



# *Liquid & Gas Approved Vent & Safety Shut-off Valve Assemblies*

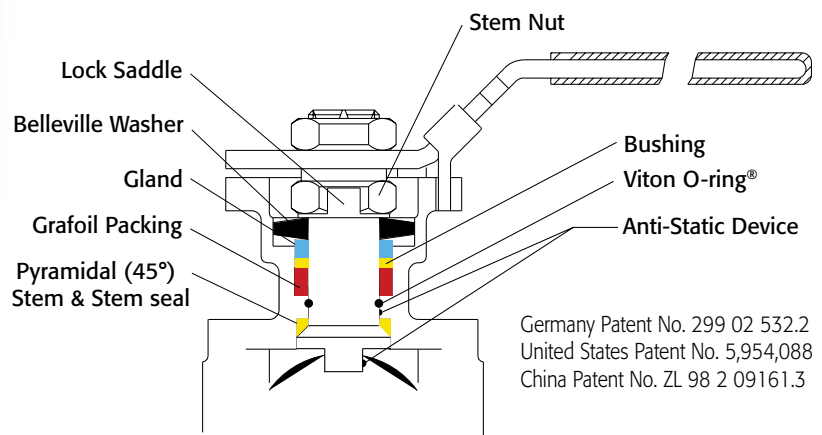


# Valve assemblies for liquid & gas vent and safety shut-off

*These assemblies are FM approved for use in applications requiring protection for fuel burning equipment per FM class 7400, 7412, 7420 and 7422. The components include a spring return automated ball valve, explosion-proof limit switch and solenoid pilot valve. Valves are available in 3-piece or flanged design. The 3-piece design offers threaded, socket weld or butt weld end connections. Flanged valves are available in ANSI Class 150 and 300. Available in sizes 1/4"-6". Assemblies feature the latest in quarter-turn automation, rack and pinion actuator design; a marked improvement from the older spring-diaphragm technology. The actuator, combined with the superior valve seating and stem seal design, provides for reliable and consistent closure and venting when needed. These assemblies provide for a compact fuel gas safety shut-off or venting system.*

## **Valve Assemblies for Liquid & Gas Vent & Safety Shut-off Requirements**

- 316 SST or WCB valves
- 3-piece and flanged valves
- Manual safety cocks and automated safety shut-off valves
- Solenoid approved for waterproof and explosion-proof environments
- Valves feature pyramidal stem seal system



Germany Patent No. 299 02 532.2  
United States Patent No. 5,954,088  
China Patent No. ZL 98 2 09161.3



*Supervisory Cocks*



*Vent and Safety Shut-off*



# Specifications

## Maximum Operating Pressure

SIZE	SERIES	BODY MATERIAL	PSI @ 100F	PSI @ 300F
1/4" - 2"	F88C	WCB	1,450	1,300
2-1/2" - 4"	F88C	WCB	1,000	700
1/4" - 2"	F88	316SS	1,440	1,120
2-1/2" - 4"	F88	316SS	1,000	700
1/2" - 6"	D9 (ANSI Class 150)	316SS	275	215
1/2" - 6"	FD9C (ANSI Class 150)	WCB	285	230
1/2" - 6"	FD9 (ANSI Class 150)	316SS	275	215
1/2" - 6"	FD9C (ANSI Class 300)	WCB	740	655
1/2" - 6"	FD9 (ANSI Class 300)	316SS	720	560

**NOTE: ANY DEVIATIONS FROM STANDARD FM ASSEMBLY OFFERINGS IN THE PRICE BOOK OR LITERATURE WILL VOID THE FM APPROVAL.**

## Flow Data (Cv)

SIZE	F88	FD9	D9	SIZE	F88	FD9	D9
1/4"	7	N/A	N/A	1-1/2"	250	275	275
3/8"	8	N/A	N/A	2"	430	460	460
1/2"	15	15	15	2-1/2"	600	700	700
3/4"	40	45	45	3"	1,100	1,100	1,100
1"	70	85	85	4"	2,000	2,200	2,200
1-1/4"	110	N/A	N/A	6"	N/A	5,150	5,150

## Switch Ratings (Amps)

	EX10A2SBKN (2-SPDT)	EX10E2SBKN (2-DPDT)	EX11D2SBKN (2-SPDT Prox)
120VAC	5	5	0.25
240VAC	5	5	—
24VDC	0.5	0.08	0.832
48VDC	0.25	—	0.416

