A.R.I. D-23

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Directing the Flow

Wastewater

Reduced Bore, Combination Air Valve for Wastewater

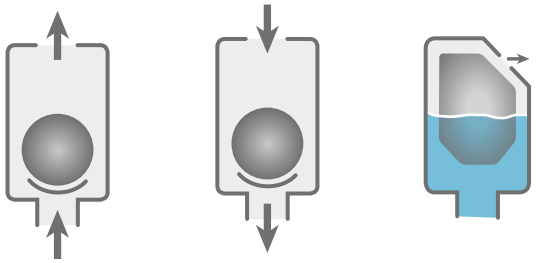
Description

A.R.I. D-23 is a reduced bore, Combination Air Valve installed on wastewater transmission systems. The Air Valve is designed to improve hydraulic operation by protecting the pipeline, increasing pipeline efficiency, and reducing energy requirements. The unique body shape of the valve, enables a continuous air gap that separates the wastewater from the sealing mechanism and helps to avoid deposits or blockage.

Installation

- Wastewater & water treatment plants
- Wastewater and effluent water transmission lines

Operation



Air Discharge

Air Intake

Automatic
Air Release

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Features and Benefits

Conical body / funnel-shaped lower body	Maximum air gap, minimum body length
	Residue matter falls back into the system pipeline
Continuous air gap	Separates the liquid from the sealing mechanism
Aerodynamic float assembly	High velocity air will not close the valve under rapid filling operation
	Reduces accumulation of fat or grease buildup
	Free movement will not unseal the sealing mechanism
Sealing assembly	Provides smooth, reliable opening/closing, and leak-free sealing over a wide range of pressures
Cushioned spring connection	Cushioned joint allows continuous air discharge under vibration conditions related to turbulence from pump start and shut-off, or from flow fluctuations.
Ball valve	Releases pressure and drains valve prior to maintenance
Cover assembly	Allows complete drop-in replacement, reducing maintenance downtime
Spray Guard®	Flow enhancer, prevents spraying during rapid filling operation
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.

Technical Specifications

Size range	3" - 8"
Working pressure range	3" 0.02 -10 bar (PN 10) 0.1-16 bar (PN 16) 4" 0.02 -10 bar (PN 10) 0.2-16 bar (PN 16) 0.2-25 bar (PN25) 6" - 8" 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
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

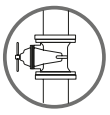
Valve connection	Threaded BSP/NPT or flanged ends to meet various requested standards
Standard materials	Reinforced Nylon models - two-directional cover is standard Metal models - optional one-directional or two-directional covers
Optional add-on components	One-way Out - allows for air discharge only, prevents air intake One-way In - allows air intake only, not allowing air discharge Non-slam - discharge-throttling attachment, allows full air intake, throttles air discharge
Additional product configurations	SB Underground Air Valve System (3"& 4" sizes only)

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

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)
3" (80mm)	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
4" (100 mm) 6" (150 mm) 8" (200 mm)	1 orifice	75	50.3	8	Spring-loaded normally closed	65
	2 orifices	75	100.5	11.3		88
	3 orifices	75	150.8	13.9		106

