



**MERCER VALVE CO., INC.**  
AUTO SEAT TECHNOLOGY®

## 8100 SERIES



**MERCER VALVE**

**THINK...MERCER FIRST™**

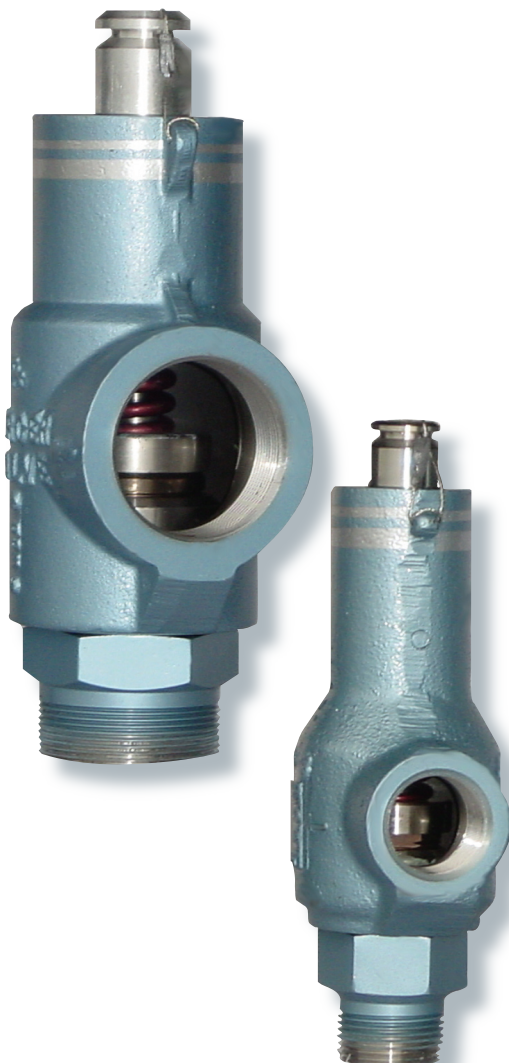




## 8100 Series Product Overview

The Mercer Valve 8100 Series Pressure Relief Valve is “State of the Art” in soft seat, high flow rate, pressure relieving devices. The 8100 Series spring operated valve was the first pressure relief valve to incorporate Mercer Valve’s patented **Auto Seat Technology®** into its design. Our **Auto Seat Technology®** incorporates a fully guided disk and low rate spring to ensure an accurate and repeatable set pressure. The low rated, guided spring will reduce stresses on the spring, giving you a consistent, repeatable set pressure, which will continually outlast the competition. The soft seated 8100 Series has a field-proven lip seal design, which allows for a tighter seal up to set pressure. This tight seal reduces leaks and limits product loss. Our non-rising stem allows us to produce a valve with a shorter bonnet, which will be lighter and fit in tighter confined spaces.

The 8100 Series is manufactured in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 for Air/Gas. The 8100 Series is well suited for compressors, separators, transmission, gathering lines, and other production processes.



### 8100 Series Features

- **Designed with Auto Seat Technology®.**
- **Consistent Set Pressures allowing repeatable uses without repair or resetting.**
- **Open, Close, Seat and Seal.**
- **Fully guided disk keeps the disk properly aligned, opening and closing, helping to reseal the valve.**
- **Mechanical Stop prevents wear on parts and controls valve lift.**
- **Low rated and fully guided spring allows for more consistent set pressures from pop to pop.**
- **Pop Action relief allows valve to go to full lift at set pressure. Helps with DOT regulated applications.**
- **Built in accordance with the requirements of ASME Boiler and Pressure Vessel Code. Sec. VIII Div 1.**
- **Non-rising stems allowing valves to be installed in small areas.**