## How to Order

### Safety Shut-off Assemblies

SS- \_\_\_\_\_  
 1 2 3 4 5 6 7

### Vent Assemblies

SV- \_\_\_\_\_  
 1 2 3 4 5 6 7

### Manual Safety Cocks Assemblies

SC- \_\_\_\_\_  
 1 2 3 4 5

#### 1 Valve Series

- 8C** F88C Series, Firesafe, NACE, 3-piece, Full Port, Direct Mount, Carbon Steel Body
- 8S** F88 Series, Firesafe, NACE, 3-piece, Full Port, Direct Mount, Stainless Steel Body
- 8O** 88 Series, 3-piece, Full Port, Direct Mount, Stainless Steel Body, Oxygen Cleaned and bagged
- 9C** FD9C Series, Firesafe, NACE, Flanged, Full Port, Direct Mount, Carbon Steel Body
- 9S** FD9 Series, Firesafe, NACE, Flanged, Full Port, Direct Mount, Stainless Steel Body
- 9O** D9 Series, Flanged, Full Port, Direct Mount, Stainless Steel Body, Oxygen Cleaned and bagged

#### 2 Ends

- T** NPT Connection
- S** Socket Weld
- B** Butt Weld
- F** ANSI Class 150
- 3** ANSI Class 300

#### 3 Seat Material

- X** Reinforced TFE

#### 4 Valve Size

- 025** 1/4"
- 038** 3/8"
- 050** 1/2"
- 075** 3/4"
- 100** 1"
- 125** 1-1/4"

#### 5 Actuator – Pneumatic-Fail Closed

- 6** 60 PSIG air supply available
- 8** 80 PSIG air supply available

#### 6 Solenoid

- A** EF8321G1 120 VAC Brass Solenoid
- B** EF8321G1 24 VDC Brass Solenoid
- C** EV8316G81V 120 VAC SST Solenoid
- D** EV8316G81V 24 VDC SST Solenoid
- E** EF8321G1 220 VAC Brass Solenoid
- F** EV8316G81V 220 VAC SST Solenoid

#### 7 Limit Switch

- A** EX10A2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Mechanical, 5 amp @ 125 VAC
- E** EX10E2SBKN Nema 4, 4X, 7 and 9, 2-DPDT Mechanical, 5 amp @ 120 VAC
- D** EX11D2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Proximity, 1 amp @ 120 VAC
- T** EX1TA2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Mechanical, 5 amp @ 125 VAC, 4-20 mA position transmitter

#### 1 Valve Series

- 8C** F88C Series, Firesafe, NACE, 3-piece, Full Port, Direct Mount, Carbon Steel Body
- 8S** F88 Series, Firesafe, NACE, 3-piece, Full Port, Direct Mount, Stainless Steel Body
- 8O** 88 Series, 3-piece, Full Port, Direct Mount, Stainless Steel Body, Oxygen Cleaned and bagged
- 9C** FD9C Series, Firesafe, NACE, Flanged, Full Port, Direct Mount, Carbon Steel Body
- 9S** FD9 Series, Firesafe, NACE, Flanged, Full Port, Direct Mount, Stainless Steel Body
- 9O** D9 Series, Flanged, Full Port, Direct Mount, Stainless Steel Body, Oxygen Cleaned and bagged

#### 2 Ends

- T** NPT Connection
- S** Socket Weld
- B** Butt Weld
- F** ANSI Class 150
- 3** ANSI Class 300

#### 3 Seat Material

- X** Reinforced TFE

#### 4 Valve Size

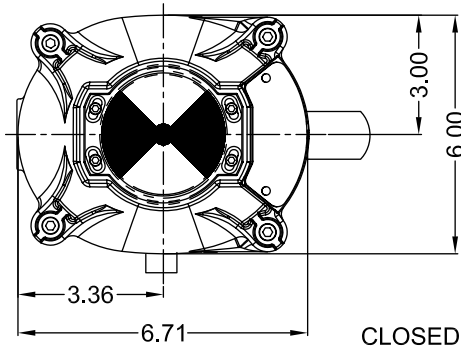
- 025** 1/4"
- 038** 3/8"
- 050** 1/2"
- 075** 3/4"
- 100** 1"
- 125** 1-1/4"

