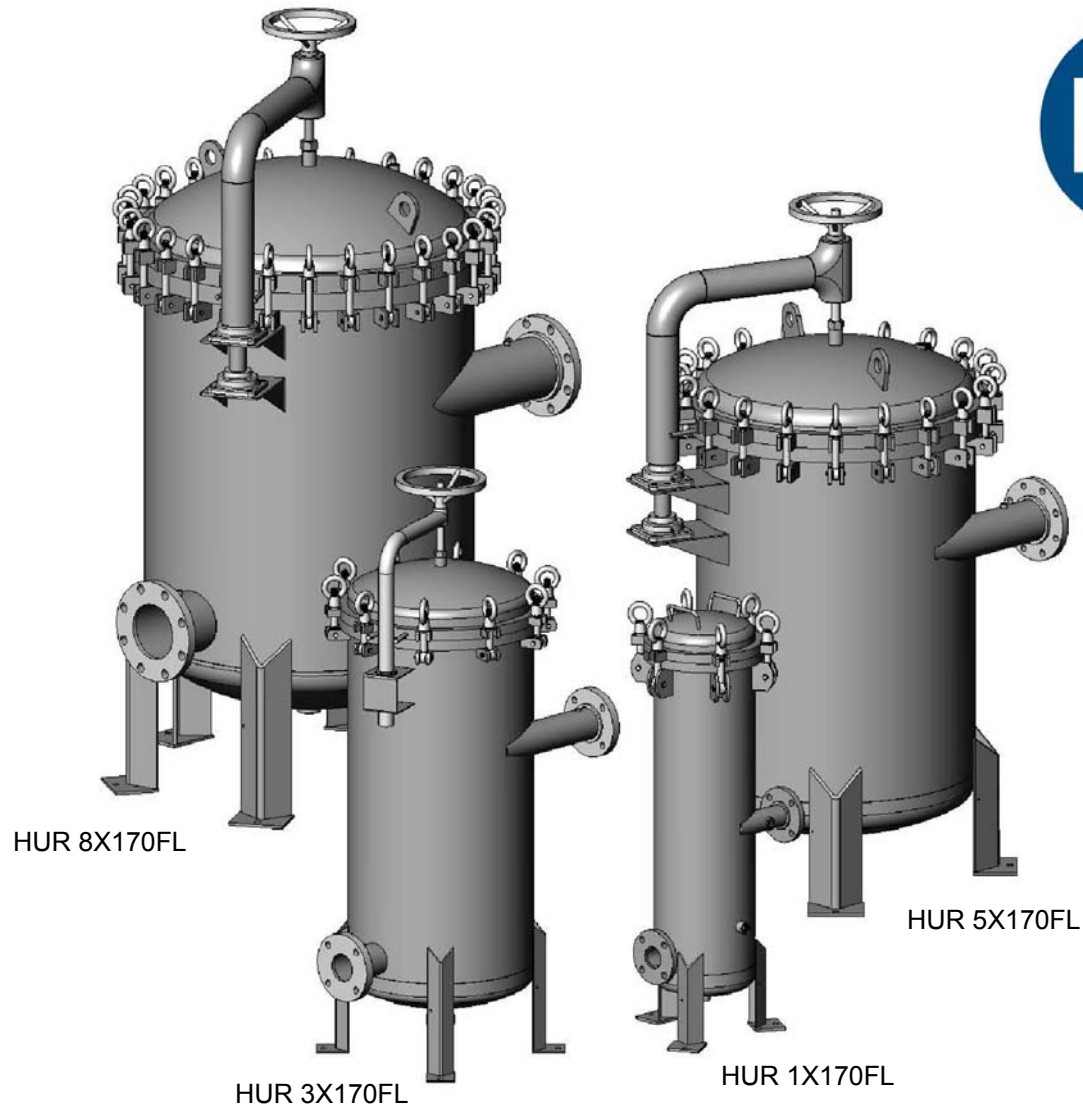


# **HARMSCO® Hurricane®**

## **Swing Bolt Water Filters**

**Models: HUR 1X170FL, HUR 3X170FL  
HUR 5X170FL, & HUR 8X170FL**

### **INSTALLATION AND OPERATION MANUAL**



**Harmsco® Filtration Products**  
*With Patented Up-Flow and Tangential/Rotational Flow  
Filtration Technology*

**www.harmsco.com**  
**(561) 848-9628**

# HARMSCO® Hurricane® Swing Bolt Water Filters

## INTRODUCTION

The Harmsco® Hurricane® Swing Bolt Water Filter is a water filtration device that utilizes the Harmsco® Hurricane® HC/170 size cartridge filter in various quantities from one per housing (HUR 1X170FL) to 8 per housing (HUR 8X170FL).

The Hurricane® HC/170 cartridges are available in many micron ratings, styles and materials of construction. High temperature cartridges are also available. Consult the Harmsco® Product Catalog ([www.harmsco.com](http://www.harmsco.com)) or a Sales Representative for more details.

All of the Harmsco® Hurricane® Swing Bolt housings; **HUR 1X170FL, HUR 3X170FL, HUR5X170FL & HUR 8X170FL** are equipped with pipe flanges on both the inlet and the outlet, & cartridge lifting handle(s) (part # 362-L). All models are NSF Certified per Standard 61 when used with Genuine Harmsco® Hurricane® HC/170 cartridges.

The Harmsco® Hurricane® Swing Bolt Water Filter is designed as a strong economical filter that continuously improves the water quality with minimal maintenance.

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# **HARMSCO® Hurricane® Swing Bolt Water Filters**

## **INSTALLATION & OPERATION MANUAL**

### **Safety Precautions:**

**Before using and installing this product or its components please read this entire manual. Failure to do so could result in serious personal injury or damage to the equipment and assembled components.**

**This product and all of its components MUST NOT be installed or used in any manner other than that which is specified in this manual.**

### **! WARNINGS !**

- 1. Seek qualified assistance for installation. Piping shall conform to all applicable codes and be independently supported.**
- 2. Do not install the unit where a temperature of 32° F or lower can occur. Damage caused by freezing shall void all warranties.**
- 3. The unit shall be properly bonded in accordance with all applicable codes. A grounding lug is provided.**
- 4. After unit is installed, flush (through outlet) to drain for 10 minutes at recommended flow rates prior to use.**
- 5. Always isolate unit and relieve pressure before servicing.**
- 6. Utilizes Genuine Harmsco® Hurricane® HC/170 filter cartridges, available in many micron ratings and styles.**  
**The use of any filter cartridges other than Genuine Harmsco® Hurricane® filter cartridges will void certifications by NSF International.**

This product is manufactured under one or more of the following patents: U.S. NO. 4,187,179; 3,720,322; CANADA NO. 977,693; GT. BRIT. NO. 1,372,014; W. GERMANY NO. 2,261,817; FRANCE NO. 7,246,864; EUROPEAN NO. 0,191,844. Other patents pending.

**Notice:** The information contained in this publication is considered accurate and is intended to be used as a guide. This information is subject to change without notification. Contact Harmsco® Filtration Products for the latest and most up to date specifications. Harmsco® Filtration Products does not assume any liability for the accuracy and completeness of the data in this publication.

# HARMSCO® Hurricane® Swing Bolt Water Filters

## REQUIREMENTS

- Only qualified personnel are to perform the installation.
- Flush unit (through outlet) to drain for 10 minutes at recommended flow rates prior to use.
- Install shut off valves on both the inlet and the outlet to isolate unit while servicing.

## RECOMMENDATIONS

- Plumb drains with appropriate valves to reduce service time.
- Include a by-pass with shut off valves between the inlet and outlet. See installation Block Diagram on page 7.
- Install appropriate pressure gauges into the gauge ports provided. Model HUR1X170FL outlet pressure gauge is to be installed in-line and in close proximity to the outlet flange.
- Install plug or appropriate valve into the vent port provided.
- Lubricate Swing Bolt Assemblies (all models) & Davit Assemblies (HUR 3X170FL, HUR 5X170FL & HUR 8X170FL) using Food Grade grease with PTFE and NSF rated H1 only.
- Replace cartridge(s) when certain conditions exist.  
For example:
  1. Differential pressure is greater than 30 psi.
  2. Quality of water is unacceptable.
  3. Flow rate has diminished.
  4. Every 6 months

- **Spare Parts:**

1. Sufficient supply of replacement cartridges.

Note: Harmsco® Hurricane® HC/170 filter cartridges available include: Activated Carbon, High Temperature, SureSafe™, Poly-Mesh, Poly-Pleat™ & more.

Contact a Harmsco® sales representative for Harmsco® Hurricane® HC/170 filter cartridge specifications.

2. Housing O-ring Seal:

Model #	Part #		
	EPDM (std)	BunaN	Viton
HUR 1X170FL	361-E	361-B	361-V
HUR 3X170FL	363-E	363-B	363-V
HUR 5X170FL	365-E	365-B	365-V
HUR 8X170FL	368-E	368-B	368-V

3. Optional: Cartridge Lifting Handle, Part #362-L



# HARMSCO® Hurricane® Swing Bolt Water Filters

## INSTALLATION/SET-UP

The following instructions & diagrams show the Harmsco® Hurricane® Swing Bolt Water Filter housing with typical plumbing hook-up requirements. All steps of the installation are to be performed by qualified personnel.

1. Always adhere to state and local plumbing codes and requirements for design and installation.
2. Mount and secure housing using the holes at the base of the legs - see Installation Diagrams, pages 8-11.  
Models HUR 5X170FL & HUR 8X170FL have two lifting lugs welded onto the lid for positioning of the housing. Swing bolts must be engaged and the housing must be empty prior to using the lifting lugs.
3. Bond the filter housing utilizing the grounding lug on the leg.  
**- must be performed by a qualified electrician.**
4. Install incoming water supply with shut off valve to flange marked "Inlet".
5. Install return line with shut off valve to flange marked "Outlet".
6. Install plugs or valves in drain lines into the FPT couplings located at the bottom center and side of housing.
7. Install plugs or pressure gauges into the gauge ports.
8. Install plug or valve into the vent port.
9. Refer to Specifications, Installation Block Diagram & Installation Diagrams for more details, pages 6-11.

### Notes:

- Shut-off valves shall be installed on inlet and outlet to isolate the filter when servicing.
- To protect against electrolysis, all filters shall be bonded.  
**Failure to properly bond the filter will void all warranties.**
- Valves, plugs and pressure gauges are not provided.
- Use gaskets, sealants and/or expansion/vibration coupling materials appropriate for the application.
- Flush unit (through outlet) to drain for 10 minutes at recommended flow rates prior to use.
- For cartridge replacement, see pgs. 12 - 18, 24.
- For models HUR 3X170FL, HUR 5X170FL & HUR 8X170FL, make sure sufficient space is available to rotate lid away from housing allowing access to all cartridges.

