A.R.I. D-46

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Waterworks

Full-bore, Combination Air Valve Series PATENTED

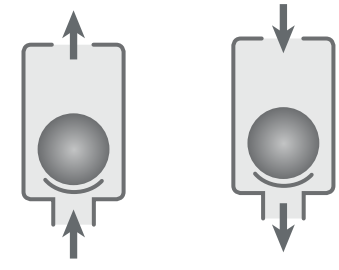
Description

A.R.I. D-46 is a full-bore, single-body, Combination Air Valve Series. Installed on liquid transmission systems, the Air Valve is designed to improve hydraulic operation by protecting the pipeline, increasing pipeline efficiency and reducing energy requirements. The Air Valve provides high-capacity air release and intake.

Installation

- Pump stations: after the pump and after the check valve
- Downstream (after) and upstream (before) of shut-off valves
- After deep-well pumps
- On long constant-sloped pipeline segments
- At peaks along the pipeline and at peaks relative to hydraulic gradient
- At end lines
- Before water meters
- On strainers and filters

Operation



Air Discharge

Air Intake

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Features and Benefits

Flow cross-sections	Equal to or greater than nominal port area
Single-body design	Easy to install and maintain, reduces downtime
Aerodynamic design	High-capacity air discharge, no premature closure
	Reduces water hammer impact
	Saves energy and increases system efficiency
Screen protected outlet	Prevents intrusion of insects and debris
Construction materials	Non-corrosive and durable
Automatic air release valve rolling seal	Leak-free sealing over a wide range of pressure differentials
Automatic air release valve orifice	High flow air release, lessens obstruction by debris
ATEX certified air valves	ATEX certified air valves are optional by customer request. Certification is conditional upon the customer connecting the designated part on the product to a dedicated ground connection point
NSF/ANSI/CAN 61 certified & listed	For drinking water system component
NSF/ANSI 372 certified & listed	Conforms with lead content requirements for "lead-free" plumbing

Technical Specifications

Size range	2" –6"
Working pressure range	0.1-16 bar (PN 16) Testing pressure: 1.5 times maximum working pressure
Temperature	Maximum working temperature: 60° C Maximum intermittent temperature: 90° C
Metal valve coating	Fusion bonded epoxy coating in compliance with standard DIN 30677-2

Upon ordering, please specify: model, size, working pressure, thread / flange standard and type of liquid

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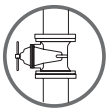
Valve Selection Options

Valve connection	Threaded male BSPT/NPT (2"), Flanged ends to meet various requested standard (2"-6")
Standard materials	Reinforced nylon, cast ductile iron body
Optional Add-on Components	One-way, Out-only attachment, allows for air discharge only, prevents air intake Adjustable Non-Slam disc, can also be optionally retrofitted on existing D-46 air valves.
Additional Product Configurations	SB Underground Air Valve System
Models	Elbow Outlet Models, Screen Cover Models

The isolation valve installed under the air valve must be fully open to prevent damage or malfunction and ensure performance within the specifications of the air valve.

For complete installation instructions, please refer to the IOM document.



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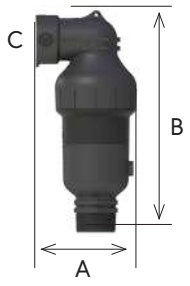
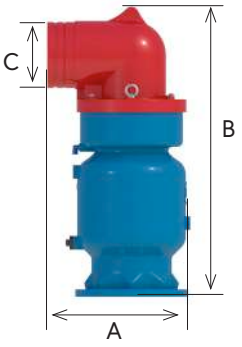
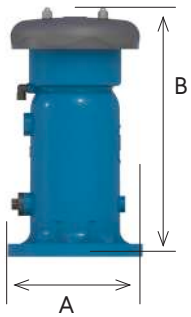
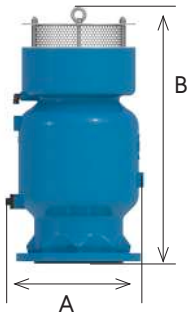
Dimensions and Weight

