

Valve Body Assembly Options & Specifications

Series 8000 Normally-Open Vent Valves

Nominal Pipe Size	Flow Capacity	Actuator Pressure Class	Body Connections Available	Body Material	Trim Package Options	Cv Rating	MOPD Rating (psig)
.75"	Std.	High Press.	A, C	1, Cast Iron	1, 2, 3	19	200
1"	Std.	High Press.	A, C	1, Cast Iron	1, 2, 3	20	200
			A, C, E, F, G	2, Carbon Steel			255
				5, Stainless Steel			
1.5"	Std.	High Press.	A, C	1, Cast Iron	1, 2, 3	53	200
			A, C, E, F, G	2, Carbon Steel			255
				5, Stainless Steel			
2"	Std.	High Press.	A, B, C, D	1, Cast Iron	1, 2, 3	86	200
			A, C, E, F, G	2, Carbon Steel			255
				5, Stainless Steel			
2.5"	CP	Std.	A, B, C, D	1, Cast Iron	1, 2, 3	304	50
			B, D	2, Carbon Steel			
				5, Stainless Steel			
		High Press.	A, B, C, D	1, Cast Iron			175
			B, D	2, Carbon Steel			
				5, Stainless Steel			
3"	CP	Std.	A, B, C, D	1, Cast Iron	1, 2, 3	423	40
			B, D	2, Carbon Steel			
				5, Stainless Steel			
		High Press.	A, B, C, D	1, Cast Iron			135
			B, D	2, Carbon Steel			
				5, Stainless Steel			
4"	CP	Std.	B, D	1, Cast Iron	1, 2, 3	490	40
				2, Carbon Steel			
				5, Stainless Steel			
		High Press.		1, Cast Iron			135
				2, Carbon Steel			
				5, Stainless Steel			

Body Connections:

- A – ANSI Threaded
- B – ANSI Flanged
- C – ISO Threaded
- D – DIN Flanged
- E – Socket Welded Nipple
- F – Socket Welded Nipple w/150 lb. ANSI Flange
- G – Socket Welded Nipple w/300 lb. ANSI Flange

Body Material:

- 1 – Cast Iron
- 2 – Carbon Steel
- 5 – Stainless Steel

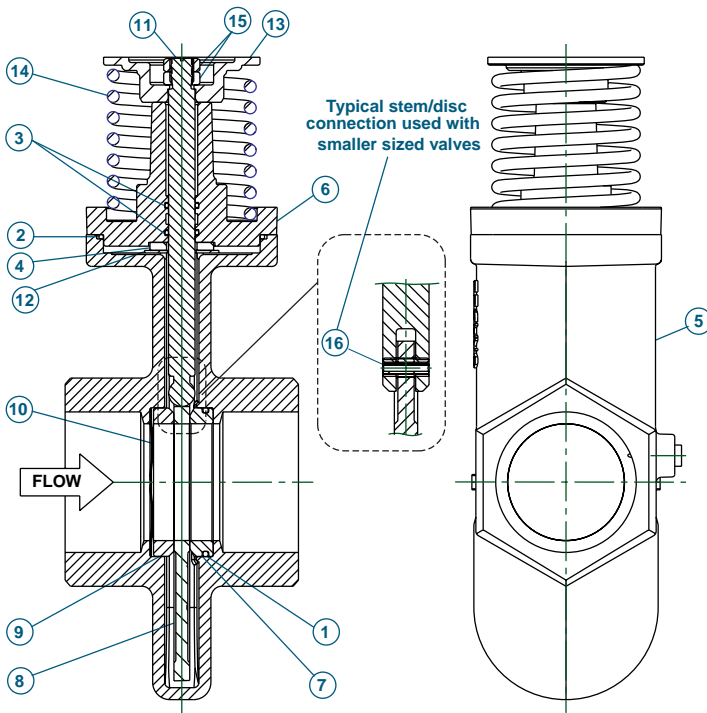
Trim Package Options and Typical Material:

- 1 – 400 Series Stainless Steel Seat, Hardened Cast Iron Disc, Nickel Plated Carbon Steel Follower Ring
- 2 – Hard Faced 300 Series Stainless Steel Seat, Chrome Plated Cast Iron Disc, Chrome Plated Follower Ring
- 3 – PEEK Seat, 300 Series Stainless Steel Disc, PEEK Follower Ring

Body Seals and Bumper:

All configurations allow for Buna-N, Viton, or Ethylene Propylene elastomers as standard. Kalrez is available for special services. Consult Maxon for proper application.

