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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

- Product contact metal components: 304 stainless steel
- Non-product contact metal components: 304 stainless steel
- Product contact seals: EPDM
- Gas inlet purge plug: nylon

Product Temperature Technical Data

- Maximum operating temperature: **120°F (49°C)**
- Minimum operating temperature: **40°F (4.4°C)**

Surface Finish Technical Data

- Product contact metal components: Ra ≤ 32

Screen Technical Data

- Surface area of the open holes: 3.2in² +/- 0.2in²
- Surface area of the open holes and screen: 20in²
- Hole diameter: 0.03"

Pressure Relief Technical Data

- Pressure relief: 22" water column (**0.8 PSI**)
- Vacuum break: 2" water column (**0.1 PSI**)
- Maximum tank fill and evacuation rate: **250 GPM**

NOTE: This valve has been designed as a secondary pressure and vacuum relief vent. Always open the upper manhole whenever a product is being transferred in excess of **250 GPM**. Dixon® Sanitary assumes no liability for tank damages or product loss. Designed for indoor use.

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 tank vent valve 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.



All tolerances have been designed to be extremely close to hold a positive head pressure. Be careful when cleaning and assembling not to damage any of the components or O-ring sealing surfaces. If any of these items become damaged the vent may not work properly.

General Maintenance

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 startup 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 sufficiently 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.

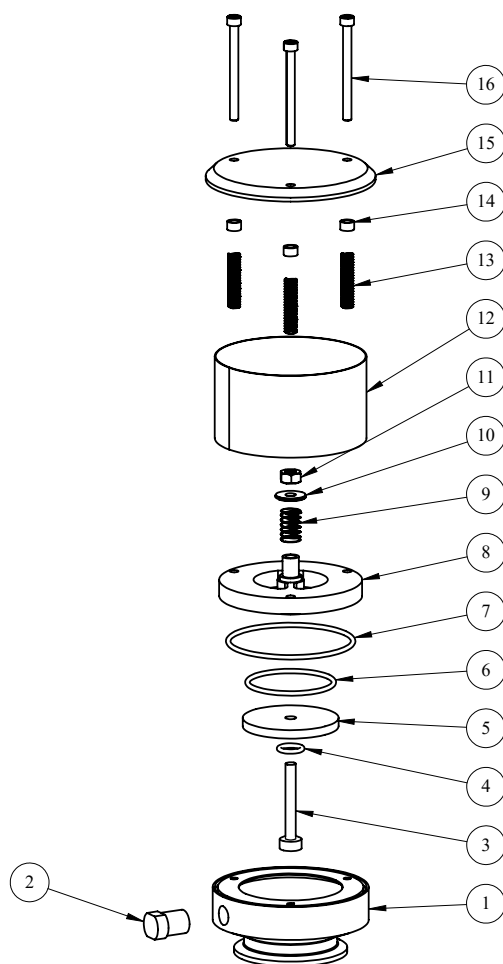
Cleaning Instructions

1. Valve must be cleaned whenever over filling of the tank has occurred.
2. Completely disassemble valve and wash all parts separately. Be careful to not damage any components.
3. Remove all O-rings. Clean inside O-ring grooves. Inspect all O-rings and replace if needed.
4. Clean all the inside of the sleeve where the vacuum bolt (**item 3**) slides. The vacuum bolt must slide freely to operate properly.
5. All O-ring sealing surfaces must be clean and dry.

