

# ASCO™ Angle Body Multi-Purpose Valves

Bronze or 316L Stainless Steel Bodies | 3/8" to 2 1/2" NPT

**SERIES  
290**

The Series 290 consists of 2-way direct acting valves available in normally closed or normally open constructions. Built for demanding applications, these valves come in a straight-through body design made of bronze or stainless steel. There are many optional features including visual/ electrical position indicator or a stroke limiter.

The Series 290 is suitable for the following applications:

- General Service (air, inert gas, water, oil, light slurries)
- Steam and Hot Water
- Auxiliary fluids within the food and beverage process (suffix "FB")

## Construction

Valve Parts in Contact with Fluids			
Part	32mm	50mm-125mm	50mm-125mm ①
Body	316L Stainless Steel	Bronze	316L Stainless Steel
Stem	316L Stainless Steel	431 Stainless Steel	431 Stainless Steel
Stuffing Box	316L Stainless Steel	Brass	303 Stainless Steel
Stuffing Box Seal	PTFE	PTFE Chevron	PTFE Chevron
Wiper Seal	FKM	FKM	FKM
Disc	316L Stainless Steel	Brass	304L Stainless Steel
Disc Seal	PTFE	PTFE	PTFE
Screw	316L Stainless Steel	-	-

① For all optional AISI 316L Stainless Steel constructions, contact ASCO

## Specifications

**Ambient Temperature Range:** 15°F to 140°F

(32°F to 122°F for proportional valves and water service)

**Pilot Fluid Temperature Range:** 15°F to 140°F

(32°F to 122°F for proportional valves and water service)

**Maximum Viscosity:** 2,700 SSU

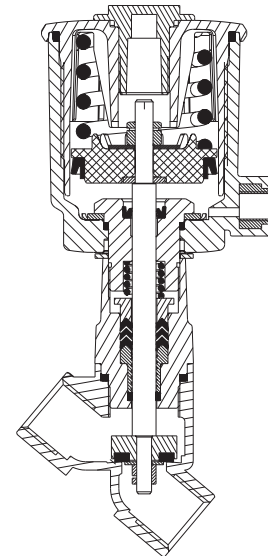
For higher viscosity applications, please consult ASCO.

## Alternate Valve Constructions

- Stainless steel (316) pilot & exhaust port inserts provide additional corrosion resistance for corrosive & washdown environments, add suffix "SS"
- Oxygen service, add suffix "N"
- Medium vacuum service up to  $7 \times 10^{-3}$  Torr, add suffix "VM"
- Visual Position Indicator for normally closed valve with 32mm or 50mm operator, add suffix "VI" (note: position indicator standard on 63mm through 125mm operators).
- FDA CFR21 Compliant, add suffix "FB". See specifications table.
- NET-INOX treatment (stainless steel valve body pickled in nitric/hydrofluoric acid bath), add suffix "NI"
- All 316L Stainless Steel versions (available on request).

See page 222 for the following constructions:

- Compact Positioner for proportional control
- Signaling Box
- Linear Position Indicator
- Stroke Limiter



