

3900 MPV™

Pilot Operated
Safety Relief Valve



Consolidated®

3900 Pilot Operated Relief Valve

Consolidated® offers a unique pilot valve design that combines top performance, capabilities and features within an economical, modular assembly. Consolidated has accomplished this feat by successfully designing an optimized safety “system” that offers versatility of application, yet provides cost effective standardization.

New Features

This product update of Consolidated's 3900 POSRV covers the following changes and/or additions:

- Bonnet is now standard for all pilot valves.
- 39MV22 (751 – 3750 psig) – replaces the 39MV37

The 39MV22 modulator is built internally into the pilot valve. This design reduces product cost, improves modulating performance and increases energized seal life.

- 39MV72 (3751 – 6250 psig)

Based on the same design as the 39MV22, this pilot allows Consolidated to expand its product offering into the 2500# Class pressure range.

- 3900 POSRV (main valve) metal seat option

The metal seat option incorporates proven technology from the 1900 SRV metal seat design. With the addition of the 2900 POSRV heat exchanger, the metal seat option will increase the temperature range for the 3900 POSRV product line to -320 °F to 650 °F.

- Pilot Gag – prevents the pilot operated relief valve from opening while equipment is being subjected to an operational hydrostatic test.

Please refer to the following tables for Pressure – Temperature Ratings, Dimensions and Weights, and capacity charts for air, water and steam.

**3900**

ASME Pressure - Temperature Rating Charts - SA216 WCC Carbon Steel

PRESSURE CLASS	Maximum Allowable Pressure (PSIG)						
	Temperature (°F)						
	-20 to 100	200	300	400	500	600	650
3905	290	260	230	200	170	140	125
3910	750	750	730	705	665	605	590
3912	1500	1500	1455	1410	1330	1210	1175
3914	2250	2250	2185	2115	1995	1815	1765
3916	3750	3750	3640	3530	3325	3025	2940
3918	6250	6250	6070	5880	5540	5040	4905

ASME Pressure - Temperature Rating Charts - SA351 Cf8M Stainless Steel

PRESSURE CLASS	Maximum Allowable Pressure (PSIG)						
	Temperature (°F)						
	-20 to 100	200	300	400	500	600	650
3905	275	235	215	195	170	140	125
3910	720	620	560	515	480	450	445
3912	1440	1240	1120	1025	955	900	890
3914	2160	1860	1680	1540	1435	1355	1330
3916	3600	3095	2795	2570	2390	2255	2220
3918	6000	5160	4660	4280	3980	3760	3700

**3918 Series Type 39PV & 39MV - Dimensions & Weights
2500# Inlet, Single Outlet, Standard Bore**

Valve Size (in.) & Type	Orifices	Inlet Flange Size (in.) & Class	Outlet Flange Size (in.) & Class	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Weight lb. (kg)
1 – 3918	D, E, F	1 – 2500	2 – 300	4-15/16 (125.4)	4-3/4 (120.7)	22 (558.8)	8-1/2 (215.9)	56 (25.4)
1-1/2 – 3918	D, E, F	1-1/2 – 2500	2 – 300	5-7/8 (149.2)	5-1/2 (139.7)	22-15/16 (582.6)	8-1/2 (215.9)	67 (30.4)
1-1/2 – 3918	G, H	1-1/2 – 2500	3 – 300	6-3/8 (161.9)	6-3/4 (171.5)	24-9/16 (623.9)	9-5/16 (236.5)	80 (36.3)
2 – 3918	G, H, J	2 – 2500	3 – 300	7 (177.8)	6-3/4 (171.5)	25-3/16 (639.8)	9-5/16 (236.5)	106 (48.1)
3 – 3918	J, K, L	3 – 2500	4 – 300	8-3/4 (222.3)	9 (228.6)	28-1/16 (712.8)	11-11/16 (296.9)	185 (83.9)

3918 Series Type 39PV & 39MV - Dimensions & Weights
2500# Inlet, Single Outlet, Full Bore

Valve Size (in.) & Type	Orifices	Inlet Flange Size (in.) & Class	Outlet Flange Size (in.) & Class	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Weight lb. (kg)
1-1/2 – 3918	1-1/2" Full Bore	1-1/2 – 2500	2 – 300	Please contact factory at (318) 640-2250 for dimensions and weight.				
2 – 3918	2" Full Bore	2 – 2500	3 – 300					
3 – 3918	3" Full Bore	3 – 2500	4 – 300					

Air Capacity Chart - 3918 Series Type MV Pilots - Capacity in Standard Cubic Feet per Minute (SCFM)

SET PRESSURE PSIG	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	1-1/2FB 1.622	2FB 2.764	3FB 6.321
4000	9099	16213	25384	41612	64934	106432	152107	235987	115397	196644	449707
4250	9666	17223	26965	44204	68978	113062	161583	250688	122585	208894	477720
4500	10233	18233	28547	46796	73023	119692	171058	265388	129773	221143	505733
4750	10799	19243	30128	49389	77068	126322	180533	280088	136962	233392	533746
5000	11366	20253	31709	51981	81113	132952	190008	294788	144150	245642	561759
5250	11933	21263	33290	54573	85158	139582	199483	309488	151338	257891	589772
5500	12500	22273	34872	57165	89203	146212	208958	324188	158526	270140	617786
5750	13067	23283	36453	59757	93248	152842	218433	338888	165715	282390	645799
6000	13634	24293	38034	62349	97292	159472	227908	353588	172903	294639	673812
6250	14200	25303	39615	64941	101337	166102	237383	368289	180091	306889	701825

Water Capacity Chart - 3918 Series Type MV Pilots - Capacity in Gallons of Water per Minute (GPM)

SET PRESSURE PSIG	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	1-1/2FB 1.622	2FB 2.764	3FB 6.321
4000	239	426	668	1095	1709	2801	4004	6212	3037	5176	11838
4250	246	439	688	1129	1761	2887	4127	6403	3131	5335	12202
4500	254	452	708	1161	1813	2971	4247	6589	3222	5490	12556
4750	261	465	728	1193	1862	3053	4363	6769	3310	5640	12900
5000	267	477	747	1224	1911	3132	4476	6945	3396	5787	13235
5250	274	488	765	1254	1958	3209	4587	7116	3480	5930	13562
5500	280	500	783	1284	2004	3285	4695	7284	3562	6069	13881
5750	287	511	801	1313	2049	3359	4800	7448	3642	6206	14193
6000	293	522	818	1341	2093	3431	4904	7608	3720	6339	14498
6250	299	533	835	1369	2136	3502	5005	7765	3797	6470	14797

Steam Capacity Chart - Standard Bore - 3912 – 3916 Series with Metal Seats and Heat Exchanger
Capacity in Pounds per Hour of Saturated Steam (Lb/hr)

SET PRESSURE PSIG	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	M 4.186	N 5.047	P 7.417	Q 12.85	R 18.6	T-4 30.21
800	5174	9219	14434	23662	36923	60521	86494	134191	169347	204179	300059	519855	752475	1222165
900	5810	10353	16209	26571	41463	67962	97128	150689	190167	229282	336950	583769	844989	1372425
1000	6446	11486	17983	29480	46003	75403	107762	167188	210988	254385	373841	647683	937503	1522686
1100	7082	12620	19758	32390	50542	82844	118396	183686	231809	279489	410733	711597	1030017	1672947
1200	7718	13754	21533	35299	55082	90285	129030	200184	252629	304592	447624	775512	1122531	1823207
1300	8355	14887	23307	38208	59622	97726	139664	216683	273450	329695	484515	839426	1215044	1973468
1400	8991	16021	25082	41117	64161	105167	150298	233181	294271	354798	521406	903340	1307558	2123728
1500	9627	17154	26857	44027	68701	112608	160933	249679	315091	379901	558297	967254	1400072	2273989
1750	11217	19988	31294	51300	80050	131210	187518	290925	367143	442659	650525			
2000	12808	22822	35730	58573	91399	149812	214103	332171	419194	505417	742753			
2250	14398	25656	40167	65846	102748	168414	240689	373417	471246	568174	834981			
2500	15988	28490	44604	73119	114097	187017	267274	414662						
2750	17579	31323	49040	80392	125447	205619	293859	455908						
2903	18552	33058	51756	84843	132392	217003	310130	481151						

Steam Capacity Chart - Full Bore - 3912 – 3916 Series with Metal Seats and Heat Exchanger
Capacity in Pounds per Hour of Saturated Steam (Lb/hr)

SET PRESSURE PSIG	1-1/2 FB 1.622	2FB 2.764	3FB 6.321	4FB 10.760	6FB 24.950	8FB 44.180
800	65619	111819	255720	435302	1009368	1787330
900	73686	125567	287159	488821	1133466	2007076
1000	81754	139314	318599	542340	1257564	2226821
1100	89821	153062	350039	595859	1381662	2446567
1200	97889	166810	381479	649378	1505760	2666312
1300	105957	180558	412919	702896	1629858	2886058
1400	114024	194306	444359	756415	1753956	3105804
1500	122092	208053	475798	809934	1878054	3325549
1750	142261	242423	554398	943731		
2000	162430	276792	632998	1077528		
2250	182599	311162	711597	1211325		
2500	202768	345531	790197	1345123		
2750	222937	379901	868796	1478920		
2903	235281	400935	916899	1560804		

3900 MPV™

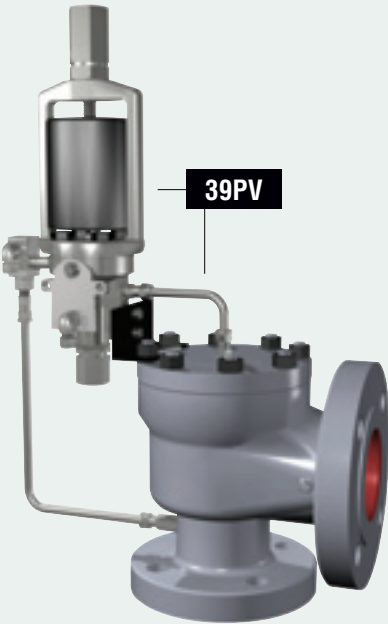
Pilot Operated
Safety Relief Valve



Consolidated®

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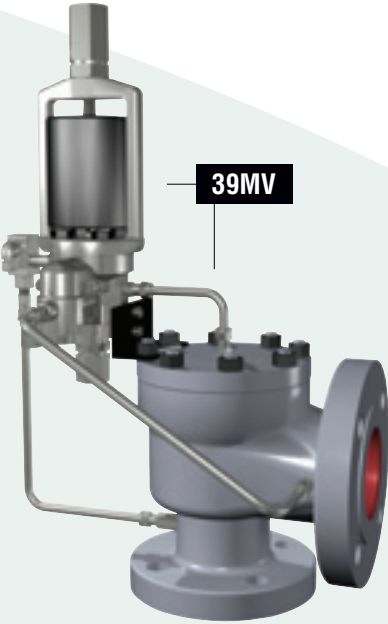
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3900 MPV

3900 Flanged Valves comply with:

- ASME B & PVC, Section VIII, Division I
- NACE MR0175
- D.O.T. Subchapter D Parts 192 and 195
- ISO 4126-4
- API 520, API 526, and API 527
- ANSI B16.34



Standard Features	39PV Pop Pilot	39MV Modulating Pilot
Convertible valve action	To Modulating	To Pop
Full Lift	at Set Pressure	110% of Set Pressure
Adjustable blowdown	2% to 7%	2% to 7%
Leak tight seats at % of set pressure	95% to 98%	96% to 99%
Main valve seat tight to set point	Yes	Yes
Field test connection	Yes	Yes
Gas, liquid and steam service (ASME B & PVC, Section VIII)	Yes	Yes
Non-Flowing pilot	Yes	Yes
Pilot construction entirely stainless steel	Yes	Yes
Set point repeatability to within +/-2%	Yes	Yes
100 micron filter protects pilot	Yes	Yes
Designed for ease of maintenance	Yes	Yes

3900 Flanged Series Overview

CONSOLIDATED, world leader in providing safety and safety relief valve solutions, offers the new CONSOLIDATED Modular Pilot Valve (MPV), a pilot operated safety relief valve. The 39MPV is a unique pilot valve design; combining top performance, capabilities and features within an economical, modular assembly. CONSOLIDATED has accomplished this feat by successfully designing an optimized safety “system” that offers versatility of application, yet provides cost effective standardization. Proven concepts and principles refined from over 100 years of successful design and application experience have been integrated into the CONSOLIDATED MPV, resulting in the production of a new and highly reliable pilot operated safety relief valve which is easy to operate and maintain.

Global concern for the environment continues to expand. The need to improve the operational efficiency of all types of process plants is worldwide. The need for relief valves that provide bubble tight operation and precise opening and closing pressures is increasing due to this trend. CONSOLIDATED Pilot Operated Safety Relief Valves offer high quality production products, performance characteristics and features that are consistent with today's industry demands.

The combining of our pilots into one unique design provides major benefits. This new design pilot valve is suitable for incompressible and compressible applications including steam. Adapting to various applications will require only the appropriate selection of soft goods and options to meet the service conditions.

Versatility

The CONSOLIDATED MPV is the FIRST true modular pilot operated safety relief valve design that combines pop and modulating functions within a single

assembly suitable for incompressible and compressible fluids including steam.

CONSOLIDATED MPV pilot operated safety relief valves meet API 526 requirements. For higher capacity requirements, full bore sizes are available up to 69.94 sq. inches, some with dual outlets. Available pressure class ratings are ANSI Class 150 to Class 1500.

Total Service

The MPV is manufactured by CONSOLIDATED, a TOTAL solutions provider of pressure relief products offering unmatched application expertise and after sales support on a world wide basis.

Introduction

CONSOLIDATED 39MPV Series Pilot Operated Safety Relief Valves are designed to provide reliable protection for a broad range of pressurized systems applications. The operating characteristics and design of pilot actuated relief valves differ significantly from spring loaded pressure relief valves. It is extremely important that the user recognizes the merits of each design and select valves based on a valid comparison. The CONSOLIDATED pressure relief valve designs meet the needs of most applications found in the markets we currently serve.

CONSOLIDATED strives to provide the best available information, data and assistance to its customers in the selection and application of our products. It is impractical, however, for CONSOLIDATED personnel to be trained in all systems and processes in which our products might be used. Ultimate responsibility remains with the customer as the process owner or designer.

The CONSOLIDATED 3900 series pilot operated safety relief valve is supplied with a non-flowing pilot valve. This single pilot design is suitable for both incompressible and compressible applications and performs equally well on liquid, vapor or two-phase flow services. The set pressure will not require adjustment if the service condition changes.

Because of its modular design, the 39PV (pop pilot) can be converted to a 39MV (modulator pilot). This makes the CONSOLIDATED 39PV and 39MV pilot valve the most versatile pilot valve on the market.

Product types covered in subsequent pages are noted below.

Product Type	Pilot Type	Service	Description
3900	39PV	gas/liquid	pop action - non flowing
3900	39MV	gas/liquid	modulating - non flowing
3900	39PVSS	steam	pop action - non flowing
3900	39MVSS	steam	modulating - non flowing

3900 Flanged Series Overview

Pressure Limits¹

Product Type	Pilot Type	Minimum (psig)	Maximum (psig)	Service
3900	39PV	15	3750	gas/liquid
3900	39MV	15	3750	gas/liquid
3900	39PVSS	15	750	steam
3900	39MVSS	15	750	steam

Temperature Limits^{1 & 2}

Product Type	Pilot Type	Minimum (°F)	Maximum (°F)	Service
3900	39PV	-40	505	gas/liquid
3900	39MV	-40	505	gas/liquid
3900	39PVSS	212	505	steam
3900	39MVSS	212	505	steam

Soft Goods Guide³

Service	Material	Pilot Valve and Modulator		Main Valve	
		Temperature Range (°F)	Pressure Range (psig)	Temperature Range (°F)	Pressure Range (psig)
liquid/gas	nitrile (Buna N)	-40 to 250	15 to 3750	-40 to 250	15 to 1500
liquid/gas	fluorocarbon (Viton)	-15 to 400	15 to 3750	-15 to 400	15 to 1500
liquid/gas	ethylene propylene	-40 to 400	15 to 3750	-40 to 500	15 to 1500
liquid/gas	Kalrez®	-40 to 400	15 to 3750	-40 to 505	15 to 1500
liquid/gas	Teflon	212 to 505	50 to 3750	-40 to 505	50 to 3750
liquid/gas	neoprene	N/A	N/A	-45 to 300	15 to 800
liquid/gas	silicone	N/A	N/A	-40 to 437	15 to 400
liquid/gas	Chemraz®	N/A	N/A	-20 to 450	15 to 1500
steam	ethylene propylene	212 to 500	15 to 49	212 to 500	15 to 49
steam	Teflon®	212 to 505	50 to 3750	212 to 505	50 to 750

- NOTES: 1 The above table is general in nature and is to be used as a guideline only.
2 Refer to the "Pressure/Temperature" Chart on page 3900.55 for actual pressure limits at a given temperature by pressure class and materials of construction.
3 Refer to the "Soft Goods Selection" Chart on page 3900.9 for material selection for a given pressure, temperature, fluid type, durometer hardness, and orifice size.

3900 Flanged Series Overview

Options		
Options	39PV	39MV
Manual Blowdown Valve (standard for steam service)	Yes	Yes
Backflow Preventer	Yes	Yes
Remote Sensing	Yes	Yes
Remote Pilot Mounting	Yes	Yes
Optional Sensing Line	Yes	Yes
Dual Pilots	Yes	Yes
Dual Filters	Yes	Yes
Pressure Differential Switch	Yes	Yes
Bonnet (vented)	Yes	Yes
Metal Spring Cover (encloses yoke & spring)	Yes	Yes
High Capacity Line Filter (with flush valve)	Yes	Yes
Remote Actuated Blowdown	Yes	Yes

Applications		
Options	39PV	39MV
Type		
Pop Action - Non Flowing	Yes	No
Modulating - Non Flowing	No	Yes
Media		
Air, Gas	Yes	Yes
Vapor	Yes	Yes
Dirty Vapor (filter required)	Yes	Yes
Steam	Yes	Yes
Liquid	Yes	Yes
Operational Conditions		
Icing	Yes	Yes
Pulsations	Yes	Yes
Reduces Water Hammer (when valve closes)	Yes	Yes
Operational Performance		
Pressure Range: 15 - 3750 (Gas/Liquid/Steam)	Yes	Yes
15 - 750 (Steam)	Yes	Yes
Blowdown: 3%		Yes
5%	Yes	
Main Valve Seat Tightness:		
Bubble tight at 99% of set pressure	Yes	Yes
* Back Pressure (vent piped to main valve outlet):		
Variable - % of Set Pressure	15%	65%
Constant - % of Set Pressure	**	65%
* Back Pressure (with pilot vented to atmosphere):		
Variable - % of Set Pressure	65%	65%
Constant - % of Set Pressure	65%	65%
* Back Pressure (with pilot vented to body bowl):		
Variable - % of Set Pressure	15%	65%
Constant - % of Set Pressure	65%	65%
* Back Pressure (vent not piped to main valve outlet):	***	***

NOTES: * Review the outlet flange rating and review the capacity correction factor.
** A cold differential test pressure (CDTP) must be applied for a 39PV with constant back pressure over 15% of set pressure.
*** Contact factory for permissible backpressure limits when pilot vent is piped to valve outlet.