# HARMSCO® Hurricane® Swing Bolt Water Filters

## SPECIFICATIONS

Specification	Model			
	HUR 1X170FL	HUR 3X170FL	HUR 5X170FL	HUR 8X170FL
Cartridge Quantity <sup>1</sup>	1	3	5	8
Recommended Flow Rate, gal/min	105	315	525	840
Max. Flow Rate, gal/min	150	450	750	1200
Pressure Rating, P.S.I.G. Max. *	150 *	150 *	150 *	150 *
Height, inches	48"	64"	74"	84"
Service Height, inches	77"	98-1/2"	98-1/2"	104-1/2"
Housing Diameter	11"	20"	30"	35-3/8"
Inlet/Outlet <sup>2</sup>	2" Flange	3" Flange	4" Flange	6" Flange
Height of Inlet, inches	23-5/8"	35-1/4"	38"	44-1/4"
Height of Outlet, inches	9 3/4	12"	14-1/8"	20-1/2"
Drain (Qty 2, Female)	3/4" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT
Weight, Dry	150 lbs.	420 lbs.	1,100 lbs.	1,600 lbs.
Weight, Wet	284 lbs.	929 lbs.	2,284 lbs.	3,535 lbs.
Floor Contact Area	.188 ft <sup>2</sup>	.292 ft <sup>2</sup>	.776 ft <sup>2</sup>	1.164 ft <sup>2</sup>
Floor Load (approx.) <sup>2,3</sup>	1,515 lbs/ft <sup>2</sup>	3,200 lbs/ft <sup>2</sup>	3,000 lbs/ft <sup>2</sup>	3,100 lbs/ft <sup>2</sup>
Floor Space <sup>4</sup>	1.6 ft <sup>2</sup>	4.5 ft <sup>2</sup>	8.5 ft <sup>2</sup>	14.0 ft <sup>2</sup>

**Bonding:** Housing shall be bonded in accordance with all applicable codes.  
A grounding lug is provided on the leg.

**Housing Material:** Stainless Steel Construction.  
All wetted metallic components are ASTM A-240

**Finish:** Electro-polish

**O-ring Material:** EPDM is standard. Buna-N & Viton are available

**Temperature Rating:** Up to 140°F, Note: Higher temperatures are possible,  
check cartridge specifications and contact a Harmsco® sales engineer.

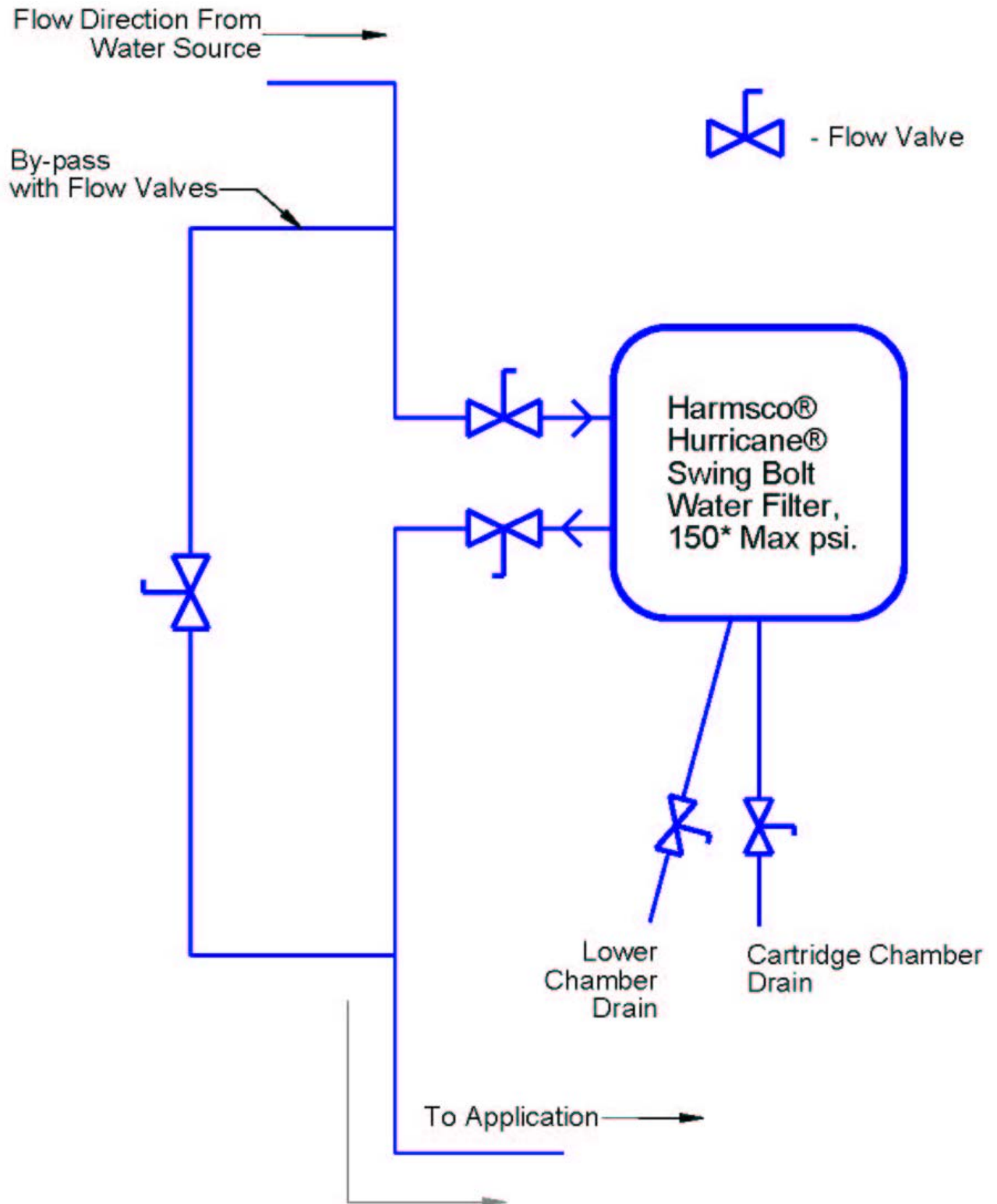
\* Models with -HP suffix 200 P.S.I.G. Max.

### Notes:

- Utilizes Genuine Harmsco® Hurricane® HC/170 cartridges.
  - HC/170 cartridge filters are available in many micron ratings and styles.
  - Activated carbon and several high temperature cartridges are also available.
  - The use of cartridges other than Genuine Harmsco® Hurricane® HC/170 filter cartridges will void certifications by NSF International.
- Piping shall conform to all applicable codes and be independently supported.
- If floor strength is suspect, use appropriate measures to adequately distribute load.
- Does not include Cover/Davit swing position for models HUR 3X170FL, HUR 5X170FL & HUR 8X170FL.

# HARMSCO® Hurricane® Swing Bolt Water Filters

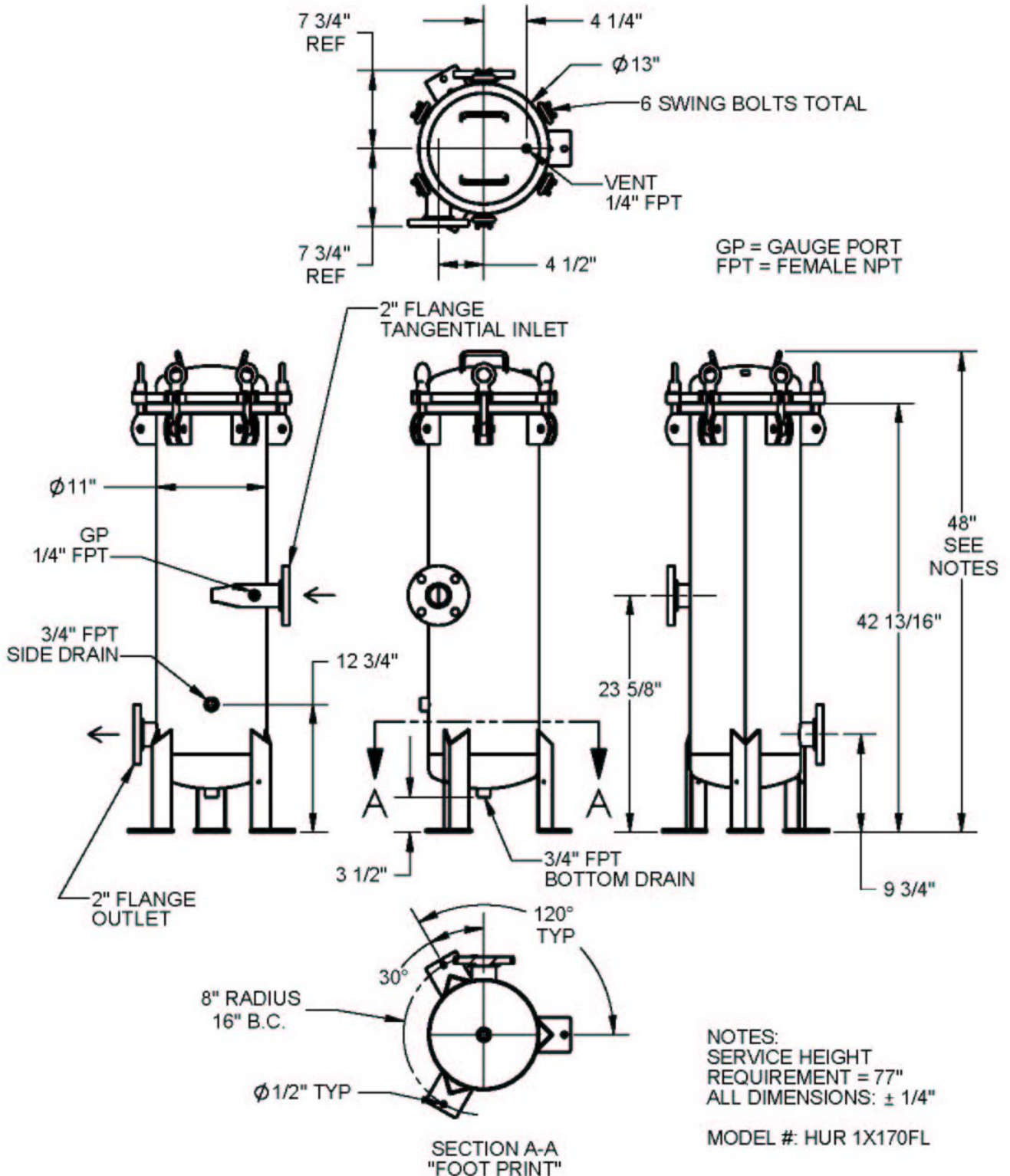
## Installation Block Diagram



\* Models with -HP suffix = 200 psi.

