

# Instruction Manual V<sup>2</sup> Series Centrifugal Pump







# **INSTRUCTION and PARTS MANUAL**

"V2" Series Centrifugal Pump

Model Number
Serial Number
General Assembly Number
Shaft Seal Type Type 1 Rotating Carbon vs. 316 SS Back Plate Type 2 Rotating Carbon vs. 316 SS Replaceable Insert in Back Plate Type 3 John Crane, Rotating Carbon vs. 316 SS Replaceable Insert in Back Plate Type 4 Water Flush John Crane Double Seal Type 5 Water Flush John Crane & APV Crepaco Double Seal
Optional Seal Feature Teflon in place of rotating Carbon Siliconized Carbon in place of rotating Carbon Siliconized Carbon in place of 316 SS Insert Cascade Water Flush
Shaft Seal Gasket Material  Nitrile (Std.)  EPDM Viton Other (Please specify)
Casing O-ring Material  Nitrile (Std.) EPDM Viton Other (Please specify)
Impelier O-ring Material  Nitrile (Std.)  EPDM  Viton  Other (Please specify)
Frame Size

04WP475770 (rev. 10/08/96 KAS)

Spares & Service Parts
1-888-APV-4321 Phone 1-888-APV-5329 Fax

# APV CREPACO Instruction and Parts Manual

"V<sup>2</sup>" Sanitary Centrifugal Pump Models 4V<sup>2</sup> 6V<sup>2</sup> 6VS<sup>2</sup> 8VS<sup>2</sup>

"V<sup>2</sup>" Industrial Centrifugal Pump Models 14V<sup>2</sup> 16V<sup>2</sup> 16VS<sup>2</sup> 18V<sup>2</sup> 18VS<sup>2</sup>

Keep this instruction and Parts manual in a safe place for future reference.

When requesting information about your pump, always state serial number.

Additional copies may be ordered through your local APV Crepaco Sales Representative.



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# Introduction

Congratulations, you are the owner of a quality built item of APV Crepaco. This machine was manufactured by the skilled craftsmen of a company which has served the needs of the dairy, food, and process industries for more than 100 years.

The purpose of this manual is to provide instructions for the safe installation, operation, and maintenance of your APV Crepaco equipment.

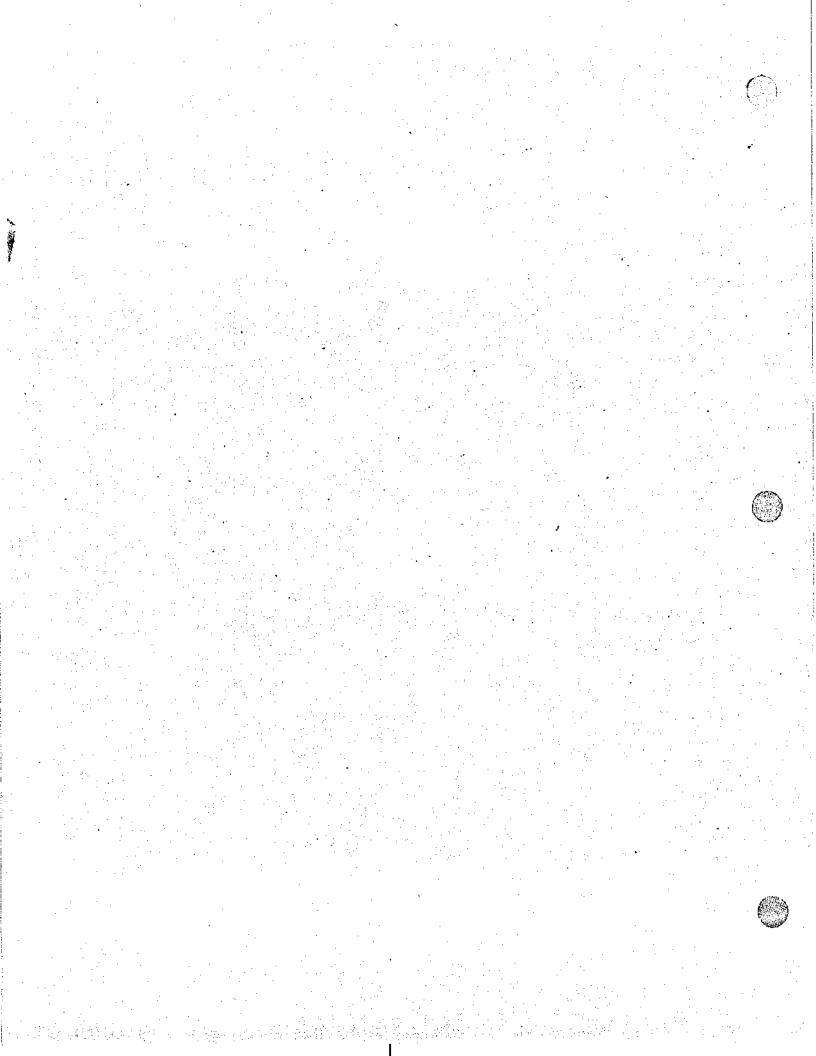
Read and understand the entire manual before removing from the crate and installing the equipment.

APV Crepace is committed to provide quality equipment and customer satisfaction. We have a unique network of sales and service support throughout the world, which are listed on the following pages. Note the office nearest you. Should you have any questions concerning any information contained in this manual, contact the nearest office or our Delavan, Wisconsin office for assistance.

#### Receiving and inspection

- APV Crepaco equipment is run tested or inspected prior to shipment. When leaving the factory, it is well crated for normal transportation procedures. APV Crepaco cannot, however, guarantee safe arrival. Therefore, upon receipt of this equipment, check the received items against the packing list for damage or missing parts. Check the packing material thoroughly for small parts.
- 2. Visually inspect for damage or loss. Damage or loss should be reported immediately to the delivery carrier while present. Following the immediate notification of the lost or damaged parts, a detailed description including quantity, description of the loss or damage, and a cash value should be claimed against the carrier with respect to the guidelines set forth by the responsible carrier's policies. APV Crepaco's responsibility terminates F.O.B. point of manufacture unless otherwise specified per the General Terms and Conditions of Sale as published by APV Crepaco and amended from time to time. Contact APV Crepaco Order Services' if shipping information is required for handling claims.

- In the case of damage or loss to the equipment, APV Crepaco may perform three major functions:
  - Manufacturer Function APV Crepaco manufactures quality equipment and stands behind the APV Crepaco Standard Warranty. Refer to the Standard Warranty.
  - b. Assessor Function APV Crepaco offers assessment services for filing claims. The APV Crepaco assessor will accurately determine the extent of the damage (or loss), and cost of repairs to the equipment. Reimbursement for this service will be agreed upon prior to the assessment.
  - c. Repair House Function APV Crepaco offers services for repairing the damage(s) or replacement of loss(es) to the equipment. APV Crepaco has the option to alter the Standard Warranty on refurbished or replacement parts. The cost of this service will be dependent upon the assessment that is made.



# STANDARD WARRANTY

#### Obligations of Seller

During the warranty period, Seller shall repair, or at Seller's option, replace parts determined by Seller to be defective in material or workmanship. The warranty period is one (1) year from the date of delivery to Buyer F.O.B. point of manufacture. The foregoing shall be the sole obligation of Seller under this warranty with respect to the equipment and other property included in this Agreement. With respect to equipment, materials, parts and accessories manufactured by others, Seller's sole obligation shall be to use reasonable efforts to obtain for Buyer the full benefit of the manufacturers' warranties.

#### **Warranty Exclusions**

Repair or replacement of parts required because of misuse, improper care or storage, negligence, alteration, accident, use of incompatible supplies or lack of specified maintenance are excluded from Seiler's warranty obligations.

### DISCLAIMER OF WARRANTIES

ARE IN LIEU OF ALL OTHER WARRANTIES, EX-PRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FIT-NESS FOR A PARTICULAR PURPOSE, AND EX-ISTENCE OF ANY SUCH OTHER WARRANTY IS HEREBY DENIED.

#### Limitation of Liability and Remedies

The liability of Seller for breach of any warranty obligation hereunder is limited to:

- The repair or replacement of the equipment on which the liability is based; or,
- At Sellers option, the refund to Buyer of the amount paid by Buyer to Seller for said equipment.

All other liability of Seller with respect to this Agreement, or from the manufacture, installation, maintenance, repair or use of any equipment covered by or furnished under this Agreement, whether in contract or in tort, or otherwise, is limited to the amount paid by Buyer to Seller pursuant to the terms hereon: SELLER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.

#### Breach

Any breach by Seller with respect to any items or unit of equipment shall be deemed a breach with respect to that item or unit only.

#### Infringement

Seller will not be liable for the infringement of any patent by the Buyer's use of any equipment or materials delivered hereunder.

# POLICY REGARDING AVAILABILITY OF SERVICE PARTS

APV Crepaco will attempt to remain in a position to supply replaceable service parts during the normal life of any item of APV Crepaco equipment. This will be contingent upon availability of tools, material, and facilities of our own as well as of our suppliers.

After expiration of this period, supply of service parts will be limited to available stock of completed parts. If unable to supply the service part, drawings will be furnished when available to permit local manufacturing, if desired.

APV Crepaco reserves the right to improve, change or modify the construction of its equipment or any parts thereof without incurring any obligation to provide like changes to equipment previously sold.

# A Word About APV Crepaco Service Parts

We want to raise your awareness to the problem associated with purchase of parts not manufactured to the high quality specifications of APV Crepaco, INC.

In addition to our high quality, APV Crepaco parts are manufactured to meet regulatory agency authorizations, approvals and certification (3-A Sanitary Standards, USDA, ASME, BISSC and OSHA). Where applicable, materials used in construction of APV parts conform to FDA regulations.

#### WARNING

PARTS NOT MANUFACTURED TO OUR SPECIFI-CATIONS MAY CAUSE DAMAGES TO YOUR APV CREPACO EQUIPMENT AND VOID ALL WAR-RANTIES. USE OF PARTS THAT DO NOT MEET APV CREPACO, INC. SPECIFICATIONS MAY CAUSE PROPERTY DAMAGES AND SERIOUS BODILY INJURY. Types of equipment include, but are not limited to, rotary pumps, centrifugal pumps, homogenizers, ice cream freezers, scrape surface heat exchangers, piate heat exchangers, ingredient feeders, process tank and contact plate freezers.

We bring this potentially serious problem to your attention in order to safeguard your best interest and those of your employees.

If you have any questions, please feel free to call 1-800-358-4100 or your local APV Crepaco Regional Sales Office.



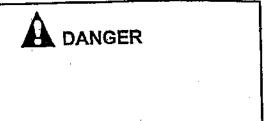


# afety Information

#### Definitions

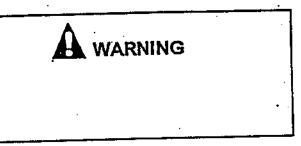
#### DANGER

An immediate hazard with a possibility of severe personal injury or death if instructions, including recommended precautions, are not followed.



#### WARNING

Hazards or unsafe practices which could result in severe personal injury or death if instructions, including recommended precautions, are not followed.



- 242

#### AUTION

Possible hazards or unsafe practices which could result in minor injury or damage to product or property if instructions, including recommended precautions, are not followed.



CAUTION

#### **Lock Out**

A positive means of securing the main electrical disconnect in the Off position, where only the person involved in the maintenance procedure has possession of the key.



# Safety Information

The following information supplements the preceding GENERAL SAFETY INSTRUCTIONS and provides specific safety information on hazardous conditions which are inherent in the pump.

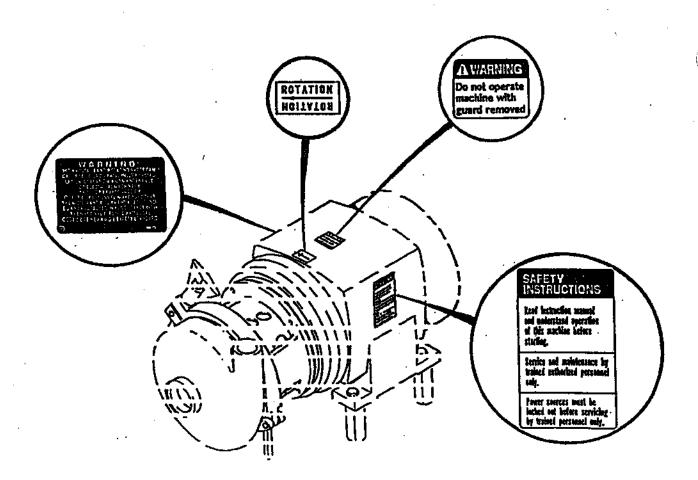
Safe installation, operation, and maintenance requires proper training of all personnel and their supervisors.

Our objective in providing instructions and warnings is to identify each area of potential hazards and its level of severity and to guide each worker for safe operation, service, and maintenance procedures.

APV Crepaco equipment is designed to provide minimum operator access to hazardous areas while providing adequate access for service by trained personnet Hazardous areas are provided with guards. Various types of fasteners may be used for the guards depending on how frequently routine access is required. Regardless of the type of fastener used, the existence of a guard should alert personnel to the presence of a hazard. Never operate or test run the equipment with a guard removed, unless under the supervision of properly trained and authorized personnel. Then use extreme caution to avoid the hazard.

#### Safety Decal Location

The illustration below shows the location of the safety information decais attached to the pump. If any decal is removed or becomes unreadable, replace it immediately with a new decal.







# afety Information

#### Safety Decals

The wording of the safety decals is shown below. If any decal is removed or becomes unreadable, replace it immediately with a new decal.

#### SAFETY INSTRUCTIONS

Read instruction manual and understand operation of this machine before starting.

Service and maintenance by trained authorized personnel only.

Power sources must be locked out before servicing by trained personnel only.

681-P-431690

# **A WARNING**

Do not operate machine with guard removed

681-P-431689

NOITATOR BOTATION

681-P-288335



Safety Decals



#### **Electrical Hazard**

A pump is normally powered by an electric motor. This creates a hazard of electrical shock which could cause severe injury or even loss of life.

#### To minimize the risk of this hazard:

- All electric/electronic installation must comply with all applicable codes and standards including those established by the Occupational Safety and Health Administration (OSHA).
- All electric/electronic installation, maintenance, and service must be performed by trained and authorized electricians only.
- Install a main power disconnect On-Off switch that can be locked in the power Off position and have the key removed. This will allow maintenance or service to be performed with no possibility of the power being accidentally turned on.
- Do Not perform any maintenance or service unless the main and control power sources have been turned off and Locked Out using a locking device for which only the person performing the maintenance has the key.
- Thoroughly read the motor manufacturer's instructions before making installation.
- Install an emergency shutoff switch within easy reach of the operator.
- Make the installation suitable for a wet environment, including:
  - a. Protection from flooding. Do not install in an area which could fill with water to a level which would contact the motor.
  - b. Protection of all electric connections within a sealed junction box.
  - c. Proper grounding of the motor.

# Safety Information



#### **DANGER**

#### **Rotating Parts Hazard**

The pump contains close fitting parts which rotate during operation.

Routine cleaning and maintenance procedures require pump disassembly. Should the pump start unexpectedly while disassembled, severe injury could result.



#### DANGER

ALWAYS turn off the electrical power supply and Lock Out, using a locking device for which only the person doing the work has the key, before performing service or maintenance.

#### To minimize the risk of this hazard: ...

- 1. Do Not assemble or disassemble the pump-
- Do Not remove the guard from the adapter—
- 3. Do Not perform any maintenance or service on the motor or pump—
- ---unless the power source has been turned off and Locked Out, where only the person involved in the maintenance procedure has possession of the key.
- Only trained and authorized personnel should perform maintenance or service work on the pump.
- 5. Install an emergency shutoff switch within easy reach of the operator.



#### DANGER

#### Cleaning/Sanitizing Chemical Hazard

Cleaning and sanitizing a pump for use with food products may require the use of chemical solutions. Many of the commonly used chemical solutions are potentially harmful if contacted. The hazard is especially severe for eyes, skin, or inhalation. All personnel working with such solutions must be thoroughly trained in their safe handling and disposal following use as required by the OSHA.

#### Clean-In-Place (CIP) cleaning and sanitizing:

- Refer to the Cleaning and Sanitizing section.
- Make sure all line connections in the cleaning circuit are connected and tightened before starting.
- Never disconnect any lines or fittings or disassemble the pump until it is known that the CIP cleaning sequence is completed and no chemical solutions or high temperature fluids are present.

#### Manual cleaning methods:

- 1. Refer to the Cleaning and Sanitizing section.
- Turn the power source off and Lock Out, using a locking device for which only the person performing the maintenance procedure has the key, before doing any disassembly of the pump.
- Equip all personnel using cleaning/sanitizing solutions with protective clothing, including eye protection.
- Thoroughly train all personnel using cleaning/sanitizing solutions in their safe handling and disposal after use.
- Never use toxic and/or flammable solvent for cleaning.





# afety Information



WARNING

#### High Temperature Hazard

Some pump applications may require processing of high temperature fluids and/or the use of high temperature cleaning/sanitizing solutions. Pumping high temperature fluids creates a hazard of burns from contact with the equipment or with leaking fluid.

### To minimize the risk of this hazard:

- All installation, maintenance, and service of piping, valves, and other controls must be performed by trained and authorized fitters only. This applies to process piping and cleaning/sanitizing piping.
- The installation of fittings must comply with all applicable codes and standards including those established by OSHA.

All high temperature lines must be labeled, leak free, and insulated or otherwise protected from direct contact.

- Never disconnect any lines or fittings or disassemble the pump until the line is not under pressure and the fluid inside is not hot or harmful.
- Operating personnel must be authorized and trained.



WARNING

#### High Pressure Hazard

Products processed by the pump are under pressure, which the possibility of a leak could occur. This creates a hazard to anyone in the area. Leaking high pressure fluid can cause injury from actual contact or by startling personnel.

#### To minimize the risk of this hazard:

- All installation, maintenance, and service of piping, valves and other controls must be performed by trained and authorized fitters only. This applies to process piping and cleaning/sanitizing piping.
- All fitting installation must comply with all applicable codes and standards including those established by OSHA.
- Never disconnect any lines or fittings or disassemble the pump until the system is not under pressure and the fluid inside is not hot or harmful.
- 4. Should a leak occur, find and correct the cause immediately.



WARNING

#### Leaking Fluid Hazard

Fluid leaks or spills can occur in any pumping system. This creates a hazard to anyone in the area due to slippery floor conditions or contact with possibly hazardous fluids.

#### To minimize the risk of this hazard:

- Always clean up leaks and spills immediately.
- 2. Find and correct the cause of the leak immediately.



# **Important Cautions**



#### CAUTION

#### Cavitation

Cavitation is liquid vaporizing, then collapsing back to a liquid inside the pump. Cavitation, characterized by a noisy "rattling" sound, is caused by operating with too low of fluid pressure at the pump inlet connection. Cavitation can create a risk of severe damage to pump components and reduces pump performance significantly.

#### To minimize this risk:

Install and operate the pump so that the net positive suction head (NPSH) available to the pump equals or exceeds the NPSH required. To increase NPSH available:

- Decrease the temperature of the product being pumped.
- 2. Increase the height of the product supply level.
- Decrease the suction line length and remove restrictions to product flow such as elbows, valves, etc.
- 4. Increase the suction line size (diameter).
- 5. Reduce the pump flow rate (throttle discharge).
- Reduce the product viscosity.
- 7. Decrease the vacuum in the product supply vessel.



#### CAUTION

#### **Corrosion Pitting**

Stainless steel is subject to a risk of corrosion when improperly cleaned or sanitized.

#### To minimize this risk:

- Never use steel wool or a wire brush to clean stainless steel surfaces. Iron-particles will embed and cause corrosion pits. Use a nonmetallic brush or scrub pad for stubbom soil.
- Never allow prolonged contact of sanitizing solutions, or other corrosive cleaning chemicals with stainless steel. Only use sanitizers immediately prior to processing. Do not use sanitizers on exterior, non-product contact surfaces.



#### CAUTION

#### **Motor Overload**

Depending on the application and motor horsepower, the pump motor could overload if operated with a fully opened, unrestricted discharge.

#### To minimize this risk:

- BEFORE operating the pump, review the performance curve and application giving consideration to motor horsepower versus expected discharge flow rate and pressure. If the pump is operated with less than expected discharge pressure, the flow rate will increase and the load on the motor will increase.
- Install a throttling type valve in the discharge piping to allow control of the pump discharge flow rate during initial operation. The valve may be removed after the system is proven to supply adequate discharge pressure to prevent motor overload.



# nportant Cautions



#### **Excessive Pressure**

Excessive pressure is a condition within the pump which is the result of internal pressures exceeding the pressure rating for the pump.

Operating the pump at pressures exceeding the pressure rating for the pump will create a risk of severe a damage to the pump.

#### To minimize this risk:

- Before operating the pump, review the pump maximum discharge pressure rating and the system in which the pump will be operating.
- If the system discharge pressure is unknown, install gauges and start with a reduced flow rate to make sure operation will be below the maximum discharge pressure rating.



### Impeller Shaft Location

The location of the impeller shaft on the motor shaft is critical for correct pump operation and to obtain maximum operating efficiency.

Incorrect location of the impelier shaft may cause the impelier to contact the casing or the backplate during operation.

This contact could create a risk of severe damage to pump components.

#### To minimize this risk:

Refer to the Maintenance section for the procedures to correctly locate the impeller shaft whenever.

- 1. A new pump is installed onto a motor or pedestal.
- The impeller shaft is loosened or removed from the motor or pedestal shaft.
- 3. A replacement casing or backplate is installed.



# General Information

#### General Description

The "V2" Series Centrifugal Pump is designed for pumping low to medium viscosity liquids. The unit features a four-blade, fully-open, non-clog impeller that is the optimum design for sanitary service. The volute design provides high efficiency over a wide range of operating conditions.

The casing has controlled wall thickness and dimensional accuracy throughout. The backplace is machined from heavy stainless steel plate. The unique clamping assembly uses clamp rings with a self-locking internal angle that resists distortion and provides optimum sealing between the casing and backplate. The clamp rings are investment cast for greater strength than the stamped clamp rings common to other sanitary pumps.

A replaceable seat is provided in the backplate with optional seal types #2, 3, 4, and 5. This seat is reversible, providing a new wear surface without part replacement.

All "V2" models are provided with a guard around the rotating shaft. The guard fits inside the adapter.



#### WARNING

The adapter guard must be in place any time the pump is operated.

#### Models

#### Sanitary Models

Sanitary models  $4V^2$ ,  $6V^2$ ,  $6VS^2$ ,  $8V^2$ , and  $8VS^2$  are designed and constructed to meet the requirements of the 3-A Sanitary Standards for cleanability of dairy processing equipment.

Meeting these standards requires, in part, that materials of construction in product contact areas be stainless steel or other materials approved for food contact. All product contact surfaces must be smooth, free draining, and accessible for cleaning. The mechanical product components must be easy to disassemble for cleaning and/or inspection for cleanliness.

The outer construction must prevent outside contaminants from draining or dripping into the product area.

Sanitary models are provided with mounting legs as standard.

#### Industriai Models

industrial models,  $14V^2$ ,  $16V^2$ ,  $16VS^2$ ,  $18V^2$ , and  $18VS^2$ , are identical to the sanitary models in design, performance, and quality of construction with the exception of the internal and external surface finish on the product contact parts.

Parts for the sanitary and industrial models of the same basic size are interchangeable.

Mounting legs are optional on industrial pumps.

#### **Materials of Construction**

All metal product contact parts are type 316 stainless steel, except the impeller retaining pin which is 15-5 PH stainless steel. Standard gaskets and seal materials are food grade nitrile rubber or carbon. Alternate seal materials are available as noted in the Service Parts section.

All models are designed with corrosion resistant smooth surfaces and crevice free construction for easy cleaning. In addition, they are easy to disassemble for manual cleaning or for inspection.

#### Serial Number

A nameplate with a serial number is attached to the adapter of each pump. Use the serial number for reference whenever requesting information or service parts. The serial number is a letter followed by four numbers (for example, A-1234). Each pump has a unique serial number.





# eneral Information

#### Maximum Performance

Maximum performance ratings are based on pumping water at 70 F (21 C). For specific applications contact your APV Crepaco sales representative.

#### Impeller Size

Listed data is for maximum impelier diameter. Alternate, trimmed impelier diameters are available for lower performance requirements.

#### Pump RPM

Performance is rated at 1750 rpm and 3500 rpm, the two most common motor speeds used. Alternate, lower speed operation is possible (for example, 1450 or 2900 rpm with 50 hz motors). For specific applications contact your APV Crepaco sales representative.

#### **Pump Mounting**

The pump attaches directly to the motor (close coupled). A C-face, foot-mounted, motor is required for attaching to the pump adapter. The pump and motor are supported by legs attached to the motor feet and to the pump adapter.