## Specifications

Pipe Size (in)	Orifice Size (in)	Cv Flow		Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Bronze	Stainless Steel ① ④	Air or Water Pilot Pressure (psi)		Approx. Shipping Weight (lbs.)
				Min.	Max.	Max.				Min.	Max.	
		On-Off	Prop.		Fluids	Steam						
<b>32 mm Operator</b>												
<b>Normally Closed - Entry Under the Disc ③</b>												
3/8	3/8	2.3	-	0	240	150	366	-	8290A791	60	150	1.3
1/2	1/2	4.1	-	0	180	150	366	-	8290A792 ⑤	60	150	1.4
3/4	3/4	7.6	-	0	90	90	366	-	8290A793 ⑤	60	150	1.6
<b>Normally Open - Entry Under the Disc</b>												
3/8	3/8	2.3	-	0	240	150	366	-	8290A794	I ②	150	1.3
1/2	1/2	4.1	-	0	240	150	366	-	8290A795 ⑤	I ②	150	1.4
3/4	3/4	7.6	-	0	200	150	366	-	8290A796 ⑤	I ②	150	1.6
<b>Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications</b>												
3/8	3/8	2.3	-	0	-	150	366	-	8290A797	II ②	150	1.6
1/2	1/2	4.1	-	0	-	150	366	-	8290A798	II ②	150	1.4
3/4	3/4	7.6	-	0	-	150	366	-	8290A799	II ②	150	1.6
<b>50 mm Operator</b>												
<b>Normally Closed - Entry Under the Disc ③</b>												
1/2	1/2	5.7	5.3	0	240	150	366	8290A384	8290A393 ⑤	60	150	2.7
3/4	3/4	11	8.3	0	150	150	366	8290A385	8290A394 ⑤	60	150	2.9
1	1	15	-	0	90	90	366	8290A386	8290A395 ⑤	60	150	3.7
<b>Normally Open - Entry Under the Disc</b>												
1/2	1/2	5.7	-	0	240	150	366	8290A387	8290A396	III ②	150	2.7
3/4	3/4	11	-	0	240	150	366	8290A388	8290A397 ⑤	III ②	150	2.9
1	1	15	-	0	240	150	366	8290A389	8290A398 ⑤	III ②	150	3.7
<b>Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications ③</b>												
1/2	1/2	5.7	-	0	-	150	366	8290A390	8290A399	IV ②	150	2.7
3/4	3/4	11	-	0	-	150	366	8290A391	8290A400	IV ②	150	2.9
1	1	15	-	0	-	150	366	8290A392	8290A401	IV ②	150	3.7
<b>63 mm Operator</b>												
<b>Normally Closed - Entry Under the Disc</b>												
1/2	1/2	5.7	-	0	240	150	366	8290B002	8290B045	38	150	3.6
3/4	3/4	11	8.3	0	240	150	366	8290B005	8290B048	60	150	3.9
1	1	19	17	0	150	150	366	8290B010	8290B053	60	150	4.7
1 1/4	1 1/4	32	24	0	90	90	366	8290A016	8290A059 ⑤	60	150	6.0
1 1/2	1 1/2	52	33	0	60	60	366	8290A020	8290A063	60	150	8.0
2	2	68	46	0	40	40	366	8290A024	8290A067	60	150	10.0
<b>Normally Open - Entry Under the Disc</b>												
1/2	1/2	5.7	-	0	240	150	366	8290B026	8290B069	V ②	150	3.6
3/4	3/4	11	-	0	240	150	366	8290B027	8290B070	V ②	150	3.9
1	1	19	-	0	240	150	366	8290B028	8290B071	V ②	150	4.7
1 1/4	1 1/4	32	-	0	240	150	366	8290A030	8290A073 ⑤	V ②	150	6.0
1 1/2	1 1/2	52	-	0	160	150	366	8290A032	8290A075 ⑤	V ②	150	8.0
2	2	68	-	0	105	105	366	8290A034	8290A077	V ②	150	10.0
<b>Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications</b>												
1/2	1/2	5.7	-	0	-	150	366	8290B036	8290B079	VI ②	150	3.6
3/4	3/4	11	-	0	-	150	366	8290B037	8290B080	VI ②	150	3.9
1	1	19	-	0	-	150	366	8290B038	8290B081 ⑤	VI ②	150	4.7
1 1/4	1 1/4	32	-	0	-	150	366	8290A039	8290A082	VI ②	150	6.0
1 1/2	1 1/2	52	-	0	-	150	366	8290A040	8290A083	VI ②	150	8.0
2	2	68	-	0	-	135	366	8290A042	8290A085 ⑤	VI ②	150	10.0

① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values;

③ For Visual Position Indicator add suffix "VI". ④ For FDA CFR21 Compliance, add suffix "FB". ⑤ For Stainless Steel (316) Pilot and Exhaust Port Fittings add suffix SS

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Bronze or 316L Stainless Steel Bodies | 3/8" to 2 1/2" NPT