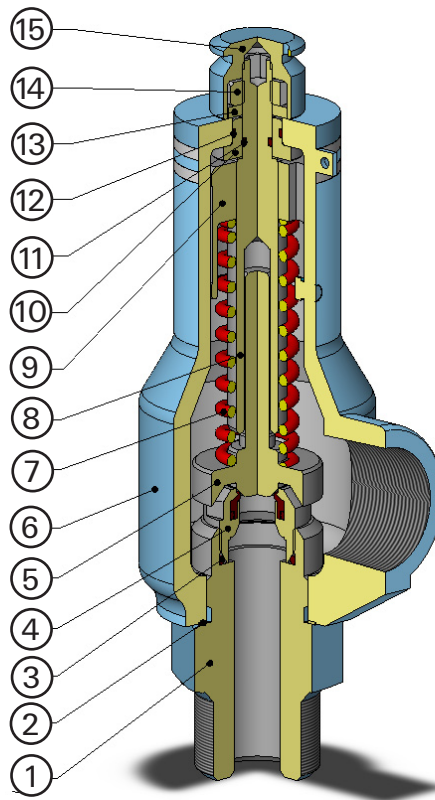
## 8100 Series Specifications

Basic Valve Size	1/2" Orifice	3/4" Orifice
<b>Inlet Sizes Available</b>	3/4" NPT 1" NPT	1 1/2" NPT 2" NPT
<b>Outlet Sizes Available</b>	1" NPT	2" NPT
<b>Inlet and Outlet Connection Types Available</b>	Male NPT x Female NPT Female NPT x Female NPT	
<b>Orifice Diameter</b>	.520 in.	.775 in.
<b>Orifice Area</b>	.212 in <sup>2</sup>	.472 in <sup>2</sup>
<b>Equivalent API Letter</b>	E	G
<b>Pressure Ranges</b>	15 to 2400 psi	15 to 2000 psi
<b>Standard Temperature Range</b>	-20°F to 400°F	-20°F to 400°F
<b>ASME "Slope" (Gas)</b>	3.10	7.21
<b>Equivalent Flow Coefficient (Gas)</b>	.800	.830
<b>Approximate Weight</b>	4.5 lbs.	10.0 lbs.

**NOTE:** Mercer Valve reserves the right to change product designs and specifications without notice.



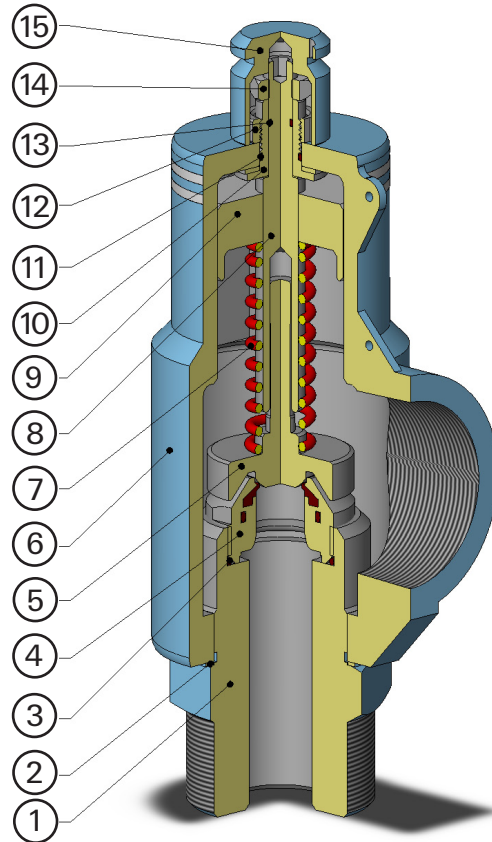
## 8100 Series Parts and Materials



### 8100 Series 1/2" Orifice

ITEM NO	PART NAME	STANDARD MATERIALS
1	INLET BASE	CARBON STEEL
2	BASE SEAL	SOFT STEEL
3	NOZZLE O-RING	VITON
4	NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
5	DISK SUBASSEMBLY	STAINLESS STEEL
6	BODY SUBASSEMBLY	CARBON STEEL
7	SET SPRING	STAINLESS STEEL
8	ADJUSTMENT SCREW	STAINLESS STEEL
9	ADJUSTMENT BUSHING	CARBON STEEL
10	CENTER BUSHING	CARBON STEEL
11	ADJUSTMENT SCREW O-RING	BUNA N
12	CENTER BUSHING O-RING	BUNA N
13	WASHER	CARBON STEEL
14	LOCKNUT	CARBON STEEL
15	CLOSED CAP	ALUMINUM

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### 8100 Series 3/4" Orifice

