



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

# 9500 SERIES Pilot Operated



**THINK...MERCER FIRST®**



**MERCER VALVE**



## 9500 Series Pilot Operated Product Overview

The 9500 Series Safety Relief Valves are "State of the Art" in pilot operated pressure relief valves. Mercer offers both a snap and modulating pilot. Mercer pilot operated valves are constructed with the same care and precision as our other valve lines. The pilot operated valves continue using our patented "Auto Seat Technology"® in the main valve and pilot valves, making the pilot operated valves as reliable as Mercer's spring operated valves



### 9500 Series Pilot Operated Features

- Designed with "Auto Seat Technology"®.
- Consistent Set Pressures allowing repeatable uses without repair or resetting.
- Open, Close, Seat and Seal™.
- Low rated and fully guided spring allows for more consistent set pressures.
- 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.



## 9500 Series Pilot Operated Specifications

### • API Orifice

Orifice Letter	Standard Inlet Sizes	Actual Orifice Diameter (in)	Actual Orifice Area (in <sup>2</sup> )	API Orifice Area (in <sup>2</sup> )	Pressure Ranges (psi)	Standard Temp Range (°F)	Flow Coefficient, K <sub>d</sub> (Gas)	Flow Coefficient, K <sub>d</sub> (Liquid)
<b>D</b>	1", 1 1/2"	.439	.151	.110	15 to 4500	-15 to 400	.870	---
<b>E</b>	1", 1 1/2"	.533	.223	.196	15 to 4500	-15 to 400	.870	---
<b>F</b>	1", 1 1/2"	.687	.371	.307	15 to 4500	-15 to 400	.870	.731
<b>G</b>	1 1/2", 2"	.844	.559	.503	15 to 3000 15 to 3750	-15 to 400	.870	---
<b>H</b>	1 1/2", 2"	1.050	.866	.785	15 to 3000 15 to 3750	-15 to 400	.870	.731 (1 1/2" inlet only)
<b>J</b>	2", 3"	1.350	1.431	1.287	15 to 3750 15 to 2220	-15 to 400	.870	.731 (2" inlet only)
<b>K</b>	3"	1.625	2.074	1.838	15 to 2220	-15 to 400	.870	---
<b>L</b>	3", 4"	2.020	3.205	2.853	15 to 2220	-15 to 400	.870	.731 (3" inlet only)
<b>M</b>	4"	2.280	4.083	3.600	15 to 2220	-15 to 400	.870	.731
<b>N</b>	4"	2.500	4.909	4.430	15 to 2220	-15 to 400	.870	---
<b>P</b>	4"	3.000	7.069	6.380	15 to 2220	-15 to 400	.870	.731
<b>Q</b>	6"	4.000	12.566	11.050	15 to 1480	-15 to 400	.870	---
<b>R</b>	6"	4.750	17.721	16.000	15 to 1480	-15 to 400	.870	.731
<b>T</b>	8"	5.750	25.967	26.000	15 to 900	-15 to 400	.870	.731

NOTES: 1) Mercer Liquid Pilots are modulating type pilots only. Max Pressure of 1480 PSI.

2) Mercer Valve reserves the right to change product designs and specifications without notice.

3) Modulating Pilot pressure range from 15 to 1480 PSI.



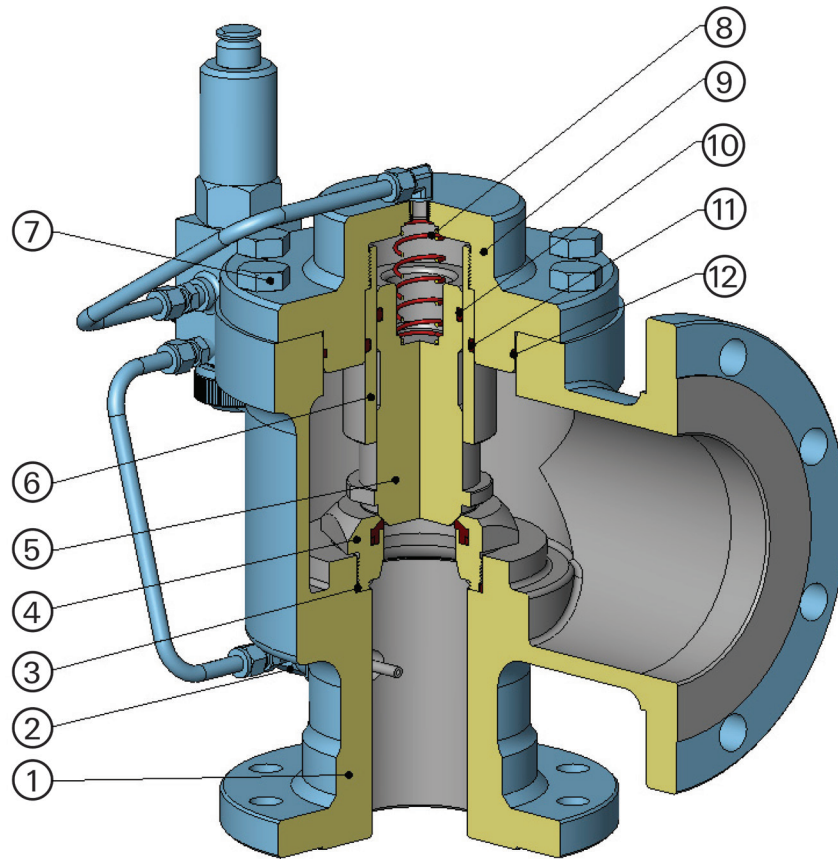
## 9500 Series Pilot Operated Specifications

### • Full Bores

Orifice Letter	Standard Inlet Sizes	Actual Orifice Diameter (in)	Actual Orifice Area (in <sup>2</sup> )	Pressure Ranges (psi)	Standard Temp Range (°F)	Flow Coefficient, K <sub>d</sub> (Gas)
<b>1 1/2" FB</b>	1 1/2"	1.500	1.767	15 to 2220	-15 to 400	.820
<b>1 1/2" FB</b>	2"	1.500	1.767	15 to 2500	-15 to 400	.820
<b>2" FB</b>	2"	1.939	2.953	15 to 2220	-15 to 400	.820
<b>3" FB</b>	3"	2.900	6.605	15 to 1480	-15 to 400	.820
<b>4" FB</b>	4"	3.825	11.491	15 to 1480	-15 to 400	.820
<b>4" FB</b>	4" (Dual)	3.825	11.491	15 to 1530	-15 to 400	.820
<b>6" FB</b>	6"	5.761	26.067	15 to 1480	-15 to 400	.820
<b>8" FB</b>	8"	7.625	45.664	15 to 1480	-15 to 400	.820

**NOTES:** 1) Mercer Valve reserves the right to change product designs and specifications without notice.  
2) Modulating Pilot pressure range from 15 to 1480 PSI.

## 9500 Series Pilot Operated Parts and Materials



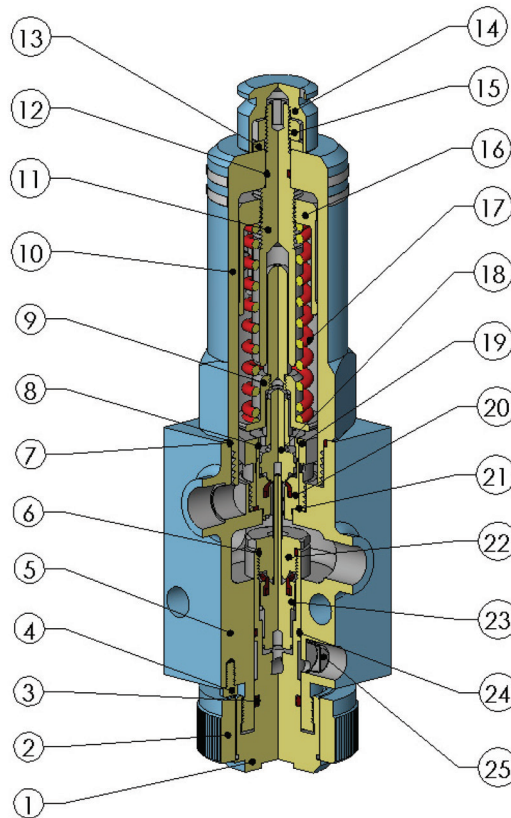
### 9500 SERIES MAIN VALVE

ITEM NO	PART NAME	STANDARD MATERIAL
1	MAIN VALVE BODY	CARBON STEEL
2	PRESSURE PROBE SUBASSEMBLY	CARBON STEEL WITH STNLS STEEL TRIM
3	NOZZLE O-RING	FLUOROCARBON (FKM)
4	NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
5	PISTON SUBASSEMBLY	STAINLESS STEEL
6	PISTON SLEEVE	STAINLESS STEEL WITH NEDOX® COATING
7	BONNET BOLTS	CARBON STEEL
8	RETURN SPRING	STAINLESS STEEL
9	MAIN VALVE BONNET	CARBON STEEL
10	PISTON O-RING	FLUOROCARBON (FKM)
11	PISTON SLEEVE O-RING	FLUOROCARBON (FKM)
12	BONNET O-RING	FLUOROCARBON (FKM)