# HARMSCO® Hurricane® Swing Bolt Water Filters

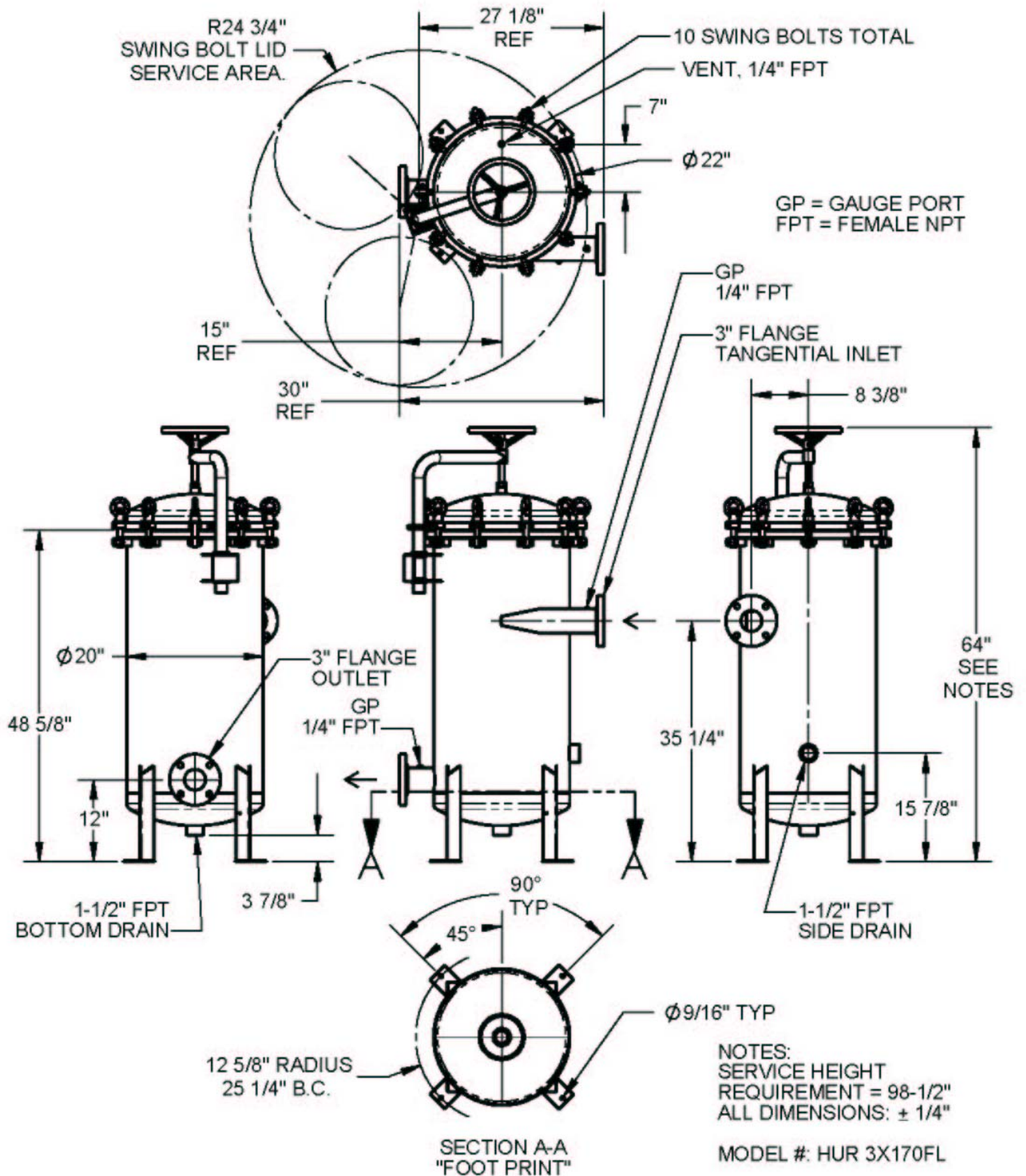
## Installation Diagram Model HUR 1X170FL





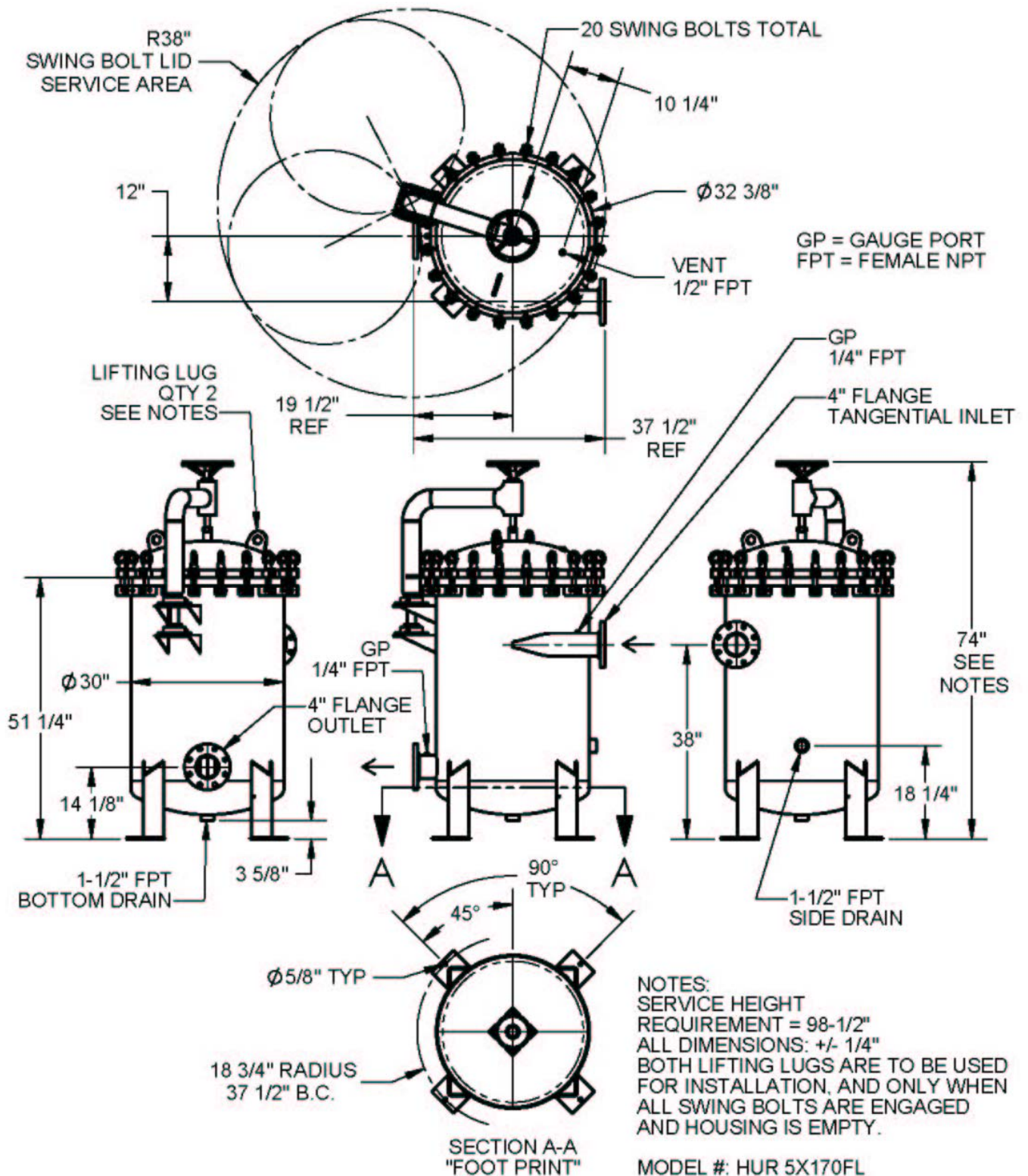
# HARMSCO® Hurricane® Swing Bolt Water Filters

## Installation Diagram Model HUR 3X170FL



# HARMSCO® Hurricane® Swing Bolt Water Filters

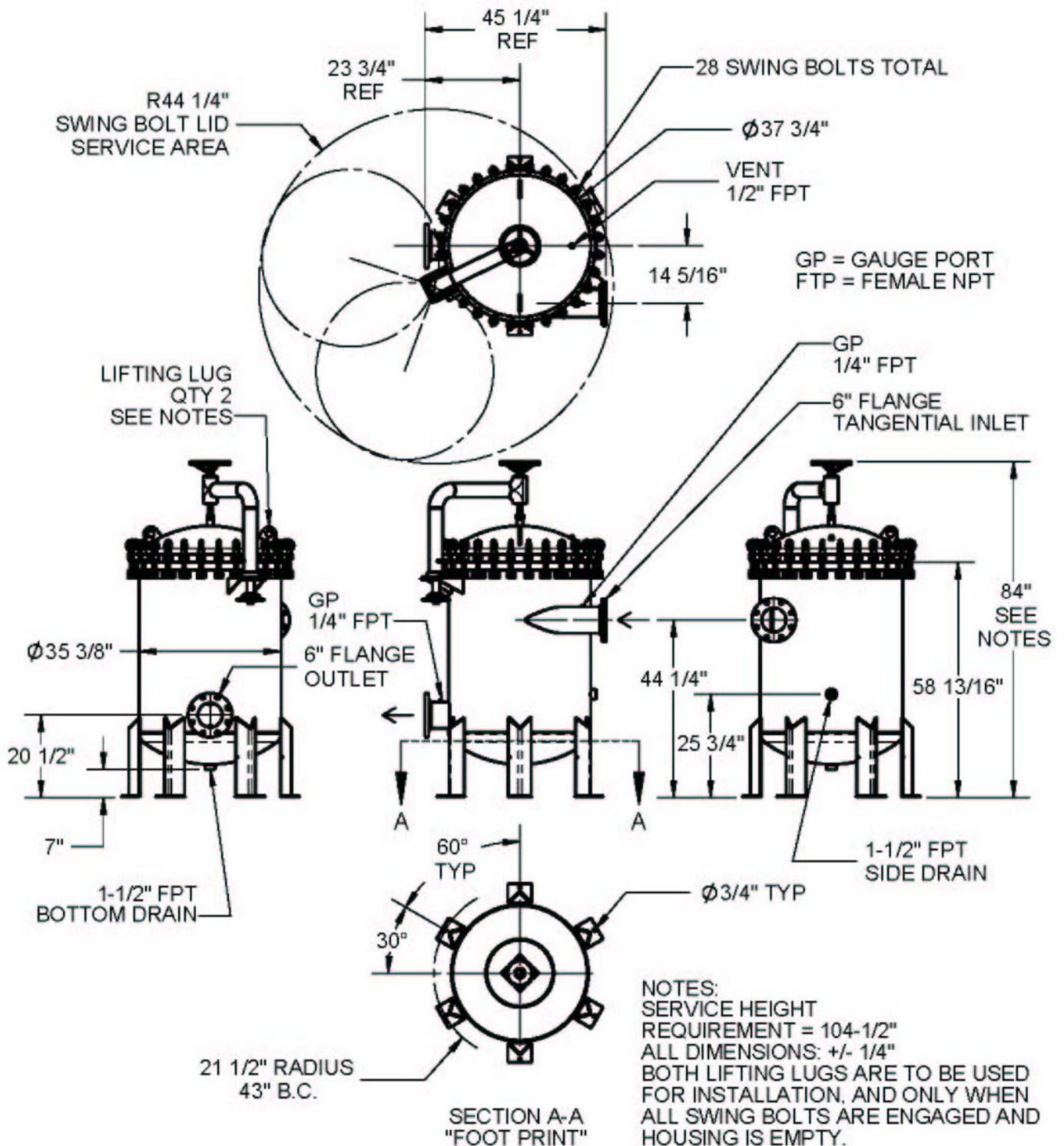
## Installation Diagram Model HUR 5X170FL





