

Votator[®] CR Mixer

FORM NO.: 95-03071 REVISION: 10/2015

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.



SPX FLOW, Inc.
611 Sugar Creek Road
Delavan, WI 53115 USA

Tel: (800) 252-5200 or (262) 728-1900
Fax: (800) 252-5012 or (262) 728-4904

E-mail: wcb@spx.com
Web site: www.spxflow.com

Information contained in this manual is subject to change without notice and does not represent a commitment on the part of SPX FLOW, Inc. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose, without the express written permission of SPX FLOW, Inc.

Copyright © 2015 SPX FLOW, Inc.
All Rights Reserved.

Revision Date: 10/2015

Publication: 95-03071

Warranty	4
Shipping Damage or Loss	4
Warranty Claim	4
Safety	5
Care of Stainless Steel	6
Stainless Steel Corrosion	6
Elastomer Seal Replacement Following Passivation	6
Introduction	7
Design Features	7
Potential Applications	9
Process	10
Installation	12
Location	12
Foundation	12
Electrical Power Connections	12
Product Piping	13
Seal Flushing	13
Operation	14
General	14
Operating Instructions	14
Maintenance	15
Disassembly and Assembly	15
Cleaning and Sanitizing	16
General Maintenance of Rotary Seals	16
Troubleshooting	17
Parts Lists	18
6" Votator® CR Mixer	18
16" Votator® CR Mixer	20

Warranty

Seller warrants its products to be free from defect in materials and workmanship for a period of one (1) year from the date of shipment. This warranty shall not apply to products which require repair or replacement due to normal wear and tear or to products which are subjected to accident, misuse or improper maintenance. This warranty extends only to the original Buyer. Products manufactured by others but furnished by Seller are exempted from this warranty and are limited to the original manufacturer's warranty.

Seller's sole obligation under this warranty shall be to repair or replace any products that Seller determines, in its discretion, to be defective. Seller reserves the right either to inspect the products in the field or to request their prepaid return to Seller. Seller shall not be responsible for any transportation charges, duty, taxes, freight, labor or other costs. The cost of removing and/or installing products which have been repaired or replaced shall be at Buyer's expense.

Seller expressly disclaims all other warranties, express or implied, including without limitation any warranty of merchantability of fitness for a particular purpose. The foregoing sets forth Seller's entire and exclusive liability, and Buyer's exclusive and sole remedy, for any claim of damages in connection with the sale of products. In no event shall Seller be liable for any special consequential incidental or indirect damages (including without limitation attorney's fees and expenses), nor shall Seller be liable for any loss of profit or material arising out of or relating to the sale or operation of the products based on contract, tort (including negligence), strict liability or otherwise.

Shipping Damage or Loss

If equipment is damaged or lost in transit, file a claim at once with the delivering carrier. The carrier has signed the Bill of Lading acknowledging that the shipment has been received from SPX FLOW in good condition. SPX FLOW is not responsible for the collection of claims or replacement of materials due to transit shortages or damages.

Warranty Claim

Warranty claims must have a **Returned Goods Authorization (RGA)** from the Seller before returns will be accepted.

Claims for shortages or other errors, exclusive of transit shortages or damages, must be made in writing to Seller within ten (10) days after delivery. Failure to give such notice shall constitute acceptance and waiver of all such claims by Buyer.

Safety

READ AND UNDERSTAND THIS MANUAL PRIOR TO INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT

SPX FLOW recommends users of our equipment and designs follow the latest Industrial Safety Standards. At a minimum, these should include the industrial safety requirements established by:

1. Occupational Safety and Health Administration (OSHA), Title 29 of the CFR
Section 1910.212- General Requirements for all Machines
2. National Fire Protection Association, ANSI/NFPA 79
ANSI/NFPA 79- Electrical Standards for Industrial Machinery
3. National Electrical Code, ANSI/NFPA 70
ANSI/NFPA 70- National Electrical Code
ANSI/NFPA 70E- Electrical Safety Requirement for Employee Workplaces
4. American National Standards Institute, Section B11

Attention: Servicing energized industrial equipment can be hazardous. Severe injury or death can result from electrical shock, burn, or unintended actuation of controlled equipment. Recommended practice is to disconnect and lockout industrial equipment from power sources, and release stored energy, if present. Refer to the National Fire Protection Association Standard No. NFPA70E, Part II and (as applicable) OSHA rules for Control of Hazardous Energy Sources (Lockout-Tagout) and OSHA Electrical Safety Related Work Practices, including procedural requirements for:

- Lockout-tagout
- Personnel qualifications and training requirements
- When it is not feasible to de-energize and lockout-tagout electrical circuits and equipment before working on or near exposed circuit parts

Locking and Interlocking Devices: These devices should be checked for proper working condition and capability of performing their intended functions. Make replacements only with the original manufacturer's renewal parts or kits. Adjust or repair in accordance with the manufacturer's instructions.