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 (mm²)	
	max. A	B	C	RN	ST ST	A / V	Auto.
D-23 3" (80 mm) THR	258	547	2" BSP / NPSM Female	8.1	13.2	1963	8.6
D-23 3" (80 mm) FL	258	554	2" BSP / NPSM Female	8.5	16.1	1963	8.6
D-23 NS 3" (80 mm) THR	330	547	2" BSP / NPSM Male	8.3	13.6	1963	8.6
D-23 NS 3" (80 mm) FL	330	554	2" BSP / NPSM Male	8.7	16.5	1963	8.6
One-directional cover				Cast Steel	ST ST		
D-23 4" (100 mm) FL	526	580	3" BSP / NPSM Female	21.6	24.6	5024	15.7
D-23 NS 4" (100 mm) FL	548	580	3" BSP / NPSM Male	24.7	25.5	5024	15.7
Two-directional cover				Cast Steel	ST ST		
D-23 4" (100 mm) FL	495	620	3" BSP / NPSM Female	24.2	25.0	5024	15.7
D-23 NS 4" (100 mm) FL	605	620	3" BSP / NPSM Male	24.7	25.4	5024	15.7
Two-directional cover (RN)				RN			
D-23 4" (100 mm) FL	371	626	3" BSP / NPSM Female	15.4	-	5024	15.7
D-23 NS 4" (100 mm) FL	477	626	3" BSP / NPSM Male	16.1	-	5024	15.7
One-directional cover				Cast Steel	ST ST		
D-23 6" (150 mm) FL	527	579	3" BSP/ NPSM Female	29	30.9	5024	15.7
D-23 NS 6" (150 mm) FL	548	579	3" BSP/ NPSM Female	29.8	30.7	5024	15.7
Two-directional cover				Cast Steel	ST ST		
D-23 6" (150 mm) FL	474	626	3" BSP/ NPSM Female	29	30.9	5024	15.7
D-23 NS 6" (150 mm) FL	587	626	3" BSP/ NPSM Female	29.8	30.7	5024	15.7
One-directional cover				Cast Steel	ST ST		
D-23 8" (200 mm) FL	527	579	3" BSP/ NPSM Female	30.6	31.5	5024	15.7
D-23 NS 8" (200 mm) FL	548	579	3" BSP/ NPSM Female	31.4	32.3	5024	15.7
Two-directional cover				Cast Steel	ST ST		
D-23 8" (200 mm) FL	474	626	3" BSP/ NPSM Female	30.6	31.5	5024	15.7
D-23 NS 8" (200 mm) FL	587	626	3" BSP/ NPSM Female	31.4	32.3	5024	15.7

THR - Threaded FL - Flanged

NOTE

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

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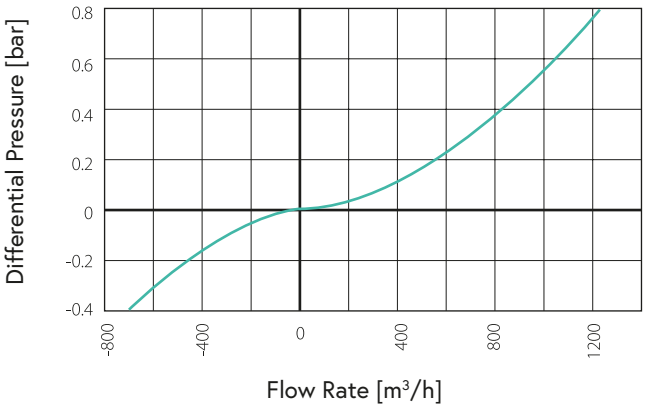
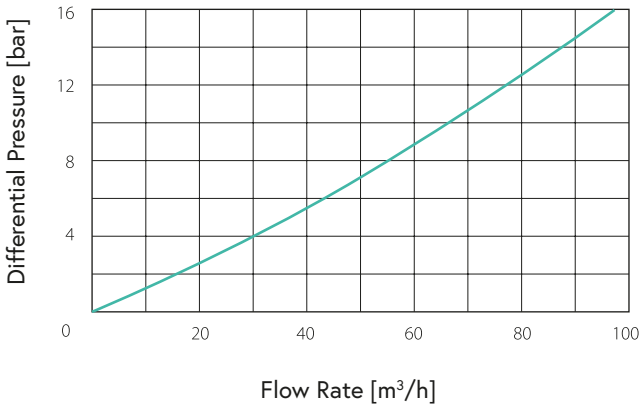
Flow Charts

A.R.I. D-23 3"

