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## Safety

The following signs may be used in this manual. To avoid serious injury and/or possible damage to equipment, pay attention to these messages. Hazards or unsafe practices could result in severe personal injury or death.



Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. May also be used to alert against an unsafe operating or maintenance practice.

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 series, model, serial number, and revision level of the equipment.

Safety labels are placed on equipment where appropriate. Do not remove any labeling from any piece of equipment. Replace any label that is missing.

DO NOT modify any Dixon® product. Non-factory modifications could create hazardous conditions and void all warranties. DO NOT attempt to use a Dixon product in any application that exceeds the product rating.

### General Guidelines

- The owner must comply with these operating instructions and the authorized use of this piece of equipment. Should problems arise that cannot be solved using these operating instructions, please contact Dixon Sanitary. We will be happy to provide further assistance.
- If any modification work is performed on the product by the owner, Dixon shall no longer be considered the manufacturer of the device. In such cases, all components must be subjected to a new certification process for any applicable certifications that the equipment holds. Unless agreed to in writing by Dixon, liability, warranties, and guarantees shall immediately be deemed null and void as soon as you:
  - Perform modifications/conversion work on the product.
  - Use the product for unauthorized purposes.
  - Remove or disable safety elements.
  - Process products whose material, form, and size do not correspond exactly to the description provided.
  - Make alterations to the original state of the device.
- The operating instructions are regarded as part of the valve.
- The operating instructions shall be valid for the entirety of the device's lifespan.
- The operating and maintenance personnel must always be able to access the operating instructions.
- The safety instructions provided in the operating instructions must be observed.
- The operating instructions must be maintained and updated as necessary.
- The operating instructions must be passed on to any subsequent owners or operators of the device.

# Safety

## Owner Must Ensure...

- The product is used only as authorized.
- The product is used only when it is in fault-free, fully functional condition and the safety equipment is regularly checked to ensure that it is fully functional.
- The product is operated, maintained, and repaired only by personnel with the appropriate qualifications and authorization.
- Checks are made before the product is put into operation to ensure that only the authorized person is in the work area and no one is in danger of being injured if the product is in operation.
- The product is checked for visual damage prior to commissioning to ensure that it is operated only when free of faults.
- Any defects are reported immediately to the appropriate supervisor.
- All safety and warning notices attached to the equipment are legible, and none are removed.
- The operating instructions are always kept close to the product operation site, in a legible and complete state.
- Personnel are regularly instructed on all occupational safety and environmental protection issues and are familiar with and observe the operating instructions, especially the safety instructions contained herein.
- Personnel are trained and supervised to ensure that they follow safety measures, including the obligatory use of personal protective equipment.
- The product is only connected to pipelines that are depressurized at the time of connection.
- There is no tensile or compressive stress acting on the product connections.
- There is no residual risk at any point where pressure could occur. Pressure can cause sudden failure in or damage to the lines and connections.
- Warning notices in the documentation for supplier modules are observed and integrated into the risk assessments in the workplace.

## Care of Stainless Steel

The stainless steel components in Dixon Sanitary equipment are machined, welded, and assembled by skilled craftsmen using manufacturing methods that preserve the corrosion-resistant quality of the stainless steel. Retention of corrosion-resistant qualities under processing conditions requires regular attention to the precautions listed below. Examples of corrosion that can result from improper care are included below.

- Regularly check all electrical devices connected to the equipment for stray currents caused by improper grounding, damaged insulation, or other defects. Corrosion: Pitting often occurs when stray currents encounter moist stainless steel.
- Never leave rubber mats, fittings, wrenches, or other tools in contact with stainless steel. Corrosion: pitting or galvanic action. Objects retard complete drying, preventing air from reforming the protective oxide film. Galvanic corrosion occurs when two dissimilar metals touch when wet.
- Immediately rinse equipment after use with warm water until the rinse water is clear. Clean the equipment (COP or CIP) as soon as possible after rinsing. Corrosion: discoloration, deposits, and pitting. Product deposits often cause pitting beneath the particles.
- Use only recommended cleaning compounds. Purchase chemicals from reputable and responsible chemical manufacturers familiar with stainless steel processing equipment. Ensure they continuously check the effects of their products on stainless steel.
- Use cleaning chemicals exactly as specified by the manufacturer. Do not use excessive concentrations, temperatures, or exposure times. Corrosion: pitting, discoloration, or stress cracks. Permanent damage often occurs from excessive chemical concentrations, temperatures, or exposure times.
- For manual cleaning, use only soft non-metallic brushes, sponges, or pads. Brush with the grain on polished surfaces to avoid scratching the surface. Corrosion: pitting, scratches. Metal brushes or sponges will scratch the surface and promote corrosion over a period of time. Metal particles allowed to remain on a stainless steel surface will cause pitting.
- Use chemical bactericides exactly as prescribed by the chemical manufacturer in concurrence with the local health authority. Use the lowest permissible concentration, temperature, and exposure time possible. Flush immediately after bacterial treatment. In no case should the solution be in contact with stainless steel for more than 20 minutes. Corrosion: protective film destroyed. Chlorine and other halogen bactericides can destroy the protective film. A few degrees increase in temperature greatly increases chemical activity and accelerates corrosion.
- Regularly inspect the joints in pipelines. Be sure all connections are tight fitting without binding. Corrosion: crevice corrosion. Small crevices caused by improperly seated gaskets will promote crevice corrosion. Stainless steel under stress will develop stress cracking, especially in the presence of bactericides containing chlorine.
- Regularly inspect equipment for surface corrosion (i.e. pitting deposits, stress cracks, etc.). If deposit or color corrosion is detected, remove it immediately using mild scouring powder and detergents. Rinse thoroughly and allow to air dry. Review production and cleaning procedures to determine the cause. NOTE: If corrosion is not removed, the protective film cannot be restored, and corrosion will continue at an accelerated rate.



# Technical Specifications

## Materials of Construction Technical Data

- Product contact components: 316L stainless steel
- Non-product contact components: CF8
- Product contact seals: EPDM, FKM

## Line Pressure Technical Data

- Maximum product line pressure: **145 PSI (10 bar)**

## Product Temperature Technical Data

- Maximum operating temperature: **200°F (93°C)**
- Minimum operating temperature: **15°F (-9°C)**

