A.R.I.

D-014 PN 40 D-016 PN 64
D-015 PN 40

Water Supply

Combination Air Valve for High Pressure

Description
The D-014, D-015, D-016, D-100 series Combination Air Valve has the features of both an air release valve and an air & vacuum valve.
The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.
The air & vacuum component is designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This valve will open to relieve negative pressures whenever water column separation occurs.

Applications
Municipal and industrial high pressure water conveyance systems.

Operation
The air & vacuum component, with the large orifice, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during its drainage and at water column separation.
High velocity air will not blow the float shut. Water will lift the float which seals the valve.
At any time during system operation, should internal pressure of the system fall below atmospheric pressure, air will enter the system.
The smooth discharge of air reduces pressure surges and other destructive phenomena.
The intake of air in response to negative pressure protects the system from destructive vacuum conditions and prevents damage caused by water column separation. Air entry is essential to efficiently drain the system.
The air release component releases entrapped air in pressurized systems.
Without air valves, pockets of accumulated air may cause the following hydraulic disturbances:
- Restriction of effective flow due to a throttling effect as would a partially closed valve. In extreme cases this will cause complete flow stoppage.
- Obstruction of efficient hydraulic transmission due to air flow disturbances.
- Accelerate cavitation damages.
- Pressure transients and surges.
- Corrosion in pipes, fittings and accessories.
- Danger of a high-energy burst of compressed air.
- Inaccuracies in flow metering.

As the system starts to fill, the valve functions according to the following stages:
1. Entrapped air in the pipeline is discharged by the valve.
2. Liquid enters the valve, lifting the float which pushes the sealing mechanism to its sealing position.
3. Entrapped air, which accumulates at peaks and along the system, rises to the top of the valve, which in turn displaces the liquid in the valve's body.
4. The float descends, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.
5. Liquid enters the valve and the float rises, pushing the rolling seal back to its sealing position.

When internal pressure falls below atmospheric pressure (negative pressure):
1. The floats will immediately drop down, opening the air & vacuum and air release orifices.
2. Air will enter the system.

Main Features
- Working pressure range: D-014: 0.2 - 40 bar
D-015: 0.2 - 25 bar / 0.2 - 40 bar / D-016: 0.2 - 64 bar
- Testing Pressure: 1.5 times the working pressure of the air valve.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high velocity air discharge while preventing premature closure.
- Lightweight, small dimensions, simple and reliable structure.
- Special orifice seat design: combination of bronze and E.P.D.M. rubber assures long-term maintenance-free operation.
- The discharge outlet enables removal of excess fluids.

Air Release Component
- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- Large orifice:
• Dramatically reduces the possibility of obstruction by debris.
• Releases high air flow rates.
• One size orifice for a wide pressure range (up to 64 bar), achieved by the A.R.I. patented rolling real mechanism

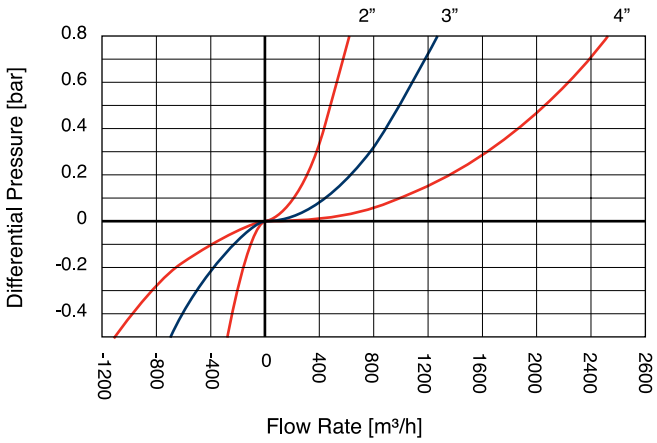
Valve Selection
- The D-014, D-015, D-016 combination air valves are available in sizes 2", 3" 4", 6" 8", (10" D-014, D-015 only).
- These valves are manufactured with flanged ends to meet any requested standard.
- Valve coating: fusion bonded epoxy coating according to the standard DIN 30677-2.
- Other coatings are available upon request.
- The automatic air release component and the air & vacuum component are available as separate units.

Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

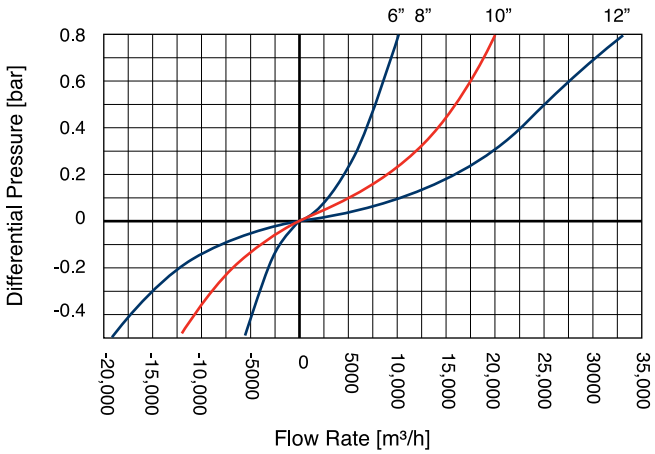
D-014 / D-015 / D-016

A.R.I.

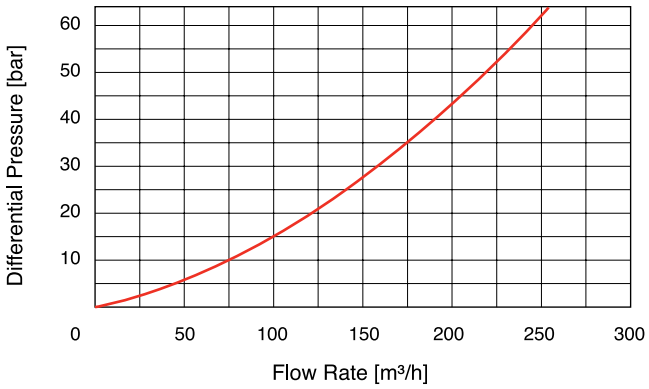
AIR & VACUUM FLOW RATE



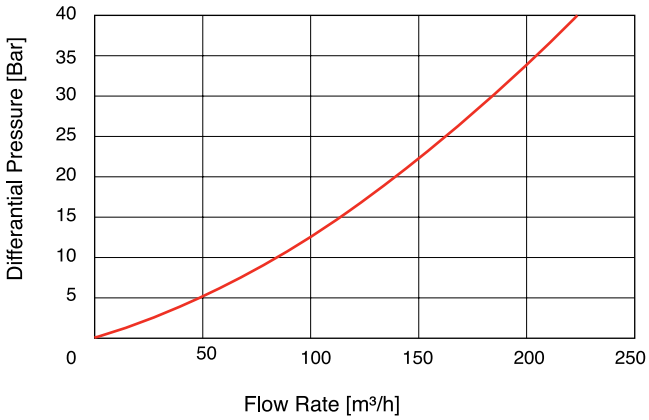
AIR & VACUUM FLOW RATE



D-014 / D-016 AUTOMATIC AIR RELEASE FLOW RATE



D-015 AUTOMATIC AIR RELEASE FLOW RATE



D-014 DIMENSIONS AND WEIGHT

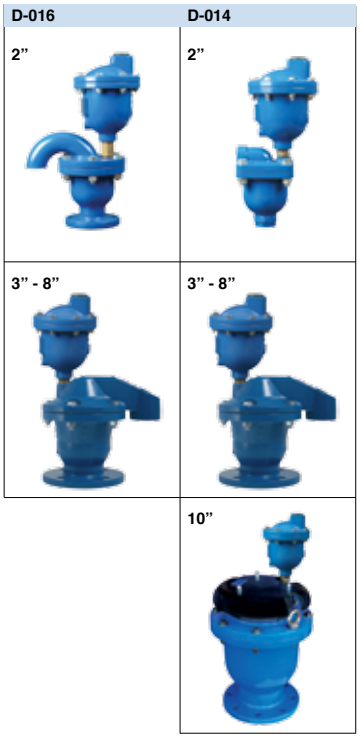
Nominal Size	Dimensions mm A	B	Connections C	D	Weight Kg.	Orifice Area mm² A / V	Auto.
2" (50mm) Threaded	330	483	1½" BSP Female	1/2" BSP Female	23.0	794	15