Periodic Inspection: Industrial equipment should be inspected periodically. Inspection intervals should be based on environmental and operating conditions and adjusted as indicated by experience. At a minimum, an initial inspection within 3 to 4 months after installation is recommended. Inspection of the electrical control systems should meet the recommendations as specified in the National Electrical Manufacturers Association (NEMA) Standard No. ICS 1.3, Preventative Maintenance of Industrial Control and Systems Equipment, for the general guidelines for setting-up a periodic maintenance program.

Replacement Equipment: Use only replacement parts and devices recommended by the manufacturer to maintain the integrity of the equipment. Make sure the parts are properly matched to the equipment series, model, serial number, and revision level of the equipment.

Warnings and cautions are provided in this manual to help avoid serious injury and/or possible damage to equipment:



DANGER: marked with a stop sign.
Immediate hazards which WILL result in severe personal injury or death.



WARNING: marked with a warning triangle.
Hazards or unsafe practices which COULD result in severe personal injury or death.



CAUTION: marked with a warning triangle.
Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

Care of Stainless Steel

NOTE: SPX FLOW recommends the use of an FDA-approved anti-seize compound on all threaded connections.

Stainless Steel Corrosion

Corrosion resistance is greatest when a layer of oxide film is formed on the surface of stainless steel. If film is disturbed or destroyed, stainless steel becomes much less resistant to corrosion and may rust, pit or crack.

Corrosion pitting, rusting and stress cracks may occur due to chemical attack. Use only cleaning chemicals specified by a reputable chemical manufacturer for use with 300 series stainless steel. Do not use excessive concentrations, temperatures or exposure times. Avoid contact with highly corrosive acids such as hydrofluoric, hydrochloric or sulfuric. Also avoid prolonged contact with chloride-containing chemicals, especially in presence of acid. If chlorine-based sanitizers are used, such as sodium hypochlorite (bleach), do not exceed concentrations of 150 ppm available chlorine, do not exceed contact time of 20 minutes, and do not exceed temperatures of 104°F (40°C).

Corrosion discoloration, deposits or pitting may occur under product deposits or under gaskets. Keep surfaces clean, including those under gaskets or in grooves or tight corners. Clean immediately after use. Do not allow equipment to set idle, exposed to air with accumulated foreign material on the surface.

Corrosion pitting may occur when stray electrical currents come in contact with moist stainless steel. Ensure all electrical devices connected to the equipment are correctly grounded.

Elastomer Seal Replacement Following Passivation

Passivation chemicals can damage product contact areas of this equipment. Elastomers (rubber components) are most likely to be affected. Always inspect all elastomer seals after passivation is completed. Replace any seals showing signs of chemical attack. Indications may include swelling, cracks, loss of elasticity or any other noticeable changes when compared with new components.

Introduction

Design Features



Figure 1 - 6" Votator® CR Mixer

6" Votator® CR Mixer Whipper-Emulsifier with or without Jacket

Construction: 316 Stainless inter-meshing Pins machined into heads and rotor.

Operating Product Pressure: Up to 300 psig un-jacketed. 250 psig jacketed.

Rotor Drive: Standard is 5 HP TEFC, 230/440 volts, 60 cycle, 3 phase, variable RPM range to suit. CR rotor is directly coupled to a drive. Other drive arrangements are available.

Product Shaft Seal: Rotary seal, water-flushed and cooled.

Product Connections: 1" S-Line clamp. Other types of fittings and multiple inlets for individual metering of components can be provided.

Air Or Gas Injection: Available as a complete system package including product pump(s), back pressure valve, injection controls, and with or without Votator® Scraped Surface Heat Exchanger. Mixer unit with pump, valves, injection controls on a common stand also available at extra cost.

Sanitary Features: Designed for quick disassembly; cylindrical rotor housing sealed between heads containing removable o-ring seals.

Whipping-Mixing Pins: Stationary pins in each head intermesh with moving pins in two rotor plates sandwiching the rotor impellers.

Overall Dimensions: See prints for dimensions.

Unit Weight: 425 pounds; Crated: 475 pounds

Product Volume: 65 cubic inches.

Jacketed Housing: Designed for 2 to 3 GPM of Coolant at 50 psig maximum.



Figure 2 - 16" Votator® CR Mixer

16" Votator® CR Mixer Whipper-Emulsifier with Jacket

Construction: 316 Stainless, Inter-meshing Pins machined into heads and rotor.

Operating Product Pressure: 250 psi at 100°F, 200 psi at 300°F for jacketed mixer. For un-jacketed mixer, 300 psi at 300°F.

Rotor Drives: Standard is 10 to 50 HP, TEFC, variable RPM for 230/460 volts, 3 phase, 60 cycle. Other drive arrangements are available.

Product Shaft Seal: Rotary seal, water flushed and cooled.

Product Connections: 2" S-clamp; Multiple inlets for individual metering can be provided.

