
D	REAR HOUSING 3/4" FNPT 4 PLUGS (VENT & DRAIN OPTION-AX)	1	Y0501803 - 316	316SS	Y0501803 - P16	316SS(P&P)	Y0501803 - HC0	ALLOY C	Y0501803 - 020	ALLOY 20	3
K	PIPE PLUG 1/8" NPT	2-4	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
K	REAR HOUSING 3/4"-150# FLG 2 PLUGS (STANDARD-SS)	1	Y0502000 - 316	316SS	Y0502000 - P16	316SS(P&P)	Y0502000 - HC0	ALLOY C	Y0502000 - 020	ALLOY 20	3
K	REAR HOUSING 3/4"-150# FLG 4 PLUGS (VENT & DRAIN OPTION-AX)	1	Y0502003 - 316	316SS	Y0502003 - P16	316SS(P&P)	Y0502003 - HC0	ALLOY C	Y0502003 - 020	ALLOY 20	3

POSITION NO. 10 MOTOR

Y	PUMP AND MOTOR
N	PUMP WET END ONLY

POSITION NO. 11 & 12 OPTIONS

OPTIONS SHOWN IN CONJUNCTION WITH POSITIONS NO. 3 & 9

+ COMPONENT QUANTITY MAY BE CUMULATIVE OVER ENTIRE B/M

* DENOTES RECOMMENDED SPARE PARTS

CMH ISOCHEM PUMP
COMPOSITE BILL OF MATERIALS

		STANDARD PUMP MATERIALS								
		316SS (A)		316SS PICKLE & PASSIVATE (B)		ALLOY C (C)		ALLOY 20 (D)		
DESCRIPTION	QTY	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	ITEM
POSITION NO. 3 STANDARD PUMP COMPONENTS										
MOTOR ADAPTOR	1	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	Y1100700 - ALU	ALU	15
PUMP SUPPORT BRACKET	1	Y1200200 - 000	STL	Y1200200 - 000	STL	Y1200200 - 000	STL	Y1200200 - 000	STL	31
INNER BEARING	*2	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	Y0801300 - 000	SICBD	16
OUTER BEARING	*2	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	Y0801000 - 000	SICBD	13
THRUST BEARING	*2	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	Y0801200 - 000	SICBD	22
INNER BEARING SLEEVE	2	Y0801100 - 316	316SS	Y0801100 - 316	316SS	Y0801100 - HC0	ALLOY C	Y0801100 - 020	ALLOY 20	14
THRUST BEARING LOCK PIN	4	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	Y1700400 - TFE	TFE	11
BEARING LOCK PIN	8	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	Y1700300 - TFE	TFE	10
CONTAINMENT CAN	1	Y0400800 - HC0	ALLOY C	Y0400800 - PHC	ALY C(P&P)	Y0400800 - HC0	ALLOY C	Y0400800 - HC0	ALLOY C	33
CONTAINMENT CAN RING	1	Y9901000 - STL	STL	Y9901000 - STL	STL	Y9901000 - STL	STL	Y9901000 - STL	STL	34
PUMP SHAFT WASHER	1	Y9900800 - 316	316SS	Y9900800 - 316	316SS	Y9900800 - HC0	ALLOY C	Y9900800 - 020	ALLOY 20	30
PUMP SHAFT NUT	1	Y9900900 - 316	316SS	Y9900900 - 316	316SS	Y9900900 - HC0	ALLOY C	Y9900900 - 020	ALLOY 20	32
IMPELLER BOLT	1	W770459 - 316	316SS	W770459 - 316	316SS	W770459 - HC0	ALLOY C	W770459 - 020	ALLOY 20	25
IMPELLER WASHER	1	Y9901500 - 316	316SS	Y9901500 - 316	316SS	Y9901500 - HC0	ALLOY C	Y9901500 - 020	ALLOY 20	26
DRIVEN COMPONENTS KEY +	4	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
CONTAINMENT CAN O-RING	*1	W210422 - TFE	TFE	W210422 - TFE	TFE	W210422 - TFE	TFE	W210422 - TFE	TFE	35