**SERIES  
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## Specifications

Pipe Size (in)	Orifice Size (in)	Cv Flow		Operating Pressure Differential (psi)			Max. Fluid Temp. °F	Bronze	Stainless Steel ① ④	Air or Water Pilot Pressure (psi) ②		Approx. Shipping Weight (lbs.)
				Min.	Max.					Min.	Max.	
		On-Off	Prop.		Fluids	Steam						
<b>90 mm Operator</b>												
<b>Normally Closed - Entry Under the Disc</b>												
1	1	19	17	0	240	150	366	8290B011	8290B054	60	150	6.5
1 1/4	1 1/4	32	24	0	180	150	366	8290A017	8290A060	60	150	7.7
1 1/2	1 1/2	52	33	0	120	120	366	8290A021	8290A064 ⑤	60	150	9.5
2	2	68	46	0	90	90	366	8290A025	8290A068 ⑤	60	150	16.0
<b>Normally Open - Entry Under the Disc</b>												
1	1	19	-	0	240	150	366	8290B029	8290B072	VII ②	150	6.5
1 1/4	1 1/4	32	-	0	240	150	366	8290A031	8290A074 ⑤	VII ②	150	7.7
1 1/2	1 1/2	52	-	0	240	150	366	8290A033	8290A076 ⑤	VII ②	150	9.5
2	2	68	-	0	200	150	366	8290A035	8290A078 ⑤	VII ②	150	16.0
<b>Normally Closed - Entry Above the Disc for Rapid Cycling Steam Applications</b>												
1 1/4	1 1/4	32	-	0	-	150	366	8290A136	8290A137	VIII ②	150	7.7
1 1/2	1 1/2	52	-	0	-	150	366	8290A041	8290A084	VIII ②	150	9.5
2	2	68	-	0	-	150	366	8290A043	8290A086	VIII ②	150	16.0
<b>125 mm Operator</b>												
<b>Normally Closed - Entry Under the Disc</b>												
1 1/2	1 1/2	56	56	0	240	150	366	8290A482	8290A495	60	150	15.0
2	2	77	77	0	150	150	366	8290A485	8290A498	60	150	17.0
2 1/2	2 1/2	130	86	0	90	90	366	8290A488	8290A501 ⑤	60	150	21.5
<b>Normally Open - Entry Under the Disc</b>												
2	2	77	-	0	240	150	366	8290A490	8290A503	IX ②	150	17.0
2 1/2	2 1/2	130	-	0	240	150	366	8290A492	8290A505	IX ②	150	21.5

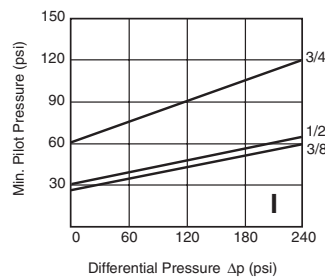
① Available with NET-INOX treatment, add suffix "NI"; ② Minimum pilot pressure varies, see identified graph for appropriate values. ④ For FDA CFR21 Compliance, add suffix "FB".  
⑤ For Stainless Steel (316) Pilot and Exhaust Port Fittings add suffix SS

## Dimensions inches (mm)

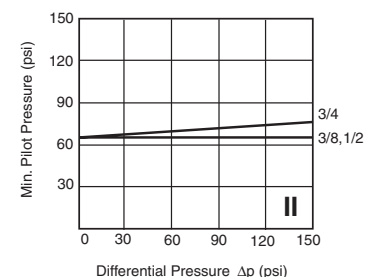
32 mm Operator						
	ØA	B	C	D	E	ØF
in	3/8	3.62	3.66	3.21	2.17	0.93
in	1/2	3.90	3.82	3.29	2.56	1.10
in	3/4	4.21	4.11	3.46	2.95	1.26

### 32 mm Operator Graphs for Steam and Fluids

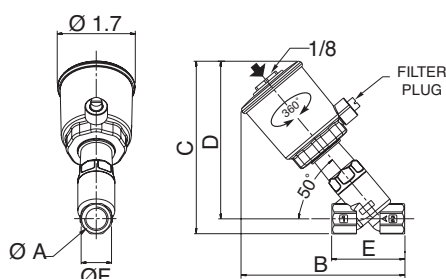
Normally Open Valve - Entry under Disc



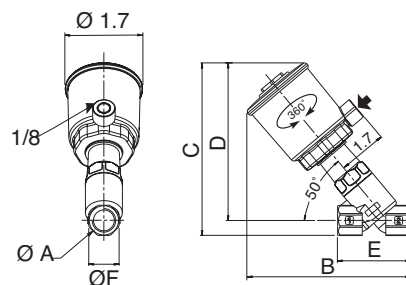
Normally Closed Valve - Entry above Disc