Air & Vacuum Flow Rate

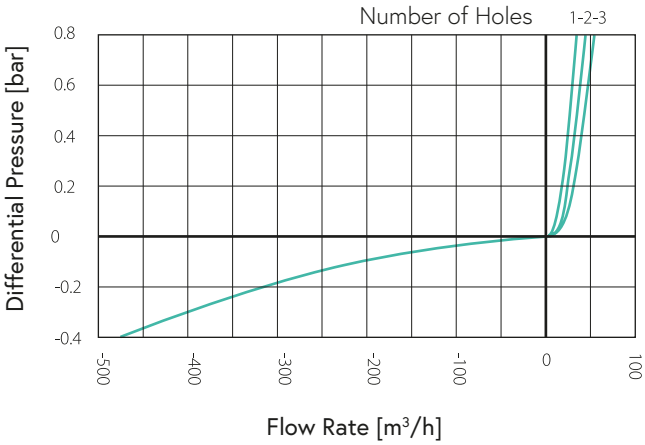


Automatic Air Release Flow Rate

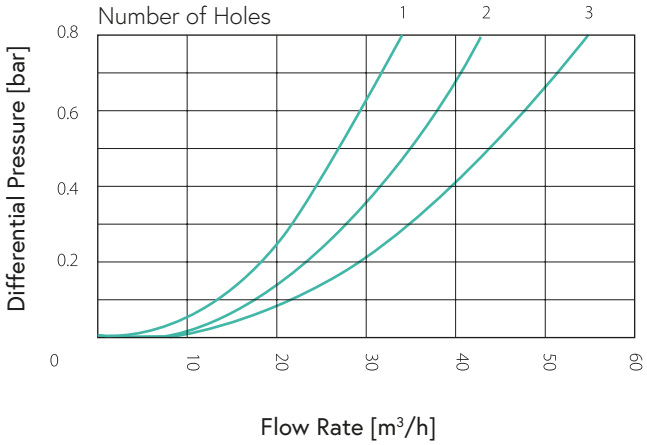


A.R.I. D-23 NS 3"

Adjustable NS Check Valve



Adjustable NS Check Valve



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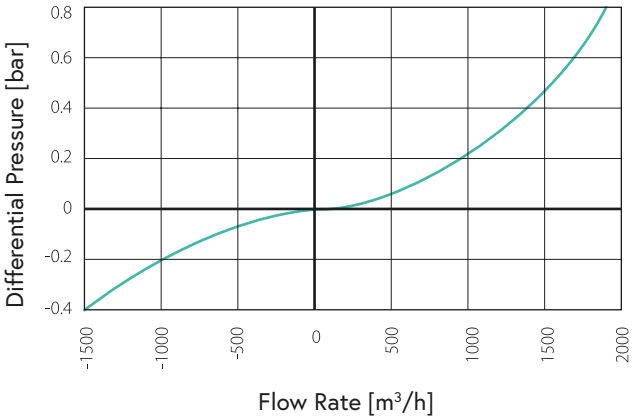
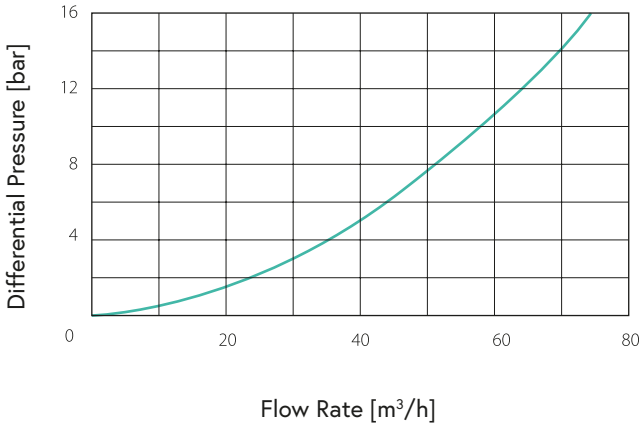
Flow Charts

A.R.I. D-23 4"-8"