#### **General Specifications**

}	Conne	ctions	lmpeller	Maximum Performan					Range	
Model Inlet Outlet Max. Size Size In. (mm) (mm) (mm)	Dia.	Capacity gpm (cu. m/m)	750 rpm Head ft. (m)	Shut-off Head ft- (m)	Capacity gpm (cu. m/hr)	Head ft. (m)	Shut-off Head ft. (m)	of Motor Frame Sizes		
4V <sup>2</sup> or	1-1/2 (38)	1-1/2 (38)	3 -13/16	77	7	18 (5.5)	130 (29.5)	28 (8.5)	62 (18.8)	56C through
14V <sup>2</sup>	2 (51)	1-1/2 (38)	(97)	(17.5)	(2.1)					145TC
6√ <sup>2</sup>	2 (51)	1-1/2 (38)	5-13/16	1	23 (7)	41 (12.5)	280 (63.5)	87 (26.3)	167 (50.9)	56C through 215TC
or 16V <sup>2</sup>	2-1/2 (63)	1-1/2 (38)	(148)							
6VS <sup>2</sup> or 16VS <sup>2</sup>	3 (76)	2 (51)	5-13/16 (148)	260 (60)	18 (5.5)	41 (12.5)	520 (118)	60 (18.3)	167 (50.9)	145TC through 286TSC
8√² or	2 (51)	1-1/2 (38)	7 -13/16	220 (50)	32 (9.7)	76 (23)	405 (92)	163 (49.4)	305 (92.4)	143TC through 284TSC
18V <sup>2</sup>	3 (76)	2 (51)	(200)							
8VS <sup>2</sup> or 18VS <sup>2</sup>	3 (76)	2 (51)	7 -13/16 (200)	330 (75)	37 (11.2)	76 (23)	515 (117)	187 (56.6)	305 (92.4)	145TC Ihroug 326TSC

# General Information

#### Components and Services Furnished by Customer

#### Drive

The drive for the pump is to be supplied and installed by the purchaser unless otherwise specified at the time of purchase.

#### **Electrical Service**

Provide correctly sized electrical service to the motor including a motor starter, overload protection, and Lock Out capability.

if an alternate, non-electrical drive is furnished as an option, special instructions will be included.

#### **Process Piping**

Piping must be well supported near the pump and in line with connection fittings so that no strain is put on the fittings. The use of large diameter lines and wide sweep elbows is recommended to keep pressures to a minimum level.

The purchase and installation of all piping is the responsibility of the purchaser. This includes any valves, ingredients, and cleaning solutions which are routed to and from the pump.

Piping, valves, etc., may be purchased through the APV Grepaco sales offices serving you.

#### Seal Flush Media and Media Piping

If the seal requires flush media, the media supply and the purchase and installation of piping, fittings, and valves for the media are the responsibility of the purchaser.

#### Receiving and Inspection

- APV Crepaco equipment is run tested or inspected prior to shipment. When leaving the factory, it is well crated for normal transportation procedures. APV Crepaco cannot, however, guarantee safe arrival. Therefore, upon receipt of this equipment, check the received items against the packing list for damage or missing parts.. Check the packing material thoroughly for small parts.
- Visually inspect for damage or loss. Damage or loss should be reported immediately to the delivery carrier while present. Following the immediate notification of the lost or damaged parts, a detailed description including quantity, description of the loss or damage, and a cash value should be claimed against the carrier with respect to the guidelines set forth by the responsible carrier's policies. APV Crepaco's responsibility terminates F.O.B. point of manufacture unless otherwise specified per the General Terms and Conditions of Sale as published by APV Crepaco and amended from time to time. Contact APV Crepaco Order Services if shipping information is required for handling claims.
- In the case of damage or loss to the equipment, APV Crepaco may perform three major functions:
  - Manufacturer Function APV Crepaco manufactures quality equipment and stands behind the APV Crepaco Standard Warranty.
     Refer to the Standard Warranty.
  - b. Assessor Function APV Crepaco offers assessment services for filing claims. The APV Crepaco assessor will accurately determine the extent of the damage (or loss), and cost of repairs to the equipment. Reimbursement for this service will be agreed upon prior to the assessment.
  - c. Repair House Function APV Crepaco offers services for repairing the damage(s) or replacement of loss(es) to the equipment. APV Crepaco has the option to alter the Standard Warranty on refurbished or replacement parts. The cost of this service will be dependent upon the assessment that is made.

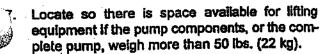




#### Selecting the Pump Location

When installing the pump, consider these items before selecting a location.

- Install the pump close to the product source to keep suction piping to a minimum.
- Locate with consideration that the suction and discharge piping should be direct with minimum elbows and fittings to minimize head loss due to friction.
- Locate so the pump and pump drives are accessible for inspection and service.
- Locate so the pump is low in relation to product supply to provide maximum static suction head.
- 5. Locate so the motor is protected from flooding.
- 6. Locate near floor drains with a hose station nearby.



#### **Electrical Connections**



#### DANGER

Incorrect electrical installation could cause an electric shock which could result in severe injury or even loss of life. All electrical/electronic installation must be performed by trained and authorized electricians only. All electrical/electronic installation must comply with all applicable codes and standards including those established by the Occupational Safety and Health Administration (OSHA).

- Provide a main power disconnect On-Off switch that can be locked in the power Off position and have the key removed. This will allow service and maintenance to be performed with no possibility of the power being accidentally turned on.
- Make sure installation is suitable for a wet environment.
- Thoroughly read the motor manufacturer's instructions prior to installation.
- Make sure the motor nameplate data matches the electrical supply.
- Make sure all wiring, switches, starters, and overload protection are correctly sized.
- Make sure the pump rotation is counterclockwise when viewing the pump from the suction connection side.

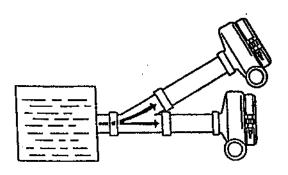
#### Piping Connections



#### CAUTION

Thoroughly clean all pipe lines to remove all dirt and foreign material before connecting them to the pump. Do not operate the pump for initial flushing of the system after installation. Foreign material may enter the pump and cause damage.

- Support the suction and discharge piping. Use sturdy supports, near the pump and in line with connection fittings so that no strain is transmitted to the pump casing. If expansion joints are used in the piping, install a support between the expansion joint and the pump.
- Align joints and use reliable fitting gaskets to prevent leaks.
- Install suction piping to minimize suction friction loss. This will also maximize pump suction performance and reduce possibility of damaging cavitation. Keep the line short, with a minimum of eibows and other fittings. Use a pipe size equal to or larger than the suction connection on the pump.
- 4. If branching is necessary in the suction line, a "Y" fitting is preferable to a tee.

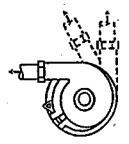


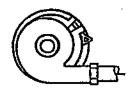
"Y" Pipe for Suction Line

- Install a straight length of piping at least four diameters long at the suction and discharge connections before any elbows or other change-ofdirection fittings.
- 6. Position the pump discharge so that when facing the pump the discharge is up, to the left or to points in between. With the discharge in these positions the pump casing is more likely to remain flooded. This minimizes the risk of damage to the pump caused by severe air slugging. When unavoidable air makes pump priming difficult, position the discharge 45 degrees to the left of vertical for best results.

Recommended Discharge Position

Best Position for Priming
With Air Present





Recommended

NOT Recommender

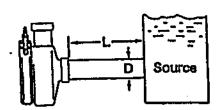
#### **Discharge Positions**

 Install a throttling type valve in the discharge piping (either permanently or temporarily until start-up is completed). Throttling discharge during initial start-up is recommended to guard against potential motor overload.

Throttling discharge during starting protects against "water hammer" which is most prevalent when using long pipe runs at high flow velocity.



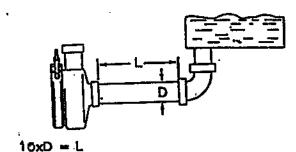
#### Good Arrangements



10xD = L

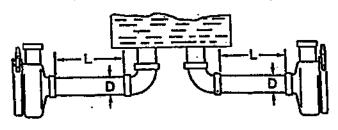
10x2 in. = 20 in.

#### Ideal Piping Configuration



10x2 in. = 20 in.

#### Minimum Elbows, Piping All in One Plane

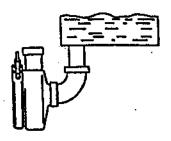


10xD - L

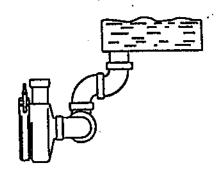
10x2 in. = 20 in.

Two Pumps from a Common Source Preferred Configuration

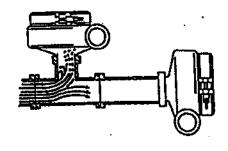
#### **Poor Arrangements**



#### Elbow Connected Directly to Pump Section



#### Too Many Elbows in Different Planes



Pump Suction Too Close to Tee

**Piping Arrangements** 

#### Welding Ferrules to Casing

Pumps supplied with butt weld type inlet and outlet connections require welding to the process piping or to casing connection ferrules. Use the TIG welding method and correct procedure to obtain a "sanitary" weld, free of pits, cracks, or crevices when processing food products.



#### CAUTION

Excessive heat during weiding may distort the casing and change critical clearances within the pump. Use a heat sink and welding technique for minimum heating of the casing.

#### **Pump Mounting Methods**

Two methods may be used to mount the pump to the drive or motor, close coupled or pedestal. Each requires a different type of motor frame.

#### Close Coupled

- The pump attaches directly to the motor. The pump and motor are supported by legs attached to the motor base and to the pump adapter.
- The correct motor frame for close coupled pumps is a foot-mounted, C-face or D-face (metric) motor. C-face motors must meet NEMA dimensional standards.
- 3. The motor frame must be foot-mounted to support both the motor and the pump.
- Sanitary design pumps are supplied with three legs. Two legs attach to the rear motor base. One leg attaches to the pump adapter.
- 5. Industrial design pumps are supplied without legs unless purchased as an option.

#### **Pedestal Mount**

- The correct motor frame for pedestal mount pumps is any standard foot-mounted industrial motor.
- The pump adapter (same as used for close coupling) attaches to the pedestal instead of the motor face.
- The pedestal has a through shaft, supported by two bearings, which attaches to the pump impeller shaft on one end, and is coupled to the motor shaft on the other end.

#### Mounting the Pump to the Motor



#### CAUTION

Follow instructions for impeller shaft location on the motor shaft. Incorrect location of the impeller shaft may cause the impeller to contact the casing or the backplate during operation and cause extensive damage to the pump.

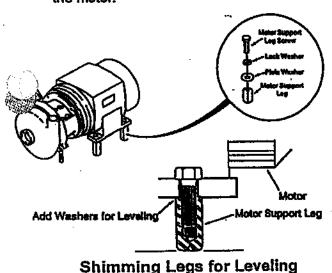


- Check the motor G-face surface and the mounting surface of the pump adapter. Make sure the surfaces are clean, smooth, and flat. Remove any high spots due to excess paint.
- 2. Attach the adapter to the motor using the hex head screws provided.
- 3. Assemble the remaining pump components as described in the Maintenance section.



#### **Leveling Close Coupled Mounted Units**

- 1. Install the pump so that the motor and pump are level and all legs are supported equally.
- If the floor area is not level, disassemble the legs and add stainless steel shim washers to the top of the legs as needed.
- Secure washers in place by tightening the leg bolt.
- 4. If the pump is to be installed without legs, attach the motor base firmly to a rigid, level surface.
- When installing a pump it is very important that proper alignment be maintained between the impeller shaft of the pump and the drive shaft of the motor.



#### **Coupling Alignment**

With pedestal mounted units, before starting the pump it is necessary to check the coupling alignment of the pump shaft and the motor or drive shaft.

Check the coupling alignment of the pump shaft and drive shaft in the following instances:

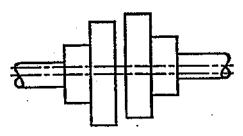
a. After the pump has been installed and leveled. (Factory supplied couplings are correctly aligned before shipment, however, all bases are flexible to some extent and the effect of shipment may cause a change in alignment.)

- Any time the drive or pump is removed for service.
- c. Periodically after the unit is installed and operating.

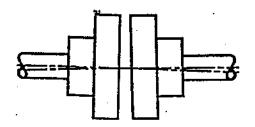
A flexible coupling should not be used to compensate for misalignment of the shafts. The purpose of a flexible coupling is to compensate for temperature changes and to permit end movement of the shafts without interference with each other while transmitting power.

#### Coupling Misalignment

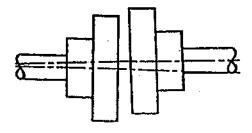
Coupling misalignment may occur in three forms as shown below.



Parallel.



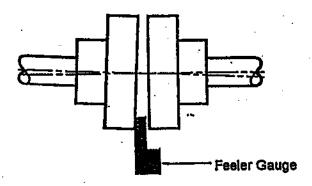
**Angular** 



Angular and Parallel

#### Checking for Angular Misalignment

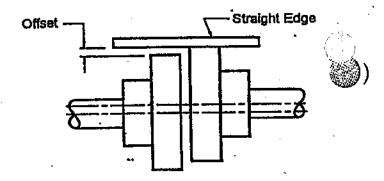
- Rotate the complete coupling 1/4 turn, 1/2 turn, and 3/4 turn.
- Use a feeler gauge to measure the gap between the coupling halves before each rotation.
- The maximum recommended difference in measured spacing is .030 in. (0.76 mm).



Checking for Angular Misalignment

#### **Checking for Parallel Misalignment**

- 1. Place a straight edge parallel to the shaft axis across both coupling halves.
- 2. Measure the offset at four places at 1/4 turn intervals around the coupling.
- Adjust the motor mounting, using shims where necessary to achieve the correct parallel alignment.
- 4. If adjustments are necessary, be sure to maintain angular alignment.
- 5. Maximum recommended parallel offset is .015 in, (0.38 mm).



Checking for Parallel Misalignment



# rstallation

#### Water Flush Seals

Flooding the seals with water lubricates the seals and prevents build-up of abrasive or crystallized product on seal seat surfaces. Two methods of flushing the seal area with water are available, water to floor and contained.

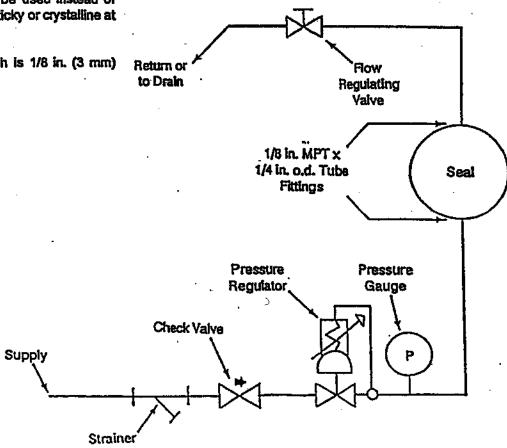
#### Water to Floor Flush

- 1. The cascade-type, water-to-floor, seal flush is available for Type 1, 2, and 3, seals.
- When this option is ordered, a bracket and tube for directing a flow of water onto the seal/backplate area is provided.
- The water supply should be cool and filtered free of any abrasive impurities.
- Warm or hot water should be used instead of cool water if the product is sticky or crystalline at cool temperatures.

The connection for the flush is 1/8 in. (3 mm) F.P.T.

#### Contained Water Flush

- The contained water flush is standard for Type 4 and 5 seals.
- 2. The flush media piping should include a block valve, filter, and pressure reducing valve.
- The water supply should be cool and filtered free of any abrasive impurities.
- Warm or hot water should be used instead of cool water if the product is sticky or crystalline at cool temperatures.
- 5. The recommended setting for the pressure reducing valve is 5 to 10 psig (.4 to .8 kg/cm²). Flow should be adjusted to approximately 5 gallons (20 liters) per hour.



Recommended Contained Water Flush Piping

#### First Cleaning

Disassemble and manually clean all product contact parts and seal parts prior to the first operation. This gives personnel an opportunity to become familiar with the pump assembly. Also, this procedure will remove the protective coating of mineral oil and any foreign materials that may have accumulated during shipment or installation.

See the Maintenance section for complete disassembly and assembly instructions.

See the Cleaning and Sanitizing section for complete cleaning and sanitizing procedures.

#### Drive

- Prepare the motor (or other drive) for operation according to instructions provided by the motor manufacturer.
- Check for correct direction of rotation (counterclockwise when facing the pump inlet).
- Lubricate the motor bearings per manufacturer's instructions.
- 4. If the pump was not shipped from the APV Crepaco factory pre-assembled onto a motor or pedestal mount, refer to the Maintenance section for the correct procedure for mounting the impeller shaft onto the motor shaft.

#### CAUTION

Thoroughly clean all pipe lines to remove all dirt and foreign material before connecting them to the pump. Do not operate the pump for initial flushing of the system after installation. Foreign material may enter the pump and cause damage.

#### Flush Piping and Pump System

When installing the pump in a new system or with other new equipment in a system:

- Flush the entire system with solution before operating the pump.
- Do not use the pump for the flushing, install a temporary pump(s) for flushing, if necessary:
- Flushing the system will help remove foreign material which may have accumulated during the manufacture, shipment, and installation of the pump, or other equipment.



Operation of the pump without product will cause damage to the pump.



#### DANGER

Incorrect electrical installation could cause an electric shock which could result in severe injury or even loss of life. All electrical/electronic installation must be performed by trained and authorized electricians only. All electrical/electronic installation must comply with all applicable codes and standards including those established by the Occupational Safety and Health Administration (OSHA).



#### CAUTION

The pump may overload the motor if operated with a fully open, unrestricted discharge (depending on motor horsepower). Prevent motor damage by checking the discharge pressure before first operation.



#### CAUTION

Do Not add restriction to the suction line. Operation with restricted suction may cause cavitation and serious damage to pump parts.



#### CAUTION

When product conditions change (viscosity, density, temperature) or when the process changes (capacity, suction or discharge pressure), the motor load changes also. Recheck the motor load to prevent motor damage.

# Check Impeller Diameter vs Motor Horsepower

The performance capability and horsepower requirement of each pump is directly affected by the impeller diameter. Before operating the pump, review the performance curve and application, giving consideration to the motor horsepower and the impeller diameter compared to the expected discharge flow rate and pressure. Certain combinations of motor horsepower and impeller diameter are "non-overloading" when pumping a given fluid. The motor will not overload even if operated with flooded suction and open, unrestricted discharge (conditions for maximum motor load).

Other combinations of motor horsepower and impeller diameter will overload unless operated with sufficient discharge pressure to reduce the amount pumped and limit the motor load. If the pump is operated with less than expected discharge pressure, flow rate will increase and load on the motor will increase.

To determine if there is sufficient discharge pressure to prevent motor overload, perform the following test:

- If there is no valve in the system downstream of the pump, temporarily install one at a convenient location. The valve should not restrict flow when fully open (for example, a ball valve).
- 2. Temporarily install an ammeter in the electrical service for the motor.
- Adjust fluid levels, valves, controls, etc. in the system to simulate anticipated process conditions or cleaning circuits which will result in the lowest discharge pressure and the highest pump flow rate.
- 4. Close the valve in the discharge line.
- 5. Start the pump.
- Gradually open the valve while monitoring the ammeter lifthe ammeter indicates full motor load before the valve is fully open, additional restriction is required to prevent motor overload.
- Trim the impeller or restrict process discharge until the valve may be fully opened without motor overload.

#### Impeller Trimming

- When a reduced diameter impeller is required, use a factory pretrimmed impeller. These are available through your authorized APV Crepaco representative in a range of standard sizes as detailed in the Service Parts manual.
- If it is necessary to field trim an impeller, the use of a lathe and standard machine shop procedures are recommended to make sure the impeller is accurately trimmed and balanced.
- 3. An arbor is required to hold the impeller in the lathe chuck, it is possible to use the impeller shaft supplied with the pump or purchase an arbor kit from APV Crepaco.
- 4. The impelier material is cast type 316 stainless steel. It is important to machine material equally from all four impelier blades and parallel to the shaft axis. Refer to the Machining Recommendations for Impelier Trimming section.
- 5. Remove burrs after machining.
- Check the impeller balance. Refer to the impeller Balancing section.



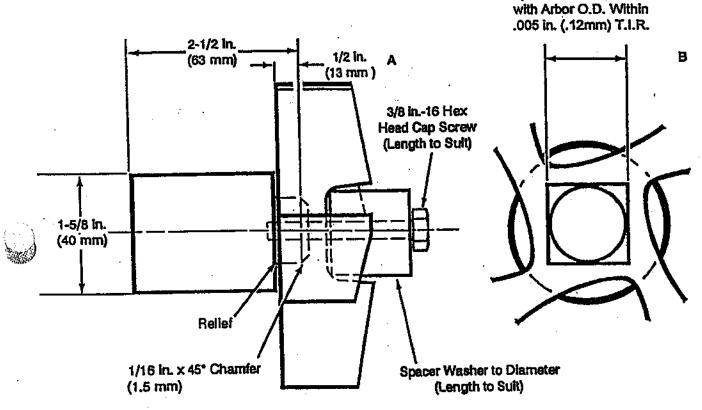


#### Machining Recommendations for Impeller Trimming

Field trim the impeller to the required diameter using a 1/32 in. (0.8 mm) radius tool.

- Rough cut at 211 rpm
   Feed Rate, 006 in (0.15 mm) per revolution
   Depth of cut .040 in. (1.0 mm)
- Finish cut at 119 rpm (#4 or #6 sizes), 78 rpm (#8 sizes)
   Feed Rate .0035 in. (0.09 mm) per revolution Depth of cut .020 in. (0.5 mm)

Square to be Concentric



# TRIM ALL FOUR BLADES EQUALLY PARALLEL TO SHAFT AXIS

#### Recommended Arbor Dimensions - Field Manufacture

Pump Model		<u> </u>	Untrimmed impeller	Dimension		
	Kit No.	]	Full Diameter	Α	В	
4V <sup>2</sup> , 14V <sup>2</sup>	04W-P-360031	in.	3-13/16	1	0.559/0.561	
		mm	97	25	14.20/14.25	
6V <sup>2</sup> , 16V <sup>2</sup> 6VS <sup>2</sup> , 16VS <sup>2</sup>	04W-P-360032	in.	5-13/16	1-1/4	0.747/0.749	
		mm	148	30	18.97/19.02	
8V <sup>2</sup> 18V <sup>2</sup>	04W-P-360033	in.	7-13/16	1-1/2	0.997/0.999	
8V <sup>2</sup> , 18V <sup>2</sup> 8VS <sup>2</sup> , 18VS <sup>2</sup>		mm	198	37	25.32/25.37	

#### Impeller Balancing

Impellers purchased from APV Crepaco, either full diameter or trimmed, are balanced before shipment.

Impellers are trimmed in the field, however, they must be checked for balance before operating the pump.

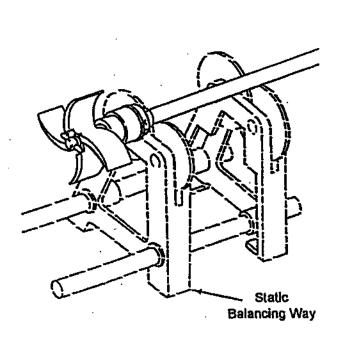
Out of balance impellers must be field balanced or replaced with factory trimmed impellers.

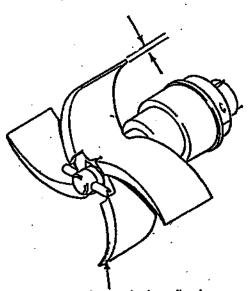
Specialized equipment is commercially available for checking and correcting the balance of rotating machinery. The use of this equipment is recommended for field balancing of impellers.

One recommended piece of equipment is the "Static Balancing Way". Use the following method to check impeller balance:

 Mount the impeller shaft with the fastened impeller onto a straight shaft of the same diameter as the motor shaft.

- 2. Place the shaft across the discs of the balancing way.
- 3. Rotate the impeller 90 degrees, then release.
- If the impeller rotates either way of its own accord, it is out of balance; the downward pointing blade being too heavy.
- 5. Grind off metal from the trailing side of the heavy blade tip.
- Repeat the procedure until the impeller may be rotated a full 360 degrees in 90 degree increments without any out-of-balance movement.





Balance the impeller by removing metal from the tip of the trailing side of the heavy impeller blade.



Impeller Balancing Using the Static Balancing Method

# **Cleaning and Sanitizing**



#### DANGER

During Clean-In-Place (CIP) cleaning procedures the pump may start unexpectedly from a remote signal. This may cause severe injury to anyone in contact with pump parts. Do not contact any part of the pump during Clean-In-Place cleaning procedures. Before disassembling product contact parts for manual cleaning turn off the electric power supply and Lock Out using a locking device for which only the person performing the maintenance procedure has the key.

Cleaning and sanitizing of equipment is necessary on a routine basis whenever processing food products.