MOTOR ADAPTOR BOLT	4	W770426 - STL	STL	W770426 - STL	STL	W770426 - STL	STL	W770426 - STL	STL	28
MOTOR ADAPTOR LOCK WASHER	4	W771108 - STL	STL	W771108 - STL	STL	W771108 - STL	STL	W771108 - STL	STL	29
FRONT COVER LOCK WASHER	3	W771108 - 188	188SS	W771108 - 188	188SS	W771108 - 188	188SS	W771108 - 188	188SS	19
REAR HOUSING BOLT	8	W770404 - 188	188SS	W770404 - 188	188SS	W770404 - 188	188SS	W770404 - 188	188SS	20
REAR HOUSING LOCK WASHER +	8	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	21
CONTAINMENT CAN RING BOLT	8	W770401 - 188	188SS	W770401 - 188	188SS	W770401 - 188	188SS	W770401 - 188	188SS	8
CONTAINMENT CAN RING WASHER +	8	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	W771117 - 188	188SS	9
NAME TAG	1	41210	188SS	41210	188SS	41210	188SS	41210	188SS	--
NAME TAG DRIVE SCREW	2	W771000 - 188	188SS	W771000 - 188	188SS	W771000 - 188	188SS	W771000 - 188	188SS	--
DRIVEN MAGNET ASSEMBLY O-RING (STANDARD - SS)	1	Y1800600 - 316	316SS	Y1800600 - 316	316SS	Y1800600 - HC0	ALLOY C	Y1800600 - 020	ALLOY 20	23
DRIVEN MAGNET ASSEMBLY WELDED (OPTION - MW)	1	Y1800700 - 316	316SS	Y1800700 - 316	316SS	Y1800700 - HC0	ALLOY C	Y1800700 - 020	ALLOY 20	23
POSITION NO. 4 PUMP STAGE										
1 O-RING (REAR HOUSING)	*1	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	12
1 IMPELLER KEY +	1	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
1 FRONT COVER BOLT	6	W770427 - 188	188SS	W770427 - 188	188SS	W770427 - 188	188SS	W770427 - 188	188SS	18
1 PUMP SHAFT	1	Y0703000 - 316	316SS	Y0703000 - 316	316SS	Y0703000 - HC0	ALLOY C	Y0703000 - 020	ALLOY 20	7
1 DRIVE MAGNET SET SCREW	3	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	27
1 DRIVE MAGNET ASSEMBLY	1	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	4
2 O-RING (HOUSING ASSY)	*2	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	12
2 IMPELLER SPACER	1	Y1400200 - 316	316SS	Y1400200 - 316	316SS	Y1400200 - HC0	ALLOY C	Y1400200 - 020	ALLOY 20	6
2 PIPE PLUG 1/8" NPT +	0-2	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
2 IMPELLER KEY +	2	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
2 FRONT COVER BOLT	6	W770434 - 188	188SS	W770434 - 188	188SS	W770434 - 188	188SS	W770434 - 188	188SS	18
2 PUMP SHAFT	1	Y0703100 - 316	316SS	Y0703100 - 316	316SS	Y0703100 - HC0	ALLOY C	Y0703100 - 020	ALLOY 20	7
2 DRIVE MAGNET SET SCREW	3	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	27
2 DRIVE MAGNET ASSEMBLY	1	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	4
++ HOUSING ASSY 0 PLUGS (STANDARD - SS)	1	Y0400400 - 316	316SS	Y0400400 - P16	316SS(P&P)	Y0400400 - HC0	ALLOY C	Y0400400 - 020	ALLOY 20	2
++ HOUSING ASSY 2 PLUGS (VENT & DRAIN OPTION - AX)	1	Y0400403 - 316	316SS	Y0400403 - P16	316SS(P&P)	Y0400403 - HC0	ALLOY C	Y0400403 - 020	ALLOY 20	2