## Surface Finish Technical Data

- Product contact components: Ra ≤ 32
- Other finishes available upon request

## Connections

- Clamp (standard)
- Other options available upon request

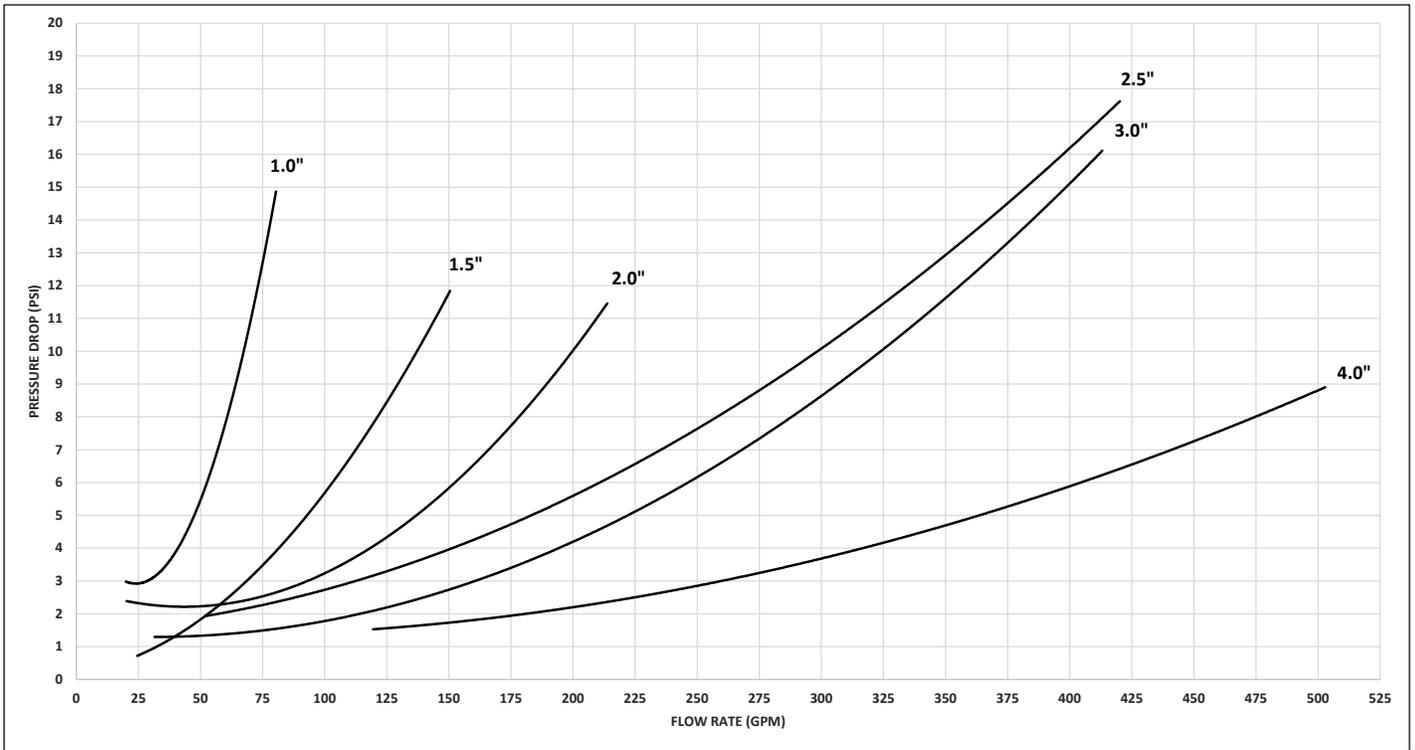
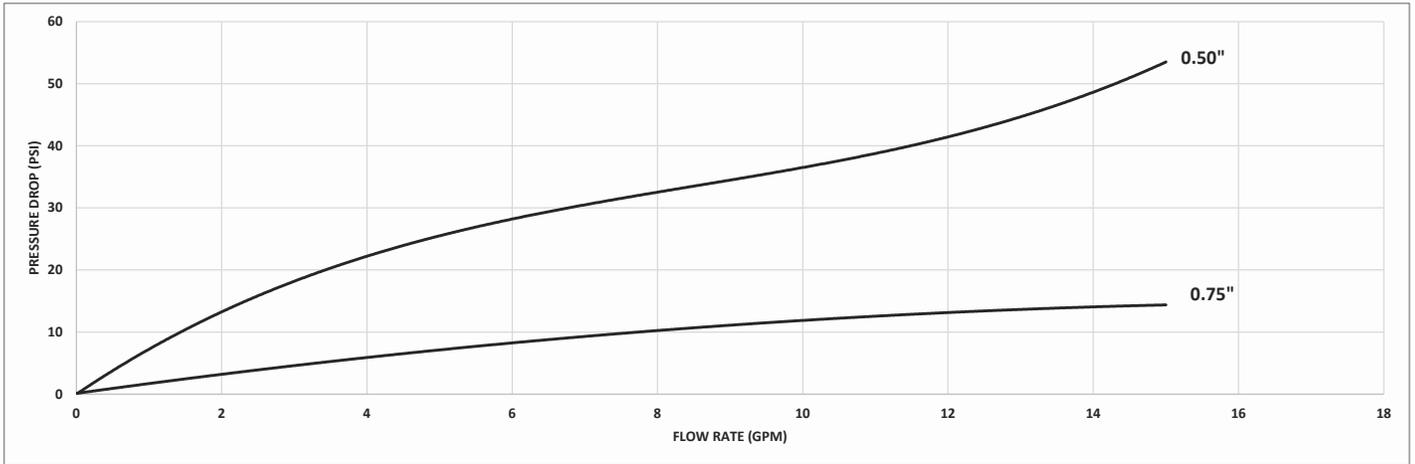
## Cleaning Method

- CIP models: HSC and EHSC sizes 1" to 4"
- COP models: HSC and EHSC sizes 1/2" to 3/4"

## Cracking Pressure

Size	Cracking Pressure (PSIG)
1/2"	10.0
3/4"	4.0
1"	2.5
1-1/2"	1.0
2"	1.5
2-1/2"	0.8
3"	0.5
4"	0.4

# Pressure Drop Charts



## Installation and Start Up

The following should be performed upon receiving the product and prior to installation and use of the product. It is important that all the following processes and procedures are carefully followed and adhered to. Dixon® is not responsible for any damage that occurs during the unpacking or installation process.

### Unpacking

Carefully unpack all the parts of the product and inspect each part for any damage that may have occurred during shipment. Report any damage to the carrier immediately. The ports on the valve are protected with a plastic cover. If any covers are missing or damaged, inspect the ports on the valve thoroughly for any damage. The valve is shipped with all necessary certificates and manuals. Please add this paperwork to the plant maintenance files for future use and reference. Additional information for the valve can be found at [dixonvalve.com](http://dixonvalve.com).