The frequency of cleaning and the chemicals and procedures used will vary depending on the product and process. It is the responsibility of the user to establish a suitable, well defined cleaning and sanizing program. This program must take into consideration all applicable laws, regulations, and standards relative to the protection of public health and the safe use and disposal of chemicals.

For assistance in developing your program, contact your local health authority and a reputable supplier of cleaning and sanitizing chemicals for the food processing industry. You may also contact your local APV Crepaco sales representative for recommendations.

The sanitary models of "V<sup>2</sup>" Centrifugal Pumps have sanitary design and construction. They are designed with corrosion resistant smooth surfaces and crevice free construction for easy cleaning. In addition, it is easy to disassemble either for manual cleaning methods or for inspection for cleanliness. Depending on the product and cleaning solutions used, it may be possible to satisfactorily clean solely by circulation of chemical detergents and water rinses through the pump (CIP).

Industrial models of "V2" Centrifugal Pumps have identical design features to the sanitary models except for a lesser degree of surface finish. This surface jinish may not be considered cleanable by food equipment regulatory agencies.



#### MARNING

Using unclean or unsanitary equipment may produce contaminated food products. Always clean and sanitize equipment before producing product for human consumption. See the Cleaning/Sanitizing Chemical Hazard in the Safety Information section.



#### WARNING

Direct contact with cleaning/sanitizing solutions may cause chemical or high temperature burns. Equip all personnel performing cleaning/sanitizing operations with protective clothing (including eye protection). Thoroughly train these personnel in the safe handling and disposal of the chemical and high temperature solutions they are using.



# WARNING

When cleaning more than one centrifugal pump in a series in a closed system, the discharge pressures are additive. Pressures higher than normal process pressures are possible. Make sure that all system components are rated for the total pressure of all centrifugal pumps in the cleaning circuit.

# Cleaning and Sanitizing

#### **Definitions**

#### Rinse

The purpose of rinsing is to remove excess residual product and reduce the load required for detergent removal. At the end of washing, rinsing removes residual chemical solutions. Without the rinse, the chemicals could be corrosive or react unfavorably with other chemical solutions.

Use a rinse water temperature which rapidly removes the excess product or residual chemical solutions. Generally this means warm water near 100 F (40.0 C). Use potable water for the final rinse.

#### **Detergent Solution**

The purchaser is responsible for using the correct chemical solutions. Your supplier of cleaning chemicals should recommend the type of chemical, concentration, temperature, and time of exposure for cleaning with your conditions.

#### Acid Rinse

Do not use any type of acid in the final rinse water.

#### Sanitizing

Sanitizing treatments are used to kill microorganisms on product contact surfaces prior to processing food products. Check local health and food regulatory agencies for required minimum sanitizing treatments.

Hot water may be used for sanitizing to avoid the corrosive effect of chemical solutions.

#### Methods for Cleaning and Sanitizing

#### General Procedure

The general sequence of steps for cleaning and sanitizing includes:

- Rinse Preliminary removal of excess residual product.
- Wash Use of detergent solution to remove residual product.
- 3. Rinse Removal of residual detergent solution.
- Sanitize Treatment with heat or chemical solution prior to product processing to kill bacteria.



#### CAUTION

Sanitizing solutions are extremely corrosive, especially those which contain halogen compounds (chlorine, bromine, iodine) or strong acids (nitric, hydrochloric). When left in prolonged contact, solutions of these chemicals will attack the stainless steel pump parts. To prevent serious damage:

Do Not sanitize the pump more than 15 minutes immediately prior to starting product processing.

Do Not leave sanitizing solutions in prolonged contact with any surface - product contact or exterior. As droplets dry out they become more concentrated and may cause corrosion pitting.

Do Not use higher concentration, temperature, or exposure time than necessary for effective sanitizing treatment.



#### Clean-In-Place, (CIP) Cleaning Method

CIP is cleaning solely by flowing rinse, detergent, and sanitizing solutions through the product contact areas at high velocity. The solutions must be supplied from a separate source such as a central CIP system.

When using CIP methods for cleaning and sanitizing it is necessary to operate the pump during circulation of solutions.

At the end of cleaning, thoroughly rinse all pump parts with clean water.

With CIP methods, it is necessary to periodically disassemble the pump to check for cleanliness and the effectiveness of the CIP cleaning. Manually clean when necessary.



# **Pleaning and Sanitizing**

#### Manual Cleaning Method

Manual cleaning means that the application of rinses, detergents, and sanitizing solutions is done by hand. For example, rinse water may be sprayed over product contact surfaces with a hose and detergent solution may be scrubbed on with a brush.



#### CAUTION

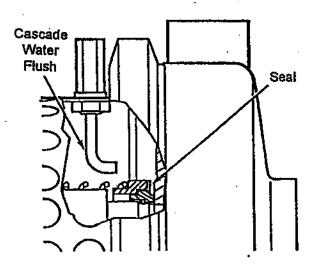
Using the wrong cleaning tools will damage product contact surfaces. Never use steel wool or a wire brush. Use a nonmetallic brush.

#### **Shaft Seals**

The " $V^{2}$ " pump is available with five different seal types, 1, 2, 3, 4, and 5, to accommodate various applications.

Options in seal seat and O-ring materials are available in each seal type. Selection of the seal type and materials is determined by the characteristics of product being pumped.

For products containing abrasives or where products may crystallize, caramelize, or build up at the sealing surface, flooding the seals with water lubricates the seals and prevents build-up of abrasive or crystallized product. The cascade-type, water-to-floor, seal flush is available for Type 1, 2, and 3 seals. The contained water flush seal is available for Type 4 and 5 seals.



Cascade Water Flush

#### Type 1 - Product Seal (Standard)

A hydraulically balanced seat ring rotates against the backplate. The seat ring is positively driven by an interlocking drive ring. A Nitrile rubber O-ring seals between the seat ring and the shaft. Alternate materials are available for the seat ring and the O-ring as noted in the Service Parts section.

#### Type 2 - Product Seal with Replaceable Insert

The rotating seat ring is the same as the Type 1. The backplate has a replaceable seat/(insert) at the wearing surface. The standard seat is constructed of Type 17-4 PH stainless steel and may be reversed for extended wear life. The O-ring, seat ring, and replaceable seat materials are available as noted in the Service Parts section.

#### Type 3 - John Crane™ Seal with Replaceable Insert

The rotating seat is a John Crane™ Type 8B1. The backplate has the same replaceable seat as described for Type 2.

The John Crane™ 881 seal features hydraulically balanced carbon seat, 316 stainless steel metal parts, and nitrile O-ring for sealing on the shaft. Alternate O-ring and replaceable seat materials are available as noted in the Service Parts section.

#### Type 4 - Contained Water Flush - John Crane™ Seal with Replaceable Insert

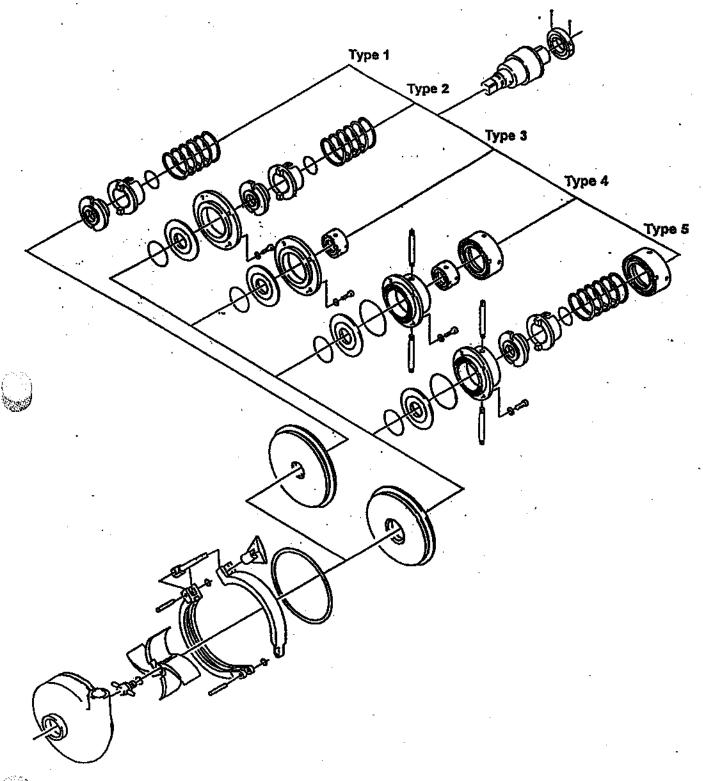
The Type 4 seal arrangement is designed for contained water flushing. The same John Crane™ 8B1 rotating seal and replaceable backplate seat described for the Type 2 seal are used. In addition, a second John Crane™ Type 8B2:seal is used to seal the rear of the water flush chamber. Alternated Oring, replaceable seat, and stationary seat materials are available as noted in the Service Parts section.

#### Type 5 - Contained Water Flush - Product Seal and John Crane™ Rear Chamber Seal with Replaceable Insert

This seal arrangement is a water flush design similar to Type 4 except that the rotating seat ring is the same seat as described for the Type 1 seal. Alternate O-ring, seat ring, replaceable seat, and stationary seat materials are available as noted in the Service Parts section.



#### Shaft Seals



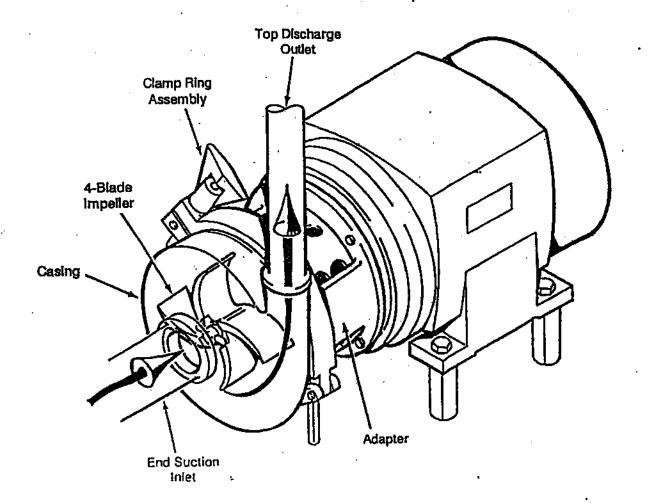
**Shaft Seal Components** 

#### **Theory of Operation**

The "V2" Centrifugal Pump is designed for pumping low to medium viscosity fluids.

- The pump design is horizontal, with fluids entering the casing through the end suction inlet.
- The casing is attached to the backplate with a clamp ring assembly for convenient access to the impeller. The proprietary tapered clamp design provides improved sealing by holding the casing and backplate tight against the adapter.
- The casing is made of a heavy, single piece investment casting with uniform wall thickness and dimensional accuracy for reliable, distortionfree high pressure service. The volute design provides high efficiency over a wide range of operating conditions.

- 4. The backplate is heavy duty to resist water hammer and cavitation. The thick cross section accommodates five standard seal types and may include a replaceable seat which can be reversed to double its wear life.
- The impeller propels the fluid to a top discharge outlet. The impeller is fully-open, 4-blade, and has a reverse curve configuration.
- The impeller is driven by a precision machined impeller shaft. It is secured to the motor shaft by two set screws and is key driven.
- 7. The pump is designed for a variety of operating speeds. Electric motors that operate at 3500 or 1750 rpm are generally used. The electric motor is customer supplied.



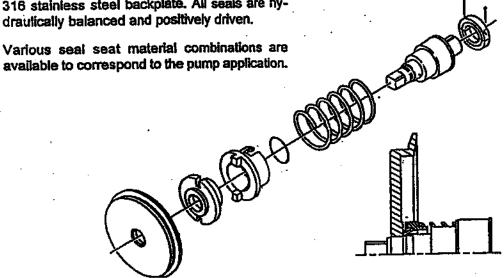


Pump Design

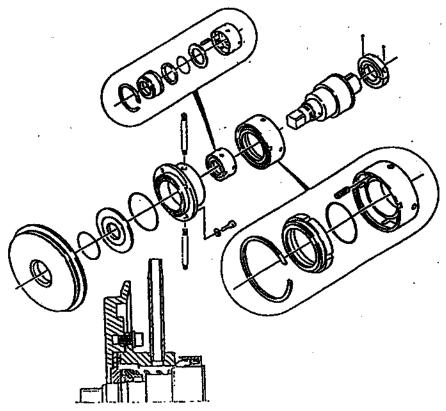
#### Theory of Operation

Product is sealed by a mechanical seal, available in five standard types. The basic Type 1 seal is a single, externally mounted design with a rotating carbon seat against a stationary type 316 stainless steel backplate. All seals are hydraulically balanced and positively driven.

Two of the standard seal types are double mechanical seals for contained water flush.



Single Mechanical - Type 1 Seal



Double Mechanical - Type 4 Seal

#### Operation

#### **Pump Operation**

After all the procedures in the Pre-Start-Up section have been performed, the pump is ready to start.

- If the pump is equipped with a flush shaft seal, start the flush media flowing. See the installation section for recommendations on flow rate, pressure, and water quality.
- Open the suction line and flood the pump casing with liquid before starting the pump drive.



#### CAUTION

Continuous operation of the pump without liquid present will damage the shaft seal. Starting the pump "dry", then-admitting liquid will cause mechanical damage to the pump and drive.

 Start the pump drive. Check to see that flow is established and that connections and seals are not leaking.

Operating the pump with closed discharge is permissible for short periods depending on the type of product and its temperature. Under these conditions, mechanical heat is added to the product and it eventually will vaporize (boil).



#### CAUTION

Do Not allow the pump to operate continuously with closed discharge. Heat will build up, leading to damage of pump parts. 4. If normal pump operation includes valve openings and closures (especially automatic air or solenoid operated valves) check for evidence of water hammer. Water hammer is a sudden, extreme increase in pressure due to rapid changes in the velocity of a liquid flowing through a pipe line. If damaging water hammer is present, there will be noticeable line or pump movements and noise when valves are operated. Any water hammer detected must be corrected to prevent unwarranted mechanical failures. One method of preventing water hammer is to slow the rate of valve operation to provide gradual openings and closings.



#### CAUTION

The pressure caused by water hammer could far exceed normal operating discharge pressure and may be mechanically damaging to the pump and other system components.

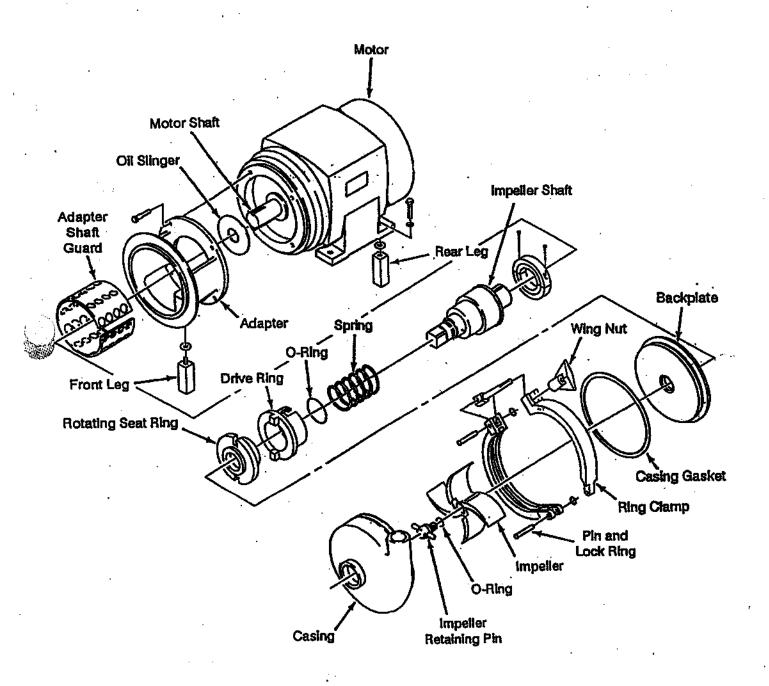


- 5. Valves in the suction lines should never be closed or throttled during pump operation.
- Stop the pump drive when pumping is completed. Do not allow the pump to continue running "dry".



#### **Jaintenance**

#### Component Identification





#### Maintenance

#### Casing and Impeller



#### DANGER

The pump shaft and impeller operate at high speed and can cause severe injury or even loss of life if contacted when operating.

The electric motor creates a hazard of electric shock which can cause severe injury or even loss of life if contacted while energized.

Turn off the drive power supply and Lock Out to prevent accidental starting before disassembling the pump or drive to perform maintenance.

Use a Lock Out device for which only the person performing the maintenance procedure has the key.



#### WARNING

Liquid in the pump casing may be under pressure. Some liquids may be harmful if contacted (hot liquids, chemical cleaning solutions, etc.). Pump disassembly will ellow any pressurized liquid present to spray out and possibly contact personnel in the area. Shut off all sources of liquid to the pump and drain the casing before starting pump disassembly. Remember that liquid may "Backup" through the discharge line.

#### Disassembly

- 1. Disconnect the inlet and discharge piping.
- Loosen the wing nut and remove the clamp ring assembly.



 Unscrew the impeller pin by turning counterclockwise.

5. Remove the impeller pin O-ring.

 Remove the impeller by grasping the impeller vane tips. Tap with a soft faced mailet if necessary to loosen. Do not pry between the impeller and the backplate.

#### Assembly

- 1. While holding the backplate into position against the shaft seal, install the impeller onto the impeller shaft.
- Using a light oil, lightly lubricate the impeller retaining pin O-ring and install it on the impeller shaft.
- Lightly lubricate the retaining pin threads with a light oil and insert the retaining pin into the impeller shaft.



- Using finger pressure only, tighten the pin clockwise until the pin is firmly against the impeller.
- With a light oil, lubricate the casing gasket and Install it into the recess of the backplate.
- Install the casing over the impeller and against the backplate and casing gasket.
- Position the clamp ting assembly around the casing, backplate, and adapter.
- Using finger pressure, tighten the wing nut securely against the ring clamp.
- 9. Connect the inlet and discharge piping.
- If the pump has flush seals, connect the inlet and outlet flush piping.



#### **flaintenance**

#### **Backplate**

#### **Disassembly**

- If the pump is equipped with a flush seal, disconnect the inlet and outlet flush fittings.
- 2. Remove the backplate from the adapter.
- If the backplate is equipped with a replaceable seal insert, loosen and remove the socket head cap screws and lock washers from the seal insert ring.

If the seal is Type 3, 4, or 5, remove the sockethead cap screws and lock washers from the water seal chamber.

- Remove the seal insert ring or water seal chamber.
- Remove the O-ring from the water seal chamber.



- 7. Remove the O-ring from the seal insert.
- 8. Remove the adapter shaft guard from the adapter to access the impeller shaft.



#### WARNING

The adapter guard must be in place any time the pump is operated.

#### Assembly

- 1. Fit the adapter shaft guard into the adapter.
- If the backplate is equipped with a replaceable seal insert, install the seal insert O-ring into the groove on the backplate.
- 3. Place the seal insert into the backplate.
- If the pump has a Type 4 or 5 contained flush outer seal, insert the O-ring into the water seal chamber.
- Position the insert holder ring or water seal chamber into the backplate.
- Install the lock washers and socket head cap screws through the insert holder ring or water seal chamber and into the backplate, tightening all screws uniformly.
- Clean and lightly lubricate the backplate or backplate insert seat facing surface.

If the pump has a water seal chamber, clean and lightly lubricate the stationary seat mating surface.

- Carefully push the assembled backplate onto the impeller shaft and against the seat ring face, compressing the seal springs.
- Hold the backplate in this position while installing the impeller and impeller pin.



#### Maintenance

Product Seals - Type 1, 2, and 5 Shaft Seals

#### Disassembly

- Remove the rotating seat ring and the drive ring together from the impeller shaft by grasping the outside, pushing in slightly, then turning counterclockwise to disengage the drive ring slot from the pin on the impeller shaft.
- 2. Remove the O-ring from the rotating seat ring.
- 3. Separate the rotating seat ring and drive ring.
- 4. Remove the spring from the impeller shaft.

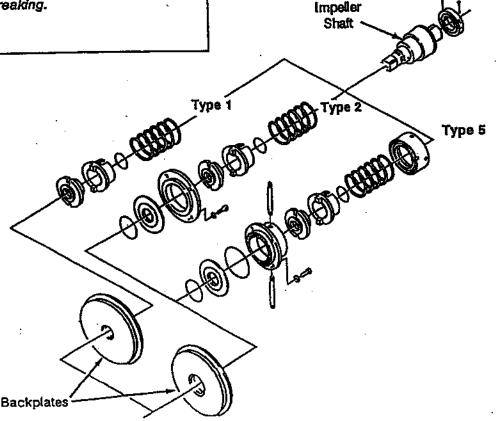
#### A

#### CAUTION

Handle seal components carefully. Seal seats may break if mishandled or dropped. Handle carbon seat rings with care to prevent chipping or breaking.

#### **Assembly**

- 1. Place the seal spring onto the impeller shaft.
- 2. Place the seat ring and the drive ring together.
- 3. Lightly lubricate the O-ring with a light oil and install it into the recess in the seat ring.
- 4. Wipe the seat ring face area clean and lubricate it lightly with a light oil.
- Push the seat ring and drive ring onto the Impeller shaft, compressing the spring.
- Engage the drive ring slot with the pin on the impeller shaft and turn clockwise to hold the assembly into place.





#### /laintenance

John Crane™ Mechanical Seal Type 3 and 4 Shaft Seals

Disassembly



#### CAUTION

Handle seal components carefully. Seal seats may break if mishandled or dropped. Handle carbon seat rings with care to prevent chipping or breaking.

- To remove the John Crane<sup>™</sup> mechanical seal assembly from the impelier shaft, loosen all the set screws.
- 2. Pull the seal assembly off the shaft.

Do Not disassemble further unless replacing the arbon seat ring or the O-ring.

To completely disassemble the John Crane™ mechanical seal, place the assembly on a work surface with the carbon seat ring facing up.

- Carefully push down on the seat ring face with the palm of your hand, compressing the springs.
- Remove the retaining ring by starting it with a small screwdriver through the slot in the outer retainer.
- 6. All parts are now free to disassemble.

#### **Assembly**

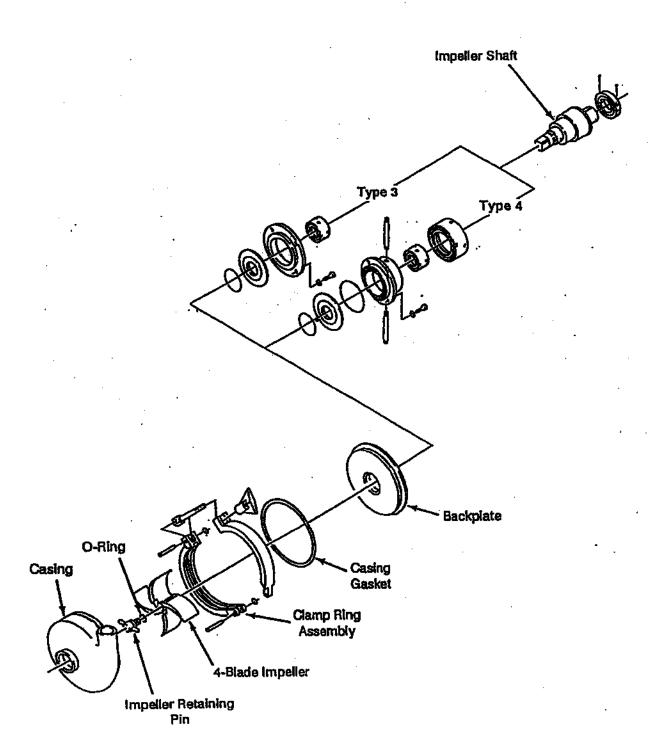
If the seal assembly has not been disassembled to replace the carbon seat ring or the O-ring, go to step 7.

- Place the outer retainer on a work surface with the carbon seat ring side facing up.
- 2. Insert the springs into the holes of the retainer.

The John Crane<sup>TM</sup> seal for the rear of the water chamber in Type 4 seal will have one-half the number of springs as there are holes for springs in the outer retainer. When reassembling, space the springs evenly by placing them into every other hole.

- Insert the spring spacer ring into the retainer over the springs. This applies only to the interior John Crane™ seal.
- Lightly subricate the O-ring with a light oil and install it into the groove in the carbon seat ring.
- Wipe the seat ring face area clean, lubricate it lightly with a light oil and install the seat ring into the retainer.
- Carefully push down on the seat ring face with the palm of your hand compressing the springs. to insert the retaining ring.
- Push the seal assembly onto the impeller shaft and up against the shoulder on the shaft.
- 8. Uniformly tighten all the set screws.

