

# A.R.I. D-070



Waterworks

## Dynamic Combination Air Valve **PATENTED**

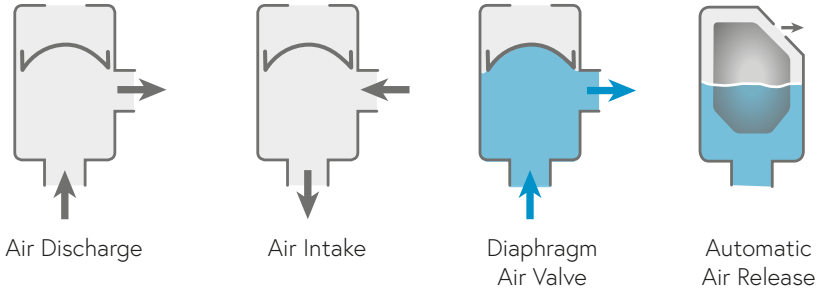
### Description

A.R.I. D-070 is a unique multi-function Dynamic Combination Air Valve, operating without a float; utilizing a rolling diaphragm principle. Its unique structure allows the valve to discharge air from the water system gradually, in a controlled manner to prevent slam or local upsurge. The valve is normally closed when the line is not pressurized, thus prohibiting infiltration of foreign particles or insects into the system.




### Installation

- Pump stations: after the pump and after the check valve
- Upstream and downstream 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
- Upstream water meters
- On strainers and filters
- Systems prone to high velocity air discharge.

## Operation



## Features and Benefits

|  |   |
|--|---|
| Multi-purpose design   | Combination and surge reduction air valve in one body   |
| System protection  | Reduces local water hammer impact, saves energy and increases system efficiency   |
| Smooth and controlled discharge of air   | Prevents slam and reduces local surges  |
| Small footprint, low silhouette  | Easily installed in restricted spaces   |
| Normally closed  | Prevents intrusion of debris and contaminants   |
| All internal operating parts made of specially selected materials  | Non-corrosive and durable   |
| Large automatic air release orifice  | Lessens obstruction by debris   |
| Upper drain elbow  | Removes accumulated impure water from above the seal  |
| Threaded outlet  | Insect-proof, for vent pipe connection  |
| Flow cross-sections  | Equal to or greater than nominal port area  |
|  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"-4" Reinforced Nylon valves   3"-8", 12" Metal valves  |
| Sealing pressure range | D-070 P (Reinforced Nylon) 0.2-10 bar (PN 10)   0.2-16 bar (PN 16)<br>D-070 (Metal) 0.2-16 bar (PN 16)<br>Testing pressure: 1.5 times maximum working pressure |
| Temperature            | Maximum working temperature: 60° C.<br>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

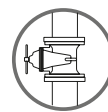


## Valve Selection Options

|                  |  |
|------------------|--|
| Valve connection | Threaded BSP/NPT (Reinforced Nylon) or Flanged ends to meet various requested standard                       |
| D-070 VB         | Easily transformed into a vacuum breaker valve   |
| D-070-V          | One-way, out-only attachment. Enables air discharge only, preventing air intake                              |
| Flushing Tap     | Flushes out the system from debris and contaminants; reducing maintenance downtime                           |
| Bug Screen       | Add-on prevents the intrusion of debris or insects into the air valve (2" – 8")                              |
| D-070 Q          | A Dynamic Combination Air and Pressure Relief Valve, combining a two-stage pressure relief Component (2"-3") |

The 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.