### Tools Needed

The following tools will be required for any maintenance of the product:

- O-ring pick
- Screwdriver

### Welding

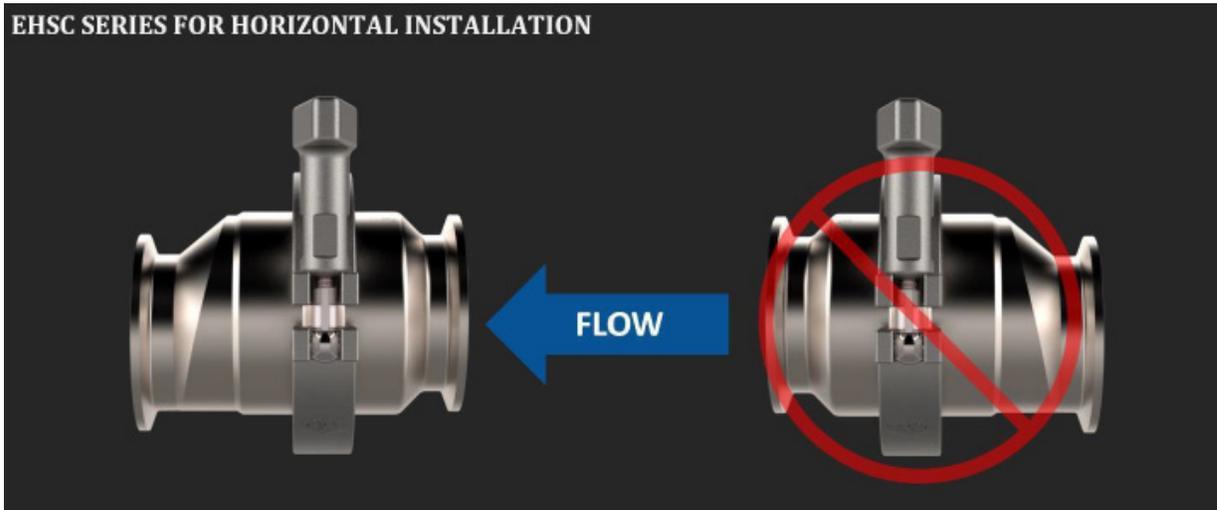
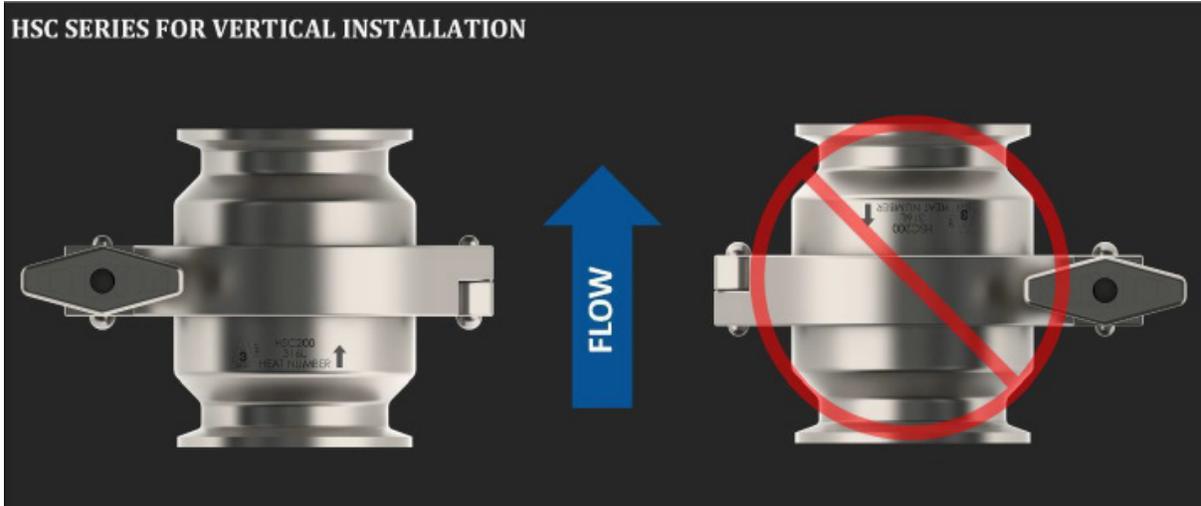
- For equipment delivered with weld end connections, any rubber or plastic components MUST be removed from the equipment prior to welding (see disassembly instructions for proper removal of such components).
- Follow all necessary safety precautions, check lists, and standard procedures prior to performing any welding on the equipment.
- Weld the equipment into the process line, being sure to follow and comply with appropriate industry welding procedures and standards. For equipment used in food, beverage, or dairy applications that carries 3A certification, see 3A standard 00-01-2018 section E1.1.1 for proper procedure and requirements.
- Re-assemble the equipment as per the assembly section of this manual.
- Check the equipment for proper operation and perform a leak test if necessary.

### Function Testing

- Check visually to ensure that the equipment is not leaking.
- Any defective seal that could have been damaged during disassembly or assembly must be replaced.
- Check all equipment components for any signs of damage and replace damaged components.
- Ensure that all screw fittings are tight if applicable.
- Ensure that any pneumatic hose connections are free of leaks if applicable.
- Confirm all pipes and fittings connected to the equipment permitted for use are in the intended pressure range.
- Confirm all electrical installations are protected and in accordance with appropriate safety standards if applicable.
- Check that the maximum pressure indicated on the equipment or in the specifications section of this manual has been complied with.

## Installation Orientation

Equipment must be installed in the proper orientation to ensure proper functionality and cleanability. Please refer to the following diagrams below for proper installation.



## Cleaning

**IMPORTANT:** Before operating the equipment during formal production, please follow the guidelines listed below to ensure that your equipment is clean and ready for service.

- Ensure that the equipment is installed in a proper orientation to allow the equipment to be cleaned and drained properly. Reference the installation and start up section of the manual for orientation guidelines.
- Flush the equipment with an appropriate cleaning agent to remove any residue that may be on the equipment from shipping.  
**IMPORTANT:** DO NOT use cleaning agents that will attack stainless steel or the elastomers that were supplied with the valve. If you are unsure what elastomer is used in the valve, reference the part number key in this manual to make the determination.
- Follow any MSDS instructions for proper use or handling of cleaning agents.
- Flush the equipment to remove any soiling from the product contact components. Depending on the process, there may be varying amounts of soiling. Cleaning times and cleaning agent concentrations will vary depending on the product being processed. It is the responsibility of the operator to determine and adjust these cleaning specifications as necessary.
- The equipment should not be allowed to sit with product present in it for extended periods of time. Equipment should be cleaned immediately after processing is complete.

## General Maintenance

To ensure proper operation of your Dixon® equipment, proper maintenance must be performed at regular intervals. To prevent damage, check all fitting connections and screw connections for any loosening of the connections during equipment operation. Maintain adequate spare parts stock for all replacement components on the piece of equipment. Please refer to the repair kits section of the manual for complete component part numbers and kit part numbers.

## Maintenance and Servicing Intervals

Recommended intervals for a one shift operation would be three months. However, only the user/owner can determine the appropriate service intervals as the length between service intervals is dependent on the following parameters:

- Duration of use per day - number of cycles
- Type of product
- Product temperature
- Product viscosity
- Cleaning agent

## Lubrication

Please use the chart below for proper grease types for varying component materials. DO NOT use mineral or animal-product-based greases. Check all visible seals for any signs of damage and replace as necessary. For sliding surfaces, use Jax PurGel Klear food grade grease. If a different grease is used other than what is specified in this manual, there is risk of damaging the seals. Lubrication is only required when the equipment is being reassembled after servicing.