Normally Open

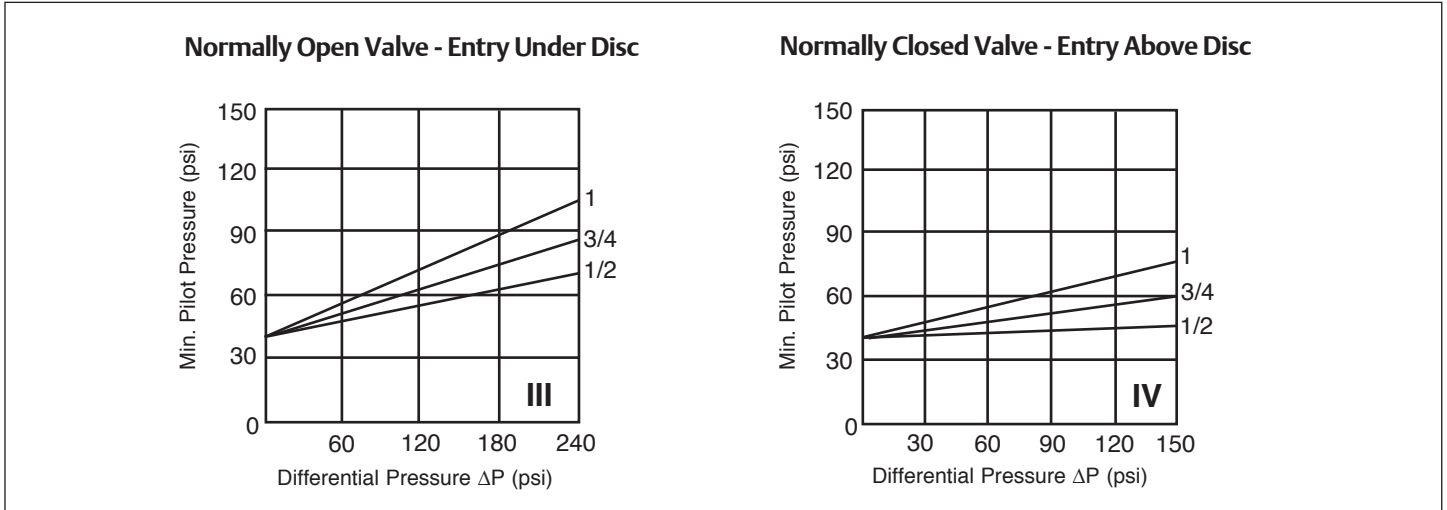


Normally Closed

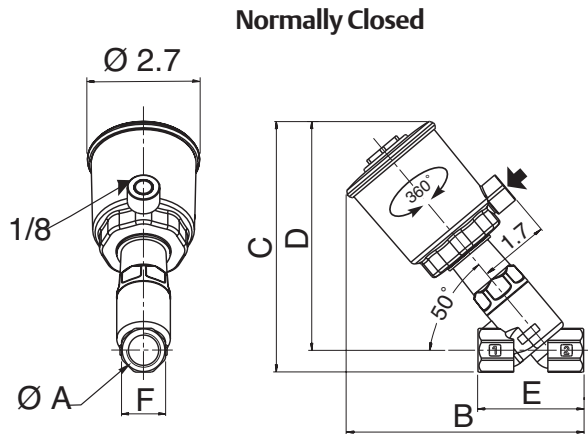
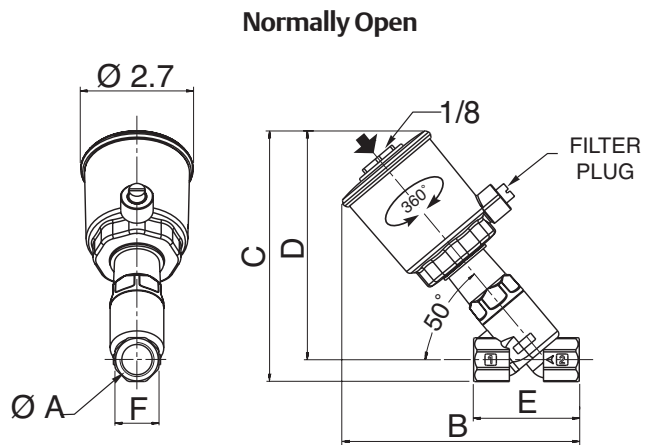


