MERCER VALVE CO., INC.®

"AUTO SEAT TECHNOLOGY"®

9100 SERIES
Threaded

THINK...MERCER FIRST®

MERCER VALVE

9100 Series Threaded Product Overview

The Mercer Valve 9100 Series Pressure Relief Valve is "State of the Art" in soft seat, high flow rate, pressure relieving devices. The 9100 Series is a continuation of the 8100 Series incorporating our patented **"Auto Seat Technology"®** into its design. Mercer Valve's **"Auto Seat Technology"®** has made the 9100 Series an industry leader with its reliable, repeatable set pressures. The patented soft seat design and fully guided disk allow the valve to continually outlast the competition. The soft seat 9100 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.

The 9100 Series is manufactured in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 for Air/Gas and Liquid service. The 9100 Series is well suited for specialty gases, compressors, separators, transmission, gathering lines and other production processes.

9100 Series Threaded Features

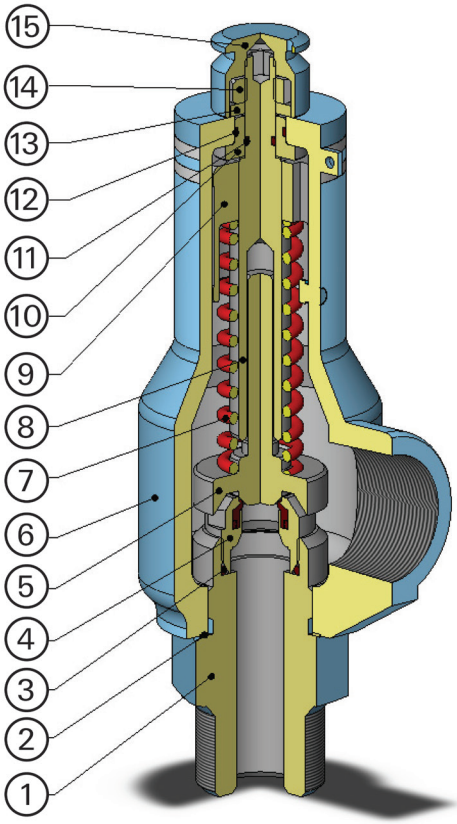
- **Designed with "Auto Seat Technology"®.**
- **Consistent Set Pressures allowing repeatable uses without repair or resetting.**
- **Open, Close, Seat and Seal™.**
- **Fully guided disk keeps the disk properly aligned, opening and closing, helping to reseat the valve.**
- **Mechanical Stop prevents 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.**

9100 Series Threaded Specifications

Orifice Letter	C	D	E	F	G	H	J	K
Standard Inlet Sizes	1/2", 3/4", 1"	3/4", 1"	3/4", 1"	1 1/2", 2"	1 1/2", 2"	1 1/2", 2"	2", 3"	3"
Inlet and Outlet Connection Types Available	Male NPT x Female NPT or Female NPT x Female NPT							
Actual Orifice Diameter (in)	.281	.394	.520	.655	.775	1.050	1.350	1.625
Actual Orifice Area (in^2)	.062	.122	.212	.337	.472	.865	1.430	2.074
API Orifice Area (in^2)	- - -	.110	.196	.307	.503	.785	1.287	1.838
Pressure Ranges (psi)	15 to 2999	15 to 2999	15 to 2400	15 to 2400	15 to 2000	15 to 2000	15 to 800	15 to 750
Standard Temperature Range (°F)	-20 to 400	-20 to 400	-20 to 400	-20 to 400	-20 to 400	-20 to 400	-20 to 400	-20 to 400
ASME Flow Coefficient, K_d (Gas)	.818	.818	.818	.818	.818	.818	.818	.818
ASME Flow Coefficient, K_d (Liquid)	.707	.707	.707	.707	.707	.707	.707	.707