Air & Vacuum Flow Rate

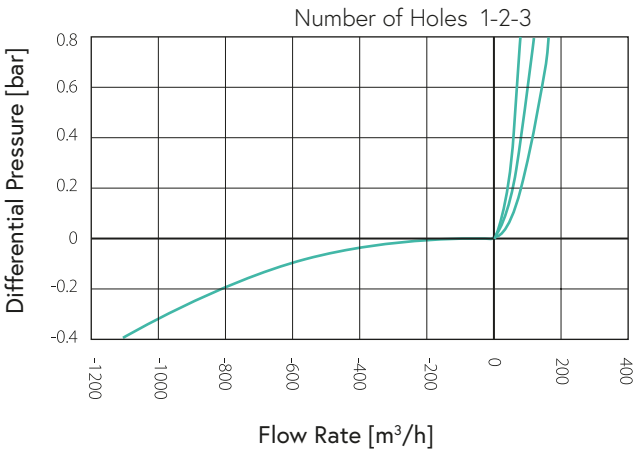


Automatic Air Release Flow Rate

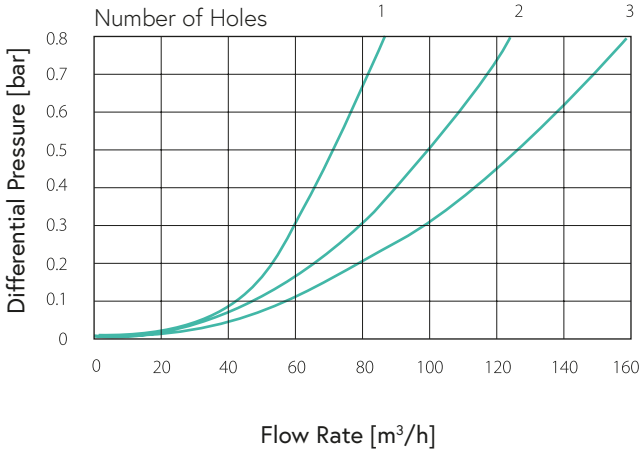


A.R.I. D-23 NS 4"-8"

Air & Vacuum Flow Rate



Air Discharge Flow Rate



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Parts List and Specifications | 3"

No.	Part	Material
1	Cover Assembly	
1a	Orifice Plug	Polypropylene
1b	Cover	Stainless Steel 316
1c	Bolt Assembly	Stainless Steel 316 + Reinforced Nylon
1d	Non-slam Component (optional)	Reinforced Nylon / Polypropylene + Stainless Steel
2	Seal Assembly	
2a	Disc Arm	Cast Stainless Steel
2b	Air & Vacuum Disc	Cast Stainless Steel / Reinforced Nylon
2c	Air & Vacuum Seal	EPDM
2d	Air Release Seal & Seat	EPDM & Reinforced Nylon
2e	Seal Cover	Reinforced Nylon
3	Body Assembly	
3a	O-ring	NBR
3b	Spray Guard®	Polypropylene
3c	Body	Reinforced Nylon / Stainless Steel 316
4	Float Assembly	
4a	Domed Nut	Stainless Steel 316
4b	Stopper	Polypropylene
4c	Spring	Stainless Steel 316
4d	Float & Rod	Polypropylene + Stainless Steel 316
5	Base Assembly	
5a	O-ring	NBR
5b	Clamp Assembly	Cast Stainless Steel + Stainless Steel 316
5c	Base	Reinforced Nylon / Stainless Steel 316
5d	Tap	Brass / Stainless Steel