# HARMSCO® Hurricane® Swing Bolt Water Filters

## Installation Diagram Model HUR 8X170FL

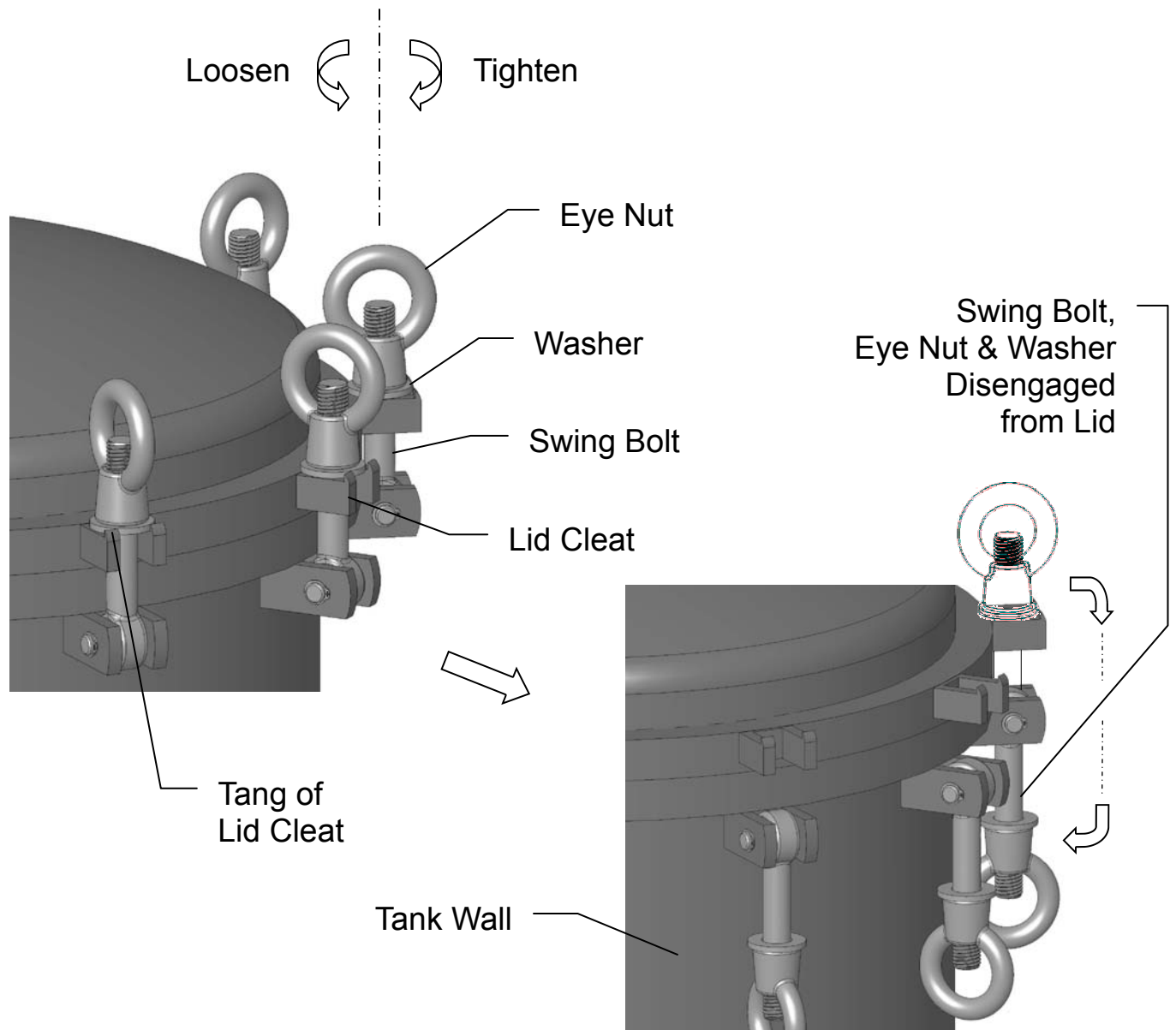


MODEL #: HUR 8X170FL

# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT

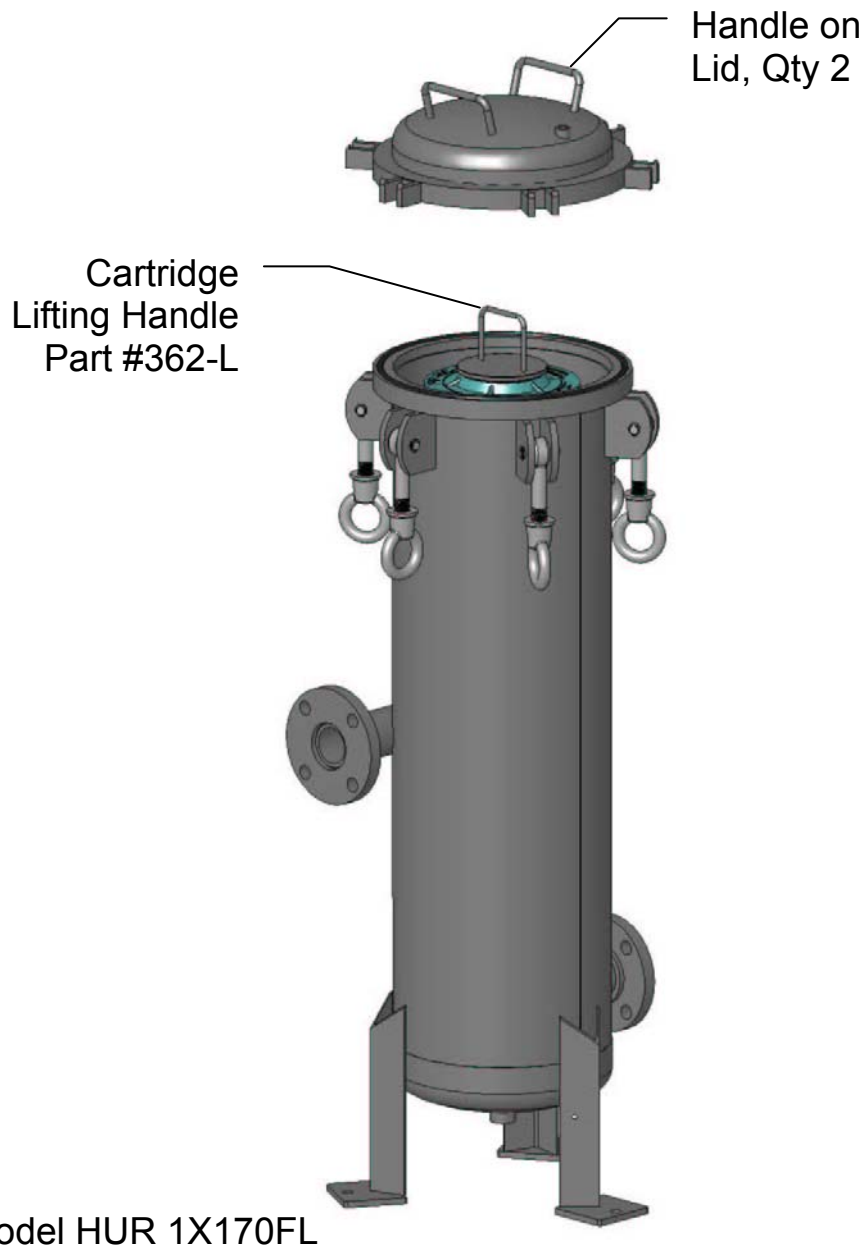
1. Isolate unit from all water sources (close I/O lines) and relieve pressure to housing by first opening the housing's "Bottom Drain" and let drain completely. See Installation Diagrams (pgs. 8-11). This will protect the cartridges (installed) from experiencing a reverse flow that could cause damage.
2. Open Side Drain and let housing drain completely.
3. Loosen all Eye Nuts of Swing Bolts by 1/2 turn increments counter-clockwise to gradually step down load applied to swing bolts. Repeat process as needed.
4. Fully loosen Eye Nuts but do not remove from Swing Bolt. Lift Washer above Tangs in Lid Cleats and allow Swing Bolt to rotate downward along the side of the housing's Tank Wall.



# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT cont.

5. When all of the Swing Bolt hardware is disengaged, the Lid can be removed.
- 5 a. For Model HUR 1X170FL the Handles on the Lid are used to raise and remove the Lid.
- Note: The Lid must be raised sufficiently to clear the Cartridge Lifting Handle prior to removal.