#### **Maintenance**



John Crane™ Mechanical Seal – Types 3 and 4 Disassembly and Assembly

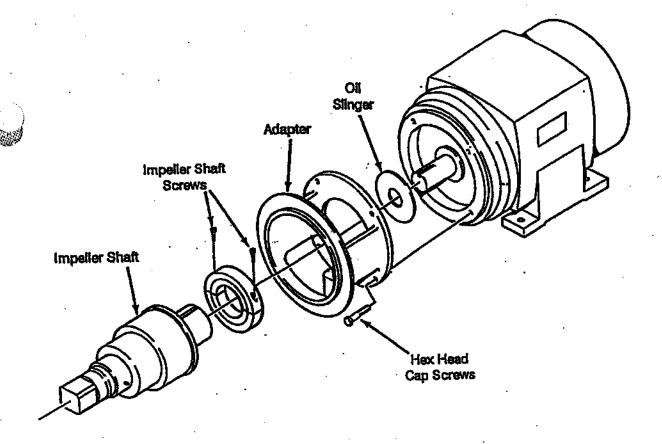


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#### Impeller Shaft

#### Disassembly

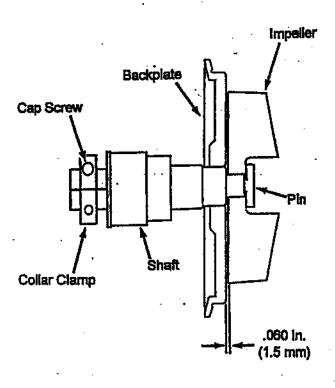
- Loosen the impeller shaft screws.
- 2. Remove the impeller shaft from the motor shaft.
- Remove the oil slinger from the motor shaft.
- 4. Loosen and remove the hex head cap screws from the adapter.
- Remove the adapter from the motor face or the pedestal mount.



Impeller Shaft Disassembly

#### Maintenance

Assembly



#### Impelier Shaft Assembly

All motors used for centrifugal pump assembly must have limited end-play bearings.

Before assembly, runout of the impeller shaft must be checked. Perform steps 2, 3, and 9 in succession, then check the shaft for runout. Total runout of the shaft must not exceed .005 in. (.13 mm). Loosen the collar screws and disassemble.



#### CAUTION

Correct location of the impeller shaft on the motor shaft is critical to prevent damage to pump parts and to obtain maximum operating efficiency.

- 1. Attach the motor adapter to the motor face or to the pedestal assembly.
- Slide the collar over the motor shaft, but do not tighten the screws.
- Slide the impeller shaft onto the motor or pedestal shaft and slide the collar over the scarf-cut part of the shaft. (Make sure the motor shaft and the impeller shaft are clean). Again, do not tighten the collar screws.
- Place the backplate over the pump shaft and up against the motor adapter.
- 5. Attach the impeller onto the impeller shaft and tighten the impeller pin.
- Clamp the backplate firmly against the motor adapter, making sure the backplate is even.
- Move the impeller shaft until there is .060 in.
   (1.5 mm) clearance between the impeller and the backplate.
- Position the clamp collar over the middle of the scarf-cut portion of the impeller shaft, making sure the slots in the collar and shaft are aligned. Tighten the screws using 90 in./ib. Torque for 3/16 in. screws; 190 in./ibs. for 1/4 in. screws.
- Disassemble the impeller and the backplate.
   Reassemble the pump with all of the seal components in the correct locations.





#### **//laintenance**



#### WARNING

Liquid in the pump casing may be under pressure. Some liquids may be harmful if contacted (hot liquids, chemical cleaning solutions, etc.). Pump disassembly will allow any pressurized liquid present to spray out and possibly contact personnel in the area. Shut off all sources of liquid to the pump and drain the casing before starting pump disassembly. Remember that liquid may "Backup" through the discharge line.

#### **Routine Wear Checks**

Routinely disassemble the pump and check the pump components for wear and deterioration.

Replace any pump component which has evidence of damage which could interfere with the pump opration.

#### Casing Gasket

Replace at any sign of leaking, deterioration, cracking, or change in dimension.

#### Impeller Retaining Pin

Check the threads. Replace the impeller pin if the threads are damaged or worn.

#### impeller Retaining Pin O-ring

Replace at any sign of leaking, deterioration, crack--ing, loss of elasticity, or change in dimension.

#### Impeller and Impeller Shaft

- Check for wear between the impeller shaft and the impeller hub. If "rocking" the impeller on the shaft allows the impeller blade tips to touch or nearly touch the backplate, replace the impeller and or the impeller shaft.
- 2. A feeler gauge may be used to measure the clearance between the hub and the shaft. Excess wear is present when the clearance is .01 in. (.25 mm) or more.



#### DANGER

The pump shaft and impeller operate at high speed and can cause severe injury or even loss of life if contacted when operating.

The electric motor creates a hazard of electric shock which can cause severe injury or even loss of life if contacted while energized.

Turn off the drive power supply and Lock Out to prevent accidental starting before disassembling the pump or drive to perform maintenance.

Use a Lock Out device for which only the person performing the maintenance procedure has the key.

3. Check the spacing between the impelier and the backplate. Refer to the impelier Shaft Assembly in this section for the procedures. Relocate the impelier shaft if the spacing is incorrect.

#### Backplate

- Check the backplate seal area or insert for wear.
- Replace the backplate or insert when wear is such that a smooth, flat surface for sealing cannot be assured.
- Backplate inserts may be reversed when the first side becomes worn.

#### Maintenance

#### Shaft Seal Components



#### CAUTION

Handle seal components carefully. Seal seats may break if mishandled or dropped. Handle carbon seat rings with care to prevent chipping or breaking.

- Check the rotating seat ring and replace the seat ring when the raised face is worn or chipped.
- Check the seal O-rings and replace at any sign of leaking, deterioration, cracking, loss of elasticity, or change in dimension.
- Check the spring in the inner Type 1, 2, and 5 seals to make sure that it fits onto the drive ring and impeller shaft.
- If the pump is equipped with a contained water flush seal, check the water flush seals components for signs of wear or deterioration.

#### Pedestal Mounted Pumps

Check the bearings for looseness or other evidence of wear.

#### Lubrication

#### Motor

Lubricate motor (or other drive) according to instructions provided by the manufacturer.



#### CAUTION

When pumping product above 200 F (93 C), consult the motor manufacturer for high temperature lubricant recommendations.



#### **Pump Components**

When processing food products use a sanitary grade lubricant in product contact areas. Use a lubricant approved for incidental contact with edible products (USDA Classification H1).

- Lightly lubricate seal seat face areas (rotating and stationary) when assembling. Use a small amount of light oil. Do not use solid or grease type lubricants.
- Use a small amount of light oil to lubricate the O-ring under the seal ring and the impeller retaining pin O-ring when assembling.

#### Pedestal Mounted Pumps

- Pedestal mounted pumps have two pre-lubricated bearings. Under normal conditions of use, the bearings should require no further lubrication for the life of the bearing.
- Under severe operating conditions, such as continuous service, high ambient temperature, or an extremely wet or dirty environment, lubricate the bearings every four months.



- To lubricate, remove the slotted pipe plugs and install grease fittings with 1/8 in. 1.P.S. threads.
- Use a good quality lithium base grease. DO NOT over grease. Add only enough grease to make sure the fresh grease is getting into the bearings.
- Wipe off any old or excess grease from the outside.



#### Problem Solving Guide

Problem	Possible Cause	Possible Reason
Not enough liquid delivered	Impeller diameter too small for application	
•	Discharge head too high	
	Suction lift too high	·
•	Air leak in suction or at seal area	
•	Wrong direction of rotation	•
	Pump not primed	
, ,	Speed too slow	Low voltage
		Wrong frequency
		Wrong motor
	Suction or discharge plugged or closed	
<b>`</b> .	Air in liquid	
	insufficient NPSH (net positive suction head) available	
Not enough pressure	Impelier diameter too small for application	
	Air leak in suction or at seal area	
	Wrong direction of rotation	
	Speed too slow	Low voltage
		Wrong frequency
		Wrong motor
	Air in product	
Rapid seal wear	Abrasive product	
	Excessive spring loading	Incorrect impeller shaft location
	Abrasive solids (unfiltered) in seal flush media	•
	Incorrect seal assembly	
	Loose impeller shaft	]
	Prolonged "dry" running	]
	Water hammer	7



#### Problem Solving Guide

Problem	Possible Cause	Possible Reason
Motor overload	Discharge head too low allowing pump to deliver too much liquid	
	Impeller diameter too large for application	
	Liquid heavier or more viscous than rating	
	Voltage or frequency incorrect	
	Mechanical abnormality in pump	Impeller interference
• • •		Seal binding
		Bad bearing in pedestal mount
	Defective motor	
	Faulty electrical connections	•
	Overload heaters too small for motor	
Vibration	Starved suction	Insufficient NPSH (net positive suction head) available
		Suction line too long
		Suction line too small
		Suction line blocked
		Air in liquid
- · .	. •	Liquid too hot or too viscous
	Impeller shaft loose or bent	
•	Impeller out of balance	
	Impeller loose on impeller shaft	
	Motor bearings worn	]
	Base not level, legs not touching floor	







## Parts Manual V<sup>2</sup> Series Centrifugal Pump





"V<sup>2</sup>" Series Sanitary Centrifugal Pump Models 4V², 6V², 6V8², 8V², 8V8² STANDARD

# "y2" Serjes Sanita ntrifugal Pump Models 4v2, 6v7, 3, 8v2, 8v8

## STANDARD

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<del> </del>		NOHO		ľ	- Cap -		!   	FR - 33	- Bea	Bot!		إ		Ö	(see )	SE SE	900	3					ž Ž	H.P.	ron	Lock (F	Ž	CISTO
<del> 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -</del>			200			콢	RING	APELLI	ASKE	HAFT	2041		4	LINGE CINGE	<b>FOTOR</b>	DNI	5   <u> </u>		֓֞֝֟֝֟֓֓֓֓֟֟֓֓֓֓֓֓֓֓֟֓֓֓֟ ֡֓֓֓֞֩֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֓֡֓֡	HIST V	¥SHE	E0 - A	CREY	VASHE	E0 - F	SNO.	PIN - P	NING•
		•	_	-	7	2 P	9	4	, c	) (V)	Т	Ī			Г	Т	Т	7	٦	٦			Γ	Г	T	25	П	Γ

MOTOR: When ordering a motor or motor parts, specify the complete motor name plate information.

"See the Options section for customer option.

"Certain items are packaged in minimum quantity lots as indicated.
"Les alliconized carbon seat fing only with silicon carbide seal insert.

Rev. 10/1/96

# "V2" Series Sanitary Centrifugal Pump Models 4V2, 6V2, 6VS2, 8V2, 8VS2

5	+	T																					1	6	7	-	1	9		1 1	74	- -							
BVS- PAKI NO.	110	VA.	5	¥.	ΨN	W/N	₹Z		4/14	C W	ΨX	N/A	AW	¥		¥	A/N	ž	AN .	¥×	MN N		04HP414235	04AP414236	04AP414237	04AP414238	04AP414239	04AP414240		*543\$131305	543P221154	543P239154			<b>Y</b> N	W.W	WA.	Y.N	
Łσ									ŀ	-	-	-	ŀ	-					1		-	-	-	-	-	-	-	-		-	•	-				_	-	_	
8V2 PART NO.		<b>§</b>	¥.	NA	¥	¥N.	MIA		0000	04HP414ZZ9	06741450	04AP414231	0444499	24444	11411411411	N/N	ANS.	W/N	V V	221	VII.	5	CC44044073	MADA 14224	044044225	0.4544278	04AP414227	04AP414228		**643\$131305	543P221154	643P239154				NA NA	¥%	¥N.	
ďΩ				-		T	1	†	1	1	1	1											ŀ	-	-		1	-		-	-	-	1			14 15			-
6VS <sup>2</sup> PART NO.		AW.	W.N	× ×	4/2	521	<b>S</b>	<b>≨</b>		N/A	MA	NA	≨	ΥN	<b>\$</b>		SN.	≨	¥.	≨ Ž	¥N.	<b>≸</b>		04HP45ZZZZ	04AP45Z331	044452333	04AP452332	U4AF40230	200	**KA3S131305	647022154	£430030154	Delate to the		Ş		S N	V V	52
ΔI	T									-	<b>.</b> .	-	ŀ	1	-			~	-	1	1							1		ŀ	- · - -	-	-	$\downarrow$	-	1	-	1	
6V2 PART NO.		A/N		SE .	5	¥.	¥X	ΥN	-	04HP414217	04AP414218	04AP414219	04AF414220	04AP414221	04AP414222		04HP414173	04AP414174	04AP414175	04AP414176	04AP414177	04AP414178		N/A	A/A	ΑX	W.	ΥN	¥X	00000	<u> </u>	543P221154	543PZ39154		\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	5	S.	SE SE	¥.
) Lib	+	†	†	+	-	-	-	-		-	-	-	-	-																	-	-			1	-	-	-	-
4V2 PART NO.			04HP4142U5	04AP414206	04AP414207	DAAP414208	04AD414208	04AD414210	040	04130444044	WITH 1441)	044044043	044644244	0445044548	04AP414218		A/N	A/W	ANA	VIV	Yin	S N		N. N.	A/A	AND THE	A/N	¥	WA		5433131305	543P221154	543P239164			04HP342259	04HP34Z258	04HP342257	04HP342258
NOTERION		CASING - 1-1/2 in, Inlet x 1-1/2 in. Outlet	114011	Duit were	Sevel Seat	Tri Clamp	APC-PV	APC-Clamp	Apv SP (ISS)	CASING - 2 in, inlet x 1-1/2 in. Outlet	But Weld	Bevel Sent	Tri Clamp	APC:PV	APC Clamp	APV SP (ISS)	CASING - 2-1/2 in. Intet x 1-1/2 in. Outlet	Butt Weld	Bevel Seat	Tri Clamp	APC-PV	APC Clamp	APV SP (ISS)	CASING - 3 in. Inlet x 2 in. Outlet	Butt Weld	Bevel Seat	Tri Clamp	APC:PV	APC Clamp	Apv SP (ISS)	(1) John J. (1) (1)	O.RING (NITTHE) (SIG.) APAB OF 10	O-RING (VRON-) Idpitalism	O-RING (EPDM) (optional)	September 1		2 in.	Z-1/4 UI.	2-1/2 h.

"Certain items are packaged in minimum quantity lots as indicated.



# "y<sup>2</sup>" Series Sanite entrifugal Pump Models 4v², 6v², ~S², sv², svs²

				CHAPTER NO.	200	EVS PART NO.	È	8V <sup>2</sup> PART NO.	Δď	8VS2 PART NO.	αTY
ITEM	DESCRIPTION	4V* PART NO.		OV TAKE NO.	,						
			Ţ							****	
₹	(IMPELLER - Sanitary	270070070	-	ΨN		AN.		A/A		N/A	
	3 in.	C077547H40	†	¥ N		¥	<u>~</u>	NA		N/A	
	3-1/4 ln.	04HP342234	-	V2		AN I		¥N		NA	
	3-1/2 in.	04HP342253	-	Colling	•	A/N		¥		NA	
	3-3/4 in.	S <sub>N</sub>	ŀ	OBOROS DE LA COROS		¥N		ş		N/A	
	3-13/16 in.	04HP34ZZ5Z	-	VAL TO	ŀ	MA		¥N		NA.	
	4 in	ΨW	1	04HP339697	-	ASCORPAND AND AND AND AND AND AND AND AND AND	-	N/A		¥₹	
	4-1/4 in	<b>≨</b>	1	CAH1-339090		2017-10-10-10-10-10-10-10-10-10-10-10-10-10-		NAMPASS783	_	Ϋ́N	
	4-1/2 in	ΑM		04HP339895	_ .	0411452230	-	04HP385784	ŀ	ž	
	4-3/4 in	¥N		04HP338684	-	C411046000		A4HPA85785	-	04HP343883	-
	5.4	NA	7	04HP339693	-	207204-140		04HP342750	-	04HP343884	_
	5-1/4 h	¥N		D4HP339587	-	044044004	-	07/C770H70	-	04HP378598	-
	6.10 is	¥	1	OAHF338681	-	64304-1040	1	04HD34274R	-	04HP343882	-
	C-4/4 in	N/A		≸		AN IN		MA		N/A	
	1. 455.45 T			04HP339690		U4FIF45Z3U	-	717070001V	-	OAHD343881	-
	0-13/10   1.	¥	_ 	ΜA		§	•	04174C1010	- -	04110442690	ŀ
	6 In.	AN I		A/N		¥		OFTF342/40	-	040000000000000000000000000000000000000	-[-
	6-1/4 in.	MIN		\ N		¥N.		04HP34Z745	-	U47110400	-
	6-1/2 in.	C	Ī	N/A		¥		04HP342744	-	04HP343878	-
,	6-3/4 in.	¥	T	A/W		MW.		04HP342743	-	04HP343877	-
	7 in.	Y S	T			¥	Ŀ	04HP342742		04HP343876	-
	7-1/4 in.	¥N.	T	VAIN	ļ	¥	<u> </u>	04HP342741	ļ	04HP343875	-
	7-1/2 in.	SE .	Ī		1	¥		04HP342740	1	04HP343874	-
	7-13/16 ln.	SE SE		Ş	-						
_			ŀ	A/US/9884D	-	O4MP188619	-	04HP188168		04HP188168	-
100	IGASKET - Beaded (Nitrile) (std.)	04HP189082	-	0411 100013 0410027743	-	04HP237713	-	04HP281188	1	04HP261188	-
	GASKET - (Vitonin) (optional)	04HFZ08368	Ţ,	24104040	-	O4HP419403	ļ. _	04HP406468		04HP406466	-
	GASKET - (EPDM) (optional)	04HP418402	-		-						
					_						
=	SHAFT - Impeller (Type 1,2, or 5 Seal)	044044000	-	¥N	_	¥X		WA.	_	¥	
_	56C (5/8 in.)	044 044 4000	-	04AP414042	-	04AP414042	1	N/A		¥X	
	M5&C (5/8 in.)	440444000		ΨN	_	¥N		A'A		K/N	
<b></b>	K56C (5/8 in.)	U4PP414024		0460434044	-	04AP414044	-	04AP414072	1	N/A	
	43TC (7/8 ln.)	U4MP414024	-	04AD414044	-	04AP414044	-	04AP414072	,	04AP414132	-
	145TC (7/8 ln.)	O4MP414024	-	NA BAHANKT	-	04AP414047	-	04AP414075	-	04AP414135	-
	182TC & 184TC (1-1/8 lp.)	YN .		OKADA44049	-	04AP414049	-	04AP414077	1	04AP414137	-
	213TC (1.3/8 in.)	5		04444440	-	04AP414049	-	04AP414077		<b>\$</b>	
	215TC (1-3/8 ln.)	MA		WATER THE							
_											

# "V<sup>2</sup>" Serjes Sanitary Centrifugal Pump Models 4V², 6V², 6VS², 8V², 8VS²

	11012410000	AV2 DARTING	λίο	6V2 PART NO.	ΔTV	6VS <sup>2</sup> PART NO.	αT	8V <sup>2</sup> PART NO.	ΑLD	8VS2 PART NO.	αīγ
HEM	DESCRIPTION										
	Posta Consollar										
=	Server - Impaner	N/A		¥ <sub>2</sub>		SEE TOVSZ	:	04AP414079	1	NA	
	254 iC (1-5/0 in.)	NiA		NA		CDNA: GTP		04AP414079	ļ	04AP414139	,
	256 IC (1-5/8 in.)	N/A		N/A		•		04.8 Purtishing 2	-	0 4 3 4 7 4 1 4 1 4 2	-
	28415C & 28615C (1-5/9 in.)	VAL.		N/A		1-		¥			-
	3241 SC & 3261 SC (1-//8 m.)	UNI I									
5	GILARD										
<u>.</u>	Control	¥		04HP469330	1 1		1	NA		N/A	
	COCM	Y.X		025 98 74 H A O	-		1 1	0488469386	-	N/A	
	OF STATE	¥×		04HP#69530	-		1	0487469336	-		1
	1931C & 194TC	W.		041114593333	1		1	104HP469335		- 1	-
	213TC	ş		04HP 469333	1		-	04119469335	-		-
	O Face	¥N.		OAUD#FRTT3	1		1	04HP469335	-	NA	
	OTO 2	¥		ΥN	Ŀ	N.		NAHPA64535	1	N/A	
	21407	A/N		¥		N/A		1041124693351	1		-
	COLLOCK & COLLOCK	AN A		W.		ΝN		04HP469334	-		-
	204 100 g 200 100 c	¥×		¥		¥N.		NA I			Ţ
	241 3C B 3401 3C										
;	ADACTED										
2	MECO	¥¥		04HP410288	1 1	NA		N/A		NA	
	Modera	¥		04HP410288	-	¥Z		04HP410290	-	N/A	
	7124	¥×		04HP410288	-	04HP410288	1	04HP410290	-	04HP410290	1
	14510	AN.		04HP410287	÷	04HP410287	1	04HP410291	ţ	04HP410291	1
	1821Ca 1041C	N/A		04HP410287	-	04HP410287	1 1	04HP410291	1	04HP410291	-
	21310	¥		04HP410287	1 1	04HP410287	ļ	04HP410291	-	NA	
	V+730	XX		N/A		04HP460862		04HP410291	-	Α×	
	2587C	Ž		NA		04HP480862	1	04HP410291	-	04HP410291	-
	2017C 2 2887SC	¥		WA		04HP482228	1	04HP410370	-	04HP410370	-
	22/TGC £226TSC	ž		N/A		WA		ΝΆ		04HP410371	
							·				
}	O. SOURCE OF		*								
	250	04HP288836	1	WA		N/A		W.A		¥	
	MARC	04HP288838	ļ	04HP28B836	1	N/A		<b>₩</b>		KA N	
	KARC	04HP288838	-	N/A		N/A		N/A		N/A	7
	443TC	04HP242591	+	04HP242891	1	N/A		04HP242591	-	NA	
	44877	04HP242591	-	04HP242591	1	04HP242591	1	04HP242591	1	04HP242591	-
	200										

Rev. 10/1/96



# "V<sup>2</sup>" Serjes Sanite Centrifugal Pump Models 4V<sup>2</sup>, 6V , -7S<sup>2</sup>, 8V<sup>2</sup>, 8VS<sup>2</sup>