Seal Material	Grease Type
EPDM	Compatible with non-mineral/non-animal based greases
FKM	

## Inspection

Inspection of the components listed below should be done during regular servicing intervals. Before removing the equipment from the process line, please make sure to do the following:

- Clean the process line completely to remove any product that may be harmful if coming in contact with a person.
- Drain the process line completely that connects to the equipment being serviced.
- Close any isolation valves on either side of the equipment being serviced.
- Once the equipment has been removed from the line, cap the lines that were connected to the piece of equipment being serviced to prevent any foreign material from entering the line.

Any components that show signs of severe wear or damage should be replaced during the scheduled maintenance time for the equipment. Please refer to the assembly and disassembly section of this manual for proper instructions on removing and replacing any worn or damaged components. Replacement components and repair kits can be found in the BOM or repair kits section of this manual.

## Manual Cleaning (COP)

1. Refer to the disassembly section of the manual and follow instructions to remove all product contact components.
2. Inspect the product contact components of the equipment for any signs of possible damage. Replace components as necessary (see the equipment BOM in this manual for replacement component part numbers).
3. Clean all surfaces of the product contact components by manually brushing in a bath of cleaning solution (acid detergents or simple alkaline soda type detergents).
4. After cleaning, rinse all components thoroughly with water.
5. Refer to the assembly section of this manual and follow instructions to properly reassemble the equipment.

## Cleaning in Place (CIP)

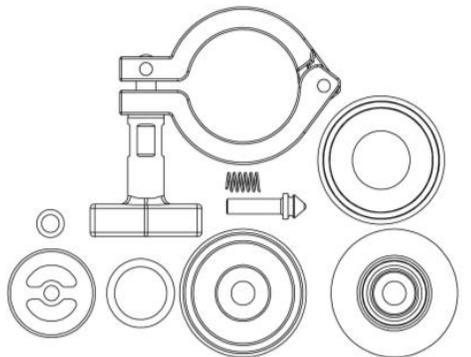
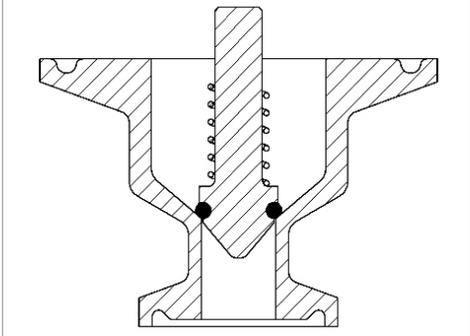
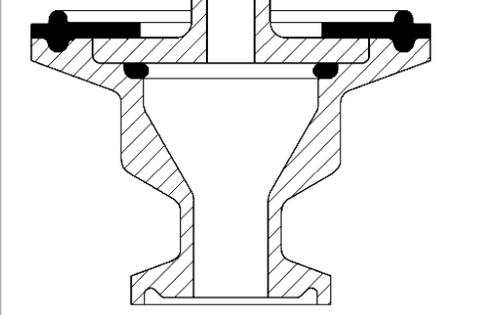
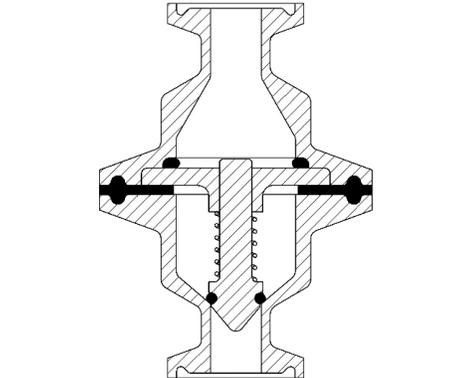
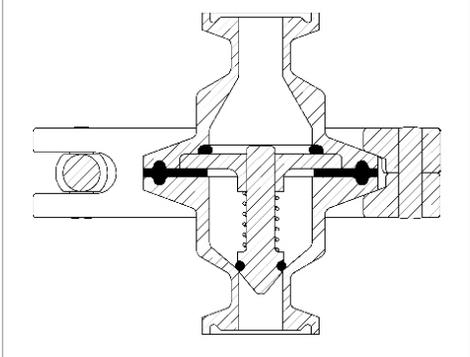
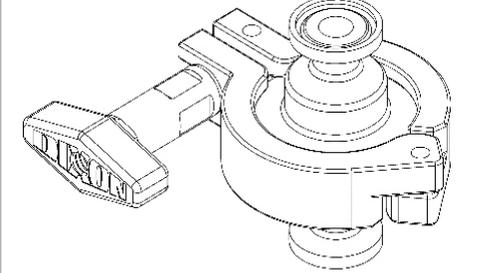
NOTE: Not all models or sizes may be certified for CIP. Please check the specifications section of this manual to determine what cleaning method is suitable.

1. Regularly flush the valve with a suitable medium to preserve seals and integrity of the product contact surfaces, such as when there is a product changeover or downtime. These intervals shall be determined by the end user.
2. Important: Only use cleaning agents that will not harm the seals and stainless steel.
3. Follow any MSDS instructions for proper use or handling of cleaning agents.
4. The necessary cleaning times, temperatures, and cleaning agents will depend on the degree of contamination and must be adapted accordingly.
5. Cleaning flow velocities of 5-6 ft/s should be maintained for proper cleaning of the equipment.
6. After cleaning, rinse the equipment thoroughly with water.

## Assembly and Disassembly

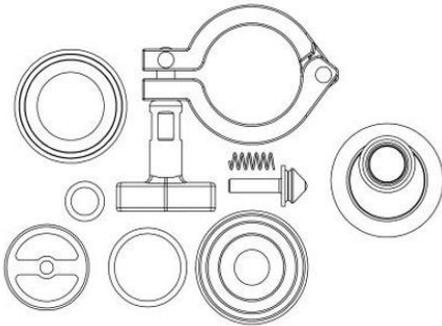
To ensure quality operation of your Dixon® equipment, the equipment must be disassembled and assembled properly to prevent equipment damage during operation. Please follow the instructions contained in this manual carefully and be sure to follow any safety warnings contained herein. All images shown are for illustration purposes only. Actual product may vary due to differences between sizes and series. If questions should arise during the assembly or disassembly process that are not addressed in this manual, please feel free to contact Dixon Sanitary at 800.789.1718.