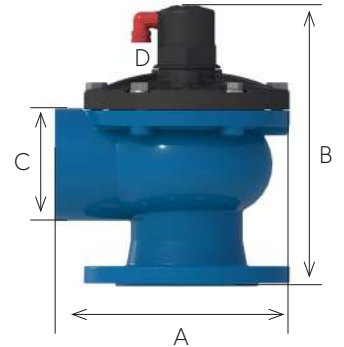


## Dimensions and Weight

| Model               | Dimensions (mm) |       | Connections         |                 | Weight (kg) | Orifice Area (mm <sup>2</sup> ) |       |
|---------------------|-----------------|-------|---------------------|-----------------|-------------|---------------------------------|-------|
|                     | A               | B     | C                   | D               |             | A / V                           | Auto. |
| <b>Nylon models</b> |                 |       |                     |                 |             |                                 |       |
| 2" (50 mm) THR      | 144             | 216   | 2" BSP Male         | 3/8" BSP Female | 1.1         | 1963                            | 7.8   |
| 2" (50 mm) FL       | 167             | 222   | 2" BSP Male         | 3/8" BSP Female | 1.5         | 1963                            | 7.8   |
| 3" (80 mm) THR      | 144             | 217   | 2" BSP Male         | 3/8" BSP Female | 1.1         | 1963                            | 7.8   |
| 3" (80 mm) FL       | 200             | 222   | 2" BSP Male         | 3/8" BSP Female | 1.8         | 1963                            | 7.8   |
| 4" (100 mm) FL      | 228             | 222   | 2" BSP Male         | 3/8" BSP Female | 2.2         | 1963                            | 7.8   |
| <b>Metal models</b> |                 |       |                     |                 |             |                                 |       |
| 3" (80 mm) FL       | 233             | 293   | 3" Vic / BSP / NPSM | 3/8" BSP Female | 13.0        | 5153                            | 7.8   |
| 4" (100 mm) FL      | 260             | 311.0 | 4" Vic.             | 3/8" BSP Female | 18.0        | 7850                            | 7.8   |
| 6" (150 mm) FL      | 378             | 392   | 6" Vic.             | 1½" BSP Female  | 39          | 17553                           | 12    |
| 8" (200 mm) FL      | 411             | 445   | 8" Vic.             | 1½" BSP Female  | 63.0        | 31400                           | 12    |
| 12" (300mm) FL      | 568.0           | 725.0 | 12" Vic.            | 2" BSP Female   | 158.0       | 70650                           | 12x3  |