* DENOTES RECOMMENDED SPARE PARTS

+ COMPONENT QUANTITY MAY BE CUMULATIVE OVER ENTIRE B/M

++ FIELD REPLACEABLE BEARING DESIGN FOR HOUSING ASSEMBLIES IS AVAILABLE , ORDER PART NUMBER Y0800900 - CGR

CMH ISOCHEM PUMP
COMPOSITE BILL OF MATERIALS

			STANDARD PUMP MATERIALS								
			316SS (A)		316SS PICKLE & PASSIVATE (B)		ALLOY C (C)		ALLOY 20 (D)		
	DESCRIPTION	QTY	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	PART NUMBER	MATL	ITEM
	POSITION NO. 4 PUMP STAGE (CONTINUED)										
3	O-RING (HOUSING ASSY)	*3	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	12
3	IMPELLER SPACER	2	Y1400200 - 316	316SS	Y1400200 - 316	316SS	Y1400200 - HC0	ALLOY C	Y1400200 - 020	ALLOY 20	6
3	PIPE PLUG 1/8" NPT +	0-4	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
3	IMPELLER KEY +	3	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
3	FRONT COVER BOLT	6	W770436 - 188	188SS	W770436 - 188	188SS	W770436 - 188	188SS	W770436 - 188	188SS	18
3	PUMP SHAFT	1	Y0703200 - 316	316SS	Y0703200 - 316	316SS	Y0703200 - HC0	ALLOY C	Y0703200 - 020	ALLOY 20	7
3	DRIVE MAGNET SET SCREW	3	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	W771004 - 116	17-4PH	27
3	DRIVE MAGNET ASSEMBLY	1	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	Y1900100 - 000	STL	4
3	++ HOUSING ASSY 0 PLUGS (STANDARD - SS)	2	Y0400400 - 316	316SS	Y0400400 - P16	316SS(P&P)	Y0400400 - HC0	ALLOY C	Y0400400 - 020	ALLOY 20	2
3	++ HOUSING ASSY 4 PLUGS (VENT & DRAIN OPTION-AX)	2	Y0400403 - 316	316SS	Y0400403 - P16	316SS(P&P)	Y0400403 - HC0	ALLOY C	Y0400403 - 020	ALLOY 20	2
4	O-RING (HOUSING ASSY)	*4	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	12
4	IMPELLER SPACER	3	Y1400200 - 316	316SS	Y1400200 - 316	316SS	Y1400200 - HC0	ALLOY C	Y1400200 - 020	ALLOY 20	6
4	PIPE PLUG 1/8" NPT +	0-6	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
4	IMPELLER KEY +	4	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
4	FRONT COVER BOLT	6	W770502 - 188	188SS	W770502 - 188	188SS	W770502 - 188	188SS	W770502 - 188	188SS	18
4	PUMP SHAFT	1	Y0703300 - 316	316SS	Y0703300 - 316	316SS	Y0703300 - HC0	ALLOY C	Y0703300 - 020	ALLOY 20	7
4	DRIVE MAGNET SET SCREW	3	W771004 - 112	STL	W771004 - 112	STL	W771004 - 112	STL	W771004 - 112	STL	27
4	DRIVE MAGNET ASSEMBLY	1	Y1900400 - 000	STL	Y1900400 - 000	STL	Y1900400 - 000	STL	Y1900400 - 000	STL	4
4	DRIVE MAGNET ASSY KEY	1	W773098 - 011	STL	W773098 - 011	STL	W773098 - 011	STL	W773098 - 011	STL	--
4	++ HOUSING ASSY 0 PLUGS (STANDARD - SS)	3	Y0400400 - 316	316SS	Y0400400 - P16	316SS(P&P)	Y0400400 - HC0	ALLOY C	Y0400400 - 020	ALLOY 20	2
4	++ HOUSING ASSY 6 PLUGS (VENT & DRAIN OPTION-AX)	3	Y0400403 - 316	316SS	Y0400403 - P16	316SS(P&P)	Y0400403 - HC0	ALLOY C	Y0400403 - 020	ALLOY 20	2