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

9100 Series Threaded Parts and Materials



9100 SERIES THREADED C , D , & E ORIFICES

ITEM NO	PART NAME	STANDARD MATERIALS
1	INLET BASE	CARBON STEEL
2	BASE SEAL	SOFT STEEL
3	NOZZLE O-RING	FLUOROCARBON (FKM)
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	STAINLESS STEEL
10	CENTER BUSHING	STAINLESS 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 ALLOY

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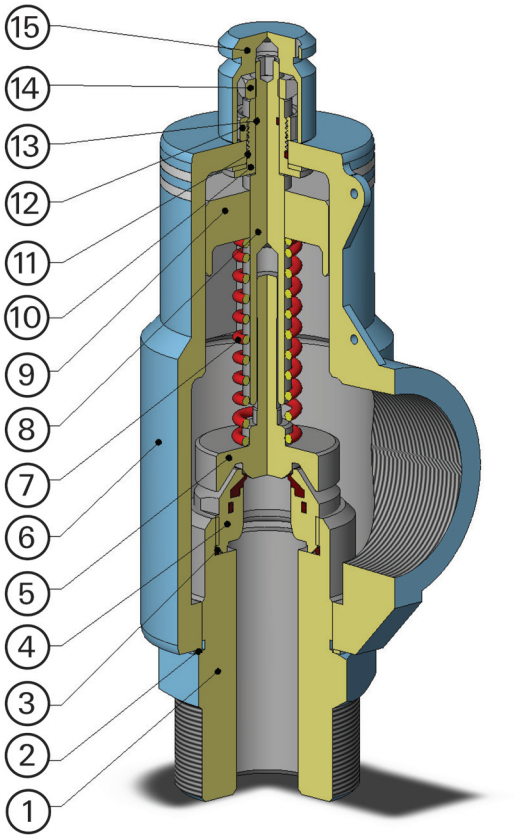

9100 SERIES THREADED F & G ORIFICES

ITEM NO	PART NAME	STANDARD MATERIALS
1	INLET BASE	CARBON STEEL
2	BASE SEAL	SOFT STEEL
3	NOZZLE O-RING	FLUOROCARBON (FKM)
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	STAINLESS STEEL
10	CENTER BUSHING	STAINLESS 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 ALLOY

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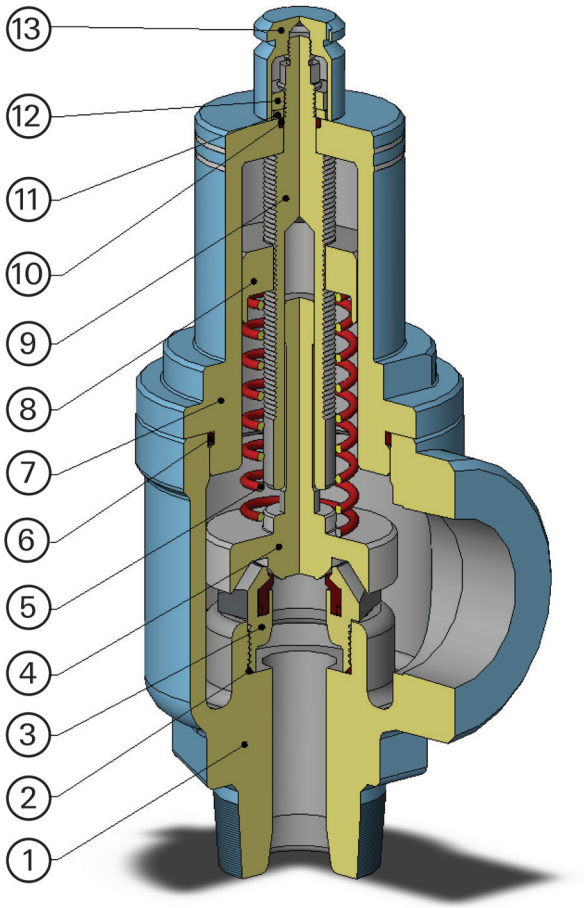