Air Or Gas Injection: Available as a complete system package including product pump(s), back pressure valve, injection controls, and with or without Votator® Scraped Surface Heat Exchanger. Mixer unit with pump, valves, injection controls on a common stand also available at extra cost

Sanitary Features: Front heads and rifled cylindrical housing, double-hinged for complete swing-out for cleaning and maintenance. Housing sealed between heads with removable o-rings

Whipping-Mixing Pins: 240 in each head inter-meshing with pins in two rotor plates sandwiching the rotor impellers.

Unit Weight: 1300 to 2500 pounds; Crated: 1400 to 2600 pounds.

Volume: 716 cubic inches.

Jacketed Housing: Designed for 5 GPM coolant flow at 50 psig maximum.

Overall Dimensions: See prints for dimensions.

Potential Applications

The following is a partial enumeration of products and processes which are possible applications of the Votator® CR Mixer. These may or may not need accompanying heat transfer before or after mixing or whipping. This is not a complete list. It is a suggestive aid to help recognize similar applications.

Confections

1. Marshmallow
 - Grain
 - Non-grain
 - Low-moisture egg albumin and/or gelatin marshmallow type products.
2. Nougats
3. Aerated Chocolate
4. Fondant and Fondant Blending
5. Coloring

Bakery Items

1. Marshmallow
 - Depositing type
 - Cupcake enrobing, etc.
2. Icings, frostings, fillings
3. Cake batters
4. Wafer batters
5. Pre-blending

Other Items

1. Mayonnaise
2. Salad Dressing
3. Whipped Butter
4. Whipped Cream
5. Egg Whites
6. Etc.

General

1. Emulsification
2. Homogenization
3. Pigment Dispersion
4. Foaming
5. Pre-blending
6. Suspension

Process

Design of the CR Mixer

This simple but unique device achieves its purpose of continuous mixing, blending, dispersing and whipping by applying some known characteristics of the centrifugal pump. Therefore, unlike other known types of in-line continuous mixers, a primary feature of the Votator® CR Mixer is its ability to cause the materials in process to pass through the zone of inter-meshing pins, not once, but many times during their “residence” within the mixer.

The mixer's rotor is a multi-vaned impeller sandwiched between two discs. The disc facing the mixer outlet head is solid. The disc facing the vari-drive motor has openings adjacent to the rotor drive shaft. The discs are provided with pins which mesh closely with fixed sets of pins placed into the heads. These two heads plus a cylindrical housing contain this rotor assembly.

Materials enter the mixer through the cylindrical housing inlet (see Figure 3 on page 11). They are pulled through the forest of pins into the inner disc openings. The impeller blades exposed by the inner disc openings pick up and centrifugally “sling” product to rotor periphery. Here the materials are redirected to the inner suction at the rotor shaft.

This redirection is accomplished in two ways. First, by sweeper vanes installed in the cylindrical housing; second, by making the resistance to flow at the mixer's outlet greater than the resistance between the periphery of the rotor impellers and the inner disc openings. Although imposing a back pressure at the mixer outlet will increase the pressure within the whole mixer, a characteristic pressure differential always exists between the impeller discharge at the periphery, and the intake at the rotor center. Thus, regardless of the net flow of the product through the system, the material in process is made to circulate and recirculate through the primary zone, past rotor vanes out to the periphery and back through the primary zone. The number of cycles can be controlled while the mixer is in operation and does not alter the net flow of product from supply tank to discharge opening. This recirculation or recycling is further controlled by changing the speed of the rotor. As the rotor speed (RPM) is increased, so is the rotor suction and the mechanical action.

All of the above assumes a constant flow of material from a supply tank by means of a positive displacement pump whose flow must not be affected by altering either of the variables discussed above. One way of expressing action within this mixer is that each particle can be made to turn back to the primary mixing zone a multiplicity of times in order to increase its subjection to mixing or beating action.

