

# A.R.I. D-090



Waterworks

## Underground Combination Air Valve

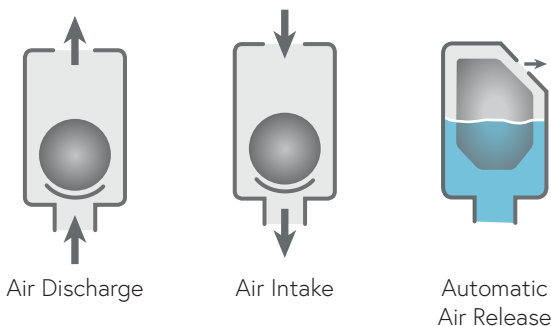
### Description

A.R.I. D-090 Underground Combination Air Valve System integrates the D-040 valve model, encased within a specially designed, compact sub-surface housing for underground usage. Valve maintenance is performed above ground, reducing the hazards of confined space operation.


### Installation

- Water distribution lines
- Areas susceptible to freezing
- Rural areas - provides protection against damage and vandalism
- Urban areas - integrated with existing sub-surface municipal infrastructures
- Public and private areas – keeps aboveground areas aesthetically unobstructed

### Operation



## Features and Benefits

Body and internal parts - high strength reinforced composite and rubber materials	Non-corrosive and durable
Integral check valve	Shuts automatically for removal and maintenance
Unique valve box check valve	Drains water and prevents water intake
Dynamic design	High capacity air discharge
Rolling seal mechanism	Leak-free sealing over wide range of pressure differentials
Lightweight and compact silhouette	Easy installation and maintenance
Safety pressure control	Gradual pressure release of valve prior to maintenance protects inner locking mechanism and the operator
 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

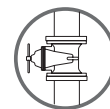
## Technical Specifications

Size range	2" – 4"
Working pressure range	0.1 - 10 bar (PN10), 0.2 - 16 bar (PN16)
Testing pressure	1.5 times maximum working pressure
Temperature	Maximum working temperature: 60° C Maximum intermittent temperature: 90° 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.



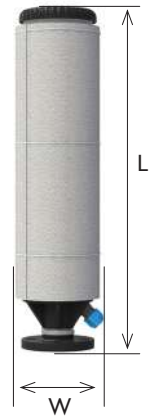
## Valve Selection Options

Valve connection	Threaded male BSPT/NPT (2") Flanged ends to meet various requested standard (2", 3", 4")
Box lengths	500 mm, 755 mm, 1055 mm, 1305 mm, 1555mm, 1830mm, 2135mm, 2440mm
Optional add-on components	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
Pressure rating	PN10 / PN16
Additional product configurations	Internal frost protection Flood Guard Flushing tap



## Dimensions and Weight

Length (mm)	2" (50mm) THR		2" (50mm) FL		3" (80mm) FL		4" (100mm) FL	
	Width (mm)	Weight (kg)	Width (mm)	Weight (kg)	Width (mm)	Weight (kg)	Width (mm)	Weight (kg)
500	202	5.8	202	5.5	202	6.2	228	6.7
755		7.3		6.9		7.6		8.1
1055		8.9		8.5		9.2		9.7
1305		9.9		9.5		10.2		10.7
1555		11.1		10.7		11.4		11.9
1830		12.4		12.0		12.7		13.2
2135		13.7		13.3		14.0		14.5
2440		15.0		14.6		15.3		15.8



Orifice Area (mm<sup>2</sup>) | A / V 7.8 | Auto. 100

### 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.

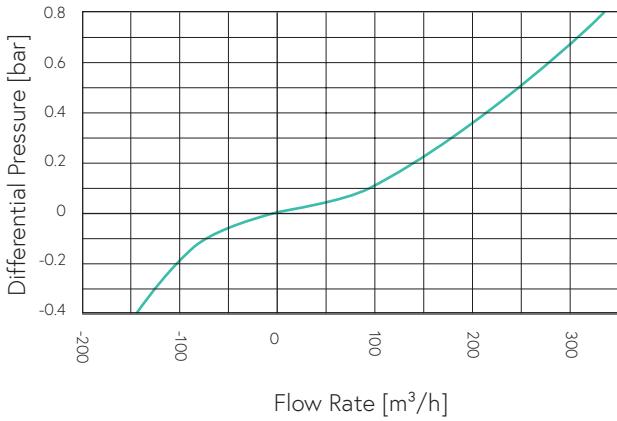
## Non-slam Add-on Component Data Table for Variable Orifices