Valve Body Assembly Specifications



Body Seals and Bumper Material

Item No.	Description	Material
1	Seat O-Ring	Standard material options are Buna-N, Viton and Ethylene Propylene.
2	Body O-Ring	Kalrez is available for special service.
3	Stem O-Ring	
4	Bumper	Consult Maxon for proper material selection.

Body and Bonnet Materials (See Note 1 below)

Item No.	Description	Material Code		
		1	2	5
5	Body	Cast Iron ASTM A159 Gr. 3000	Carbon Steel ASTM A216 Gr. WCB	Stainless Steel ASTM A351 Gr. CF8M
6	Bonnet			

Trim Package Materials

Item No.	Description	Internal Trim Package		
		1	2	3
7	Seat	Hardened 400 Series Stainless Steel	Hard Faced 300 Series Stainless Steel	PEEK
8	Disc	Hardened Ductile Iron	Chrome Plated Ductile Iron	300 Series Stainless Steel
9	Follower Ring	Nickel Plated Carbon Steel or Ductile Iron	Chrome Plated Stainless Steel	PEEK
10	Wavy Spring	300 Series - Stainless Steel		
11	Stem	17-4 PH - Stainless Steel		
12	Striker Plate	17-7 PH - Stainless Steel		
13	Spring Retainer	Blackened Carbon Steel		
14	Compression Spring	17-7 PH - Stainless Steel		
15	Jam Nut	Zinc Plated Carbon Steel		
16	Spring Pin (when req'd)	Carbon Steel	400 Series Stainless Steel	18-8 Stainless Steel

Note 1: For alternate body/bonnet materials, contact Maxon for specifications.



Contact Esys for more information about this product:
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 website: <http://www.esys.us>



Valve Body Assembly — Gas Compatibility

Gas	Gas Code	Suggested Material Options			MOPD Rating	Agency Approvals		
		Body Seals & Bumper	Body & Bonnet	Trim Package		FM	CSA	CE
Air	AIR	A, B, C	1, 2, 5	1, 2, 3	Std.	X		
Ammonia	AMM	C	1, 2, 5	1, 2, 3	Std.	X		
Butane Gas	BUT	A, B	1, 2, 5	1, 2, 3	Std.	X		
Coke Oven Gas	COKE	B	5	3	Std.	X		
Delco Combusted Gas	DEL	C	1, 2, 5	1, 2, 3	Std.	X		
Digester Gas (See note 1)	DIG	Analysis Required	5	3	Std.	X		
Endothermic AGA 302 Gas	ENDO	A, B	1, 2, 5	1, 2, 3	Std.	X		
Exothermic Gas	EXO	A, B	1, 2, 5	1, 2, 3	Std.	X		
Hydrogen Gas	HYD	A, B, C	2, 5	2, 3	See note 2	X		
Manufactured Gas (See note 1)	MFGD	Analysis Required	5	3	Std.	X		
Natural Gas	NAT	A, B	1, 2, 5	1, 2, 3	Std.	X		
Nitrogen	NIT	A, B, C	1, 2, 5	1, 2, 3	Std.	X		
Oxygen (up to 200 psig, <200 ft/sec)	OXYH	B, C	2, 5	4, 5	Std.	X		
Oxygen (up to 30 psig, <200 ft/sec)	OXYL	B, C	1, 2, 5	4, 5	30 psig	X		
Propane Gas	PROP	A, B	1, 2, 5	1, 2, 3	Std.	X		
Refinery Gas (See note 1)	REF	Analysis Required	5	3	Std.	X		
Sour Natural Gas (See note 1)	SOUR	Analysis Required	5	3	Std.	X		
Town Gas (See note 1)	TOWN	Analysis Required	5	3	Std.	X		
Land Fill Gas	LAND	Analysis Required	5	3	Std.	X		

NOTES:

- Other body and trim packages may be acceptable pending fuel analysis. For pricing inquiry, Viton body seals and bumper material will be standard option. Contact Maxon for details.
- Valve maximum operating pressure (MOPD) to be reduced by 25% from standard ratings.