9100 SERIES THREADED H ORIFICE

ITEM NO	PART NAME	STANDARD MATERIALS
1	BODY SUBASSEMBLY	CARBON STEEL
2	NOZZLE O-RING	FLUOROCARBON (FKM)
3	NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
4	DISK SUBASSEMBLY	STAINLESS STEEL
5	SET SPRING	STAINLESS STEEL
6	BONNET O-RING	BUNA N
7	BONNET	CARBON STEEL
8	ADJUSTMENT BUSHING	STAINLESS STEEL
9	ADJUSTMENT SCREW	STAINLESS STEEL
10	ADJUSTMENT SCREW O-RING	BUNA N
11	WASHER	CARBON STEEL
12	LOCKNUT	CARBON STEEL
13	CLOSED CAP	ALUMINUM ALLOY

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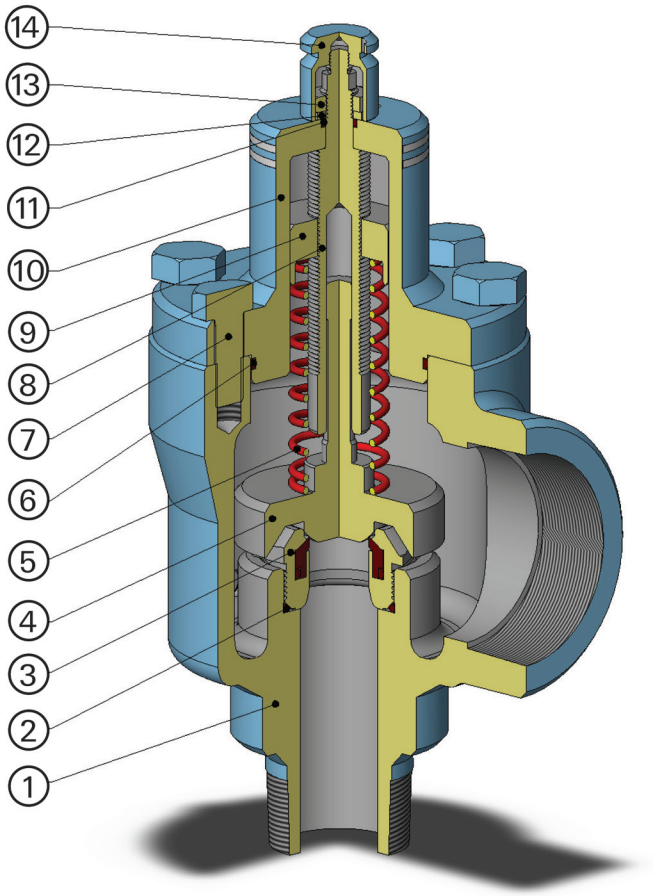

9100 SERIES THREADED J & K ORIFICES

ITEM NO	PART NAME	STANDARD MATERIALS
1	BODY SUBASSEMBLY	CARBON STEEL
2	NOZZLE O-RING	FLUOROCARBON (FKM)
3	NOZZLE SUBASSEMBLY	STAINLESS STEEL WITH SOFT SEAT
4	DISK SUBASSEMBLY	STAINLESS STEEL
5	SET SPRING	STAINLESS STEEL
6	BONNET O-RING	BUNA N
7	BONNET BOLTS	ALLOY STEEL
8	ADJUSTMENT SCREW	STAINLESS STEEL
9	ADJUSTMENT BUSHING	STAINLESS STEEL
10	BONNET SUBASSEMBLY	CARBON STEEL
11	ADJUSTMENT SCREW O-RING	BUNA N
12	WASHER	CARBON STEEL
13	LOCKNUT	CARBON STEEL
14	CLOSED CAP	ALUMINUM ALLOY