Size	Dimensions (mm)		Connections	Weight (kg)	Orifice Area (mm^2)		
	max. A	B	C		A / V	Auto.	
Nylon Models							
2" (50mm) THR	150	327	2" BSP/NPT F	1.4	2122	15.0	
2" (50mm) FL	170	367	2" BSP/NPT F	1.9	2122	15.0	
Metal Models - Elbow Outlet							
2" (50mm) FL	202	336	2" BSP/NPT F	7.3	1963	15.0	
3" (80mm) FL	200	467	3" BSP/NPT F	13.0	5027	13.8	
4" (100mm) FL	220	537	4" BSP/NPT F	18.2	7854	13.8	
6" (150mm) FL	362	757	6" Grooved	43.6	18250	15.0	
Metal Models - Screen Cover Outlet							
2" (50mm) FL	165	301	NA	6.8	1963	15.0	
3" (80mm) FL	202	375	NA	12.8	5027	13.8	
4" (100mm) FL	235	425	NA	17	7854	13.8	
6" (150mm) FL	323	594	NA	43	18250	15.0	

FL - Flanged THR - Threaded

NOTE: The cover assembly with the discharge elbow can be set in four directions. Dimension A in the picture and in the table shows the maximum product width. This width can be reduced by changing the cover direction.

All product weights are approximate, due to the differences in flange standards, materials and variable accessories.

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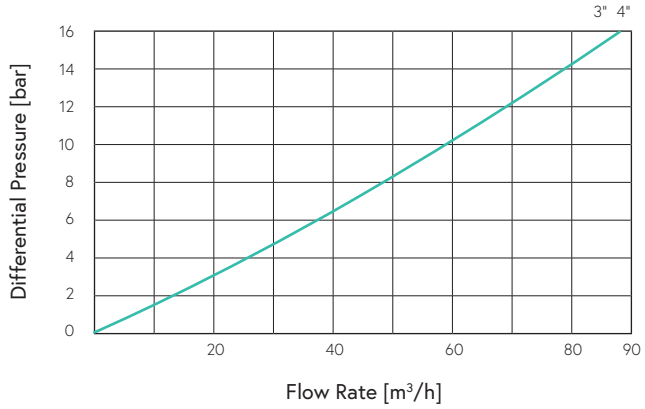
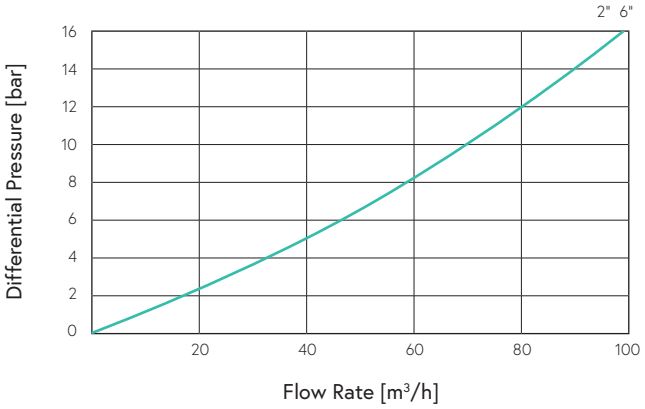
Flow Charts