**NOTES:** 1) All Tubing and Fittings are 316 STNLS STL

2) Reference pilot drawings for pilot information

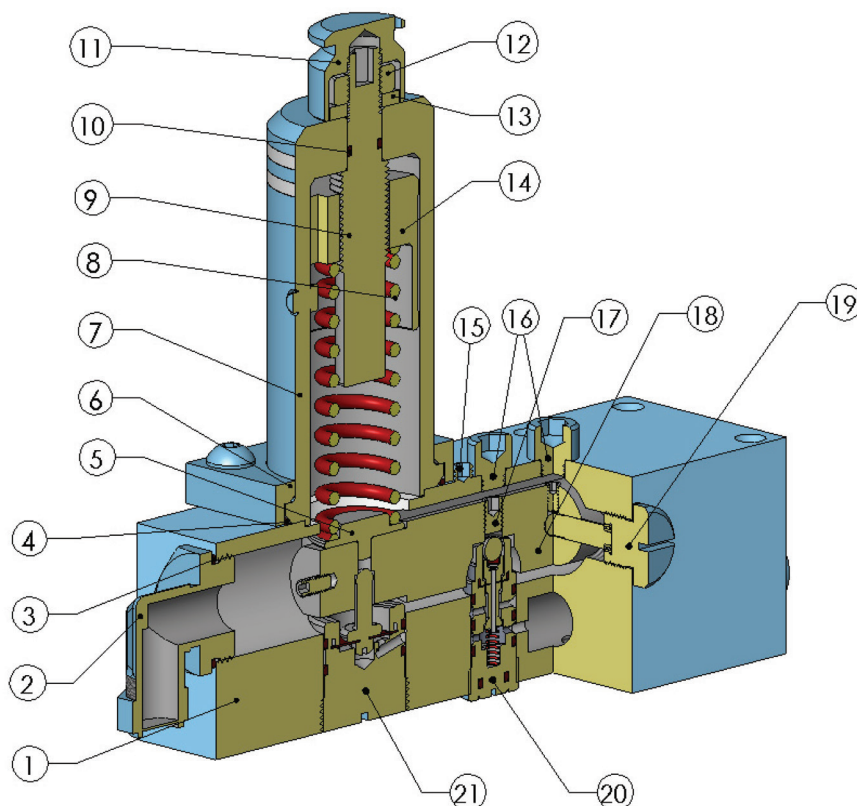
3) Mercer Valve reserves the right to change product designs and specifications without notice.



### 9500 SERIES SNAP PILOT

ITEM NO	PART NAME	STANDARD MATERIAL
1	CAGE SUBASSEMBLY	STAINLESS STEEL
2	BLOWDOWN ADJUSTMENT SLEEVE	CARBON STEEL
3	CAGE LOWER O-RING	FLUOROCARBON (FKM)
4	BLOWDOWN STOP	CARBON STEEL
5	SNAP PILOT BODY	CARBON STEEL
6	STATIONARY SEAT O-RING	FLUOROCARBON (FKM)
7	BONNET O-RING	FLUOROCARBON (FKM)
8	DISK GUIDE	STAINLESS STEEL
9	SPRING GUIDE SUBASSEMBLY	STAINLESS STEEL
10	SUBASSEMBLY BONNET	CARBON STEEL
11	ADJUSTMENT SCREW	STAINLESS STEEL
12	ADJUSTMENT SCREW O-RING	FLUOROCARBON (FKM)
13	WASHER	CARBON STEEL
14	CLOSED CAP	ALUMINUM ALLOY
15	LOCKNUT	CARBON STEEL
16	ADJUSTMENT BUSHING	STAINLESS STEEL
17	SET SPRING	STAINLESS STEEL
18	UPPER DISK	STAINLESS STEEL
19	RETENTION NUT	STAINLESS STEEL
20	UPPER NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
21	UPPER NOZZLE O-RING	FLUOROCARBON (FKM)
22	STATIONARY SEAT	STAINLESS STEEL
23	SHUTTLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
24	CAGE UPPER O-RING	FLUOROCARBON (FKM)
25	PILOT BODY FILTER	STAINLESS STEEL

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



**9500 SERIES MODULATING PILOT**

ITEM NO	PART NAME	STANDARD MATERIAL
1	PILOT BODY	CARBON STEEL
2	PILOT VENT	BRASS WITH STAINLESS STEEL FILTER
3	VENT O-RING	FLUOROCARBON (FKM)
4	BONNET O-RING	FLUOROCARBON (FKM)
5	SPRING GUIDE	STAINLESS STEEL
6	BONNET RETAINING RING	CARBON STEEL
7	BONNET SUBASSEMBLY	CARBON STEEL
8	SET SPRING	STAINLESS STEEL
9	ADJUSTMENT SCREW	STAINLESS STEEL
10	ADJUSTMENT SCREW O-RING	FLUOROCARBON (FKM)
11	CLOSED CAP	ALUMINUM ALLOY
12	LOCKNUT	CARBON STEEL
13	WASHER	CARBON STEEL
14	ADJUSTMENT BUSHING	STAINLESS STEEL
15	BEAM LIMIT SET SCREW	STAINLESS STEEL
16	CAP HEAD SEAL SCREWS	CARBON STEEL
17	CONTROL MODULE SET SCREW	STAINLESS STEEL
18	BEAM	ALUMINUM ALLOY
19	BEARING SCREWS	STAINLESS STEEL
20	CONTROL MODULE	STAINLESS STEEL WITH SOFT SEALS
21	INPUT MODULE	STAINLESS STEEL WITH SOFT SEALS

