



APCO ASU COMBINATION AIR VALVE TECHNICAL SPECIFICATIONS

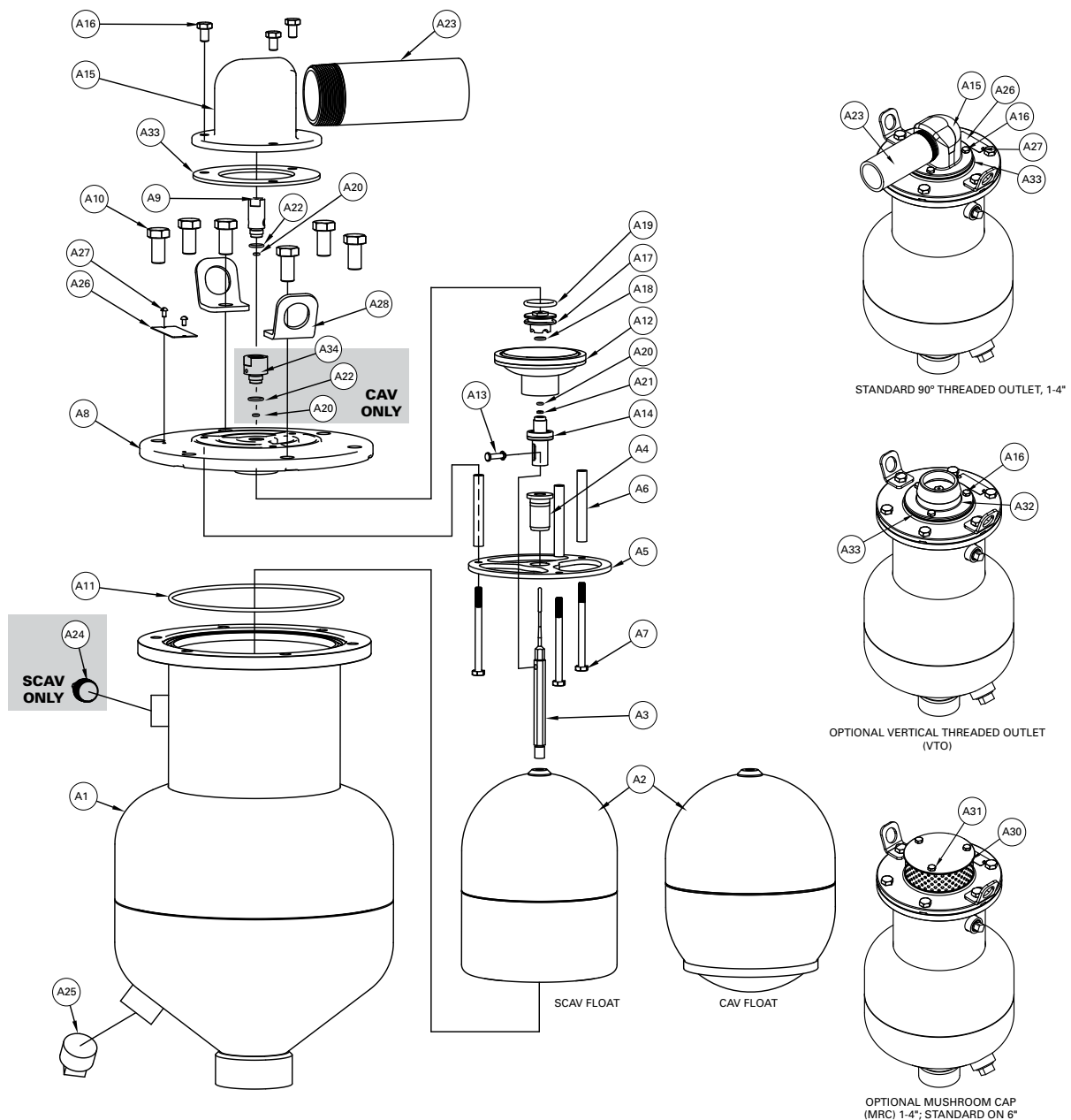
- **Materials of Construction**
- **Specifications**
- **Ordering**
- **Dimensions**