Automatic Air Release Flow Rate

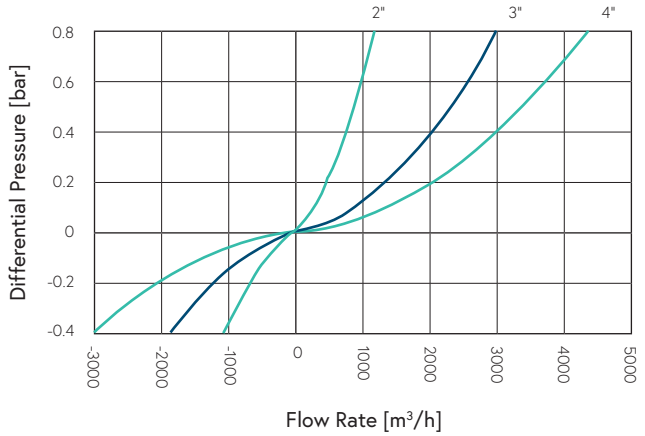


Automatic Air Release Flow Rate

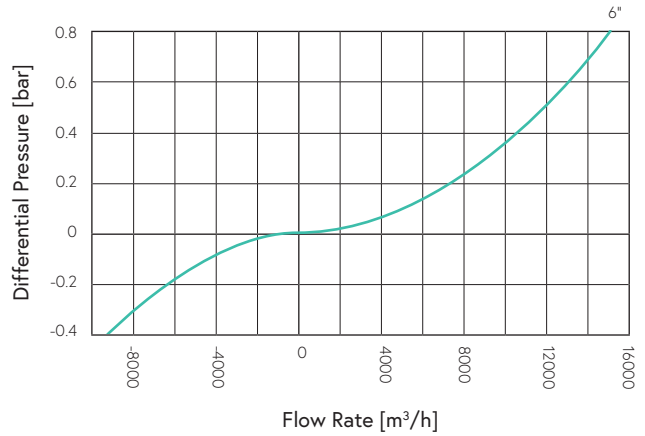


Elbow Outlet Models

Air & Vacuum Flow Rate

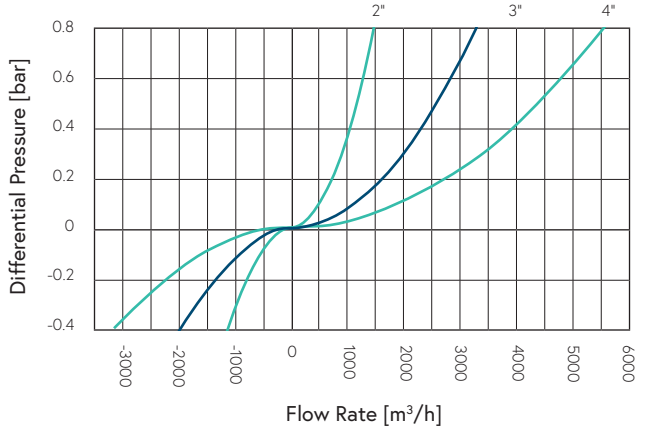


Air & Vacuum Flow Rate

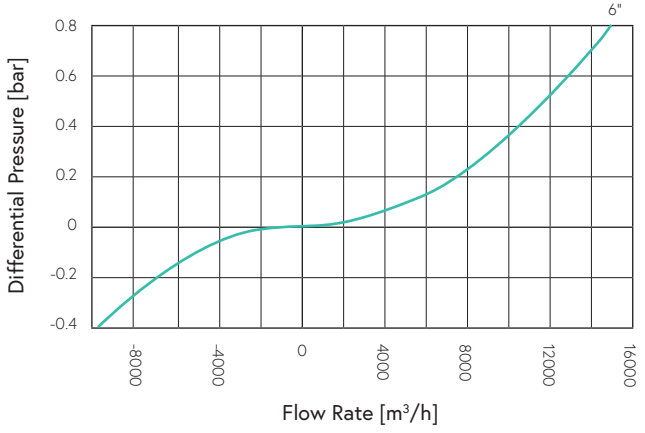


Screen Cover Outlet Models

Air & Vacuum Flow Rate



Air & Vacuum Flow Rate



A.R.I. D-46 NS

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Non-Slam Add-on Component Data Table for Variable Orifices

Nylon Models

Size	Number of orifices	Discharge orifice (mm)	Total NS area (mm^2)	NS orifice (mm)	Switching point (bar)	Flow at 0.4 bar (m^3/h)
2" (50mm)	1 orifice	50	15.9	4.5	Spring loaded normally closed	23
	2 orifices	50	31.8	6.4		32
	3 orifices	50	47.7	7.8		40

Metal Models

Size	Discharge orifice (mm)	Total NS area (mm^2)	NS orifice (mm)	Switching point (bar)	Flow at 0.4 bar (m^3/h)
2" (50mm)	50	78.5	10	0.007	65
3" (80mm)	80	184	15	0.004	180
4" (100mm)	100	397	22.5	0.005	235
6" (150mm)	150	884	34	0.03	725