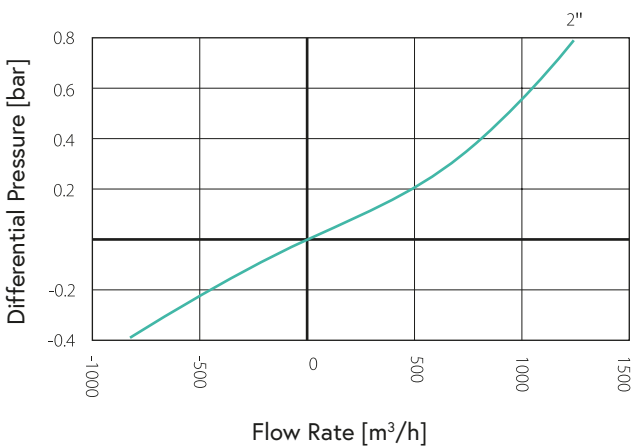
FL - Flanged THR - Threaded

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

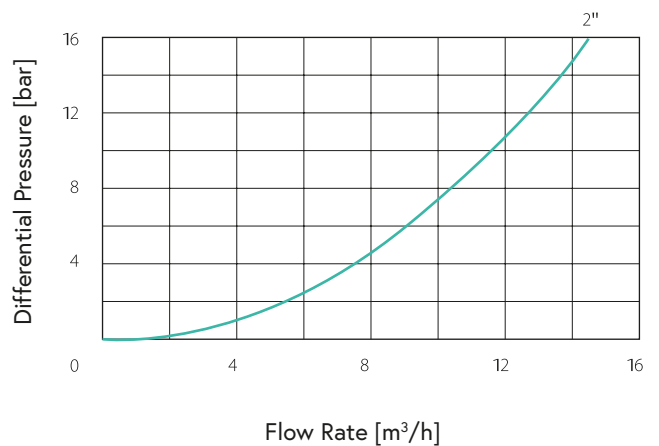


## Flow Charts for Nylon Models

Air & Vacuum Flow Rate

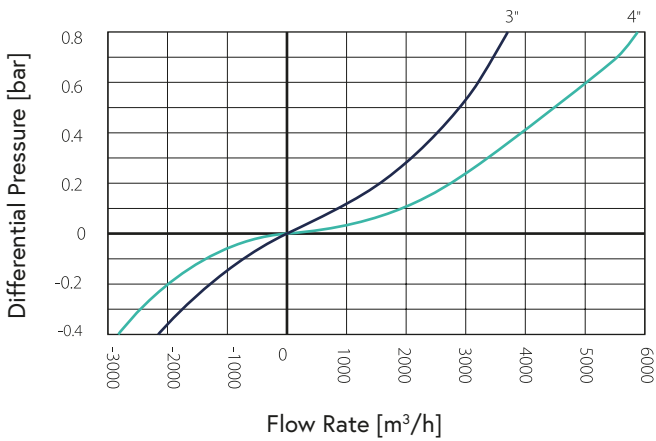


Automatic Air Release Flow Rate

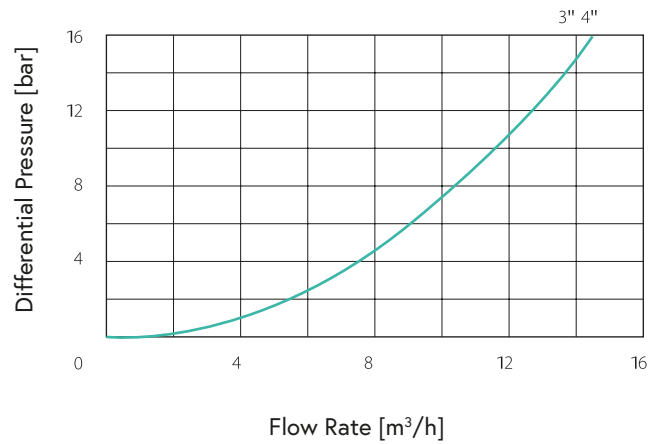


## Flow Charts for Metal Models

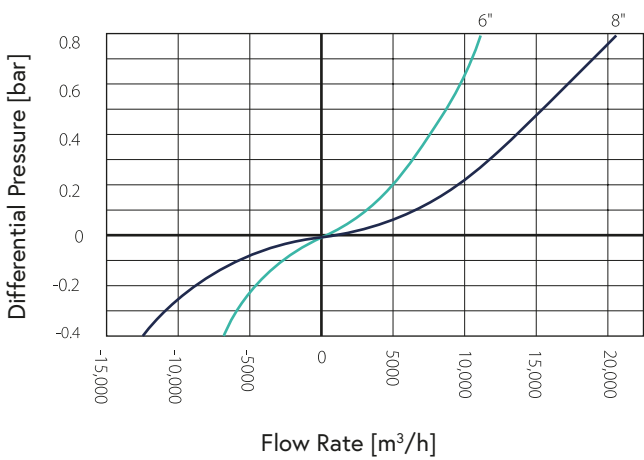
Air & Vacuum Flow Rate



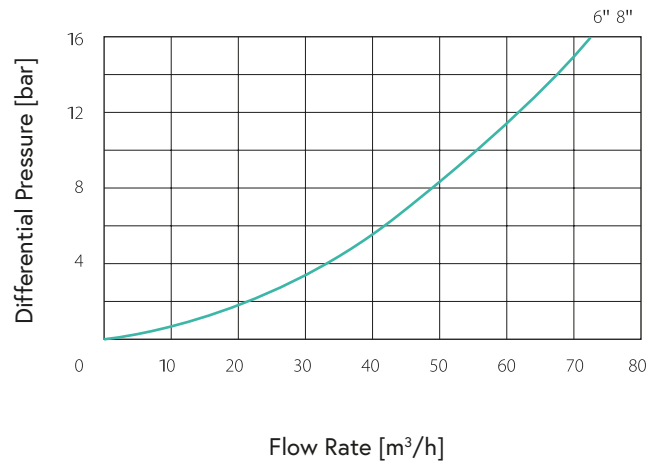
Automatic Air Release Flow Rate



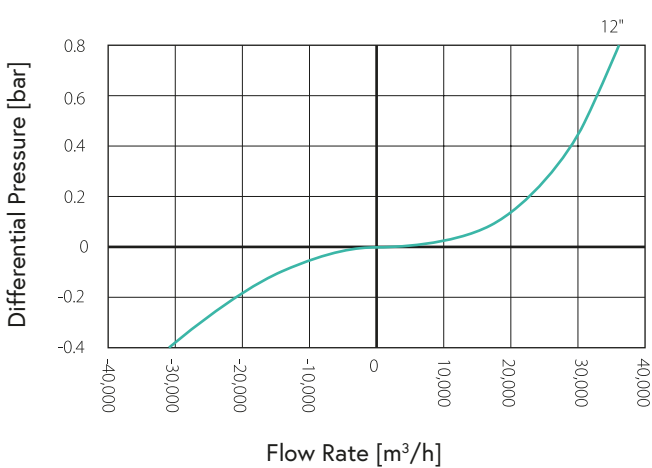
Air & Vacuum Flow Rate



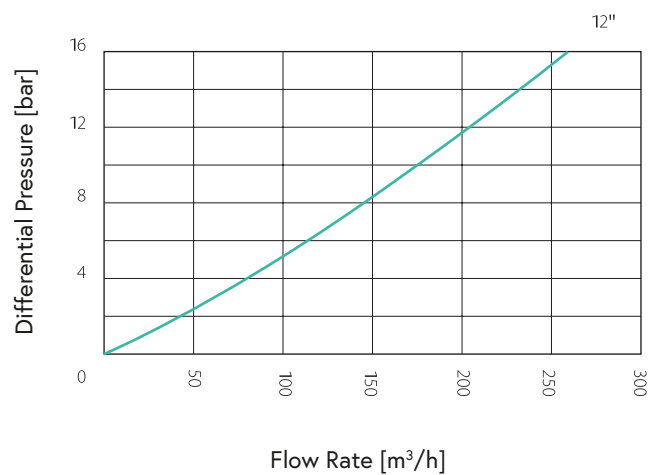
Automatic Air Release Flow Rate



Air & Vacuum Flow Rate



Automatic Air Release Flow Rate



## Parts List and Specification | Nylon Models

| No. | Part                               | Material                                      |
|-----|------------------------------------|---|
| 1   | Air Valve Body Assembly            |   |
| 1a  | Discharge Elbow                    | Polypropylene                                 |
| 1b  | Body                               | Reinforced Nylon                              |
| 2   | Pilot Seal Assembly                |   |
| 2a  | Clamping Stem                      | Reinforced Nylon                              |
| 2b  | Pilot Float Assembly               | Polypropylene + Stainless Steel 316           |
| 2c  | Rolling Seal                       | EPDM  |
| 3   | Adaptor Assembly                   |   |
| 3a  | O-Ring                             | NBR   |
| 3b  | Locking Ring                       | Reinforced Nylon                              |
| 4   | Seal Assembly                      |   |
| 4a  | Adaptor                            | Reinforced Nylon                              |
| 4b  | Rolling Diaphragm Sealing Assembly | Reinforced Nylon + EPDM + Stainless Steel 316 |
| 5   | Body Assembly                      |   |
| 5a  | Support Ring                       | Reinforced Nylon                              |
| 5b  | Body                               | Reinforced Nylon                              |
| 5c  | O-Ring                             | NBR   |
| 5d  | Flange                             | Reinforced Nylon                              |