#### 5 Limit Switch

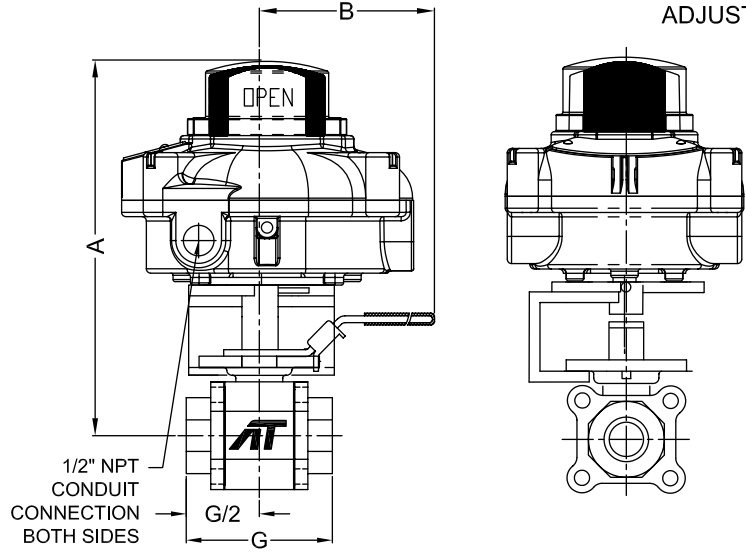
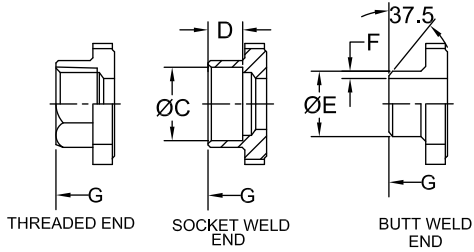
- A** EX10A2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Mechanical, 5 amp @ 125 VAC
- E** EX10E2SBKN Nema 4, 4X, 7 and 9, 2-DPDT Mechanical, 5 amp @ 120 VAC
- D** EX11D2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Proximity, 1 amp @ 120 VAC
- T** EX1TA2SBKN Nema 4, 4X, 7 and 9, 2-SPDT Mechanical, 5 amp @ 125 VAC, 4-20 mA position transmitter

# Manual Safety Cocks 3-piece

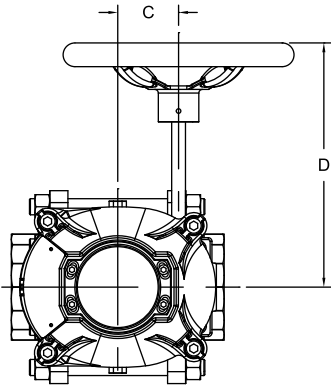
Valve Size	A	B	C	D	E	F	G
1/4"	9.67	5.47	0.55	0.39	0.85	0.13	2.95
3/8"	9.67	5.47	0.69	0.39	0.85	0.13	2.95
1/2"	9.67	5.47	0.85	0.39	0.85	0.06	2.85
3/4"	9.84	5.47	1.07	0.51	1.07	0.06	3.36
1"	10.25	6.50	1.34	0.51	1.34	0.06	4.15
1-1/4"	10.38	6.50	1.69	0.51	1.68	0.06	4.37
1-1/2"	10.95	8.46	1.92	0.51	1.91	0.06	5.01
2"	11.26	8.46	2.40	0.63	2.38	0.06	5.62