Valve Selection

Inlet x Outlet Size Combinations - Standard Bore				
Valve Size (in.) & Type	Orifices	Inlet Flange Size (in.) & Class	Outlet Flange Size (in.) & Class	Outlet Type
1 - 3905	D,E,F	1 - 150	2 - 150	Single
1 - 3910	D,E,F	1 - 300	2 - 150	Single
1 - 3912	D,E,F	1 - 600	2 - 150	Single
1 - 3914	D,E,F	1 - 900	2 - 300	Single
1 - 3916	D,E,F	1 - 1500	2 - 300	Single
1 - 3918	D,E,F	1 - 2500	2 - 300	Single
1-1/2 - 3905	D,E,F	1-1/2 - 150	2 - 150	Single
1-1/2 - 3910	D,E,F	1-1/2 - 300	2 - 150	Single
1-1/2 - 3912	D,E,F	1-1/2 - 600	2 - 150	Single
1-1/2 - 3914	D,E,F	1-1/2 - 900	2 - 300	Single
1-1/2 - 3916	D,E,F	1-1/2 - 1500	2 - 300	Single
1-1/2 - 3918	D,E,F	1-1/2 - 2500	2 - 300	Single
1-1/2 - 3905	G,H	1-1/2 - 150	3 - 150	Single
1-1/2 - 3910	G,H	1-1/2 - 300	3 - 150	Single
1-1/2 - 3912	G,H	1-1/2 - 600	3 - 150	Single
1-1/2 - 3914	G,H	1-1/2 - 900	3 - 300	Single
1-1/2 - 3916	G,H	1-1/2 - 1500	3 - 300	Single
1-1/2 - 3918	G,H	1-1/2 - 2500	3 - 300	Single
2 - 3905	G,H,J	2 - 150	3 - 150	Single
2 - 3910	G,H,J	2 - 300	3 - 150	Single
2 - 3912	G,H,J	2 - 600	3 - 150	Single
2 - 3914	G,H,J	2 - 900	3 - 300	Single
2 - 3916	G,H,J	2 - 1500	3 - 300	Single
2 - 3918	G,H,J	2 - 2500	3 - 300	Single
3 - 3905	J,K,L	3 - 150	4 - 150	Single
3 - 3910	J,K,L	3 - 300	4 - 150	Single
3 - 3912	J,K,L	3 - 600	4 - 150	Single
3 - 3914	J,K,L	3 - 900	4 - 300	Single
3 - 3916	J,K,L	3 - 1500	4 - 300	Single
4 - 3905	L,M,N,P	4 - 150	6 - 150	Single
4 - 3910	L,M,N,P	4 - 300	6 - 150	Single
4 - 3912	L,M,N,P	4 - 600	6 - 150	Single
4 - 3914	L,M,N,P	4 - 900	6 - 300	Single
4 - 3916	L,M,N,P	4 - 1500	6 - 300	Single
6 - 3905	Q,R	6 - 150	8 - 150	Single
6 - 3910	Q,R	6 - 300	8 - 150	Single
6 - 3912	Q,R	6 - 600	8 - 150	Single
8 - 3905	T	8 - 150	10 - 150	Single
8 - 3910	T	8 - 300	10 - 150	Single
8 - 3912	T	8 - 600	10 - 150	Single

3900 Standard Bore Orifice Area (Sq. in.) ¹													
ASME	0.0129	0.2279	0.3568	0.5849	0.9127	1.496	2.138	3.317	4.186	5.047	7.417	12.85	30.21
API	0.110	0.196	0.307	0.503	0.785	1.287	1.838	2.853	3.6	4.34	6.38	11.05	26
ORIFICE	D	E	F	G	H	J	K	L	M	N	P	Q	T

NOTE 1 The center line to face dimensions and the Inlet/Outlet combinations of the 3900 meet API Standard 527-1995 for pilot operated valves.

Valve Selection

Inlet x Outlet Size Combinations - Full Bore

Valve Size (in.) & Type	Orifices	Inlet Flange Size (in.) & Class	Outlet Flange Size (in.) & Class	Outlet Type
1-1/2 - 3905	1-1/2 FB	1-1/2 - 150	2 - 150	Single
1-1/2 - 3910	1-1/2 FB	1-1/2 - 300	2 - 150	Single
1-1/2 - 3912	1-1/2 FB	1-1/2 - 600	2 - 150	Single
1-1/2 - 3914	1-1/2 FB	1-1/2 - 900	2 - 300	Single
1-1/2 - 3916	1-1/2 FB	1-1/2 - 1500	2 - 300	Single
2 - 3905	2 FB	2 - 150	3 - 150	Single
2 - 3910	2 FB	2 - 300	3 - 150	Single
2 - 3912	2 FB	2 - 600	3 - 150	Single
2 - 3914	2 FB	2 - 900	3 - 300	Single
2 - 3916	2 FB	2 - 1500	3 - 300	Single
3 - 3905	3 FB	3 - 150	4 - 150	Single
3 - 3910	3 FB	3 - 300	4 - 150	Single
3 - 3912	3 FB	3 - 600	4 - 150	Single
3 - 3914	3 FB	3 - 900	4 - 300	Single
3 - 3916	3 FB	3 - 1500	4 - 300	Single
4 - 3905	4 FB	4 - 150	6 - 150	Single
4 - 3910	4 FB	4 - 300	6 - 150	Single
4 - 3912	4 FB	4 - 600	6 - 150	Single
4 - 3914	4 FB	4 - 900	6 - 300	Single
6 - 3905	6 FB	6 - 150	8 - 150	Double
6 - 3910	6 FB	6 - 300	8 - 150	Double
6 - 3912	6 FB	6 - 600	8 - 150	Double
8 - 3905	8 FB	8 - 150	10 - 150	Double
8 - 3910	8 FB	8 - 300	10 - 150	Double
8 - 3912	8 FB	8 - 600	10 - 150	Double
10 - 3905	10 FB	10 - 150	10 - 150	Double
10 - 3910	10 FB	10 - 300	10 - 150	Double

3900 Standard Full Bore Orifice Area (Sq. in.)

ASME ORIFICE	1.622	2.764	6.321	10.76	24.95	44.18	69.94
	1.5" FB	2" FB	3" FB	4" FB	6" FB	8" FB	10" FB

3900 Materials Overview

The main valve has six basic components. Assembly and disassembly are accomplished through top entry. This means that as long as there is no pressure in the system, routine maintenance, such as replacement of O-Rings and seals, may be done with the valve in place, virtually eliminating the need for cranes and additional manpower.

Base

The base is cast with integral flanges. It forms the main structure and is a pressure boundary component since it will be exposed to process media. To ensure integrity and reliability, all base castings are produced to the latest addition to the ASME Boiler & Pressure Vessel Codes. The standard materials are Grade WCC carbon steel, and Grade CF8M 316 stainless steel. Other materials such as Monel, Hastelloy, and additional code-approved materials are available to satisfy more demanding requirements. The discharge side of the body is drilled and tapped for pilot venting. If the pilot is vented to the atmosphere, a pipe plug is installed to secure this area.

Nozzle

The 316 stainless steel nozzle performs two functions: First, it forms the lower sealing surface. Second, the nozzle controls the capacity. The orifice is machined into the nozzle ensuring that rated flow capacities will be obtained should an overpressure condition occur. The nozzle is threaded or bolted into the body and sealed with an O-Ring. By threading or bolting the nozzle it may be removed easily for repair or replacement.

Guide

This one piece guide of 316 stainless steel ensures true alignment of the disc and nozzle for positive, bubble tight sealing. The heavy guide construction is designed to prevent warping or egging when the valve is in service.

Disc

The disc is 316 stainless steel. An O-Ring (part 10) is used for isolating the dome chamber when used on air, gas or liquid service. A spring energized Teflon® seal (part 17) is used on the top side of the disc for steam service. A graphite impregnated Teflon® guide ring (or rings) (part 16) provides a low coefficient of friction for the guiding function between the disc and guide. An O-Ring seat (part 12) performs the primary sealing function for the disc to ensure bubble tightness. The metal-to-metal stop for the seat allows the valve to still function, even if the O-Ring is damaged or destroyed.

Two unique features distinguish the CONSOLIDATED O-Ring seat seal safety relief valve from any other design. These are the 50 degree metal-to-metal load bearing seats and the slotted O-Ring retainer.

There are three essentials to a tighter and more secure seal:

1. Concentric Alignment

The nozzle bore and O-Ring retainer are both machined to an angle of 50 degrees. This ensures that as the valve disc opens and closes the O-Ring is aligned concentrically against the lip of the nozzle. Close tolerance between the nozzle and the body also helps to ensure a tight seal when the valve is closed.

2. Maximum Sealing Force

On the back side of the O-Ring retainer, there are two small slots. When the valve is closed; process media enters between the machined seat of the nozzle and the O-Ring retainer, and proceeds up the slots behind the O-Ring. This pressure forces the O-Ring against the lip of the nozzle and the curved recess of the disc. As the pressure within the valve rises to set point, the O-Ring is pressed tightly against the nozzle to maintain maximum sealing force until valve set pressure is reached.

3. O-Ring Retention

When the valve opens, the pressure behind the O-Ring escapes from these same two slots on the O-Ring retainer. This prevents the O-Ring from being ejected. Additionally, the O-Ring encapsulating retainer prevents the O-Ring from being ejected by the high velocity, low pressure discharge inside the upper valve body.

Cover Plate

The cover plate secures the guide and seals the main body. Each cover plate is drilled and tapped for eye bolts which are used for ease of assembly or disassembly of the main valve and for handling the assembled valve.

Sensing Tube

The sensing tube is machined from 316 stainless hex bar stock and is threaded into the main body at a location below the nozzle. The sensing tube picks up media pressure and feeds this pressure through the sensing line to the pilot. To ensure proper orientation, one side of the hex is marked UP. This marking is to be oriented upward when the valve is sitting on its inlet flange. The pilot valve can also be installed in applications where remote sensing of pressure is used to actuate the pilot. In this case, the sensing tube is installed at the desired sensing location and connected by the sensing line to the pilot. The sensing tube port in the main valve is then sealed with a pipe plug.

Other

The remaining parts: studs, nuts, spring, nameplate, and lead seal complete the assembly of the main valve. A wire and lead seal are affixed to the pilot to protect the pilot valve adjustments.

Main Valve Materials³

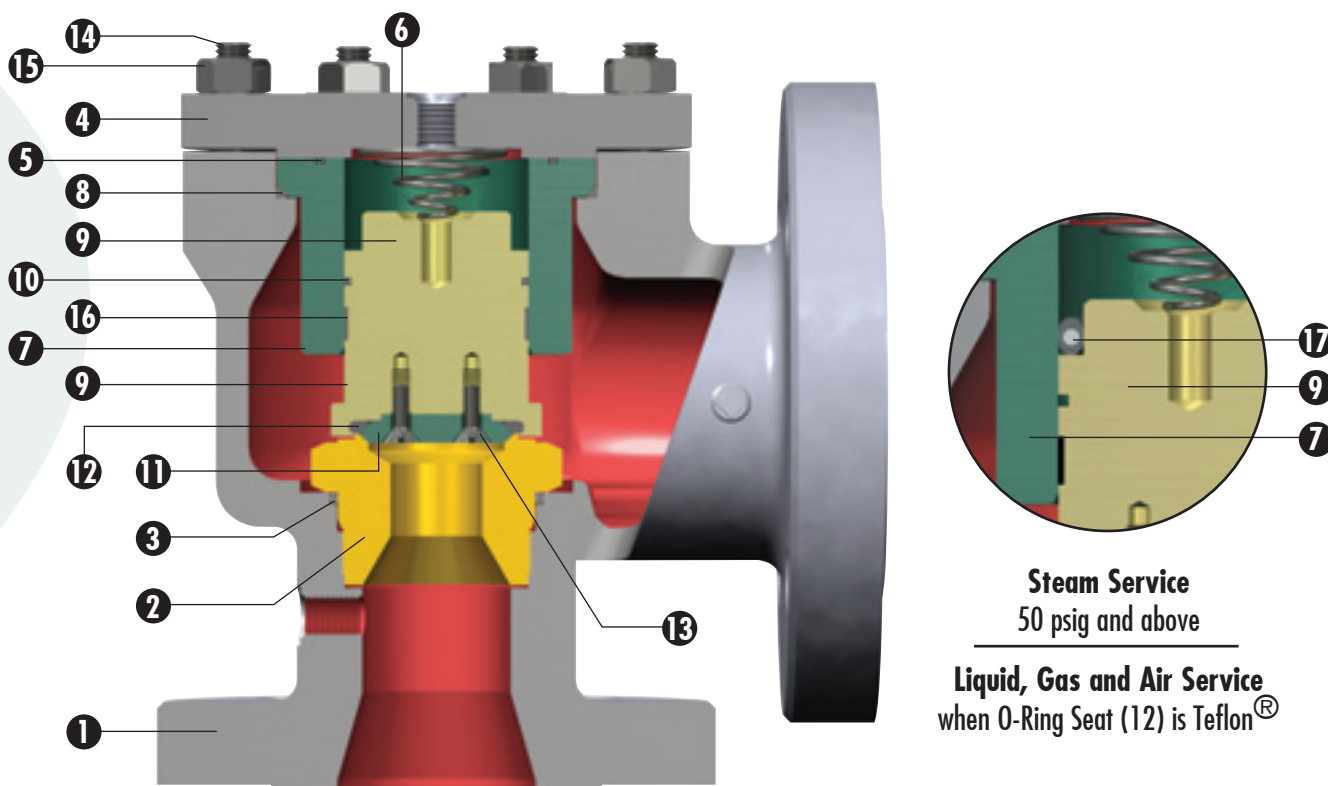
	Part	Standard Material	Entirely Stainless (S4)	NACE (SG1) - Internal Service Only
1	Base	ASME SA216 WCC Carbon Steel	ASME SA351CF8M Stainless Steel	ASME SA216 WCC Carbon Steel
2	Nozzle	316 SS	316 SS	316 SS
3	Nozzle O-Ring	Teflon®	Teflon®	Teflon®
4	Cover Plate	ASME SA516-70 Carbon Steel	ASME SA240 316 Stainless Steel	ASME SA516-70 Carbon Steel
5	Cover Plate O-Ring	Teflon®	Teflon®	Teflon®
6	Spring	Inconel X750	Inconel X750	Inconel X750
7	Guide	316 SS	316 SS	316 SS
8	Guide O-Ring	Teflon®	Teflon®	Teflon®
9	Disc	316 SS	316 SS	316 SS
10	Disc O-Ring ¹	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9
11	O-Ring Retainer	316 SS	316 SS	316 SS
12	O-Ring Seat	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9
13	Lock Screw	304 SS	316 SS	304 SS
14A*	Cap Screw - (Inlet sizes 1" & 2")	SA193 B7 Alloy Steel	SA193 B8M Alloy Steel	SA193 B7 Alloy Steel
14B	Stud (Inlet size 3" & above)	SA193 B7 Alloy Steel	SA193 B8M Alloy Steel	SA193 B7 Alloy Steel
15	Nut (Inlet size 3" & above)	SA194 2H Alloy Steel	SA194 8M Alloy Steel	SA194 2H Alloy Steel
16	Guide Ring(s)	Teflon®	Teflon®	Teflon®
17	Disc Seal or Disc Upper O-Ring ²	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9	Select - See Chart pg. 3900.9

NOTES: 1 Disc O-Ring (10) is not required for steam service.

2 Disc Seal (17) is provided for steam service and when O-Ring Seat (12) is Teflon®.

3 Main base assemblies can be provided in special materials. Contact the factor for availability.

* Not shown.



Steam Service
50 psig and above

Liquid, Gas and Air Service
when O-Ring Seat (12) is Teflon®

Liquid, Gas, & Air Service
Except when O-Ring seat (12) is Teflon® and steam service below 50 psig

Soft Goods Selection Chart

3900 Soft Goods Selection Chart

Component	Description	Service		
		Liquid/Gas ³ 15 to 3750 psig	15 to 49 psig	Steam 50 to 3750 psig
Main Valve	Nozzle O-Ring	Teflon®	Teflon®	Teflon®
	Cover Plate O-Ring	Teflon®	Teflon®	Teflon®
	Guide O-Ring	Teflon®	Teflon®	Teflon®
	Disc O-Ring	SELECT ¹	Not Required	Not Required
	O-Ring Seat	SELECT ²	ethylene/propylene 90	Teflon®
	Guide Ring	Teflon®	Teflon®	Teflon®
Pilot Valve	Disc Seal or Disc Upper O-Ring	SELECT ¹	ethylene/propylene 90	Teflon energized seal
	Adjuster Bottom O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Adjuster Top O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Insert O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Base O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Piston Spring Seal	Teflon®	Teflon®	Teflon®
	Adjuster Top Spring Seal	Teflon®	Teflon®	Teflon®
	Insert Spring Seal	Teflon®	Teflon®	Teflon®
Modulator	Base O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Stop O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Seat O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Piston Bottom O-Ring	SELECT	ethylene/propylene 90	Teflon®
	Piston Bottom Spring Seal	Teflon®	Teflon®	Teflon®
	Piston Top Spring Seal	Teflon®	Teflon®	Teflon®

NOTES: 1 Disc O-Ring (10) or Disc Upper O-Ring (17) shall be one of the same material and durometer as that selected for the O-Ring Seat (12).

2 When Teflon® is selected for O-Ring Seat (12) the Disc Seal (17) shall be a Teflon® energized seal.

3 Select soft good using charts for fluid, pressure and temperature. See selection instructions below.

Soft Goods selection for liquid and gas service is accomplished as follows:

A) Material Selection

- Refer to Technical Information Section, O-Ring Selection beginning on page TI.22.
- Locate valve fluid and read the applicable O-Ring material.
- For fluids not listed, the customer must specify the O-Ring material.

B) Main Valve Pressure Limits

- Refer to Table 1 on page 3900.10.
- Locate the valve orifice and select the durometer for the required set pressure.

C) Main Valve Temperature Limits

- Refer to Table 2 on page 3900.10.
- Locate the material and durometer and verify the temperature limits.
- If temperature limits are exceeded, repeat Steps A & B.
- If an O-Ring cannot be selected, contact the factory.

D) Pilot Valve Pressure and Temperature Limits

- Refer to Table 3 on page 3900.10.
- Locate the service and review the pressure and temperature ranges, then select the material and durometer.

Pressure and Temperature Limits

Main Valve and Pilot Valve/Modulator

Table 1 - Main Valve Pressure Limits (psig)¹

Inlet Size (in.)	Orifice	Durometer						Teflon ^{®3}			
		50		70 - 75 ²		90		-40°F to +200°F		+201°F to +505°F	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1	D, E, F	N/A	N/A	15	800	200	1500	1000	3750	50	3750
1-1/2	D, E, F	N/A	N/A	15	800	200	1500	1000	3750	50	3750
1-1/2	G, H	N/A	N/A	15	780	150	1500	1000	3750	50	3750
2	G, H, J	N/A	N/A	15	780	150	1500	1000	3750	50	3750
3	J, K, L	N/A	N/A	15	580	150	1500	1000	3750	50	3750
4	L, M, N, P	N/A	N/A	15	580	75	1500	1000	3750	50	3750
6	Q, R	N/A	N/A	15	420	60	600	600	1500	50	1500
8	T	N/A	N/A	15	200	30	300	300	1500	50	1500
3	Full Bore	N/A	N/A	15	580	75	1500	1000	1500	50	1500
4	Full Bore	N/A	N/A	15	580	75	1500	1000	1500	50	1500
6	Full Bore	N/A	N/A	15	200	30	300	300	1500	50	1500
8	Full Bore	N/A	N/A	15	200	30	300	300	1500	50	1500
10	Full Bore	N/A	N/A	15	200	30	300	300	750	50	750

- NOTES: 1 Disc O-Ring will be of the same material and durometer as that selected for the Seat O-Ring.
2 Maximum set pressure for silicone compounds is half of the maximum value.
3 When Teflon[®] material is selected for the Seat O-Ring a Teflon[®] energized seal will be provided for the Disc Seal.