Body Seals & Bumper:

- A - Buna N
- B - Viton
- C - Ethylene Propylene

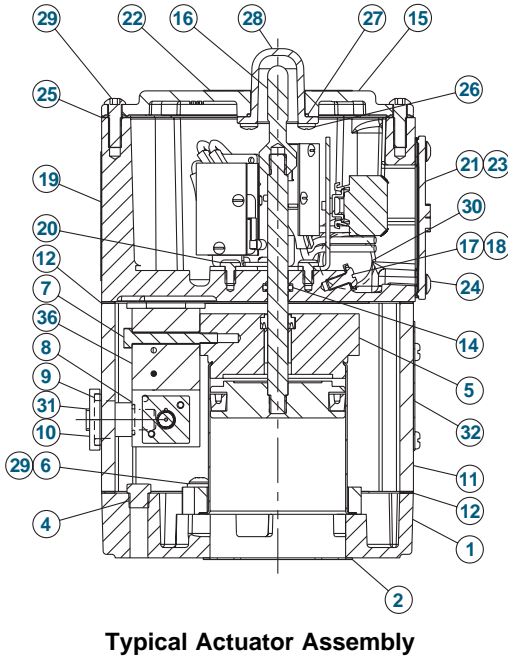
Body & Bonnet:

- 1 - Cast Iron
- 2 - Carbon Steel
- 5 - Stainless Steel

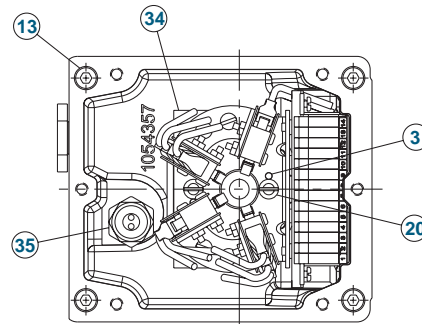
Trim Package:

- 1 - Trim Package 1
- 2 - Trim Package 2
- 3 - Trim Package 3
- 4 - Trim Package 2, Oxy Clean
- 5 - Trim Package 3, Oxy Clean

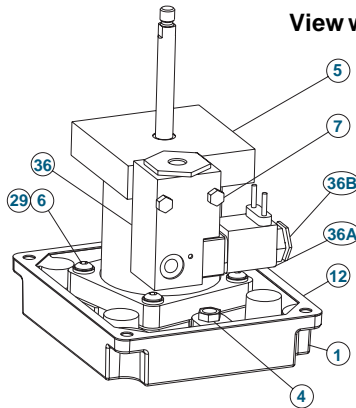
Valve Actuator Assembly Specifications



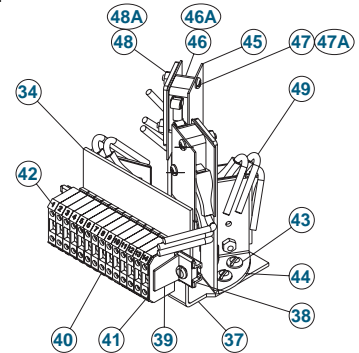
Typical Actuator Assembly



View without Top Plate



Typical Cylinder Assembly Mounting



General Purpose Switch Assembly w/Terminal Block & Leads Mounted

Item No.	Description
1	Base Plate
2	Bonnet Gasket
3	Drive Pin
4	Filter Vent
5	Cylinder Assembly
6	M6 Lock Washer
7	M5-0.8 x 40 Hex Screw
8	O-Ring
9	O-Ring
10	Solenoid Adapter Inlet
11	Housing
12	Housing Gasket
13	M6-1.0 x 60 Soc HD Cap Screw
14	O-Ring
15	Top Plate
16	Indicator
17	Washer
18	M5-0.8 x 10 Ground Screw
19	Top Housing
20	M4-0.7 x 6 Slotted Screw
21	Terminal Block Cover Gasket
22	Info Label
23	Terminal Block Cover
24	M5-0.8 x 12 Cap Screw
25	Top Housing Gasket
26	#8-18 x .38 Self-Threading Screw

Item No.	Description
27	O-Ring
28	Indicator Cover
29	M6-1.0 x 20 Cap Screw
30	3/4" Pipe Plug
31	.125 Inlet Pipe Plug
32	Info Plate
33	Actuator Bolts (Not Shown)
34	Switch Assembly
35	Liquid Tight Connector
36	Solenoid w/Quick Exhaust Assembly
36A	Solenoid Coil
36B	Solenoid Cap
37	Switch & Terminal Bracket
38	DIN Rail
39	End Stop
40	Terminal Block
41	End Cover
42	Marker Strips
43	M4-0.7 x 6 Slotted Screw
44	Switch Bracket
45	Switch Insulator
46	V7 Switch
46A	IP67 Switch
47	#4-40 x .75 Slotted Screw
47A	#2-56 x .437 Slotted Screw
48	#4-40 Hex Nut
48A	#2-56 Hex Nut
49	Wire

Electrical Data

General

Series 8000 Valves are pneumatically operated and a solenoid valve controls the air supply. The solenoid valve is directly wired into the control system.