## Dimensions inches (mm)

### 50 mm Operator Graphs for Steam and Fluids



50 mm Operator						
	ØA	B	C	D	E	F
in	1/2	5.59	6.08	5.55	2.56	1.06
in	3/4	5.92	6.26	5.63	2.95	1.26
in	1	6.10	6.50	5.71	3.54	1.61



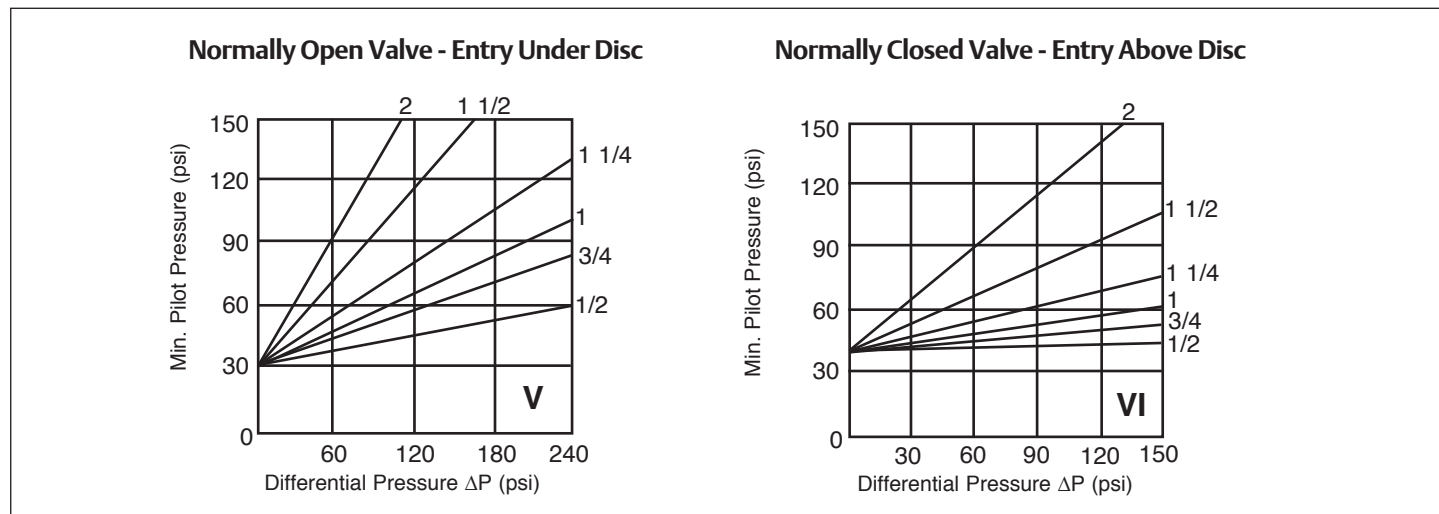
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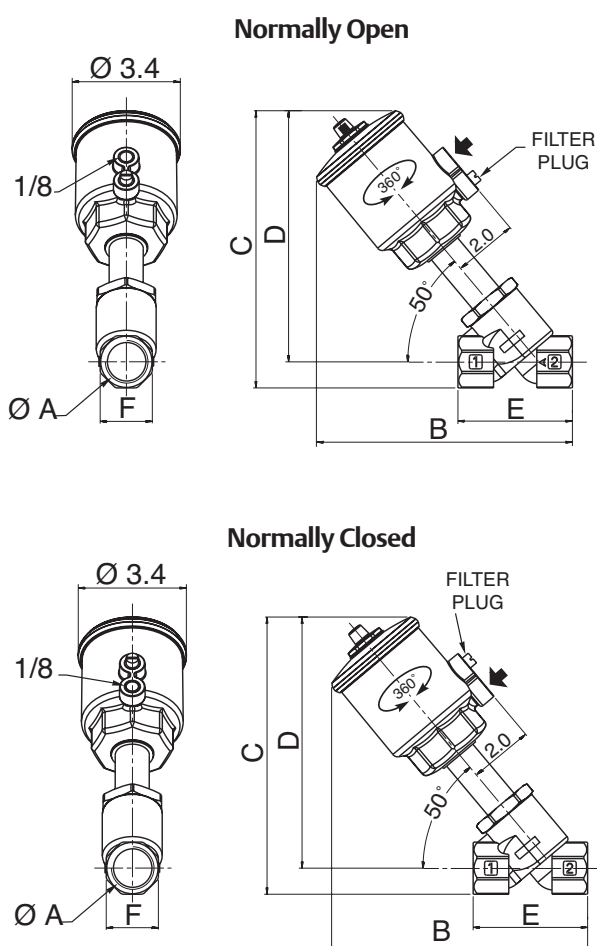
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## Dimensions inches (mm)