Table 2 - Main Valve Temperature Limits (°F)

Material	Durometer	NOTES	Temperature Limits		Material	Durometer	NOTES	Temperature Limits	
			Min.	Max.				Min.	Max.
Nitrile (Buna-N)	70	2	-40	250	Silicone	70		-40	437
	90		-40	250	Teflon [®]	N/A		-40	505
Ethylene/Propylene	70		-65	212	Kalrez [®]	82	1	-40	505
	90		-40	500		75	1	-40	505
Fluorocarbon (Viton)	75		-15	400		91	1	-35	505
	90		-15	400	Chemraz [®]	75	1	-20	450
Neoprene	70		-40	300		90	1	-20	450

- NOTES: 1 Consult factory concerning the use of Kalrez[®] and Chemraz[®].
2 Standard O-Ring Material

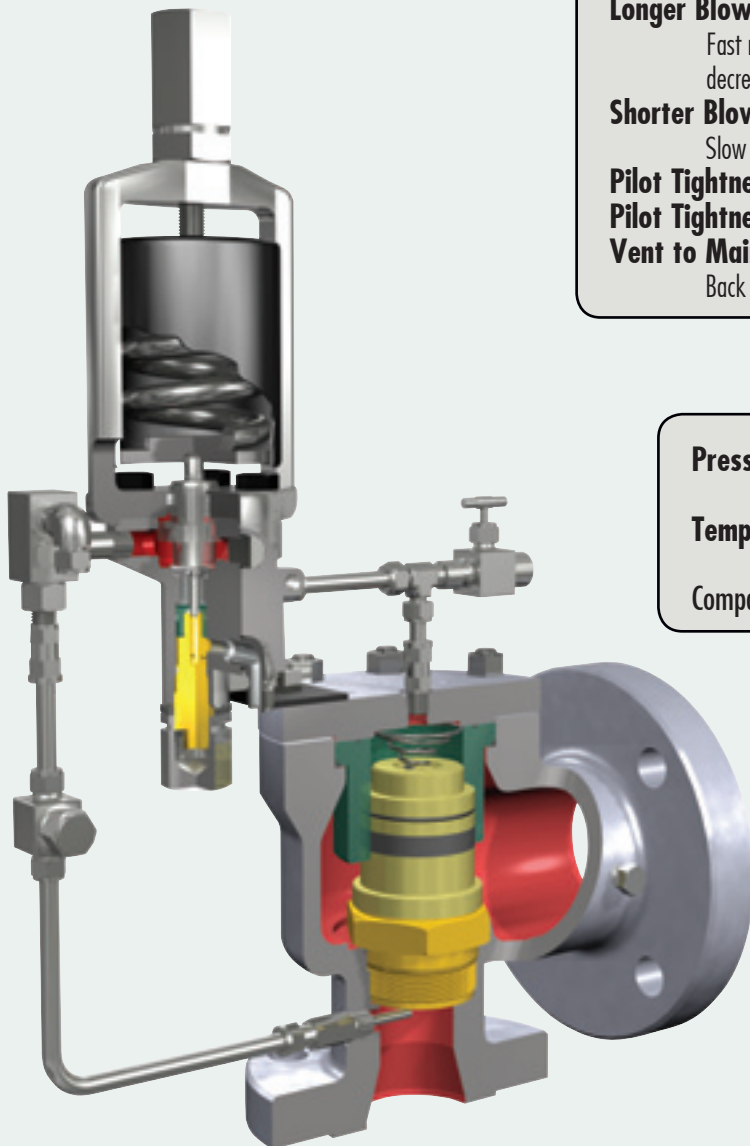
Table 3 - Pilot Valve and Modulator Pressure/Temperature Limits

Service	O-Ring Material ²	Durometer	Temperature Limit (°F)		Pressure Limit (psig)	
			Min.	Max.	Min.	Max.
Liquid / Gas	Nitrile (Buna-N) ³	70	-40	250	15	3750
Liquid / Gas	Fluorocarbon (Viton)	75	-15	400	15	3750
Liquid / Gas	Ethylene / Propylene	70	-40	400	15	3750
Liquid / Gas	Kalrez ^{®1}	—	-40	400	15	3750
Liquid / Gas	Teflon [®]	N/A	212	505	50	3750
Steam	Ethylene / Propylene	90	212	500	15	49
Steam	Teflon [®]	N/A	212	505	50	750

- NOTES: 1 Consult factory concerning the use of Kalrez[®].
2 Other materials are on application. Consult factory for availability of other materials.
3 Standard O-Ring Material

Pop Pilot (PV) - Operating Principles and Performance

The CONSOLIDATED MPV™ (Modular Pilot Valve) Pilot Operated Safety Relief Valve is offered as both a non-flowing pop pilot and a non-flowing modulating pilot within a single assembly. The unique modular design construction allows for an open yoke or vented bonnet and easy field conversion from one configuration to the other. The pilot valve operates by sensing system pressure and using this pressure to control the closing force on the main valve disc. Increasing inlet valve pressure results in increased closing force until the pilot valve opens. Pressure is relieved at a designated set point as process media is allowed to discharge through the main valve. Use of the pop pilot configuration will result in a main valve disc “pop” action from the seated position to 100% open. When the overpressure condition is relieved, the main valve disc will reseal due to the increased media pressure directed through the pilot valve to the top of the valve disc (dome).



Pop Pilot Performance

Pilot Tightness: 98% of set point

Blowdown: 2% to 5%, or 2psi (whichever is greater) depending upon ramp rate.

Longer Blowdown Results from:

Fast ramp up increasing the set point or fast ramp down decreasing the reseal point.

Shorter Blowdown Results from:

Slow ramp up or slow ramp down.

Pilot Tightness after Main Valve Pop: 95% of set point

Pilot Tightness after Pilot Reseats: 98% of set point

Vent to Main Valve Outlet if:

Back Pressure is constant or no back pressure

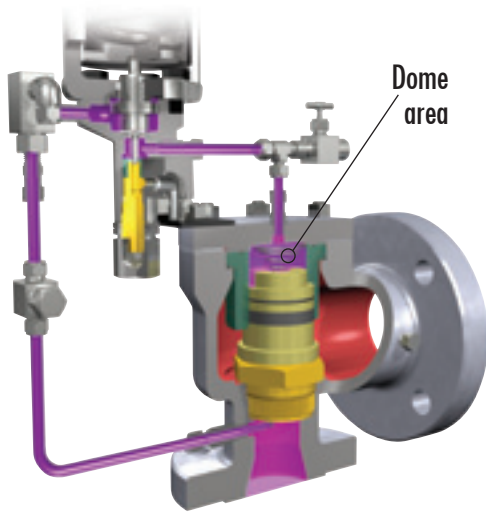
Common Characteristics

Pressure Ranges: 15 psig - 3750 psig (liquid or gas)
15 psig - 750 psig (steam)

Temperature Range: -40°F to 505°F

Compatible for liquid, gas, or steam service

Pop Pilot Operation



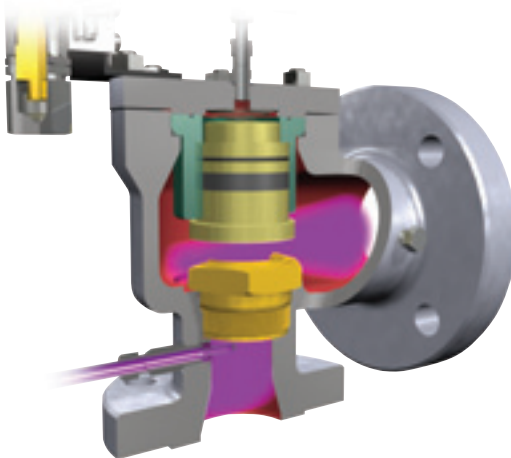
PV Valve Closed (Normal Position)

System pressure from the main valve inlet is fed to the dome area by the pilot through interconnecting tubing. This equalizes the pressure on the top of the disc with inlet pressure on the seating surface (bottom) of the disc. Since the area of the top of the disc is larger than the area of the seating surface, the differential area results in a net downward force keeping the main valve tightly closed.



PV Valve Open (Relieving Position)

As inlet pressure increases, the pilot piston strokes and seals off the main valve inlet pressure from the dome pressure. The pilot simultaneously opens the vent seal to relieve the dome pressure to atmospheric pressure.



Discharge Through Main Valve

The main valve disc is allowed to lift off the seat as the fluid force overcomes the now removed pressure load above the main valve disc. The valve discharges to relieve system pressure.

Return to Normal Position

When the discharging main valve reduces the inlet pressure to the preset blowdown pressure of the pilot, the pilot piston closes the vent seal. Simultaneously, the inlet seal is reopened in the pilot. The main valve inlet pressure is again allowed to enter the dome above the main valve disc. As the dome pressure equalizes with the inlet pressure, the downward force created by the differential areas of the disc closes the main valve.

3900 Series Type 39PV Pilot

Pop Action, Non-Flowing
For Set Pressures 15 psig to 3750 psig



3900 with
39PV Pop Action

	Part	Material ¹
1	Main Base	SA351 Grade CF8M Stainless Steel
2	Adjuster Cap	316 SS
3	Adjuster Top	316 SS
4	Adjuster Bottom	316 SS
5	Adjuster Lock Nut	316 SS
6	Compression Screw	316 SS
7	Compression Screw Lock Nut	316 SS
8	Spring Washer	316 SS
9	Spring ¹	Chrome Steel (Phosphated)
10	Insert Top	316 SS
11	Insert Bottom	316 SS
12	Main Piston	316 SS
13	Compression Screw Cap	316 SS
14	Yoke Cap Screw	316 SS
15	Adjuster Bottom O-Ring	Select
16	Adjuster Top O-Ring	Select
17	Insert O-Ring	Select
18	Main Base O-Ring	Select
19	Yoke	SA351 Grade CF8M Stainless Steel
20	Main Piston Spring Seal	Teflon [®]
21	Adjuster Top Spring Seal	Teflon [®]
22	Insert Spring Seal	Teflon [®]
23	Field Test Connector	-
	- Ball	316 SS
	- Seat O-Ring	Select
	- Plug O-Ring	Select
	- Base	316 SS
	- Plug	316 SS
	- Tube Filter	316 SS
24	Vent Assembly/Bug Screen	-
	- Male Elbow	316 SS
	- Screen	304 SS
25	Vent Assembly	-
	- Male Elbow	316 SS
	- Screen	304 SS
26	Pipe Plug	316 SS
36	Spring Cover	Peek (Polyetheretherketone)
47	Vent Assembly	-
	- Male Elbow	316 SS
	- Screen	304 SS
48	Top Plate	316 SS
49	Set Screw	316 SS
50	Bonnet	SA351 Grade CF8M Stainless Steel

NOTE: 1 Pilot valves are available in materials other than those shown above. Refer to the 2900 section of this catalog for alternate materials of construction.

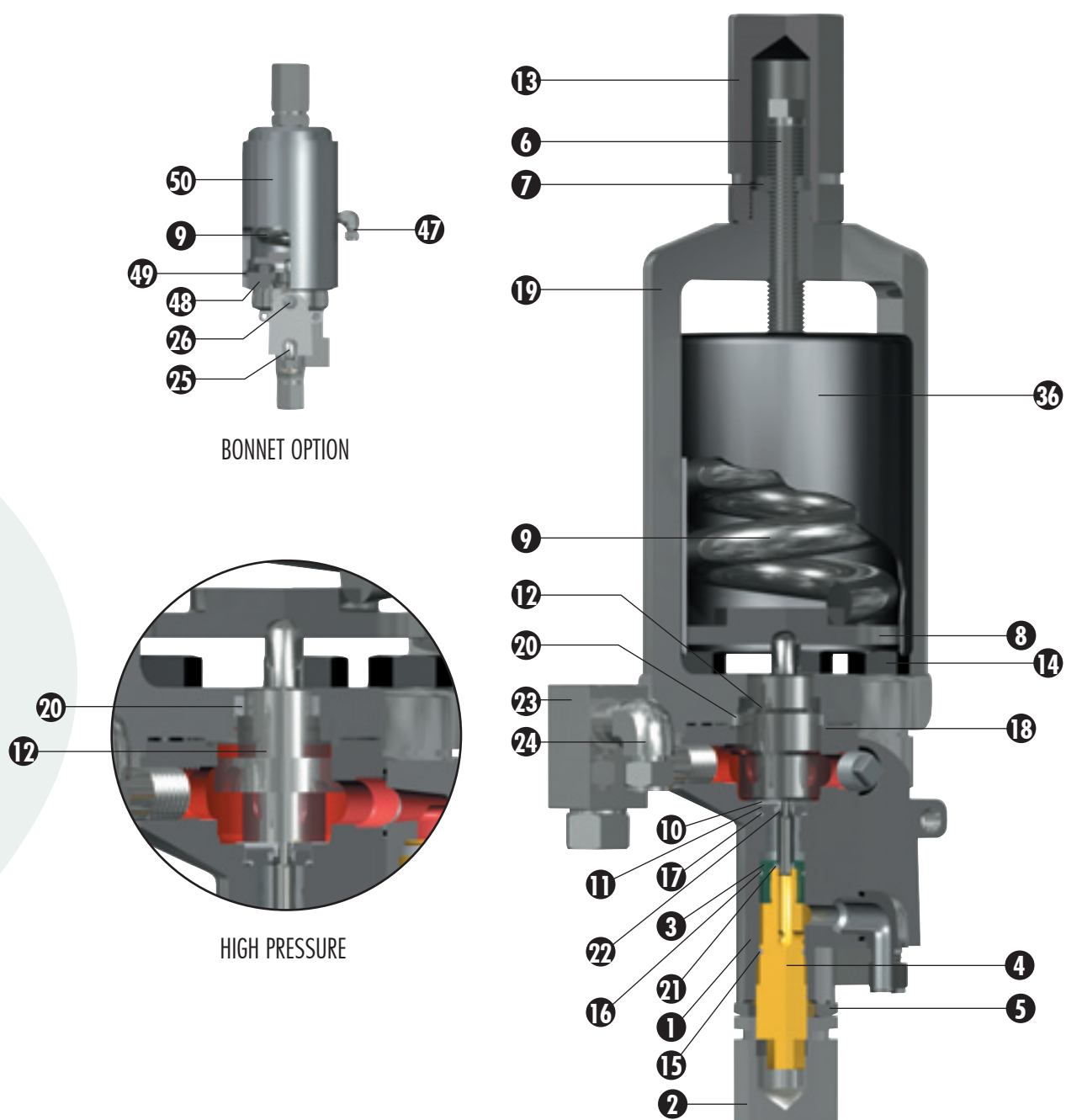
Description

The CONSOLIDATED 39PV pop action non-flowing pilot provides excellent performance with full lift at set pressure with minimal blowdown. Buna N O-Rings and 316 stainless steel construction throughout are standard.

The pilot is non-flowing at full open, improving its capabilities to handle dirty conditions and reduce icing problems. There are two unique features of the 39PV. It has the ability to be used on liquid, gas or steam service without any adjustments. The 39PV pop action pilot may be converted to

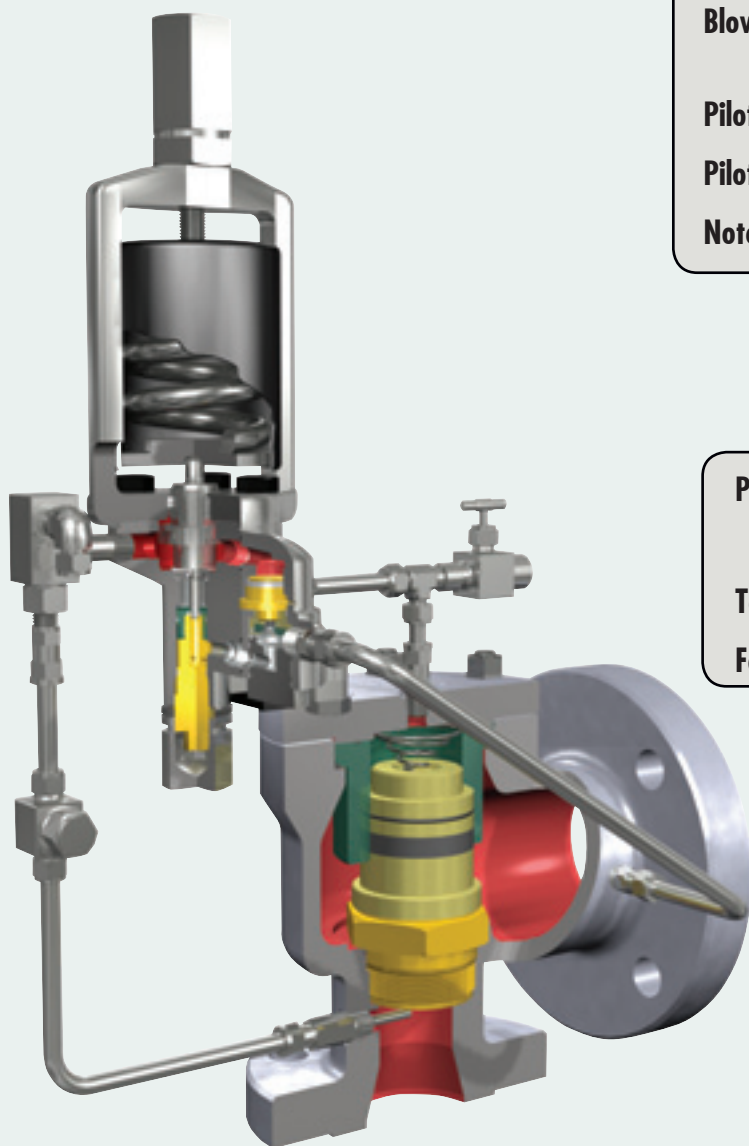
the 39MV modulating pilot by simply installing the Modulator Assembly. This simple, modular design allows for easier maintenance and fewer spare parts.

Set pressures are field adjustable, and testing is easily performed using the standard field test connection. Manual blowdown, sensing line filter, backflow preventer, and remote sensing are available as options.



Modulating Pilot (MV) - Operating Principles and Performance

The CONSOLIDATED MPV (Modular Pilot Valve) Pilot Operated Safety Relief Valve is also offered as a non-flowing modulating pilot design, using a unique modular configuration which allows for easy field conversion from pop operation to modulating operation. The modulating pilot operation is very similar to the pop pilot operation with the added ability to hold a percentage of system pressure above the main valve disc, producing a modulating action. Increasing system pressure results in reduced closing force due to venting through the pilot valve. Pressure relief begins at a designated set point as process media is discharged through the main valve. However, the actual lift of the main valve disc is based on the specific system overpressure condition instead of “popping” instantaneously to the 100% open position as with the pop pilot. This “modulating” action results in improved operating efficiencies through reduced media loss and lower emissions.



Modulating Pilot Performance

Pilot Tightness: 99% of set point

Blowdown: 1% to 4%, or 2 psi (whichever is greater) depending upon ramp rate.

Pilot Tightness after Pop: 96% of set point

Pilot Tightness after Reseat: 99% of set point

Note: Tightness is defined as zero bubbles per minute.