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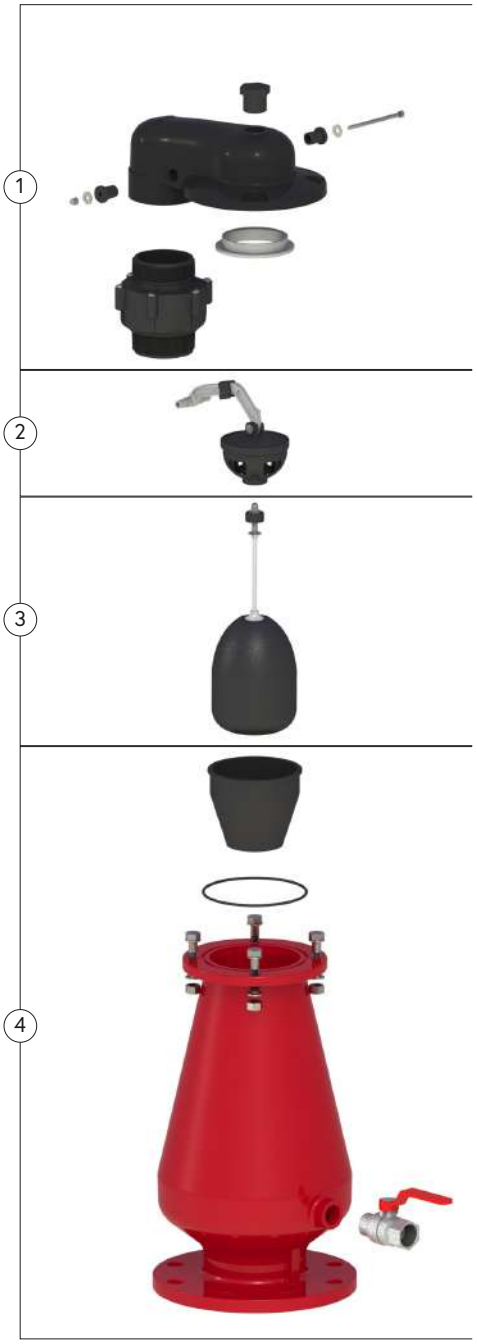
Parts List and Specifications | One-directional Cover Model 4"-8"

No.	Part	Material
1	Cover Assembly	
1a	Orifice Plug	Polypropylene
1b	Cover	Ductile Iron / Stainless Steel 316
1c	Bolt Assembly	Stainless Steel 316 + Reinforced Nylon
1d	Orifice Seat	Stainless Steel 316
1e	Non-slam Component (optional)	Reinforced Nylon / Polypropylene + Stainless Steel
2	Seal Assembly	
2a	Disc Arm	Cast Stainless Steel
2b	Air &Vacuum Disc	Cast Stainless Steel / Reinforced Nylon
2c	Air & Vacuum Seal	EPDM
2d	Air Release Seal & Seat	EPDM & Reinforced Nylon
2e	Seal Cover	Reinforced Nylon
3	Float Assembly	
3a	Domed Nut	Stainless Steel 316
3b	Stopper	Polypropylene
3c	Spring	Stainless Steel 316
3d	Float & Rod	Polypropylene + Stainless Steel 316
4	Body Assembly	
4a	Spray Guard®	Polypropylene
4b	O-ring	NBR
4c	Body	Cast Steel / Stainless Steel 316
4d	Ball Valve	Brass, Chrome Coated / Stainless Steel 316



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Parts List and Specifications | Two-directional Cover Model 4"-8"

No.	Part	Material
1	Cover Assembly	
1a	Orifice Plug	Polypropylene
1b	Cover	Stainless Steel 316
1c	Bolt Assembly	Stainless Steel 316 + Reinforced Nylon
1d	Non-slam Component (optional)	Reinforced Nylon / Polypropylene + Stainless Steel
2	Seal Assembly	
2a	Disc Arm	Cast Stainless Steel
2b	Air & Vacuum Disc	Cast Stainless Steel / Reinforced Nylon
2c	Air & Vacuum Seal	EPDM
2d	Air Release Seal & Seat	EPDM & Reinforced Nylon
2e	Seal Cover	Reinforced Nylon
3	Float Assembly	
3a	Domed Nut	Stainless Steel 316
3b	Stopper	Polypropylene
3c	Spring	Stainless Steel 316
3d	Float & Rod	Polypropylene + Stainless Steel 316
4	Body Assembly	
4a	Spray Guard®	Polypropylene
4b	O-ring	NBR
4c	Body	Cast Steel / Stainless Steel 316
4d	Ball Valve	Brass, Chrome Coated / Stainless Steel 316

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