# HARMSCO® Hurricane® Swing Bolt Water Filters

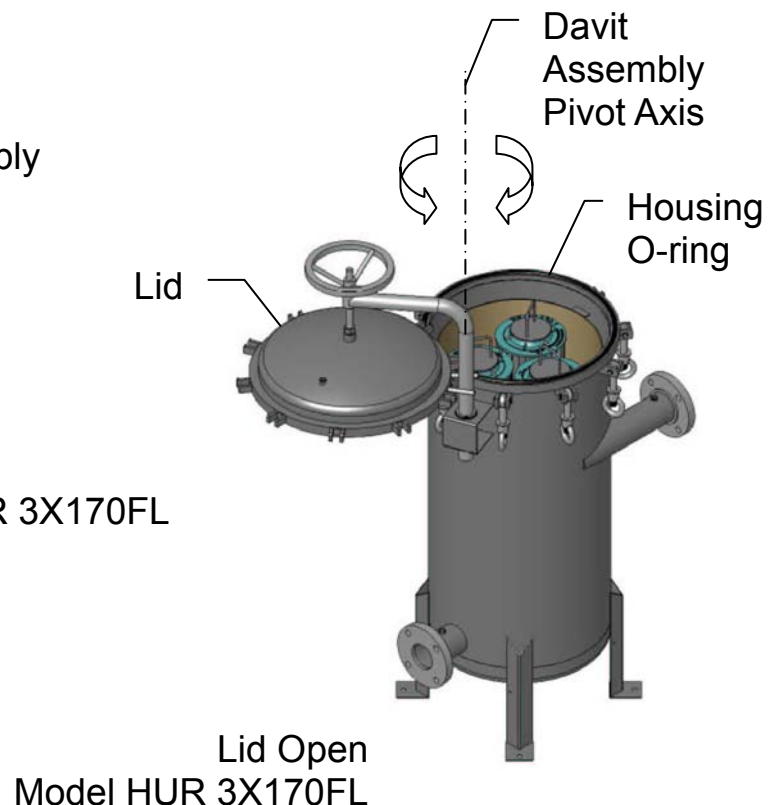
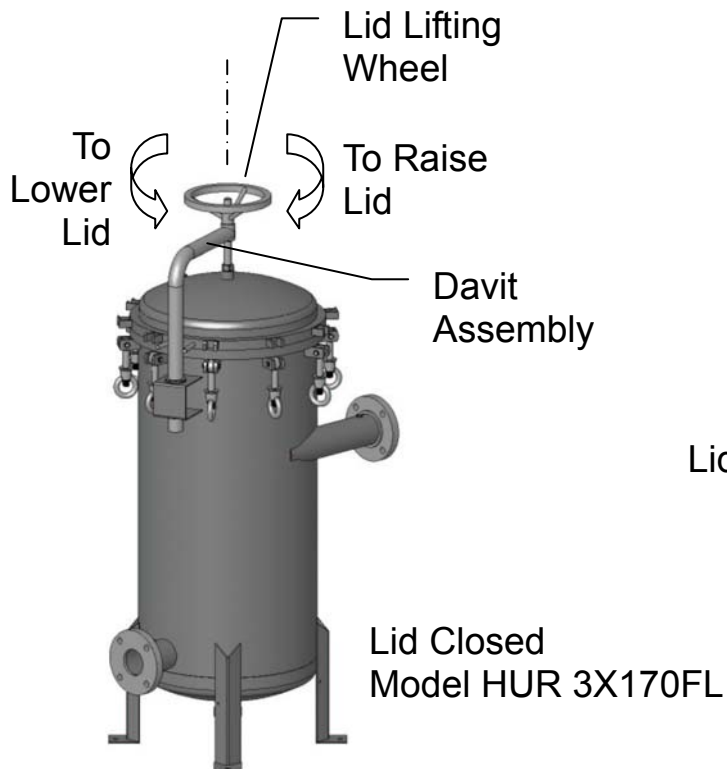
## CARTRIDGE REPLACEMENT cont.

- 5 b. Models HUR 3X170FL, HUR 5X170FL & HUR 8X170FL all have a Davit Assembly and Lid Lifting Wheel to raise and lower the Lid. To raise Lid, turn Lid Lifting Wheel clockwise. To lower Lid, turn Wheel counter-clockwise.

Note: Housing O-ring may stick to Lid. To prevent this, it is suggested to raise the Lid about 1/8" inch and move the Lid/Davit Assembly slightly sideways to free the O-ring from Lid while keeping the O-ring in its housing channel.

Continue raising Lid approximately 1" to clear housing. Swing Lid and Davit Assembly until cartridge compartment is fully exposed.

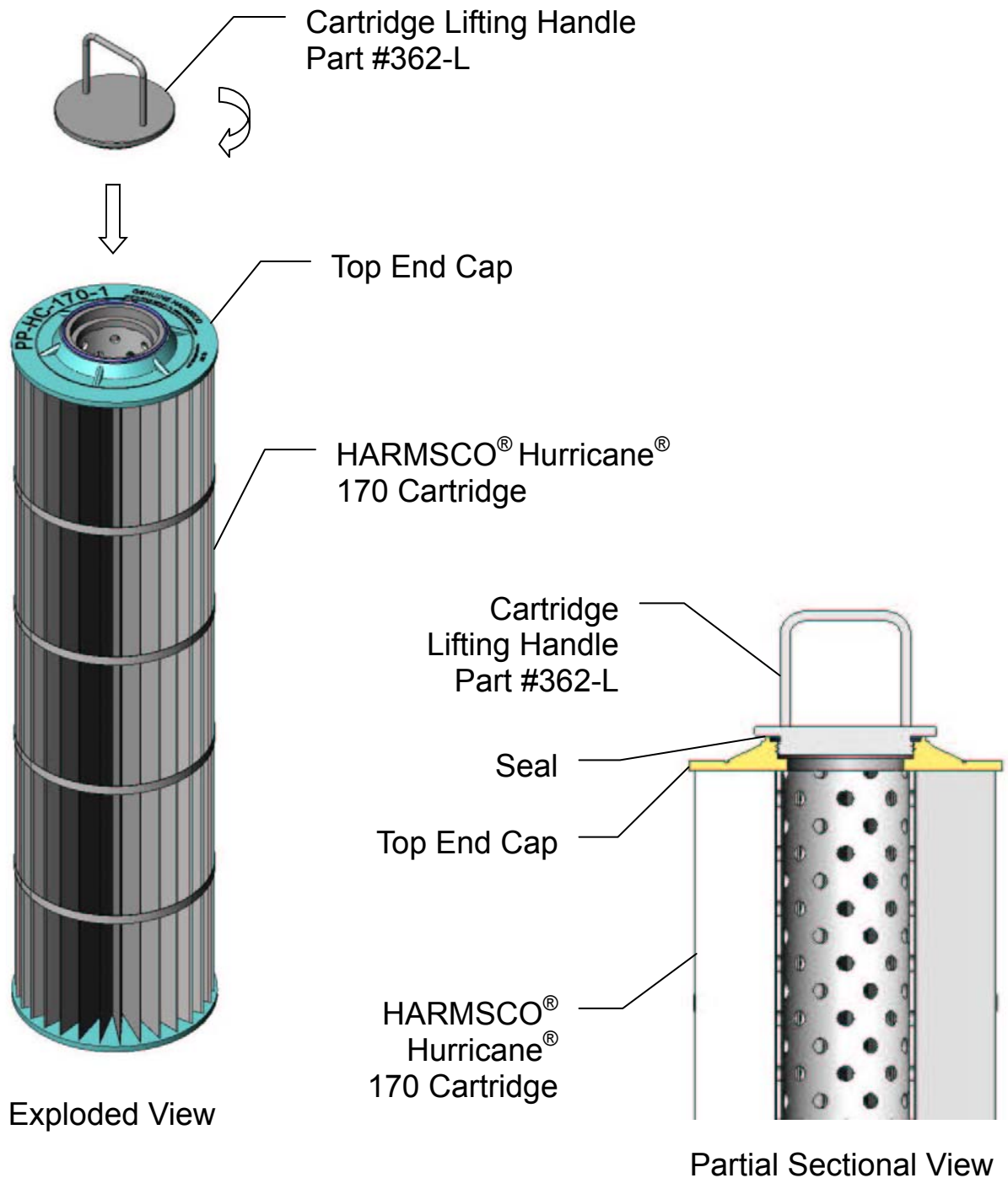
**Caution:** The Lid should be secured when servicing.



# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT cont.

6. Install Cartridge Handle(s), part #362-L, to Cartridge(s). Tighten securely to seal with Top End Cap to prevent by-passing of the Cartridge.

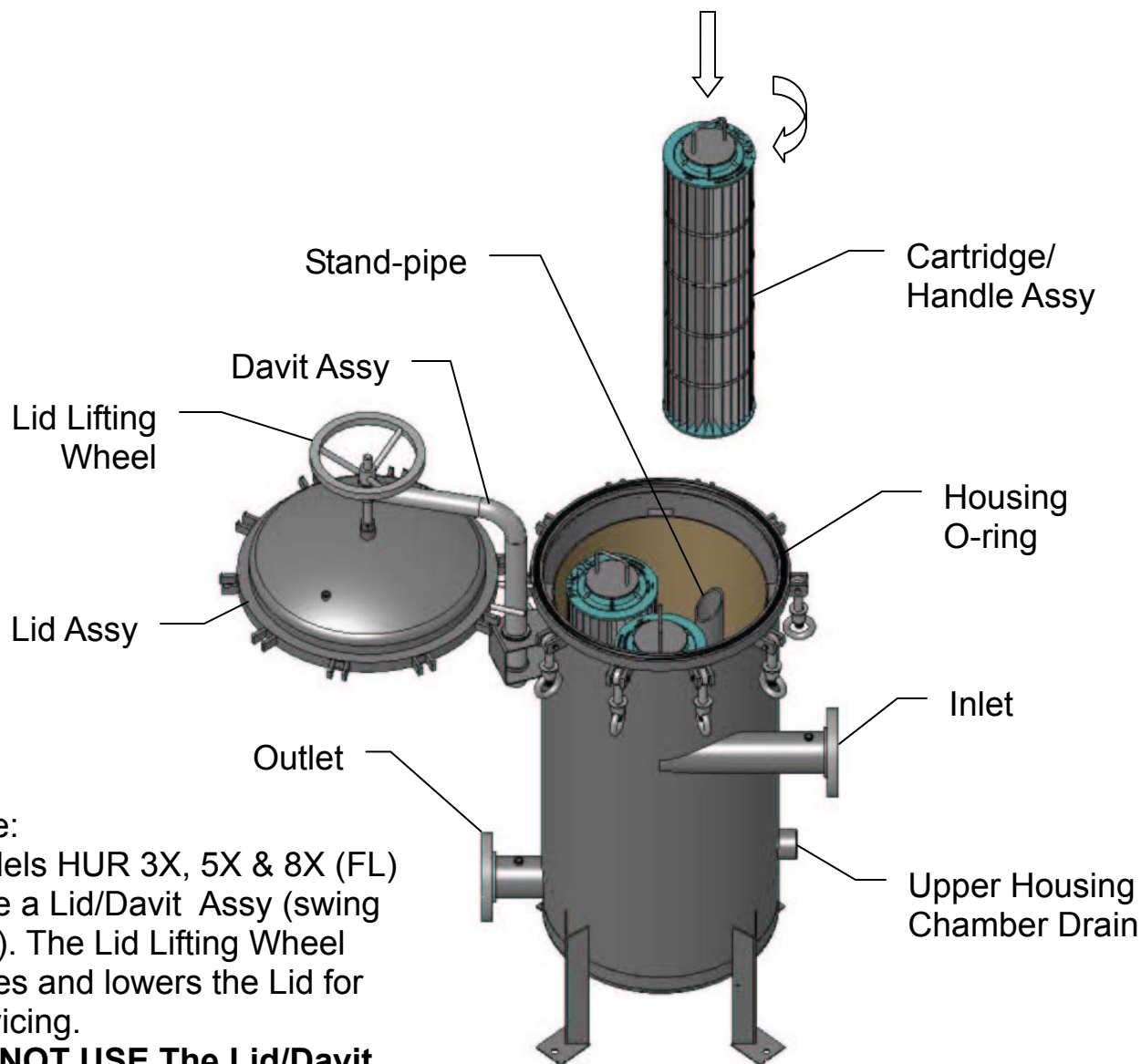




# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT cont.