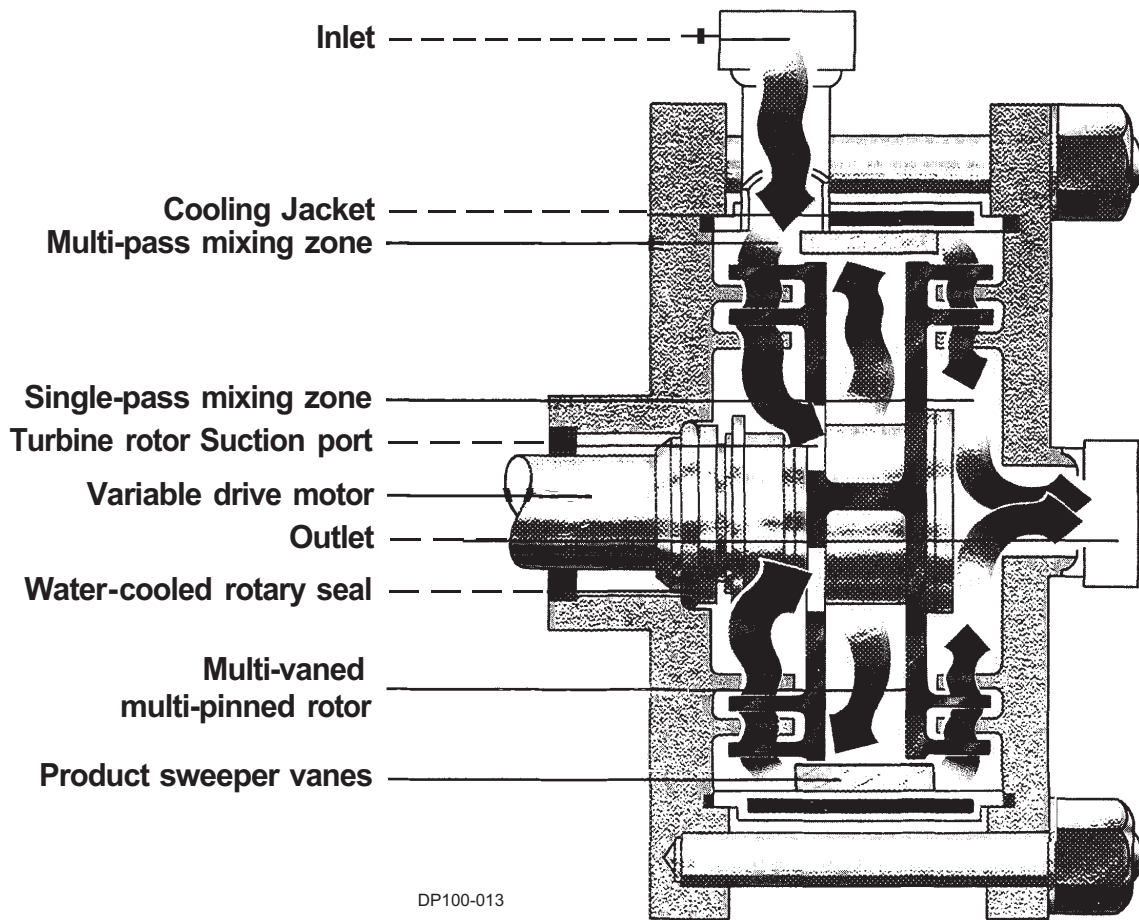


Figure 3 - CR Mixer Process Flow

Installation

Location

Space Requirement

The floor space requirement for the equipment in its operating position is shown on the drawings. Provide sufficient clearance around and above the unit for access and maintenance work.

Other Equipment

Carefully plan the location of the Votator[®] equipment in relationship to complementary equipment, so as to arrive at the optimum processing arrangement.

Utility Requirements

Current Characteristics

_____	Volts	_____	Phase
_____	Cycles	Total HP: _____	

Seal Lubrication

City water is usually sufficient at approximately 1/4 GPM.

Compressed Air or Nitrogen

For pneumatic back pressure valve (if applicable) and product aeration as required

Ambient Conditions

Do not locate the equipment in a corrosive or extremely dusty atmosphere. If outdoor installation is contemplated, protect the equipment from the elements and from freezing conditions.

Foundation

A concrete pad or substantial steel structure is advised. Anchor bolt or foot locations are shown on the drawings where applicable.

Electrical Power Connections

(See Wiring Diagram)

Provide the following items in the branch electrical circuit from the line to the drive motor(s):

- Motor Controller properly sized to protect the motor against overload.
- Safety Switch ahead of the motor controller to disconnect the equipment from the line while it is being maintained.
- Fuses or Circuit Breaker to protect the branch against short circuits or grounds which may result in an overcurrent far in excess of the motor rating.
- Start-Stop Switch installed in the control circuit for easy operational control of the motor(s).
- Direction of Rotation is stamped on the front of the unit.

Product Piping

- Refer to drawings for size and location of piping.
- Support ALL piping independently.
- Provide for line expansion and contraction.
- A safety valve should be properly located and installed in the system to protect the equipment and personnel. (See operating pressure rating of equipment.)
- Keep piping as short and as free of directional changes as possible.
- Do not install any positive shut off valves downstream of the Votator[®] unit.
- Provide temperature indicators on both sides of the Votator[®] unit. Provide a pressure gauge on the discharge side of the pump.

Seal Flushing

- The connection size is indicated on the assembly drawing.
- Choose a flushing medium compatible with the product.

NOTE: City water at 1/4 to 1/2 GPM is usually sufficient for flushing a seal. However, more or less water and possibly hot water or some other medium may be required to keep the seal clean.

Operation

General

Before initial operation, dismantle and thoroughly clean the equipment per instructions on page 16.

Satisfactory life and performance depends not only on the proper application of the equipment, but also on the proper use of the equipment by the operator. Operation above the unit's rated capacity and on other than its rated product can cause damage to the unit and adversely affect performance.