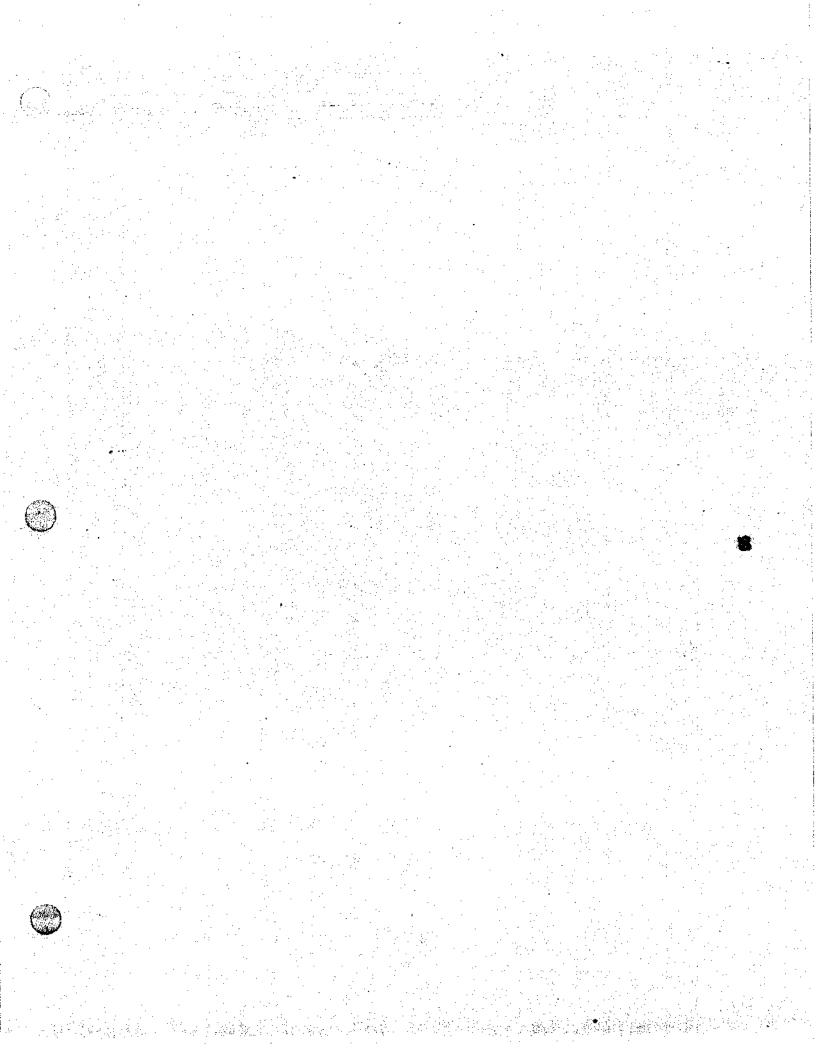
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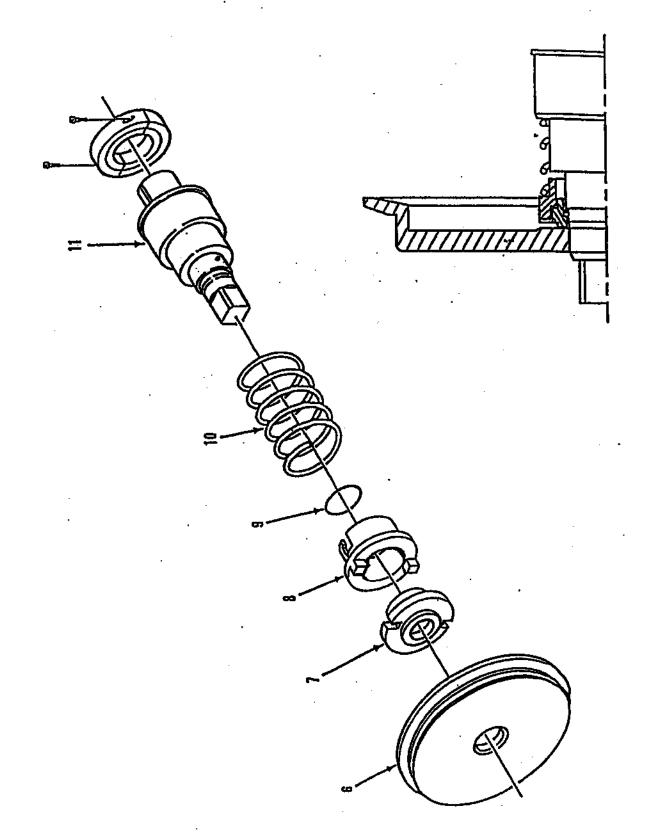
	5210006674	× (	521V006680 2 521V006680	, ,	2	7	2	521/009402			¥Ž	ΥN	523V007185	523V007192	261 /00/02/0	4/2	7007193	\$23V007193	523/007191		7/14	<u>.</u>	27177	07178	07178	×	<u>ا</u>	523V007179	07179	523V007196		N/A	Į	04HP414508	04HP414510	04HP414510	NA
-	5210006674	1	+	+	╁	-	_				7	1	_				423	223	52370			2 2	VIV.	423VM07178	523V007178	Y/N	AN	523/10	523V007179	523V0		Z	Ž	문	QHP	04HP	_
NA	+	52100065/4	217005680	DERRO	9	6	Γ	г		1_1	_	7	~	N (	N	7	•	•				•	7	4	ŀ	~	2	2	2				2	2	2	2	2
	7		io   i	2012	6210006898	521700669	5217006696	¥X			MA	523V007185	523/007185	523/007192	523V00/192	523VU0/192	523 VOUT 183	223V07 193	WAN AND AND AND AND AND AND AND AND AND A			Š	523V007177	523V00/1//	R27WW07178	523V007178	523V007179	523/007179	623/007179	N/A		N/A	04HPA14508	04HP414508	04HP414510	04HP414510	04HP414510
Ħ	ľ	7	7	1	•	~	6						7	7	~	~	,	,	,					2	1	,	•	2	7					2	7	~	~
ΥN	W.A	521\006674	521\006680	020000000000000000000000000000000000000	SZIVUVOGOR	421V006898	K21VANORASE	N/A			N/A	¥N.	523/007185	623V007192	523/007192	623V007192	523000/193	5230007193	6Z3V00/14/3			¥Z	Ş	523V007177	623V00/1/8	E247001178	824/M07470	523/007179	523V007179	₩		1	4 N	04MP414508	D4HP414510	04HP414510	04HP414510
2	2	2	2	7	7	†	†	†	1	T	~	12	~	2	2	7	1	1				7	2	~	2	\ \	į					,	,	1	-	-	-
521V006674	521V006674	521V006674	5210006880	5210006680	5210006680	¥2.	<u>ال</u>	¥/14	CAL		AP34VMN7186	523V007185	523/007185	523/00/192	523/007192	523V007192	N/A	ΝA	Š	<b>S</b>		523/007177	623/007177	523/007177	523V007178	523V00/1/6	SZSVOVIT/8	\$ N	AN	AN A			04HP4145U6	0417414500	CALDA14810	04HD444810	04110444840
																			Ĺ.,									1		1	-		4		1	_	  -
AN	N/A	NA.	NA	N/A	N/A	WA	¥	¥N.	NA NA		777	¥2	5	A/S	Ž	¥	ş	¥≥	¥	SZ.		AWA	Ž	ž	A/N	Y.N	ξ <sub>χ</sub>	ž	¥2.	SN2	W.V.		N/A	¥2	≨ E	¥.	¥2.
SCREW - Hex Head Cap (ss)	M58C	143TC	1451C	21370	21510	254TC	256TC	284TSC & 286TSC	324TSC & 326TSC		WASHER - Lock (\$8)	M58C	143TC	145TC	182TC & 184TC	Z13TC	Sielz	23410	2561C 284TSC & 286TSC	324TSC & 326TSC			MS&C	143TC	1451C	213TC	2157.0	254TC	256TC	284TSC & 286TSC	324TSC & 326TSC	7	1	143TC	145TC	182TC & 184TC	213TC
t	5210006874 2	SCREW - Hex Head Cap (55) N/A 521V006674 2 M56C N/A 521V006674 2	SCREW - Hex Head Cap (ss)   N/A   521V006674   2   M56C   N/A   521V006674   2   143TC   N/A   521V006674   2	SCREW - Hex Head Cap (ss)         N/A         521/0008674         2           M56C         N/A         521/0008674         2           143TC         N/A         521/0008680         2           145TC         N/A         521/0008680         2	SCREW - Hex Head Cap (85)     N/A     521/0008674     2       M56C     N/A     521/0008674     2       143TC     N/A     521/0008680     2       145TC     N/A     521/0008680     2       145TC     N/A     521/0008680     2       145TC     N/A     521/0008680     2	SCREW - Hex Head Cap (\$\$)     N/A     521V006674     2       M56C     N/A     521V008674     2       143TC     N/A     521V008674     2       145TC     N/A     521V006680     2       213TC     N/A     521V006680     2       213TC     N/A     521V006680     2	SCREW - Hex Head Cap (85)     N/A     521/0008974     2       M56C     N/A     521/0008974     2       143TC     N/A     521/0008890     2       145TC     N/A     521/0008890     2       215TC     N/A     521/0008890     2       215TC     N/A     521/0008890     2       215TC     N/A     521/0008890     2       215TC     N/A     N/A     N/A	SCREW - Hex Head Cap (\$\$)     N/A     521/0008974     2       M56C     N/A     521/0008674     2       143TC     N/A     521/0008680     2       145TC     N/A     521/0008680     2       213TC     N/A     521/0008680     2       215TC     N/A     521/0008680     2       215TC     N/A     N/A     N/A       254TC     N/A     N/A     N/A	SCREW - Hex Head Cap (85)     N/A     521V008974     2       M56C     N/A     521V008674     2       143TC     N/A     521V008680     2       145TC     N/A     521V006680     2       213TC     N/A     521V006680     2       215TC     N/A     521V006680     2       215TC     N/A     N/A     N/A       256TC     N/A     N/A     N/A       256TC     N/A     N/A     N/A       226TC     N/A     N/A     N/A	SCREW - Hex Head Cap (\$\$)     N/A     521/0008974     2       M56C     N/A     521/0008674     2       143TC     N/A     521/0008680     2       145TC     N/A     521/0008680     2       213TC     N/A     521/0008680     2       215TC     N/A     521/0008680     2       215TC     N/A     N/A     N/A       255TC     N/A     N/A     N/A       285TC     N/A     N/A     N/A       284TSC & 286TSC     N/A     N/A     N/A       324TSC & 326TSC     N/A     N/A     N/A	SCREW - Hex Head Cap (\$\$)         N/A         521V008974         2           M56C         N/A         521V008674         2           143TC         N/A         521V008674         2           145TC         N/A         521V008680         2           121TC         N/A         521V008680         2           213TC         N/A         521V006680         2           215TC         N/A         S21V006680         2           215TC         N/A         N/A         N/A           256TC         N/A         N/A         N/A           264TSC & 226TSC         N/A         N/A         N/A           324TSC & 326TSC         N/A         N/A         N/A	SCREW - Hex Head Cap (ss)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V008974         2           182TC & 184TC         N/A         521V006930         2           213TC         N/A         521V006930         2           215TC         N/A         521V006930         2           254TC         N/A         N/A         N/A           254TC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         N/A           324TSC & 326TSC         N/A         N/A         N/A           MASHER - Lock (ss)         N/A         N/A         N/A	SCREW - Hex Head Cap (ss)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V008974         2           182TC & 184TC         N/A         521V006930         2           213TC         N/A         521V006930         2           215TC         N/A         521V006930         2           254TC         N/A         N/A         N/A           254TC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         N/A           324TSC & 326TSC         N/A         N/A         N/A           MASHER - Lock (ss)         N/A         A23V007186         2           M56C         N/A         A23V007185         2	SCREW - Hex Head Cap (ss)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V006910         2           182TC & 184TC         N/A         521V006910         2           213TC         N/A         521V006910         2           215TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           254TSC & 226TSC         N/A         N/A         N/A           324TSC & 226TSC         N/A         N/A         N/A           MASHER - Lock (ss)         N/A         523V007186         2           M56C         N/A         523V007186         2           N/A         523V007185         2           N/A         523V007185         2	SCREW - Hex Head Cap (\$\$)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V006980         2           182TC & 184TC         N/A         521V006980         2           213TC         N/A         521V006980         2           215TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         N/A           324TSC & 326TSC         N/A         N/A         N/A           M56C         N/A         523V007185         2           143TC         N/A         523V007185         2           145TC         N/A         523V007185         2	SCREW - Hex Head Cap (85)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V006980         2           182TC & 184TC         N/A         521V006980         2           213TC         N/A         521V006980         2           215TC         N/A         N/A         N/A           254TC         N/A         N/A         N/A           254TC         N/A         N/A         N/A           254TSC & 226TSC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         N/A           324TSC & 326TSC         N/A         523V007185         2           M56C         N/A         523V007185         2           143TC         N/A         523V007185         2           145TC         N/A         523V007182         2           145TC         N/A         523V007182         2           145TC         N/A         523V007182         2	SCREW - Hex Head Cap (8\$)         N/A         521V008974         2           M56C         N/A         521V008974         2           143TC         N/A         521V008974         2           145TC         N/A         521V006980         2           213TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           224TSC & 326TSC         N/A         N/A         523V007186         2           NASHER - Lock (ss)         N/A         523V007186         2           NASHER - Lock (ss)         N/A         523V007186         2           145TC         N/A         523V007182         2           145TC         N/A         523V007182         2           213TC         N/A         523V007182         2           213TC         N/A         523V007182         2	SCREW - Hex Head Cap (ss)         N/A         521V006674         2           M56C         N/A         521V006674         2           143TC         N/A         521V006674         2           145TC         N/A         521V006680         2           115TC         N/A         521V006680         2           213TC         N/A         521V006680         2           213TC         N/A         521V006680         2           215TC         N/A         521V006680         2           215TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         N/A           NASHER - Lock (ss)         N/A         N/A         523V007185         2           NASHER - Lock (ss)         N/A         523V007185         2         2           NASHER - Lock (ss)         N/A         523V007185         2         2           145TC         N/A         523V007182         2         2           213TC         N/A         523V007182         2           215TC         N/A<	SCREW- Hext Head Cap (ss)         N/A         521V008674         2           M56C         N/A         521V008674         2           143TC         N/A         521V008674         2           145TC         N/A         521V006680         2           213TC         N/A         521V006680         2           215TC         N/A         521V006680         2           215TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           254TSC & 326TSC         N/A         N/A         523V007185         2           NASHER - Lock (ss)         N/A         523V007185         2           NASHER - Lock (ss)         N/A         523V007185         2           145TC         N/A         523V007182         2           215TC         N/A         623V007182         2           215TC         N/A         N/A         N/A           215TC         N/A         N/A         N/A           25	SCREW - Hex Head Cap (55)         N/A         521V006574         2           MSSC         N/A         521V006674         2           143TC         N/A         521V006674         2           143TC         N/A         521V006674         2           143TC         N/A         521V006674         2           213TC         N/A         N/A         N/A           213TC         N/A         N/A         N/A           255TC         N/A         N/A         S23V007185         2           143TC         N/A         N/A         S23V007182         2           145TC         N/A         N/A         S23V007182         2           215TC         N/A         N/A         N/A           255TC	SCREW - Hex Head Cap (59)         N/A         521V006574         2           M56C         N/A         521V006674         2           143TC         N/A         521V006674         2           143TC         N/A         521V006674         2           143TC         N/A         521V006674         2           213TC         N/A         521V006674         2           213TC         N/A         521V006680         2           213TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           255TC         N/A         N/A         N/A           143TC         N/A         S23V007185         2           143TC         N/A         S23V007185         2           145TC         N/A         S23V007185         2           215TC         N/A         S23V007185         2           254TC         N/A         N/A         S23V007185         2           255TC         N/A         N/A         N/A           255TC         N/A	SCREW - Hex Head Cap (85)         N/A         521V006674         2           M56C         N/A         521V006674         2           143TC         N/A         521V006674         2           145TC         N/A         521V006674         2           213TC         N/A         521V00667         2           213TC         N/A         N/A         N/A           215TC         N/A         N/A         N/A           254TC         N/A         N/A         N/A           254TSC         324TSC         324TSC         323V007185         2           143TC         N/A         523V007185         2           143TC         N/A         523V007182         2           241ST         N/A         523V007182         2           254TC         N/A         523V007182         2           254TC         N/A         523V007182         2           254TC         N/A	SCREW - Hext Head Cap (55)	SCREW - Hext Head Cap (55)   N/A   521V006674   2   1451°C   145	SCREW- Hex Head Cap (ss)	SCREW - Hex Head Cap (ss)	SCREW- Hex Head Cap (88)	SCREW- Hex Head Cap (85)	SCREW- Hex Head Cap (88)	SCREW-Hex Head Cap (85)	SCREW-Hext Gap (iss)   NIA   521V006674   2   2     MASC   143TC   143TC   NIA   521V00680   2   2     143TC   143TC   NIA   521V00680   2   2     143TC   143TC   NIA   521V00680   2   2     143TC   143TC   NIA   NIA   NIA   143TC     143TC   143TC   NIA   143TC   NIA   143TC   143TC   143TC   NIA   143TC   143TC   143TC   NIA   143TC   143TC   NIA   143TC   143TC   NIA   143TC   143TC   143TC   NIA   143TC   143TC   NIA   143TC   143TC   143TC   NIA   143TC   143TC   NIA   143TC   143TC   143TC   NIA   143TC   143TC   143TC   143TC   143TC   143TC   NIA   143TC   143TC   NIA   143TC   143	SCREW Hex Head Cap (89)	SCARETOR   NA   SZIVU06674   2   1   1   1   1   1   1   1   1   1	SCREW- Her Head Cap (89)   NA   S21V006974   2   1431°C   NA   S21V006974   2   1431°C   NA   S21V006970   2   1431°C   NA   S21V006970   2   1431°C   NA   S21V006970   2   1431°C   NA   NA   NA   NA   NA   NA   NA   N	SCREW Head Cap (89)   NA   521V006974   2     MA   621V006974   2     MA   621V006974   2     MA   621V006970   2     MA   622V007112   2     MA   622V007112   2     MA   622V007177   2     MA   622V007178   2     MA   622V007177   2     MA   622V007178   2     MA   622V007177   2     MA   622V007178   2     MA   622V007177   2     MA   622V007178   2     MA   622V007177   2     MA   622V007178   2     MA   622V007177   2     MA   622V007178   2     MA   622V007178   2     MA   6	SCREW Head Cap (89)	SCREWY- Hex Head Cap (ss)

## "V2" Series Sanitary Centrifugal Pump Models 4V2, 6V2, 6VS2, 8V2, 8VS2

N/A  N/A  N/A  N/A  N/A  N/A  N/A  N/A			ANZ DADT NO	ALC:	6V2 PART NO.	OTY	6VS2 PART NO.	άTΥ	8V2 PART NO.	QTY	8VS <sup>2</sup> PART NO.	ΔT
CEG   CHEFT   NAM	ITEM	DESCRIPTION	2001					·				
Control   Cont						L						
Secretary   Comparison   Nature   Comparison   Compari	- 21	LEG - Rear	MIG		AW	_	04HP414513	2	04HP414513	2	N/A	
254/15G & 204F15C   NN		254TC	VAL.		N/A		04HP414513	2	04HP414513	2	04HP414513	7
STATION A 2007 CONTINUE   NAT   NA		256TC	5		AI/A		04HP414513	~	04HP414513	2	04HP414513	~
SCREW- Her Head Cap (Inc. plate)		284TSC & 286TSC	¥N.				ANA		N/A		04HP419408	2
SCREW   Her Head Cap Line plated   NA   SZAVOSTEZ   4   SAVOSTEZ   -	324TSC & 326TSC	N/A		WM.								
Marco												
MAGC   MAGC   MA	22	SCREW - Hex Head Cap (zinc plated)	NAA		522/008752	4	W.		522VD08762	4	. AVA	
Mail		MS6C	NA.		522VRN6752	4	¥/N.		522V006752	4	N/A	
1457C & 1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C   N/N   1457C   1447C	_	143TC	42		527/M08752	4	522/006752	4	522/006752	4	\$22V008752	. 4
1317 C		145TC	¥.		221000125 C221000100		R22VM0R7R8	•	522V006788	4	522V006788	4
215TC   NA   252/0007188   4   522/0007188   4		182TC & 184TC	Š		201000V226	-	522VN08788	7	522\008788	4	\$22V006788	4
250   250		213T	SE .		0575000 000 0075000 000	<u> </u>	K22VIIOR7BB	1	522\006788	4	₩	
254TC		215TC	SE SE		324740790		822/MOR78R		527VD08788		W/N	
Table   Tabl	_	254TC	Y.A		Ç.	$\downarrow$	200000000	-	527VMA788		522V006788	4
Table   Tabl		256TC	N/A		SN N	_	224,000,00	-	5934 MAG788		422VM067R8	-
LEG - Front   NA		284TSC & 288TSC	¥ <sub>N</sub>		ΥN	-	09/000A77G	•	3244000100	-	200000000000000000000000000000000000000	
LEGe Front		Totace e correc	AN.		N/A		§		N/A		01000007770	•
LEG - Front		324130 0 320130										
143TC   NIA   OHIP414182   NIA   OHIP414185   NIA   NIA   OHIP414185   NIA   OHIP414185   OHIP	]	1000		·		_					7/11	Ì
MASC   MASC	74		AN L		04HP414182		WA.		ΥN		WA	
1431C   1431		MS6C	AN		04HP414182	-	WA		04HP414165	-	YN.	
145TC   145T		143TC	VIV		OAHP414182	-	04HP414182	i i	04HP414185	1	04HP414185	-
182TC & 184TC		145TC	SN SN		04HP444183	-	04HP414183	-	04HP414188	- 1	04HP414186	-
213TC		182TC & 184TC	<u> </u>		OAHD414184	-	04MP414184	-	04HP414187	1	04HP414187	-
2847C   2847		213TC	¥.		10111111111111111111111111111111111111	<u> </u>	04HD414184	-	04HP414187	-	WA	
254TC         NA         NA         NA         NA         NA         OAHP414186         1         OAHP414186		215TC	¥N.		4014-1-1040	-	OALIDAROGA?	-	04HP414188	-	ΑN	
256TC         NA         NA         NA         NA         OAHP405644         1         OAHP4118B         1         OAHP41418B           224TSC & 286TSC         NA         NA         NA         NA         NA         NA         NA           324TSC & 236TSC         A326TSC         A326T		254TC	Š	_	V2.	1	CAUDAROOM?	ŀ	04HP444188	-	04HP414188	-
SI-LAFT - Impeller (Type 3 or 4 Seal)		256TC	§.		<b>S</b>	1	OT STANDAR	-	04HD414188	-	04HP414188	-
S24TSC 8326TSC   N/A		284TSC & 286TSC	§N		52	1	Mila	<u> </u>	AW		04HP414188	-
SI-MAFT - Impeller (Type 3 or 4 Seal)		324TSC 4326TSC	WW N	-	S/N	-	CA.	Ŀ				
SHAFT - Impeller (1 ype 3 of 4 Seal)		5		1		_						
NA	36	SHAFT - Impeller (Type 3 of 4 Seal)	0440044008	-	A/N	-	¥×		N/A	·	NA	
NA		56C (5/8 in.)	ONHDA44028	-	04HP414051	-	¥N		N/A		W.	
NA		M56C (5/8 in.)	041044008	-	N/A		¥¥		N/A		N/A	
C(1-1/8 h.) N/A O4HP414052 1 04HP414064 1 04HP414166		K56C (5/8 in.)	750747007	-	04HP414052	-	¥N.	L	04HP414084	1	N/A	
C(1-1/8 h.) NA O4HP41054 1 04HP480891 1 04HP414086 1 04HP414148  C(1-1/8 h.) NA O4HP414055 1 04HP414087 1 04HP41419  DAHP41408 1 04HP414087 1 04HP41419  DAHP41408 1 04HP41408 1 N/A  DAHP41408 1 04HP414150  DAHP414150 1 04HP414150  DAHP414150 1 04HP414152  DAHP414150 1 04HP414152  DAHP414150 1 04HP414152  DAHP414150 1 04HP414153		143TC (7/8 in.)	04UD444027	-	04HP414052	-	04HP414052	-	04HP414084	1	04HP414146	-
(1-1/8 fb.) N/A 04HP414055 1 04HP480888 1 04HP414087 1 N/A 04HP414055 1 04HP416088 1 04HP414087 1 N/A 04HP452224 1 04HP414088 1 N/A 04HP452224 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414088 1 04HP414080 1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A		145TC (7/8 in.)	N/A	-	04HP414054	-	04HP460891	-	04HP414086	1	04HP414148	-
N/A   O4HP460888		1821C & 1841C (1-1/8 m.)	ALIA	-	04HP444055	-	04HP460888	-	04HP414087	-	04HP414149	-
SC (1-5/8 in.) N/A N/A 04HP452224 1 04HP414088 1 1 N/A 04HP452224 1 04HP414088 1 1 N/A N/A 04HP452224 1 04HP414080 1 1 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	<del></del>	213JC (1-3/8 in.)	\$ 2	-	04HP414055	-	04HP460888	-	04HP414087	1	NA	
SC (1-5/8 in.) N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A		215TC (1-3/8 in.)		-	A/N	  -	04HP452224	-	04HP414088	-	N/A	
NA NA NA NA NA NA NA NA NA NA		254TC (1-5/8 in.)		1	N/A		D4HP452224	-	04HP414088	-	04HP414150	Ē
NA NA NA		256TC (1-5/8 ln.)	5	  -	VAN		N4HD452224	-	04HP414090	-	04HP414152	-
NA I INA		284TSC & 286TSC (1-5/8 in.)	W.A		<u> </u>	$\downarrow$	MIN TORKET	1	MA	_	DALIDA14153	-
		224TSC 2 326TSC (1-7/8 in.)	¥.		¥	_	Y.		<u> </u>		C11114111	-







8

# "V2" SERIES SANITARY CENTRIFUGAL PUMP Models 4V2, 6V2, 6VS2, 8V2, 8VS2

## Type 1 Seal

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ITEM	DESCRIPTION	4V² PART NO.	αтν	6V² PART NO.	αту	4V* PART NO. aTY 6V2 PART NO. aTY 6VS2 PART NO. aTY 8V2 PART NO. aTY 8VS2 PART NO. aTY	απ	8V² PART NO.	ату	8VS <sup>2</sup> PART NO.	αTX
c.	PLATE - Back	04HP410292	-	04HP401852	-	04HP401852	-	04HP401823	1	04HP401823	-
	RING - Seat (carbon) (std.) RING - Seat (graphite - TFE) (optional)	546P331925 04HP357739		5469329693 04HP357740		546P329693 04HP357740	1	546P331198 04HP357741	· +- +-	546P331198 04HP357741	
60	RING - Drive	04HP342268	-	04HP339763	Ψ	04HP339763	-	727P331199	1	727P331199	1
,			-				_				_
G)	O-RING (Nitrile) (std.) (pkg of 10) O-RING (Viton <sup>TM</sup> ) (optional) O-RING (EPDM) (optional)	**543S131315 543P221184 543P239164		**543S131320 543PZ21169 543PZ39169		**543S131320 543P221169 543P239169		**5438131324 543P221173 543P239173		543P231373 543P239173 543P239173	
				7	<u> </u>	6200000000	,	R22P342B23	-	622P342823	_
5	SPRING	622P304634	-	622P339B33		0221-038000	-		<u> </u>		
7	SHAFT - Impeller	•		*		•		•		4	

\*See the Pump Options section for customer option. \*\*Certain items are packaged in minimum quantity lots as indicated.

