

# A.R.I. D-040



Mining

## Reduced Bore, Combination Air Valve Series

### Description

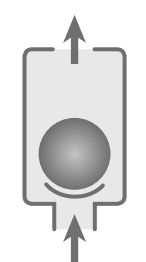
A.R.I. D-040 is a reduced bore Combination Air Valve Series. Installed on liquid transmission systems, the Air Valve is designed to improve hydraulic operation by protecting the pipeline, increasing pipeline efficiency and reducing energy requirements.

Applicable for: Desalination & Sea Water, Mines, Marine - Ballast Water, Oil & Gas, Food Industry, Power Plant Cooling, CBM, Hydro / Thermal Power.

### Installation

- Pump stations: downstream of the pump and the check valve
- Downstream and upstream of shut-off valves
- Downstream of 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

### Operation



Air Discharge




Air Intake



Automatic  
Air Release

## Features and Benefits

Reliable operation	Reduces water hammer impact, saves energy and increases system efficiency
Dynamic design	High capacity air discharge
	Easy to install and simple to maintain
Unique orifice seat / seal design	Long-term maintenance-free operation
Accessible discharge outlet	For connecting a vent pipe
Construction materials	UV resistant, non-corrosive and durable
Rolling seal	Leak-free sealing over a wide range of pressure differentials
 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

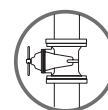
## Technical Specifications

Size range	½" – 2"		
Working pressure range	0.1 - 10 bar (PN10)	A.R.I. D-040	A.R.I. D-040 C
	0.2 - 16 bar (PN16)	A.R.I. D-040	A.R.I. D-040 C
	0.02 - 10 bar (PN10)	A.R.I. D-040 L	
	0.05 - 16 (PN16)	A.R.I. D-040 L	
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 (Model A.R.I. D-040-C)		

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

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.



## Valve Selection Options

<b>Models</b>	A.R.I. D-040 A.R.I. D-040 C - Protecting Shell A.R.I. D-040 L - Specifically designed to operate with liquids containing small suspended solids
<b>Valve connection</b>	Threaded male BSPT/NPT Flanged ends to meet various requested standard
<b>Standard materials</b>	Reinforced Nylon, Polypropylene, Stainless Steel 316, Super Duplex grade 5A
<b>Optional add-on components</b>	One-way Out attachment, allows for air discharge only, prevents air intake One-way In attachment, allows air intake only, not allowing air discharge Non-slam, discharge-throttling attachment, allows full air intake, throttles air discharge (2" only)
<b>Pressure rating</b>	PN10 / PN16    A.R.I. D-040   A.R.I. D-040 C   A.R.I. D-040 L



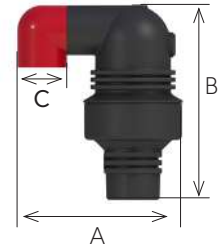
A.R.I. D-040



A.R.I. D-040 C



A.R.I. D-040 L



## ➤ Dimensions and Weight

Size	Dimensions (mm)		Connections	Weight (kg)	Orifice Area (mm <sup>2</sup> )		
	max. A	B			C	A / V	Auto.
<b>Composite materials models</b>							
D-040							
1/2" (15mm), 3/4" (20mm), 1" (25mm) THR	100	143	3/8" BSP Female	0.33	100	7.8	
2" (50mm) THR	183	215	1½" BSP Female	1.1	804	12	
2" (50mm) FL	211	222	1½" BSP Female	1.6	804	12	
D-040 L							
1/2" (15mm), 3/4" (20mm), 1" (25mm) THR	100	227	3/8" BSP Female	0.6	100	7.8	
2" (50mm) THR	183	346	1½" BSP Female	2	804	12	
2" (50mm) FL	211	354	1½" BSP Female	2.5	804	12	
<b>Metal Models</b>							
D-040 C (Protective Shell)							
1/2" (15mm), 3/4" (20mm), 1" (25mm) THR	119	144	3/8" BSP Female	1.3	100	7.8	
2" (50mm) THR	185	217	1.5" BSP Female	4	804	12	
2" (50mm) FL	214	221	1.5" BSP Female	5.9	804	12	
D-040 STST							
1/2" (15mm), 3/4" (20mm), 1" (25mm) THR	100	143	3/8" BSP Female	1.4	100	7.8	
2" (50mm) THR	185	217	1.5" BSP Female	4	804	12	
2" (50mm) FL	210	205	1.5" BSP Female	5.7	804	12	
D-040 L STST							
1/2" (15mm), 3/4" (20mm), 1" (25mm) THR	94	216	3/8" BSP Female	1.7	100	7.8	
2" (50mm) THR	183	335	1.5" BSP Female	4.4	804	12	
2" (50mm) FL	210	335	1.5" BSP Female	6.6	804	12	