5	O-RING (HOUSING ASSY)	*5	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	W209728 - TFE	TFE	12
5	IMPELLER SPACER	4	Y1400200 - 316	316SS	Y1400200 - 316	316SS	Y1400200 - HC0	ALLOY C	Y1400200 - 020	ALLOY 20	6
5	PIPE PLUG 1/8" NPT +	0-8	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
5	IMPELLER KEY +	5	W773097 - 026	316SS	W773097 - 026	316SS	W773097 - 028	ALLOY C	W773097 - 027	ALLOY 20	24
5	FRONT COVER BOLT	6	W770503 - 188	188SS	W770503 - 188	188SS	W770503 - 188	188SS	W770503 - 188	188SS	18
5	PUMP SHAFT	1	Y0703400 - 316	316SS	Y0703400 - 316	316SS	Y0703400 - HC0	ALLOY C	Y0703400 - 020	ALLOY 20	7
5	DRIVE MAGNET SET SCREW	3	W771004 - 112	STL	W771004 - 112	STL	W771004 - 112	STL	W771004 - 112	STL	27
5	DRIVE MAGNET ASSEMBLY	1	Y1900400 - 000	STL	Y1900400 - 000	STL	Y1900400 - 000	STL	Y1900400 - 000	STL	4
5	DRIVE MAGNET ASSY KEY	1	W773098 - 011	STL	W773098 - 011	STL	W773098 - 011	STL	W773098 - 011	STL	--
5	++ HOUSING ASSY 0 PLUGS (STANDARD - SS)	4	Y0400400 - 316	316SS	Y0400400 - P16	316SS(P&P)	Y0400400 - HC0	ALLOY C	Y0400400 - 020	ALLOY 20	2
5	++ HOUSING ASSY 8 PLUGS (VENT & DRAIN OPTION-AX)	4	Y0400403 - 316	316SS	Y0400403 - P16	316SS(P&P)	Y0400403 - HC0	ALLOY C	Y0400403 - 020	ALLOY 20	2
	POSITION NO. 5 AVAILABLE PUMP MATERIALS - AS SHOWN										
	POSITION NO. 6 IMPELLER DIAMETER										
S	IMPELLER 4.56 DIA	0-5	Y0100600 - 316	316SS	Y0100600 - P16	316SS(P&P)	Y0100600 - HC0	ALLOY C	Y0100600 - 020	ALLOY 20	5
C	IMPELLER 4.15 DIA	0-5	Y0100604 - 316	316SS	Y0100604 - P16	316SS(P&P)	Y0100604 - HC0	ALLOY C	Y0100604 - 020	ALLOY 20	5
	POSITION NO. 7 NON-VARIABLE										
	POSITION NO. 8 INLET PORT										
F	FRONT COVER 1 1/2" FNPT	1	Y0200800 - 316	316SS	Y0200800 - P16	316SS(P&P)	Y0200800 - HC0	ALLOY C	Y0200800 - 020	ALLOY 20	1
M	FRONT COVER 1 1/2-150# FLG	1	Y0200900 - 316	316SS	Y0200900 - P16	316SS(P&P)	Y0200900 - HC0	ALLOY C	Y0200900 - 020	ALLOY 20	1
	POSITION NO. 9 OUTLET PORT SIZE										
E	PIPE PLUG 1/8" NPT +	2-4	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
E	REAR HOUSING 1" FNPT 2 PLUGS (STANDARD-SS)	1	Y0501600 - 316	316SS	Y0501600 - P16	316SS(P&P)	Y0501600 - HC0	ALLOY C	Y0501600 - 020	ALLOY 20	3
E	REAR HOUSING 1" FNPT 4 PLUGS(VENT & DRAIN-AX)	1	Y0501603 - 316	316SS	Y0501603 - P16	316SS(P&P)	Y0501603 - HC0	ALLOY C	Y0501603 - 020	ALLOY 20	3
L	PIPE PLUG 1/8" NPT +	2-4	W772565 - 316	316SS	W772565 - 316	316SS	W772565 - HC0	ALLOY C	52300	ALLOY 20	17
L	REAR HOUSING 1"-150# FLG 2 PLUGS (STANDARD-SS)	1	Y0501700 - 316	316SS	Y0501700 - P16	316SS(P&P)	Y0501700 - HC0	ALLOY C	Y0501700 - 020	ALLOY 20	3
L	REAR HOUSING 1"-150# FLG 4 PLUGS(VENT & DRAIN-AX)	1	Y0501703 - 316	316SS	Y0501703 - P16	316SS(P&P)	Y0501703 - HC0	ALLOY C	Y0501703 - 020	ALLOY 20	3