Switch wiring diagrams (reproduced below) are part of each valve assembly, summarizing electrical data and wiring for a valve equipped with terminal block and a full complement of optional switches.

Good practice normally dictates that auxiliary switches in valves should be used for signal duty only, not to operate additional safety devices.

Valve position switches are offered in SPDT (Single Pole/Double Throw). Standard packages include one open switch and one closed switch, (VOS1/VCS1) and additional auxiliary switches designated by VOS2/VCS2.

VCS (Valve Closed Switch) is actuated at the end of the closing stroke.

VOS (Valve Open Switch) is actuated at the end of the opening stroke.

Switch amperage ratings are shown on the schematic wiring diagrams below. **DO NOT EXCEED** rated amperage or total load shown. Diagrams show valve with a full complement of switches. The indicated internal wiring is present only when the appropriate auxiliary switches are specified.

Figure 1: Normally-Closed Shut-Off Valve

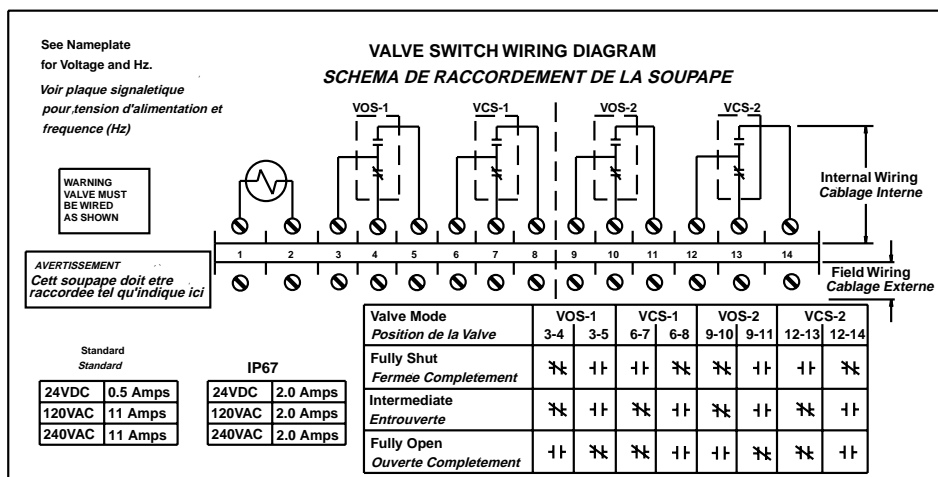
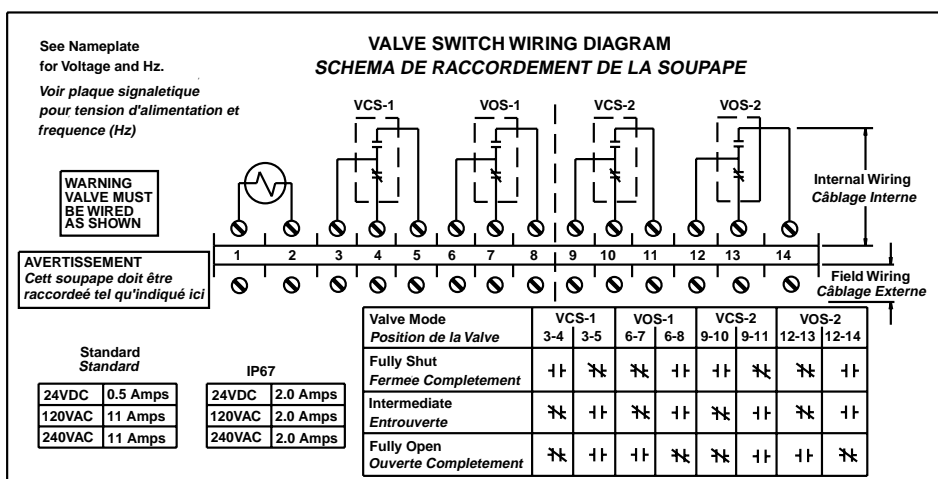


Figure 2: Normally-Open Vent Valve



Electrical Data

General Purpose — Series 8011, 8111, 8021 & 8121

Solenoid valve power ratings

Voltage	Amperage (amps)		Power	
	In-Rush	Holding	In-Rush	Holding
24VDC	.20	.20	4.8 Watts	4.8 Watts
120VAC 50Hz	.09	.07	11 VA	8.5 VA
120VAC 60Hz	.08	.05	9.4 VA	6.9 VA
240VAC 50Hz	.05	.04	11 VA	8.5 VA
240VAC 60Hz	.04	.03	9.4 VA	6.9 VA