**NOTE**

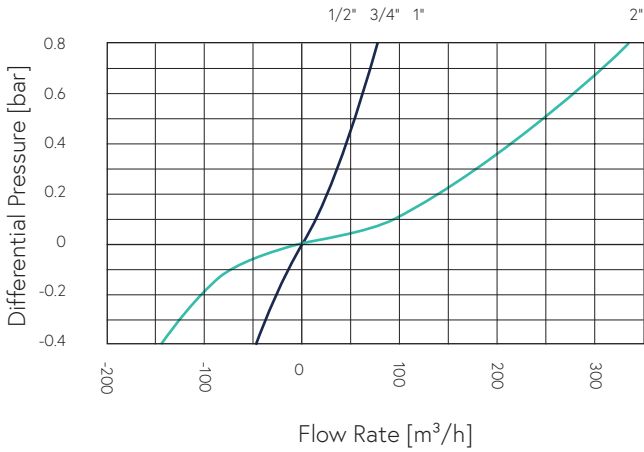
Dimension A in the picture and in the table shows the maximum product width. All product weights are approximate, due to the differences in flange standards, materials and variable accessories.

FL - Flanged    THR - Threaded

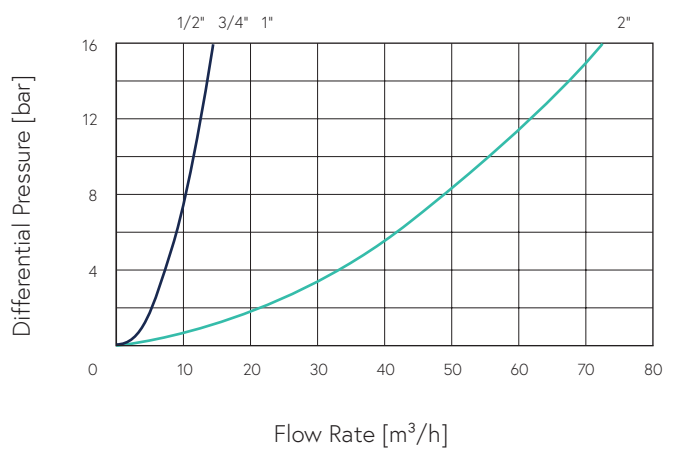
## Flow Charts

### A.R.I. D-040

Air & Vacuum Flow Rate

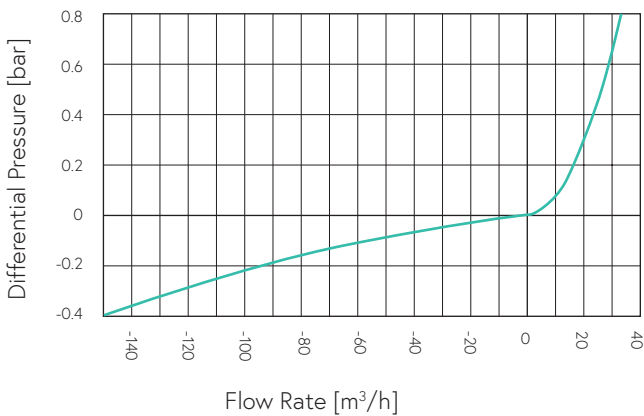


Automatic Air Release Flow Rate

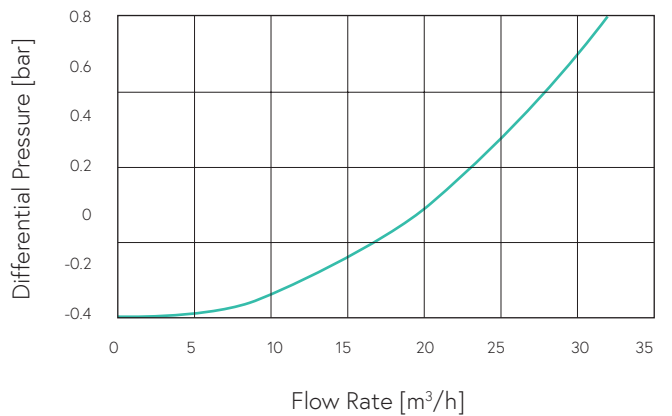


### A.R.I. D-040 NS

Air & Vacuum Flow Rate



Air Discharge Flow Rate



## Parts List and Specifications | 1" Metal Models

No.	Part	Material
1	Cover	Stainless Steel 316 / Super Duplex Grade 5A
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Rolling Seal	EPDM / VITON
3	Base Assembly	
3a	O-ring	EPDM / VITON
3b	Base	Stainless Steel 316 / Super Duplex Grade 5A