POSITION NO. 10 MOTOR

Y	PUMP AND MOTOR
N	PUMP WET END ONLY

POSITION NO. 11 & 12 OPTIONS

OPTIONS SHOWN IN CONJUNCTION WITH POSITIONS NO. 4 & 9

* DENOTES RECOMMENDED SPARE PARTS

+ COMPONENT QUANTITY MAY BE CUMULATIVE OVER ENTIRE B/M

++ FIELD REPLACEABLE BEARING DESIGN FOR HOUSING ASSEMBLIES IS AVAILABLE , ORDER PART NUMBER Y0800900 - CGR

ISOCHEM GMH8 AND CENTRIFUGAL POWER FRAME ASSEMBLY COMPOSITE BILL OF MATERIALS FOR Y0400600-(SUFFIX FROM BELOW)

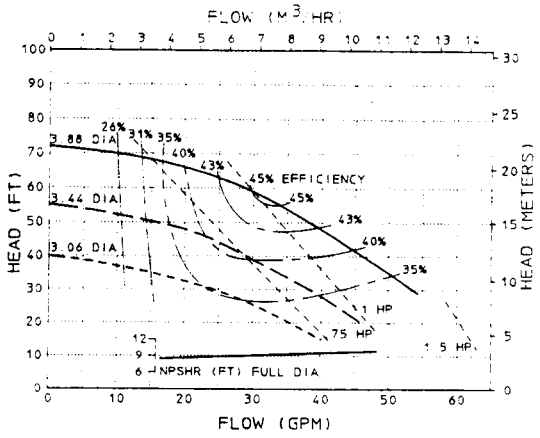
	DESCRIPTION	QTY	PART NUMBER	MATERIAL	ITEM
COMMON PARTS	PIPE PLUG	1	W772565-STL	STEEL	13
	OIL CUP	1	A53801	STEEL	12
	AIR VENT	1	27219	STEEL	11
	SHIM PACKAGE	* 1	Y1300700-PAK	PLASTIC	8
	O-RING	* 1	W209789-NTR	NITRILE	7
	OIL SEAL	* 2	Y1501100-000	STL/NTR	6
	.25 LOCK WASHER	4	W771117-STL	STEEL	5
	.25-20 X .75 HEX HD BOLT	4	W770402-STL	STEEL	4
	.19 X 1.38 SQUARE KEY	1	W773098-010	STEEL	14
	BEARING CAP	1	Y1700200-000	STEEL	3
	POWER FRAME	1	Y0400500-IRN	CAST IRON	1
.625 DIA. OUTPUT SHAFT FOR UP TO 3 H.P. INPUT					
SUFFIX -000	DRIVE SHAFT	1	Y0701600-000	STEEL	2
	BEARING, SINGLE ROW	* 2	Y0800800-000	STEEL	9
.875 DIA. OUTPUT SHAFT FOR UP TO 5 H.P. INPUT					
SUFFIX -001	DRIVE SHAFT	1	Y0701800-000	STEEL	2
	BEARING, SINGLE ROW	* 2	Y0800800-000	STEEL	9
.875 DIA. OUTPUT SHAFT FOR UP TO 10 H.P. INPUT					
SUFFIX -002	DRIVE SHAFT	1	Y0701500-000	STEEL	2
	BEARING, SINGLE ROW	* 1	Y0800800-000	STEEL	9
	BEARING, DOUBLE ROW	* 1	Y0800700-000	STEEL	10
.875 DIA. OUTPUT SHAFT FOR UP TO 20 H.P. INPUT					
SUFFIX -003	DRIVE SHAFT	1	Y0701700-000	STEEL	2
	BEARING, DOUBLE ROW	* 2	Y0800700-000	STEEL	10