Materials of Construction

Item	Description	Material
A1	Body	316 Stainless Steel, ASTM A240/A276
A2	Float	316 Stainless Steel, ASTM A240/A276
A3	Float Shaft	316 Stainless Steel, ASTM A276, Condition A
A4	Guide Bushing	Acetal Homopolymer or Copolymer (POM)
A5	Guide Mount	316 Stainless Steel, ASTM A240
A6	Stand Off Tube	316 Stainless Steel, ASTM A269 or A511
A7	Screw	316 Stainless Steel
A8	Cover	316 Stainless Steel, ASTM A351, Type CF-8M
A9	Upper Pressure Cap (CAV) Top Cap (SCAV)	Acetal Homopolymer or Copolymer (POM)
A10	Screw	316 Stainless Steel
A11	O-Ring	Acrylonitrile-Butadiene (NBR)
A12	Air/Vacuum Disc and Seat	316 Stainless Steel, ASTM A351, Type CF-8M, with Acrylonitrile-Butadiene (NBR) Seat
A13	Clevis Pin with Retainer	Stainless Steel, Type 18-8
A14	Piston Stem and Seat	17-4 PH Stainless Steel, Type 630, ASTM A564, Condition H1150 or H1150D, with Acrylonitrile- Butadiene (NBR) Seat
A15	Outlet	Acetal Homopolymer or Copolymer (POM)
A16	Screw	316 Stainless Steel

Item	Description	Material
A17	Piston	316 Stainless Steel, ASTM A276, Condition A
A18	O-Ring	Acrylonitrile-Butadiene (NBR)
A19	O-Ring	Acrylonitrile-Butadiene (NBR)
A20	O-Ring	Acrylonitrile-Butadiene (NBR)
A21	Backup Ring	Acetal Homopolymer or Copolymer (POM)
A22	O-Ring	Acrylonitrile-Butadiene (NBR)
A23	Pipe Extension	Polyvinylchloride (PVC)
A24	Plug	316 Stainless Steel (SCAV Only)
A25	Plug	316 Stainless Steel
A26	Data Plate	316 Stainless Steel
A27	Screw	316 Stainless Steel
A28	Lift Lug	304 Stainless Steel
A30	Outlet (MRC)	304 Stainless Steel
A31	Screw	316 Stainless Steel
A32	Outlet (VTO Option)	303 Stainless Steel
A33	Gasket	Acrylonitrile-Butadiene (NBR) & PVC Foam
A34	Lower Pressure Cap	Acetal Homopolymer or Copolymer (POM)



PATENT PENDING

Valve Selection

Applicable Standards

APCO ASU Combination Air Valves are designed and/or tested to meet the following standards:	
AWWA C-512	Meets performance specifications of AWWA C512 Air Release, Air/Vacuum, and Combination Air Valves for Water and Wastewater Service
ASME B1.20.1	Pipe Threads, General Purpose, Inch
ASME/MSS-SP-114	Corrosion Resistant Pipe Fittings Threaded and Socket Welding Class 150
ASME B16.5	Pipe Flanges and Flanged Fittings
ASTM A-105 / SA-105	Dimensions conform to Standard Specification for Carbon Steel Forgings for Piping Applications

Pressure Ratings (Ambient Temperatures)

Valve Size	Body Style	Pressure Rating
1.2-6" 25-150mm	SCAV	150 psi 1035 kPa
1-4" 25-100mm Threaded inlet	CAV	300 psi 2070 kPa
1-4" 25-100mm Flanged Inlet	CAV	275 psi 1900 kPa

Note: Higher pressures and larger sizes are available on application.