"V<sup>2</sup>" Series Sanitary Centrifugal Pump Models 4V², 6V², 6VS², 8V², 8V8² Type 2 Seal

# "y2" Series Sant Centrifugal Pump Models 4v2, 6v, J/S2, 8v2, 8v82

## Type 2 Seal

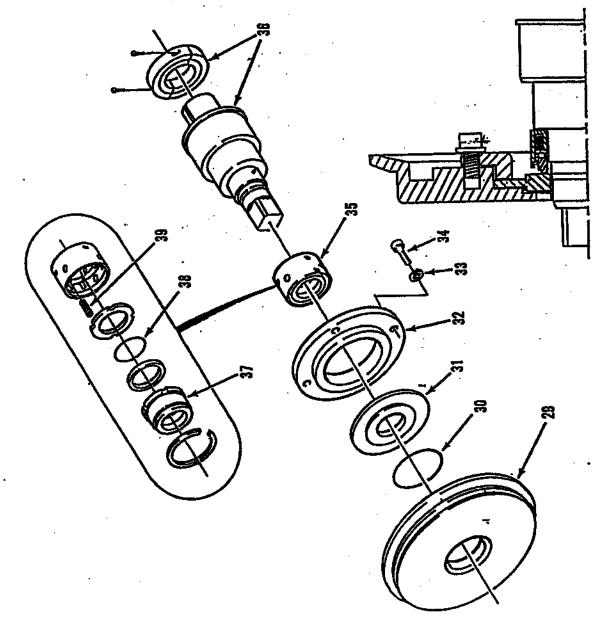
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8VS2 PART NO.		546P331198	04HP357741	***546P365567		04HP342562		**5435131324	543P221173	R42D220171	2107 7020	1000120007	200467320	•		04100400	04517410603	000000000000000000000000000000000000000	24351313UU	543P319675	543SK24141		04HP421753	546P436819		04HP410817		523V007190		521V02038B	
any		<u>.</u> _	-	-		-		-	-		-	ŀ	1			ļ	-		-	-	1		1	ļ	L	-	L	•		4	
8V <sup>2</sup> PART NO.		5467331198	04HP357741	***EARDARKER7	Daniel Brown	CAUDA/2582	UNIT CHANCE	466196191934	E490004477	211775000	043PZ39173	1000	6227542874	•			04HP410Z89		**54381313DD	643P319675	543SK24141	!	04HP421753	5462436819		CAMPA10817		***************************************		621V020386	1
ΔĽ		-	-	-	-				-		-		-				1		Į,	-	-		-	-		ŀ	<u> </u>	ŀ	1	ŀ	1
KVS PART NO.		2460450807	DHUI SKOVO	U4HT-357 74U	***546P360000		04HP339763		**543S1313Z0	543PZZ1169	·543P239169		622P339B33		•		04HP410284		**543S1313CV	5432319687	5435K24133		04110494789	EVEDING I	A PART IDEO	0,000,000	D4H741U010	AND TANKS (1800)	OSI JONASZC	9900000	921707020300
2	<u> </u>	ļ	+	-	-	1	-			-	1		-				-		-		1	-		-	-		-	ŀ	4		1
Character and	6V-PAKI NO.		546P328693	04HP357740	***546P365568		04HP339763		**5435131320	543P221169	543P239169		5222339834		•		04HP410284		1001213W	10001010000	543F318007	242274132		04HP421/02	548P435515		04HP410618		-523/007190		5217020386
į	E		-		-		-		-	-			-				ŀ	-		-		-		-	_		-		7		•
	4V" PART NO.		548P331925	04HP357739	***648P410943		04HP342288		**K43S1315	843D2211R4	8470270164	DAGE AUGUST	622P304634				9400000	04HP4102/0		**543S1313CQ	5432319662	543SK24128		04HP421761	546P436617		04HP410816		**523\007189		5217006592
	THE TOPECORDION		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	RING - Seat (cardon) (stu.)	RING - Seat (graphite - 17E) (optional)	RING - Seat (Siliconized Carpoin) (chronian)		RING - Drive		IO-RING (Nitrile) (std.) (pkg of 10)	O-RING (Vitoni*) (optional)	O-RING (EPDM) (optional)	7	10 ISPRING		11 SHAFT - Impeller		og PLATE - Back	7	CONTROL AND AND AND AND AND AND AND AND AND AND	7	Canada Andreas	O'Alive Carolina Salaria	7	31 NSGK - Seal (59) (50)	INSERT - Seal (stroop carpact) (committee)		32 RING - Insert Holder	$\Box$	33 WASHER - Lock (\$\$) (pkg of 10)	(10) 000

See the pump Options saction for customer option. ...Cerlain items are packaged in minimum quantity jots as kndicated. ...Use siliconized carbon seat ing only with silicon carbide seal insert.

Rev. 10/1/96

"V<sup>2</sup>" Series Sanitary Centrifugal Pump Models 4V², 6V², 6VS², 8V², 8VS²

Type 3 Seal





# "y2" Series Sank ;entrifugal Pump Models 4v2, 6v2, 6v2, 8v2, 8vs2

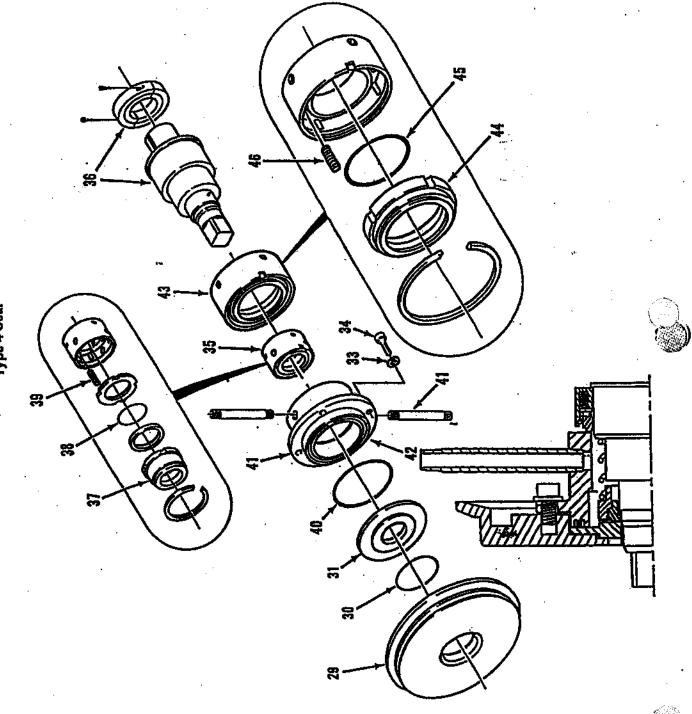
## Type 3 Seal

						City and and Service	2	RAPPART NO.	QTY	8VS <sup>2</sup> PART NO.	ğ
		AN PART NO.	OTY	6V PART NO.	È	6VS PAKI NU.	•		L		
TEM	DESCRIPTION						ŀ	04400440080	-	04HP410289	7-
		ATCOMPANION A	-	04HP410284		O4HP410284	-	משנון בוועדמ	1		
۶	PI ATE - Back	DAILY INEV						00070707	ŀ	**\$43S1313DD	-
2		Constant	-	**543S1313CV	-	**54381313CV	-	25000000	<u> </u>	4439319675	-
Ş	O.RING (Nitrille) (std.) (pkg of 10)	2435131313	-	543P319867	-	543P319687	-	2437-319073	<u> </u> -	543SK24141	-
1	C.RING (Vanna) (optional)	2437-318004	1	543SK24133	-	5438K24133	-	0430FX4141	-  -		
	O.RING (EPDM) (optional)	252574160	1					Cathorna	ŀ	04HP421753	-
		7 12 10 10 10 1	ŀ	04HP421752	-	04HP421752	-	04017471750	╬	44RP436619	
7	INSERT - Seal (ss) (std.)	0477421/01	-	546P436618	ļ	646P436618	-	2461430018	-  -		
	INSERT - Seal (sition carbide) (optional)	24044					ŀ	7100110110	<u> </u> -	04HP410617	-
		2700710110	-	04HP410818	1	04HP410618	-	U#UL# 10011	-		
ļ	BING - Insert Holder	CENTRA INC.						PARTITION AND A COLUMN	ŀ	523V007190	4
1		200000000000000000000000000000000000000	ŀ	**623/007190	4	**523\007190	•	2530001180	1		
1	WASHER - Lock (8s) (pkg of 10)	201 /MAC70					ŀ	ADDITION TO THE		5217020366	-
1		Woods in the	ŀ	621V020358	•	621\020366	•	2417042000	r   -		
	SCREW - Socket Head Cap (85)	221700004	-					2010/1907	ŀ	649SK376C	-
5		A800000	-	549SK376B	+	5485K376B	-	SASSISSISSISSISSISSISSISSISSISSISSISSISS	1		
35	SEAL - Mechanical (John Crane")	COLOR DE LA COLOR				•		•	-	•	
	Г	•		•	1						
38	SHAFT - Impeller				ŀ	6409K377B	-	5495K377C		549SK377C	
		549SK377A	-	5498K377B	-						1
31	SEAL - Carbon				ŀ	**********	-	**5435131327	1	543\$131327	-
	W. S	64381317	-	6435131323	+	1100001(72	-	643P221176	1	543P221176	-
38	П	543P221166	+	5439721172	<u> </u>	X44B236172	-	643P239176	-	543P23917B	-
L	O-RING (VIROLT) (ODDONE)	543P239116	-	543FZ39172	-	21000			_		-
	O-RING (EPDM) (optional)		  -	CONTRACTOR	*	8228K579D	8	-8228K679D	8	-622SK579D	8
	٦ì	**6228K579A	-	2000000							
8	SPRING (pred of 19)					•					

"See the pump Options section for customer option." "Certain items are indicated."

"V<sup>2</sup>" Series Sanitary Centrifugal Pump Models 4V<sup>2</sup>, 6V<sup>2</sup>, 6VS<sup>2</sup>, 8V<sup>2</sup>, 8VS<sup>2</sup>

Type 4 Seal



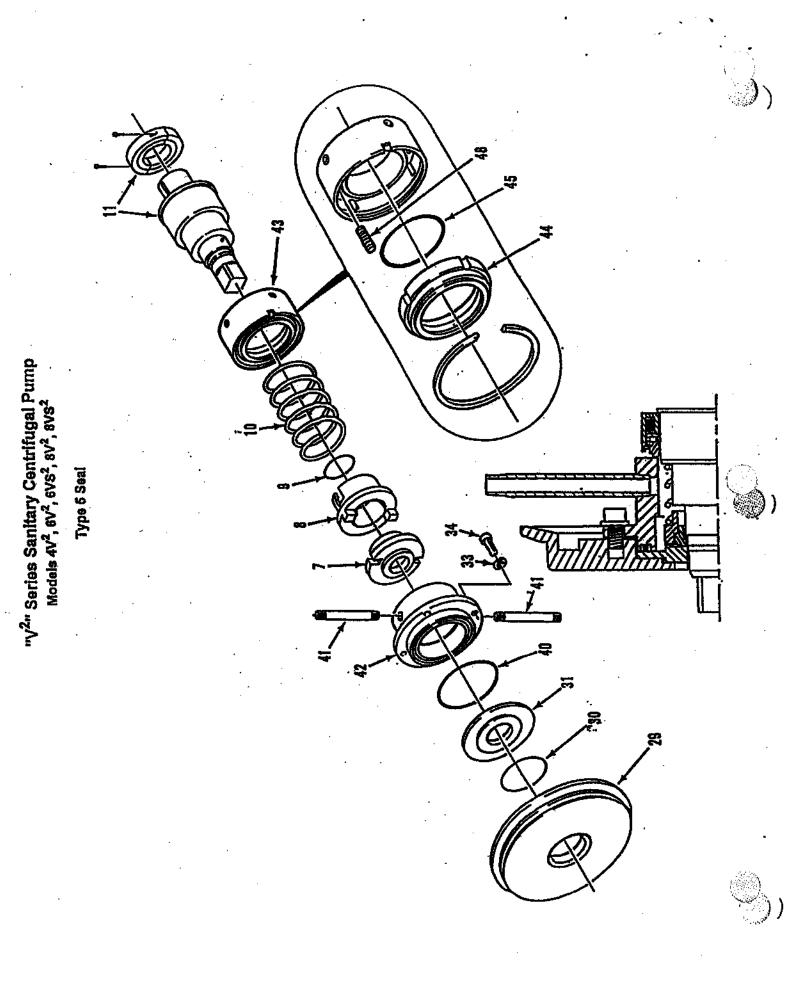


# "V<sup>2</sup>" Series San sentrifugal Pump Models 4V<sup>2</sup>, 6V<sup>2</sup>, ovS<sup>2</sup>, 8V<sup>2</sup>, 8VS<sup>2</sup>

## Type 4 Seal

		3	CIA DADT NO	70	EVS PART NO.	ΔĪ	8V2 PART NO.	Дď	8VS2 PART NO.	OΠΥ
I TEM IDESCRIPTION	4V* PART NO.	5	מא נאטו ואסי	1						
	64110440078	-	04HP410284	-	04HP410284	1	04HP410289	-	04HP410289	-
29 PLATE - Back	U4FIF410210	-								Ţ
1	000000000000000000000000000000000000000	-	**54391313CV		**543S1313CV	1	**543S1313DD		UUSISISIS	- .
30 O.RING (Nitrile) (std.) (pkg of 10)	-5435131300		543D319867	-	543P319667	-	543P319675	-	543P319675	-
7	5437319662	-	543SK24133	-	543SK24133	-	543SK24141	-	543SK24141	~
O-RING (EPDM) (optional)	0435N24120	-						ŀ	411010100	ŀ
	64UD494784	-	04HP421752	-	04HP421752	-	04HP421753	-	U4717421733	-
31 INSERT - Seal (ss) (std.)	648D438817	-	546P436618	-	546P436618	-	546P436519	-	2401430013	-
INSERT - Sea (sacon carolde) (optorial)	100						0075001		001/00/100	-
A 111 ELED - 1 APR (44) (9kg of 10)	623V007189	4	**623V007180	4	**623V007190		043 VOO VE 20	1		
33 WASHEN THE WASHEN THE			9000000	ŀ	A24VO203RR	ļ	5217020366	4	521V020366	4
14 SCREW Sockel Head Cap (ss)	521/00/8892	4	000070ALZ9	•	242242					
П	£408K378A	-	649SK378B	-	649SK378B		\$498K376C	-	549SK376C	
35 (SEAL - Mechanical (John Crane")	2.000.00						•		•	
┪			•	_		1				
36 SHAFT - Impand			00000000	ļ.	5409K377B	ŀ	649SK377C	-	549SK377C	-
37 SEAL (carbon)	548SK377A	-	549SK3//B	1						
Т		ŀ	**********	-	**5438131323	-	**643S131222	-	**543S131327	-
Se Con River (Altries) (std.) (pkg of 10)	**\$438131212	<u> </u>	54355151415	<del> </del> -	543P221172	-	543P221176	1	543P221176	-
O. RING (Vilonin) (optional)	543P221166	<u> </u>	6410730177	-	543P239172	-	\$43P239176	-	543P239176	-
O.RING (EPDM) (aptional)	543P239166	-	21.007.000						4	
	**************************************	\ -	**8228K579D	8	**622SK579D	8	**8228K579D		**6225K579U	,
39 SPRING (pkg of 10)	DE TOURS	ļ				<u> </u>	077 707 007	ŀ	00540040440	-
Г	Metabolo2007	-	**5435131407	-	**543\$131407	-	**543S131410	-	2432131410	
40 O-RING (Nitrile) (std.) (pkg of 10)	2422(2)304	<u> </u> -	543P284707	-	543P284707	-	543P284710	-	5437284710	-
O-RING (Vitonity) (optional)	643F31507	-	543P239334	V	543P239334	-	643P239337	-	543723337	-
O-RING (EPDM) (optional)		_					100000		5877/030844	ŀ
	5870000089	2	567/005511	2	567/005511	7	CL9070A/99	1	1 100704 /00	•
41 NIPPLE										-
Control Mater Seal		_	2	<u> </u>	0400404755	ŀ	04HP421758	-  -	04HP421756	-
١_	04HP421754	1	04HP4Z1/55	-	04HD41B337	-	04HP416338	-	04HP415338	1
Chrome Oxide, Coated (optional)	04HP416336	4	U411418551	-						
	EAGENATER	ŀ	549SK378B	-	549SK378B	+	549SK378C	-	5495K378C	
43 SEAL - Mechanical (John Grane")	Colonia	1						ŀ		ŀ
	A405K379A	-	549SK379B	-	549SK379B	-	549SK379C	-	549SK379C	-
44 SEAL - Carbon	T AND AND AND AND AND AND AND AND AND AND	-				4		<u> </u>	100,000,000	
	***************************************	-	**5438131404	_	**6435131404	-	**543S13140B	-	5435131408	].
45 O-RING (Nitrile) (std.) (pkg. 10)	COCKACCO	<u> </u> -	543P284704	-	5439284704	-	543P284708	-	5437284/08	
Ī	6439239329	-	543P239331	-	643P239331	-	543P239335	-	543FZ39335	-
O-RING (EPOM) (optional)		-					Ovenvoces	ŀ	************	ŀ
7	**622SK579B	4	**622SK579C	<u>-</u>	**822SK679C	٥	CR/GVC770	-	027010130	
45 SPRING (pxg or ro)	}									

\*See the pump Options section for customer option. \*\*Certain items are packaged in minimum quantity lots as indicated.



# "V2" Series Sant Sentrifugal Pump Models 4V2, 6V ... /S2, 8V2, 8VS2

## Type 5 Seal

ē	-	-	-		-	]			-	]				-		-	-	-		-	-	-	\  -		-	1	-	-  -			7			-	- -	
8VS <sup>2</sup> PART NO.	546P331198	04HP357741	546P365567		04HP342562		**543S131324	643P221173	543P239173		622P342B24			04HP410289		**************************************	243034087K	E43CK34141		K4120424753	040144646	240r423013	007EVW 1802-1	023V00V180	22600001000	0000700170	***************************************	543P284710	5435239337		587/020611			04HP421756	MHP416338	
ĹΒ	-	-	-		-		1	-	-		-	1		ŀ	1	ŀ	-	-		ŀ		-		•		4	•	<u> </u> -	-		ŀ	-		1	+	İ
8V2 PART NO.	6450924408	040F331 190	**************************************		04HP342562		**543S131324	643P221173	643P239173		672P342824		•	040000	04HP41U209		**543S1313DD	543P319675	5435K24141		04HP421753	5469436819	.	523V007190		5217020366		5438131410	24372047	20007 1000	4670,000,000	1 20774 100		04HP421756	04HP416338	
Σb	†	+	<del> </del>	+	-	1	<del> </del>	-	†	1	-				-	٦	Ţ	-			•	-		1		4		-	-	-	1	2		-	<u> </u>	
EVS PART NO.		546P329693	04HP357740	***546P365560	Colored	04H7339/03	0001010101	0201010000	D437-241103	5431/239109	A92P338633		•		04HP410284		** 64381313CV	543P319687	643SK24133		04HP421752	548PA36818		**\$23\\007190		521\020366		943S131407 ·	543P284707	5432239334		567V005611		A411049474R	04F144170	WIN THEFT
QTY		1	-	-	1	+	1	-	-	+	\\\\-\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	†	$\dagger$		<del> </del>		ŀ	+	ŀ	+	ŀ	-	1	•	†	•		-	-	-		2		ŀ	-	
EV2 PART NO.	H	548P329693	04HP357740	***546P36556		04HP339763		**5438131320	543P221169	643P239169		6222338A4			AAL10430784	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10010101	10001000	2437-318007	5438K24135	411111111111111111111111111111111111111	04FFP421754	5467436610	200000000000000000000000000000000000000	-523V00/190	Cost monzea	CONTRACTOR OF THE PARTY OF THE	*********	543P284707	CA70739534		587V006511			04HP421755	04HP416337
200	<del> </del>	<del> </del>	-	-		-		-	-	-		-			ŀ	-		-	-	-		-	-		*		1	ŀ	-	-	1	ŀ		_	7	
	4V* PART NO.	3 CONCOUNT	5467-331843	570U57007	200141040	04HP342268		PK442(31316	6420201164	K439239164		622P304634				04HP410278		**543\$1313CQ	543P319682	543SK241-28		04HP421751	548P436817		623V007189		5210006692		543S1313CZ	54373180/1	2430041101	Sem Whenes	EBNOWN/9G		04HP421754	· 04HP416338
	NOLLdia Coac		BING - Seat (carbon) (std.)	RING - Sent (graphite - TFE) (optional)	BING - Seat (smconized carbon) (optional)		RING - Drive		C O.RING (Nitrite) (std.) (pkg of 10)	l	O-RING (EPDM) (optional)		10 SPRING	1	יין ואנארן יינויסקוואי ועלוגין וי	7	29 PLATE - Back	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	30 O.RING (Ninie) (Sto.) (phy of 12)		O.RING (EPUM) (optionally		31 INSERT - Seat (88) (800.)	INSERT - Seal (asicon Cardida) (vpusting)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	33 WASHER - LOCK (\$4) 10Mg W. 15)	Contact Head Cap (55)	34 SCREW - SUCKELLISTE	County (Naviga) (sid.) (pkg of 10)	(leuopao) ("Lucivo Collo O	PING (EPOM) (aptional)		NIPPLE	ì	A2   CHAMBER - Water Seal	Stainless Steel (std.) Chome Oxide, Costed (optional)

See the pump Options section for customer option.

"Censin items are packaged in minimum quantity lots as indicated.

"Use sticonized carbon seat ring only with sticon carbide seat insert.

Rev. 10/1/96

## "V<sup>2</sup>" Series Sanitary Centrifugal Pump Models 4V<sup>2</sup>, 6V<sup>2</sup>, 6VS<sup>2</sup>, 8V<sup>2</sup>, 8VS<sup>2</sup>

#### Type 5 Seal

			ļ								
THE PARTY	NOTIFICATION NOTIFICATION	4V2 PART NO.	Ę	6V* PART NO.	σ	6VS* PART NO.	an'	BY PART NO.	ă	BYS-PART NO.	ă
	SEAL Machaginal (John Cranalit)	549SK378A	-	549SK378B	-	549SK378B		549SK378C	1	548SK378C	1
<u></u>	SCAL - MECINICAL COMIT CAME .										
_		**F409K370A	-	**5495K379B	-	**549SK379B	-	**549SK379C	-	**549SK379C	-
4	44 SEAL - Ullipon	2000000	<u> </u>								
	The factor of the first of the factor of the	**************************************	•	**8438131404	-	**6438131404	-	**5435131408	-	**5435131408	-
=	45 O-RING (Name) (std.) (prg of 10)	20100 CTC	ŀ	K440284704		543P284704	-	543P284708	-	543P264708	-
	O-Ring (Vitonia) (optional)	K435240420	-	120524579	-	643P239331	-	643P239335	-	543P238335	_
	O-KING (EPUM) (appoint)	2400000	<u> </u>			•					
٩	COSING John of 101	**8228K579B	-	**6228K679C	0	**822SK579C	9	**6228K679D	4	**6228K579D	4
و	ייין ייין אינון - אינון אינון										

See the pump Options section for customer option.
"Certain items are packaged in minimum quantity tots as indicated,
"Use saiconized carbon seat ring only with sifton carbide seal insert.





"y<sup>2</sup>" Series Industrial Centrifugal Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup> STANDARD

"y2" Series Induc Centrifugal Pump Models 14V2, 16V , ... vs², 18V², 18vs²

### STANDARD

any	-   -	-		-	-	-		1		7	-	1					ŀ		-	2	
18VS <sup>2</sup> PART NO.	*04HP414265	727P411443	•643\$131305	*04HP356777	*04HP138168			04HP242581	YX.	727P342780	727P339252						******	04HP337263	727P342762	525P119915	
μb		-	٦	1	-			ŀ		-	-			1			ļ	*	-	2	ı
18V PART NO.	*NAAP414257	727P411443	*6435131305	807936HM	*04HP188168	•		AAUD049494	N/A	727P342760	727P339252				•			**643P119914	TOTAL 22 12 2	**525P119815	
AT O	1.	-		-						\ \	-							7	-	- ~	
16V3 PART NO.	00000	T04XP462330	(2([4:1]4]	OCCUPATION OF		*	•	•	•	W.W.	7272338707	(KI Postor						643P119914	04HP337263	727P339709	2000
σπ		-	-	1	-						-	1						~	-	-	1
15V PART NO.		*04HP414249	727P411443	*543\$131305	*04HP356516	-04HF100018	•		•	W.A	727P339707	727P339252				•		44449440042	04HP337263	727P339709	525P119915
علم		-	-	1	-	-	-	-			-	-				•		ŀ	+	<u>-</u>	7
And Date of MO	14V FAN 1100	*04HP414245	727P411442	*543\$131305	*04HP356645	-04HP189082	•			Aga	7779347248	727P339262				,			**643P119914	04HP33(203 727P342248	1 1001K
					Zeili leneth)	Tion to the last					( note below)		1	6	(6)	6	Cap (zinc plated)		9		
	DESCRIPTION		CASING - Industrial Pump	PiN	O-RING	MPELLEK - IRRUBIUM 1981 1982 1982 1982 1982 1982 1982 1982	SHAFT - Impeller	GUARD	ADAPTER	SLINGER - OF	MOTOR (see MOTOR note below)	RING - Chmp	NUT - WING	(See OP I TON Hall Fra	(See OF TOTAL MEN. #49)	(see OPTION Rem #49)	SCREW - Hex Head Cap (zinc plated)	(see OPTION Kell #45)	(See Of 104 (Mile of 10)	PIN - Pivot	DING Clamb
	ITEM	-	-	2	٦	T	-	5	Ţ	Tï	15	18	17	2	6	3 2	22	2	7	26 23	ŗ

MOTOR: When ordering a motor or motor parts, specify the complete motor nameplate information. See the pump Options section for customer option. ••Centain items are precised in minimum quantity for as indicated.