### Assembly - 1/2" and 3/4" HSC

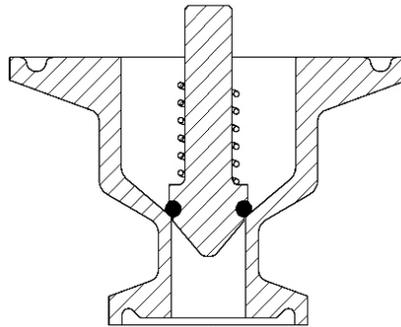
<p><b>1.</b></p>	<p><b>2. Install plunger O-ring onto plunger and set into lower body. Slide spring onto plunger.</b></p>	<p><b>3. Place spider O-ring, spider plate, and body gasket onto upper body.</b></p>
		
<p><b>4. Set upper body assembly down onto plunger and lower body. Hold together.</b></p>	<p><b>5. Install body clamp and tighten to 25 in-lbs.</b></p>	<p><b>6.</b></p>
		

## Assembly - 1/2" and 3/4" EHSC

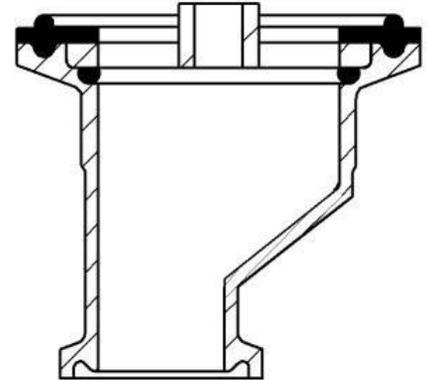
1.



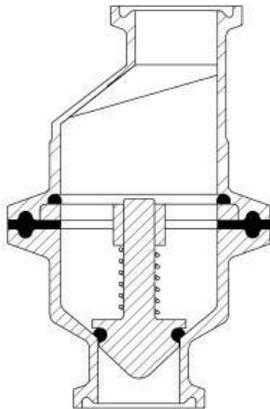
2. Install plunger O-ring onto plunger and set into lower body. Slide spring onto plunger.



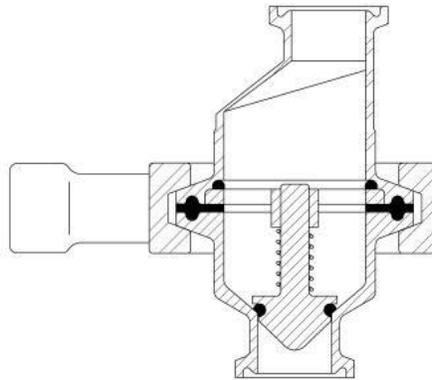
3. Place spider O-ring, spider plate, and body gasket onto upper body.



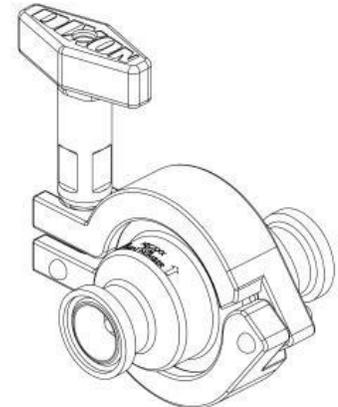
4. Set upper body assembly down onto plunger and lower body. Hold together.



5. Install body clamp and tighten to 25 in-lbs.

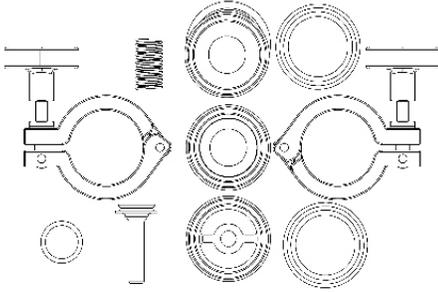


6.

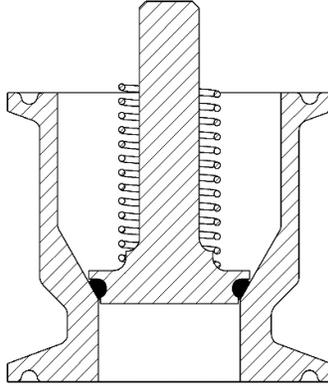


## Assembly - 1" EHSC

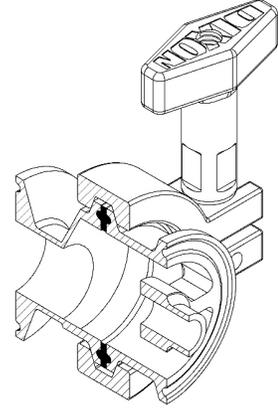
1.



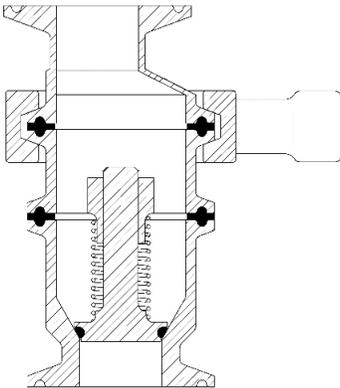
2. Install plunger O-ring onto plunger and set into lower body. Slide spring onto plunger.



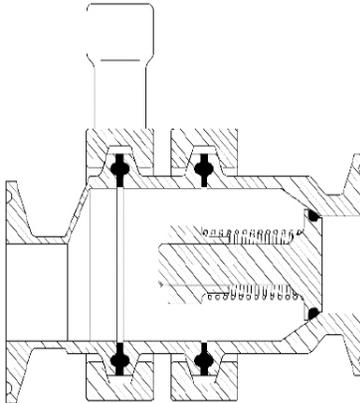
3. Clamp together upper body assembly with gasket and tighten to 25 in-lbs. Ensure proper alignment of bodies.



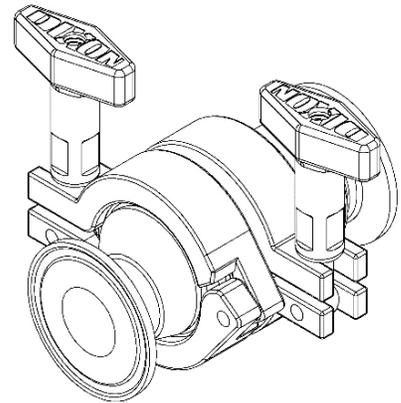
4. Set upper body assembly down onto plunger and lower body. Hold together.



5. Install body clamp and tighten to 25 in-lbs.

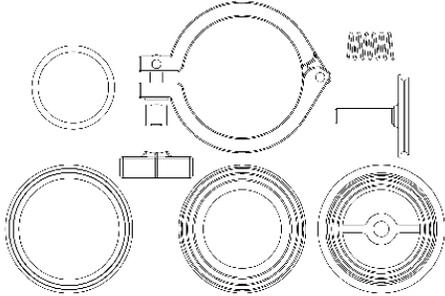


6.

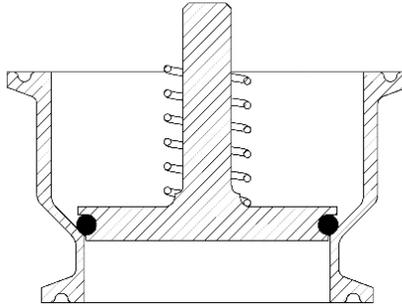


## Assembly - 1" to 4" HSC, 1-1/2" to 4" EHSC

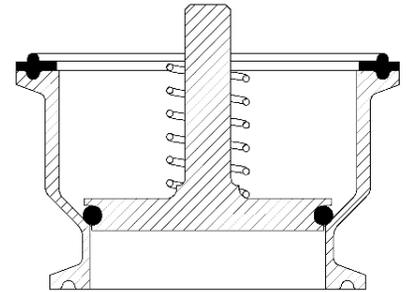
1.