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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.)
05	1/2" FNPT x 1" FNPT	C	15 - 2999	2-1/4 x 1-7/8 x 7-1/16	4.5
06	1/2" MNPT x 1" FNPT	C	15 - 2999	3-1/4 x 1-7/8 x 8	4.5
11	3/4" FNPT x 1" FNPT	C , D	15 - 2999	2-1/4 x 1-7/8 x 7-1/16	4.5
11	3/4" FNPT x 1" FNPT	E	15 - 2400	2-1/4 x 1-7/8 x 7-1/16	4.5
12	3/4" MNPT x 1" FNPT	C , D	15 - 2999	3-1/4 x 1-7/8 x 8	4.5
12	3/4" MNPT x 1" FNPT	E	15 - 2400	3-1/4 x 1-7/8 x 8	4.5
16	1" FNPT x 1" FNPT	C , D	15 - 2999	3-1/4 x 1-7/8 x 8	5.5
16	1" FNPT x 1" FNPT	E	15 - 2400	3-1/4 x 1-7/8 x 8	5.5
17	1" MNPT x 1" FNPT	C , D	15 - 2999	3-1/4 x 1-7/8 x 8	4.5
17	1" MNPT x 1" FNPT	E	15 - 2400	3-1/4 x 1-7/8 x 8	4.5
22	1" FNPT x 1 1/2" FNPT	C , D	15 - 2999	3-3/8 x 2-3/8 x 9	12
22	1" FNPT x 1 1/2" FNPT	E	15 - 2400	3-3/8 x 2-3/8 x 9	12
23	1" MNPT x 1 1/2" FNPT	C , D	15 - 2999	4-1/2 x 2-3/8 x 9-5/8	12
23	1" MNPT x 1 1/2" FNPT	E	15 - 2400	4-1/2 x 2-3/8 x 9-5/8	12
27	1" FNPT x 2" FNPT	C , D	15 - 2999	3-3/8 x 2-3/8 x 9	11
27	1" FNPT x 2" FNPT	E	15 - 2400	3-3/8 x 2-3/8 x 9	11
28	1" MNPT x 2" FNPT	C , D	15 - 2999	4-1/2 x 2-3/8 x 9-5/8	11.5
28	1" MNPT x 2" FNPT	E	15 - 2400	4-1/2 x 2-3/8 x 9-5/8	11.5
33	1 1/2" FNPT x 2" FNPT	F	15 - 2400	4-5/8 x 2-3/8 x 10-5/16	13
33	1 1/2" FNPT x 2" FNPT	G	15 - 2000	4-5/8 x 2-3/8 x 10-5/16	13
34	1 1/2" MNPT x 2" FNPT	F	15 - 2400	4-7/16 x 2-3/8 x 10-1/16	12
34	1 1/2" MNPT x 2" FNPT	G	15 - 2000	4-7/16 x 2-3/8 x 10-1/16	12
33	1 1/2" FNPT x 2" FNPT	H	15 - 850	3 x 3 x 10-3/4	22.5
34	1 1/2" MNPT x 2" FNPT	H	15 - 850	4-1/4 x 3 x 12	24
42	2" FNPT x 2" FNPT	F	15 - 2400	4-5/8 x 2-3/8 x 10-5/16	12
42	2" FNPT x 2" FNPT	G	15 - 2000	4-5/8 x 2-3/8 x 10-5/16	12
43	2" MNPT x 2" FNPT	F	15 - 2400	4-7/16 x 2-3/8 x 10-1/16	12
43	2" MNPT x 2" FNPT	G	15 - 2000	4-7/16 x 2-3/8 x 10-1/16	12
42	2" FNPT x 2" FNPT	H	15 - 850	3 x 3 x 10-3/4	24
43	2" MNPT x 2" FNPT	H	15 - 850	4-1/4 x 3 x 12	25
46	2" FNPT x 2 1/2" FNPT	H	15 - 850	3 x 3 x 10-3/4	24.5
46	2" FNPT x 2 1/2" FNPT	H	851 - 2000	3 x 3 x 13-1/8	26.5
47	2" MNPT x 2 1/2" FNPT	H	15 - 850	4-1/4 x 3 x 12	27
47	2" MNPT x 2 1/2" FNPT	H	851 – 2000	4-1/4 x 3 x 14-1/2	29