7. With swing bolts disengaged and lid removed, install Cartridge/Handle assembly(s) onto Stand-pipe(s). Position Cartridge/Handle assembly downward until Cartridge's Bottom End Cap contacts the housing's Tube Sheet. The Cartridge's Bottom End Cap will seal with the Stand-pipe Coupling to prevent by-passing. A clockwise rotating motion will help to position the Cartridge while engaging the Stand-pipe Coupling. Confirm all Cartridge/Handle assemblies are fully installed with all Cartridge Bottom End Caps contacting the housing's Tube Sheet, see illustrations on page 17.



Note:  
Models HUR 3X, 5X & 8X (FL)  
have a Lid/Davit Assy (swing  
arm). The Lid Lifting Wheel  
raises and lowers the Lid for  
servicing.

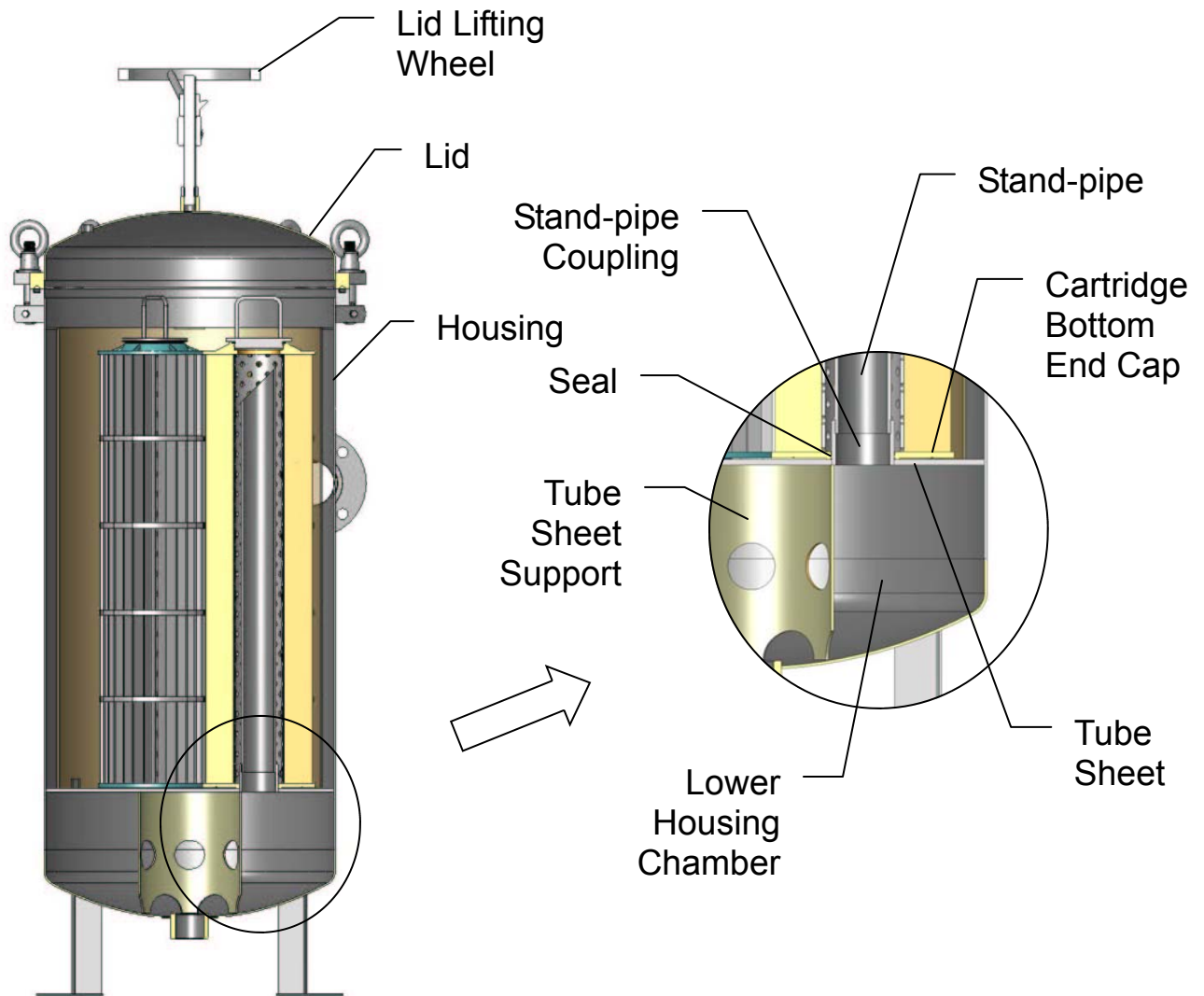
**DO NOT USE The Lid/Davit  
Assy to raise the Lid while  
swing bolts are engaged.**

Model HUR 3X170FL



# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT cont.



Section View  
Model HUR 3X170FL

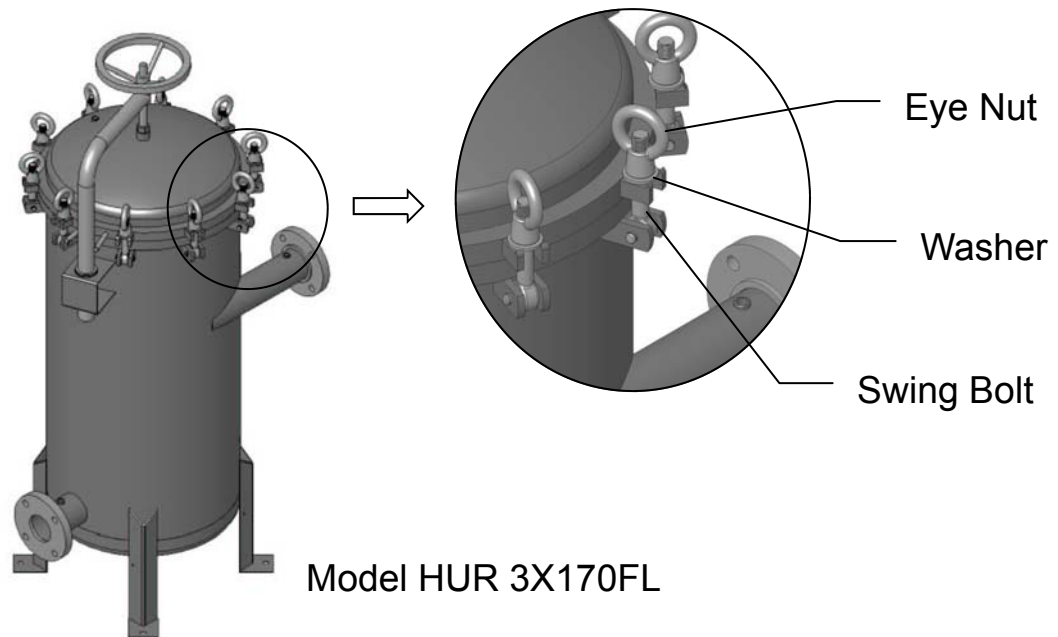
8. Inspect Housing O-ring and make sure that it is free from cracks and debris.
9. Clean Housing and Lid O-ring mating surfaces.
10. Place Housing O-ring into channel of Housing.
11. Return Lid to closure position and maintain alignment of Lid on Housing.  
Lower lid onto Housing O-ring. Make sure O-ring stays in the channel of the Housing. Do not allow tilting or cocking of Lid on the O-ring.