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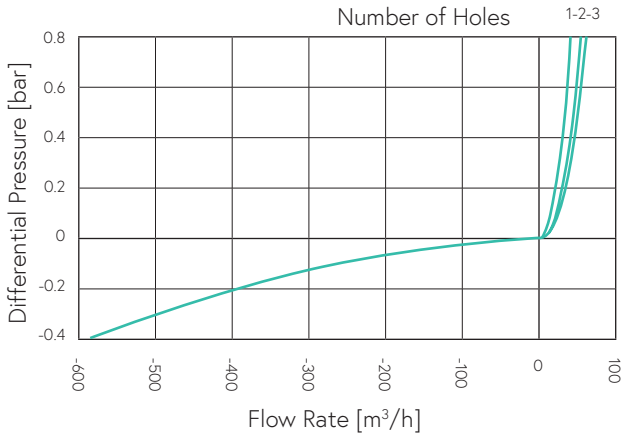
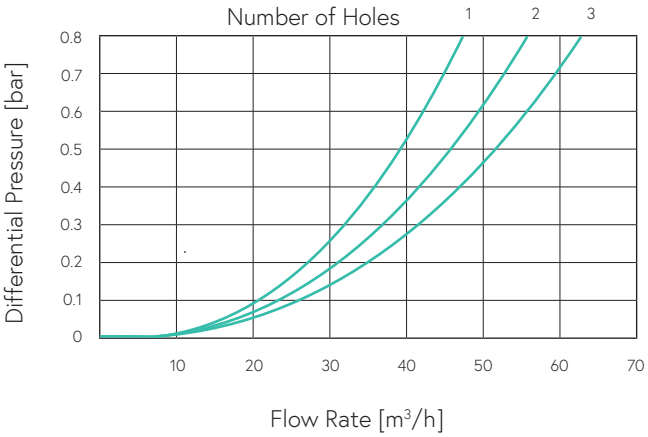
Flow Charts