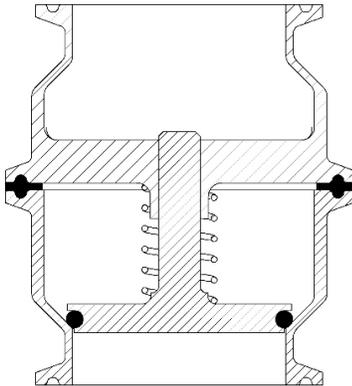
2. Install plunger O-ring onto plunger and set into lower body. Slide spring onto plunger.



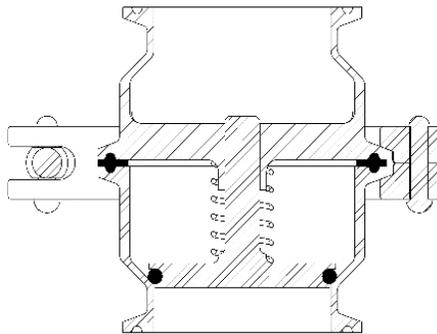
3. Set body gasket onto lower body.



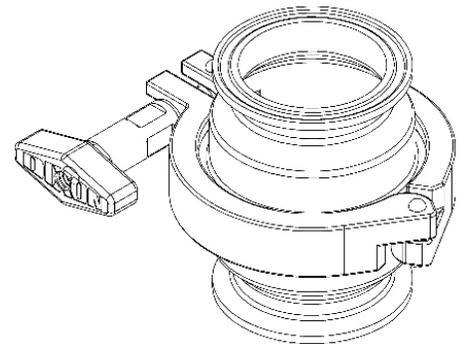
4. Slide upper body onto plunger and lower body. Hold together.



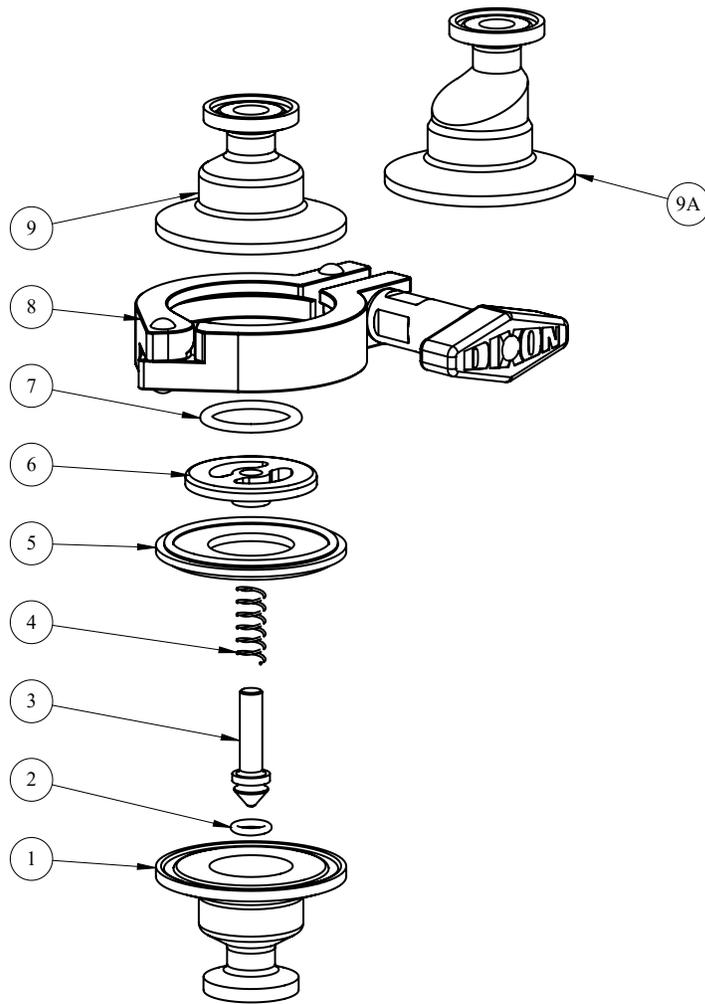
5. Install body clamp and tighten to 25 in-lbs.



6.