Standard switch amperage ratings

as shown on the valve switch wiring diagram

Voltage	Maximum Amperage (amps)
24VDC	0.5
120VAC 50/60Hz	11
240VAC 50/60Hz	11

Class I, Div. 2 Hazardous Location — Series 8012, 8112, 8022 & 8122

(future availability)

Solenoid valve power ratings

Voltage	Amperage (amps)		Power	
	In-Rush	Holding	In-Rush	Holding
24VDC	.20	.20	4.8 Watts	4.8 Watts
120VAC 50Hz	.09	.07	11 VA	8.5 VA
120VAC 60Hz	.08	.05	9.4 VA	6.9 VA
240VAC 50Hz	.05	.04	11 VA	8.5 VA
240VAC 60Hz	.04	.03	9.4 VA	6.9 VA

IP67 switch amperage ratings

as shown on the valve switch wiring diagram

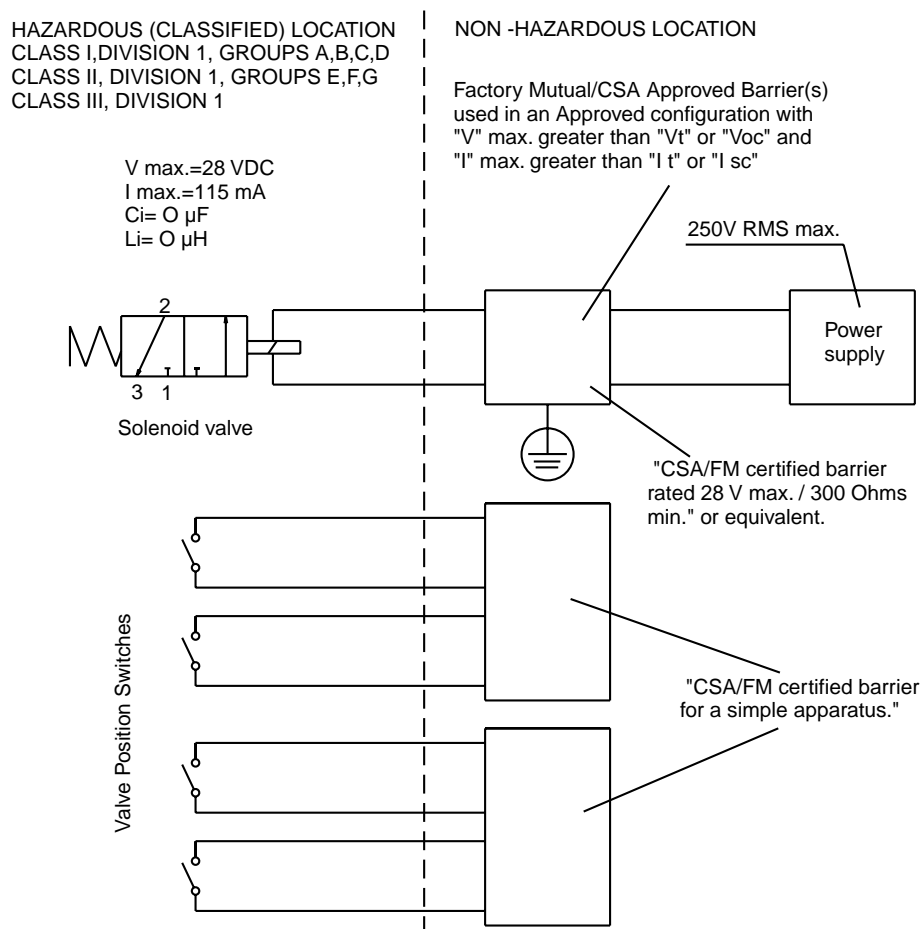
Voltage	Maximum Amperage (amps)
24VDC	2.0
120VAC 50/60Hz	2.0
240VAC 50/60Hz	2.0

Electrical Data

Class I Div. 1 - Series 8013, 8113, 8023 & 8123 (future availability)

The Series 8000 Valve achieves Class I Div.1 hazardous location certification through the Intrinsically Safe protection method. Below is a representation of the Control Drawing. Maxon standard offering does not

include the barriers/isolators that are depicted below in the NON-HAZARDOUS LOCATION; however, they can be provided as an additional accessory. Consult Maxon Corporation for details.