Assembly

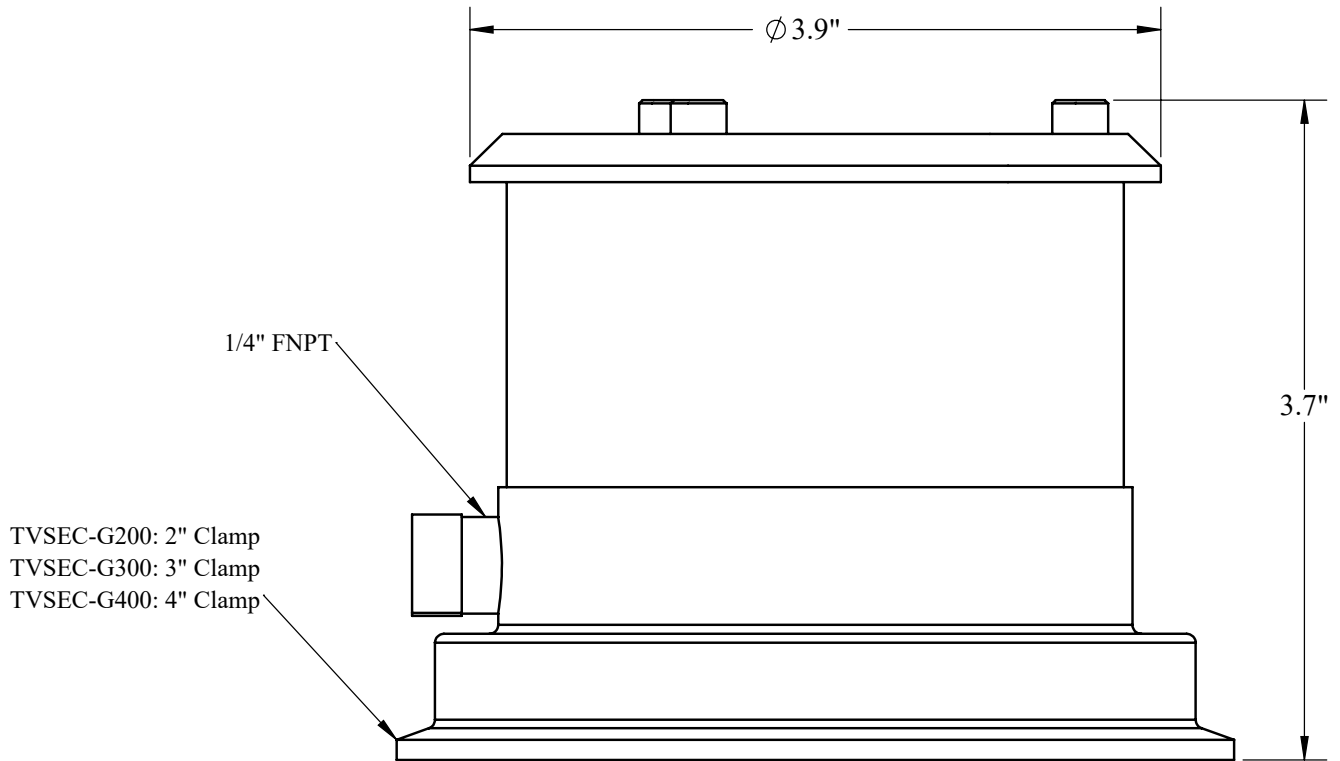
1. Install vacuum O-ring (**item 6**) onto pressure plate (**item 8**). Inspect O-ring and be certain O-ring is not twisted, this can cause vacuum disc to not seal properly. Be careful not to roll or stretch O-ring when pressing into groove. Press straight down only. Inspect O-ring to ensure it is laying flat.
2. Install pressure O-ring (**item 7**) onto pressure plate (**item 8**). Inspect O-ring and be certain O-ring is not twisted, this can cause vacuum disc to not seal properly. Be careful not to roll or stretch O-ring when pressing into groove. Press straight down only. Inspect O-ring to ensure it is laying flat.
3. Slide small O-ring (**item 4**) onto vacuum bolt (**item 3**); insert vacuum bolt through the vacuum disc (**item 5**) with the head of the bolt opposite of the flat side of the vacuum disc. Press the small O-ring (**item 4**) up into the counter bore in the vacuum disc (**item 5**).
4. Insert vacuum bolt (**item 3**) through center of pressure plate (**item 8**).
5. Slide vacuum spring (**item 9**) over vacuum bolt (**item 3**) and pressure plate (**item 8**). While holding down vacuum spring (**item 9**), assemble flat washer (**item 10**) and lock nut (**item 11**). Only tighten nut far enough to see bolt even with the top of the nut.
6. Set main body (**item 1**) on a flat surface with clamp connection down.
7. Position large pressure plate (**item 8**), with vacuum disc down, over main body (**item 1**). Line up holes in pressure table (**item 8**) with screw holes in body.
8. Insert the three cover screws (**item 16**) through the holes in the cover (**item 15**). Turn the cover sideways. While holding the screws (**item 16**) from falling out of the palm of your hand, slide the three spacers (**item 14**) and the three pressure plate springs (**item 13**) onto the three screws (**item 16**).
9. Holding the springs (**item 13**) from falling off, guide the three screws through the pressure plate (**item 8**).
10. Thread the three screws (**item 16**), one turn only, into the main body (**item 1**).
11. Spread the screen (**item 12**) open just enough to slide it over the cover (**item 15**) and around the three springs (**item 13**).
12. Start one side of the air screen (**item 12**) into the small groove located in the top of the body (**item 1**). While holding the cover (**item 15**) down with one hand, work the screen (**item 12**) in around the body (**item 1**) until entire screen (**item 12**) is seated into the groove.
13. While continuing to hold down the cover (**item 15**), use a 4mm Allen wrench to tighten the three cover screws (**item 16**). Do not over tighten the screws (**item 16**).