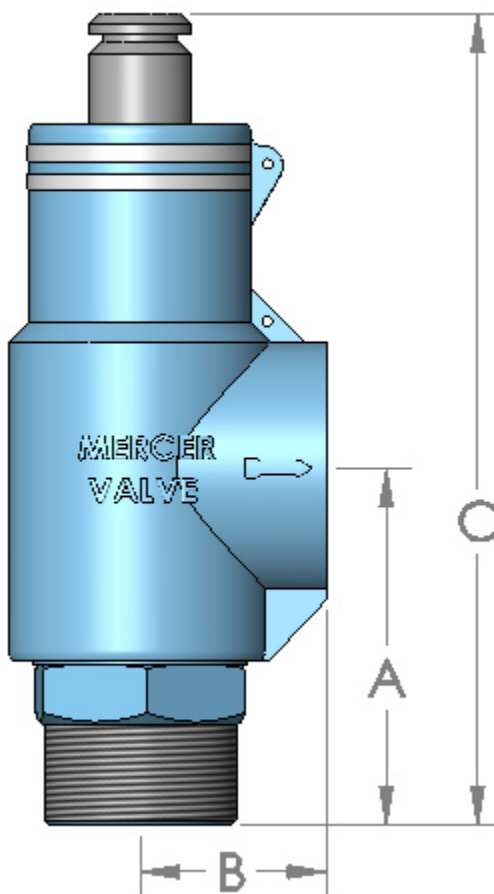
ITEM NO	PART NAME	STANDARD MATERIALS
1	INLET BASE	CARBON STEEL
2	BASE SEAL	SOFT STEEL
3	NOZZLE O-RING	VITON
4	NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
5	DISK SUBASSEMBLY	STAINLESS STEEL
6	BODY SUBASSEMBLY	CARBON STEEL
7	SET SPRING	STAINLESS STEEL
8	ADJUSTMENT SCREW	STAINLESS STEEL
9	ADJUSTMENT BUSHING	CARBON STEEL
10	CENTER BUSHING	CARBON STEEL
11	CENTER BUSHING O-RING	BUNA N
12	CENTERNUT	CARBON STEEL
13	ADJUSTMENT SCREW O-RING	BUNA N
14	LOCKNUT	CARBON STEEL
15	CLOSED CAP	ALUMINUM

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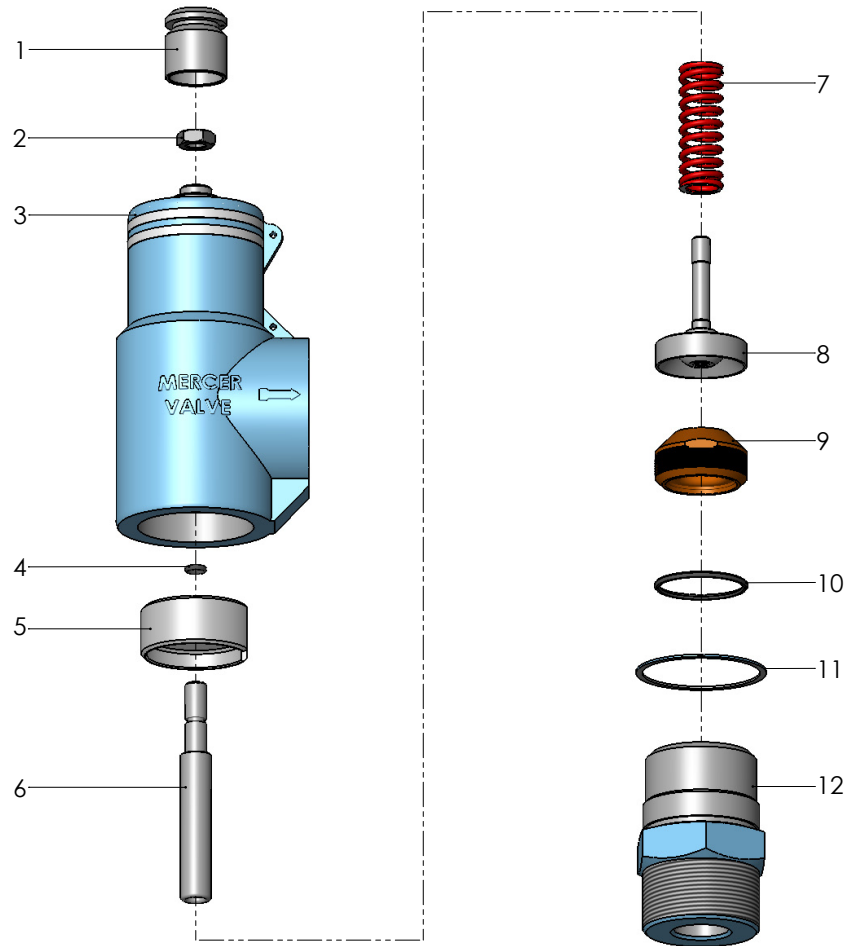