**Note: The Lid/Davit Assembly is NOT to be carrying any load from the Lid at this time.**

# HARMSCO® Hurricane® Swing Bolt Water Filters

## CARTRIDGE REPLACEMENT cont.

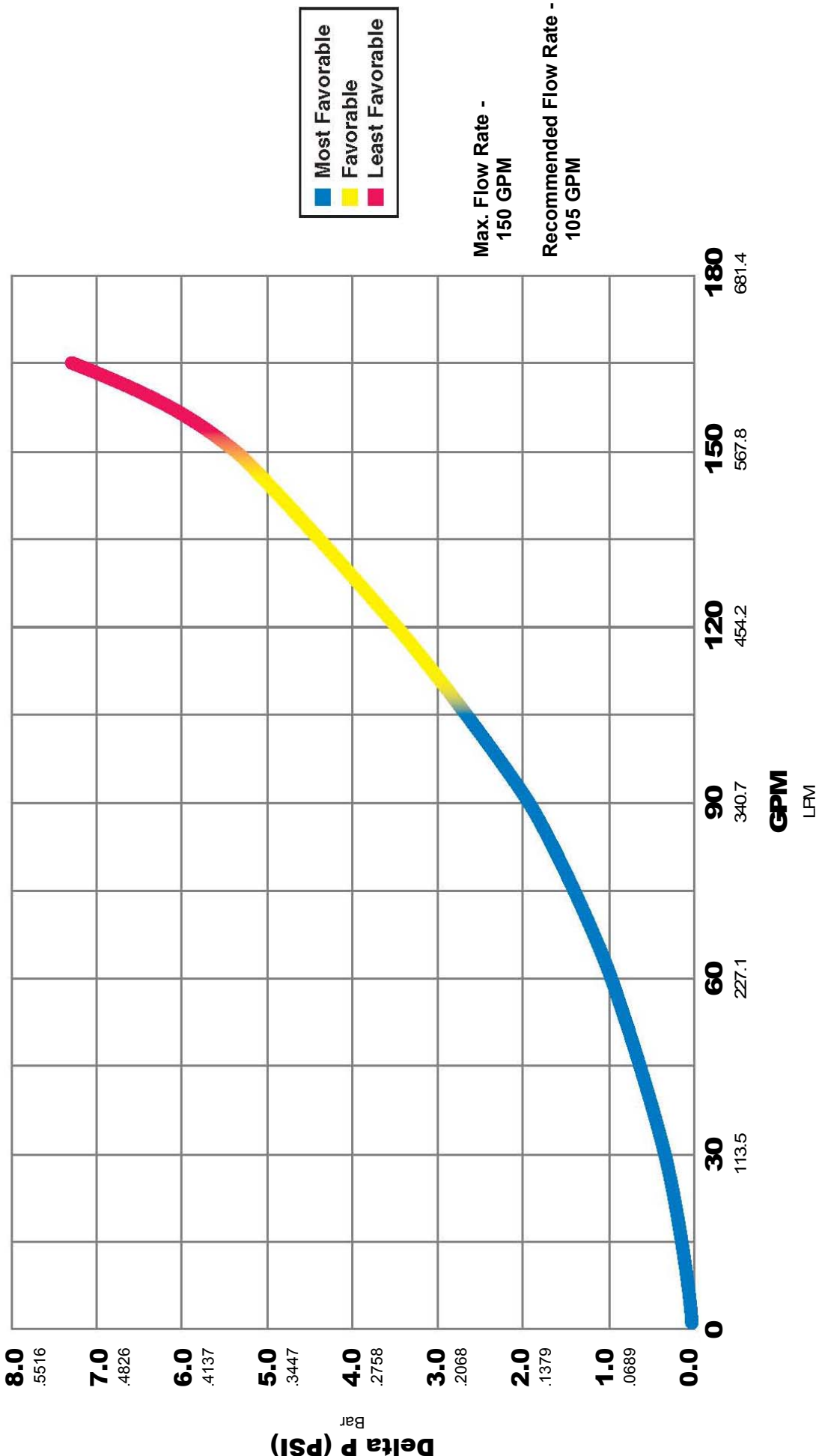
12. Return all Swing Bolts, Eye Nuts, & Washers to their closure position.
13. Tighten all Eye Nuts by hand in a “star/criss-cross” pattern several times until all Eye Nuts are uniformly tight. Make sure Lid position and alignment to Housing is maintained.



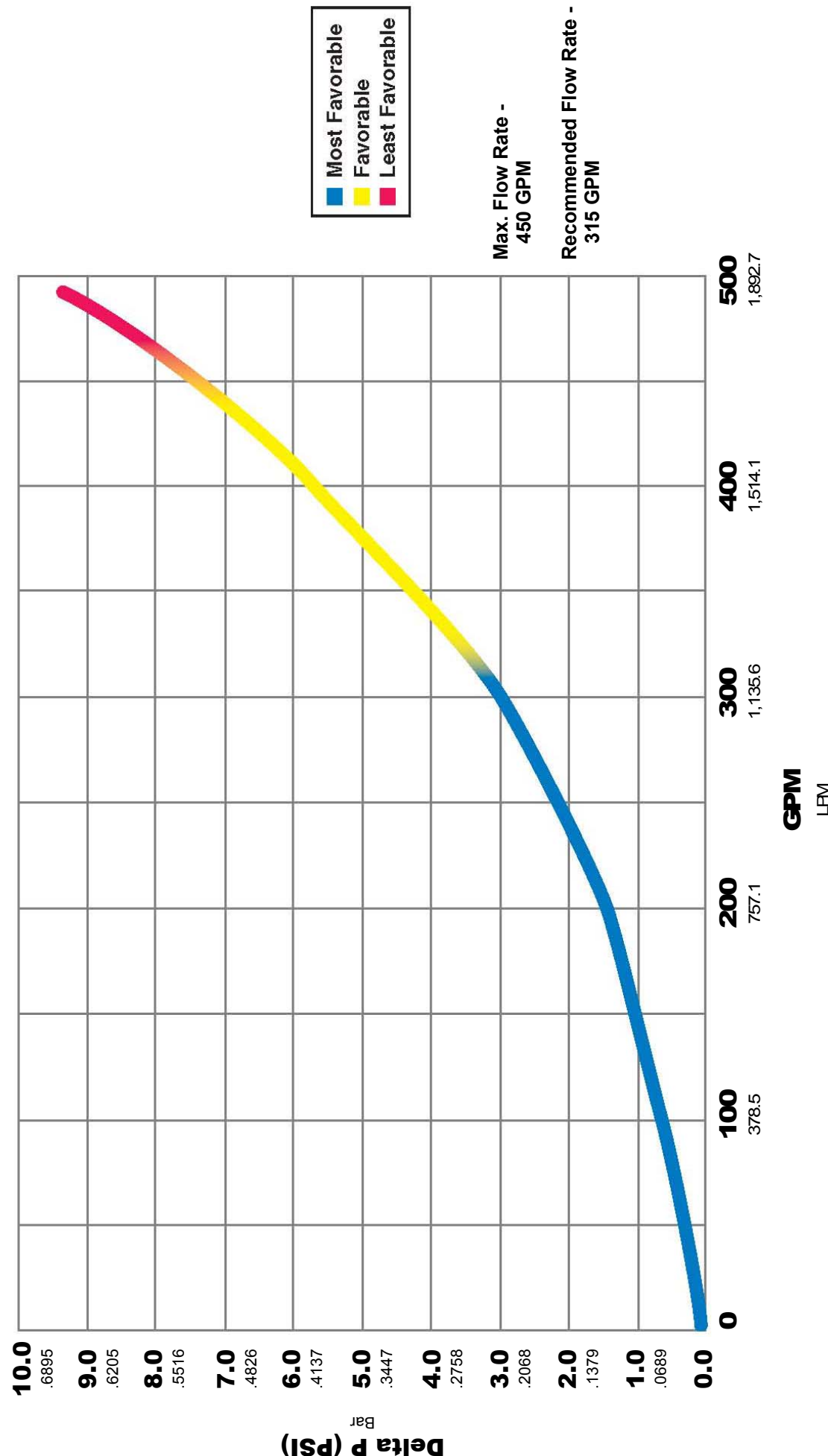
14. Start the flow of water by first opening the inlet valve and allow the housing to completely fill, then, open the outlet valve.
15. Flush unit at recommended flow rate for 10 minutes prior to use. Inspect closure for any leaks. If a leak is observed, **Isolate and Remove Pressure in Housing**, then repeat steps 8 through 15.

The Harmsco® Swing Bolt Water Filter is now operational.

**Pressure Drop vs. Flow Rate Curve**  
**Harmsco® HUR 1X170FL**  
**Hurricane® HC/170-20 Cartridge**  
**Qty 1; with clean water.**



# Pressure Drop vs. Flow Rate Curve Harmsco® HUR 3X170FL Hurricane® HC/170-20 Cartridges Qty 3; with clean water.

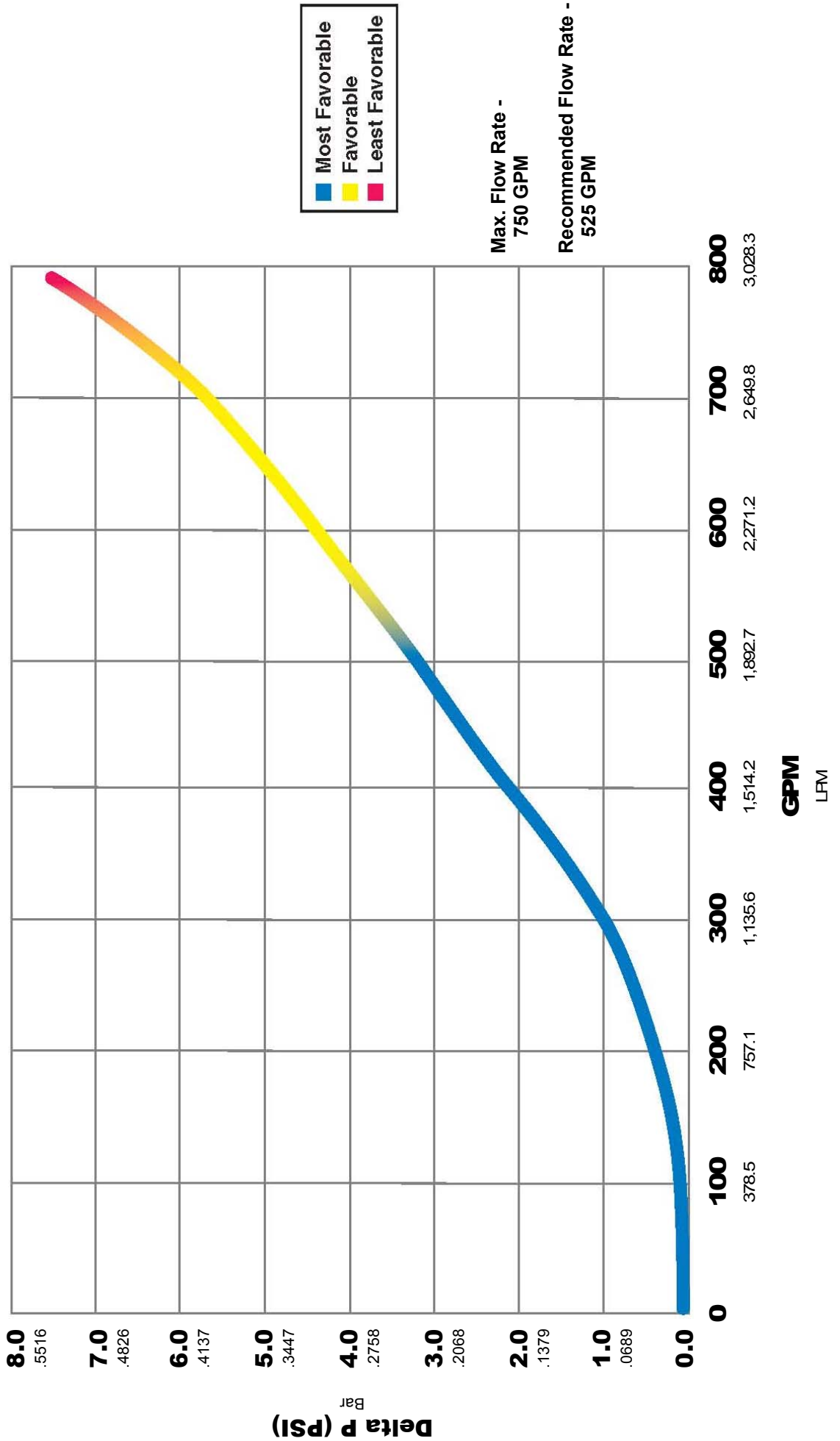


# Pressure Drop vs. Flow Rate Curve

## Harmsco® HUR 5X170FL

### Hurricane® HC/170-20 Cartridges

Qty 5; with clean water.