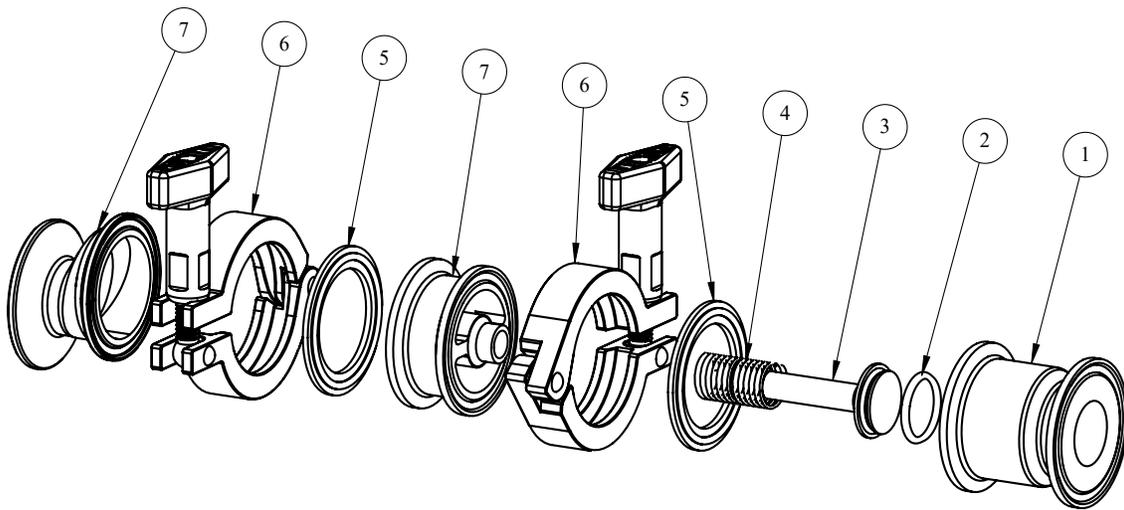


## Bill of Materials - 1/2" to 3/4" (HSC & EHSC)



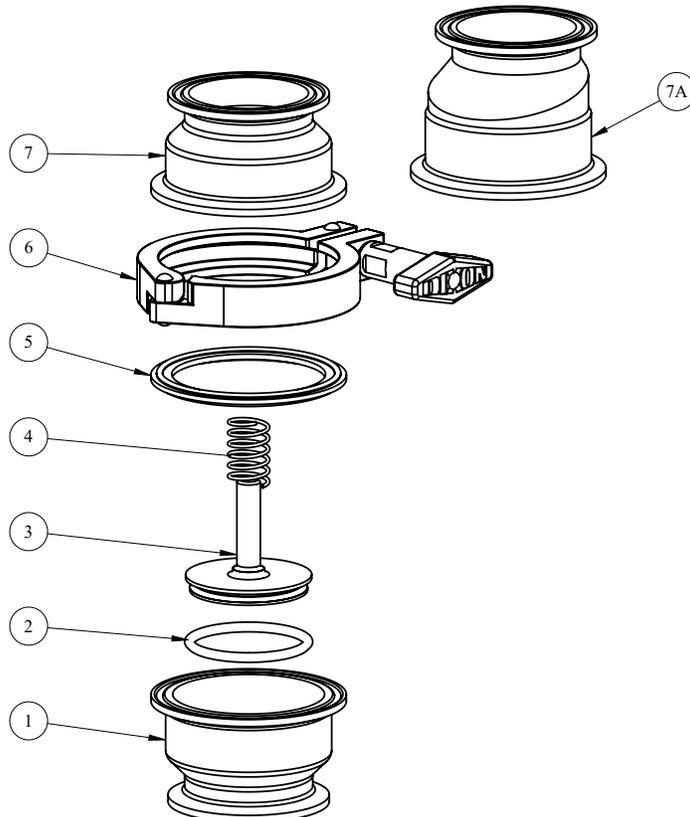
Item	Size	Part #	Description	Material	Qty	
					HSC	EHSC
1	1/2"	HSC-LB050	lower body, clamp	316L	1	1
	3/4"	HSC-LB075				
2	both	see repair kit	plunger O-ring	see repair kit	1	1
3	1/2"	HSC-P050	plunger	316L	1	1
	3/4"	HSC-P075				
4	1/2"	HSC-SP050	spring	316L	1	1
	3/4"	HSC-SP075				
5	both	see repair kit	plunger O-ring	see repair kit	1	1
6	1/2"	HSC-S050	spider	316L	1	1
	3/4"	HSC-S075				
7	both	see repair kit	spider O-ring	see repair kit	1	1
8	both	13MHHM100-150	clamp	CF8	1	1
9	1/2"	HSC-UB050	concentric upper body, clamp	316L	1	-
	3/4"	HSC-UB075			1	-
9A	1/2"	EHSC-UB050	eccentric upper body, clamp	316L	-	1
	3/4"	EHSC-UB075			-	1

### Bill of Materials - 1" (EHSC only)



Item	Size	Part #	Description	Material	Qty
1	1"	HSC-LB100	lower body, clamp	316L	1
2		see repair kit	plunger O-ring	see repair kit	1
3		HSC-P100	plunger	316L	1
4		HSC-SP100	spring	316L	1
5		see repair kit	body gasket	see repair kit	2
6		13MHHM100-150	clamp	CF8	2
7		EHSC-UB100	2 pc upper body, clamp	316L	1

### Bill of Materials - 1" to 4" HSC, 1-1/2" to 4" EHSC



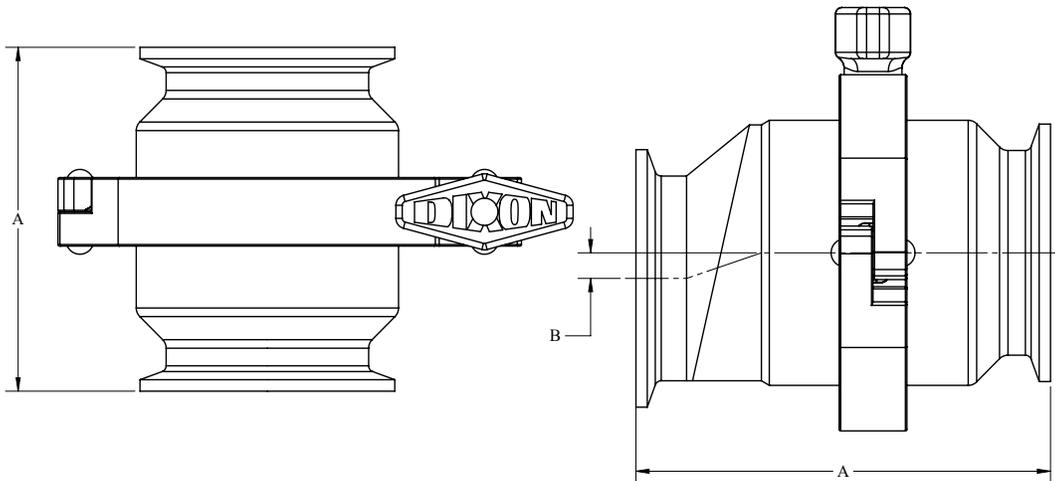
## Bill of Materials - 1" to 4" HSC, 1-1/2" to 4" EHSC

Item	Size	Part #	Description	Material	Qty	
					HSC	EHSC
1	1"	HSC-LB100	lower body, clamp	316L	1	-
	1-1/2"	HSC-LB150	lower body, clamp		1	1
	2"	HSC-LB200	lower body, clamp		1	1
	2-1/2"	HSC-LB250	lower body, clamp		1	1
	3"	HSC-LB300	lower body, clamp		1	1
	4"	HSC-LB400	lower body, clamp		1	1
2	all	see repair kit	plunger O-ring	see repair kit	1	1
3	1"	HSC-P100	plunger	316L	1	-
	1-1/2"	HSC-P150	plunger		1	1
	2"	HSC-P200	plunger		1	1
	2-1/2"	HSC-P250	plunger		1	1
	3"	HSC-P300	plunger		1	1
	4"	HSC-P400	plunger		1	1
4	1"	HSC-SP100	spring	316L	1	-
	1-1/2"	HSC-SP150	spring		1	1
	2"	HSC-SP200	spring		1	1
	2-1/2"	HSC-SP250	spring		1	1
	3"	HSC-SP300	spring		1	1
	4"	HSC-SP400	spring		1	1
5	all	see repair kit	plunger O-ring	see repair kit	1	1
6	1"	13MHHM100-150	clamp	316L	1	-
	1-1/2"	13MHHM100-150	clamp		1	1
	2"	13MHHM200	clamp		1	1
	2-1/2"	13MHHM250	clamp		1	1
	3"	13MHHM300	clamp		1	1
	4"	13MHHM400	clamp		1	1
7	1"	HSC-UB100	concentric upper body, clamp	316L	1	-
	1-1/2"	HSC-UB150	concentric upper body, clamp		1	-
	2"	HSC-UB200	concentric upper body, clamp		1	-
	2-1/2"	HSC-UB250	concentric upper body, clamp		1	-
	3"	HSC-UB300	concentric upper body, clamp		1	-
	4"	HSC-UB400	concentric upper body, clamp		1	-
7A	1-1/2"	EHSC-UB150	eccentric upper body, clamp	316L	-	1
	2"	EHSC-UB200	eccentric upper body, clamp		-	1
	2-1/2"	EHSC-UB250	eccentric upper body, clamp		-	1
	3"	EHSC-UB300	eccentric upper body, clamp		-	1
	4"	EHSC-UB400	eccentric upper body clamp		-	1