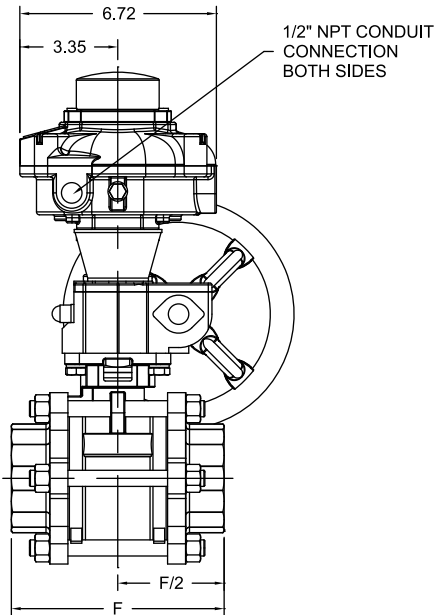
CLOSED SWITCH (TOP CAM)  
POTTED IN PLACE NOT FIELD  
ADJUSTABLE



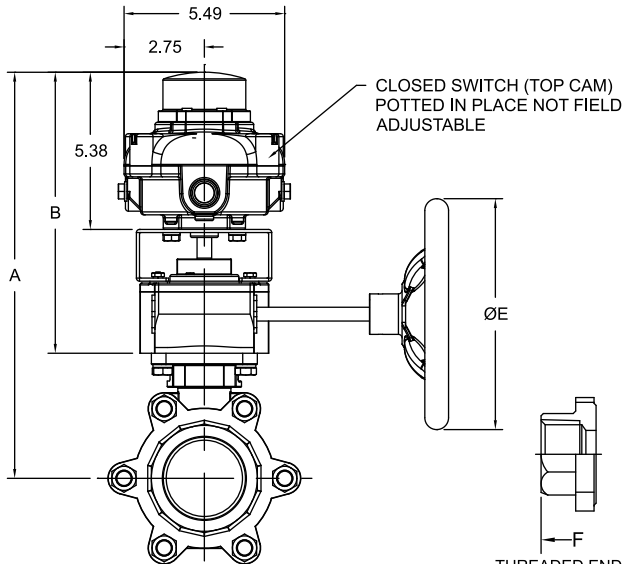
1/2" NPT  
CONDUIT  
CONNECTION  
BOTH SIDES



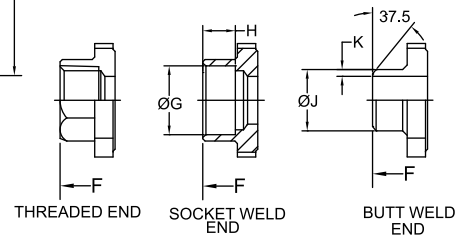
Valve Size	GEAR	A	B	C	D	E	F	G	H	J	K
2-1/2"	Q400-4	13.83	9.55	2.07	7.12	3.94	7.28	2.89	0.63	3.00	0.06
3"	Q400-4	14.18	9.55	2.07	7.12	3.94	8.07	3.54	0.63	3.54	0.06
4"	Q400-6	14.81	9.55	2.07	7.28	6.30	9.45	4.54	0.79	4.57	0.06



1/2" NPT CONDUIT  
CONNECTION  
BOTH SIDES



CLOSED SWITCH (TOP CAM)  
POTTED IN PLACE NOT FIELD  
ADJUSTABLE



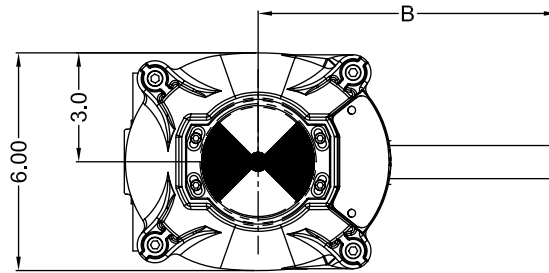
# Manual Safety Cocks ANSI Class 150 & 300 Flanged

## ANSI Class 150

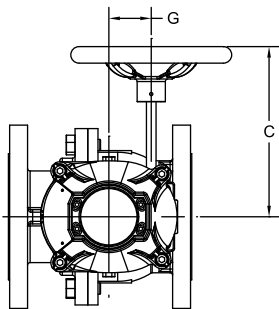
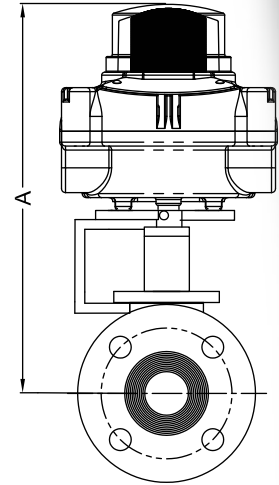
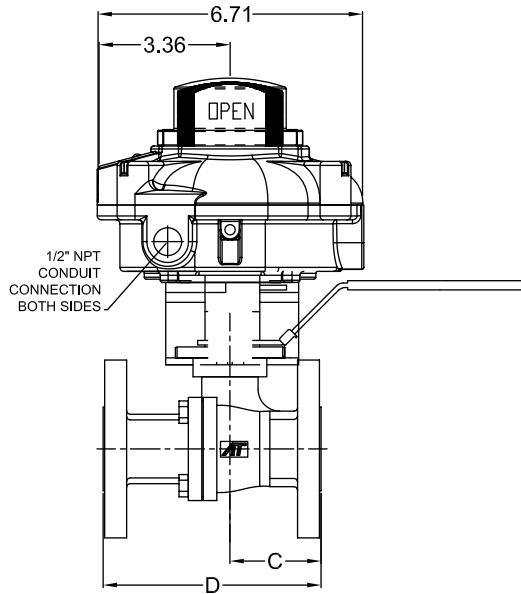
Valve Size	A	B	C	D
1/2"	11.23	6.90	1.84	4.26
3/4"	11.41	6.90	2.18	4.62
1"	11.63	6.90	2.21	5.00
1-1/2"	13.80	10.50	2.83	6.50
2"	14.12	10.50	3.38	7.02