NOTES:

1. Power supply by attested and intrinsically safe circuits with $V \leq 28\text{VDC}$, $39\text{mA} \leq I \leq 115\text{mA}$ and $P \leq 1.6\text{W}$.
2. The barrier must not be connected to any device that uses or generates in excess of 250 Volts RMS or DC unless it has been determined that the voltage has been adequately isolated from the barrier.
3. Simple apparatus is defined as a device that will neither generate nor store more than 1.2V, 0.1A, 25 mW, or 20 μJ .

Examples are: switches, thermocouples, light-emitted diodes, connectors, and resistance temperature devices.

4. The installation must be in accordance with the National Electric Code®, NFPA 70, Article 504, and ANSI/ISA-RP 12.6.
5. The barrier must be connected to a suitable ground electrode per NFPA 70, Article 504. The resistance of the ground path must be less than 1 Ohm.
6. CSA requires "Installation to be in accordance with the Canadian Electrical Code, Part I".

Dimensions & Weights

Series 8100: .75" to 3"

Normally-Closed Shut-Off Valve

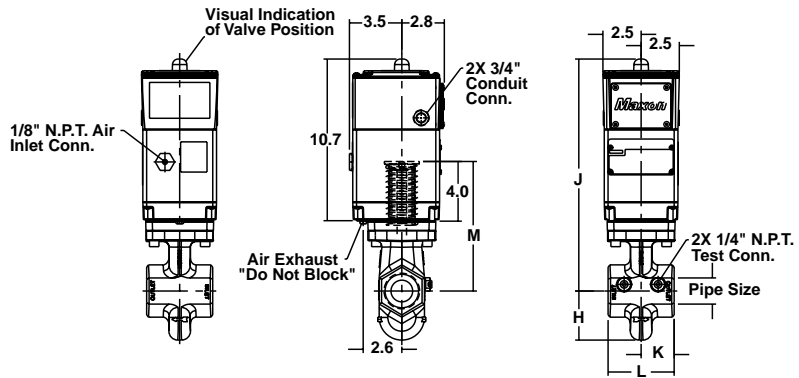
- Series 8111 - General Purpose
- Series 8112 - Class I, II, Div. 2 *
- Series 8113 - Class I, Div. 1 *

Normally-Open Vent Valve

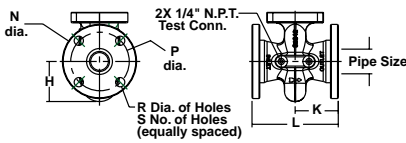
- Series 8121 - General Purpose
- Series 8122 - Class I, II, Div. 2 *
- Series 8123 - Class I, Div. 1 *

* Future availability

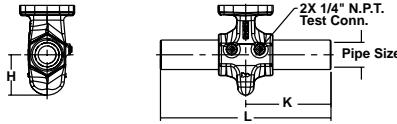
Body Connection A & C



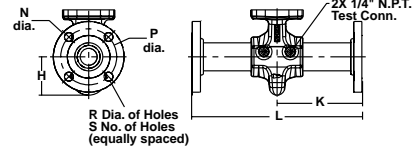
Body Connection B & D



Body Connection E



Body Connection F & G



Valve Size	Flow Capacity	Body Connection	Body/Bonnet Material	Approximate Dimensions (in inches)									Approximate Weight (in pounds)		
				H	J	K	L	M	N	P	R	S	Body Assembly	Actuator Assembly	Total Weight
.75"	S	A, C	Cast Iron	2.0	14	1.9	3.8	7	N/A				8	12	20
1"	S	A, C	Cast Iron						N/A				8		20
		A, C	Carbon Steel & Stainless Steel						N/A				9		21
		E		N/A				11	23						
		F		4.3 3.1 0.62	4	15	27								
1.25"	S	A, C	Cast Iron	N/A				17	29						
		A, C		4.9 3.5 0.75	4	17	29								
		E		N/A				9	21						
		F		N/A				11	23						
1.5"	S	A, C	Cast Iron	2.4	15	2.0	4.0	8	N/A				9		21
		A, C							N/A				11		23
		A, C							Carbon Steel & Stainless Steel	N/A					11
		E								N/A				14	26
		F								5.0 3.9 0.62	4	21	33		
2"	S	A, C	Cast Iron	3.3	16	2.2	4.4	9	N/A				16	28	
		B							N/A				16	28	
		D							6.0 4.8 0.75	4	26	38			
		A, C	Carbon Steel & Stainless Steel						N/A				18	30	
		E							N/A				23	35	
		F							6.5 4.9 0.71	4	26	38			
2.5"	S	A, C	Cast Iron	2.9	16	2.2	4.4	9	N/A				18	30	
		B							N/A				23	35	
		D							6.0 4.8 0.75	4	33	45			
		D							6.5 5.0 0.75	8	37	49			
3"	S	A, C	Cast Iron	3.0	16	2.5	5.0	9	N/A				19	31	
		B							N/A				30	42	
		D							7.0 5.5 0.75	4	30	42			
3"	S	A, C	Cast Iron	3.0	16	2.6	5.2	9	N/A				20	32	
		D							7.3 5.7 0.71	4	30	42			