CAUTION: *Never turn the shaft with the motor unless water or product is flowing through the unit and the water flush is on the seal, or the seal will be damaged. Never turn the shaft with the motor unless water or product is flowing through the unit and the water flush is on the seal, or the seal will be damaged.*

Operating Instructions

These instructions are general in nature and should be superseded by **daily start and stop procedures** written to conform to actual in-plant processing conditions.

Start Up

1. Turn seal water on. Generally, 1/4 to 1/2 GPM will suffice.
2. Start product pump and adjust to desired rate.
3. After system flow is established, start CR Mixer at minimum RPM.
4. Apply back pressure and gas flow for aeration.
5. Adjust variables (product pressure, mixer speed, and amount of gas, etc.) for the desired product.
6. Divert product to usage point or container.

Shut Down

Shut down procedure is normally the reverse of start up procedure; however, before turning off the power, run the speed control on the drive motor to the minimum RPM setting.

Maintenance

Disassembly and Assembly

NOTE: See page 18 for 6" CR Mixer drawing; page 20 for 16" CR Mixer drawing.

NOTE: Lubricate all o-rings before installation.

NOTE: Be sure that drive pin on the sleeve is lined up with the slot in the seal body.

Disassembly

1. Safety first: Disconnect the electrical or other drive source.
2. Disconnect product piping connections and seal flushing connections.
3. Remove or open the front head.
4. Remove the tube assembly.
5. Remove the hex head cap screw in the rotor shaft and retaining washer.
6. Remove the turbine disc and turbine from the drive shaft.
7. Remove the key and seal assembly.
8. To remove the rear turbine head, remove the four bolts on the drive frame. (Not usually necessary during cleaning.)
9. Check pins for damage and seal surfaces and o-rings for wear. Clean all parts before reassembly.

Assembly

1. Carefully place rear turbine head, if it was removed, on the motor after making sure that the seals and o-rings are in place.
2. Secure the head.
3. Check the seal insert for correct installation.
 - **6 inch mixer:** place the fiberglass gasket on the shaft and install the seal assembly with the o-ring, carefully placing the seal body against the seal ring, followed by the spring, and then the sleeve.
 - **16 inch mixer:** place the seal body with the o-ring against the seal insert, carefully lining up the slot with the pin on the drive shaft. Install the seal backing ring, followed by the wavy washers.
4. Install the key.
5. Install the turbine and turbine internal head.
6. Install the retaining washer and lock bolt in the drive shaft.
7. Be sure both o-rings are in the retaining washer.
8. Check for proper installation of o-rings on the front and rear heads. Install the tube, placing the sanitary inlet connection over the sanitary pins on the rear turbine head.
9. Close or install the front head and tighten the appropriate bolts.
10. Connect the product piping and seal flushing.
11. Connect the electrical or other drive source.

Cleaning and Sanitizing

Please do not construe the following as anything but suggestions, recommendations, and guides regarding the cleaning and sanitizing of all types of Votator® equipment used in the food industry.

The cleaning procedure should comply with the existing sanitation codes. In addition, it should be designed for a specific product and process.

Prior to determining a daily cleaning procedure and the detergent, it must be stated and understood that:

1. Areas such as o-ring grooves, capillary clearances between running parts, etc., are best cleaned by disassembly and manual scrubbing.
2. The cleaning procedure and the detergent efficiency depend on the following factors:
 - Time allotted for cleaning solutions to do the job.
 - Temperature of cleaning solutions while doing the job.
 - Detergent Concentration and Composition:
This is dictated by nature of the soil to be removed and the surface from which the soil must be removed. In short, the detergent or detergents must remove the soil without impairing the equipment.
 - Water Composition:
This is one item frequently overlooked. Good clean, potable water alone does not always suffice. The mineral content of the cleaning water must be such that it does not detract from the detergent's effectiveness. For example, water containing large amounts of iron, manganese and certain other metals may produce a brown deposit and weaken the detergent strength. Ideally, the water should be soft or softened.

General Maintenance of Rotary Seals

Seal Body and Seal Insert

These are the most pertinent portions of all rotary seals. Best practices for obtaining leakless operation results:

- The running surfaces are precision lapped and polished.
- The running surfaces are absolutely flat.
- The running surfaces are held absolutely parallel.
- The mechanical pressure holding the running surfaces together is sufficient but not excessive.