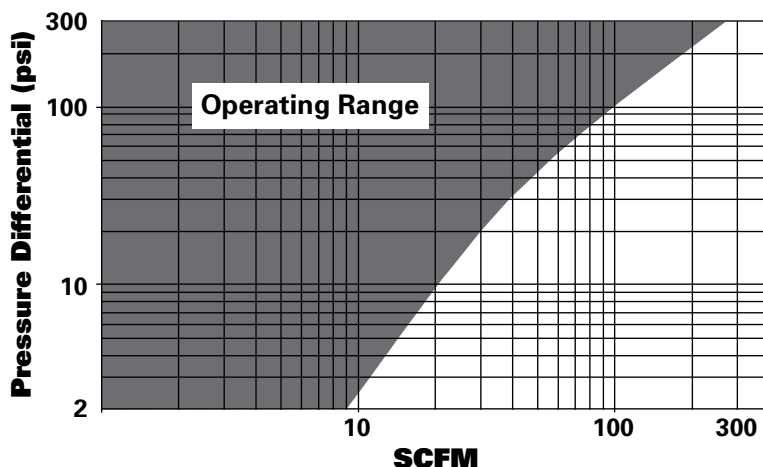
Operating Range

Valve Size	Body Style	Pressure Rating
1.2-6" 25-150mm	SCAV	2-150 psi 14-1035 kPa
1-4" 25-100mm Threaded inlet	CAV	2-300 psi 14-2070 kPa
1-4" 25-100mm Flanged Inlet	CAV	2-275 psi 14-1900 kPa

Maximum Temperature

Valve Size	Body Style	Pressure Rating
1-6" 25-150mm	SCAV & CAV	180° F 82° C

Air Release Variable Venting Capacity



Valve Weights Standard 90° Outlet

Valve Size	Flanged	Threaded
1" 25mm	—	41 18.5
1.2"* 25mm	46.5 21	41 18.5
2" 50mm	47 21.5	41.5 19
3" 80mm	57.5 26	47.5 21.5
4" 100mm	61.5 28	47.5 21.5

Vertical Outlet (VTO)

Valve Size	Flanged	Threaded
1" 25mm	—	43 19.5
1.2"* 25mm	48.5 22	43 19.5
2" 50mm	48 22	42.5 19
3" 80mm	61 27.5	51 23
4" 100mm	63 28.5	49 22

Mushroom Cap Outlet (MRC)

Valve Size	Flanged	Threaded
1" 25mm	—	42 19
1.2"* 25mm	47.5 21.5	42 19
2" 50mm	47.5 21.5	42 19
3" 80mm	58 26.5	48 21.5
4" 100mm	62 28	48 21.5
6" 150mm	95 43	—

Accessory Weights

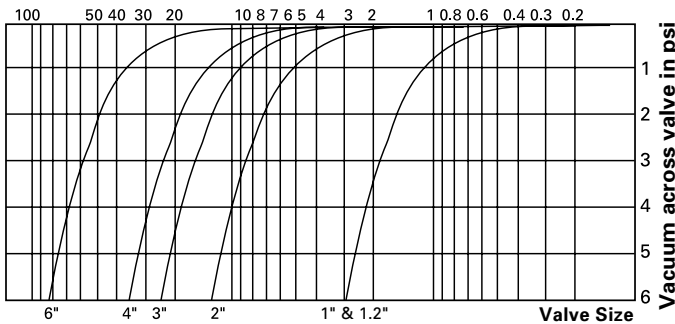
Valve Size	Double-Acting Throttling Device (DAT)	Backflush Attachment (BFK)
1" 25mm	4.17 1.90	5.15 2.37
1.2"* 25mm	4.17 1.90	5.15 2.37
2" 50mm	6.65 3.00	5.15 2.37
3" 80mm	19.65 8.90	5.15 2.37
4" 100mm	23.73 10.80	5.15 2.37
6" 150mm	—	5.15 2.37

* NOTE: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet.