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.)
51	2" FNPT x 3" FNPT	J	15 – 450	3-3/4 x 4-1/4 x 11-3/4	39
51	2" FNPT x 3" FNPT	J	451 – 800	3-3/4 x 4-1/4 x 15-5/16	51
52	2" MNPT x 3" FNPT	J	15 – 450	5-1/2 x 4-1/4 x 13-3/8	40
52	2" MNPT x 3" FNPT	J	451 – 800	5-1/2 x 4-1/4 x 17-1/16	50
61	3" MNPT x 3" FNPT	J	15 – 450	5-1/2 x 4-1/4 x 13-1/2	42.5
61	3" MNPT x 3" FNPT	J	451 – 800	5-1/2 x 4-1/4 x 17-1/4	52.5
61	3" MNPT x 3" FNPT	K	15 – 285	5-1/2 x 4-1/4 x 13-1/2	43
61	3" MNPT x 3" FNPT	K	286 - 750	5-1/2 x 4-1/4 x 17-1/4	53

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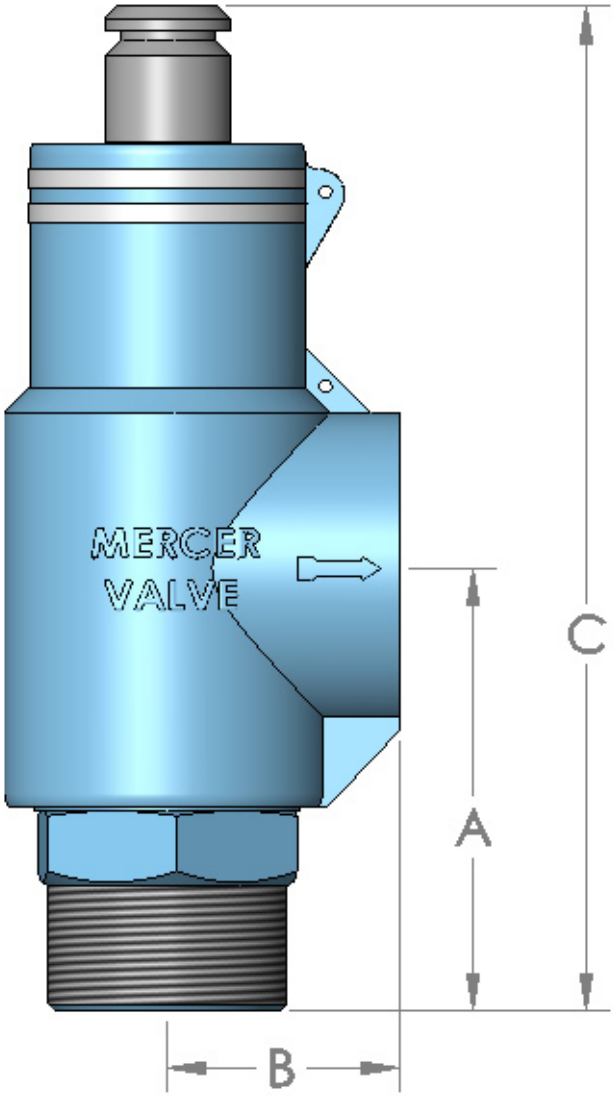

CAPACITY IN SCFM OF AIR AT 60°F AND STD ATMOSPHERIC CONDITIONS

Set Pressure (psi)	C 0.062	D 0.122	E 0.212	F 0.337	G 0.472	H 0.865	J 1.43	K 2.074
15	30	60	104	165	231	424	701	1017
20	35	69	120	191	267	489	808	1172
25	40	78	136	216	302	554	916	1328
30	44	87	152	241	338	619	1023	1483
50	65	128	222	352	493	904	1495	2168
75	90	178	309	491	688	1261	2084	3023
100	116	228	396	630	883	1617	2674	3878
125	141	278	484	769	1077	1974	3264	4733
150	167	329	571	908	1272	2331	3853	5589
200	218	429	746	1186	1661	3044	5033	7299
300	320	631	1096	1742	2440	4471	7391	10720
400	423	832	1445	2298	3218	5898	9750	14141
500	525	1033	1795	2854	3997	7324	12109	17562
600	627	1234	2145	3409	4775	8751	14467	20983
700	730	1435	2494	3965	5554	10178	16826	24403
800	832	1637	2844	4521	6332	11605	19185	
900	934	1838	3194	5077	7111	13031		
1000	1036	2039	3544	5633	7889	14458		
1100	1139	2240	3893	6189	8668	15885		
1250	1292	2542	4418	7022	9836	18025		
1500	1548	3045	5292	8412	11782	21592		
2000	2059	4051	7040	11191	15675	28726		
2400	2468	4856	8439	13415				
2600	2673	5259						
2800	2877	5661						
2999	3081	6062						