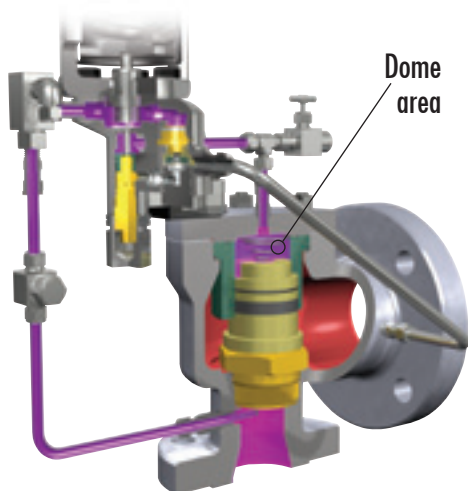
Common Characteristics

Pressure Ranges: 15 psig - 3750 psig (liquid or gas)
15 psig - 750 psig (steam)

Temperature Range: -40°F to 505°F

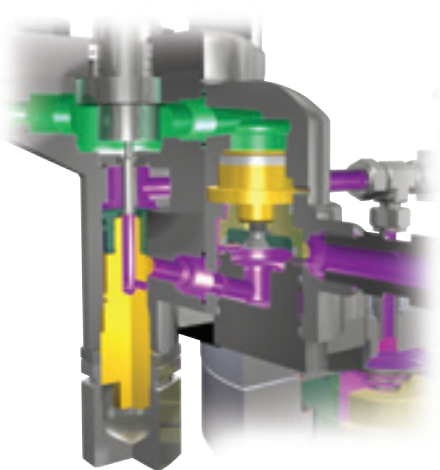
For liquid, gas, or steam service

Modulating Pilot Operation



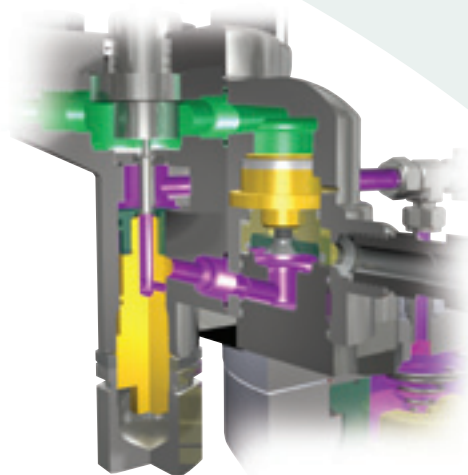
MV Valve Closed (Normal Position)

System pressure from the main valve inlet is fed to the dome area by the pilot through interconnecting tubing. This equalizes the pressure on the top of the disc with inlet pressure on the seating surface (bottom) of the disc. Since the area of the top of the disc is larger than the area of the seating surface, the differential area results in a net downward force keeping the main valve tightly closed.



MV Fully Open

As the inlet pressure increases further, the net upward force on the main valve increases, allowing the main valve to relieve more pressure. The disc obtains full lift (full capacity) within 10% of set pressure.



Modulating Position

As inlet pressure increases, the pilot piston strokes and seals off the main valve inlet pressure from the dome pressure. The pilot simultaneously opens the vent seal to relieve the dome pressure to the bottom of the modulator piston. The modulator piston has a differential area with the smaller area being on top. The top of this piston always sees the main valve inlet pressure. When the dome pressure is applied to the bottom of the modulator piston, there is a net upward force. This is due to both pressures being equal (at this point), and the lower area is larger than the upper area. The modulator relieves pressure from the dome to the atmosphere until force from the inlet pressure on top of the modulator piston is sufficient to move it to the closed position. A certain amount of pressure remains in the dome. This pressure is controlled by the differential area in the modulator. Since the dome pressure has not been dropped to atmospheric pressure, the main valve only partially opens at the set point. The modulator piston will remain closed until the main valve disc is forced into higher lift by increasing inlet pressure. As this occurs, the modulator piston may relieve further pressure from the dome as necessary to achieve the required main disc lift within 10% overpressure.

Return to Normal Position

When the discharging valve reduces the inlet pressure to the pre-set blowdown pressure of the pilot, the pilot piston closes the vent seal. Simultaneously, the inlet seal is reopened in the pilot. The main valve inlet pressure is again allowed to enter the dome above the main valve disc. As the dome pressure equalizes with the inlet pressure, the downward force created by the differential areas of the disc closes the main valve.

3900 Series Type 39MV Pilot

Modulating Action, Non-Flowing

For Set Pressures 15 psig to 3750 psig



3900 with
39MV Modulating Action

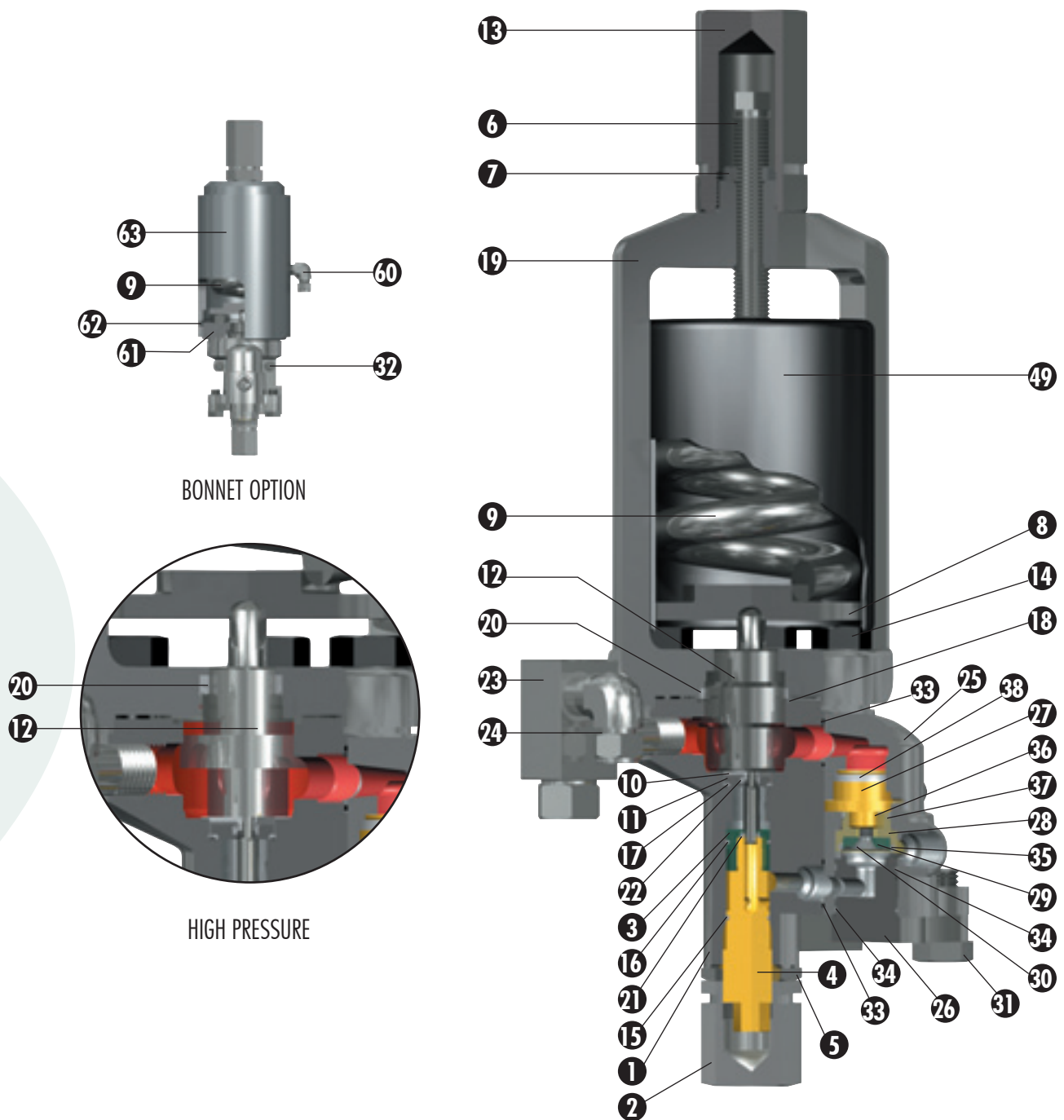
	Part	Material ¹
1	Main Base	SA351 Grade CF8M Stainless Steel
2	Adjuster Cap	316 SS
3	Adjuster Top	316 SS
4	Adjuster Bottom	316 SS
5	Adjuster Lock Nut	316 SS
6	Compression Screw	316 SS
7	Compression Screw Lock Nut	316 SS
8	Spring Washer	316 SS
9	Spring ¹	Chrome Steel (Phosphated)
10	Insert Top	316 SS
11	Insert Bottom	316 SS
12	Main Piston	316 SS
13	Compression Screw Cap	316 SS
14	Yoke Cap Screw	316 SS
15	Adjuster Bottom O-Ring	Select
16	Adjuster Top O-Ring	Select
17	Insert O-Ring	Select
18	Main Base O-Ring	Select
19	Yoke	SA351 Grade CF8M Stainless Steel
20	Main Piston Spring Seal	Teflon®
21	Adjuster Top Spring Seal	Teflon®
22	Insert Spring Seal	Teflon®
23	Field Test Connector	-
	- Ball	316 SS
	- Seat O-Ring	Select
	- Plug O-Ring	Select
	- Base	316 SS
	- Plug	316 SS
	- Tube Filter	316 SS
24	Vent Assembly/Bug Screen	
	- Male Elbow	316 SS
	- Screen	304 SS
25	Modulator Base	SA351 Grade CF8M Stainless Steel
26	Modulator Stop	SA351 Grade CF8M Stainless Steel
27	Modulator Piston Top	316 SS
28	Modulator Piston Bottom	316 SS
29	O-Ring Retainer	316 SS
30	Retainer Lock Screw	316 SS
31	Modulator Cap Screw	316 SS
32	Socket Head Cap Screw	316 SS
33	Modulator Base O-Ring	Select
34	Modulator Stop O-Ring	Select
35	Modulator Seat O-Ring	Select
36	Modulator Piston Bottom O-Ring	Select
37	Piston Bottom Spring Seal	Teflon®
38	Piston Top Spring Seal	Teflon®
49	Spring Cover	Peek (Polyetheretherketone)
60	Vent Assembly	-
	- Male Elbow	316 SS
	- Screen	304 SS
61	Top Plate	316 SS
62	Set Screw	316 SS
63	Bonnet	SA351 Grade CF8M Stainless Steel

NOTE: 1 Pilot valves are available in materials other than those shown above. Refer to the 2900 section of this catalog for alternate materials of construction.

Description

The CONSOLIDATED 39MV Pilot Operated Safety Relief Valve is a non-flowing modulating pilot valve that provides exceptional performance and stable operation. The 39MV design controls the attached main valve so as to relieve only enough system pressure to control the system upset, thereby minimizing the media lost. This patented technology is the latest advancement in pilot design within the pressure range of 15 psig to 3750 psig for vapor, liquid and steam service. The 39MV design is the only non-flowing modulating valve of its kind available with adjustable blowdown.

This unique modulator is a simple addition to the 39PV pop action design. The simplicity of design allows for easier maintenance and for lower spare parts inventory.



Options and Accessories

Option	Page	Option	Page
Backflow Preventer	3900.19	Manual Blowdown	3900.19
Bonnet (Vented)	3900.20	Pressure Differential Switch	3900.20
Dirty Service	3900.21	Pilot Valve Tester	3900.20
Dual Pilots	3900.20	Remote Pilot Mounting	3900.20
Field Test Connection	3900.19	Spring Cover	3900.20
Filters (Sensing Line, High Capacity & Dual)	3900.19	Remote Sensing	3900.20

Manual Blowdown Valve

An optional manual blowdown valve is available for relieving the pilot operated safety relief valve. Consult factory for applications requiring a pneumatic or electrical solenoid blowdown valve which may be connected to a distant location, such as an operator station, for remote actuation. The blowdown valve is ported directly to the main dome area, so that the media in the dome is vented when the blowdown valve is actuated, thus allowing the main valve to open.

For all applications on air, water over 140°F, or steam service, ASME Section VIII - Division 1 requires each pressure relief valve to have a lifting device such as a blowdown valve or a means of connecting or applying pressure to the pilot to verify that the moving parts essential to good operation are free to move. (Reference UG 136(a)(3)).

The lifting lever or blowdown valve may be omitted under Code Case 2203. All orders for pressure relief valves without levers or blowdown valves for steam, air and water over 140°F must state specifically that the valves are being purchased per Code Case 2203. The purchaser is responsible for obtaining jurisdictional authorization for use of Code Case 2203.

Field Test Connection

A 1/4" FNPT field test connection is standard on all pilot valve types. This allows the stroking of the valve with an auxiliary media, e.g. air or nitrogen. An internal check valve is present in the field test connection isolating the inlet media from the test media and at the same time, allowing the valve to open normally in the event of a system overpressurization during a field test.

Filters

Filter options are available for dirty applications. These filters are installed in the pilot inlet sensing line.

For the 39PV and 39MV, an optional sensing line filter is available. This filter has a 316 stainless steel body, Teflon® seals, and a 40-50 micron stainless steel filter element. This filter is standard for steam service.

Other high capacity filter options include: (1) a carbon steel cadmium coated filter body with a 35 micron stainless steel element, (2) a stainless steel filter body, and (3) an entirely stainless steel filter arrangement. The O-Ring in the filters for steam service will be Teflon®. These filters may be equipped with a manually operated needle valve which allows for purging the filtered material while the valve is in operation.

All filter elements are stainless steel, and all filters, including carbon steel, conform to NACE Standard MR0175.

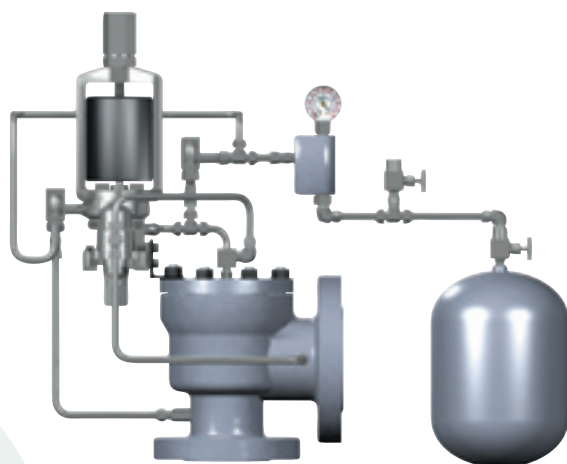
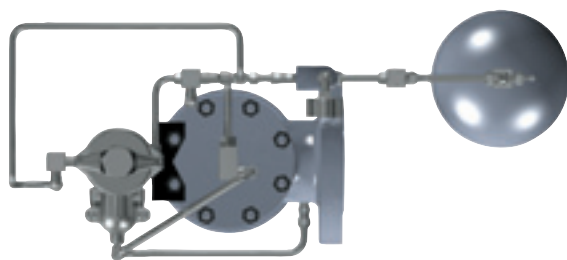
A dual filter arrangement is available for applications in which the customer is unsure of the filter maintenance requirements. In these cases, a preventive maintenance program may be developed by monitoring the filters, without taking the valve off line.

Backflow Preventer

When the pilot operated safety relief valve is not vented directly to atmosphere, it is possible to build up back pressure in the discharge line. This is typical in situations where several valves manifold into a common discharge header. Should the discharge line pressure exceed the valve inlet pressure, it could cause the piston to lift and allow reverse flow through the main valve. This situation can be eliminated through the use of the Backflow Preventer.

Pilot Valve Tester

The pilot valve test indicator is available for the modulating and pop action pilot valves. The valve test indicator measures the set pressure of the pilot, while maintaining pressure on the main valve dome area; thereby, allowing only the pilot to actuate. The system shown below is available for remote or local testing.



Spring Cover (optional)

Spring Cover

An optional metal spring cover that fits over the yoke arms.

Bonnet

A vented Bonnet that replaces the Yoke provides protection of personnel. The bonnet will protect the spring from external debris and weather conditions (See page 3900.14 or 3900.18).

Pressure Differential Switch

Electrical: A pressure differential switch is available which may be wired to an operator station or some other remote location. The switch will provide a signal that indicates when the main valve is opening. The standard pressure differential switch is a single pole, double throw, rate at 5 amps and 30 volts DC with a NEMA 4 enclosure. (For other configurations, consult the factory.)

Pneumatic: For applications that do not permit an electrical differential switch, an option is available to provide pneumatic signal to indicate when the main valve opens.

Remote Pilot Mounting

The 39PV and 39MV pilots can be mounted separately from the main valve. Remote pilot mounting will allow heating or cooling the pilot in case ambient conditions are outside the scope of the pilot. It will also enable the user to group several pilots together for control of ambient conditions in a smaller space. In addition, this promotes easier maintenance.

Dual Pilots

A dual pilot arrangement is available for applications in which the pilot valve O-Rings require monitoring and/or maintenance more often than the main valve. In this installation, the pilot valves may be alternated for maintenance, without bringing the system down.

NOTE: For all option and accessory material variations, contact the factory.

Remote Sensing

The pilot valve inlet may be piped to a location remote from the main valve. In this application, the customer may pipe the inlet sensing line to some location other than where the main valve is located and where the pressure will be relieved (for tubing size and maximum length, consult factory for recommendations.)

Dirty Service Option

Severe dirty service, precipitation and viscous fluid problems can be solved using the dirty service option offered on the 3900 POSRV. A dirty service option can be added to the standard pilot valve. The kit contains a 316 SS chamber, an isolation seal and an extended pilot piston. The module is positioned at the top of the pilot valve body and below the pilot valve yoke. Crucial valve components such as the modulator, dome assembly, vent, and inlet seals never come in contact with the dirty system media. The process media pressure still controls the set pressure and blowdown of the POSRV.

For applications requiring the main valve to relieve the dirty fluid, an alternate clean media supply is piped to the pilot. The alternate clean media must be set at the same pressure as the set pressure of the pilot valve, but cannot exceed 3750 psig, which is the design limit of the pilot valve. In the event that the alternate clean media supply is lost, the main valve will fail in the open position.