### "V<sup>2</sup>" Series Industrial Centrifugal Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS

-		4AA BADT NO	È	16V* PART NO.		16VS-PART NO.	ar	18V PARI NO.	2	18YS FARI NO.	3
TEM DE	ITEM DESCRIPTION	יאן ראוין וועל									
1	10 10 10 10 10 10 10 10 10 10 10 10 10 1		T			NA.	_				
<u>5</u>	CASING - 1-1/2 IN, INDI X 1 1-1/2 CUINCE	04UD444244	-	¥N.		AN.		N/A		N/A	
	But Weld	044044040	+	ΨŽ		W.W	-	Z/A		NA NA	
	Bevel Seat	OHATA 14246	+	MA		YN N		¥		N/A	
Ĺ	Tri Clamp	0462414243	<u></u>		Ţ	N. N.		N/A		AN.	
	APC:PV	04AP414244	+	45			†	N/A		N/N	
	APC Clamp	04AP414245	-	¥			1	N/A		AW	
<u> </u>	APV SP (ISS)	04AP414248	-	≨.		S.	†			AVA	
<u>`</u> [`	There's	04AP414247	1	N.A	-	¥N.		NA.		500	
	Pipe Lineag	04AP414248	-	A/A		N/A		¥N		N/A	·
- ;   	Figure 41 felt a 4 A D la Cutter										
<u></u>	CASING - 2 In met x 1-1/2 in Course	AW		04HP414249	-	N/A		N/A		Y/N	
~[	Buff Weid	W/N	<del> </del>	04AP414250	-	N/A		MA		Ϋ́χ	
	Bevel Seat		<b>†</b>	NAPA12281	-	¥		N/A	•	NA	
	Tri Clamp	Ş	†	044644287	-	¥		¥№	L	N/N	
Ĺ	4PC-PV	W.A.	1	2027-1-2020	<u>.</u>	N/A		AN		¥N	
L	APC Clamp	ΥX	1	0474414233		VIII		A/A		¥.	
L	APV SP (ISS)	W.A	1	0492414234	-		<u> </u>	YEN.		N/A	
<u> </u>	Dina Thread	¥₹		04AP414255	-	ξ <u>ε</u>	1	VAL		AIA	
	FISSOR	N/A		04AP414258	-	N/A	Ţ	NA.		CAL	
2	CASING - 2-1/2 lp. Inlet x 1-1/2 in. Outlet				-	****	1	VIN		A/N	
	Buth Welf	N/A		04HP414882		\$	1	VA.		N/A	
Ι	David Sast	AW		04AP414993		A/A	1	5		C 4/1	
<u>T</u>	OUTE See	¥×		04AP414994		Y.N	_	YW.		5	
1	in Clamb	¥%		04AP414995	-	<b>ĕ</b>		W.		S.	
1	Arc.r.	¥X		04AP41499B	-	¥¥		WA		ΨN	
]	Arc camp	¥×		04AP414997	Į	NA		NA NA		¥ž	
]	APV SP (155)	¥¥		04AP414998	1	N/A		¥		<b>S</b>	
<u> </u>	ripe intexa	¥≥		04AP414999	-	NA		XX	_	¥2	
	CACING 19 In Intel v 2 In Outlet								ļ	2007 11 12 11 12	ŀ
<b>3</b> [	Dust taled	ΥZ		MA		04HP452338		04AP41425/	-	0417414265	-
1	Sun view	AIA		¥N		04HP452339	-	04AP414258	-	04AP414266	
1	Bevel Seat	N/A		ΑΝ		04HP452341		04AP414259	1	04AP414267	-
	Tri Clamp	N. N.		MA MA		04HP452340	1 1	04AP414280	-	04AP414268	-
1	APC-PV	N/A		¥		04HP452344	1	-	-	04AP414269	-
_]	APC Clemp	W.W.		N/A				04AP414282	1	04AP414270	-
1	APV SP ((SS)	A/N		Ž		04HP452345 §	1.11 1/1		1 1	04AP414271	-
_[	Pipe Thread			N/A	_	04HP452348	-			04AP414272	•
		52		100							



### "V2" SERIES INDUSTRIAL CENTRIFUGAL PUMP Models 14V2, 16V2, 16VS2, 18V2, 18VS2

1

						- * - 1 Garage	5		L		
ITEM	DESCRIPTION	14V2 PART NO.	απ	16V2 PART NO.	TT	14V2 PART NO. GTY 16V2 PART NO. GTY 16VS2 PART NO. GTY 18V2 PART NO. GTY 18VS2 PART NO.	QI,	18V² PART NO.	a∓	18VS <sup>2</sup> PART NO.	ФТY
			-	44E 42042420E	ŀ	**E4381315	-	**543S131305	-	**5435131305	,
3	O-RING (Nitrile) (std.) (pkg of 10)	**5435131305	-	045015150	-	240000454	-	543D221154	-	543P221154	-
	O-RING (Viton 14) (optional)	543P221154	-	543PZZ1154		PC1127-CC12	-,	5430230154	┢	543P239154	-
	O-RING (EPDM) (optional)	543P239154	-	5431-239154		PHOTOS CAN	-				
4		04HP356950	۳	<b>S</b> N		NA		Y/V	_	¥Ž.	
	2-1/2 m.	04HP369B49	-	¥X		WA		Y/V	_	¥2	
	2-34 m.	NAMPREMAR	-	¥		N/A		ĕ	4	Υ <u>ν</u>	
	3 in.	MHP358847	-	04HP383287	-	N/A		N/A		Y/N	
	3-1/4 in.	OALIDS FOR AR		04HP356524	-	AW		ΝΆ		¥N.	Ţ
	3-1/2 m.	N/A	ŀ	04HP356525	-	N/A		Y/N	_	≨ Ž	Ţ
	3-314 in.	NALIDOAEBRAE	ŀ	¥ž	L	ΥN		N/A		¥	Ţ
	3-13/16 ln.	MIN AND	1	04HP356523	<u> -</u>	AN N		N/A		ΥN	
	4 in.	VAL.		0.4HP35A522	-	04HP452244	-	ΑN		¥.	
	4-1/4 m.	2		CAUDAGECH	-	04HP452243	-	٧×		N/A	
	4-1/2 in.	<b>V</b> 2		OAHP245420	-	04HP452242	*	N/A		N/A	
	4-3/4 in.	VΣ.		CALD SERVICE	<u> </u> -	04HP452241	-	04HP356719	1	NA.	
	5in.	£ 5	1	NALIPS COSTIB	┢	04HP452240	-	04HP356718	÷.	N/A	
	5-1/4 in.	¥2.		MUDS/66/17	┢	04HP452239	-	04HP356717	-	N/A	
	5-1/2 h.	¥2	1	WALL WALL	-	ΑΝ	L	04HP356716	-	04HP356785	-
	5-3/4 in.	YN.	1	AAUDSESTR	*	04HP45223B	Ŀ	¥2	_	N/A	
	5-13/16 in.	¥2	1		1	N/A	L	04HP356715	-	04HP358784	1
	6 tr.	YN.	1	VIV	1	¥N.	L	04HP356714	-	04HP356783	-
	6-1/4 in.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1	N/A		Š	L	04HP356713	1	04HP356782	-
	6-1/2 in.	VIII	_	YN.	_	¥	Ŀ	04HP356712	1	04HP356781	
	6-3/4 m.	A/N	1	M/A	Ļ	Y/N		04HP356711		04HP356780	1
	7 in	A N	Ļ	¥	_	٧×		04HP356710	<u>" </u>	04HP356779	<u>-</u>
<del></del>	7-1/4 m.	\$ P	1	Α'n	ļ	¥%	L	04HP356709	-	04HP356778	-
	7-1/2 in.	VALUE OF THE PARTY	1	YN.	_	ΥN	L	04HP35670B	-	04HP356777	-
	7-13/16 in.	- L	_					,			
	()44-) (-B-814) L. J. (1994)	1 0AHP189087	-	04HP189619	F	04HP188619	-	04HP188168	_	04HP188168	-
in.	GASKEL - Breaded (Niune) (sw.)	RAPORCALIA	-	04HPZ37713	-	04HP237713	+	04HP261188		04HP261188	- -
	GASKET (Vitor ) (optional)	CALIDA 4 BARD	-	D4HP419403	-	04HP419403	-	04HP406466	<u>-</u>	04HP406466	٠
	GASKET (EPUM) (opportui)	1 21.									

\*See the Pump Options section for customer option. \*\*Certain items are packaged in minimum quantity lots as indicated.

### "V2" SERIES INDUSTRIAL CENTRIFUGAL PUMP Models 14V2, 16V2, 16VS2, 18V2, 18VS

					-						
ITEM	DESCRIPTION	14V2 PART NO.	E	QTY 16V2 PART NO. Q	7	6VS <sup>2</sup> PART NO.	TT.	isy² PART NO.	aTY	QTY 16VS PART NO. QTY 18V PART NO. QTY 18VS PART NO.	ΔŢ
	- 16										
11	SHAFT - Impeller (Type 1, 2 or 5 seat)	Lange of the Lange		A/M		¥		NA		MA	
	586C (5/8 in.)	U4AP-414U22	- -	MAPA14042	†-	04AP414042	-	ΥN		ΑN	
	M56C (5/8 in.)	040-414022	- -	NVA	†	  ≱	Г	A/A		N/A	
	K56C (5/8 h.)	D4AP414U22	- -	244544044	<b>†</b>	D4AP414044	-	04AP414072	1	N/A:	
	143TC (7/8 lh.)	04AP414UZ4	-Ţ	044044044		04AP414044	-	04AP414072	1	04AP414132	-
	145TC (78 in.)	04AP414024	-	0447414044	- -	DAAP414047	,-	04AP414075	+	04AP414135	-
	182TC & 184TC (1-1/8 in.)	¥¥	1	USAP-4-14045	<b>†</b> ,	DANA PACA AO	-	04AP414077	-	04AP414137	-
	2/3TC (1-3/8 in.)	ΥN	1	04AP414049	1,	CAPA14049	-	04AP414077	<u> -</u>	N/A	
	245TC (1-3/8 in.)	Ν̈́Α	7	048-414043	†	OAADAROR50	Ţ	04AP414079	-	N/A	
	254TC (1-5/8 in.)	Υ'N	1	YN .	†	CAADARO850		04AP414079	-	04AP414139	-
	255TC (1-5/8 lh.)	N/A	7	¥.	1	CAADAGORSO	T	04AP411986	-	04AP414142	1
	284TSC & 286TSC (1-5/8 in.)	ΥN		¥.	†	AVA AVAN	Ţ	<b>4</b> 2		04AP414144	1
	324TSC & 326TSC (1-7/8 m.)	N/A		¥≱	1	<b>VA</b>					
\$	NOVI CONTRACT		İ		ļ	1000000 TI 170	Ţ	A/M	_	ΔN	
<u>7</u>	OUTUS CONTRACTOR	V/N		04HP488330	-	CATIF ACUSON		SCEOSYGE IN	-	¥	
	Cherry	N/A		04HP469330	-	04HP469330	- -	OALIDAE033B	<u> </u> -	04HP469336	-
	2176	AN N		04HP489330	-	D4HP468330		0411408500	<u> </u>	OAHDARGGGS	-
	14510	A/N		04HP469333	-	04HP469333	_	UAHP-408533	<u> </u>	ACCOUNT TO THE	<u> </u>
	1821C & 1841C	V/V		04HP469333	-	04HP469333	-	04HP469335	<u>-</u> }	CATTAGGGGG	-
	213TC	VIX.	I	O4HP469333	-	04HP469333	ĺ	04HP469335	۲-	<b>ΑΝ</b>	_
	215TC	MICA	1	N/A		04HP489331	ļ	04HP469335	_	ΝΑ	ŀ
	254TC	Y.		VIV		D4HP469331	-	04HP469335	-	04HP469335	-
	256TC	¥.		V V		04HP469331	-	04HP468335	1	04HP469334	-
	284TSC & 286TSC	¥.		5 5		04HP489331	Ŀ	¥N		N/A	_
	3241SC & 3261SC	¥2		T VNI							
_					ĺ						
13	ADAPTER	8714		1 AMP440288	-	¥N.	L	Y/N	_	A/A	-
	M56C	V2	1	04HD410288	-	¥N.	L	04HP410290	<u>-</u>	<b>ĕ</b>	-
	143TC	¥.	1	OVHD440288	-	04HP410288	<u> -</u>	04HP410290	1	04HP410290	<u>-</u> }
<del></del> -	145TC	ŠĮ.	$\downarrow$	04UD440087	-	04HP410287	Ŀ	04HP410291	Ψ-	04HP410231	-  -
	182TC & 184TC	¥×	1	UNIT *10207	· •	CAUDA40087	-	04HP410291	-	04HP410291	-
	243TC	ΑN	_	04HP410287	- -	79CUP440287	┝	04HP410291	_	NA	_
	21510	NA	_	04HP41028/	1	O4TIP 4 1020/	1	04HP410291		N/A	 
	SEATO	N/A	_	¥.Z		0401-400002	1	04HP410291	_	04HP410291	<del>-</del>
_	CLEGE	N/A		W/A		U4HP40U002	<u> </u>	MUD440270		04HP410370	-
	COLOCAL POETSC	¥N	_	N/A		04HP45ZZZ8	-	274 TES	;	0AHP410371	F
	28415U & 20010U	YN.	Ľ	N/A		MΑ	╝	Y/A	$\blacksquare$	1 741 11 11001	
	724150 @ 320150					-					
				The second second							

"y²" Series Indust sentrifugal Pump Models 14v², 16v\*

					Civita Constitution	200	48V2 PART NO.	ΣLO	18VS <sup>2</sup> PART NO.	ΩTΥ
1	NOILe do sa contrata de la contrata del contrata de la contrata del contrata de la contrata del contrata del contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata de la contrata del contrata del contrata de la contrata de la contrata de la contrata del contrata de la contrata del co	14V* PART NO. QTY	16V* PART NO.	ē	16VS-PAKI NO.	-				
E I	חמסטון וופני									
					AVA	$\mid$	¥		ΝA	
7	SUNGER OF	1 04HP288836	YZ.		CAL	+	NA		≨	
	2 <u>9</u> 5	04HD28838 1	04HP288838	-	¥.	+	Alk		≨	
	MS6C	000000000000000000000000000000000000000	W/N	_	Y.	1	581	ŀ	Alla	
	7680	+	103010601	-	¥N.		04HP242591	-	2000	],
	Cock.	04HP242591 1	045117446331	-	04HP242591	-	04HP242591		04HPZ4Z531	-
		04HP242591 1	180747JH40	<u>.</u>				_		
	1451C			1		-		Ļ		
	Contract of the second						WN N		XX	
22	SCREW - Hex Head Cap Izard placed	WW.	522V008752	<u>*</u>	CAN .	1	K974/MOR7K2		¥N.	
	M56C	NA	5220006762	*	ψ <sub>ν</sub>	†	CACH MORTE?	-	622V006752	4
	143TC		622V008752	*	622V006762	*	20 1000 A 770	<u> </u>	522/006788	4
	44KTC	VIV	2224MORTER	•	622/006788	*	00/000XXX	ŀ	8818041668	
	1200 0 10	YN.		ŀ	6220006788	*	622/006788	1	227000722	
	1021 0 104 0	¥₹	02/2VW0/90	<u> </u>	ROWWING TRR	1	622/006788	*	¥Ž	
	213TC		522V006788	-	001000000000000000000000000000000000000		522V006788	4	AN.	
	215TC	N/A	<b>₹</b> 2		DZZVUUGIEG	†	E27VOOR788	4	522/006788	4
	254TC		A/N		522VUUS/86	†	ENTANGO 288	-	522/006788	4
_	256TC		¥N.		622V00678B	┪	244 VOOL 00	1	522/006816	4
	284TSC & 286TSC	- Visit	AN A		Y.A	1	SE SE	ļ		
	324TSC & 326TSC	N/A				1		1		
ŀ	Colland Jacobiler (Tune 3 or 4 Seal)			-	N/A		¥ <sub>N</sub>			
۾		04HP414026 1	CAN	ŀ	N/A		¥		¥	Ţ
	56C (5/8 lh.)	04HP414026 1	04HP414051	-	N/W		¥2		AN.	
_	M56C (5/8 In.)	04HP414026	YN.	-			0xHP414064	-	¥¥.	
	K56C (5/8 th.)	04HP414027 1	04HP414052	-	YN I			_		
	143TC (7/8 ln.)			-						
	Canal Canal			ŀ	04119444019	-	04HPA14084	-	04HP414146	-
36	SHAFT - Impeller (1706 - 01 - SERI)	04HP414027 1	04HP414062	- -	4004141U40	-	AND414088	-	04HP414148	1
	145TC (7/8 ln.)	¥/N	04HP414054	-	CALPAGOGE	1	04HD414087	-	04HP414149	1
	182TC & 184TC (1-1/8 ln.)	¥/N	04HP414055	-	04HP460666		04UD444087	-	×	
	213TC (1-3/8 ln.)	W/P	04HP414059	-	04HP46088B	1	0444400	ŀ	Į.	
	215TC (1-3/8 in.)	WIT	<b>₹</b> 2	  -	04HP452224		9947777	ľ	04HD444150	-
	254TC (1-5/8 ln.)	Car	AN E	L	04HP462224	-	GATTA14058	<u> </u>	0417044460	
	348TC (4.6/8 lb.)	C <sub>N</sub>	l	-	VAHP462224	1	04HP414090	-	72141415	<b> </b> ,
	1.5/5 (1.5/6 ).	W.V	CSX	+	ž		MA	_	04HP414193	-
	15 47 17 OF 100 PO PO PO PO PO PO PO PO PO PO PO PO PO	\S	\$ 1					r		
_	32418C & 32013W 1"(10 #10)									

### "V<sup>2</sup>" Series Industrial Centrifugal Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

					Character Service	2	ANY DADT NO	OTV	48VS2 PART NO	2
	44V PART NO.	<u>}</u>	16V* PART NO.	Ž	16VS-PARING.		10Y FAN NO.	;	200	┿
TEM DESCRIPTION		1						•		]
The Contract Assembly Kit							- NIA		4/14	
A/ LEG County County In	CANADA 18275	•	04WP416276	-	SZ.		MA		5	
2995	U411-410219	ŀ	OCCUPACION O		N/A		AN		¥Z	_
	O4WP416275	-	UNIVER 10210	-	1,41				4364	
Cocw	A44044077E	-	04WP416278	-	≨		MA		N/A	
KS&C	משנגנים ומענים	-	040044000	-	A/N		04WP416279	-	04WP416279	<del>-</del>
CTCYC	04WP416275	1	UNITED TOOLS		100		CHANGARA	-	AMANA416270	-
	ATTENTON A		04MP416278	-	04WP416276		U444F410278	-	8 / 70 I h J A A F O	
145TC	C/9014-Jahn		CANONA 4 0 0 7 7	ļ	C4WP418277		04WP416280	-	04WP416280	+
182TC & 184TC	Y.V		O4777-104.11		4200 F C C C C C C C C C C C C C C C C C C		CANADA1ROR1	-	04WP416281	F
	Y/N	_	04WP416278	-	O477F410270		100011-11000			ļ
21370			AAAAA4407A	•	04WP416278		04WP416281	1	D4WP415281	-
215TC	ΥN.		2111111		AND CANADA		04WP416282	-	04WP416282	-
TE SECTION	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		CW.		1000 11010		CACALICIANO		A4WD418282	-
	N/M	_	<b>≨</b>	_	04WP-4/2504	1	7070141440		1010	
258TC			VAV		04WP475505		04WP452078	-	04WP452078	1
284TSC & 286TSC	¥≱				N/A		¥%		04WP452079	·-
234TEC 1 238TSC	¥X		N/A		5					
324130 0 420100										





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"V<sup>2</sup>" Series Industrial Centrifugai Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup> Type 1 Seal









### "V2" SERIES INDUSTRIAL CENTRIFUGAL PUMP Models 14V2, 16V2, 16VS2, 18V2, 18VS2

### Type 1 Seal

			ľ				r				
ITEM	DESCRIPTION	14V2 PART NO.	QIT	16V² PART NO.	F	PART NO. GITY 16V2 PART NO. GITY 16VS PART NO. GITY 18V2 PART NO. GITY 18VS PART NO. GITY	) L	IBV* PART NO.	αтх	IBVS <sup>2</sup> PART NO.	αīγ
9	PLATE - Back	04HP410292	-	04HP401852	-	04HP401852		04HP401823	1	04HP401823	-
_	RING - Seat (carbon) std.) RING - Seat (graphite - TFE) (optional)	548P331925 04HP357739		546P328693 04HP357740		548P329693 04HP357740	<b>.</b>	546P331198 04HP357741	*-	546P331198 04HP357741	. 4-4-
•	RING - Drive	727P331926	-	727P337679	-	727P337679	-	727P331199	-	727P331199	1
G G	O-RING - (Nitrite) (std.) (pkg of 10) O-RING - (Viton <sup>TM</sup> ) (optional)	**543S131315 543P221164 5438K24210	*	**543S131320 543P221169 543P239169	***	**543S131320 543P221169 543P239168		**5438131324 543P221173 543P239173	+	**543S131324 543P221173 543P238173	
9	SPRING	04HP149543	-	04HP339834		672P339833	-	04HP342824	-	04HP342824	-
=	SHAFT - Impeller		<u> </u>	•		•		•		•	

\*See the Pump Options section for customer option. \*\*Certain items are packaged in minimum quantity lots as indicated.