## ANSI Class 300

Valve Size	A	B	C	D
1/2"	10.36	6.80	2.32	5.50
3/4"	10.94	6.80	2.59	6.00
1"	10.94	6.80	2.78	6.50
1-1/2"	12.95	10.31	3.13	7.50
2"	13.24	10.31	3.81	8.50



CLOSED SWITCH (TOP CAM)  
POTTED IN PLACE NOT FIELD  
ADJUSTABLE

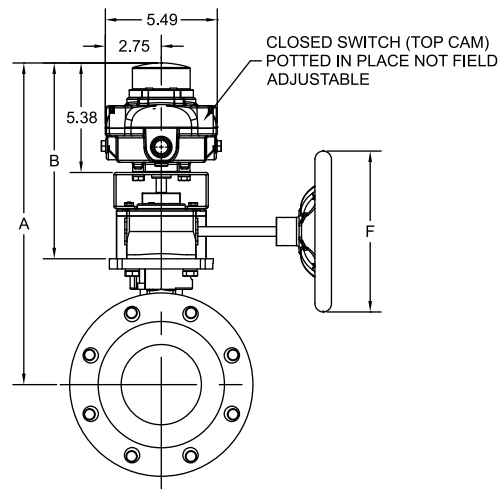
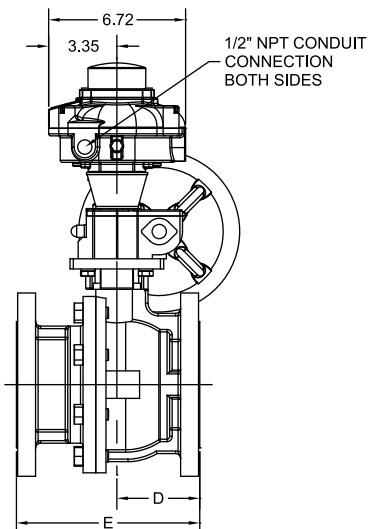


## ANSI Class 150

Valve Size	GEAR	A	B	C	D	E	F	G
2-1/2"	Q400-4	14.12	9.55	7.12	3.06	7.50	3.94	2.07
3"	Q400-4	14.77	9.55	7.12	4.01	8.00	3.94	2.07
4"	Q400-6	15.73	9.55	7.28	4.07	9.00	6.30	2.07
6"	Q800-12	18.38	10.10	10.73	7.00	15.50	11.81	2.71

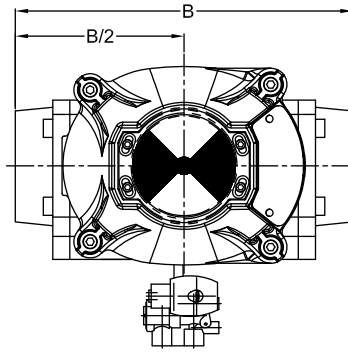
## ANSI Class 300

Valve Size	GEAR	A	B	C	D	E	F	G
2-1/2"	Q400-4	14.12	9.55	7.12	4.20	9.50	3.94	2.07
3"	Q400-4	14.77	9.55	7.12	5.10	11.12	3.94	2.07
4"	Q400-6	15.73	9.55	7.28	5.50	12.00	6.30	2.07
6"	Q800-12	18.38	10.10	10.73	7.30	15.87	11.81	2.71