Nylon Model

Adjustable NS Check Valve

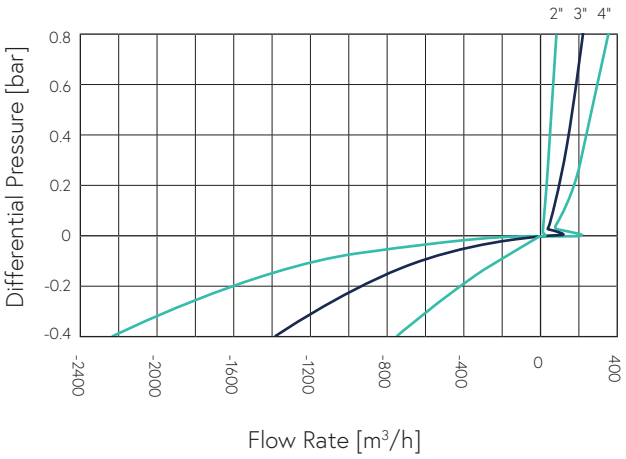


Adjustable NS Check Valve

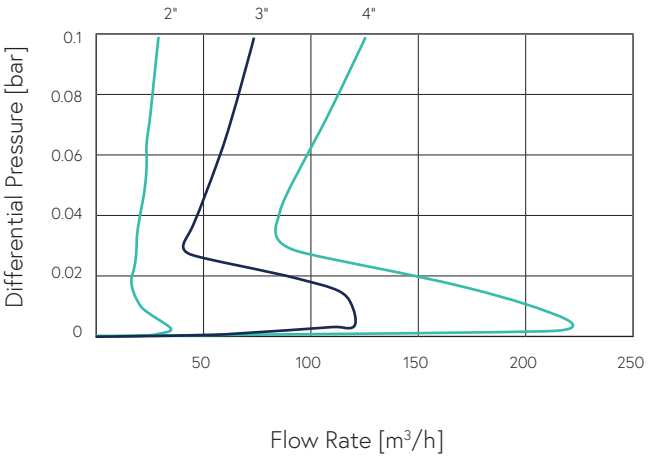


Metal Models - Elbow Outlet

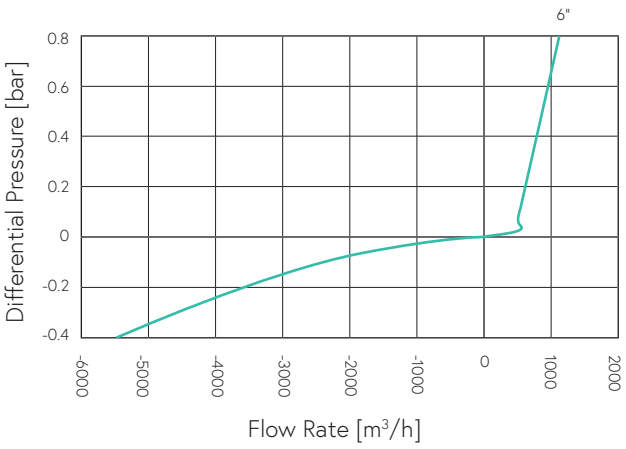
Air & Vacuum Flow Rate



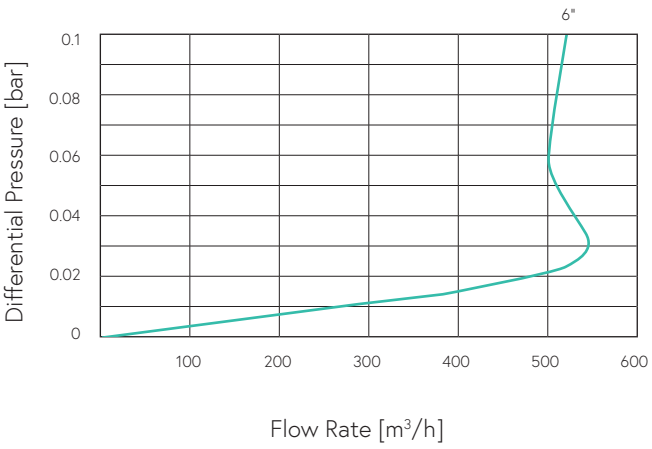
Air Discharge Switching Region



Air & Vacuum Flow Rate



Air Discharge Switching Region



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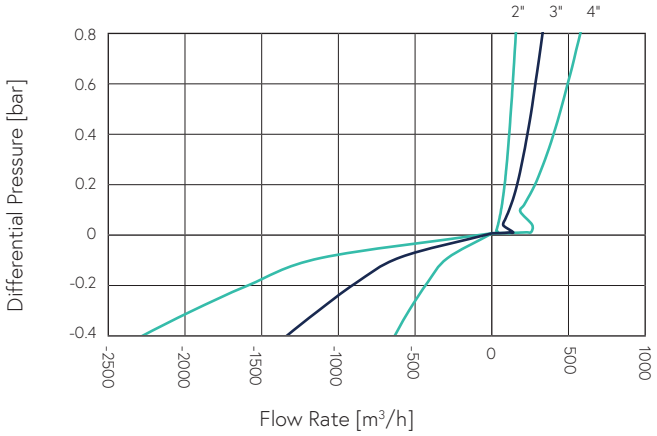
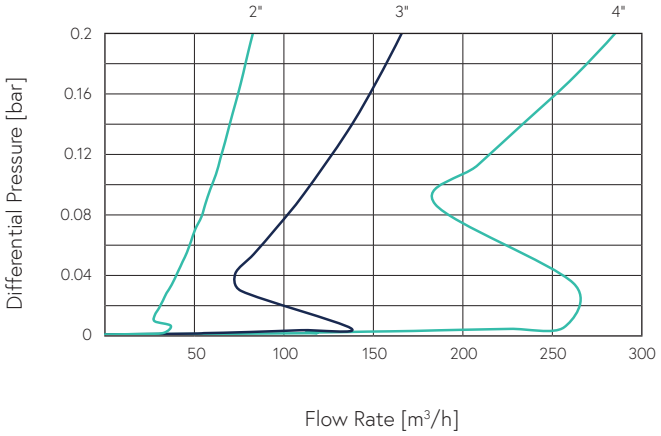
Flow Charts