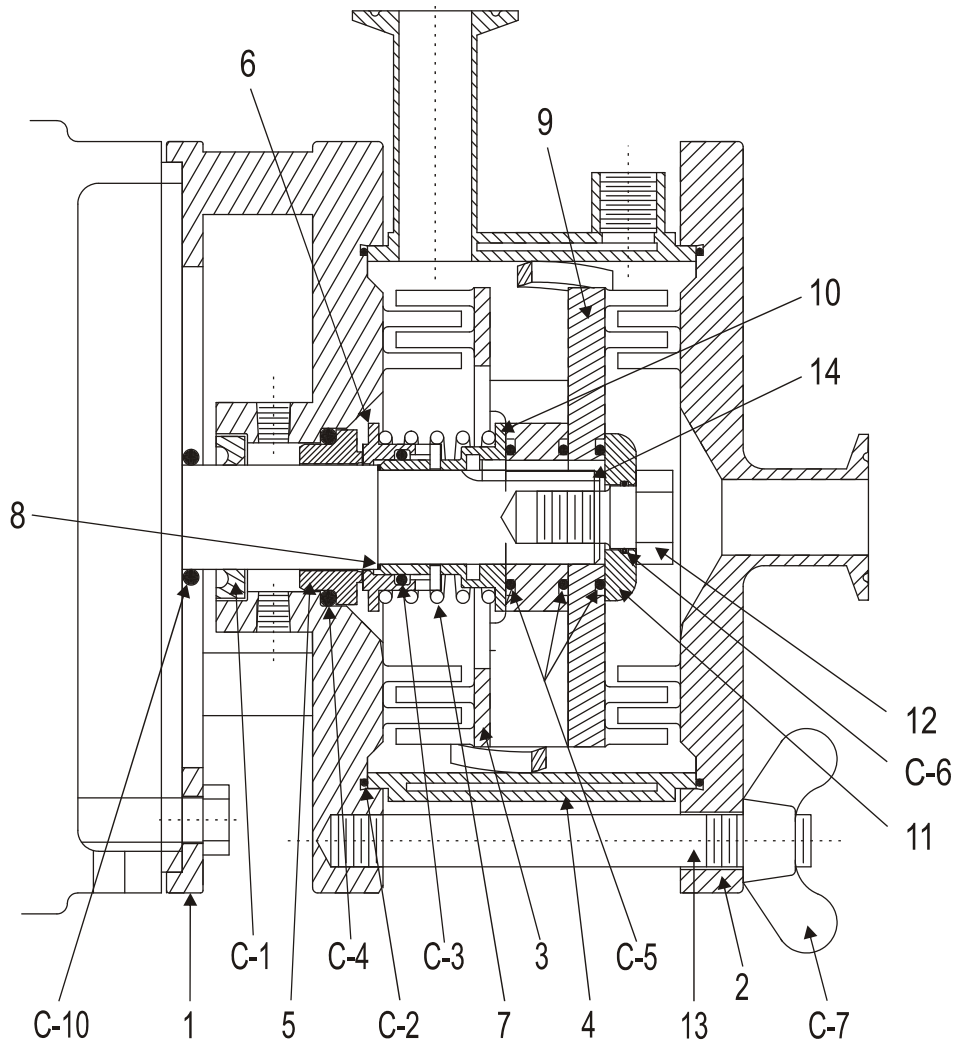
For the most prevalent causes and remedies for product leaking between these two smooth, flat faces, see "Troubleshooting" on page 17.

Troubleshooting

PROBLEM / POSSIBLE CAUSE	SUGGESTED ACTION
Seal Body and/or Seal Faces worn or damaged	Replace. Contact factory for repairing feasibility.
Seal Insert cocked when installed	Remove and reinstall making sure insert o-ring is not twisted. See "Seal Insert O-Ring," below.
Seal Insert cracked	Replace.
Seal Insert face and shoulder worn	Replace with new seal insert.
Seal Springs weakened	Re-bend or replace.
Seal Backing Ring deformed	Replace with new Backing Ring.
Seal Body freedom diminished or stopped due to unclean shaft, seal body o-ring recess, seal backing ring, or faulty seal body o-ring	Disassemble, clean, inspect, lubricate pieces and reassemble. (See "Seal Body O-Ring," below).
Seal Body and Seal Insert mismatched	Always replace seal body against the seal insert it has been running with until new parts replacement is necessary.
Seal Drive Pin worn or missing	Replace with new seal driving pin.
Insufficient spring pressure to hold Body and Insert together after several hours of a daily run.	Reform or replace weakened springs. For adding additional springs, contact factory.
Seal Body and/or Seal Insert damaged by rough handling.	Always lay seal faces on clean, soft cloth. Move impeller into position gently. DO NOT slam it "home."
New or repaired Seal Body installed against worn or damaged seal Insert and vice versa	One good seal face against a worn or damaged face will not work.
Excessive wear of Seal Body and/or Seal Insert	Do not operate rotor without product, water, or detergent flow. These are not gas seals. They operate on liquids only. Excessive spring pressure.
Seal Insert O-Ring	
Twisted when installed	Lubricate before installing. (Suitable Lubricant)
Wrong size, distorted, deformed or cut	Replace with new o-ring.
Wrong o-ring compound	Replace with specified o-ring
Seal Body O-Ring	
Twisted when installed	Lubricate before installing. (Suitable Lubricant)
Wrong size, distorted, deformed or cut	Replace with new o-ring.
Wrong o-ring compound	Replace with specified o-ring
Damaged Seal Body	Replace Seal Body
Damaged Seal Backing Ring	Replace Seal Backing Ring
Damage on shaft at o-ring sealing area	Contact factory about repairs.
Obstruction on shaft stub (uncleaned shaft)	Remove obstruction, clean and lubricate shaft prior to seal body installation