Performance Graphs For Air/Vacuum Valve

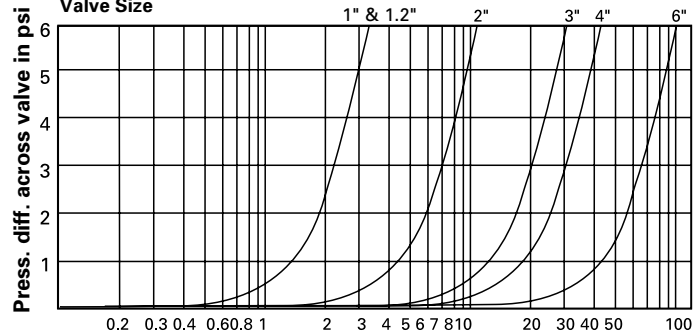
Graphs show air inflow/outflow through valve in standard cubic feet of free air per second (scfs). Curves shown are actual flow capacities at 14.7 psi barometric pressure and 70°F temperature based on actual test. These figures are not merely flow capacities across the orifice, but flow capacities across the entire valve. In the test set-up, air approach velocity is negligible, therefore actual flow capacity exceeds the values shown on chart.

Inflow



NOTE: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet.

Outflow



NOTE: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet.

Ordering

To order, simply complete the valve order code from information shown. An ordering example is shown for your reference.

<p>Valve Style Give valve style code as follows:</p> <p>ASU = Combination Air Valve</p>
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<p>Valve Size Give valve size code as follows:</p> <p>SCAV</p> <table border="0"> <tr> <td>1.2 = 1" (25mm)</td> <td>1" Outlet with 90 degree elbow</td> </tr> <tr> <td>2 = 2" (50mm)</td> <td>2" Outlet with 90 degree elbow</td> </tr> <tr> <td>3 = 3" (80mm)</td> <td>3" Outlet with 90 degree elbow</td> </tr> <tr> <td>4 = 4" (100mm)</td> <td>4" Outlet with 90 degree elbow</td> </tr> <tr> <td>6 = 6" (150mm)</td> <td>6" Outlet with Mushroom Cap</td> </tr> </table> <p>CAV</p> <table border="0"> <tr> <td>1 = 1" (25mm)</td> <td>1" Outlet with 90 degree elbow</td> </tr> <tr> <td>2 = 2" (50mm)</td> <td>2" Outlet with 90 degree elbow</td> </tr> <tr> <td>3 = 3" (80mm)</td> <td>3" Outlet with 90 degree elbow</td> </tr> <tr> <td>4 = 4" (100mm)</td> <td>4" Outlet with 90 degree elbow</td> </tr> </table> <p>Note: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet</p>	1.2 = 1" (25mm)	1" Outlet with 90 degree elbow	2 = 2" (50mm)	2" Outlet with 90 degree elbow	3 = 3" (80mm)	3" Outlet with 90 degree elbow	4 = 4" (100mm)	4" Outlet with 90 degree elbow	6 = 6" (150mm)	6" Outlet with Mushroom Cap	1 = 1" (25mm)	1" Outlet with 90 degree elbow	2 = 2" (50mm)	2" Outlet with 90 degree elbow	3 = 3" (80mm)	3" Outlet with 90 degree elbow	4 = 4" (100mm)	4" Outlet with 90 degree elbow
1.2 = 1" (25mm)	1" Outlet with 90 degree elbow																	
2 = 2" (50mm)	2" Outlet with 90 degree elbow																	
3 = 3" (80mm)	3" Outlet with 90 degree elbow																	
4 = 4" (100mm)	4" Outlet with 90 degree elbow																	
6 = 6" (150mm)	6" Outlet with Mushroom Cap																	
1 = 1" (25mm)	1" Outlet with 90 degree elbow																	
2 = 2" (50mm)	2" Outlet with 90 degree elbow																	
3 = 3" (80mm)	3" Outlet with 90 degree elbow																	
4 = 4" (100mm)	4" Outlet with 90 degree elbow																	