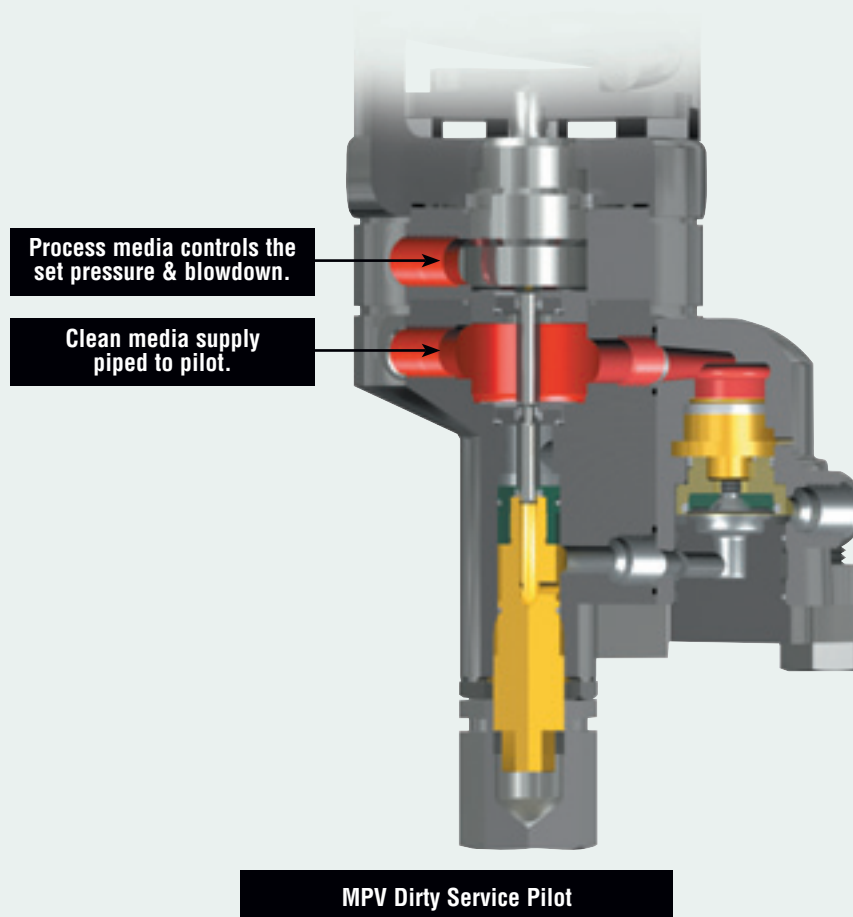
For applications requiring the main valve to relieve clean fluid upstream of the dirty process in order to maintain the dirty process pressure at safe levels, the dirty process pressure is supplied to the dirty service module. The sensing line from the main valve and the connection to the main valve dome is connected to the pilot in the normal manner. The pilot is set to operate at the design pressure of the dirty process. When the dirty process pressure reaches the set to open pressure of the

pilot, the pilot is stroked by the increase in the dirty process pressure and the pilot performs the block and bleed operations to effect opening of the main valve. When the dirty process pressure reaches the set to close pressure of the pilot, the pilot is stroked by the reduction in the dirty process pressure and the pilot performs the block and bleed operations to effect the closing of the main valve.

The dirty service module is a closed chamber. The flow of dirty process media to the pilot valve is only that volume required to stroke the pilot in response to increasing dirty process pressure. The limited volume of flowing dirty media entering the pilot makes plugging of the module an unlikely possibility. However, if plugging of the module is a concern, the module can be filled with a compatible clean liquid and a siphon tube can be fitted in the connection line between the pilot module and the dirty process.

The dirty service option can provide some cost savings in material selection for corrosive service. It is possible that only the material of construction for the dirty service option will need to be upgraded. The remaining parts in contact with clean media could use standard materials of construction.

NOTE: For special material options on the dirty service option consult the factory.



Alternate Piping Arrangements

	Main Valve	
	Single Outlet	Double Outlet
39PV with Pilot Valve Vented to Atmosphere		
Standard Field Test Connection	3900.23	3900.26
Manual Blowdown	3900.23	3900.26
Pilot Supply Filter	3900.24	3900.27
Backflow Preventer	3900.24	3900.27
Manual Blowdown and Pilot Supply Filter	3900.25	3900.28
Backflow Preventer, Manual Blowdown and Pilot Supply Filter	3900.25	3900.28

39MV with Pilot Valve Vented to Atmosphere		
Standard Field Test Connection	3900.29	3900.32
Manual Blowdown	3900.29	3900.32
Pilot Supply Filter	3900.30	3900.33
Backflow Preventer	3900.30	3900.33
Manual Blowdown and Pilot Supply Filter	3900.31	3900.34
Backflow Preventer, Manual Blowdown and Pilot Supply Filter	3900.31	3900.34

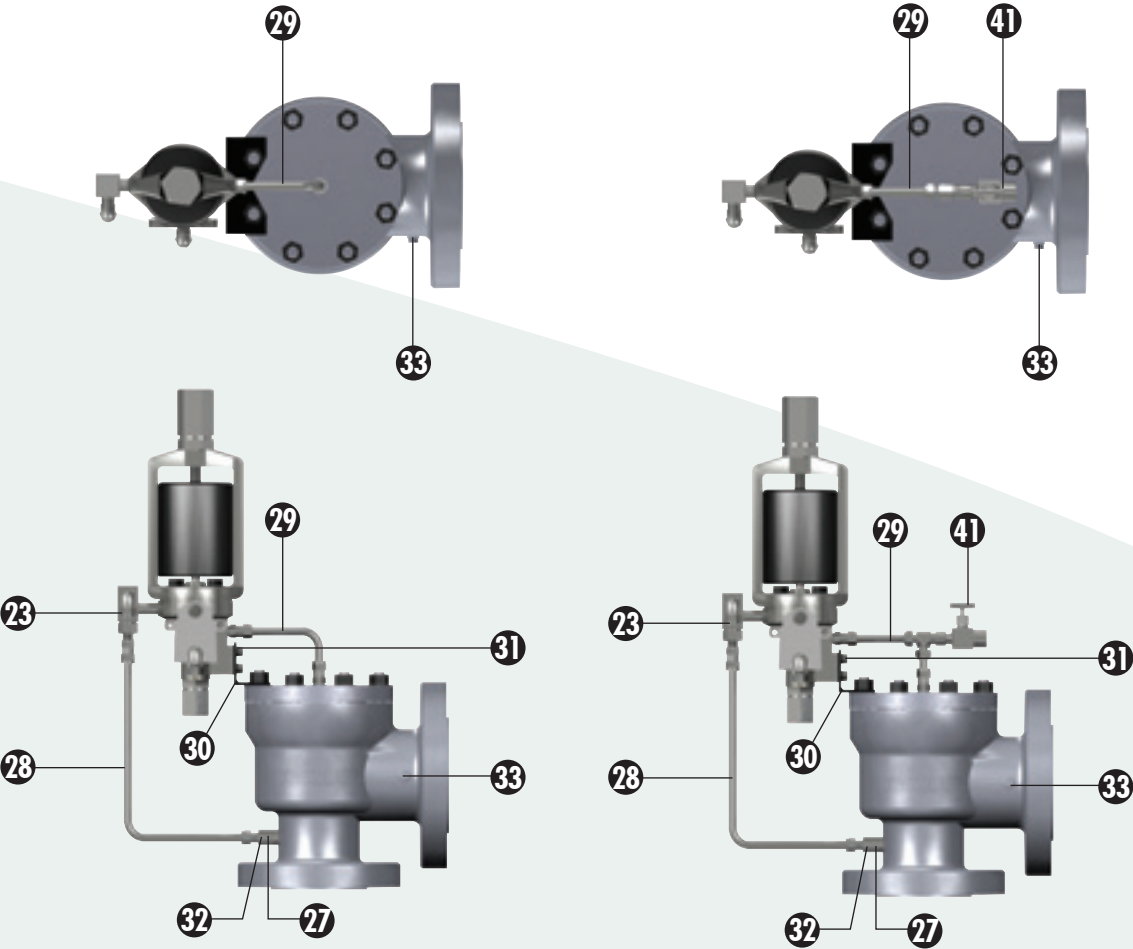
39PV with Pilot Valve Vented to Body Bowl		
Standard Field Test Connection	3900.35	3900.38
Manual Blowdown	3900.35	3900.38
Pilot Supply Filter	3900.36	3900.39
Backflow Preventer	3900.36	3900.39
Manual Blowdown and Pilot Supply Filter	3900.37	3900.40
Backflow Preventer, Manual Blowdown and Pilot Supply Filter	3900.37	3900.40

39MV with Pilot Valve Vented to Body Bowl		
Standard Field Test Connection	3900.41	3900.44
Manual Blowdown	3900.41	3900.44
Pilot Supply Filter	3900.42	3900.45
Backflow Preventer	3900.42	3900.45
Manual Blowdown and Pilot Supply Filter	3900.43	3900.46
Backflow Preventer, Manual Blowdown and Pilot Supply Filter	3900.43	3900.46

Alternate Piping Arrangements

3900 Series Type 39PV Pilot with Single Outlet

[Pilot Vented to Atmosphere]



Pilot Valve w/ Standard Field Test Connection
(Standard For All Media Applications)

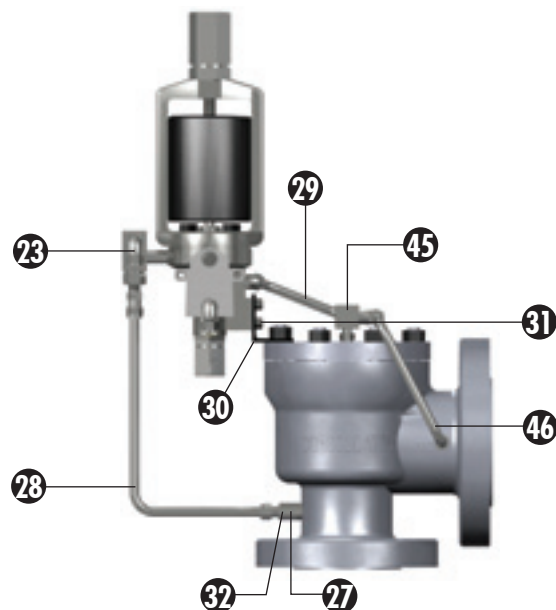
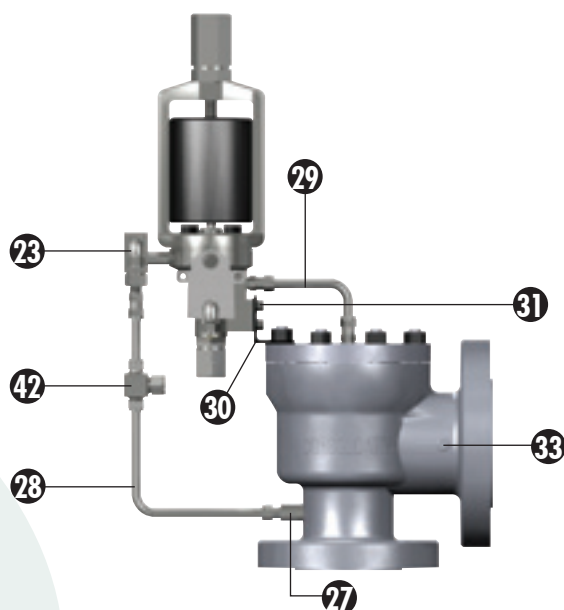
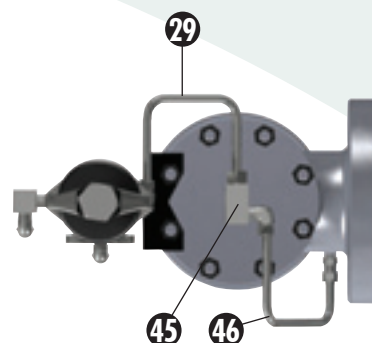
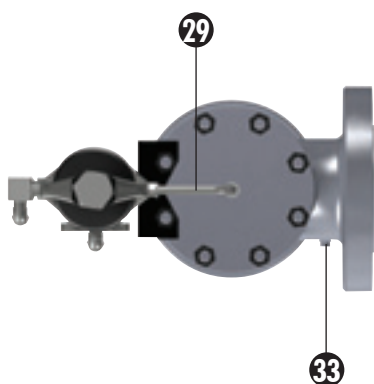
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
33	Pipe Plug	Carbon Steel

Pilot Valve w/ Manual Blowdown
(Optional For All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
33	Pipe Plug	Carbon Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39PV Pilot with Single Outlet

[Pilot Vented to Atmosphere]



Pilot Valve w/ Pilot Supply Filter
(Optional For All Media Applications)

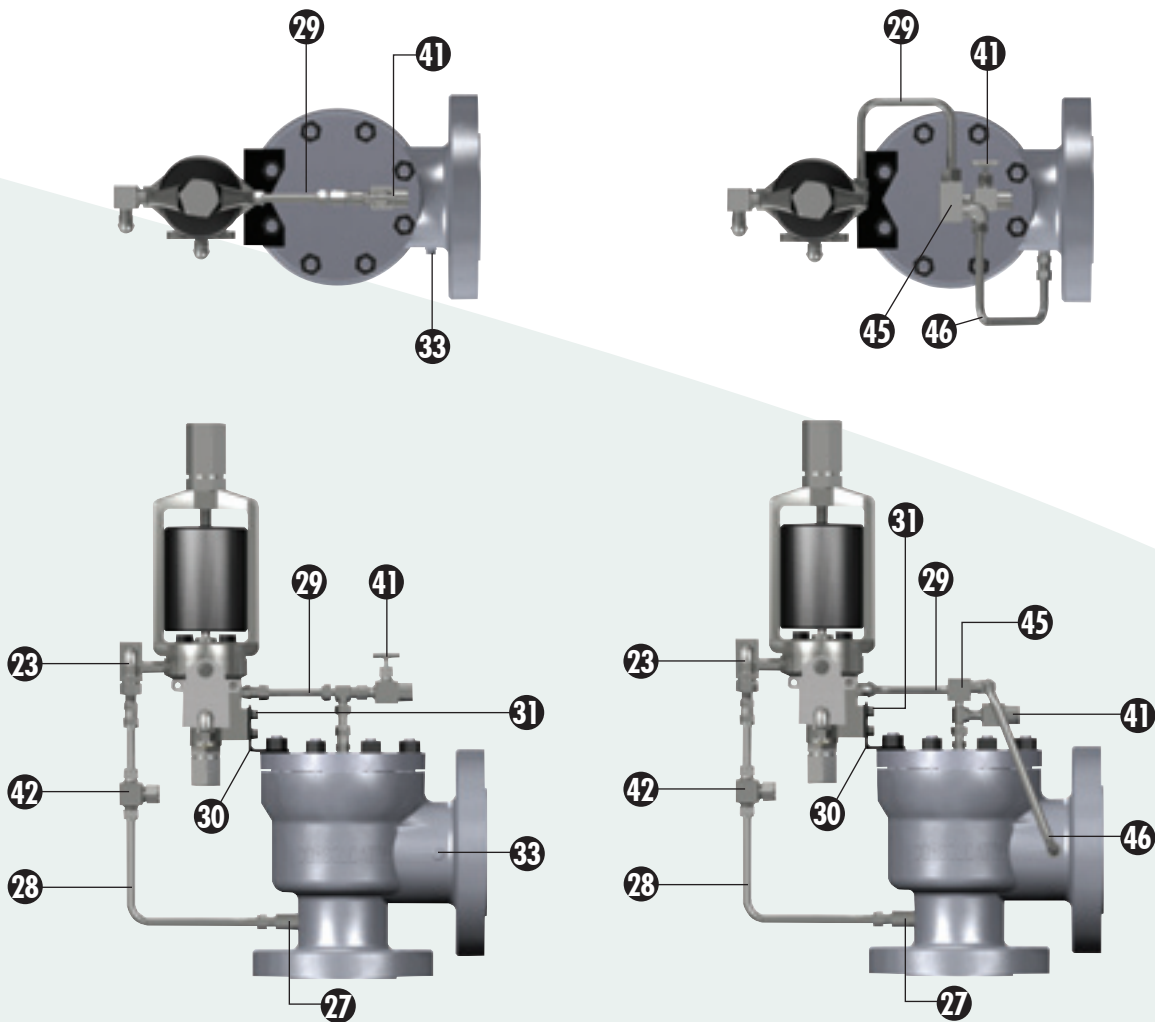
	Part	Material
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27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional For Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Single Outlet

[Pilot Vented to Atmosphere]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

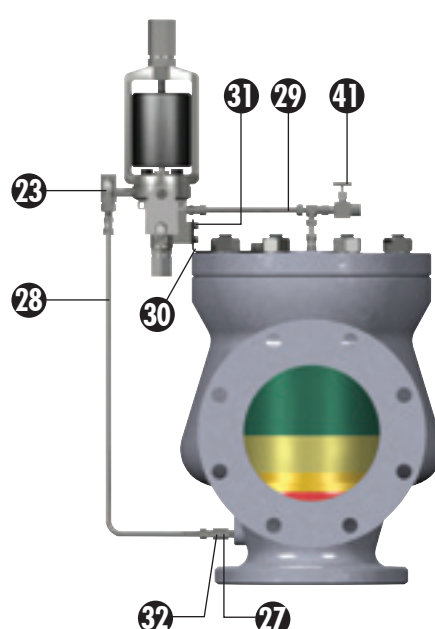
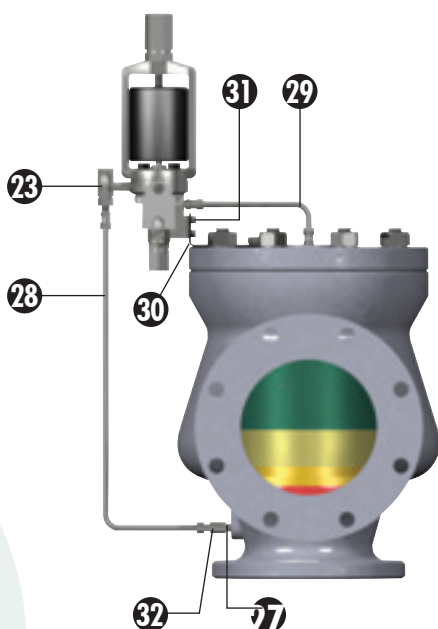
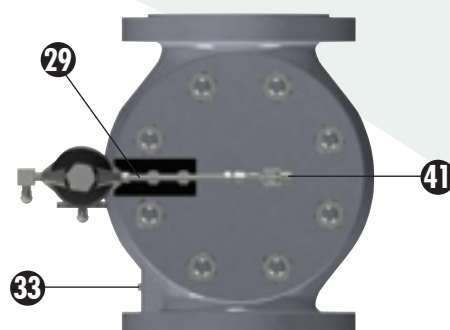
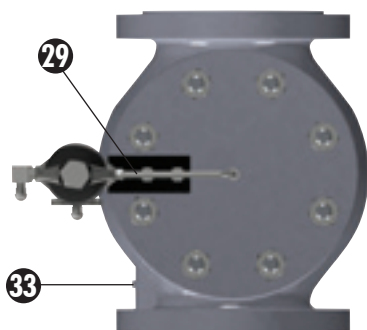
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Manual Blowdown &
Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Atmosphere]