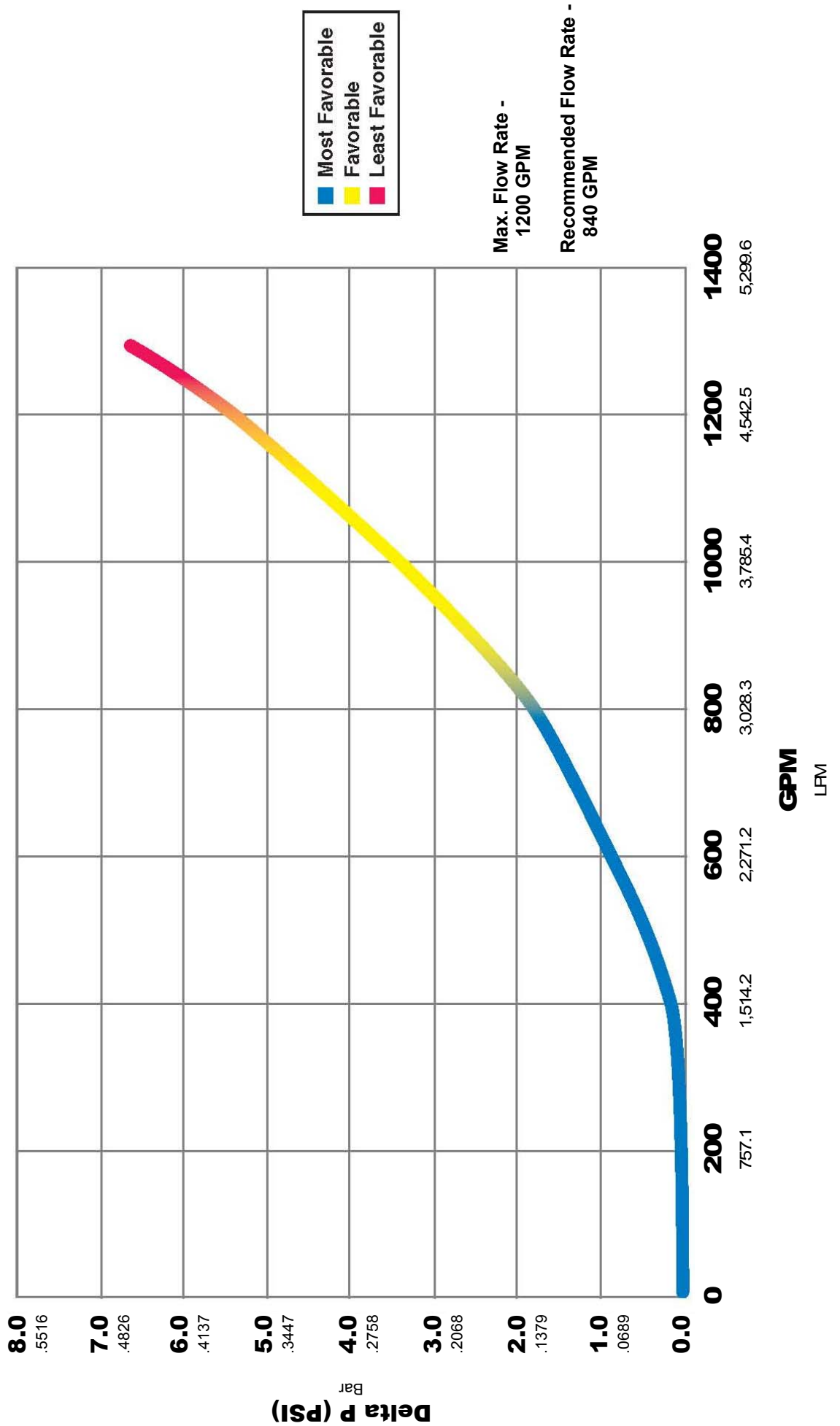


# Pressure Drop vs. Flow Rate Curve

## Harmsco® HUR 8X170FL

### Hurricane® HC/170-20 Cartridges

Qty 8; with clean water.



# HARMSCO® Hurricane® Swing Bolt Water Filters

## **Filter Cartridge Cleaning Instructions:**

For Filter Housings With Swing Bolt Closure.

**\*\* NOTICE \*\***

**THE FOLLOWING INSTRUCTIONS MUST BE READ AND FOLLOWED PRIOR TO USE.**

Harmsco® Hurricane® cartridges are made of Polyester Plus™, a proprietary blend of polyester fibers, which can be cleaned, and re-used, in most applications and micron ratings. For best results, follow the directions described below.

**Harmsco® is not held liable for determining cartridge cleaning applications and/or cleaning procedures implemented.**

## **When Cartridge Cleaning is Possible:**

Clean cartridge when pressure differential is 12 psi above start-up differential.

**Normal Cleaning Procedure:** Cartridge Cleaning in Aqueous Applications.  
For best results, clean cartridges with pressure nozzle using standard hose. Direct spray at an angle to remove particulate.

### **Special Cleaning Procedures:**

For oils, soak cartridge in a solution of tri-sodium phosphate or equivalent detergent (two lbs. to ten gallons of water). Soak for up to 12 hours. Rinse thoroughly.

For organic matter, algae, use tri-sodium phosphate solution as described above, plus 1 pint of liquid chlorine. Soak cartridge for one hour, or until filter surface is not slippery. Rinse thoroughly.

For calcium mineral deposits, follow directions for oils described above, then soak cartridge for ten minutes in a solution of one part muriatic acid to twenty parts of water. Rinse thoroughly.

## **Non-cleanable Applications:**

Replace cartridge when pressure differential is 30 psi above start-up differential, or when flow has diminished to an unacceptable level.

Generally, it is not possible to clean filter cartridges when filtering petroleum base liquids, cyst reduction applications, toxic substances, and 1 micron or smaller rating.

# HARMSCO® Hurricane® Swing Bolt Water Filters

## Cartridge Replacement Instructions (Quick Reference):

For Filter Housings With Swing Bolt Closure.

**\*\* NOTICE \*\***

**THE FOLLOWING INSTRUCTIONS MUST BE READ AND FOLLOWED PRIOR TO USE.**

1. **Always Isolate And Remove Pressure From Housing Before Servicing.** Housing is to be shut off and drained of fluid by first opening the lower drain.
2. Open filter housing by turning Eye Nuts counter-clockwise, disengaging Swing Bolts, and removing Lid. Take out used cartridge(s) and remove cartridge lifting handle(s).
3. Remove new cartridge(s) from packaging and make sure center cores are clear of all obstructions, dessicants and shipping materials.
4. Install cartridge lifting handle(s) into cartridge(s).
5. Insert Cartridge(s) into housing and onto Stand-pipe(s), cartridge(s) is(are) to contact Tube Sheet of housing.
6. Position housing O-ring seal in groove of housing.
7. Position Lid onto housing and properly align on O-ring before applying Swing Bolts. Do not allow tilting or cocking of Lid on the O-ring.
8. Close filter housing by tightening Eye Nuts clockwise by hand. Use a "star/ criss-cross" pattern several times to tighten all of the Eye Nuts uniformly tight.
9. Open inlet valve and allow fluid to fill housing.
10. Open outlet valve.
11. Flush unit (through outlet) to drain for 10 minutes at recommended flow rates prior to use.

**Should a leak appear at the housing O-ring, isolate and relieve pressure and repeat steps 6 through 11. Always isolate and remove pressure from housing before servicing any part of filter.**

This product is manufactured under one or more of the following patents: U.S. NO. 4,187,179; 3,720,322; CANADA NO. 977,693; GT. BRIT. NO. 1,372,014; W. GERMANY NO. 2,261,817; FRANCE NO. 7,246,864; EUROPEAN NO. 0,191,844, Other patents pending.

## Harmsco® Filtration Products

*With Patented Up-Flow Filtration Technology*

[www.harmsco.com](http://www.harmsco.com)

**(561) 848-9628**



### **Harmsco Inc. Industrial Filters Limited Warranty**

1. Harmsco, Inc. warrants its line of Industrial Filters to be free of defects in material and workmanship for a period of one year from the date of installation.
2. The warranty for Industrial Filters ordered with special coatings is limited only to the recoating of the defective parts due to failure in materials or workmanship for one year from date of installation.
3. This warranty does not cover any equipment purchased for use in applications in which the product is not suited. It is the responsibility of the buyer to determine if a product is suitable for a particular application.
4. **THIS WARRANTY EXCLUDES THE FOLLOWING:**
  - A. Any fresh water unit installed for salt water use.
  - B. Damage caused by improper installation, operation or care.
  - C. Chemical attack.
  - D. Modification or alteration by other than Harmsco employees.
  - E. Rubber type parts and normal wear items i.e. "O" rings, rim gaskets, wing-nuts, pipe caps, holding rods.
  - F. Any costs of labor or expenses expended in the removal and/or installation of unit, or any surrounding device.
  - G. Damage caused by galvanic or electrolytic attack.
  - H. Altering or removing the Harmsco, Inc. information label.
  - I. Any unit not grounded.
5. Service under this warranty is to be provided by the distributor who sold the unit to the user. If the distributor is unable to provide warranty service, contact:  
Harmsco, Inc., P.O. Box 14066  
North Palm Beach, Florida, 33408, U.S.A.  
Phone: (561) 848-9628 • Fax: (561) 845-2474

A Returned Goods Authorization (RGA) number must be received from the above office and placed on all shipments to and correspondence with Harmsco, Inc. Please be prepared with the following information: 1. Model number and serial number. 2. Date of installation. 3. Name of installer 4. Nature of problem. 5. Your address and telephone number.

#### **\*\*NOTICE\*\***

Some of the information contained in this publication has been obtained from outside sources and is considered accurate. Temperature ratings, flow rates and chemical resistance can be affected by a number of unknown factors. For this reason, we do not assume any liability for the accuracy or completeness of the data in this publication. End users should perform their own tests to determine suitability for each application.

Available from:

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**Harmsco® Filtration Products**

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