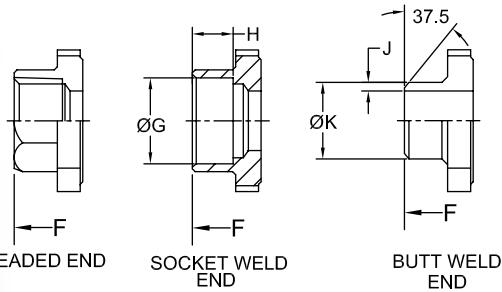
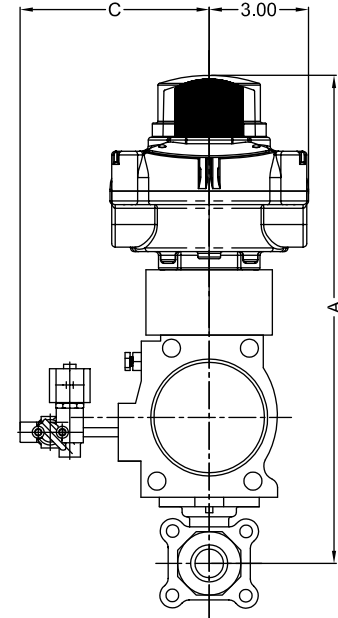
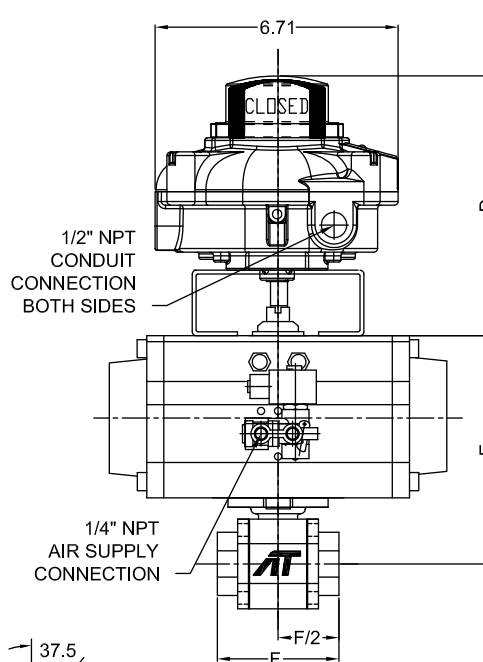


# Gas Vent & Safety Shut-off Assemblies

## 3-piece



SWITCH POTTED IN PLACE NOT FIELD ADJUSTABLE  
SAFETY SHUT-OFF (CLOSED SWITCH - TOP CAM)  
VENT (OPEN SWITCH - BOTTOM CAM)



### 60 PSI Air Supply

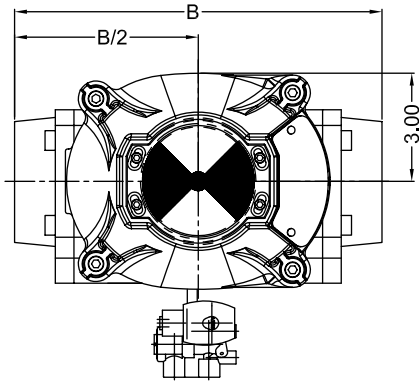
Valve Size	Actuator SR	NPT Air Supply	A	B	C	D	E	F	G	H	J	K
1/4"	2R40	1/8"	12.39	8.00	6.60	7.05	5.09	2.95	0.55	0.39	0.13	0.85
3/8"	2R40	1/8"	12.39	8.00	6.60	7.05	5.09	2.95	0.69	0.39	0.13	0.85
1/2"	2R40	1/8"	12.39	8.00	6.60	7.05	5.09	2.85	0.85	0.39	0.06	0.85
3/4"	2R80	1/4"	13.62	9.34	5.98	7.05	6.32	3.36	1.07	0.51	0.06	1.07
1"	2R80	1/4"	14.10	9.34	5.98	7.05	6.80	4.15	1.34	0.51	0.06	1.34
1-1/4"	2R80	1/4"	14.25	9.34	5.98	7.05	6.95	4.37	1.69	0.51	0.06	1.68
1-1/2"	2R200	1/4"	15.69	11.51	6.39	7.05	8.39	5.01	1.92	0.51	0.06	1.91
2"	2R300	1/4"	16.89	13.92	6.85	7.05	9.60	5.62	2.40	0.63	0.06	2.38
2-1/2"	2R300	1/4"	17.76	13.92	6.85	7.05	10.46	7.28	2.89	0.63	0.06	3.00
3"	2R500	1/4"	19.29	15.20	7.20	7.48	11.56	8.07	3.54	0.63	0.06	3.54
4"	2R500	1/4"	19.92	15.20	7.20	7.48	12.19	9.45	4.54	0.79	0.06	4.57