Nominal Size	Dimensions mm A	B	internal C	external	Connection D	Weight Kg.	Orifice Area mm² A / V	Auto.
3" (80mm)	331	513	63.5	74.4	1/2" BSP Female	29.5	1809	15
4" (100mm)	386	529	80	98	1/2" BSP Female	37.5	2463	15
6" (150mm)	583	719	124	140	1/2" BSP Female	90.0	17662	15
8" (200mm)	577	704	124	140	1/2" BSP Female	129.0	17662	15

Nominal Size	Dimensions mm A	B	Connection D	Weight Kg.	Orifice Area mm² A / V	Auto.
10" (250mm)	481	845	1/2" BSP Female	149.0	31400	15

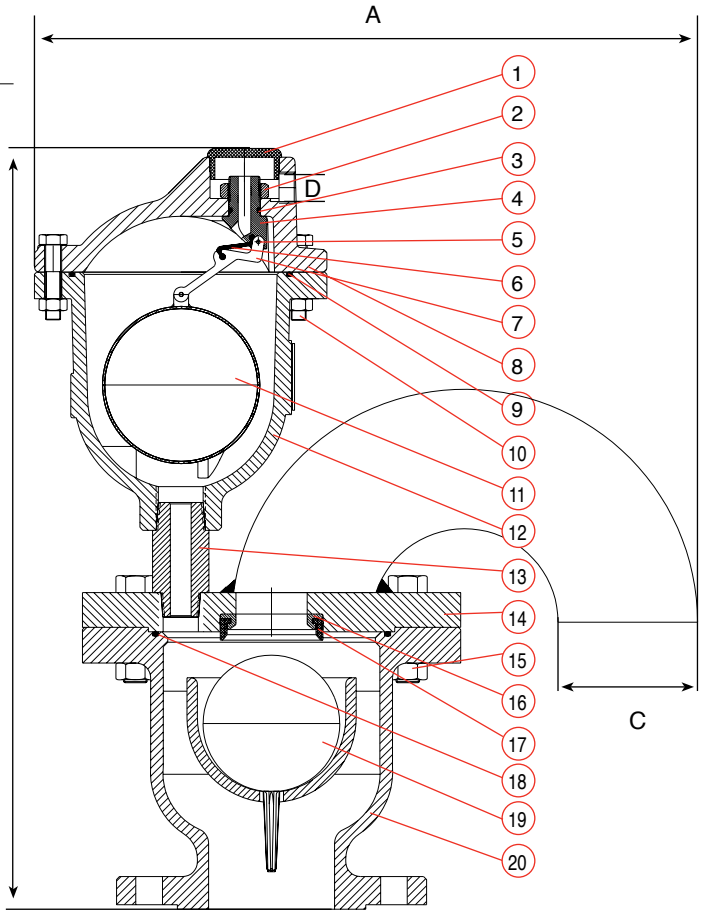
D-016 DIMENSIONS AND WEIGHT

Nominal Size	Dimensions mm A	B	internal C	external	Connection D	Weight Kg.	Orifice Area mm² A / V	Auto.
2" (50mm)	330	483	54	60	1/2" BSP Female	23.0	794	15
3" (80mm)	450	545	81	89	1/2" BSP Female	29.5	1809	15
4" (100mm)	469	587	81	89	1/2" BSP Female	37.5	2463	15
6" (150mm)	583	719	108	124	1/2" BSP Female	90.0	17662	15
8" (200mm)	577	704	108	124	1/2" BSP Female	129.0	17662	15