Flow Capacity:

- S - Standard
- C - CP Body Construction

Body Connection:

- A - ANSI Threaded
- B - ANSI Flanged
- C - ISO Threaded

- D - DIN Flanged
- E - Socket Welded Nipple
- F - Socket Welded Nipple w/ 150 lb. ANSI Flange
- G - Socket Welded Nipple w/ 300 lb. ANSI Flange

Dimensions & Weights

Series 8000: 2.5"CP, 3"CP, 4"CP

Normally-Closed Shut-Off Valve

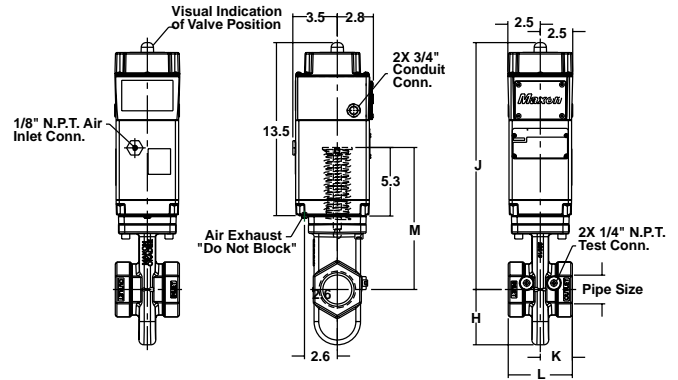
- Series 8011 - General Purpose
- Series 8012 - Class I, II, Div. 2*
- Series 8013 - Class I, Div. 1*

Normally-Open Vent Valve

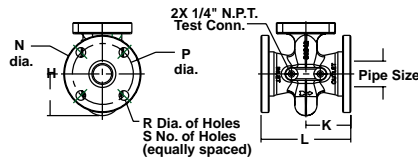
- Series 8021 - General Purpose
- Series 8022 - Class I, II, Div. 2*
- Series 8023 - Class I, Div. 1*

* Future Availability

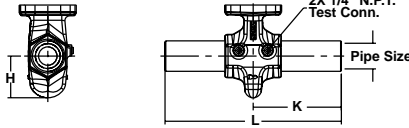
Body Connection A & C



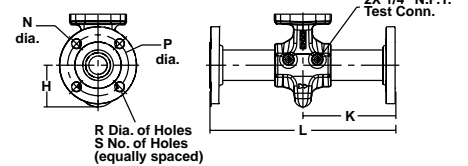
Body Connection B & D



Body Connection E



Body Connection F & G



Valve Size	Flow Capacity	Body Connection	Body/Bonnet Material	Approximate Dimensions (in inches)									Approximate Weight (in pounds)				
				H	J	K	L	M	N	P	R	S	Body Assembly	Actuator Assembly	Total Weight		
2.5"	C	A, C	Cast Iron	4.3	20	2.5	5.0	11	N/A			4	19	13		32	
		B		4.5		3.8	7.5		7.0	5.5	0.75		31				44
		D							7.3	5.7	0.71		31				44
		B	Carbon Steel & Stainless Steel					7.0	5.5	0.75	34	47					
		D		7.3		5.7	0.71	34	47								
		A, C		Cast Iron		5.1	20	2.8	5.5	12	N/A						8
B	5.2	4.0	8.0		7.5	6.0		0.75	46		59						
D					7.9	6.3		0.71	46		59						
B				Carbon Steel & Stainless Steel	7.5	6.0		0.75	47	60							
D	7.9	6.3	0.71		47	60											
B	Cast Iron	5.5	20		4.5	9.0		8	9.0	7.5	0.75	64	77				
D		8.7		7.1			0.71		64	77							
B		Carbon Steel & Stainless Steel		9.0			7.5		0.75	64	77						
D	8.7			7.1	0.71	64	77										