### 80 PSI Air Supply

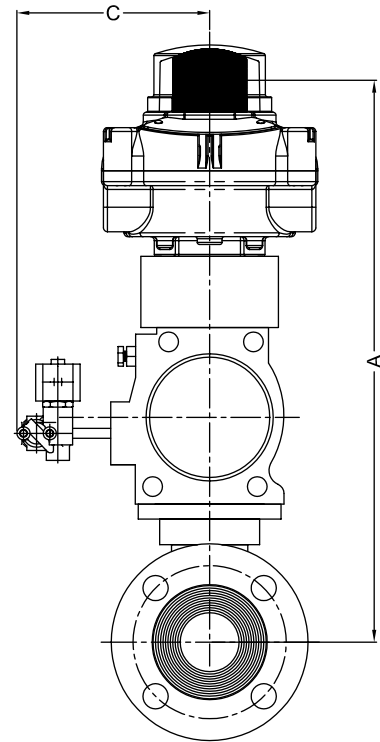
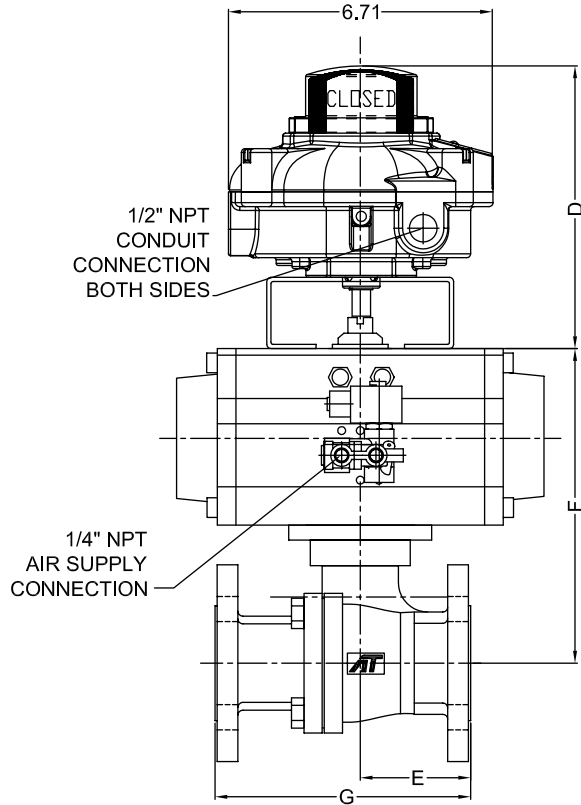
Valve Size	Actuator SR	NPT Air Supply	A	B	C	D	E	F	G	H	J	K
1/4"	2R40	1/8"	12.14	8.00	6.60	7.05	5.09	2.95	0.55	0.39	0.13	0.85
3/8"	2R40	1/8"	12.14	8.00	6.60	7.05	5.09	2.95	0.69	0.39	0.13	0.85
1/2"	2R40	1/8"	12.14	8.00	6.60	7.05	5.09	2.85	0.85	0.39	0.06	0.85
3/4"	2R80	1/4"	13.37	9.34	5.98	7.05	6.32	3.36	1.07	0.51	0.06	1.07
1"	2R80	1/4"	13.85	9.34	5.98	7.05	6.80	4.15	1.34	0.51	0.06	1.34
1-1/4"	2R80	1/4"	14.00	9.34	5.98	7.05	6.95	4.37	1.69	0.51	0.06	1.68
1-1/2"	2R130	1/4"	15.04	10.92	6.22	7.05	7.99	5.01	1.92	0.51	0.06	1.91
2"	2R200	1/4"	15.75	11.51	6.39	7.05	8.70	5.62	2.40	0.63	0.06	2.38
2-1/2"	2R300	1/4"	17.51	13.92	6.85	7.05	10.46	7.28	2.89	0.63	0.06	3.00
3"	2R300	1/4"	17.51	13.92	6.85	7.05	10.81	8.07	3.54	0.63	0.06	3.54
4"	2R500	1/4"	19.67	15.20	7.20	7.48	12.19	9.45	4.54	0.79	0.06	4.57