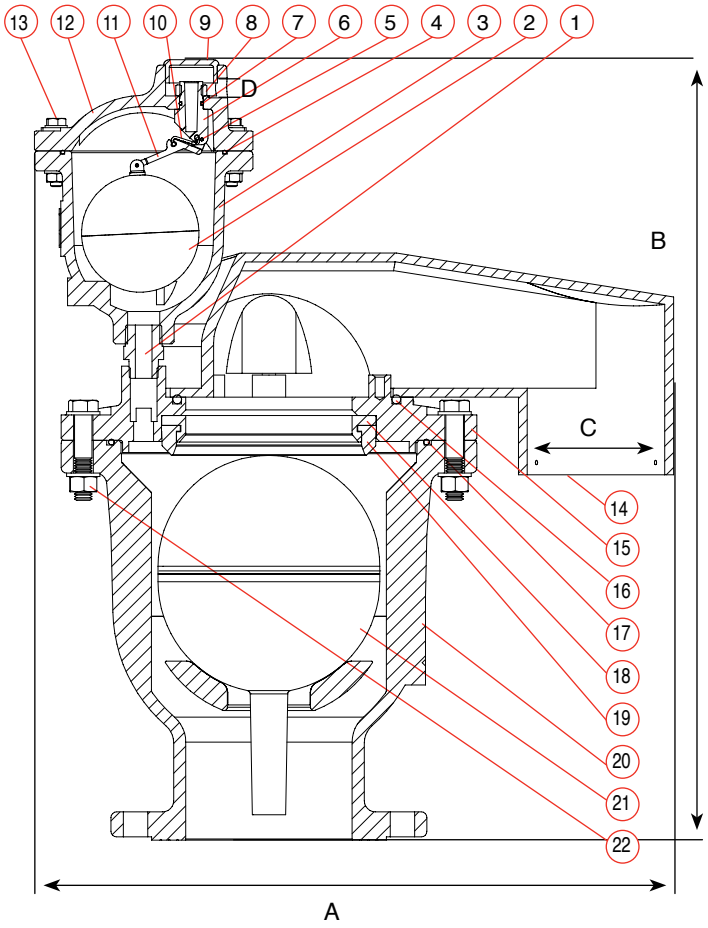
PARTS LIST AND SPECIFICATION 2"-4"

No.	Part	
1.	Orifice Cover	Polypropylene
2.	Nut	Brass ASTM B-124
3.	O-Ring	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Pin	Stainless Steel SAE 304
6.	Rolling Seal	E.P.D.M.
7.	Lever	Reinforced Nylon
8.	Cover	Cast Steel ASTM A216 WCB
9.	O-Ring	BUNA-N
10.	Bolt, Nut & Washer	Steel Zinc Cobalt Plated
11.	Float	Polycarbonate / Stainless Steel SAE 316
12.	Body	Cast Steel ASTM A216 WCB
13.	Adapter	Brass ASTM B124
14.	Cover	Cast Steel ASTM A216 WCB
15.	Bolt, Nut & Washer	Steel Zinc Cobalt Plated
16.	Orifice Seat	Bronze ASTM B62 B271 C83600
17.	Orifice Seal	E.P.D.M.
18.	O-Ring	BUNA-N
19.	Float	Polycarbonate / Stainless Steel SAE 316
20.	Body	Cast Steel ASTM A216 WCB



PARTS LIST AND SPECIFICATION 6", 8"

No.	Part		Material
1.	Adapter		Brass ASTM B124
2.	Float		Polycarbonate / Stainless Steel SAE 316
3.	Body		Cast Steel ASTM A216 WCB
4.	O-Ring		BUNA-N
5.	Rollpin		Stainless Steel SAE 304
6.	Orifice		Reinforced Nylon
7.	O-Ring		BUNA-N
8.	Nut		Brass ASTM B-124
9.	Orifice Cover		Polypropylene
10.	Rolling Seal		E.P.D.M.
11.	Lever		Reinforced Nylon
12.	Cover		Cast Steel ASTM A216 WCB
13.	Bolt, Nut & Washer		Steel Zinc Cobalt Plated
14.	Protective Cover		Cast Iron ASTM A48CC35B
15.	Cover	PN 40	Cast Steel ASTM A216 WCB
		PN 64	Cast Steel ASTM A148 115-95
16.	O-Ring		BUNA-N
17.	O-Ring		BUNA-N
18.	Orifice Seat		Bronze ASTM B62 B271 C83600
19.	Orifice Seal		E.P.D.M.
20.	Body		Cast Steel ASTM A216 WCB
21.	Float	6"	Polycarbonate / Stainless Steel SAE 316
		8"	Stainless Steel SAE 316
22.	Bolt, Nut & Washer		Steel Zinc Cobalt Plated



D-015

A.R.I.