Discharge orifice (mm)	Total NS area (mm <sup>2</sup> )	NS orifice (mm)	Switching point (bar)	Flow at 0.4 bar (m <sup>3</sup> /h)
37.5	12.6	4	Spring loaded	17.5

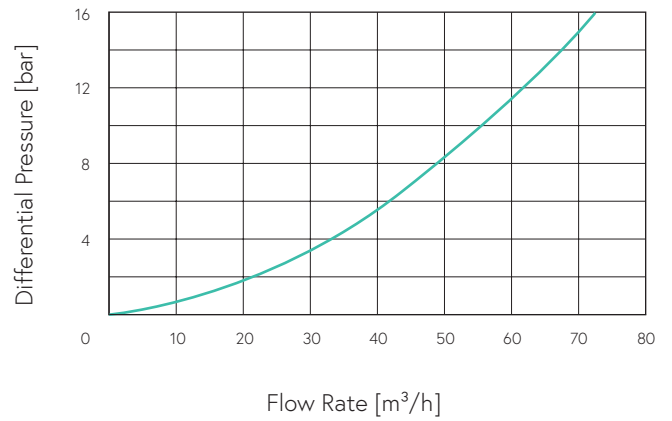
## Flow Charts

### D-090

Air & Vacuum Flow Rate

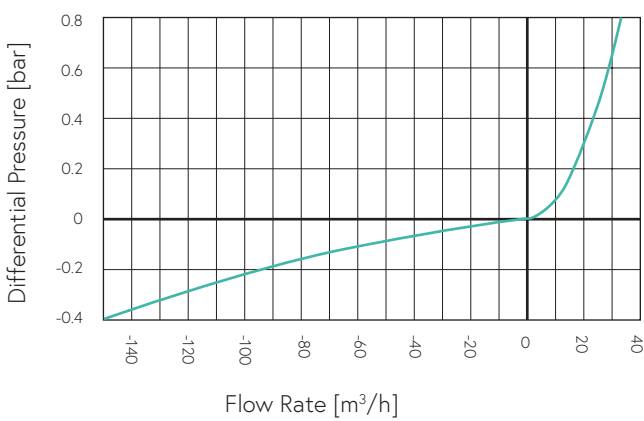


Automatic Air Release Flow Rate

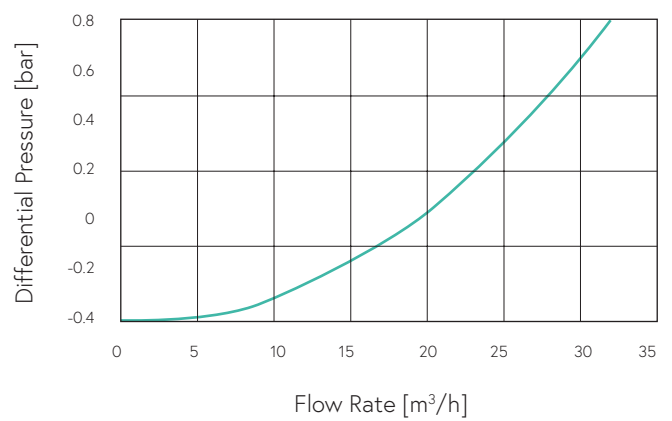


### D-090 NS

Air & Vacuum Flow Rate



Air Discharge Flow Rate



## Parts List and Specifications

	Part	Material
1	Valve Box Assembly	
1a	Cover	Polypropylene
1b	Air Valve Box	PVC
1c	Insulation Cover	Aluminum Coated Foamed PE
1d	Base	Reinforced Nylon
1e	Drainage Connector	Polypropylene + Acetal
1f	Check Valve	Acetal + NBR + Stainless Steel
1g	Adaptor	Stainless Steel 316
2	Bridge & Rod Assembly	
2a.	Bridge Assembly	Reinforced Nylon
2b.	Tightening Rod	Stainless Steel 304
2c.	Lock Pin	Stainless Steel 304
3	D-040 Air Valve Assembly	
3a	One-way or NS Check Valve (Optional)	Acetal + NBR + Stainless Steel
3b	body	Reinforced Nylon
3c	sealing assembly	Stainless Steel + R.N + EPDM
3d	float	Polypropylene
3e	clamping stem	Reinforced Nylon
3f	O-ring	BUNA-N
3g	base	Reinforced Nylon
3h	O-ring	NBR
4	Flange Assembly (optional)	
4a	O-ring	NBR
4b	Flange	Reinforced Nylon