# Gas Vent & Safety Shut-off Assemblies

## ANSI Class 150 & 300 Flanged



SWITCH POTTED IN PLACE NOT FIELD ADJUSTABLE  
SAFETY SHUT-OFF (CLOSED SWITCH - TOP CAM)  
VENT (OPEN SWITCH - BOTTOM CAM)



### ANSI Class 150

### 60 PSI Air Supply

Valve Size	Actuator SR	NPT Air Supply	A	B	C	D	E	F	G
1/2"	2R80	1/8"	13.38	9.34	5.98	7.05	1.84	6.33	4.26
3/4"	2R80	1/4"	13.56	9.34	5.98	7.05	2.18	6.51	4.62
1"	2R80	1/4"	13.85	9.34	5.98	7.05	2.21	6.80	5.00
1-1/2"	2R200	1/4"	15.84	11.51	6.39	7.05	2.83	8.79	6.50
2"	2R300	1/4"	17.03	13.92	6.85	7.05	3.38	9.98	7.02
2-1/2"	2R300	1/4"	17.80	13.92	6.85	7.05	3.06	10.75	7.48
3"	2R500	1/4"	19.63	15.20	7.20	7.48	4.01	12.15	8.01
4"	2R850	1/4"	21.97	20.95	7.40	7.48	4.07	14.49	9.00
6"	2R1750	1/4"	25.88	24.37	8.22	7.48	7.00	18.40	15.50

### ANSI Class 150

### 80 PSI Air Supply

Valve Size	Actuator SR	NPT Air Supply	A	B	C	D	E	F	G
1/2"	2R40	1/8"	12.32	8.00	6.60	7.05	1.84	5.27	4.25
3/4"	2R80	1/4"	13.56	9.34	5.98	7.05	2.18	6.51	4.63
1"	2R80	1/4"	13.85	9.34	5.98	7.05	2.21	6.80	5.00
1-1/2"	2R200	1/4"	15.84	11.51	6.39	7.05	2.83	8.79	6.50
2"	2R200	1/4"	16.13	11.51	6.39	7.05	3.38	9.08	7.00
2-1/2"	2R300	1/4"	17.80	13.92	6.85	7.05	3.06	10.75	7.50
3"	2R300	1/4"	18.45	13.92	6.85	7.05	4.01	11.40	8.00
4"	2R500	1/4"	20.59	15.20	7.20	7.48	4.07	13.11	9.00
6"	2R1750	1/4"	25.88	24.37	8.22	7.48	7.00	18.40	15.50

### ANSI Class 300

### 60 & 80 PSI Air Supply

Valve Size	Actuator SR	NPT Air Supply	A	B	C	D	E	F	G
1/2"	2R80	1/4"	13.46	9.34	5.98	7.05	2.32	6.41	5.50
3/4"	2R80	1/4"	14.04	9.34	5.98	7.05	2.59	6.99	6.00
1"	2R80	1/4"	14.04	9.34	5.98	7.05	2.78	6.99	6.50
1-1/2"	2R200	1/4"	15.84	11.51	6.39	7.05	3.13	8.79	7.50
2"	2R300	1/4"	16.13	13.92	6.85	7.05	3.81	9.98	8.50
2-1/2"	2R300	1/4"	17.80	13.92	6.85	7.05	4.20	10.75	9.50
3"	2R500	1/4"	19.63	15.20	7.20	7.48	5.10	12.15	11.12
4"	2R850	1/4"	21.57	21.01	7.40	7.48	5.50	14.09	12.00
6"	2R1750	1/4"	25.88	24.37	8.22	7.48	7.30	18.40	15.87

## Specials and Applied Solutions

### **Fusible Link Assemblies**



### **Lockout Mounting Kits**



### **Special Seats Balls and Seal Designs**



### **Floor Mounted Damper Drives**



### **Special Multi-Port Valves**



### **Stem Extensions**



### **Dual Valve Assemblies**



### **180° Actuators**



### **Limit Switches Mounted on Manual Valves**



### **• FM Approved Valve Assemblies**



While you have come to know A-T Controls for superior service in automated valves and day-to-day automation and controls, we specialize in offering solutions to your more unique and difficult applications. Listed below are some of the specials and solutions oriented products and services we offer.

**Special End Connections**

**Virtually any Control Accessory**

**Filter Regulators**

**Speed Controls**

**Solenoids**

**Pneumatic Positioners**

**Electro-pneumatic Positioners**

**Dribble and "Batch" Controls**

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