DIMENSIONS AND WEIGHT

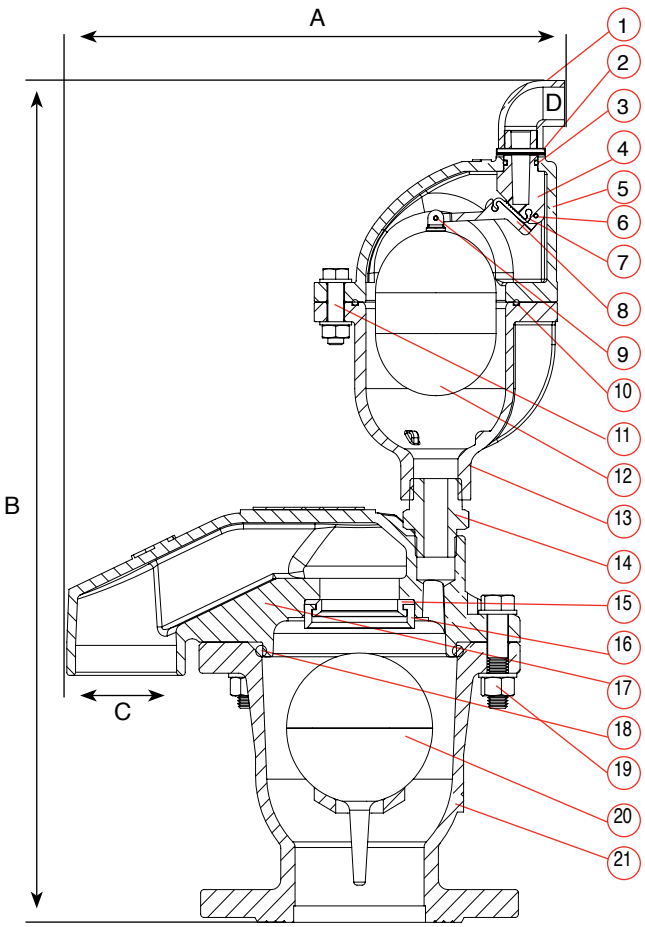
Nominal Size	Dimensions mm A	B	Connections C	D	Weight Kg.	Orifice Area mm² A / V	Auto.
2" (50mm) Threaded	213	484	1½" BSP Female	1/2" BSP Female	15.4	794	15
2" (50mm) Flanged	213	487	1½" BSP Female	1/2" BSP Female	16.4	794	15

Nominal Size	Dimensions mm A	B	internal C	external	Connection D	Weight Kg.	Orifice Area mm² A / V	Auto.
3" (80mm)	313	515	63.5	74.6	1/2" BSP Female	21.9	1809	15
4" (100mm)	369	535	80.0	96.0	1/2" BSP Female	40.0	3317	15
6" (150mm)	559	679	124.0	140.0	1/2" BSP Female	82.4	17662	15
8" (200 mm)	559	679	124.0	140.0	1/2" BSP Female	121.4	17662	15

Nominal Size	Dimensions mm A	B	Connection D	Weight Kg.	Orifice Area mm² A / V	Auto.
10" (250mm)	463	866	1/2" BSP Female	132.4	31400	15

PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Discharge Outlet	PVC
2.	Rollpin	Stainless Steel SAE 304
3.	O-RING	BUNA-N
4.	Orifice	Reinforced Nylon
5.	Cover	Ductile Iron ASTM A536 60-40-18
6.	Rollpin	Stainless Steel SAE 304
7.	Rolling Seal	E.P.D.M.
8.	Lever	Reinforced Nylon
9.	Rollpin	Stainless Steel SAE 304
10.	O-Ring	BUNA-N
11.	Bolt, Nut & Washer	Steel, Zinc Cobalt Plated
12.	Float	Polycarbonate / Stainless Steel SAE 316
13.	Body	Ductile Iron ASTM A536 60-40-18
14.	Adapter	Brass ASTM B124
15.	Orifice Seat	Bronze ASTM B-62 B271 C83600
16.	Orifice Seal	E.P.D.M.
17.	Cover	Ductile Iron ASTM A-536-60-40-18
18.	O-Ring	BUNA-N
19.	Bolt, Nut & Washer	Steel Zinc Cobalt Plated
20.	Float	Polycarbonate / Stainless Steel 304L
21.	Body	Ductile Iron ASTM A-536-60-40-18
*	Screen Cover 10"	Polyethylene /Cast Iron ASTM A-48 CL35B /Ductile Iron ASTM A-536-60-40-18



A.R.I. FLOW CONTROL ACCESSORIES Ltd. www.arivalves.com ari@ari.co.il Tel: 972-4-6761988