Parts Lists

6" Votator® CR Mixer



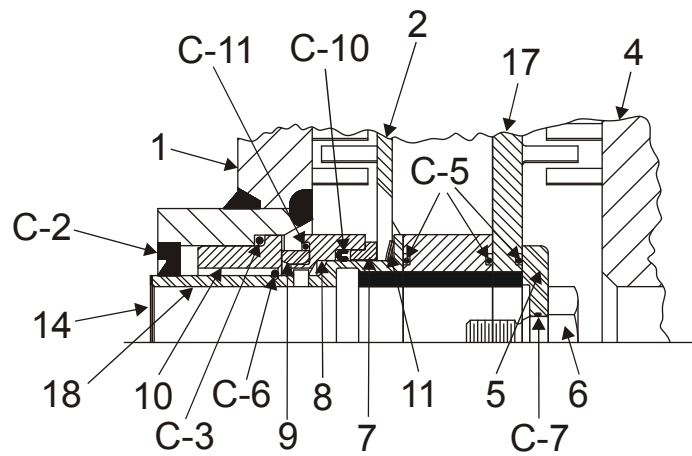
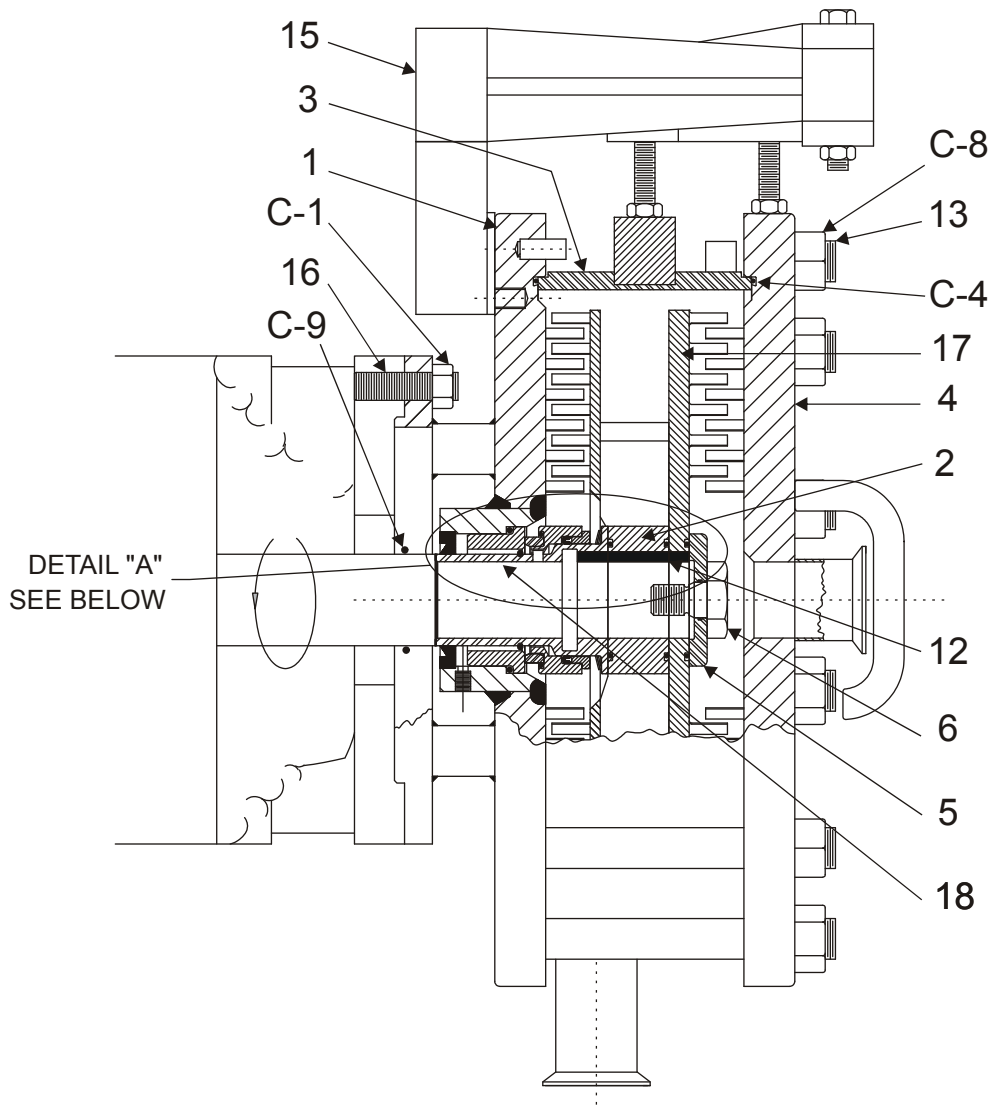
DP100-006