### 63 mm Operator Graphs for Steam and Fluids

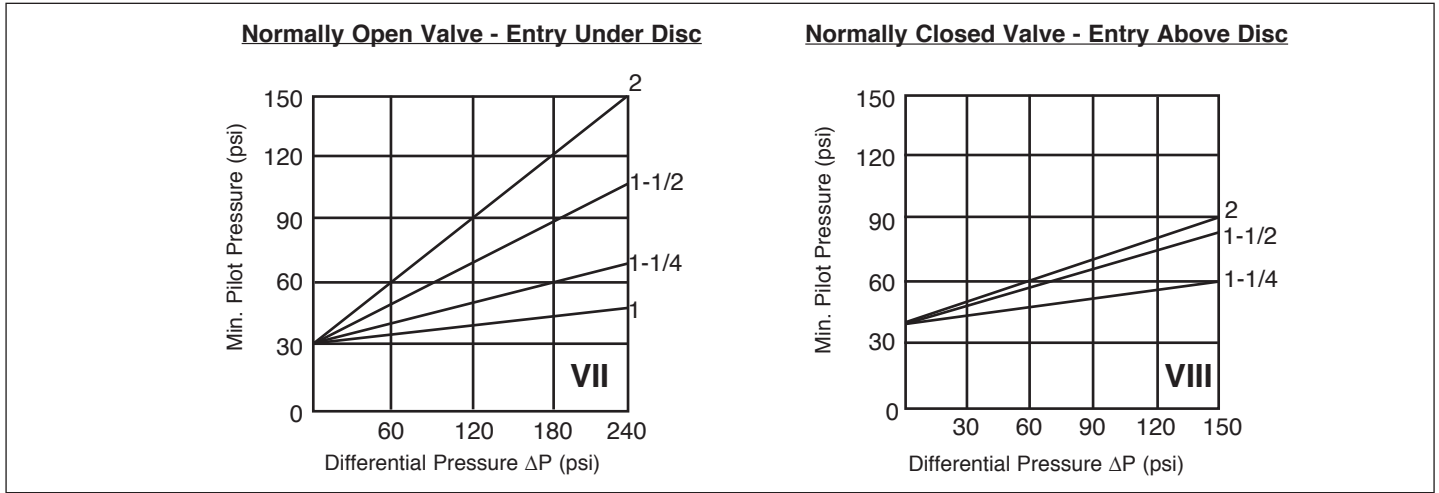


63 mm Operator						
	ØA	B	C	D	E	F
in	1/2	6.70	7.20	6.60	2.56	1.06
in	3/4	6.80	7.30	6.70	2.95	1.26
in	1	7.20	7.70	6.90	3.54	1.61
in	1 1/4	8.54	9.01	8.03	4.33	1.97
in	1 1/2	8.82	9.64	8.46	4.72	2.36
in	2	9.80	10.20	8.82	5.90	2.76