**Pilot Valve w/ Field Test Connection
(Standard For All Media Applications)**

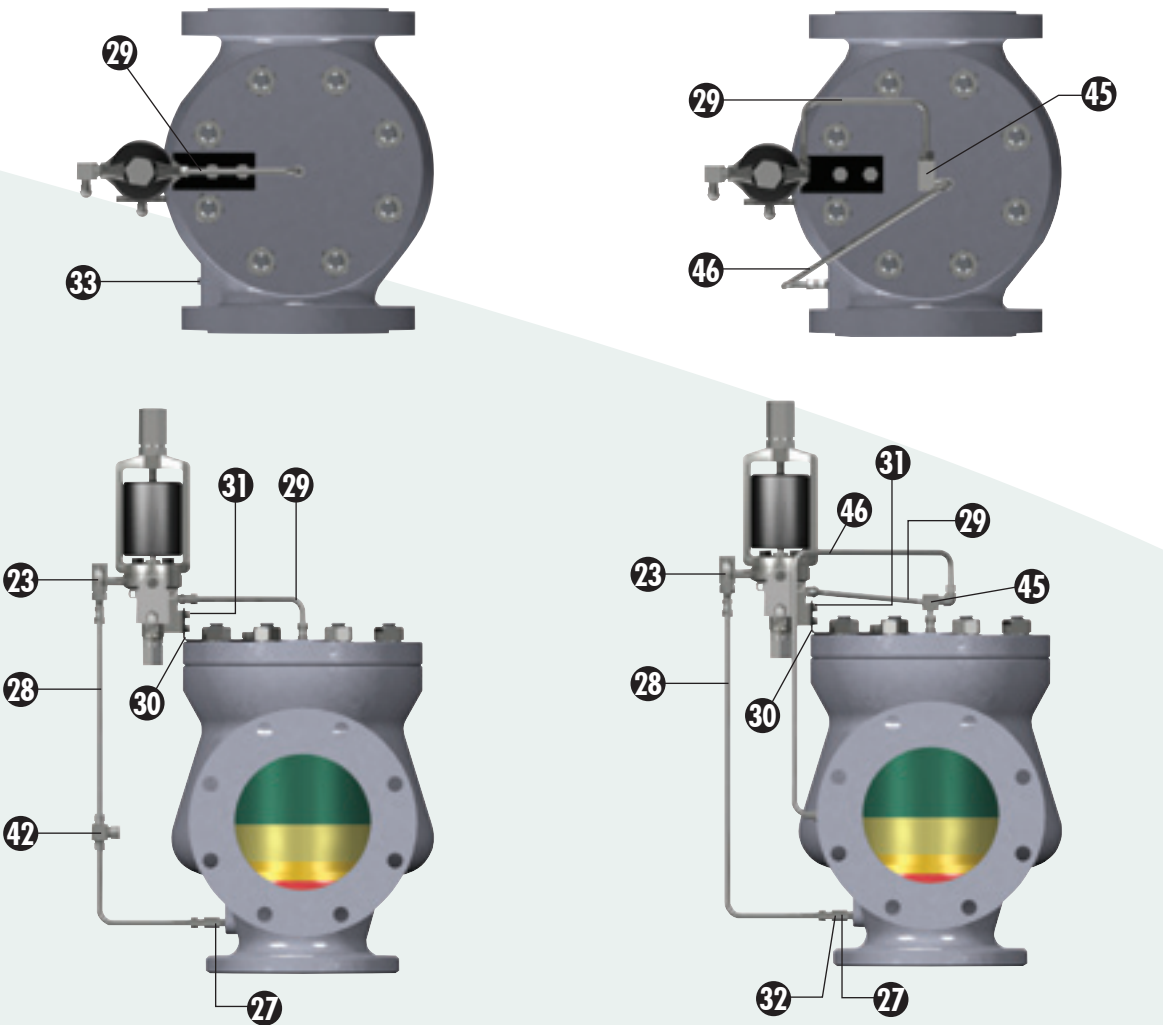
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
33	Pipe Plug	Carbon Steel

**Pilot Valve w/ Manual Blowdown
(Optional For Liquid & Gas Applications)**

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
33	Pipe Plug	Carbon Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Atmosphere]



Pilot Valve w/ Pilot Supply Filter
(Optional For All Media Applications)

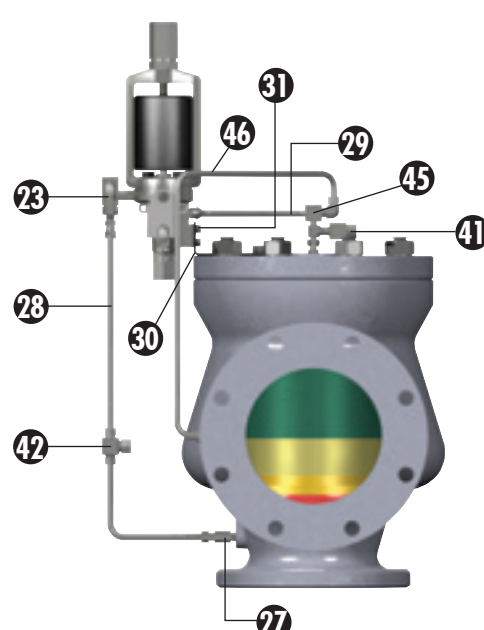
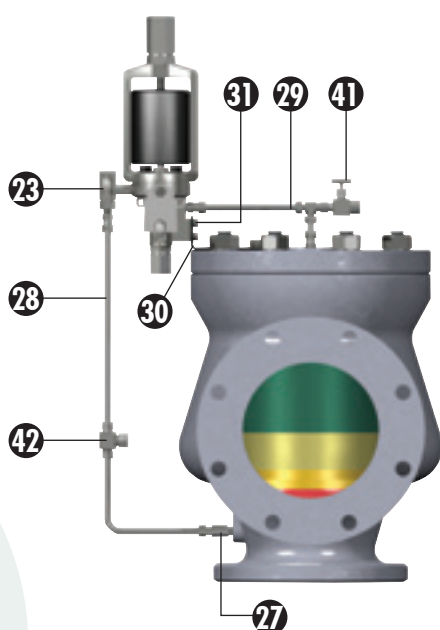
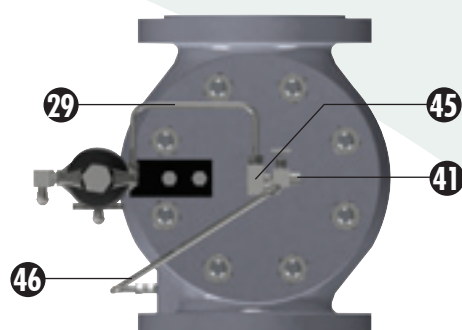
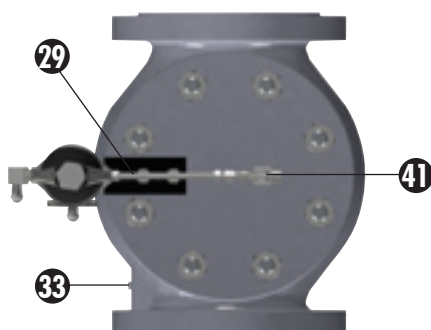
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional For Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Atmosphere]



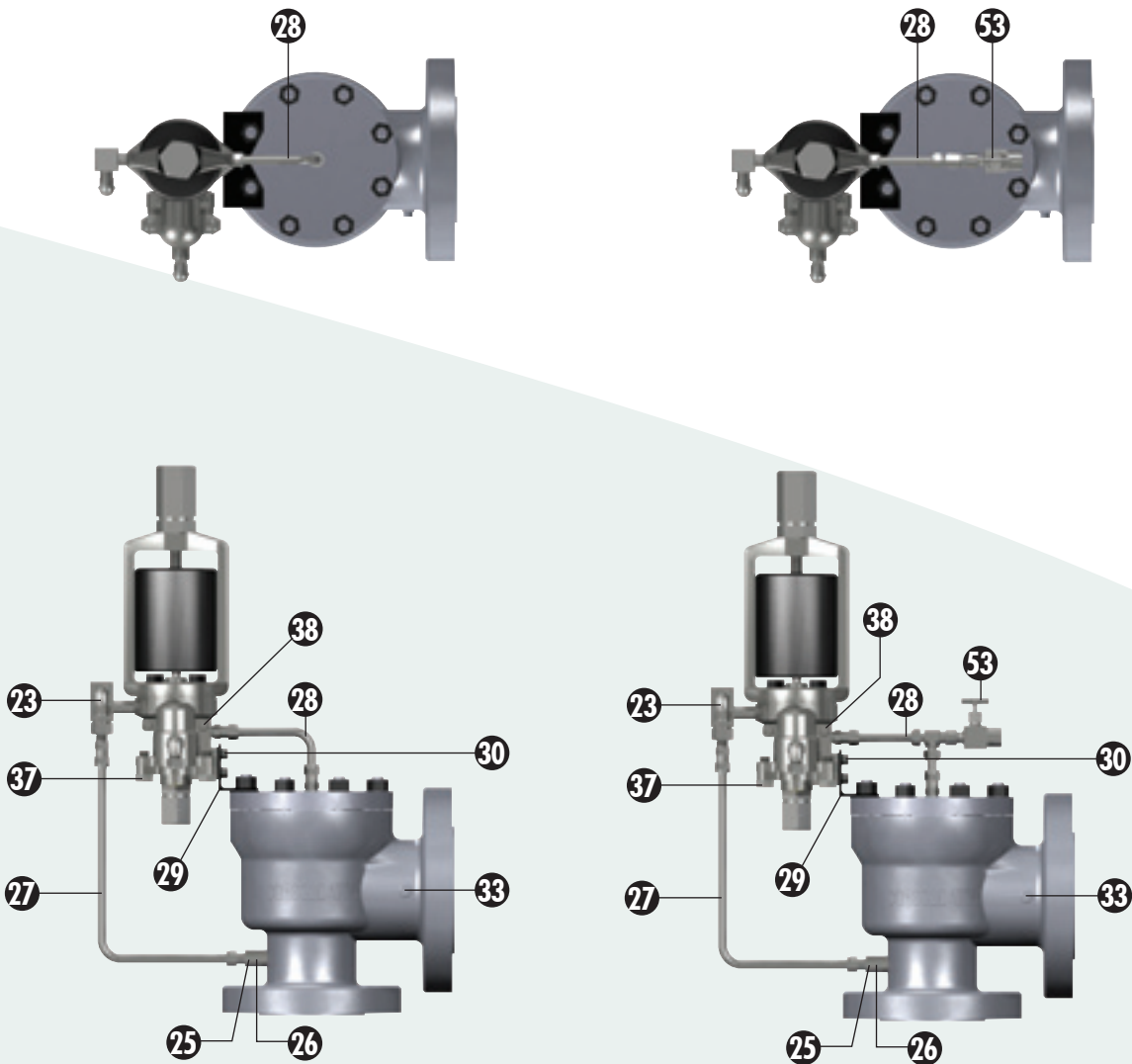
Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet
[Pilot Vented to Atmosphere]



Pilot Valve w/ Standard Field Test Connection
(Standard for All Media Applications)

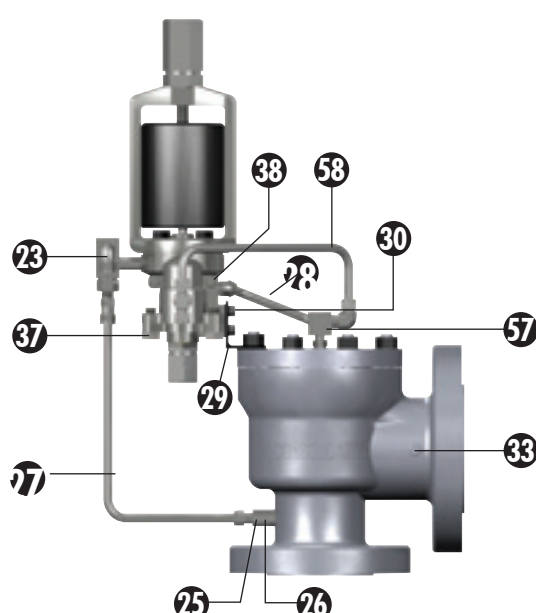
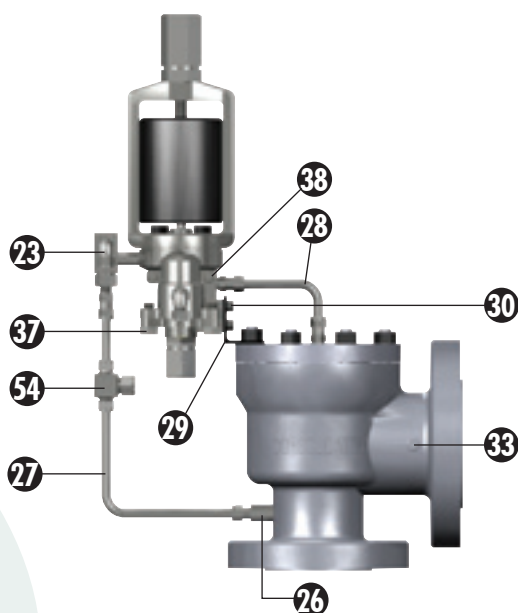
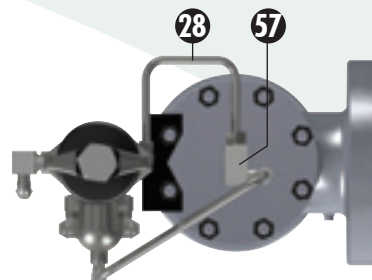
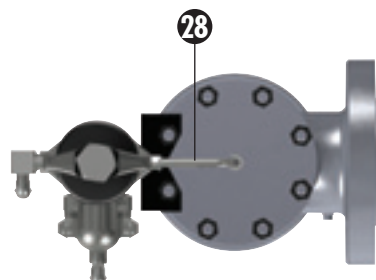
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel

Pilot Valve w/ Manual Blowdown
(Optional for All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet

[Pilot Vented to Atmosphere]



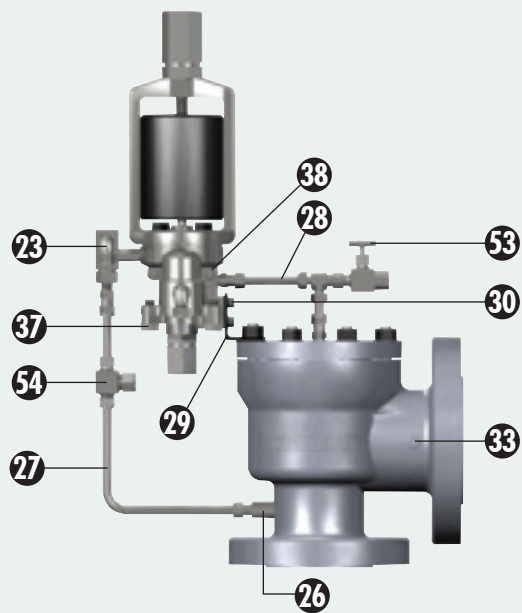
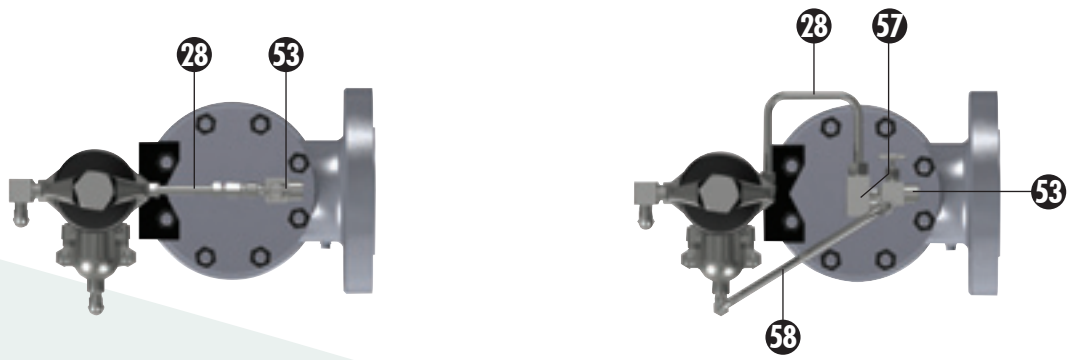
Pilot Valve w/ Pilot Supply Filter
(Optional for All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional for Liquid & Gas Applications)

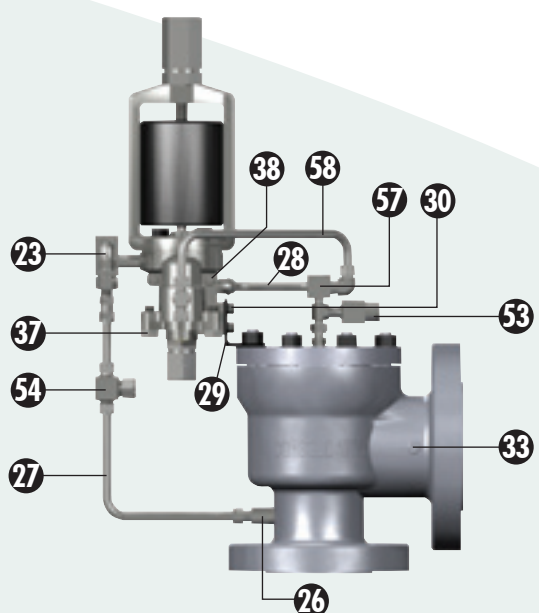
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet
[Pilot Vented to Atmosphere]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

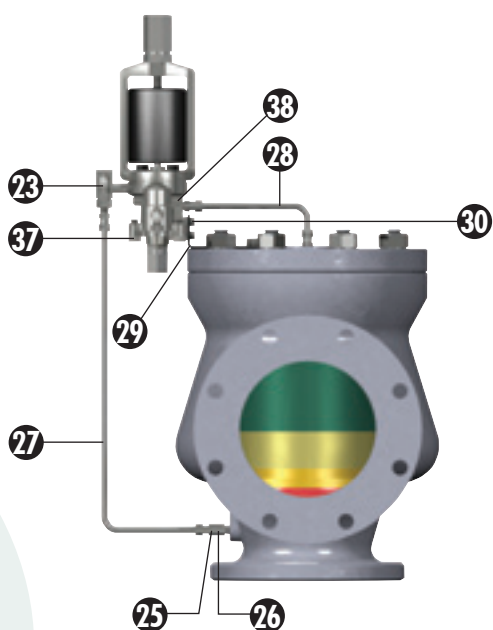
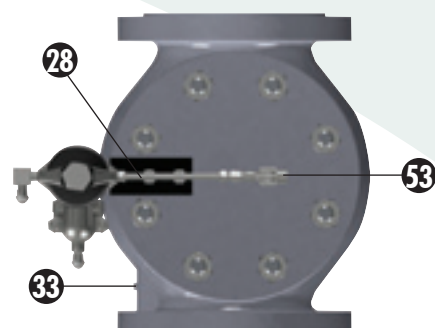
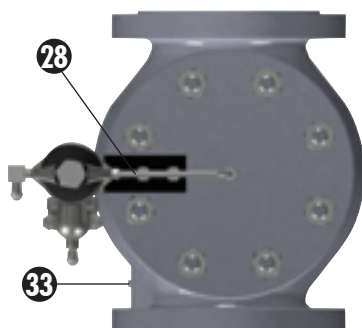


Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

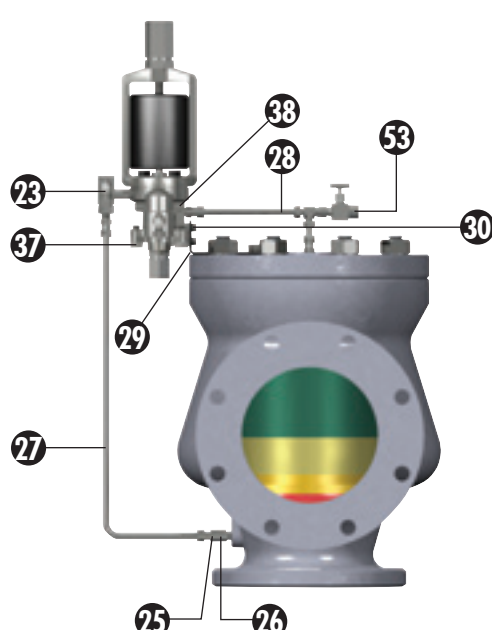
39MPV Series Type 39MV Pilot with Double Outlet

[Pilot Vented to Atmosphere]