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

**9500 Series Pilot Operated Dimensions and Weights**

<b>Inlet and Outlet Code</b>	<b>Inlet and Outlet Size</b>	<b>Orifice Available</b>	<b>Dimensions "A" x "B" x "C" (in ±1/16)</b>	<b>Approx. Weight (lbs)</b>
<b>27</b>	1" 150lb x 2" 150lb	D , E , F	4-1/8 x 4-1/2 x 12-1/8	32
<b>28</b>	1" 300lb x 2" 150lb	D , E , F	4-3/8 x 4-1/2 x 12-3/8	33
<b>29</b>	1" 600lb x 2" 150lb	D , E , F	4-3/8 x 4-1/2 x 12-3/8	34
<b>31</b>	1" 900lb x 2" 300lb	D , E , F	4-15/16 x 4-3/4 x 12-15/16	41
<b>32</b>	1" 1500lb x 2" 300lb	D , E , F	4-15/16 x 4-3/4 x 12-15/16	41
<b>32.2</b>	1" 2500lb x 2" 300lb	D , E , F	4-15/16 x 4-3/4 x 12-15/16	44
<b>33</b>	1 1/2" 150lb x 2" 150lb	D , E , F , 1 1/2" FB	4-7/8 x 4-3/4 x 12-7/8	36
<b>34</b>	1 1/2" 300lb x 2" 150lb	D , E , F , 1 1/2" FB	4-7/8 x 4-3/4 x 12-7/8	39
<b>35</b>	1 1/2" 600lb x 2" 150lb	D , E , F , 1 1/2" FB	4-7/8 x 4-3/4 x 12-7/8	39
<b>36</b>	1 1/2" 900lb x 2" 300lb	D , E , F , 1 1/2" FB	5-7/8 x 5-1/2 x 13-7/8	47
<b>36.1</b>	1 1/2" 1500lb x 2" 300lb	D , E , F , 1 1/2" FB	5-7/8 x 5-1/2 x 13-7/8	47
<b>36.2</b>	1 1/2" 2500lb x 2" 300lb	D , E , F , 1 1/2" FB	5-7/8 x 5-1/2 x 13-7/8	58
<b>55</b>	1 1/2" 150lb x 3" 150lb	G , H , 1 1/2" FB	5-1/8 x 4-7/8 x 13-3/16	56
<b>56</b>	1 1/2" 300lb x 3" 150lb	G , H , 1 1/2" FB	5-1/8 x 4-7/8 x 13-3/16	57
<b>74</b>	1 1/2" 600lb x 3" 150lb	G , H , 1 1/2" FB	5-1/8 x 4-7/8 x 13-3/16	58
<b>75</b>	1 1/2" 900lb x 3" 300lb	G , H , 1 1/2" FB	6-3/8 x 6-3/4 x 14-7/16	71
<b>75.1</b>	1 1/2" 1500lb x 3" 300lb	G , H , 1 1/2" FB	6-3/8 x 6-3/4 x 14-7/16	71
<b>75.2</b>	1 1/2" 2500lb x 3" 300lb	G , H , 1 1/2" FB	6-3/8 x 6-3/4 x 14-7/16	82
<b>51</b>	2" 150lb x 3" 150lb	G , H , J , 2" FB	5-3/8 x 4-7/8 x 13-7/16	56
<b>52</b>	2" 300lb x 3" 150lb	G , H , J , 2" FB	5-3/8 x 4-7/8 x 13-7/16	58
<b>53</b>	2" 600lb x 3" 150lb	G , H , J , 2" FB	5-3/8 x 4-7/8 x 13-7/16	59
<b>54</b>	2" 900lb x 3" 300lb	G , H , J , 2" FB	6-9/16 x 6-3/4 x 14-5/8	85
<b>54.1</b>	2" 1500lb x 3" 300lb	G , H , J , 2" FB	6-9/16 x 6-3/4 x 14-5/8	85
<b>54.2</b>	2" 2500lb x 3" 300lb	G , H , J , 2" FB	7 x 6-3/4 x 15-1/16	96
<b>62</b>	3" 150lb x 4" 150lb	J , K , L , 3" FB	6-1/8 x 6-3/8 x 15-1/8	104
<b>64</b>	3" 300lb x 4" 150lb	J , K , L , 3" FB	6-1/8 x 6-3/8 x 15-1/8	107
<b>65</b>	3" 600lb x 4" 150lb	J , K , L , 3" FB	6-3/8 x 6-3/8 x 15-3/8	109
<b>65.1</b>	3" 600lb x 4" 300lb	L , 3" FB	7-1/2 x 7-1/8 x 16-1/2	124
<b>66.1</b>	3" 900lb x 4" 300lb	J , K , L , 3" FB	7-1/2 x 7-1/8 x 16-1/2	134
<b>66.2</b>	3" 1500lb x 4" 300lb	J , K , L , 3" FB	7-1/2 x 7-1/8 x 16-1/2	148
<b>70</b>	4" 150lb x 6" 150lb	L , M , N , P , 4"FB	7-3/4 x 8-1/4 x 17-3/8	L,M 153 N,P 213

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



Inlet / Outlet Code	Inlet and Outlet Size	Orifice Available	Dimensions "A" x "B" x "C" (in ±1/16)	Approx. Weight (lbs)
<b>71</b>	4" 300lb x 6" 150lb	L, M, N, P, 4" FB	7-3/4 x 8-1/4 x 17-3/8	L,M 162 N,P 222
<b>72</b>	4" 600lb x 6" 150lb	L, M, N, P, 4" FB	7-3/4 x 8-1/4 x 17-3/8	L,M 171 N,P 231
<b>72.1</b>	4" 600lb x 6" 300lb	P, 4" FB	9-3/16 x 9-3/16 x 19-1/2	255
<b>73.1</b>	4" 900lb x 6" 300lb	L, M, N, P, 4" FB	9-3/16 x 9-3/16 x 19-1/2	L,M 206 N,P 275
<b>73.2</b>	4" 1500lb x 6" 300lb	L, M, N, P, 4" FB	9-3/16 x 9-3/16 x 19-1/2	L,M 226 N,P 295
<b>76</b>	6" 150lb x 8" 150lb	Q, R	9-7/16 x 9-1/2 x 22-5/8	420
<b>77</b>	6" 300lb x 8" 150lb	Q, R	9-7/16 x 9-1/2 x 22-5/8	435
<b>78</b>	6" 600lb x 8" 150lb	Q, R	9-11/16 x 9-1/2 x 22-7/8	460
<b>76x</b>	6" 150lb x 8" 150lb x 8" 150lb	Q, R, 6" FB	9-7/16 x 9-1/2 x 22-5/8	430
<b>77x</b>	6" 300lb x 8" 150lb x 8" 150lb	Q, R, 6" FB	9-7/16 x 9-1/2 x 22-5/8	445
<b>78x</b>	6" 600lb x 8" 150lb x 8" 150lb	Q, R, 6" FB	9-11/16 x 9-1/2 x 22-7/8	470
<b>81</b>	8" 150lb x 10" 150lb	T	10-7/8 x 11 x 25-1/2	620
<b>82</b>	8" 300lb x 10" 150lb	T	10-7/8 x 11 x 25-1/2	645
<b>83</b>	8" 600lb x 10" 150lb	T	11-11/16 x 11 x 26-5/16	685
<b>81x</b>	8" 150lb x 10" 150lb x 10" 150lb	T, 8" FB	10-7/8 x 11 x 25-1/2	670
<b>82x</b>	8" 300lb x 10" 150lb x 10" 150lb	T, 8" FB	10-7/8 x 11 x 25-1/2	695
<b>83x</b>	8" 600lb x 10" 150lb x 10" 150lb	T, 8" FB	11-11/16 x 11 x 26-5/16	735

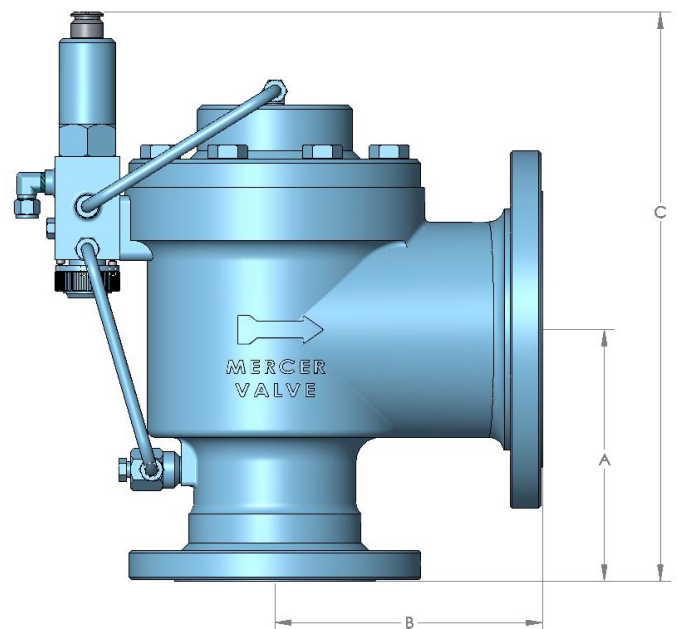
**NOTE: Mercer Valve reserves the right to change product designs and specifications without notice.**

Weights shown for API Orifice sizes with Snap Pilot.  
Add 2.25 lbs for Modulating Pilot.

Options will add more weight.

Weights shown for API Orifice sizes. Add the following to API sizes for Full Bore weight:

1 1/2"	5 lbs
2"	15 lbs
3"	16 lbs
4"	6 lbs
6"	15 lbs
8"	80lbs



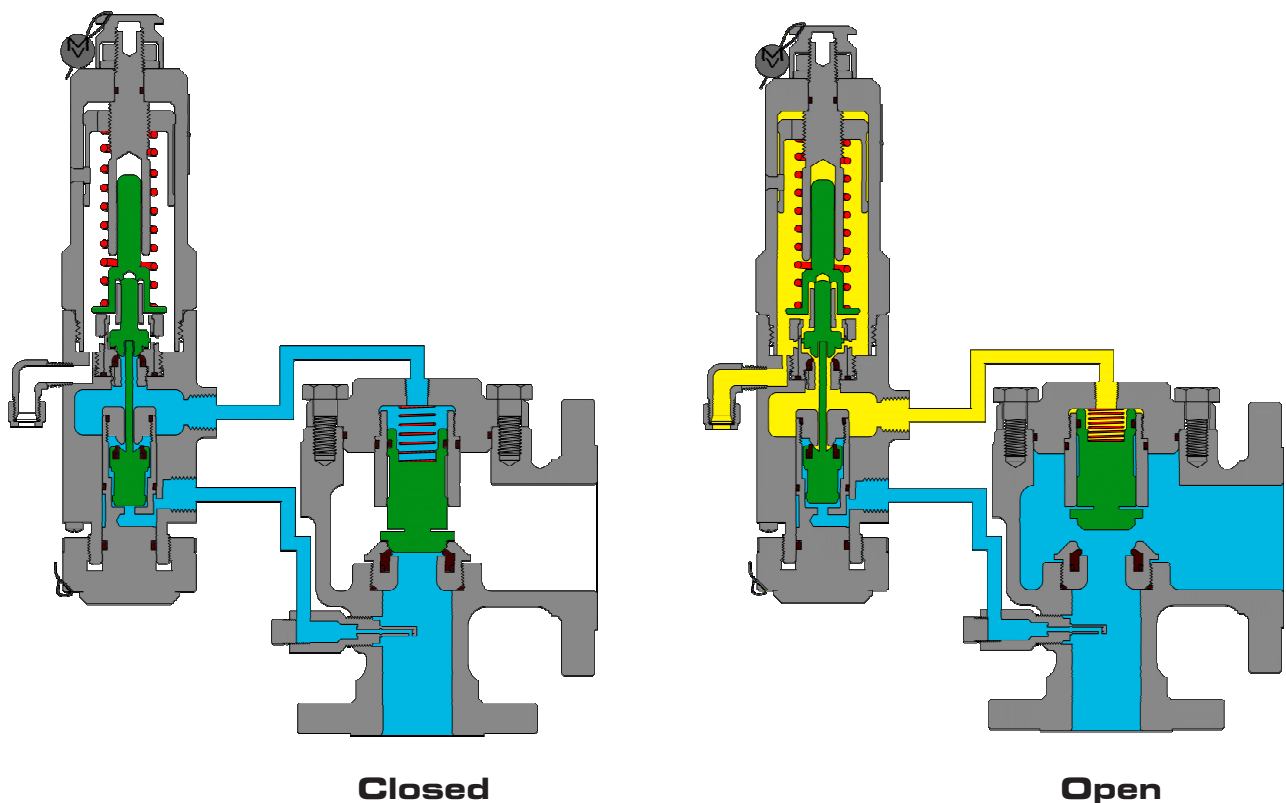


## Snap Pilot Operation

The system pressure is sensed in the snap pilot through a pressure pickup located at the inlet of the main valve. With the lower shuttle seat open and the upper seat sealed, the pressure travels around the shuttle, through the pilot, and into the main valve dome. Because the dome area is larger than the main valve orifice area, the pressure acting downward on the piston will assure that the valve remains tightly sealed.

The upper seat remains closed while the system is below set pressure. There is a rod that connects the upper seat with the lower shuttle seat. This rod is the device that keeps the lower seat open when the upper seat is closed. When the system reaches set pressure, the upper seat "snaps" open, which in turn allows the lower shuttle seat to close. This permits the air in the main valve dome to exit back through the pilot and vent to atmosphere. Instantaneously, the main valve opens and relieves the system. The system pressure will relieve until the pre-set blowdown is achieved. At that time, the pilot upper seat closes, the lower shuttle opens, and the main valve dome is re-filled causing the main valve to close.

The Mercer Valve 9500 Series Snap Pilot has an adjustable blowdown. The blowdown adjustment nut on the snap pilot alters the set spring deflection when the valve has popped. The greater the deflection the shorter the blowdown.

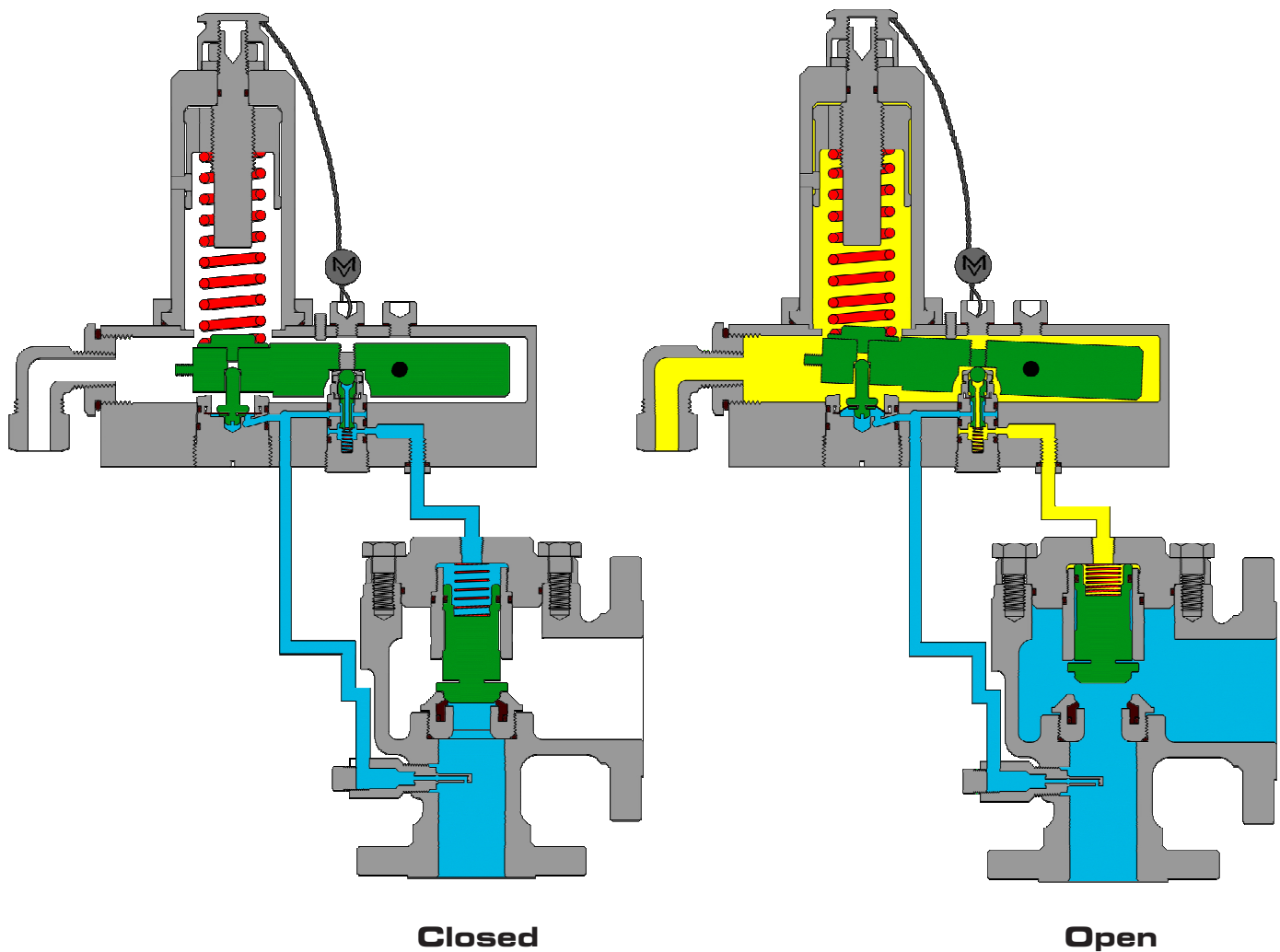


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## Modulating Pilot Operation

Mercer Valve Company's Modulating Pilot is designed to gradually open the main valve in response to the system overpressure. This is very different from the snap action pilot where the main valve is abruptly "snapped" open, then closed. Modulating pilot valves produce far less shock on the system, and there is considerably less wear and tear on the main valve components.

Mercer's Modulating Pilot is based on proven control design principals, where a comparison is constantly made between the vessel pressure and set pressure. When the vessel pressure exceeds the set pressure, the resulting error signal activates a unique control valve within the modulating pilot. The control valve reduces the main valve dome pressure in proportion to the amount of the vessel overpressure, thus opening the main valve and limiting the vessel pressure. As the vessel pressure is reduced below the set pressure, the main valve dome pressure gradually rises and the main valve is closed.