<p>Body Style Give body style code as follows:</p> <p>SCAV = Clean or Wastewater Service</p> <p>CAV = Clean Service</p>
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<p>Inlet Connection Give inlet connection code as follows:</p> <p>SCAV</p> <table border="0"> <tr> <td>T1 = Threaded Inlet NPT (1-4") (to 150 psi)</td> </tr> <tr> <td>F1 = Flanged Inlet ASME 150 (1.2-6")</td> </tr> <tr> <td>NA = Not Required (used with VWB option only)</td> </tr> </table> <p>CAV</p> <table border="0"> <tr> <td>T1 = Threaded Inlet NPT (1-4") (to 300 psi)</td> </tr> <tr> <td>F1 = Flanged Inlet ASME 150 (2-4") (to 275 psi)</td> </tr> </table>	T1 = Threaded Inlet NPT (1-4") (to 150 psi)	F1 = Flanged Inlet ASME 150 (1.2-6")	NA = Not Required (used with VWB option only)	T1 = Threaded Inlet NPT (1-4") (to 300 psi)	F1 = Flanged Inlet ASME 150 (2-4") (to 275 psi)
T1 = Threaded Inlet NPT (1-4") (to 150 psi)					
F1 = Flanged Inlet ASME 150 (1.2-6")					
NA = Not Required (used with VWB option only)					
T1 = Threaded Inlet NPT (1-4") (to 300 psi)					
F1 = Flanged Inlet ASME 150 (2-4") (to 275 psi)					

<p>Body Material Give body material code as follows:</p> <p>S2 = 316 Stainless Steel</p>

<p>Trim Combination Give orifice code as follows:</p> <p>R516 = 5/16" (SCAV body style only)</p> <p>H516 = 5/16" (CAV body style only)</p>

<p>Seat Material Give seat material code as follows:</p> <p>NBR = Acrylonitrile-Butadiene</p> <p>EPDM = Terpolymer of Ethylene Propylene & A Diene</p> <p>FKM = Fluoro Rubber</p>
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<p>Disc/Float Material Give disc/float material code as follows:</p> <p>S2 = 316 Stainless Steel</p>

<p>Shaft Material Give shaft material code as follows:</p> <p>S2 = 316 Stainless Steel</p>

<p>Frame Material Give frame material code as follows:</p> <p>S2 = 316 Stainless Steel</p>

<p>Options Give option code as follows:</p> <p>DTR = DeZURIK Standard Certified Production Hydrostatic Shell & Seat Test Report</p> <p>VWB = Valve Without Body (must be used with NA Inlet Connection) (SCAV only)</p> <p>WW = Wastewater Service (CAV only)</p>
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Ordering Example: ASU,3,SCAV,F1,S2,R516-NBR-S2-S2-S2*

<p>Accessories Give accessory code as follows:</p> <p>BFK = Backflush Kit (SCAV only)</p> <p>DAT = Double Acting Throttling Device (1-4")</p> <p>MRC = Mushroom Cap (1-4") (Standard on 6" valves)</p> <p>VTO = Vertical Outlet (1-4")</p>

Ordering Example (With Accessory Mounted):
ASU,3,SCAV,F1,S2,R516-NBR-S2-S2-S2*MRC

Options & Accessories

Vertical Threaded Outlet (VTO)

The Vertical Outlet is threaded to allow plant piping of discharge. It is available as a complete valve assembly or as a separate item.

To order as part of a complete valve, add VTO to order code.



Ordering Example:

ASU,4,SCAV,F1,S2,R516-NBR-S2-S2-S2*VTO

To order as a separate item, give order code from the table below.

Valve Size	Size	Order Code
1" 25mm	1" NPT	ACC*VTO-1
1.2"* 25mm	1" NPT	ACC*VTO-1.2
2" 50mm	2" NPT	ACC*VTO-2
3" 80mm	3" NPT	ACC*VTO-3
4" 100mm	4" NPT	ACC*VTO-4

* NOTE: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet.