Bill of Materials



Item #	Valve Size	Part #	Description	Material	Quantity
1	2"	TVSEC-1-200	2" body	304 stainless steel	1
	3"	TVSEC-1-300	3" body		
	4"	TVSEC-1-400	4" body		
2	all	TVSEC-2	plug	PVC	1
3	all	TVSEC-3	vacuum bolt	304 stainless steel	1
4	all	TVSEC-4E	vacuum bolt O-ring	EPDM	1
5	all	TVSEC-5	vacuum disc	304 stainless steel	1
6	all	TVSEC-6E	vacuum disc O-ring	EPDM	1
7	all	TVSEC-7E	pressure plate O-ring	EPDM	1
8	all	TVSEC-8	pressure plate	304 stainless steel	1
9	all	TVSEC-9	vacuum spring	304 stainless steel	1
10	all	TVSEC-10	flat washer	304 stainless steel	1
11	all	TVSEC-11	nut	304 stainless steel	1
12	all	TVSEC-12	screen	304 stainless steel	1
13	all	TVSEC-13	pressure plate springs	304 stainless steel	3
14	all	TVSEC-14	spacers	304 stainless steel	3
15	all	TVSEC-15	cover	304 stainless steel	1
16	all	TVSEC-16	cover screws	304 stainless steel	3

Dimensions



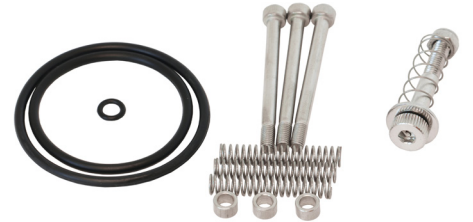
Part Number Table

Tube O.D.	Part #
2"	TVSEC-G200
3"	TVSEC-G300
4"	TVSEC-G400

Repair Kits

Tank Vent Repair Kit

Part #	Description	Qty
TVSEC-RK	304 stainless steel vacuum bolt	1
	EPDM vacuum bolt O-ring	1
	EPDM vacuum disc O-ring	1
	EPDM pressure plate O-ring	1
	vacuum spring	1
	304 stainless steel flat washer	1
	304 stainless steel nut	1
	304 stainless steel pressure plate springs	3
	304 stainless steel spacers	3
	304 stainless steel cover screws	3



Tank Vent O-Ring Kit

Part #	Description	Qty
TVSEC-OKITE	EPDM vacuum bolt O-ring	1
	EPDM vacuum disc O-ring	1
	EPDM pressure plate O-ring	1



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.