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## 9500 Series Pilot Operated Capacity Charts API Orifices

CAPACITY IN SCFM OF AIR AT 60°F AND STD ATMOSPHERIC CONDITIONS

Set Press (psi)	D 0.151	E 0.223	F 0.371	G 0.559	H 0.866	J 1.431	K 2.074	L 3.205	M 4.083	N 4.909	P 7.069	Q 12.566	R 17.721	T 25.967
<b>15</b>	79	116	193	292	452	746	1082	1671	2129	2560	3686	6553	9241	13542
<b>20</b>	91	134	223	336	521	860	1247	1927	2455	2951	4250	7555	10655	15612
<b>25</b>	103	152	253	381	590	974	1412	2183	2780	3343	4814	8557	12068	17683
<b>30</b>	115	170	282	425	659	1089	1578	2438	3106	3734	5378	9559	13481	19754
<b>50</b>	168	248	412	621	963	1591	2305	3563	4539	5457	7858	13968	19698	28864
<b>75</b>	234	346	575	867	1342	2218	3215	4968	6329	7610	10958	19479	27470	40253
<b>100</b>	300	443	738	1112	1722	2846	4125	6374	8120	9763	14058	24990	35242	51641
<b>125</b>	367	541	901	1357	2102	3473	5034	7779	9911	11916	17158	30501	43014	63029
<b>150</b>	433	639	1063	1602	2482	4101	5944	9185	11701	14068	20259	36012	50786	74418
<b>200</b>	565	835	1389	2092	3241	5356	7763	11996	15283	18374	26459	47034	66330	97194
<b>300</b>	830	1226	2039	3073	4761	7867	11401	17619	22445	26986	38860	69079	97417	142747
<b>400</b>	1095	1617	2690	4054	6280	10377	15040	23241	29608	35598	51261	91123	128505	188301
<b>500</b>	1360	2008	3341	5034	7799	12887	18678	28864	36771	44210	63662	113167	159592	233854
<b>600</b>	1625	2400	3992	6015	9318	15398	22316	34486	43933	52821	76063	135211	190680	279407
<b>700</b>	1890	2791	4643	6996	10837	17908	25955	40109	51096	61433	88464	157256	221767	324961
<b>800</b>	2155	3182	5294	7976	12357	20418	29593	45731	58259	70045	100865	179300	252855	370514
<b>900</b>	2419	3573	5945	8957	13876	22929	33232	51353	65422	78657	113266	201344	283942	416067
<b>1000</b>	2684	3964	6595	9937	15395	25439	36870	56976	72584	87268	125667	223388	315030	461621
<b>1200</b>	3214	4747	7897	11899	18433	30460	44147	68221	86910	104492	150469	267477	377205	552727
<b>1480</b>	3956	5842	9719	14645	22687	37489	54334	83964	106965	128605	185192	329201	464250	680276
<b>1800</b>	4804	7094	11802	17783	27549	45522	65977	101956	129886	156162				
<b>2000</b>	5333	7876	13104	19744	30587	50543	73254	113201	144211	173386				
<b>2400</b>	6393	9441	15707	23666	36664									
<b>2600</b>	6923	10224	17009	25628	39702									
<b>2800</b>	7452	11006	18310	27589	42741									
<b>3000</b>	7982	11788	19612	29550	45779									
<b>3500</b>	9307	13744	22866	34453	53375									
<b>3750</b>	9969	14722	24493	36905	57173									



CAPACITY IN SCFM OF 0.6 SG NATURAL GAS AT 60°F AND STD ATMOSPHERIC CONDITIONS

Set Press (psi)	D 0.151	E 0.223	F 0.371	G 0.559	H 0.866	J 1.431	K 2.074	L 3.205	M 4.083	N 4.909	P 7.069	Q 12.566	R 17.721	T 25.967
15	98	145	241	364	563	931	1349	2085	2656	3194	4599	8175	11529	16893
20	113	167	278	419	650	1073	1556	2404	3062	3682	5302	9425	13291	19476
25	128	189	315	475	736	1216	1762	2723	3469	4170	6005	10675	15054	22059
30	143	212	352	530	822	1358	1968	3041	3875	4659	6708	11925	16817	24642
50	209	309	514	775	1201	1984	2876	4444	5662	6807	9802	17425	24573	36008
75	292	431	717	1081	1675	2767	4011	6198	7896	9493	13670	24300	34268	50214
100	375	553	920	1387	2148	3550	5145	7951	10129	12179	17537	31175	43964	64421
125	457	675	1123	1693	2622	4333	6280	9705	12363	14864	21405	38050	53659	78628
150	540	797	1326	1998	3096	5116	7415	11458	14597	17550	25272	44925	63354	92834
200	705	1041	1732	2610	4044	6682	9684	14965	19065	22922	33007	58674	82745	121248
300	1036	1529	2544	3833	5939	9813	14223	21979	28000	33665	48477	86174	121526	178075
400	1366	2017	3356	5057	7834	12945	18762	28993	36935	44408	63947	113674	160307	234901
500	1696	2505	4168	6280	9729	16077	23301	36007	45871	55151	79417	141174	199088	291728
600	2027	2993	4980	7503	11624	19208	27839	43021	54806	65894	94887	168673	237869	348555
700	2357	3481	5792	8727	13519	22340	32378	50035	63741	76637	110357	196173	276650	405382
800	2688	3969	6604	9950	15415	25472	36917	57049	72677	87379	125827	223673	315431	462209
900	3018	4457	7416	11173	17310	28603	41456	64062	81612	98122	141297	251173	354212	519036
1000	3349	4945	8228	12397	19205	31735	45994	71076	90547	108865	156767	278672	392993	575862
1200	4010	5921	9851	14843	22995	37998	55072	85104	108418	130351	187707	333672	470556	689516
1480	4935	7288	12125	18269	28302	46767	67781	104743	133437	160432	231023	410671	579143	848631
1800	5992	8850	14723	22183	34366	56788	82305	127188	162030	194809				
2000	6653	9826	16347	24630	38157	63051	91382	141215	179901	216295				
2400	7975	11778	19594	29523	45737									
2600	8636	12754	21218	31970	49528									
2800	9297	13730	22842	34417	53318									
3000	9958	14706	24466	36863	57109									
3500	11610	17146	28525	42980	66584									
3750	12436	18366	30555	46038	71322									

**CAPACITY IN GPM OF WATER AT 60°F AND STD ATMOSPHERIC CONDITIONS**

<b>Set Press (psi)</b>	<b>F 0.371</b>	<b>H 0.866</b>	<b>J 1.431</b>	<b>L 3.205</b>	<b>M 4.083</b>	<b>P 7.069</b>	<b>R 17.721</b>	<b>T 25.967</b>
<b>15</b>	44	102	169	378	481	833	2088	3060
<b>20</b>	49	115	191	427	544	942	2361	3459
<b>25</b>	55	127	210	471	600	1039	2605	3817
<b>30</b>	59	138	228	511	652	1128	2828	4143
<b>50</b>	76	178	295	660	841	1456	3651	5349
<b>75</b>	94	218	361	809	1030	1783	4471	6551
<b>100</b>	108	252	417	934	1189	2059	5163	7565
<b>125</b>	121	282	466	1044	1330	2302	5772	8458
<b>150</b>	132	309	511	1144	1457	2522	6323	9265
<b>200</b>	153	357	590	1320	1682	2912	7301	10698
<b>300</b>	187	437	722	1617	2060	3567	8942	13103
<b>400</b>	216	505	834	1867	2379	4119	10325	15130
<b>500</b>	242	564	932	2088	2660	4605	11544	16916
<b>600</b>	265	618	1021	2287	2914	5044	12646	18530
<b>700</b>	286	667	1103	2470	3147	5449	13659	20015
<b>800</b>	306	714	1179	2641	3364	5825	14602	21397
<b>900</b>	324	757	1251	2801	3568	6178	15488	22695
<b>1000</b>	342	798	1318	2953	3762	6512	16326	23922
<b>1200</b>	374	874	1444	3234	4121	7134	17884	26206
<b>1480</b>	416	971	1604	3592	4576	7923	19861	29103