## Parts List and Specification | Metal Model 3" 4"

| No. | Part                               | Material  |
|-----|------------------------------------|---|
| 1   | Pilot Body Assembly                |   |
| 1a  | Discharge Elbow                    | Polypropylene   |
| 1b  | Pilot body                         | Reinforced Nylon  |
|     |                                    |   |
| 2   | Pilot Sealing Assembly             |   |
| 2a  | Clamping Stem                      | Reinforced Nylon  |
| 2b  | Pilot Float Assembly               | Foamed Polypropylene<br>+ Stainless Steel 304 + Acetal                        |
| 2c  | Rolling Seal                       | EPDM  |
|     |                                    |   |
| 3   | Cover Assembly                     |   |
| 3a  | O-ring                             | BUNA-N  |
| 3b  | Cover                              | Reinforced Nylon  |
|     |                                    |   |
| 4   | Rolling Diaphragm Sealing Assembly | Reinforced Nylon + EPDM<br>+ Stainless Steel 304<br>+ Natural Rubber + Fabric |
|     |                                    |   |
| 5   | Body Assembly                      |   |
| 5a  | Bolt, Nut & Washer                 | Steel Zinc Cobalt Coated  |
| 5b  | Body                               | Ductile Iron  |



## Parts List and Specification | Metal Model 6"-8"

| No. | Part                               | Material  |
|-----|------------------------------------|---|
| 1   | Pilot Body Assembly                |   |
| 1a  | Pilot body                         | Reinforced Nylon  |
| 1b  | Discharge Outlet Extension         | Polypropylene   |
| 1c  | Discharge Elbow                    | Polypropylene   |
| 2   | Pilot Sealing Assembly             |   |
| 2a  | Rolling Seal Assembly              | EPDM + Reinforced Nylon + Stainless Steel 316                           |
| 2b  | Pilot Float Assembly               | Foamed Polypropylene + Stainless Steel 304 + Acetal                     |
| 2c  | Clamping Stem                      | Reinforced Nylon  |
| 3   | Cover Assembly                     |   |
| 3a  | O-ring                             | BUNA-N  |
| 3b  | Cover                              | Ductile Iron  |
| 4   | Rolling Diaphragm Sealing Assembly | Reinforced Nylon + EPDM + Stainless Steel 304 + Natural Rubber + Fabric |
| 5   | Body Assembly                      |   |
| 5a  | Bolt, Nut & Washer                 | Steel Zinc Cobalt Coated  |
| 5b  | Body                               | Ductile Iron  |





## Parts List and Specification | 12" PN 16

| No. | Part   | Material   |
|-----|--|--|
| 1   | Pilot Assembly                               |  |
| 1a  | Plug   | Stainless Steel 316  |
| 1b  | Pilot Cover + Orifice Seat and Seal Assembly | Ductile Iron, Bronze, EPDM   |
| 1c  | Float  | Polycarbonate  |
| 1d  | O-ring                                       | BUNA-N   |
| 1e  | Bolt, Nut & Washer                           | Stainless Steel 316  |
| 1f  | Body   | Ductile Iron   |
| 1g  | Internal Check Valve                         | Acetal   |
| 2   | Air Release Valve Assembly (X3)              |  |
| 2a  | Air Release Valve Elbow+ Tube                | Polypropylene, Polyethylene  |
| 2b  | Air Release Valve Body                       | Reinforced Nylon   |
| 2c  | Rolling Seal                                 | EPDM   |
| 2d  | Clamping Stem                                | Reinforced Nylon   |
| 2e  | Float  | Foamed Polypropylene   |
| 2f  | O-ring                                       | BUNA-N   |
| 2g  | Base   | Brass  |
| 3   | Cover Assembly                               |  |
| 3a  | O-ring                                       | BUNA-N   |
| 3b  | Cover  | Ductile Iron   |
| 4   | Rolling Diaphragm Sealing Assembly           | Reinforced Nylon + EPDM + Stainless Steel 304 + Polypropylene + Fabric |
| 5   | Body Assembly                                |  |
| 5a  | Bolt, Nut & Washer                           | Stainless Steel 304,316  |
| 5b  | Body   | Ductile Iron   |