## Parts List and Specifications | 1" Composite Materials Models

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	Body	Reinforced Nylon / Polypropylene / PVDF
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Rolling Seal	EPDM / VITON
3	Base Assembly	
3a	O-ring	EPDM / VITON
3b	Base	Reinforced Nylon / Polypropylene / PVDF



NOTE: Polypropylene body for PN10 models only

## Parts List and Specifications | 2" Composite Materials Models

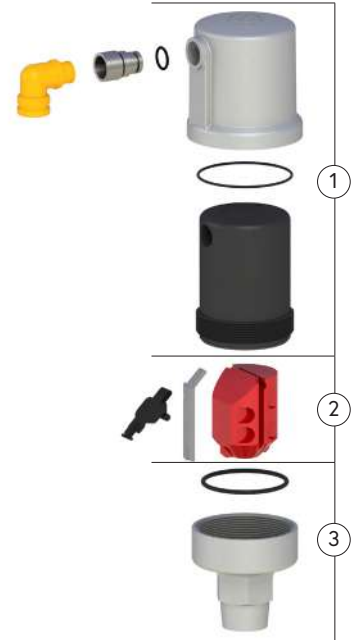
No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	One-way or NS Check Valve (Optional)	Polypropylene
1c	Body	Reinforced Nylon / Polypropylene / PVDF
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Seal Assembly	Stainless Steel + EPDM / VITON + Reinforced Nylon / Polypropylene
2d	O-ring	EPDM / VITON
3	Base Assembly	
3a	O-ring	EPDM / VITON
3b	Base	Reinforced Nylon / Polypropylene
4	Optional Flange Assembly	
4a	O-ring	EPDM / VITON
4b	Flange	Reinforced Nylon



NOTE: Polypropylene body for PN10 models only

## Parts List and Specifications | 1" Shell Models

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	O-ring	NBR
1c	Pin	Stainless Steel 316
1d	O-ring	NBR
1e	Shell	Stainless Steel 316
1f	O-ring	NBR
1g	Body	Reinforced Nylon
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon
2b	Rolling Seal	EPDM
2c	Float	Foamed Polypropylene
3	Base	
3a	O-ring	NBR
3b	Base	Stainless Steel 316



## Parts List and Specifications | 2" Shell Models

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	One Way / NS (Optional)	Polypropylene
1c	Shell	Stainless Steel 316
1d	Body	Reinforced Nylon
2	Air Release / Air & Vacuum Assembly	
2a	O-ring	NBR
2b	Clamping Stem	Reinforced Nylon
2c	Rolling Seal Assembly	Reinforced Nylon / Polypropylene + EPDM + Stainless Steel, Optional Electroless Nickel Coat
2d	Float	Foamed Polypropylene
3	Base	
3a	O-ring	NBR
3b	Base	Stainless Steel 316
4	Optional Flange Assembly	
4a	O-ring	Stainless Steel 316
4b	Flange	Stainless Steel 316





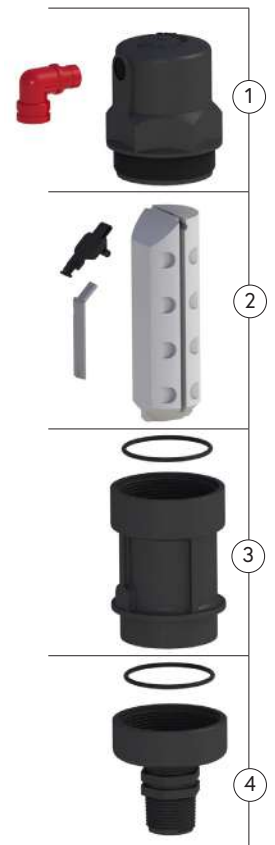
## Parts List and Specifications | 1" Metal Models