## Part Number Key

HSC/EHSC-Series Spring Check Valve Part Number Key Example: HSCE050_		Series	Elastomers	Size	End Connection
		HSC	E	050	
<b>Series</b>	<b>Code</b>	<div style="display: flex; justify-content: space-between; align-items: center; padding: 5px;"> <div style="width: 20%; border-right: 1px solid black; padding-right: 5px;"> <p>← HSC</p> </div> <div style="width: 20%; border-right: 1px solid black; padding-right: 5px;"> <p>← E</p> </div> <div style="width: 20%; border-right: 1px solid black; padding-right: 5px;"> <p>← 050</p> </div> <div style="width: 20%; padding-left: 5px;"> <p>← blank</p> </div> </div>			
HSC (vertical application)	HSC				
EHSC (horizontal application)	EHSC				
<b>Elastomers</b>	<b>Code</b>				
EPDM	E				
FKM	V				
<b>Size</b>	<b>Code</b>				
1/2"	050				
3/4"	075				
1"	100				
1-1/2"	150				
2"	200				
2-1/2"	250				
3"	300				
4"	400				
<b>End Connection</b>	<b>Code</b>				
Clamp	blank				
Weld	BB				

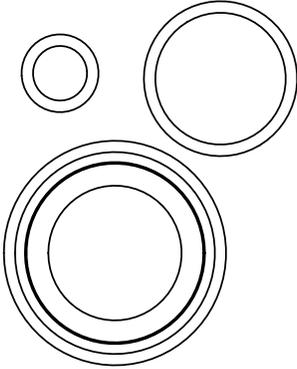
## Dimensions



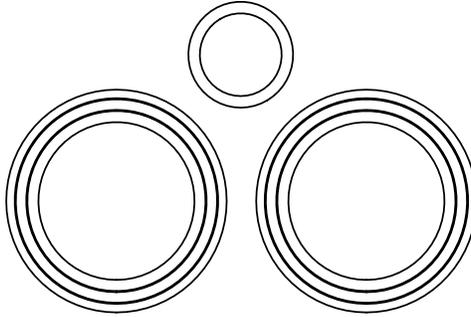
Size	HSC	EHSC	
	A (in)		B (in)
1/2"	2.7"	3.1"	0.3"
3/4"	2.7"	3.1"	0.3"
1"	3.3"	4.0"	0.3"
1-1/2"	3.4"	3.6"	0.3"
2"	3.4"	4.1"	0.3"
2-1/2"	3.4"	4.0"	0.4"
3"	3.4"	4.0"	0.4"
4"	4.1"	4.7"	0.4"

## Repair Kits

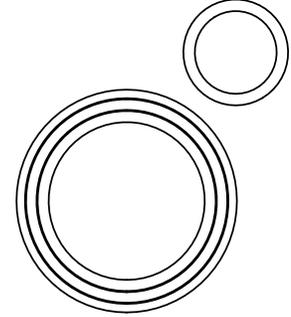
1/2" & 3/4" HSC/EHSC



1" EHSC



1" - 4" HSC & 1-1/2" - 4" EHSC



Series	Elastomer	Size	Part #
HSC	EPDM	1/2"	HSC-RKE050
		3/4"	HSC-RKE075
		1"	HSC-RKE100
		1-1/2"	HSC-RKE150
		2"	HSC-RKE200
		2-1/2"	HSC-RKE250
		3"	HSC-RKE300
		4"	HSC-RKE400
	FKM	1/2"	HSC-RKV050
		3/4"	HSC-RKV075
		1"	HSC-RKV100
		1-1/2"	HSC-RKV150
		2"	HSC-RKV200
		2-1/2"	HSC-RKV250
		3"	HSC-RKE300
		4"	HSC-RKV400
EHSC	EPDM	1/2"	EHSC-RKE050
		3/4"	EHSC-RKE075
		1"	EHSC-RKE100
		1-1/2"	EHSC-RKE150
		2"	EHSC-RKE200
		2-1/2"	EHSC-RKE250
		3"	EHSC-RKE300
		4"	EHSC-RKE400
	FKM	1/2"	EHSC-RKV050
		3/4"	EHSC-RKV075
		1"	EHSC-RKV100
		1-1/2"	EHSC-RKV150
		2"	EHSC-RKV200
		2-1/2"	EHSC-RKV250
		3"	EHSC-RKV300
		4"	EHSC-RKV400

## Troubleshooting

Problem	Possible Cause	Suggested Action
Excessive wear.	High cycling.	Review application, system, and components.
	Water hammer.	
	Over or undersized valve.	
Valve chatter.	High cycling.	
	Oversized valve.	
Ruptured/dislodged seals.	Water hammer.	
	High flow rate.	
Fluid is leaking passed plunger seal.	Damage to plunger O-ring.	Inspect and replace components if necessary.
	Damage to spring.	
	Obstruction between plunger and body.	
	Obstruction in the spring.	
Valve is leaking between upper body and lower body.	Damage to the body gasket.	Inspect and replace the body gasket.
Valve is not stroking properly.	Obstruction between plunger and body.	Inspect for obstructions and replace components if necessary.
	Obstruction in the spring.	
Fluid not flowing through the valve.	Valve is installed improperly.	Verify installation to make sure fluid is flowing into the inlet of the valve.



## Limited Warranty

DIXON VALVE AND COUPLING COMPANY, LLC (herein called "Dixon") warrants the products described herein and manufactured by Dixon to be free from defects in material and workmanship for a period of one (1) year from date of shipment by Dixon under normal use and service. Its sole obligation under this warranty being limited to repairing or replacing, as hereinafter provided, at its option any product found to Dixon's satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Dixon's factory within three (3) months after discovery of the defect. The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to: (a) parts or products not manufactured by Dixon, the warranty of such items being limited to the actual warranty extended to Dixon by its supplier; (b) any product that has been subject to abuse, negligence, accident, or misapplication; (c) any product altered or repaired by others than Dixon; and (d) to normal maintenance services and the replacement of service items (such as washers, gaskets, and lubricants) made in connection with such services. To the extent permitted by law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of the warranty. No action may be brought against Dixon for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable law.

Other than the obligation of Dixon set forth herein, Dixon disclaims all warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose, and any other obligation or liability. The foregoing constitutes Dixon's sole obligation with respect to damages, whether direct, incidental or consequential, resulting from the use or performance of the product.

Some products and sizes may be discontinued when stock is depleted or may require a minimum quantity for ordering.