## Full Bores

### CAPACITY IN SCFM OF AIR AT 60°F AND STD ATMOSPHERIC CONDITIONS

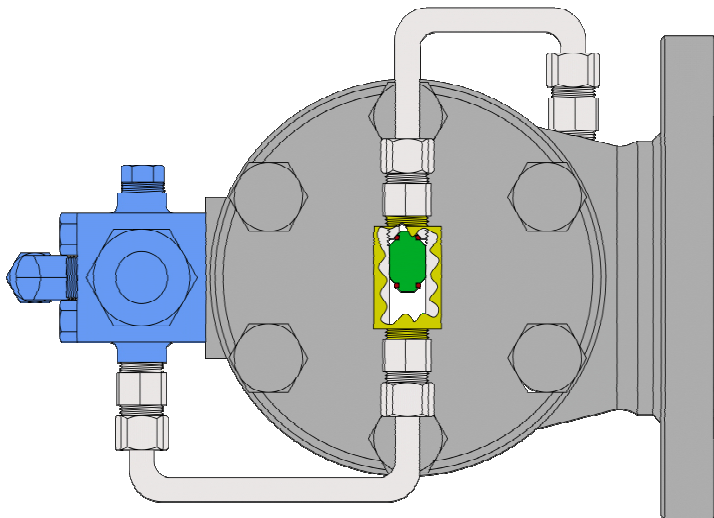
Set Press (psi)	1 1/2" FB 1.767	2" FB 2.953	3" FB 6.605	4" FB 11.491	6" FB 26.067	8" FB 45.664
15	869	1451	3247	5648	12813	22445
20	1001	1673	3743	6512	14772	25877
25	1134	1895	4239	7375	16731	29309
30	1267	2117	4736	8239	18690	32741
50	1851	3094	6920	12039	27310	47842
75	2582	4314	9650	16789	38085	66718
100	3312	5535	12381	21539	48860	85593
125	4043	6756	15111	26289	59636	104469
150	4773	7976	17841	31039	70411	123345
200	6234	10418	23302	40539	91961	161097
300	9155	15300	34223	59539	135062	236600
400	12077	20183	45144	78539	178162	312104
500	14999	25066	56065	97538	221263	387607
600	17920	29948	66986	116538	264364	463111
700	20842	34831	77907	135538	307464	538614
800	23764	39714	88828	154538	350565	614117
900	26685	44596	99749	173538	393666	689621
1000	29607	49479	110670	192538	436766	765124
1200	35450	59244	132512	230537	522968	916131
1480	43631	72916	163091	283737	643649	1127541
1800	52980	88540				
2000	58824	98306				

### CAPACITY IN SCFM OF 0.6 SG NATURAL GAS AT 60°F AND STD ATMOSPHERIC CONDITIONS

Set Press (psi)	1 1/2" FB 1.767	2" FB 2.953	3" FB 6.605	4" FB 11.491	6" FB 26.067	8" FB 45.664
15	1083	1811	4050	7046	15984	28000
20	1249	2088	4669	8123	18427	32281
25	1415	2364	5289	9201	20871	36562
30	1580	2641	5908	10278	23315	40844
50	2309	3859	8633	15018	34069	59682
75	3221	5382	12039	20944	47511	83229
100	4132	6905	15444	26869	60952	106776
125	5043	8428	18850	32795	74394	130323
150	5954	9951	22256	38720	87836	153871
200	7776	12996	29068	50571	114720	200965
300	11421	19087	42692	74273	168487	295154
400	15066	25178	56316	97975	222254	389343
500	18711	31269	69940	121677	276021	483532
600	22355	37360	83564	145379	329788	577721
700	26000	43451	97187	169081	383556	671910
800	29645	49542	110811	192783	437323	766099
900	33289	55633	124435	216485	491090	860288
1000	36934	61724	138059	240187	544857	954477
1200	44224	73906	165307	287591		
1480	54429	90961	203453	353956		
1800	66092	110452				
2000	73381	122634				

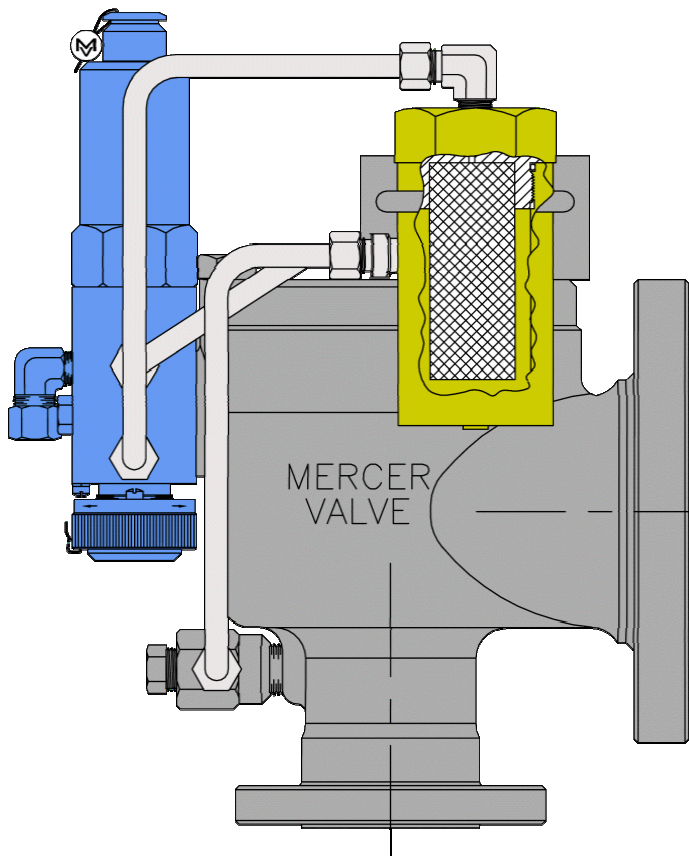


## Options



### BACKFLOW PREVENTER

In certain applications, the back pressure may exceed the inlet pressure, causing the main valve to reverse leak or possibly open and flow backward. The backflow preventer is designed to stop the reverse flow in these conditions.



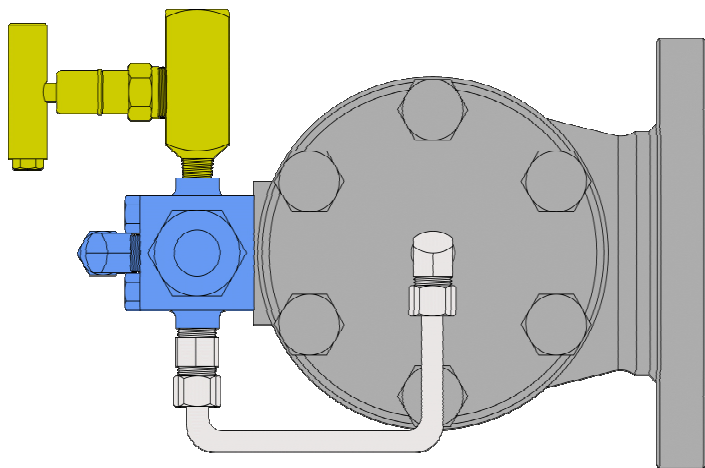
### AUXILIARY SUPPLY FILTER

The auxiliary supply filter may be desired in environments where dirt, rust, or other materials could be mixed with the working media. This filter is in addition to the standard filter supplied in the inlet. Mercer Valve recommends the auxiliary supply filter for all liquid applications.

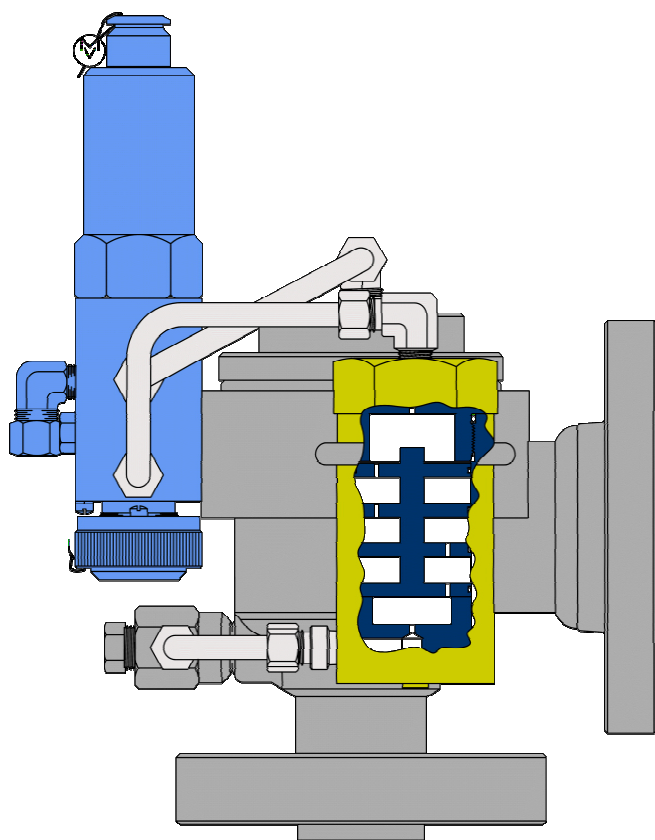
*NOTE: Mercer Valve reserves the right to change product designs and specifications without notice.*



## FIELD TEST CONNECTION



A portable or alternate pressure source can be applied to the pilot to verify the set pressure while keeping the valve in service. The test media that is introduced into the pilot valve is routed into the main valve dome until the set pressure is reached. In the standard field test connection an in-line check valve is supplied to assure that the test media does not affect the operating media. The offshore field test connection allows the media to pressurize the main valve inlet. With the offshore field test connection, a ball valve is required underneath the main valve. The offshore field test connection is only available on the snap pilot.