"y<sup>2</sup>" Series Industrial Centrifugal Pump Models 14v<sup>2</sup>, 16v<sup>2</sup>, 16vs<sup>2</sup>, 18v<sup>2</sup>, 18vs<sup>2</sup> Type 2 Seal

### "V" SERIES INDUSTRIAL CENTRIFUGAL PUMP Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

A CONTRACTOR

### Type 2 Seal

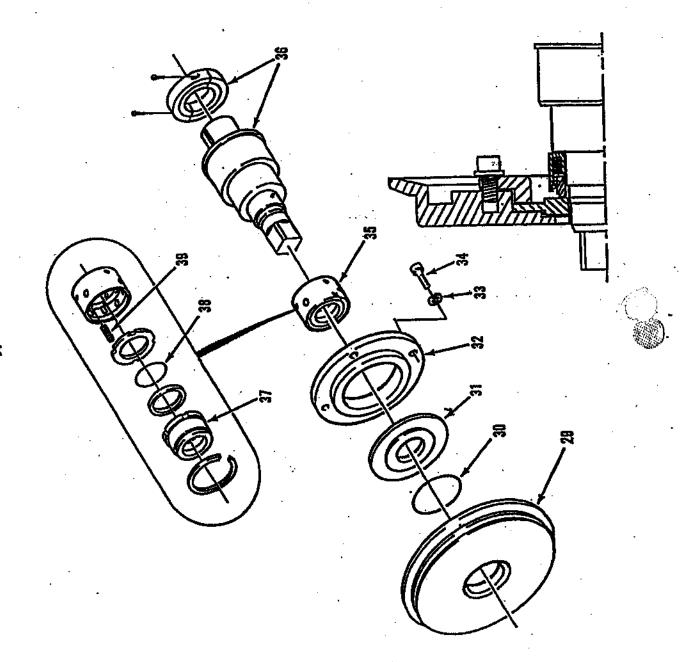
				O ON TOWN	7	RVC <sup>2</sup> DART NO	Ž	18V* PART NO	ĬŽ.	Served on the served of the served page NO OTV 18V PART NO OTY 18VS PART NO. OT	OIX.
ITEM	DESCRIPTION	14V PART NO.	11 Y 110	V PAKI NO-1		DAS FAMILIA	;		1	C400004400	
_	orthon) (etd.)	548P331925	-	546P329693	-	546P329693	-	646P331198	-	545133139	- -
_	E) (ontional)	04HP357739	-	04HP357740	-	04HP357740	-	04HP357741	-	.04HP35//41	- -
		***EARD410943	*	***546P385588	-	***548P365566	ļ	***546P385567	1	***546P365567	,
-	KING - Seat (Siliconized calibrity (updollar)	212212									
		2070204000	-	797D337R70	-	727P337679	-	727P331199	ļ	727P331199	1
8	RING - Drive	(21 F33 1920	_1	212122	-						
			t	1000,000	ļ	000404004	F	**EA2C121374	-	**543S131324	,
6	O-RING (Nitrile) (std.) (pkg of 10)	**543S131315	F   	**543S1313ZU	-1	0400101020	-[.	2,407004470		543D224473	-
	O-RING (Viton 14) (optional)	543P221164	1	543P221169	-	543PZZ1169	-	2431-771113	1	271720000000000000000000000000000000000	Ţ.
	O-RING (EPDM) (optional)	543P239164	1	543P239169		543P239169		5431-238173		0407-0910	-
									ŀ	1000100110	ŀ
,	CINICIO	04HP149543	-	04HP339834	1	622P339833	-	04HP342824	-	U411F342624	-
	OT NING								ı		
		•	ŀ	•	F	*		•		*	
11	SHAFT - impeller		1	1	1						_
		-    -	ľ		ļ	10440004		AALIDA40280	F	DAHP410289	-
200	P! ATE - Back	04HP410278	-	04HP410284	_	U4HF410204	-	CTEN 7 19500	1		T
3						•			Ī		ŀ
	(1) The section (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	**E43813CO	-	**543S1313CV	ļ	**543S1313CV	1	**543S1313DD	-	*543S1313DD	-
30	O-KING (Nittle) (stg.) (prg of to)	5450340863		EA3D310667	┝	543P319887	Ţ	543P319875	-	543P319675	+
	O-RING (Viton ") (optional)	243F3 1900Z		543CK24133	┝	543SK24133	-	543SK24141	-	543SK24141	1
	O-RING (EPDM) (optional)	0453FAZ+120	┨	1	1						
		1 12010110	-	0AHD424752	F	04HP421752	Ŀ	04HP421753	F	04HP421753	1
က်	INSERT - Seal (ss) (std.)	E480428817	-	548P438618	-	546P436618	-	546P436619	-	546P436619	1
	INSERT - Seal (Silicon carbide) (opuerial)	340r**3040	1	THE PART IN	1						
				0100100100	•	0410440848	ŀ	AMPA10817	-	04HP410617	1 1
32	RING - Insert Holder	04HP410615	-	04FFF410010	-	212014		10011	]		
			Г	0077000000	ļ	**E22\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		**573VN07190	F	**523V007190	4
33	WASHER - Lock (ss) (pkg of 10)	#5Z3V00/189	4	DEL JONASSE	-	25.1 100 10.20		200			
		FOATVOOREDO	ļ	594Vn20388	4	521V020368	4	521\020366	4	521V020366	4
34	SCREW - Socket Head Cap (ss)	241700002	-	22   102,000							

\*See the Pump Options section for customer option.

\*\*Certain items are packaged in minimum quantity lots as indicated.

"V<sup>2</sup>" Series Industrial Centrifugal Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

Type 3 Seal



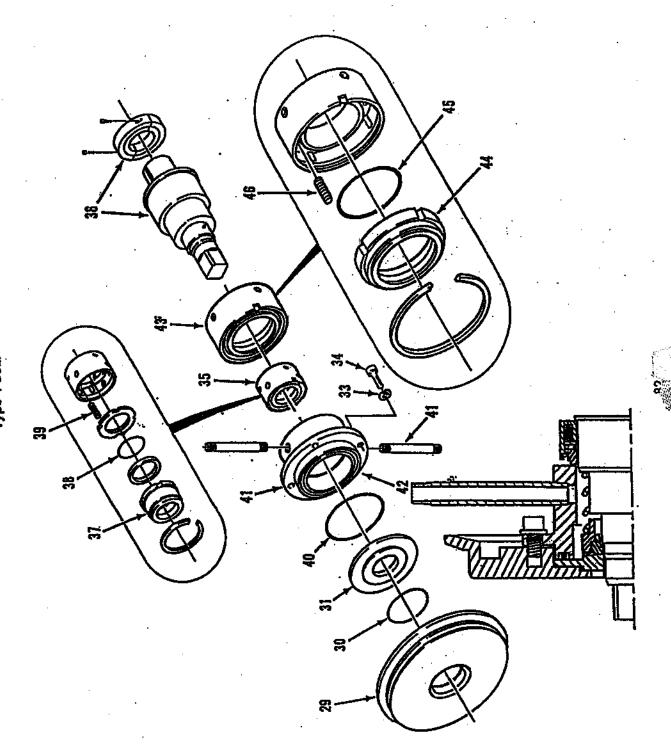
### "y<sup>2</sup>" Series Induse entrifugal Pump Models 14v², 16v², 16v², 18v², 18v², 18vs²

#### Type 3 Seai

				į	ON TO LO SOLOTION	2	48V PART NO.	LO	18VS PART NO.	ğ
Nottonocata	14V2 PART NO.	ğ	16V* PART NO.	2	16V3 FARI NO.	•				
ITEM DESCRIPTION						ŀ	0400440040	-	04HP410289	<b>,</b> -
	04UD44(1778)	-	04HP410284	-	04HP410284	-	U4014-110408	-		
20 DIATE Back										,
1		•	I Managar Line	ŀ	**K4381313CV	-	**543S1313DD	1	**543S1313DD	-
AS TO DIVISION (While) (ett ) (nkg of 10)	**543S1313CQ	-	V25131313CV	Ţ.	EA2DA4GRK7	-	643P319675	Į. Į	543P319675	-
C-Mind in the second se	543P319662	•	5431-31906/	-	200101010	-	EATEK74141	_	543SK24141	<b>,</b> -
O-RING (Viton"   (optional)	K425K74128	-	543SK24133	-	5435/C4133	-				
O-RING (EPDM) (optional)	2000							Ţ	04UD4947E2	,
		ŀ	04110494759	Ţ	04HP421752	<b>-</b>	04HP421753	-	Q4HF421133	-
11 INCEPT Seal (se) (sid.)	QHP421751		C4004040	-	54RP438818	-	546P439619	-	546P438619	-
Т	548P438517	-	2407430010							
	· ·				01410140848	-	04HP410817	_	04HP410617	
٦	04HP410815	-	04HP410616	-	AIMIT-LINA	1				
32 RING - Insert Holder							AARDOL BOATAGO		*********	4
		ŀ	**523V007190	4	**523V007190	*	OSI /MASZS	1	2000000	
22 WASHER . Lack (94) (0kg of 10)	053VUV/ 108	-				-				
٦	.:		4000000	ŀ	421VM201388	4	\$210020366	4	\$21V020366	4
Control Control Head Cap (88)	\$210006892	1	OSCUZUALZO		7					
34 SCREW - Suchel Install	, ,			ŀ	00000000	ŀ	6498X378C	-	549SK376C	1
T	5498K378A		549SK375B	-	2000000	-				
35 SEAL - Mechanical John Claring	•					1			•	-
7			•							
36 SHAFT - ATPORNET				ļ	0.0000000	ŀ	KAGSK377C	-	549SK377C	-
╗	548SK377A	+	649SK377B	-	248212710	1				
37 SEAL - Carpon					440.44.44.44	ŀ	***4439131327	-	**643\$131327	-
7	**64381317	-	**6438131323	-	4455101040	ŀ	1430221178	-	\$43P221178	1
36   O-RING (NRIIE) (818.) [DATE OF 1V.	4440221188	- 1	643P221172	-		$\frac{1}{4}$	7610150177		643P239178	
O-MING (Allena)	6439239166		543 239 172		7/18/22-25/0	<del> </del>		ľ		
O-RING (EPUM) IOPRICIEN				ľ	**************************************	-	G8723K579D	6	**6228K579D	8
- 1	**622SK679A		*6228KD79D	٩	0240101				,	
39 SPRING (pxg of 10)					i					

\*See the pump Options section for customer option. \*\*Censin items are packaged in minimum quantity lots as indicated.

"y<sup>2</sup>" Series Industrial Centrifugal Pump Models 14v², 16v², 16vs², 18v², 18vs² Type 4 Seal



".y" Series inqueral Centritugal Fump Models 14V<sup>2</sup> SvS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

lype 4 Seal

Ė	<u> </u>	7	T	1	$\overline{}$	П		$\neg$	$\overline{}$	$\overline{}$	'n	$\neg$	Τ"	7		7	7	$\Box$	~	Τ,	1	Т.	F 3			7	T	$\overline{}$	7	<del></del>	T	-,	7		_	<del></del>	_	4
	6	-		-	-			1	-	4		*	<u> </u> -				-	-	-	-	ŀ	•	ŀ	-	-	ľ	1	ŀ	<u> </u>	-	-	ŀ	-	-	-	-	4	
	18VS PART NO.	04HP410289		*543S1313DD	543P319675	543SK24141		04HP421753	546P438519	0-523V007190		521V020366	SADSK17RC		•		549SK377C	**5435131327	543P221176	543P239176	001371000000	OF (CAS220	5435131410	543P284710	543P239337	1673/000644	201.9020411	0202010100	040747100	U4FIP410330	5495K378C	Coresignora	OR IS VORTO	**5435131408	643P284708	643P239335	**622SK579D	
	등	-	$\cdot $	-	-	1		1	-	V		4	,	-			,	1	-	-	,	°	+	1		ľ	•	1	- -	-	-	ļ	-	-	-	-	4	
	18V2 PART NO.	OKHD440280	7111 71000	**543S1313DD	543P319675	543SK24141		04HP421753	546P436619	************	Ver. 100	5217020366	#100M7260	048012100	•		548SK377C	**543\$131327	543P221176	543P239176		6225K5/9D	**5435131410	643P284710	543P239337		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	411111111111111111111111111111111111111	U4FF421756	04HP416338	549SK378C		DARSICSUAC	**543S131408	643P284708	643P239335	**622SK679D	
	ğ	•	-	-	-	-		-	-	\	-	4	Ţ.	-			-	-	1	-		-	-	-	7	1	<b>4</b>	ŀ	-	-	1		1	-	1	7		
	16VS <sup>2</sup> PART NO.	A4UDA46094	U4UL410704	**************************************	6430319667	543SK24133		04HP421752	546P436618	000000000000000000000000000000000000000	Seventian	521V020388	Correctors	6496K3/0B			649SK377B	**6438131323	543P221172	543P239172		**822SK579D	**5438131407	6439284707	643P239334		567VV05511		04HP421755	04HP416337	549SK378B		5488K379B	**5438131404	643P284704	543P239331	**8855K579C	
E	Ě	†		1	-	<del> </del>		1	-	ŀ	+	4	1	+			-	-	-	-		<b></b>	-	-	-		7		-	-	-		+	-	-		6	,
lype 4 seal	16V2 PART NO.		04HP410Z84	1M0101010101	E420340887	643SK24133		04HP421752	646P438818		523700/180	521V020388		649SK376B			649SK377B	**K43S131323	5439221172	643P239172		**622SK679D	*************	6439284707	543P239334		587/005511		04HP421755	04HP418337	649SK378B	•	649SK379B	**5438131404	543P284704	543P239331	**************************************	October 1
	Ы		-	Ţ.	-	-	1	ŀ	-		*	4		-	1		H	•	ŀ	-		9	1	-	-		7		-	-	-		-	-	-	-	ŀ	1
	14V2 PART NO.		04HP410278		***54381313CQ	543F31956Z	0450NC+160	04HP421761	646P436617		**623V007189	521\006892		649SK376A			649SK377A	446,494,943	844D294488	543P239168		**622SK67BA	2000000000000	2433131304	543SK24137		6909000199		04HP421754	04HP416336	KA08K37AA	210000	6495K378A	**************	K43P284702	643P239329	000000000	05/CVC770
w.co.	IDESCRIPTION		PLATE - Back		O-RING (Ninile) (std.) (pkg of 10)	O-RING (VRonm) (optional)	O-RING (EPDM) (optional)	1000	INSERT - Sea (stition carbide) (optional)		WASHER - Lock (ss) (pkg of 10)	Control Control (co)	פריבון בפתייונות בפון ומים	SEAL - Mechanical (John Crane**)		SHAFT - Impeller	SEAL (carbon)		O-RING (Nitrie) (std.) (pkg of 10)	O-RING (Vien'm) (optional)	O-HING (Erum) (optional)	SPRING (ake of 10)		O-RING (Nitrile) (std.) (pkg of 10)	O-RING (Vitoria) (opflorial)	O-KING (EMUM) (approprie)	NIPPLE	CLANDED Welter Sasi	Clainlese Steel (sid.)	Chroma Oxide, Coated (optional)		SEAL - Machanical (John Grane")	SEAL (carbon)		O-RING (NIMIS) (SIG.) (SNG of 19)	O-RING (VIIONT) (optional)		SPRING (pkg of 10)
	E P	3	62		ഉ				=		33		4	35		2	۶	<b>;</b>	38			96	1	Ş			1	,	¥			6	4	П	Ş			ę

'See the pump Options section for customer option. "Centain items are packaged in minimum quantity lots as indicated.

"y<sup>2</sup>" Series Industrial Centrifugal Pump Models 14v<sup>2</sup>, 16v<sup>2</sup>, 16vS<sup>2</sup>, 18v<sup>2</sup>, 18vS<sup>2</sup> Type 5 Seal

# "V<sup>2</sup>" Series Indu Centrifugal Pump Models 14V<sup>2</sup>, 16 JVS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

Type 5 Seal

Fig. 2. State (cabon) (cabonal)	7 RANG	FSCRIPTION	14V* PART NO.	É	16V-PARI NO. I	-	OYO LANGE		t			
December   December					-							
646731223   1 646735740   1 577737711   1 044737741   1 0447357741   1 044737741   1	اهامدامة					ŀ	E100000000	ŀ	KARP331198	-	546P331198	
Output   O		A property of the	648P331925	-	548P329893	†	Capa Serios	\	0.4WP9877.44	-	04HP357741	-
TZTP231928	or lar	NG - Seat (Carport) (and)	0.0 HD2K7730	-	04HP357740	-	04HP35/740	-	11100 11310	1	***************************************	-
TZTP331926	Œ,	ING - Seat (graphite - IFE) (optional)	**************************************	-	546P385586	1	***546P385588	-	***5546P365557	-		-
TZIP231926 1   TZIP231679 1   TZIP231199 1   TZIP231199 1   TZIP231199 1   TZIP231199 1   TZIP231199 1   TZIP231199 1   TZIP231199 1   TZIP231194 1   TZIP231134 1   TZIP23114 1   TZIP231134 1   TZIP23114 1   TZIP231134 1   TZIP23		ING - Seal (sinconized carbon) (optional)	ALEST TOLS									1
CALPASIANO   CALPANOS   CALPASIANO   CALPA	١		2000000	•	P7878707	-	727P337679	1	727P331199	-	727P331199	-
C4485131316   1	Įα	ING. Drive	727F351920	-	141100101							
CAMPATION   CAMP	4_			•	00070707	•	**5438131320	-	**543S131324	1	**5435131324	-
643P23164 1 643P23169 1 643P23169 1 643P23173 1 643P	7,	CHAIN MANTAL Lette 1 (aka of 10)	5438131315	٠-	2433131320	-	544004400	-	643D221173	-	543P221173	-
\$439739164         1         \$439739164         1         \$439739164         1         \$439739169         1         \$439739163         1         \$439739163         1         \$439739163         1         \$439739163         1         \$439739163         1         \$439739163         1         \$4497410239         1         \$44938131300         1         \$43919675         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$44938131300         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$4494381330         1         \$	41	Constant Annual Constant	543P221184	1	643P221169	1	D49F24110B	<u> </u>	6430020473	-	543P239173	-
CATE   CATE	灲	KING (Vitalia)	5437239164	1	543P239169	-	843PZ39169	-	0110071040			T
CATE PATOLA CALL   CATE PASS A   CATE PASS	낖	-RING (EPDM) (opnown)						ŀ	, , ,		A C S C A Z G C C Z	-
O4tP410276   O4tP410284   O4tP410284   O4tP410289   O4t	4		727702000	-	A77P339834	7	622P339B33	-	+67 gaccazzg	-	177717777	
CALIFOLICATE   CALI	끠	PRING	-								•	
CAHPATOZZE   CAHPATOZEA   CAHPATOZEA   CAHPATOZEE   CAH	4				•		•					
Oct-PATIONA   1	~,	HAFT - Impeller								Ţ	0000000000000	ŀ
The control of the	ļļ		A440440078	-	04HP410284	٦	04HP410284	-	04HP410289	-	U477410209	-
Control   Cont	4	LATE - Back	VIII 410410	-								Ţ,
CASE   CASE	+			<u> </u>	**************************************	-	**543S1313CV	*-	**54381313DD	-	5438131300	Ţ
6435724128	12	LAING (Nivile) (std.) (pkg of 10)	**543S1313CK	-	44504108K7	-	543P319687	+	643P319675	-	543P319675	$\frac{1}{1}$
6435K24128	1	ONIO Warethy (collects)	643P319562	-	1000 to 1000 to	-	5415X74433	_	5435K24141	-	543SK24141	-
Odifiya21761   1 Odifiya21762   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21763   1 Odifiya21764   1 Odif	<u> 1</u>	Charles (Confined)	543SK24128	-	0433K4130	1						,
OAHP421761 1 OAHP421762 1 OAHP421762 1 OAHP421762 1 OAHP421762 1 OAHP421763 1 SASP436619 1 SASP436619 1 SASP436619 1 SASP436619 1 SASP436619 1 SASP436619 1 SASP436619 2 SASP436619 2 SASP436619 2 SASP436619 2 SASP436619 1 SASP284707 1 SASP284707 1 SASP284707 1 SASP284707 1 SASP284707 1 SASP284710 1 SASP28710 1 SAS	-1		-			1	000,000	.	AMBA94783	-	04HP421753	-
F485436617   F485436618   T485436619   T48543619   T48543619   T48543619   T48543619   T485343619   T485343619   T485343619   T485343619   T4853431410   T48536131410   T48536131410   T48536131410   T48536131410   T48536131410   T48536131410   T48536131410   T48536131410   T48536131410   T48336131410   T4833613180   T483361	_1	1977	04HP421751	ı	04HP421762	-	04FF74Z7/04	<u> </u>	K4RD448819		548P436519	_
	=1	NSERT - Seal (State)	64BP436817	1	548P436618	-	2457430010	1	210001			
***623V007189         4         ***623V007180         4         ***623V007180         4         ***623V007180         4         ***623V007180         4         ***621V020366         4         ***621V1410         1         ***643E3131410         1         ***643E3131410         1         ***643E284710         1         ***644E21768         1         ***648E378C         1	<u>t</u>	VSERT - Seal (steeps carping) (opiniting)					200000000000000000000000000000000000000	ķ	424VDT7190	ŀ	••523\007190	4
C21V008692	4	101 January 12 12 12 12 12 12 12 12 12 12 12 12 12	**523V007189	4	**523V007190	•	DEL/UNAS70	1				
Control	-1	VASHER - LOCK (35) IPM OF 19/					9979000	ŀ	ED4VM2013RR	4	5210020366	4
	4		6210008692	7	621V020386	4	521V0Z0356	•	050700170	1		
Teasisiacz		SCREW - Socket Head Cap (35)								ŀ	445.496.496.440	•
543P219671         1         543P284707         4         643P284707         1         543P284710         7         543P238337         1         543PZ38237         1         543PZ38237         1         543PZ38237         1         543PZ38237         1         543PZ378C	_		**************************************	-	**543S131407	1	**5438131407	-	5438131410	-	040000000	•
563Y008089         2 : 567Y005511         2 : 567Y005511         2 : 567Y005511         2 : 567Y020511         2 : 567Y020511         2 : 567Y020511         2 : 567Y020511         3 : 567Y020	-	PRING (Nitrile) (std.) (pkg of 10)	100101010	<u> </u>	. 643P2847D7	1	543P284707	-	543P284710	-	042F48410	
SASSICATION   SATION   2	J.RING (Vitonin) (optional)	2431-319011	-	A43P239334	-	543P239334	-	543P239337	-	543723833/	-	
567V008089         2 ** 567V005511         2         567V020511         2         567V020511           pational)         ***E34P421784         1         ***G4HP421788         1         ***G4HP416338		2.RING (EPDM) (optional)	2433024131	1	<u> </u>			-				
ER - Water Seal 567V005089 Z - BOLYWEST	_			ŀ	T CONTINEES	,	587V005511	2	567/020611	7	567/020611	7
ERWater Seal 6443.  ses Steel (std.)  ne Oxide Coated (optional)	_	5 FOC:	567V006089	1	110000000	{						
1 (optional)         ***604HP421784         1         ***604HP421789         1         ***604HP416338         1         ***604HP4217538         1         ***604HP42175338         1         ***604HP4217538         1	⊶-											+
1 (optional)         ***504HP418336         1 ****604HP418337         1 ****604HP418337         1 ****604HP418338         1 ****604HP418338         1 ****604HP418338         1 ***604HP418338         1 ***604HP418338 </td <td>4</td> <td>Citation Co. Mater Regi</td> <td></td> <td></td> <td></td> <td>•</td> <td>ANTI-OLOUAN</td> <td>-</td> <td>04HP421758</td> <td>-</td> <td>04HP421758</td> <td>-</td>	4	Citation Co. Mater Regi				•	ANTI-OLOUAN	-	04HP421758	-	04HP421758	-
5498K378A 15498K378B 15498K378C 15498K378A 15498K378C 15498K378A 15498K379A 15498K379B 15498K379B 15498K379B 15498K379B 15498K379B 15498K379B 15498K379B 1	4	CHAMDER - VIEW SOOT	04HP421764	-	04HP421755	-	201174LIUM	-	**************************************	-	*** \$04HP416338	-
5488K378A 1 5498K378B 1 5498K378C 1 ***5498K379A 1 ***5498K379B 1 ***5498K379C 1 ***	_	Stainess Steri (Sta.)	*** 504HP416336	-	***504HP415337	-	040173090	1	1000			
5488K378A 1 5498K478B 1 5498K378B 1 5498K378C 1 ***	_	Chrome Oxide Corred (opposite)		L				ŀ	200000000000000000000000000000000000000	ŀ	E100V179C	ŀ
**5498K378A 1 **5498K379B 1 **5498K379C 1	-		KAQSK378A	-	5498K376B	1	549SK378B	-	SASSING	_	Calculate	-
**549SK378A 1 **549SK379B 1 **548SK379B 1 **548SK378C 1 1	_	SEAL - Mechanical (John Crans)					•			1	0000000	ŀ
CARSACT	Н-		100 may 200	ŀ	#449SKX79B	-	549SK379B	-	**549SK379C	-	248SK378C	_
	Т	ceal (remon)	VANCAL AV	1	- CANADA							

See the pump Options section for customer option.
..Certain items are packaged in minimum quantity lots as indicated.
...Use siliconized carbon seat fing only with silicon carbide seal insert.

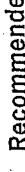
### "V<sup>2</sup>" Series Industrial Centrifugal Pump Models 14V<sup>2</sup>, 16V<sup>2</sup>, 16VS<sup>2</sup>, 18V<sup>2</sup>, 18VS<sup>2</sup>

#### Type 5 Seal

"Centain items are packaged in minimum quantity lots as indicated.



# Recommended le tory of Spare Parts



Class | Duty

Suggested for domestic service and where some interruption in service is possible. Supplies typical service parts usage for 6 months or 1000 hours of service whichever occurs first.

Class II Duty Suggested for export service or for domestic service where minimum loss of service is essential. Supplies typical service part usage for 1 year or 2000 h

Item Number

The listed item number refers to exploded views on preceding pages where applicable. Order by part number not by Item number. Item numbers which do not appear in the list are not recommended inventory.

Class II

Class !

and once	2000 hours of service whichever occurs first.		
		QUANTITY	QUANTILL
MELL	DESCRIPTION	•	1
~	NiA	10	20
6	O-RING		ı
*	IMPELLER	3	£
3	GASKET	1	2
•	PLATE - Back	3	8
^	RING - Seat		-
80	RING - Drive	10	20
6	O-RING	•	1
2	SPRING		1
=	SHAFT - Impeller	•	+
=	SLINGER - Oil		-
=	NUT - Wing	•	2
25	RING - Lock		
28	PIN - Pivot		2
28	Pix		1
29	PLATE - Back	£	20
Se	O-RING	-	2
٤	INSERT - Sest	e	9
35	SEAL - Mechanical (John Crane <sup>hr)</sup>		
99	SHAFT - Impeller	10	20
ş	O-RING	6	49
43	SEAL - Mechanical (John Crane <sup>th</sup> )		





Your local contact:



APV, An SPX Brand 611 Sugar Creek Rd. Delavan, WI 53115 Phone: (888) 278-4321 Email: answers.us@apv.com

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