**Pilot Valve w/ Field Test Connection
(Standard for All Media Applications)**

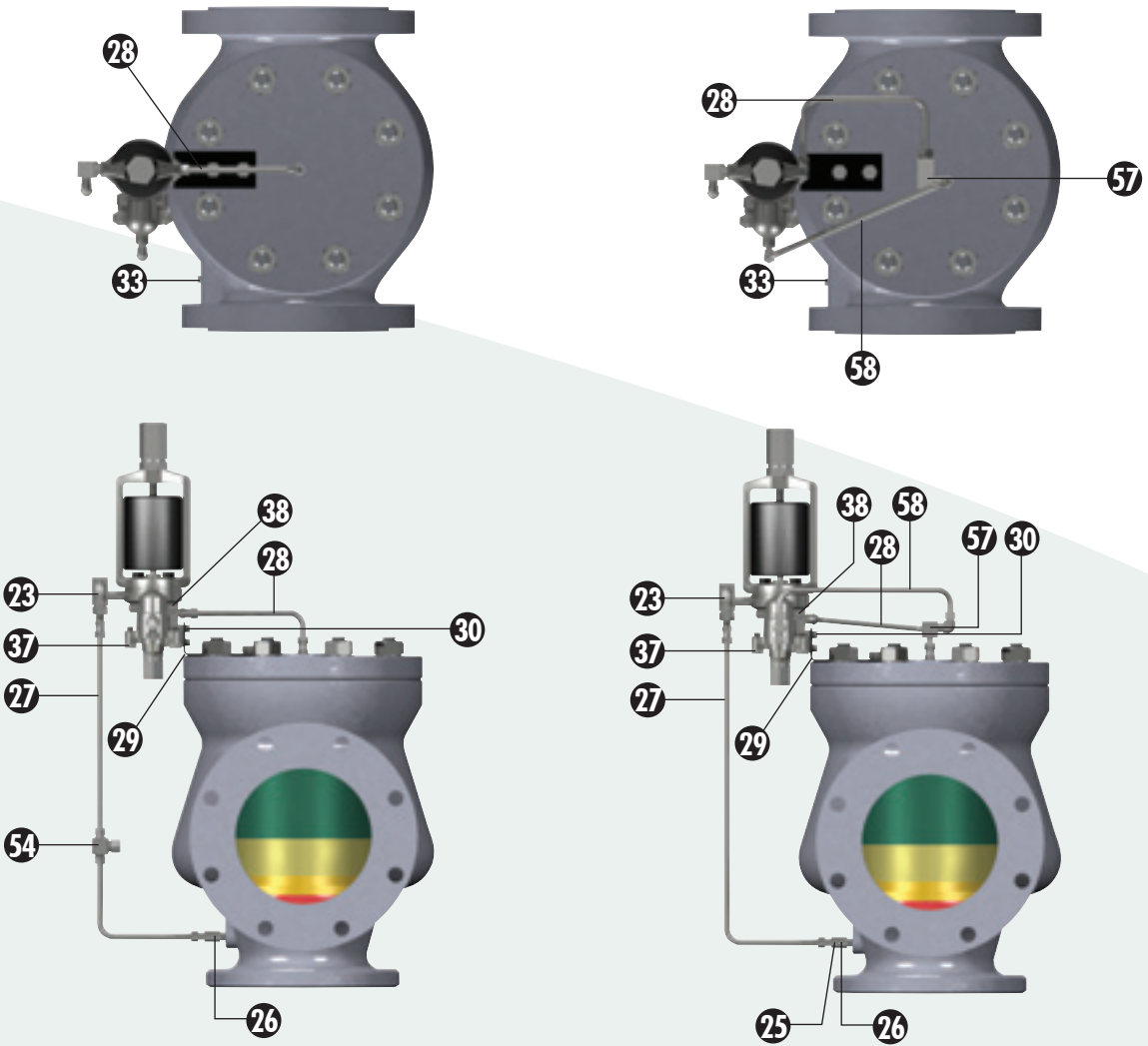
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel



**Pilot Valve w/ Manual Blowdown
(Optional for All Media Applications)**

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39MV Pilot with Double Outlet
[Pilot Vented to Atmosphere]



Pilot Valve w/ Pilot Supply Filter
(Optional for All Media Applications)

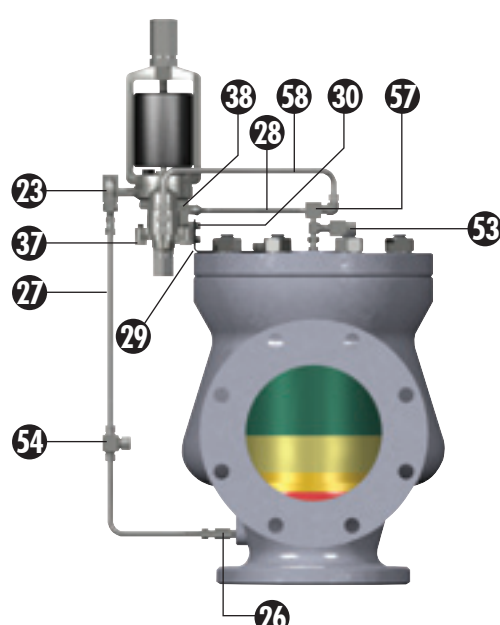
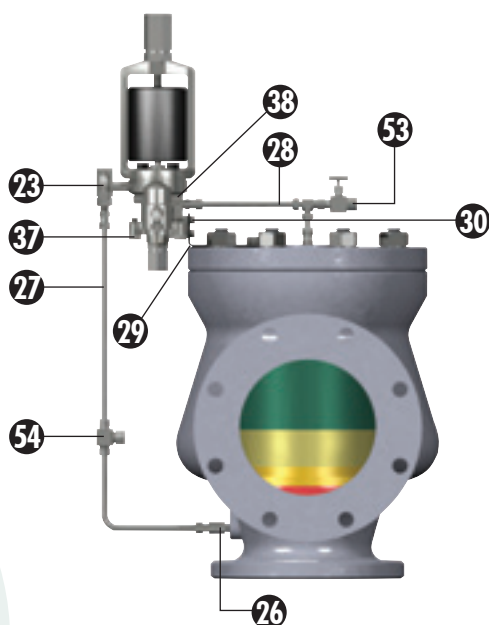
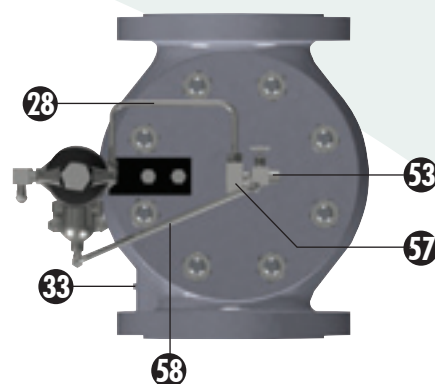
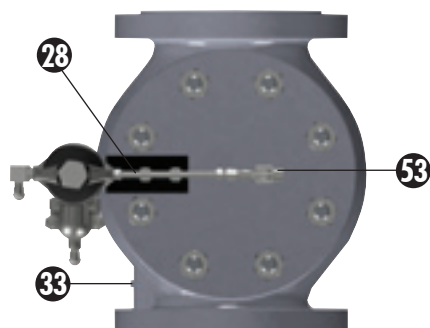
	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Double Outlet

[Pilot Vented to Atmosphere]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

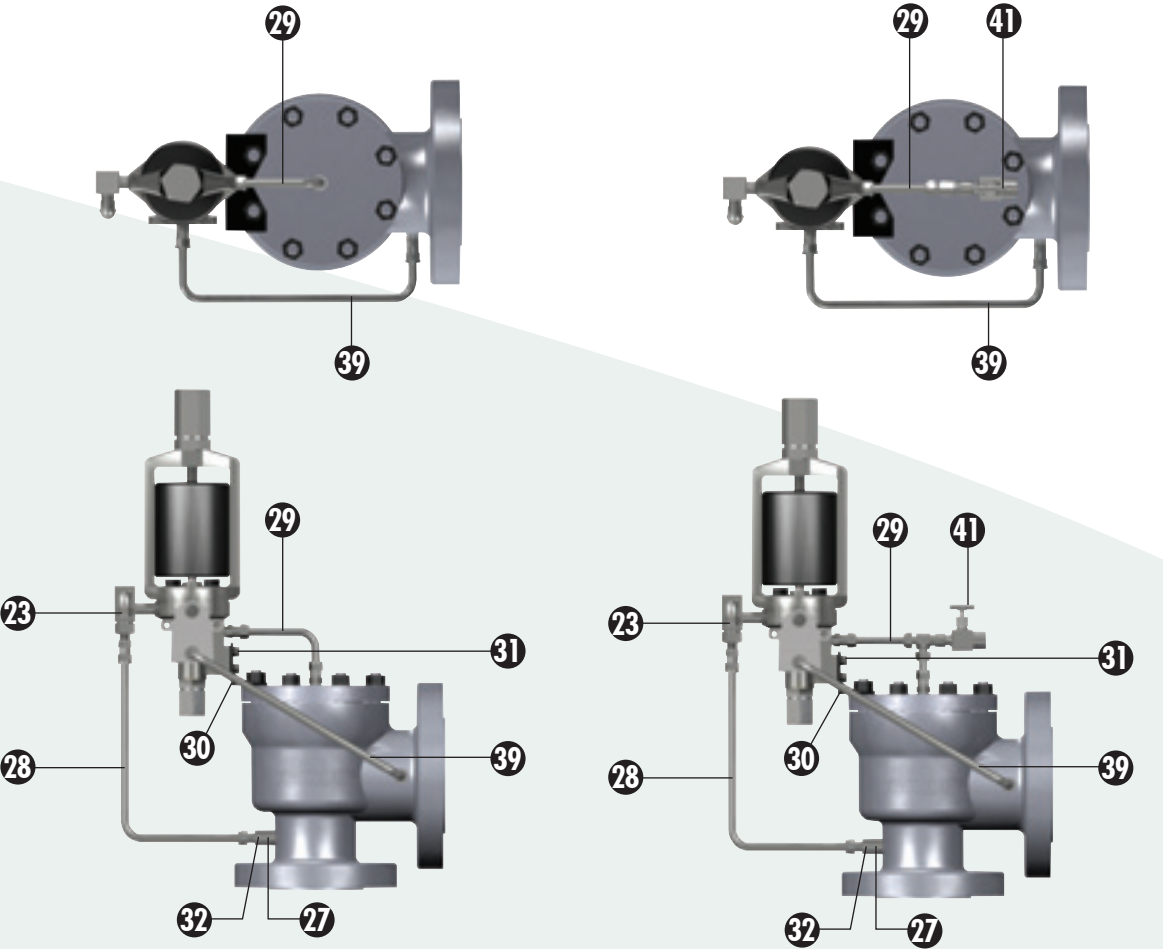
Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional for Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
33	Pipe Plug	Carbon Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

Alternate Piping Arrangements

3900 Series Type 39PV Pilot with Single Outlet

[Pilot Vented to Body Bowl]



**Pilot Valve w/ Standard Field Test Connection
(Standard For All Media Applications)**

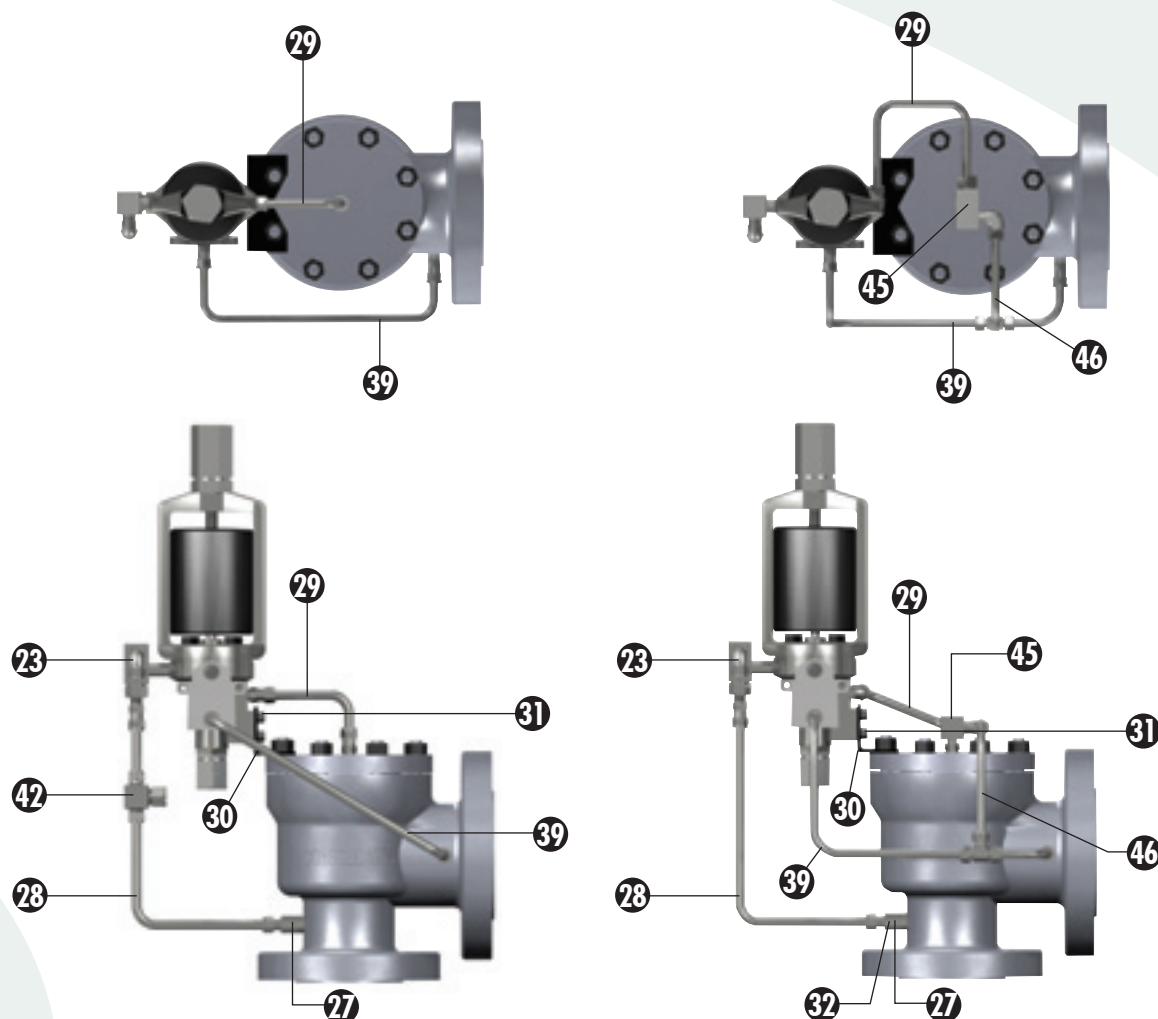
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel

**Pilot Valve w/ Manual Blowdown
(Optional For All Media Applications)**

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39PV Pilot with Single Outlet

[Pilot Vented to Body Bowl]



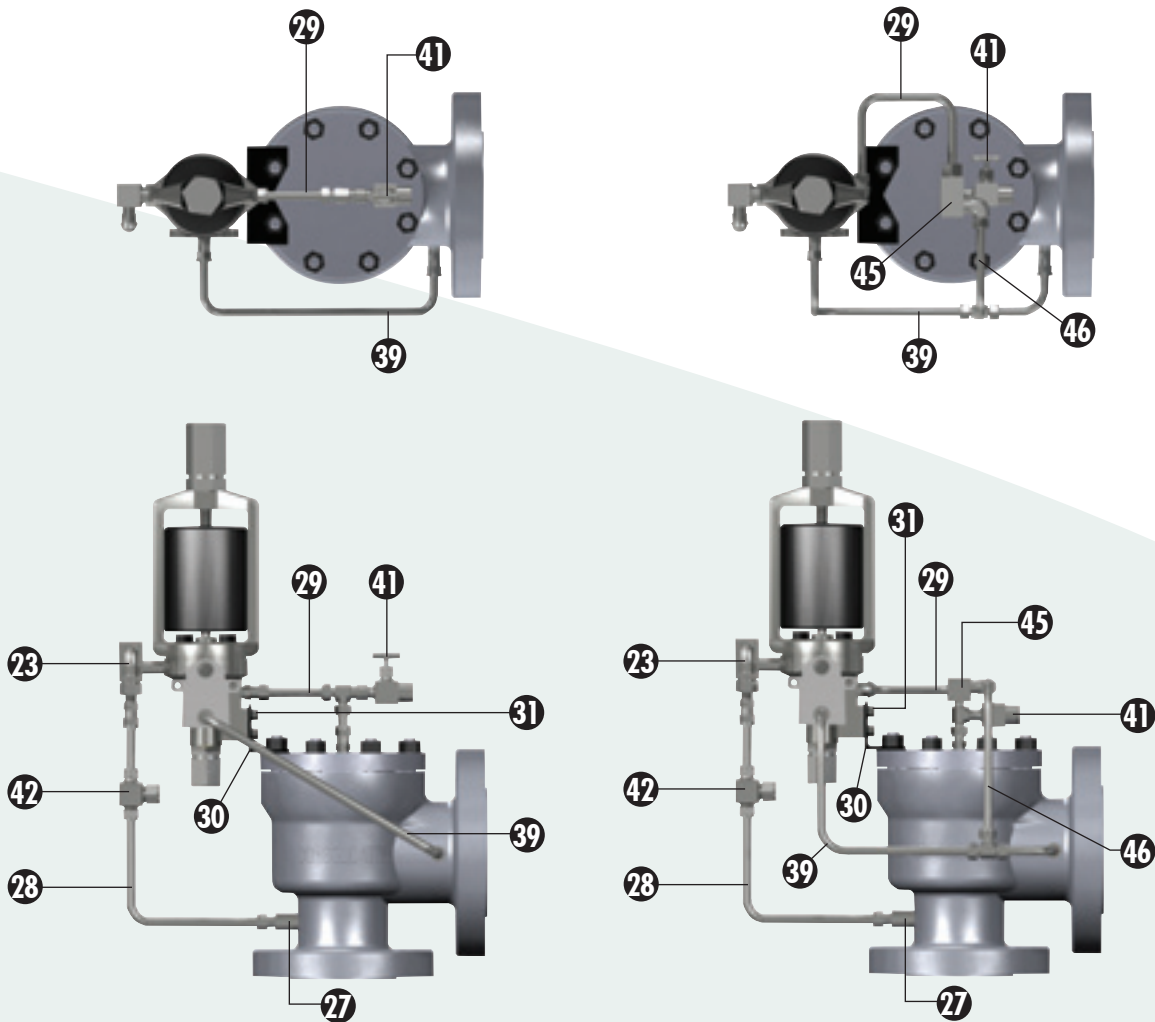
Pilot Valve w/ Pilot Supply Filter
(Optional For All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional For Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Single Outlet
[Pilot Vented to Body Bowl]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

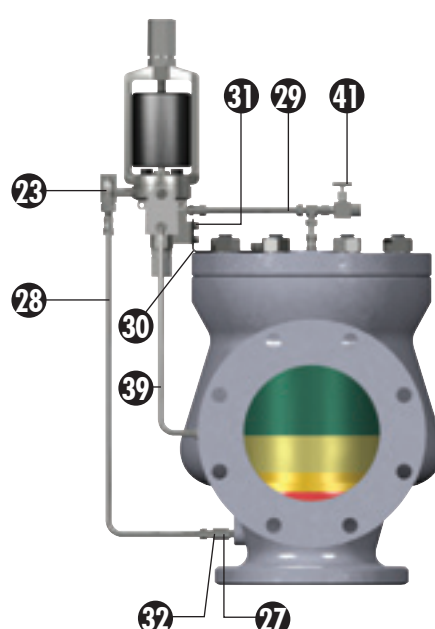
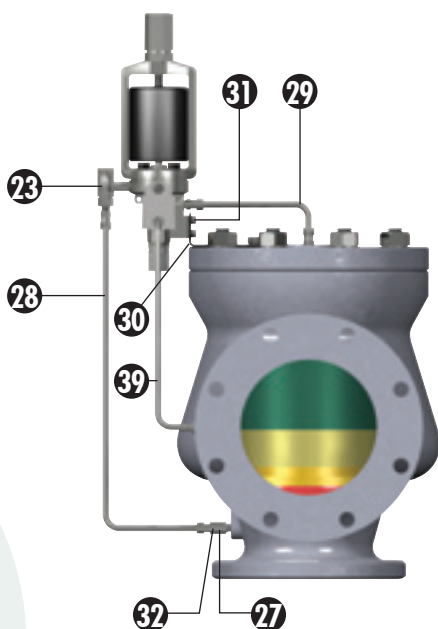
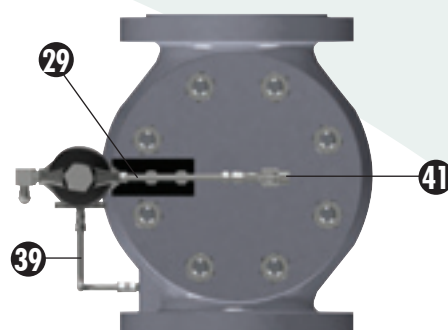
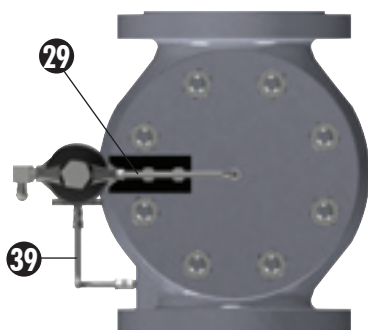
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Body Bowl]