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

Set Pressure (psi)	C 0.062	D 0.122	E 0.212	F 0.337	G 0.472	H 0.865	J 1.43	K 2.074
15	38	75	130	206	289	529	875	1269
20	44	86	150	238	333	610	1008	1463
25	50	97	169	269	377	691	1142	1657
30	55	109	189	301	421	772	1276	1851
50	81	159	276	439	615	1128	1864	2704
75	113	222	385	613	858	1573	2600	3771
100	145	285	495	786	1101	2018	3336	4838
125	177	347	604	959	1344	2463	4071	5905
150	208	410	713	1133	1587	2908	4807	6972
200	272	536	931	1480	2072	3798	6278	9105
300	400	787	1367	2173	3043	5577	9220	13373
400	527	1038	1803	2866	4015	7357	12163	17640
500	655	1289	2239	3560	4986	9137	15105	21908
600	782	1540	2676	4253	5957	10917	18048	26175
700	910	1791	3112	4947	6928	12697	20990	30443
800	1038	2042	3548	5640	7899	14477	23932	
900	1165	2293	3984	6333	8871	16256		
1000	1293	2544	4420	7027	9842	18036		
1100	1420	2795	4857	7720	10813	19816		
1250	1612	3171	5511	8760	12270	22486		
1500	1931	3799	6602	10494	14698	26935		
2000	2568	5054	8783	13961	19554	35835		
2400	3079	6058	10527	16735				
2600	3334	6560						
2800	3589	7062						
2999	3843	7562						

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

Set Pressure (psi)	C 0.062	D 0.122	E 0.212	F 0.337	G 0.472	H 0.865	J 1.43	K 2.074
15	0.05	0.11	0.19	.030	0.42	0.76	1.26	1.83
20	0.06	0.12	0.22	0.34	0.48	0.88	1.45	2.11
25	0.07	0.14	0.24	0.39	0.54	0.99	1.64	2.39
30	0.08	0.16	0.27	0.43	0.61	1.11	1.84	2.66
50	0.12	0.23	0.40	0.63	0.89	1.62	2.68	3.89
75	0.16	0.32	0.56	0.88	1.24	2.26	3.74	5.43
100	0.21	0.41	0.71	1.13	1.59	2.91	4.80	6.97
125	0.25	0.50	0.87	1.38	1.94	3.55	5.86	8.50
150	0.30	0.59	1.03	1.63	2.28	4.19	6.92	10.04
200	0.39	0.77	1.34	2.13	2.98	5.47	9.04	13.11
300	0.58	1.13	1.97	3.13	4.38	8.03	13.28	19.26
400	0.76	1.49	2.60	4.13	5.78	10.59	17.51	25.40
500	0.94	1.86	3.22	5.13	7.18	13.16	21.75	31.55
600	1.13	2.22	3.85	6.12	8.58	15.72	25.99	37.69
700	1.31	2.58	4.48	7.12	9.98	18.28	30.23	43.84
800	1.49	2.94	5.11	8.12	11.38	20.85	34.46	
900	1.68	3.30	5.74	9.12	12.77	23.41		
1000	1.86	3.66	6.37	10.12	14.17	25.97		
1100	2.05	4.02	6.99	11.12	15.57	28.54		
1250	2.32	4.57	7.94	12.62	17.67	32.38		
1500	2.78	5.47	9.51	15.11	21.17	38.79		
2000	3.70	7.28	12.65	20.10	28.16	51.60		
2400	4.43	8.72	15.16	24.10				
2600	4.80	9.45						
2800	5.17	10.17						
2999	5.53	10.89						