## 8100 Series Threaded Dimensions and Weights

Inlet and Outlet Code	Inlet and Outlet Size	Orifice Available	Pressure Limit (psi)	Dimensions "A" x "B" x "C" (in ±1/16)	Approx. Weight (lbs)
<b>11</b>	3/4" FNPT x 1" FNPT	1/2"	15 - 2400	2-1/4 x 1-7/8 x 7-1/16	4.5
<b>12</b>	3/4" MNPT x 1" FNPT	1/2"	15 - 2400	3-1/4 x 1-7/8 x 8	4.5
<b>16</b>	1" FNPT x 1" FNPT	1/2"	15 - 2400	3-1/4 x 1-7/8 x 8	4.5
<b>17</b>	1" MNPT x 1" FNPT	1/2"	15 - 2400	3-1/4 x 1-7/8 x 8	4.5
<b>33</b>	1 1/2" FNPT x 2" FNPT	3/4"	15 - 2000	4-5/8 x 2-3/8 x 10-5/16	11.5
<b>34</b>	1 1/2" MNPT x 2" FNPT	3/4"	15 - 2000	4-7/16 x 2-3/8 x 10-1/16	11
<b>42</b>	2" FNPT x 2" FNPT	3/4"	15 - 2000	4-5/8 x 2-3/8 x 10-5/16	12
<b>43</b>	2" MNPT x 2" FNPT	3/4"	15 - 2000	4-7/16 x 2-3/8 x 10-1/16	12



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### 8100 Series Exploded View

ITEM NO	PART NAME
1	CAP
2	LOCKNUT
3	BODY SUBASSEMBLY
4	ADJUSTMENT SCREW O-RING
5	ADJUSTMENT BUSHING
6	ADJUSTMENT SCREW
7	SET SPRING
8	DISK SUBASSEMBLY
9	NOZZLE SUBASSEMBLY
10	NOZZLE O-RING
11	BASE SEAL
12	INLET BASE

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## 8100 Series Capacity Chart

### AIR CAPACITY AT 60°F AND STD ATMOSPHERIC CONDITIONS

Set Pressure (psi)	1/2" Orifice			3/4" Orifice		
	SCFM	MSCFH	MMSCFD	SCFM	MSCFH	MMSCFD
15	101	6.08	0.15	236	14.15	0.34
20	117	7.01	0.17	272	16.31	0.39
25	132	7.94	0.19	308	18.47	0.44
30	148	8.87	0.21	344	20.64	0.50
50	216	12.96	0.31	503	30.15	0.72
75	301	18.08	0.43	701	42.05	1.01
100	387	23.19	0.56	899	53.95	1.29
125	472	28.31	0.68	1097	65.84	1.58
150	557	33.42	0.80	1296	77.74	1.87
200	728	43.65	1.05	1692	101.53	2.44
300	1069	64.11	1.54	2485	149.12	3.58
400	1410	84.57	2.03	3278	196.70	4.72
500	1751	105.03	2.52	4071	244.29	5.86
600	2092	125.49	3.01	4865	291.88	7.01
700	2433	145.95	3.50	5658	339.46	8.15
800	2774	166.41	3.99	6451	387.05	9.29
900	3115	186.87	4.48	7244	434.63	10.43
1000	3456	207.33	4.98	8037	482.22	11.57
1100	3797	227.79	5.47	8830	529.81	12.72
1250	4308	258.48	6.20	10020	601.18	14.43
1500	5161	319.63	7.43	12002	720.15	17.28
2000	6866	411.93	9.89	15968	958.08	22.99
2400	8230	493.77	11.85			