Flow Capacity:

- S - Standard
- C - CP Body Construction

Body Connection:

- A - ANSI Threaded
- B - ANSI Flanged
- C - ISO Threaded
- D - DIN Flanged
- E - Socket Welded Nipple
- F - Socket Welded Nipple w/ 150 lb. ANSI Flange
- G - Socket Welded Nipple w/ 300 lb. ANSI Flange

Dimensions & Weights

Series 8100: 2.5"CP, 3"CP, 4"CP

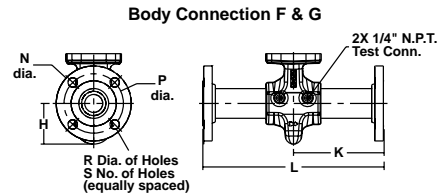
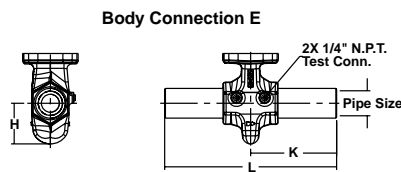
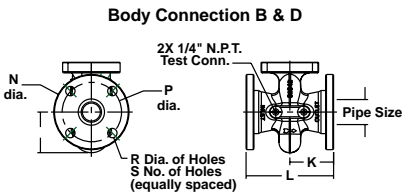
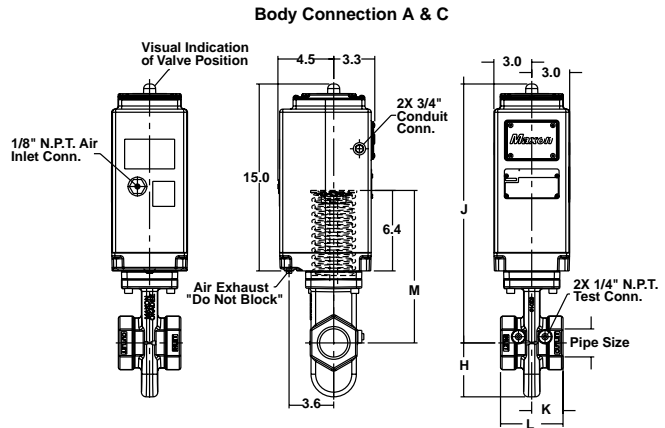
Normally-Closed Shut-Off Valve

- Series 8111 - General Purpose
- Series 8112 - Class I, II, Div. 2*
- Series 8113 - Class I, Div. 1*

Normally-Open Vent Valve

- Series 8121 - General Purpose
- Series 8122 - Class I, II, Div. 2*
- Series 8123 - Class I, Div. 1*

* Future Availability



Valve Size	Flow Capacity	Body Connection	Body/Bonnet Material	Approximate Dimensions (in inches)										Approximate Weight (in pounds)		
				H	J	K	L	M	N	P	R	S	Body Assembly	Actuator Assembly	Total Weight	
2.5"	C	A, C	Cast Iron	4.3	21	2.5	5.0	13	N/A				19	22	38	
		B		4.5		3.8	7.5		7.0	5.5	0.75	4	31		50	
		D							7.3	5.7	0.71		31		50	
		B	Carbon Steel & Stainless Steel	4.5		3.8	7.5		7.0	5.5	0.75	4	36		55	
		D							7.3	5.7	0.71		36		55	
		A, C							Cast Iron	5.1	22		2.8		5.5	N/A
B	5.2	4.0	8.0	7.5	6.0	0.75	4	48		67						
D				7.9	6.3	0.71	8	48		67						
B	Carbon Steel & Stainless Steel	5.2	4.0	8.0	7.5	6.0	0.75	4	49	68						
D					7.9	6.3	0.71	8	49	68						
A, C					Cast Iron	5.5	4.5	9.0	9.0	7.5		0.75	8	66	85	
B	8.7	7.1	0.71	66					85							
D				9.0					7.5	0.75	67	86				
B	Carbon Steel & Stainless Steel	8.7	7.1	0.71	67				86							
D					8.7				7.1	0.71	67	86				

Flow Capacity:

- S - Standard
- C - CP Body Construction

Body Connection:

- A - ANSI Threaded
- B - ANSI Flanged
- C - ISO Threaded
- D - DIN Flanged
- E - Socket Welded Nipple
- F - Socket Welded Nipple w/ 150 lb. ANSI Flange
- G - Socket Welded Nipple w/ 300 lb. ANSI Flange