6" Votator® CR Mixer

ITEM #	DESCRIPTION	QTY	PART #
C01	Shaft Seal	1	700030A87
C02	O-ring-164	2	FDA Nitrile/Buna N70164
			FDA EPDM E70164
			FDA FKM V70164
C03	O-ring-220	1	FDA Nitrile/Buna N70220
			FDA EPDM E70220
			FDA FKM V70220
C04	O-ring-327	1	FDA Nitrile/Buna N70327
			FDA EPDM E70327
			FDA FKM V70327
C05	O-ring-222	3	FDA Nitrile/Buna N70222
			FDA EPDM E70222
			FDA FKM V70222
C06	O-ring-018	1	FDA Nitrile/Buna N70018
			FDA EPDM E70018
			FDA FKM V70018
C07	Wing Nut	4	710293
C10	O-ring-216	1	Buna (slinger ring) N70216
			EPDM (slinger ring) E70216
1	Turbine Head	1	LL44927B
2	6" CR Outlet Head, 1" S-line	1	LL34474C
3	Turbine	1	LL34475B
4	CR Mixer Tube, 1" S-line	1	no jacket LL34477D
			with jacket LL34477F01
5	Seal Ring	1	carbon LL18717A1
			ceramic LL18717C1
6	Seal Body	1	tungsten carbide faced LL18747H
			aluminum oxide faced LL18747G
7	Spring	1	LL117729
8	Gasket	1	LL113220
9	Turbine Disc	1	LL34476B
10	Sleeve	1	LL23952B
11	Retaining Washer	1	113805B
12	Lock Bolt	1	113806B
13	Special Stud	4	112270A33
14	Key 1/4" x 1/4" x 1-1/2" (supplied with motor)	1	-
15	Non-code Nameplate	1	LL19566

DP100-010a

16" Votator® CR Mixer



DETAIL "A"

DP100-007

16" Votator® CR Mixer

ITEM #	DESCRIPTION	QTY	PART #
C01	Hexagon Nut	4	LL712585
C02	Shaft Seal, Nitrile/Buna	1	700030A42
C03	O-ring-339	1	FDA Nitrile/Buna N70339
			FDA EPDM E70339
			FDA FKM V70339
C04	O-ring-281	2	FDA Nitrile/Buna N70281
			FDA EPDM E70281
			FDA FKM V70281
C05	O-ring-231	3	FDA Nitrile/Buna N70231
			FDA EPDM E70231
			FDA FKM V70231
C06	O-ring-226	1	FDA Nitrile/Buna N70226
			FDA EPDM E70226
			FDA FKM V70226
C07	O-ring-020	1	FDA Nitrile/Buna N70020
			FDA EPDM E70020
			FDA FKM V70020
C08	Hexagon Nut	12	300563
C09	O-ring-228	1	SBR (slinger ring) N70228
C10	U-Cup	1	FDA Nitrile/Buna 700014A05
			FDA EPDM 700014A03
			FDA FKM 700014A08
C11	O-ring-235	1	FDA Nitrile/Buna N70235
			FDA EPDM E70235
			FDA FKM V70235
C12	Drive Screw	8	920295
1	Drive End Turbine	1	401802C
2	Turbine Hub	1	LL44917A
3	CR Mixer Tube, 2" S-line	1	no jacket 404218
			with jacket 402153B04
4	Opposite Drive End Turbine Head, 2" S-line	1	402154D
5	Retaining Washer	1	113794A
6	Lock Bolt	1	113795A
7	Seal Backup Ring	1	110203C1
8	Seal Body	1	110893A
9	Seal Body Insert	1	carbon 110892A5
			ceramic 110892C1
10	Seal Head Insert	1	ceramic 110891A
			tungsten carbide 110891C
11	Wavy Washer	2	LL19625A
12	Key 1/4" x 1/4" x 2-1/2"	1	LL102191
13	Special Stud	12	112270A35
14	Gasket	1	LL113300
15	Hinge Link Assembly	1	LL402157
16	Special Stud	4	112270A34
17	Turbine Plate	1	LL44918A
18	Mixer Sleeve	1	301802B
19	Logo Nameplate (not shown)	1	LL123710
20	Non-code Nameplate (not shown)	1	LL19566

DP100-010b

Notes



SPX FLOW, Inc.

611 Sugar Creek Road

Delavan, WI 53115

P: (262) 728-1900 or (800) 252-5200

F: (262) 728-4904 or (800) 252-5012

E: wcb@spx.com

SPX FLOW, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing.

Please contact your local sales representative for product availability in your region. For more information visit www.spxflow.com.

The green ">" is a trademark of SPX FLOW, Inc.

ISSUED: 10/2015

COPYRIGHT © 2015 SPX FLOW, Inc.