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

Set Pressure (psi)	C 0.062	D 0.122	E 0.212	F 0.337	G 0.472	H 0.865	J 1.43	K 2.074
15	7	14	24	38	54	99	163	236
20	8	16	27	43	61	111	184	267
25	9	17	30	48	67	123	203	295
30	10	19	33	52	73	133	221	320
50	12	24	42	67	94	172	285	413
75	15	30	52	82	115	211	349	506
100	17	34	60	95	133	244	403	584
125	20	38	67	106	149	272	450	653
150	21	42	73	116	163	299	493	716
200	25	49	84	134	188	345	570	826
300	30	60	103	164	230	422	698	1012
400	35	69	119	190	266	487	806	1169
500	39	77	134	212	297	545	901	1307
600	43	84	146	233	326	597	987	1431
700	46	91	158	251	352	645	1066	1546
800	49	97	169	269	376	689	1140	
900	52	103	179	285	399	731		
1000	55	109	189	300	421	771		
1100	58	114	198	315	441	808		
1250	62	122	211	336	470	862		
1500	68	133	231	368	515	944		
2000	78	154	267	425	595	1090		
2400	86	168	293	465				
2600	89	175						
2800	92	182						
2999	96	188						

9100 Series Threaded Product Numbering System

91 - 17 D 5 1

VALVE SERIES

91 – 9100 Series

INLET & OUTLET COMBINATION

(See Selection Table on pages 8 & 9)

ORIFICE SIZE

C to K

INLET BASE & BODY MATERIAL

5 – CARBON STEEL/WCB CARBON STEEL

6 – 316 STNLS STL/WCB CARBON STEEL

7 – 316 STNLS STL/CF3M STAINLESS STEEL

CAP TYPE

1 – CLOSED CAP

2 – OPEN LIFT LEVER

3 – CLOSED LIFT LEVER

4 – CLOSED CAP W/STAINLESS STEEL BONNET (H - K ORIFICE)

5 – OPEN LIFT LEVER W/STAINLESS STEEL BONNET (H - K ORIFICE)

6 – CLOSED LIFT LEVER W/STAINLESS STEEL BONNET (H - K ORIFICE)

CONSULT FACTORY FOR ADDITIONAL INFORMATION AND OPTIONS

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

V 06 I 1 ___ ___

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

O-RING MATERIAL

1 – STANDARD O-RINGS
(FLUOROCARBON (FKM) & BUNA-N)

TRIM CODES

U – 316 S.S. DISK & NOZZLE (STD GAS SERVICE F,G,H,J,&K ORIFICES)*

I – 17-4 S.S. DISK & NOZZLE (STD GAS SERVICE D&E ORIFICES)

C – 440C S.S. DISK, 17-4 S.S. NOZZLE (STD GAS SERVICE C ORIFICE AND HIGH PRESSURE F,G,H,)*

L – LIQUID SERVICE 316 S.S. DISK & NOZZLE

N – SOUR GAS SERVICE 316 S.S. DISK & NOZZLE

B – SOUR LIQUID SERVICE 316 S.S. DISK & NOZZLE

SPRING CODE
(ASSIGNED BY MERCER)

SEAT MATERIAL

V – FLUOROCARBON (FKM) 90 DURO

T – 15% GLASS FILLED PTFE

P – VIRGIN PEEK

* = U TRIM CODE CHANGES TO C TRIM CODE AT F > 1399psi, G > 1199psi, H > 1049psi

CORPORATE HEADQUARTERS

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OKLAHOMA CITY, OK 73127
1-800-833-6402
PHONE: (405) 495-6533, FAX: (405) 495-8728

SALES@MERCERVALVE.NET

Please visit our website to learn about our branch locations!

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.