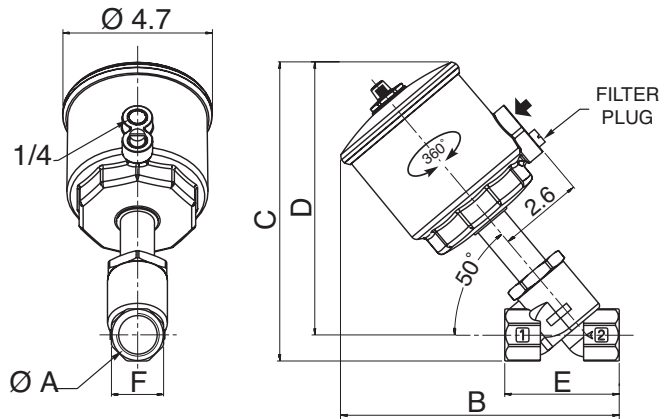
## Dimensions inches (mm)

### 90 mm Operator Graphs for Steam and Fluids

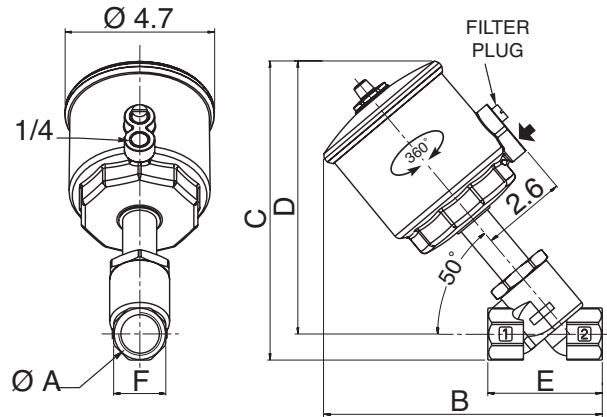


90 mm Operator						
	ØA	B	C	D	E	F
in	1	8.00	8.50	7.70	3.54	1.61
in	1 1/4	9.29	9.69	8.70	4.33	1.97
in	1 1/2	9.57	10.31	9.13	4.72	2.36
in	2	10.51	10.87	9.49	5.91	2.76

### Normally Open



### Normally Closed



# ASCO™ Angle Body Multi-Purpose Valves

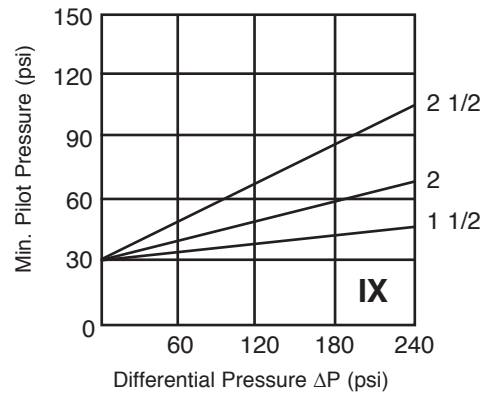
Bronze or 316L Stainless Steel Bodies | 3/8" to 2 1/2" NPT

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## Dimensions inches (mm)

### 125 mm Operator Graphs for Steam and Fluids

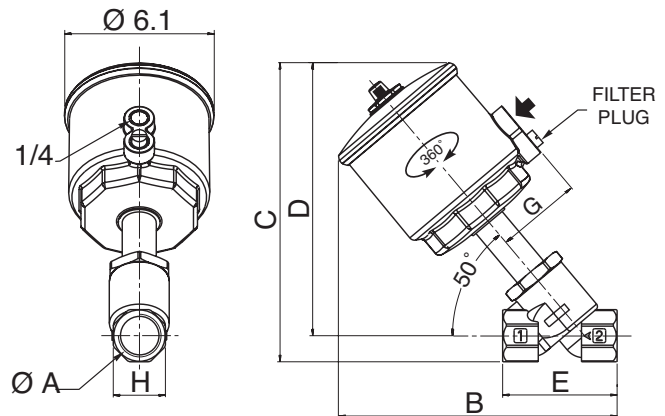
**Normally Open Valve - Entry Under Disc**