Mushroom Cap Outlet (MRC)

The Mushroom Cap prevents foreign debris from entering the valve outlet while providing wide openings for free expulsion and admittance of air.

The mushroom cap is standard on the 6" valve and, it is available as a complete valve assembly or as a separate item on 1-4" valves.



To order as part of a complete valve, add MRC to order code.

Ordering Example:

ASU,4,SCAV,F1,S2,R516-NBR-S2-S2-S2*MRC

To order as a separate item, give order code from the table below.

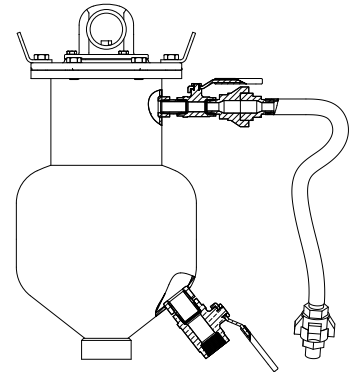
Order Code	Usage
ACC*MRC-ASU-SM	1", 1.2" or 2" ASU Valve
ACC*MRC-ASU-LG	3" or 4" ASU Valve

Ordering Example:

ACC*MRC-ASU-SM

Back Flush Attachment Kit (BFK)

The Back Flush Attachment Kit is recommended for periodic cleaning of grease and scum from the ASU-SCAV Combination Air Valve only. The Back Flush Attachment Kit is a separate item that includes two brass shut-off valves, 316 stainless steel piping, and 5 feet of hose with galvanized steel quick disconnect couplings. An isolation valve is required on the inlet port to isolate the valve while performing the back-flushing operation, but is not included. Contact DeZURIK for recommendations.



To order as a separate item, give order code ACC*BFK-ASU

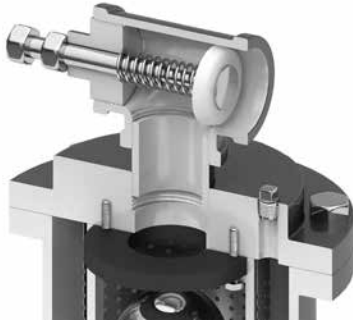
Ordering Example:

ACC*BFK-ASU

Options & Accessories (Cont.)

Double Acting Throttling Device (DAT)

The APCO Double Acting Throttling Device (DAT) is designed to regulate and restrict air venting on the discharge orifice of the ASU Combination Air Valves. The DAT features an exclusive throttling air-out/full flow air-in design. On pump start, the device establishes a pressure load on the rising column of media to eliminate shock to the pump, controls and check valve. On pump stop, the DAT device automatically opens to allow full line, unrestricted air reentry to prevent a vacuum and water column separation in the pump. The DAT has a fusion coated epoxy coating. The DAT can be ordered as part of a complete valve, or as a separate item. The DAT is not a stand-alone device and cannot be installed directly to the pipeline. The DAT must be installed in the outlet port (top) of the ASU Combination Air Valve.



To order as part of a complete valve, add DAT to the order code.

Ordering Example:

ASU,4,SCAV,T1,S2,R516-NBR-S2-S2-S2*DAT

To order as a separate item, give order code from the table below.

Valve Size	Order Code
1" 25mm	ACC*DATFB-ASU-1
1.2" 25mm	ACC*DATFB-ASU-1.2
2" 50mm	ACC*DATFB-ASU-2
3" 80mm	ACC*DATFB-ASU-3
4" 100mm	ACC*DATFB-ASU-4

Ordering Example:

ACC*DATFB-4

Valve Without Body (VWB)

All Internal parts for the ASU-SCAV valve may be ordered as a complete assembly to be replaced into an existing body. Includes all parts except A1, A24 and A25. To order, use NA code for the Inlet Connection and add VWB in the option field