Metal Models - Screen Cover Outlet

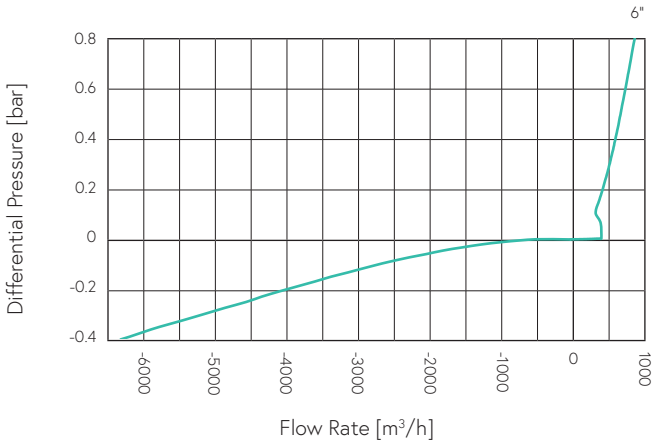
Air & Vacuum Flow Rate



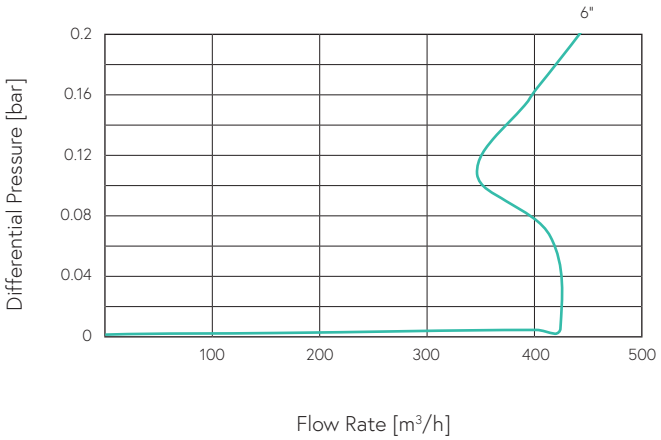
Air Discharge Switching Region



Air & Vacuum Flow Rate



Air Discharge Switching Region



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Parts List and Specification | Nylon 2"

No.	Part	Material
1	Cover Assembly	
1a	Cover	Reinforced Nylon
1b	NS	Reinforced Nylon
2	Air Release / Air & Vacuum Assembly	
2a	Air & Vacuum Seal	EPDM
2b	Air Release Cover	Reinforced Nylon
2c	Rolling Seal	EPDM
2d	Float	Polypropylene
2f	O-ring	NBR
3	Body	Reinforced Nylon
4	Optional Flange Assembly	
4a	O-ring	NBR
4b	Flange	Reinforced Nylon + Stainless Steel 316

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Parts List and Specification | Metal 2"

Part	Material
1. Discharge Assembly	
1a. Discharge Elbow or Screen Cover	Polypropylene
1b. Seal	NBR
2. Body Assembly	
2a. Optional - Non Slam Disc	Reinforced Nylon
2b. Body	Ductile Iron
2c. Drain Outlet	Polypropylene
2d. Pressure Release Plug	Reinforced Nylon
3. Air Release / Air & Vacuum Assembly	
3a. Air & Vacuum Seal	EPDM
3b. Air Release Cover	Acetal
3c. Rolling Seal	EPDM
3d. Float	Polypropylene
4. Seat Assembly	
4a.Float Seat	Acetal
4b. Snap Ring	Reinforced Nylon