No.	Part	Material
1	Cover Assembly	Stainless Steel 316 / Super Duplex Grade 5A
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene / PVDF
2b	Float	Foamed Polypropylene
2c	Rolling Seal	EPDM / VITON
3	Extension Assembly	
3a	Extension	Stainless Steel 316 / Super Duplex Grade 5A
3b	O-ring	EPDM / VITON
4	Base Assembly	
4a	O-ring	EPDM / VITON
4b	Base	Stainless Steel 316 / Super Duplex Grade 5A



## Parts List and Specifications | 1" Composite Materials Models

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	Body	Reinforced Nylon / Polypropylene / PVDF
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Rolling Seal	EPDM / VITON
3	Extension Assembly	
3a	Extension	Reinforced Nylon / Polypropylene / PVDF
3b	O-ring	NBR / VITON
4	Base Assembly	
4a	O-ring	EPDM / VITON
4b	Base	Reinforced Nylon / Polypropylene / PVDF



NOTE: Polypropylene body for PN10 models only

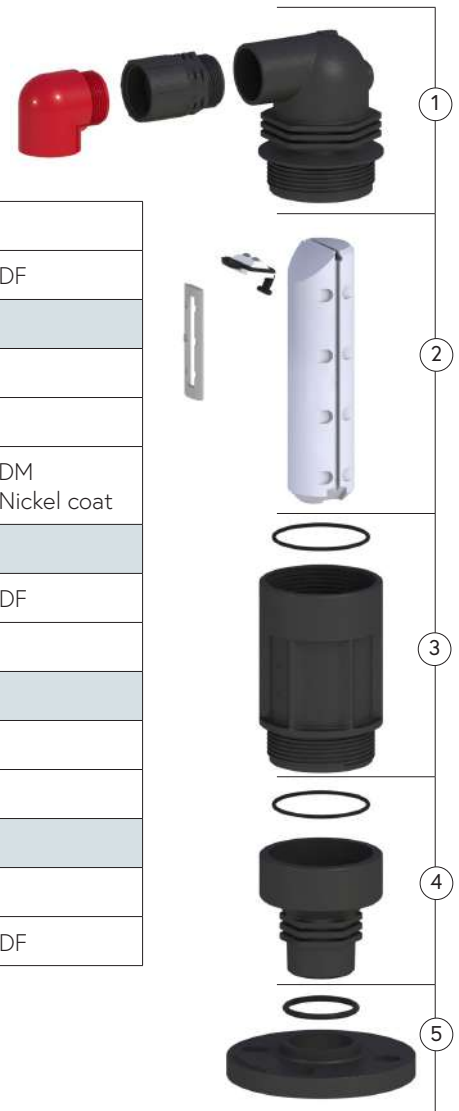
## Parts List and Specifications | 2" Metal Shell Model

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	One Way / NS (Optional)	Polypropylene
1c	Shell	Stainless Steel 316
1d	Body	Reinforced Nylon
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Rolling Seal Assembly	Reinforced Nylon / Polypropylene + EPDM + Stainless Steel, Optional Electroless Nickel coat
3	Extension Assembly	
3a	Extension	Stainless Steel 316 / Super Duplex Grade 5A
3b	O-ring	EPDM / VITON
4	Base Assembly	
4a	O-ring	EPDM / VITON
4b	Base	Stainless Steel 316 / Super Duplex Grade 5A
5	Optional Flange Assembly	
5a	O-ring	Stainless Steel 316
5b	Flange	Stainless Steel 316



## Parts List and Specifications | 2" Composite Materials Model

No.	Part	Material
1	Cover Assembly	
1a	Discharge Outlet	Polypropylene
1b	One-way or NS Check Valve (Optional)	Polypropylene
1b	One-way or NS Check Valve (Optional)	Polypropylene
1c	Body	Reinforced Nylon / Polypropylene / PVDF
2	Air Release / Air & Vacuum Assembly	
2a	Clamping Stem	Reinforced Nylon / Polypropylene
2b	Float	Foamed Polypropylene
2c	Rolling Seal Assembly	Reinforced Nylon / Polypropylene + EPDM + Stainless Steel, Optional Electroless Nickel coat
3	Extension Assembly	
3a	Extension	Reinforced Nylon / Polypropylene / PVDF
3b	O-ring	EPDM / VITON
4	Base Assembly	
4a	O-ring	EPDM / VITON
4b	Base	Reinforced Nylon / Polypropylene
5	Optional Flange Assembly	
5a	O-ring	EPDM / VITON
5b	Flange	Reinforced Nylon / Polypropylene / PVDF



NOTE: Polypropylene body for PN10 models only