VWB shown with optional mushroom cap

Ordering Example:

ASU,4,SCAV,NA,S2,R516-NBR-S2-S2-S2,VWB*

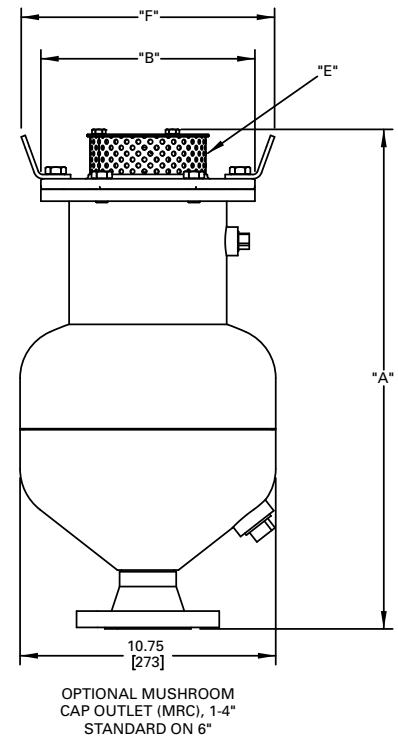
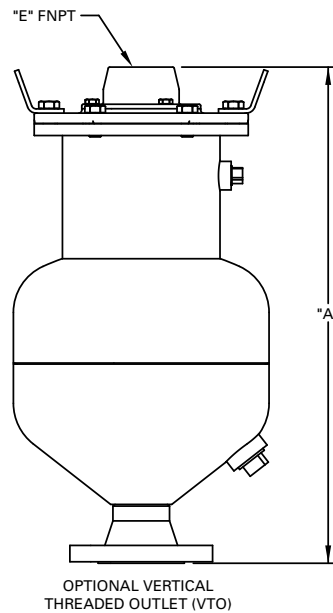
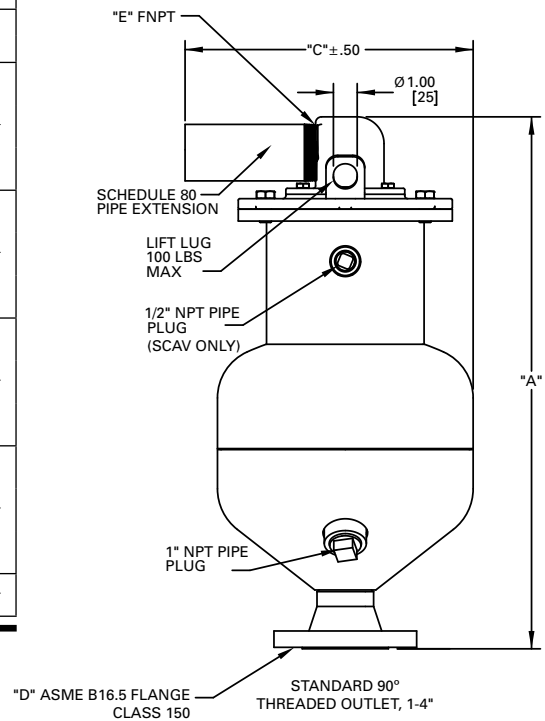
Dimensions

Flanged Inlet

Valve Size	Outlet Option	Inlet Size	Outlet Size	Dimensions				
				A		B	C	F
				SCAV	CAV			
1.2** 25mm	Standard	2"	1"	22.43 570	N/A	9.00 229	12.11 308	10.70 272
	VTO			20.92 531			N/A	
	MRC			21.37 543			N/A	
2" 50mm	Standard	2"	2"	22.43 570	21.39 343	9.00 229	12.11 308	10.70 272
	VTO			20.92 531	19.88 505		N/A	
	MRC			21.37 543	20.40 518		N/A	
3" 80mm	Standard	3"	3"	25.19 640	24.12 613	9.69 246	10.60 269	11.46 291
	VTO			22.55 573	21.49 546		N/A	
	MRC			22.69 576	21.50 546		N/A	
4" 100mm	Standard	4"	4"	25.08 637	24.00 610	9.69 246	10.60 269	11.46 291
	VTO			22.44 570	21.37 542		N/A	
	MRC			22.47 571	21.38 543		N/A	
6" 150mm	MRC	6"	6"	27 686	N/A	13.50 243	N/A	15.30 389

* NOTE: Size 1.2 is a 1" valve with a 2" Flanged Inlet and a 1" NPT Outlet.