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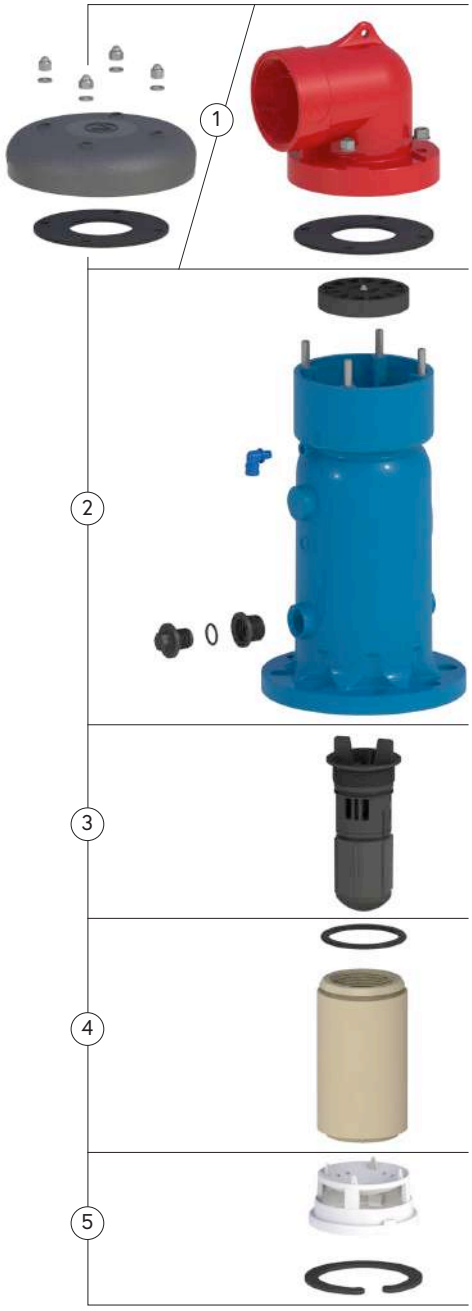
Parts List and Specification | Metal 3" 4"

Part	Material
1. Discharge Assembly	
1a. Discharge Elbow or Screen Cover	Polypropylene
1b. Seal	NBR
2. Body Assembly	
2a. Optional - Non Slam Disc	Reinforced Nylon
2b. Body	Ductile Iron
2c. Drain Outlet	Polypropylene
2d. Pressure Release Plug	Reinforced Nylon
3. Air Release Assembly	
3a. Cover	Acetal
3b. O-ring	EPDM
3c. Rolling Seal	EPDM
3d. Air Release Float	Polypropylene
4. Air & Vacuum Assembly	
4a. Air & Vacuum Seal	EPDM
4b. Air & Vacuum Float	Polypropylene
5. Seat Assembly	
5a. Float Seat	Acetal
5b. Snap Ring	Reinforced Nylon



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Parts List and Specification | Metal 6"

	Part	Material
	1. Discharge Outlet Assembly	
Elbow Model	1a. Discharge Elbow Outlet	Polypropylene
Elbow Model	1b. Lifting Ring	Stainless Steel 316
Elbow Model	1c. Seal	NBR
Elbow Model	1d. Flange + Locking Ring + O-ring (Optional)	Polypropylene / Steel + Acetal+ EPDM
Screen Model	1a. Screen Cover	Stainless Steel 316
Screen Model	1b. Lifting Ring	Stainless Steel 316
Screen Model	1c. Screen	Stainless Steel 316
Screen Model	1d. Screen Seat	Stainless Steel 316
	2. Body Assembly	
	2a. Optional - Non Slam Disc	Reinforced Nylon
	2b. Body	Ductile Iron
	2c. Drain Outlet	Polypropylene
	2d. Pressure Release Plug	Reinforced Nylon
	3. Air Release Assembly	
	3a. Cover	Reinforced Nylon
	3b. O-ring	EPDM
	3c. Rolling Seal	NBR
	3d. Air Release Float	Foamed Polypropylene
	4. Air & Vacuum Assembly	
	4a. Air & Vacuum Seal	EPDM
	4b. Air & Vacuum Float	Reinforced Polypropylene
	5. Seat Assembly	
	5a. Float Seat	Acetal
	5b. Snap Ring	Acetal
	5c. Flange Seal	EPDM

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