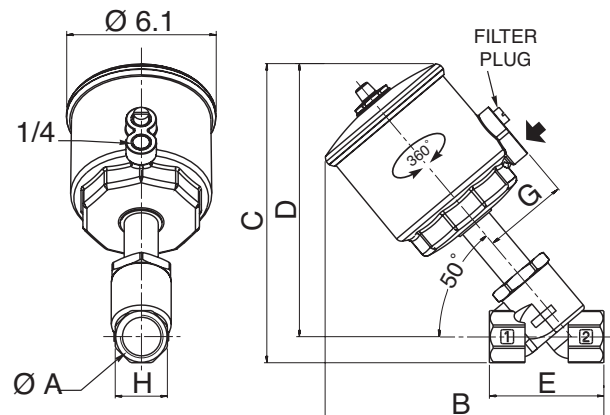
125 mm Operator							
	$\text{\O}A$	B	C	D	E	G	H
in	1 1/2	11.50	12.30	11.20	4.70	3.10	2.40
in	2	12.40	12.90	11.50	6.00	3.10	2.80
in	2 1/2	13.70	13.90	12.10	7.50	3.10	3.10



**Normally Open**



**Normally Closed**



## Compact Positioners for Proportional control

Varies flow proportional to a 0-10 VDC, 0-20 mA or 4-20 mA control signal. Feedback of valve stem position via a linear potentiometer. Uses a profiled disc for flow characterization. Assembly available on 50mm through 125mm operators, normally closed with fluid entry under disc. Positioner not suitable for water piloting. (e.g., 8290A384PDB04)

Control Signal	Add Suffix
0-10 VDC	PDB04
0-20 mA	PDB05
4-20 mA	PDB06



## Signaling Box

Supplied with two mechanical or inductive switches with LEDs, and mounts on top of the valve operator in place of the standard visual indicator. As the valve cycles, cams on the signaling box lengthening stem operate the switches to provide electrical signaling of the valve position. The signaling box can rotate 360°. Assembly available on 50mm normally closed and 63mm through 125mm normally open and normally closed. (e.g., 8290A3845M2)

Switches	Add Suffix
Two Mechanical	SM2
Two Inductive	SI2
Two Intrinsically Safe	SH2



## Linear Position Indicator (HS4 Series)

Supplied with two mechanical switches and mounts on top of the valve operator in place of the standard visual indicator. Provides a wiring box with 1/2" NPT conduit connections. The HS4 linear position indicator is Type 4, 4X and IP 66 suitable for indoor and outdoor use in non-hazardous locations.

Switches	Part Number
Two (2) Mechanical SPDT Gold (IS) Switches	HS4D1YCH2NGA
Two (2) Mechanical SPDT Silver (15A) Switches	HS4D1YCA2NGA



## Stroke limiter

The stroke limiter allows Cv flow to be adjusted from 0% to 100%, and mounts on top of the 8290 Series valve in place of the position indicator. Assembly available onto 50mm (normally closed) and 63mm through 125mm normally closed valves with fluid entry under the disc. Add suffix M: (e.g., 8290B002M)





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## Pilot Valves

A variety of 3-way direct acting normally closed pilot valves to pilot 32mm through 125mm 290 valves. Available in direct, in-line, and remote mounting.

To order, specify catalog number and voltage: 24, 120, 240 AC/60Hz or 110, 220 AC/50Hz or 6, 12, 24, 120/DC

### ASCO Series 189



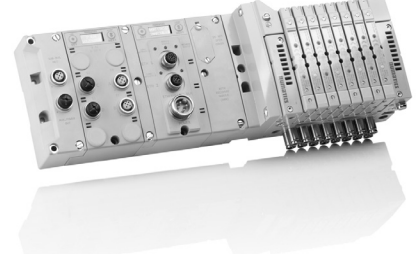
- Direct mount
- Swivel "Banjo" fittings, 1/8" NPT male
- Inlet for 4mm plastic tube
- DIN plug connection

### ASCO Series 8320



- In-line mount
- 1/8" or 1/4" NPT
- Brass or stainless steel
- Explosionproof optional, add prefix EF

### AVENTICS™ Series 500



- Remote mount
- 4 to 16 valves
- Compatible with AS-interface®, DeviceNet™, Profibus® DP, FOUNDATION Fieldbus™, and others
- Air service only

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