## PRESSURE SNUBBER

A pressure snubber may be needed in applications where pressure surges are present. The pressure snubber works as a pressure dampener that reduces the effect of pressure spikes on the pilot valve. This type of accessory is commonly used in compressor applications.

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



## 9500 Series Pilot Operated Numbering System

95 - 27 D 1 3

**VALVE SERIES**

95 – 9500 Series

**INLET & OUTLET  
COMBINATION**

(See Selection Table)

**ORIFICE SIZE**

D to T

Or

1 - 1 1/2" FB

2 - 2" FB

3 - 3" FB

4 - 4" FB

6 - 6" FB

8 - 8" FB

*Note: Only the F, H, J, L, M, P, R and T orifice are liquid certified*

**FLANGE TYPE**

1 – RF x RF

2 – RTJ x RTJ

3 – RTJ x RF

4 – SPECIAL

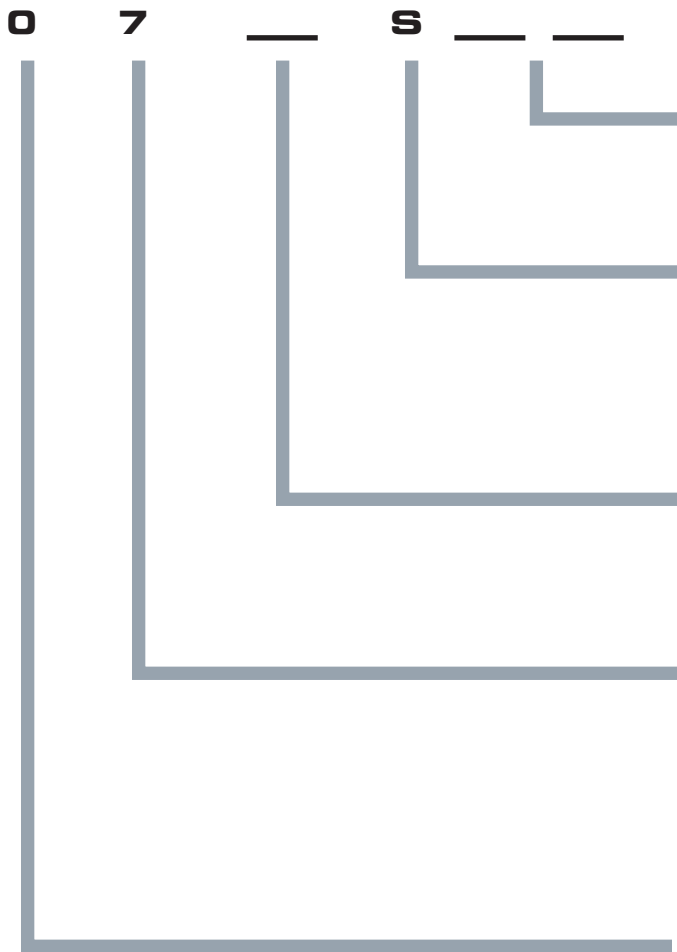
**BODY MATERIAL**

3 – CARBON STEEL

4 – STAINLESS STEEL

CONSULT FACTORY FOR  
ADDITIONAL INFORMATION  
AND OPTIONS

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



**2 - DIGIT "SPECIAL" CODE**

(IF APPLICABLE ASSIGNED BY MERCER)