* DENOTES RECOMMENDED SPARE PARTS

PUMP PERFORMANCE CURVES

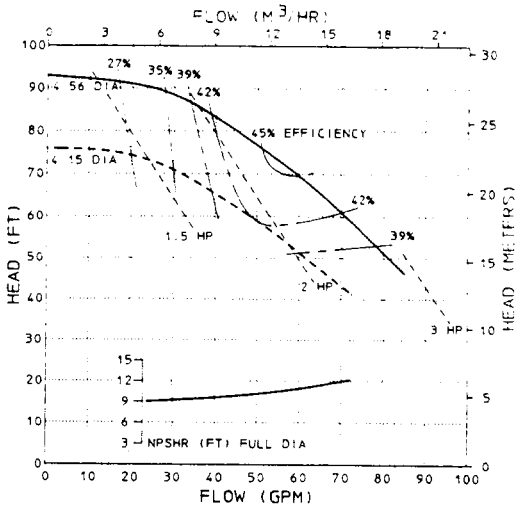
ISOCHEM CENTRIFUGAL CMC1

INLET 1"
OUTLET 3/4"
TEST MEDIA WATER
RPM 3450



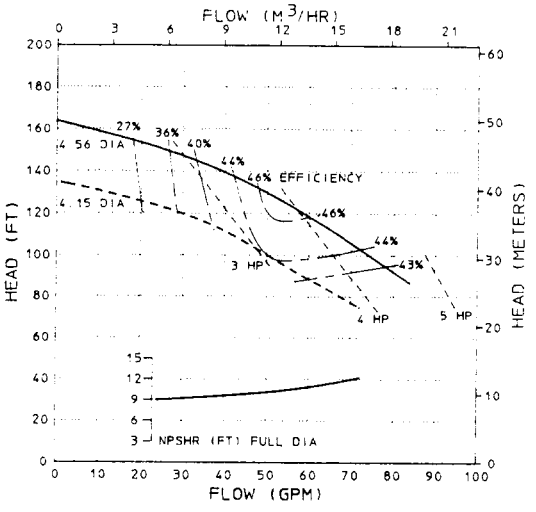
ISOCHEM CENTRIFUGAL CMH1

INLET 1 1/2"
OUTLET 1"
TEST MEDIA WATER
RPM 3450



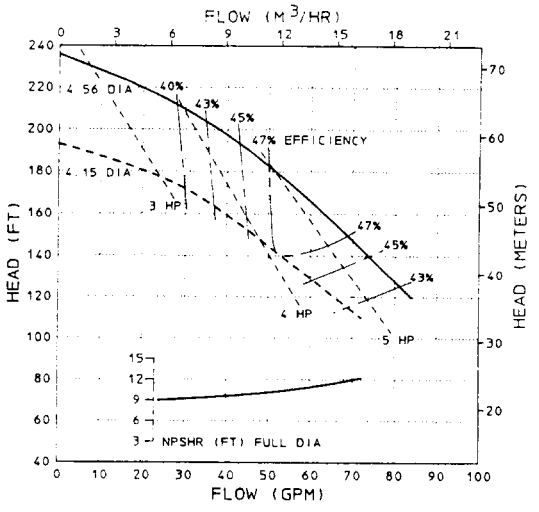
ISOCHEM CENTRIFUGAL CMH2

INLET 1 1/2"
OUTLET 1"
TEST MEDIA WATER
RPM 3450



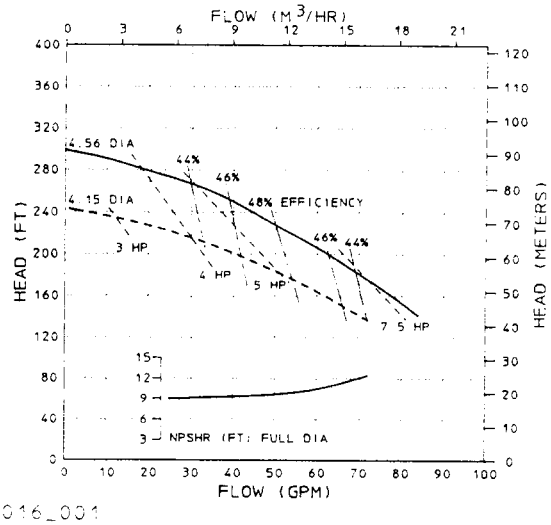
ISOCHEM CENTRIFUGAL CMH3

INLET 1 1/2"
OUTLET 1"
TEST MEDIA WATER
RPM 3450



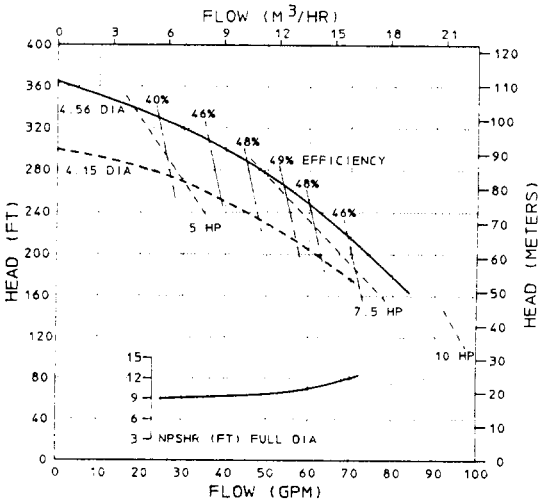
ISOCHEM CENTRIFUGAL CMH4

INLET 1 1/2"
OUTLET 1"
TEST MEDIA WATER
RPM 3450



ISOCHEM CENTRIFUGAL CMH5

INLET 1 1/2"
OUTLET 1"
TEST MEDIA WATER
RPM 3450



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