Inches
Millimeters



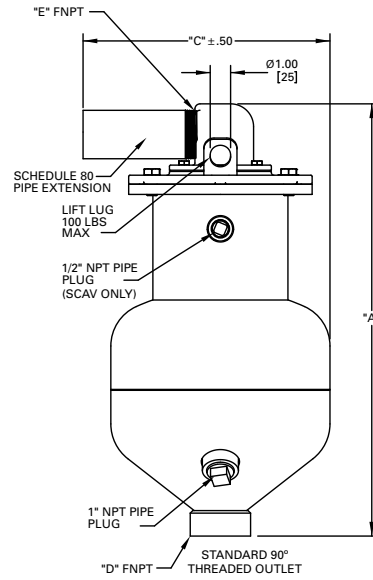
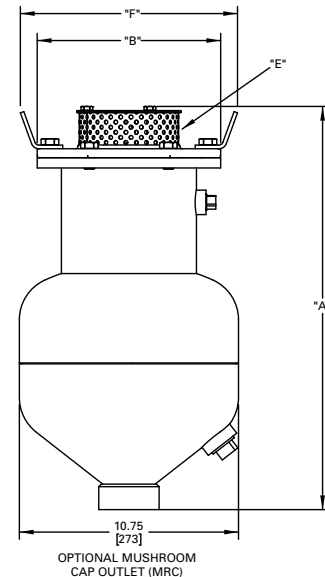
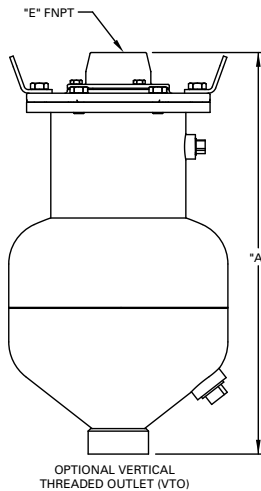
Dimensions

Threaded Inlet NPT

Valve Size	Outlet Option	Inlet Size	Outlet Size	Dimensions						
				D	E	A		B	C	F
						SCAV	CAV			
1" 25mm	Standard	1"	1"	N/A	20.46 520	9.00 229	12.11 308	10.70 272		
	VTO				18.95 481		N/A			
	MRC				19.47 495		N/A			
1.2** 25mm	Standard	2"	1"	N/A	21.20 538	9.00 229	12.11 308	10.70 272		
	VTO				19.70 500		N/A			
	MRC				20.14 512		N/A			
2" 50mm	Standard	2"	2"	N/A	21.20 538	20.58 523	12.11 308	10.70 272		
	VTO				19.70 500	19.07 484	9.00 229			
	MRC				20.14 512	19.59 498	N/A			
3" 80mm	Standard	3"	3"	N/A	23.92 608	23.50 597	10.60 269	11.46 291		
	VTO				21.28 541	20.87 530	9.69 246			
	MRC				21.43 544	20.88 530	N/A			
4" 100mm	Standard	4"	4"	N/A	23.92 608	23.39 447	10.60 269	11.46 291		
	VTO				21.28 541	20.76 527	9.69 246			
	MRC				21.43 544	20.77 528	N/A			

* NOTE: Size 1.2 is a 1" valve with a 2" NPT Inlet and a 1" NPT Outlet.

Inches
Millimeters



Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web Site: www.dezurik.com E-Mail: info@dezurik.com



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