**PILOT TYPE**

**S** - SNAP PILOT

**M** - MODULATING PILOT

**L** - LIQUID MODULATING PILOT

**SOUR GAS SERVICE**

**N** - IF APPLICABLE

**SEAT MATERIAL**

**7** - PTFE

**8** - FLUOROCARBON (FKM)

**9** - PEEK

**OPTIONS**

**0**- NO OPTIONS

**1**- BACKFLOW PREVENTER

**2**- PRESSURE SNUBBER

**3**- PILOT FILTER\*

**4**- 1 & 2

**5**- 1 & 3

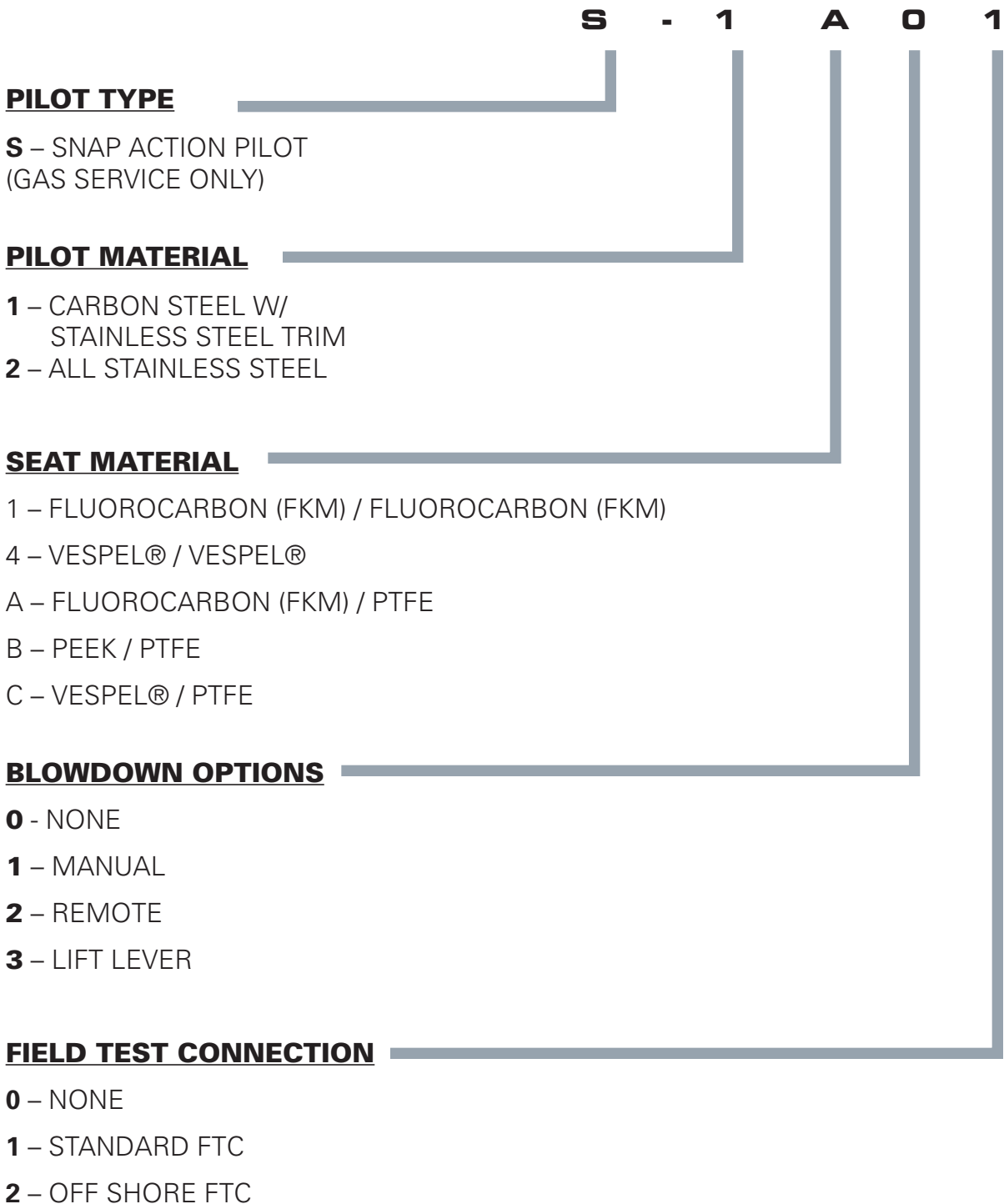
**6**- 2 & 3

**7**- 1, 2, & 3

\*Note: Recommended on all liquid applications

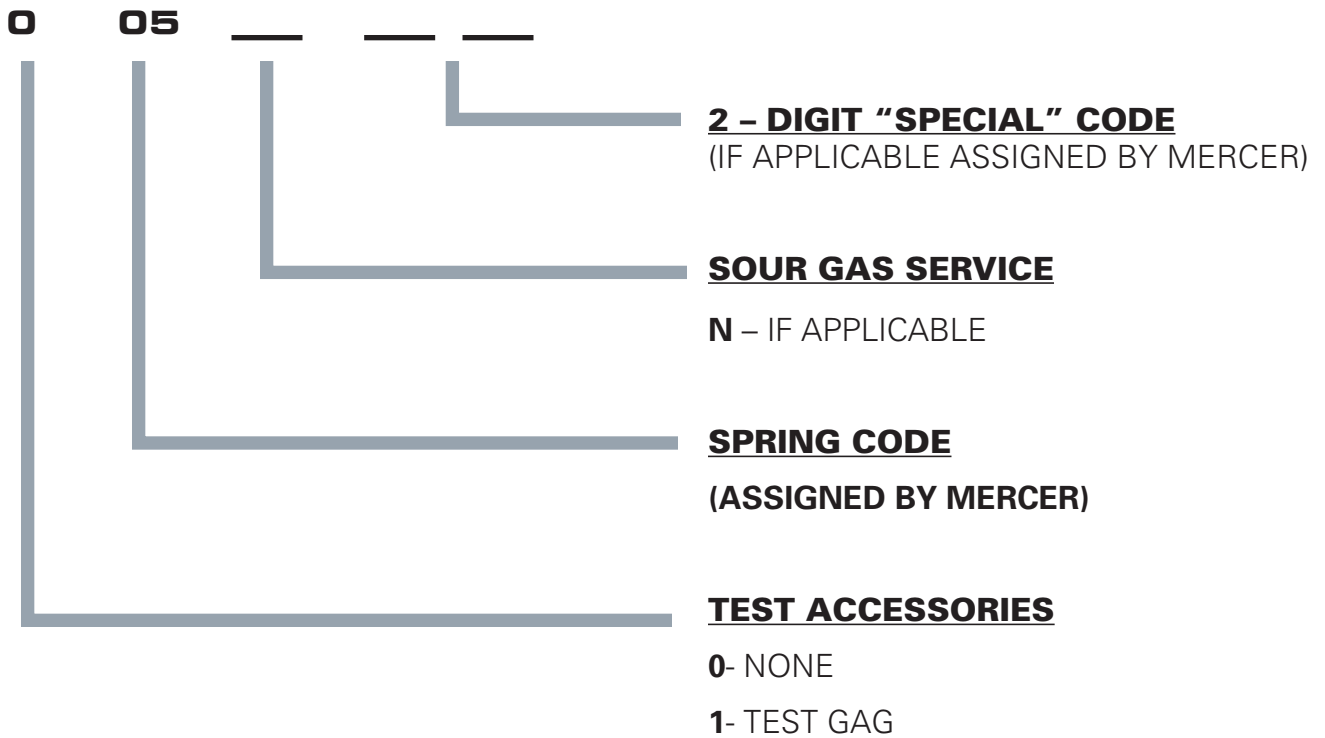


## 9500 Series Snap Pilot Numbering System



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AND OPTIONS



## 9500 Series Modulating Pilot Numbering System

M1 - 1 1 0

### PILOT TYPE

#### MODULATING PILOT GAS SERVICE

M1 = 15 – 85 PSI

M2 = 86 – 175 PSI

M3 = 176 – 450 PSI

M5 = 451 – 750 PSI

M6 = 751 – 1480 PSI

#### MODULATING PILOT LIQUID SERVICE

L1 = 15 – 85 PSI

L2 = 86 – 175 PSI

L3 = 176 – 450 PSI

L5 = 451 – 750 PSI

L6 = 751 – 1480 PSI

### PILOT MATERIAL

1 – CARBON STEEL W/  
STAINLESS STEEL TRIM

2 – ALL STAINLESS STEEL (Required for liquid service)

### DIAPHRAM MATERIAL

1 – FLUOROCARBON (FKM) (STD)

### BLOWDOWN OPTIONS

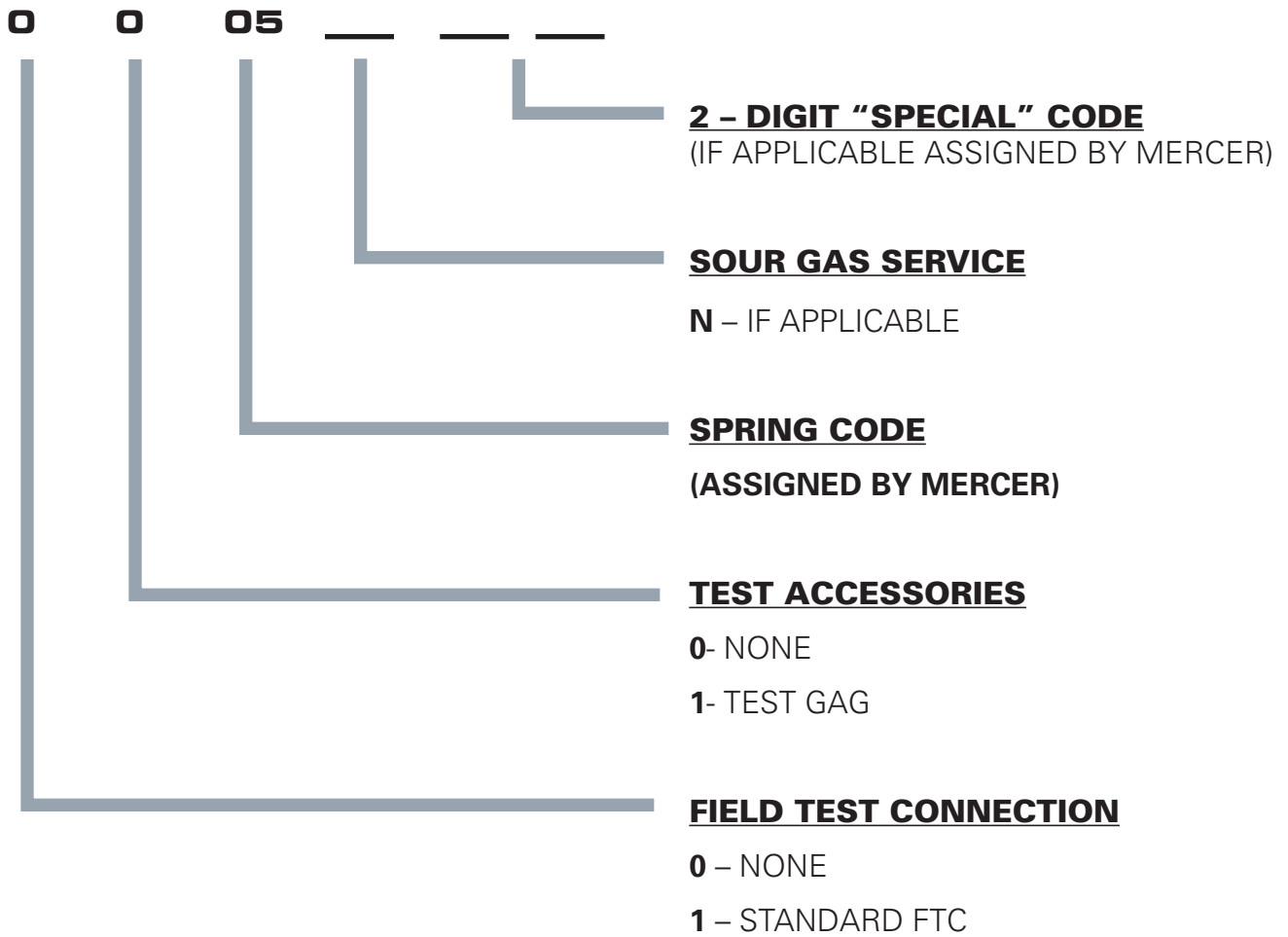
0 – NONE

1 – MANUAL

2 – REMOTE

3 – LIFT LEVER

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



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AND OPTIONS



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**[WWW.MERCERVALVE.NET](http://WWW.MERCERVALVE.NET)**

Mercer Valve Company, Inc.® manufactures pressure relief valves for uses with many different products. Your choice of a valve requires that you, as buyer, determine the valve material is compatible with the intended use of the valve. You are responsible to insure that the correct pressure relief valve is installed for your application and your order of a valve confirms the material compatibility choices.