**0.6 SG NATURAL GAS CAPACITY AT 60°F AND STD ATMOSPHERIC CONDITIONS**

Set Pressure (psi)	1/2" Orifice			3/4" Orifice		
	SCFM	MSCFH	MMSCFD	SCFM	MSCFH	MMSCFD
<b>15</b>	126	7.59	0.18	294	17.65	0.42
<b>20</b>	146	8.75	0.21	339	20.35	0.49
<b>25</b>	165	9.91	0.24	384	23.04	0.55
<b>30</b>	184	11.07	0.27	429	25.74	0.62
<b>50</b>	270	16.17	0.39	627	37.61	0.90
<b>75</b>	376	22.55	0.54	874	52.45	1.26
<b>100</b>	482	28.93	0.69	1122	67.30	1.62
<b>125</b>	589	35.32	0.85	1369	82.14	1.97
<b>150</b>	695	41.70	1.00	1616	96.98	2.33
<b>200</b>	908	54.46	1.31	2111	126.66	3.04
<b>300</b>	1333	79.98	1.92	3100	186.02	4.46
<b>400</b>	1758	105.50	2.53	4090	245.38	5.89
<b>500</b>	2184	131.03	3.14	5079	304.75	7.31
<b>600</b>	2609	156.55	3.76	6068	364.11	8.74
<b>700</b>	3035	182.07	4.37	7058	423.47	10.16
<b>800</b>	3460	207.60	4.98	8047	482.83	11.59
<b>900</b>	3885	233.12	5.59	9037	542.20	13.01
<b>1000</b>	4311	258.64	6.21	10026	601.56	14.44
<b>1100</b>	4736	284.17	6.82	11015	660.92	15.86
<b>1250</b>	5374	322.45	7.74	12499	749.96	18.00
<b>1500</b>	6438	386.26	9.27	14973	898.37	21.56
<b>2000</b>	8565	513.88	12.33	19920	1195.18	28.68
<b>2400</b>	10266	615.97	14.78			



## 8100 Series Product Numbering System

**81 - 17 1 5 1**

**VALVE SERIES**

81 – 8100 Series

**INLET & OUTLET COMBINATION**

- 11 – 3/4" FNPT x 1" FNPT
- 12 – 3/4" MNPT x 1" FNPT\*
- 16 – 1" FNPT x 1" FNPT
- 17 – 1" MNPT x 1" FNPT\*
- 33 – 1 1/2" FNPT x 2" FNPT
- 34 – 1 1/2" MNPT x 2" FNPT \*
- 42 – 2" FNPT x 2" FNPT
- 43 – 2" MNPT x 2" FNPT\*

**ORIFICE SIZE**

- 1 – 1/2" DIAMETER\*
- 2 – 3/4" DIAMETER\*

**INLET BASE & BODY MATERIAL**

- 5 – CARBON STEEL/WCB  
CARBON STEEL\*
- 6 – 316 STNLS STL/WCB  
CARBON STEEL

**CAP TYPE**

- 1 – CLOSED CAP\*
- 2 – OPEN LIFT LEVER
- 3 – CLOSED LIFT LEVER

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**2 - DIGIT "SPECIAL" CODE**  
 (IF APPLICABLE ASSIGNED BY MERCER)

**O-RING MATERIAL**

**1** - STANDARD O-RINGS\*  
 (VITON & BUNA-N)

**TRIM CODES**

**G1** - GAS SERVICE (15-1225: 1/2" ORIFICE,  
 15-520: 3/4" ORIFICE)\*

**G2** - GAS SERVICE (1226-2400: 1/2"  
 ORIFICE, 521-2000: 3/4" ORIFICE)\*

**N1** - SOUR GAS SERVICE (15-1225: 1/2"  
 ORIFICE, 15-520: 3/4" ORIFICE)\*

**N2** - SOUR GAS SERVICE (1226-2400: 1/2"  
 ORIFICE, 521-2000: 3/4" ORIFICE)\*

**SPRING CODE\***  
 (ASSIGNED BY MERCER)

**SEAT MATERIAL**

**V** - VITON 90 DURO\*

**T** - 15% GLASS FILLED TEFLON\*

**B** - BUNA-N

**P** - VIRGIN PEEK\*

**\* = STANDARD MATERIALS**

Consult Factory for  
 Additional Information



## **8100 SERIES CATALOG**

### **CORPORATE HEADQUARTERS**

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[SALES@MERCERVALVE.NET](mailto:SALES@MERCERVALVE.NET)

### **HOUSTON BRANCH OFFICE**

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HOUSTON, TX 77087  
1-866-833-6402  
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[HOUSTON@MERCERVALVE.NET](mailto:HOUSTON@MERCERVALVE.NET)

### **CALGARY BRANCH OFFICE**

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PHONE: (403) 250-5557, FAX: (403) 250-5661  
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### **CHICAGO BRANCH OFFICE CUSTOMER RELATIONS DEPARTMENT**

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Libertyville, IL 60048  
1-800-833-6402  
[CHICAGO@MERCERVALVE.NET](mailto:CHICAGO@MERCERVALVE.NET)

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