**Pilot Valve w/ Field Test Connection
(Standard For All Media Applications)**

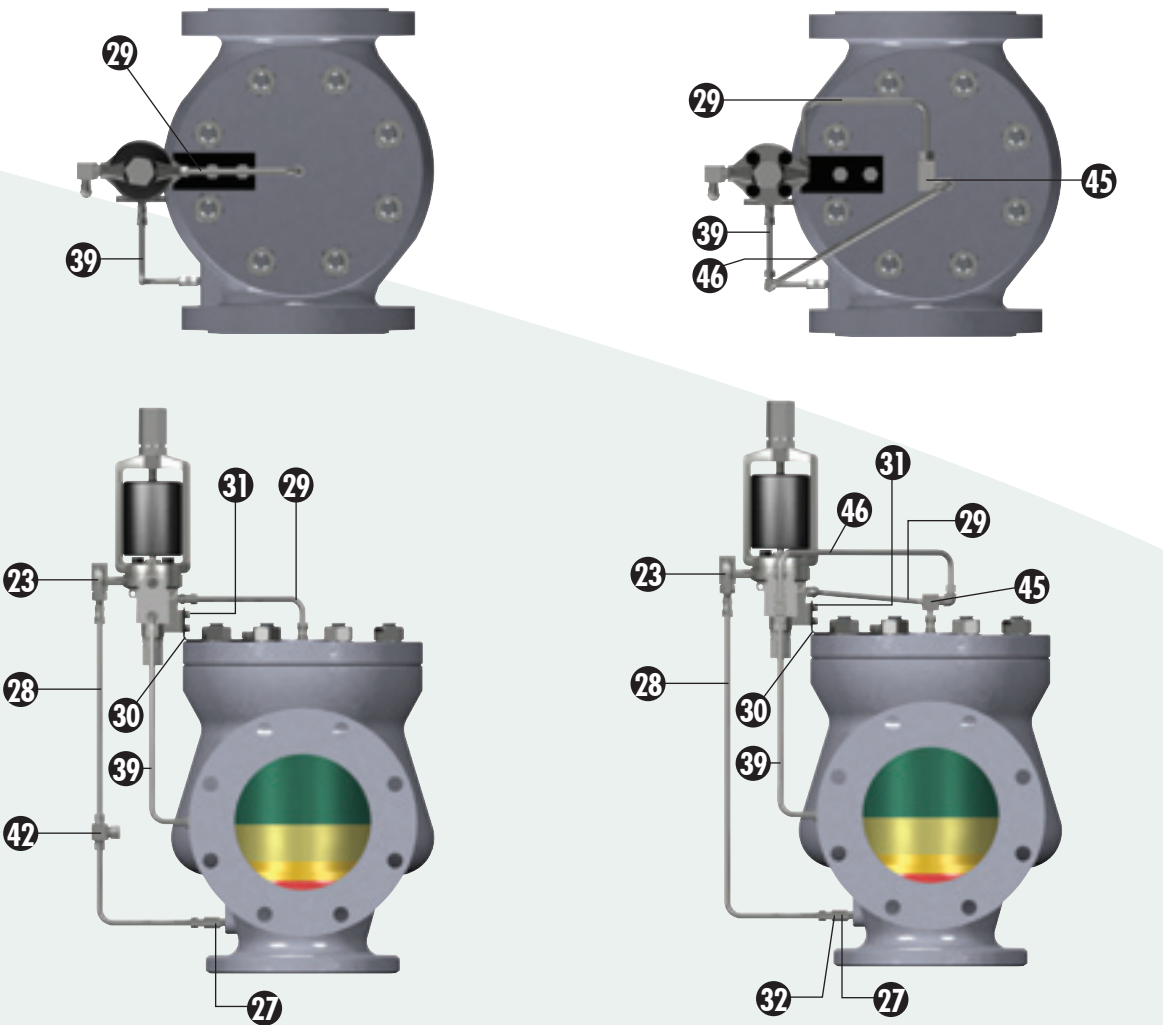
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23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel

**Pilot Valve w/ Manual Blowdown
(Optional For Liquid & Gas Applications)**

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Body Bowl]



Pilot Valve w/ Pilot Supply Filter
(Optional For All Media Applications)

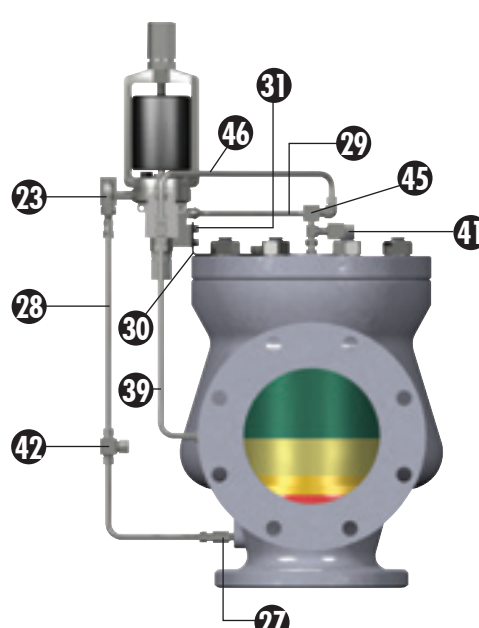
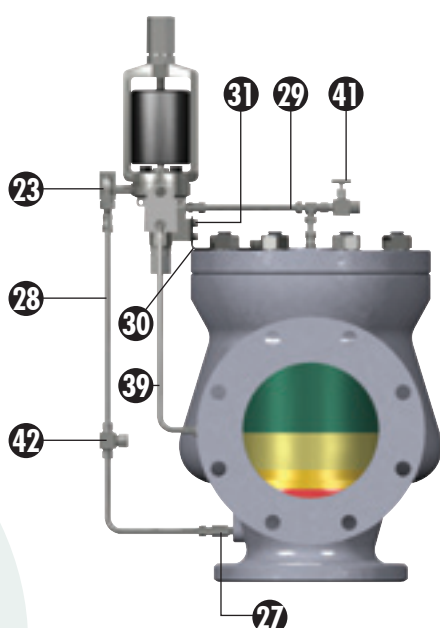
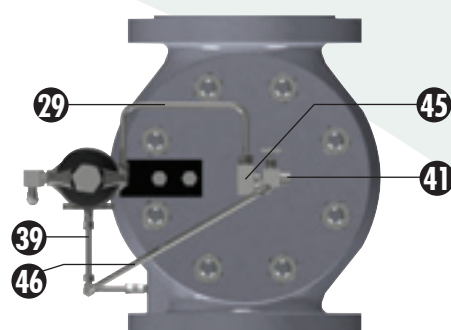
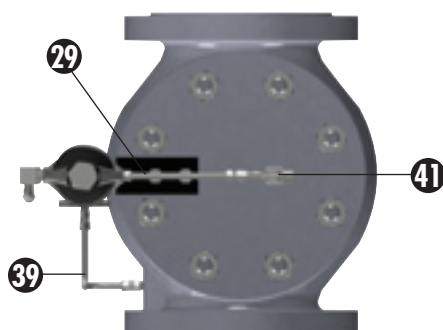
	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional For Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
32	Plug Filter	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39PV Pilot with Double Outlet

[Pilot Vented to Body Bowl]



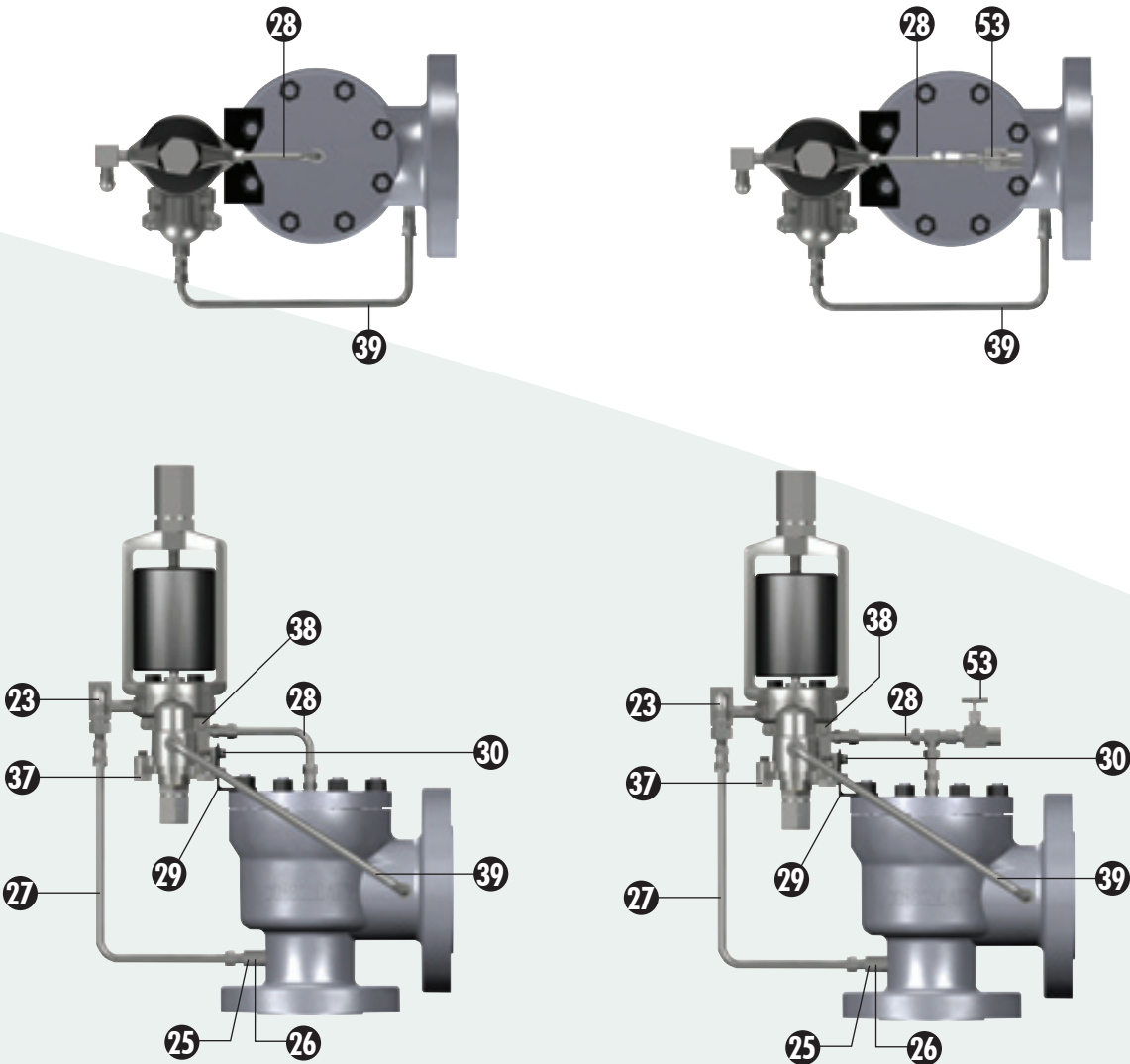
Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
27	Sensing Tube	316 Stainless Steel
28	Sensing Line	316 Stainless Steel
29	Dome Line	316 Stainless Steel
30	Bracket	Carbon Steel
31	Bracket Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
41	Needle Valve (Manual Blowdown)	316 Stainless Steel
42	Pilot Supply Filter	316 Stainless Steel
45	Backflow Preventer	316 Stainless Steel
46	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet



Pilot Valve w/ Standard Field Test Connection
(Standard for All Media Applications)

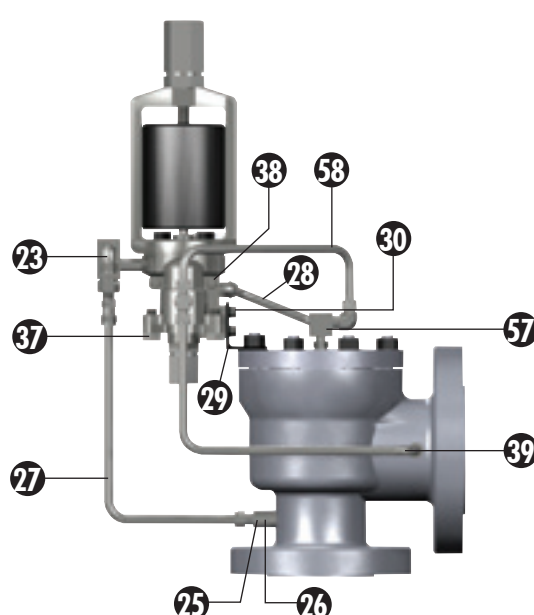
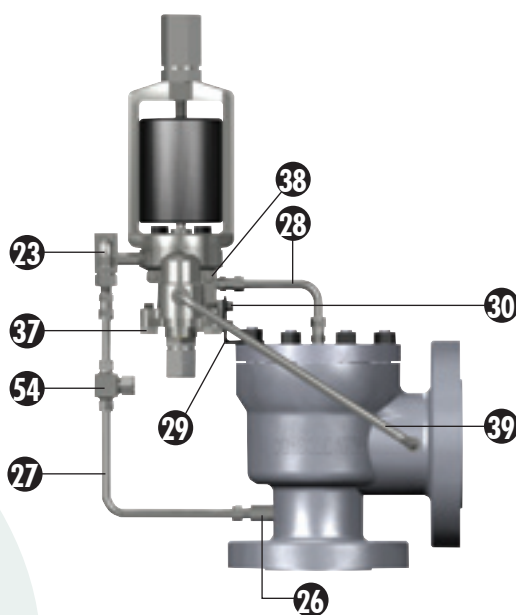
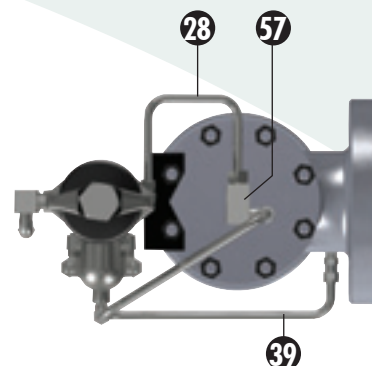
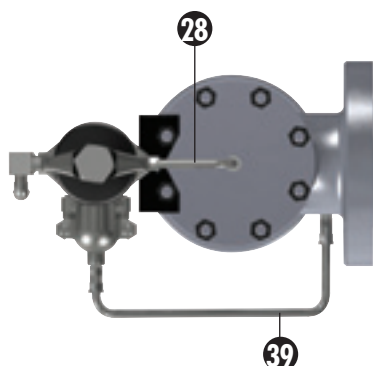
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel

Pilot Valve w/ Manual Blowdown
(Optional for All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet

[Pilot Vented to Body Bowl]



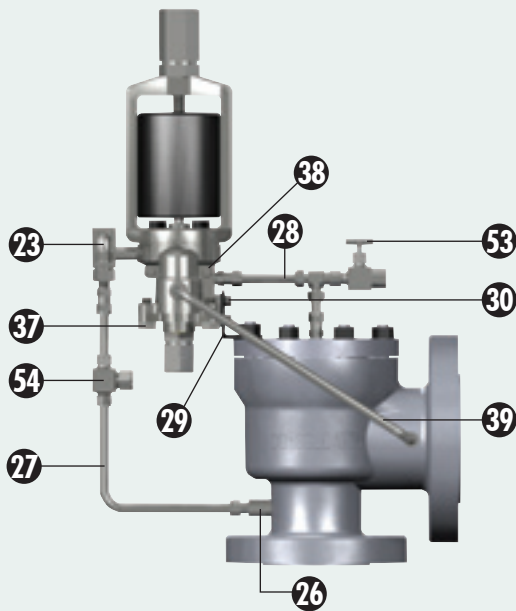
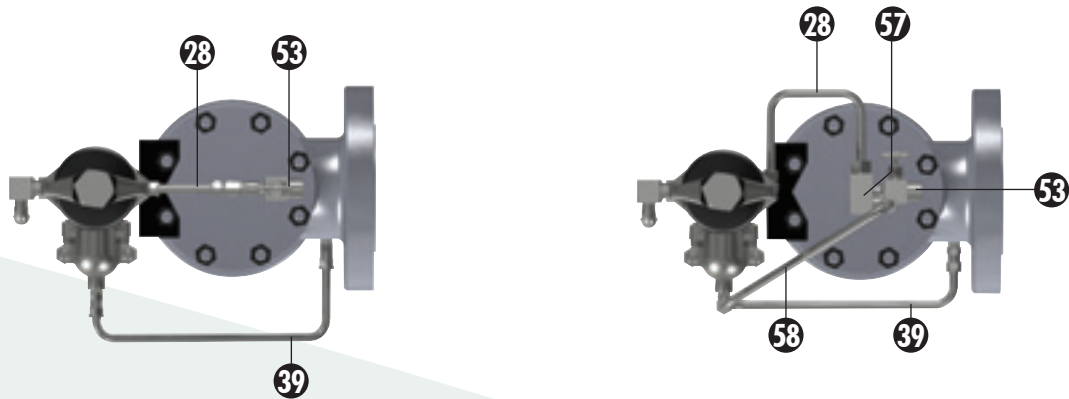
Pilot Valve w/ Pilot Supply Filter
(Optional for All Media Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional for Liquid & Gas Applications)

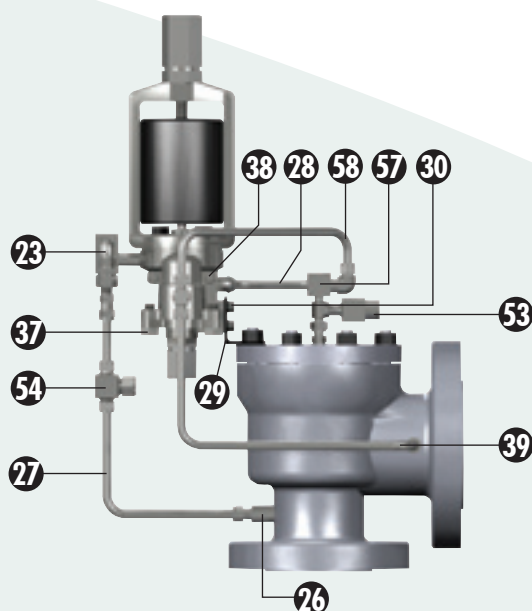
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Single Outlet
[Pilot Vented to Body Bowl]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

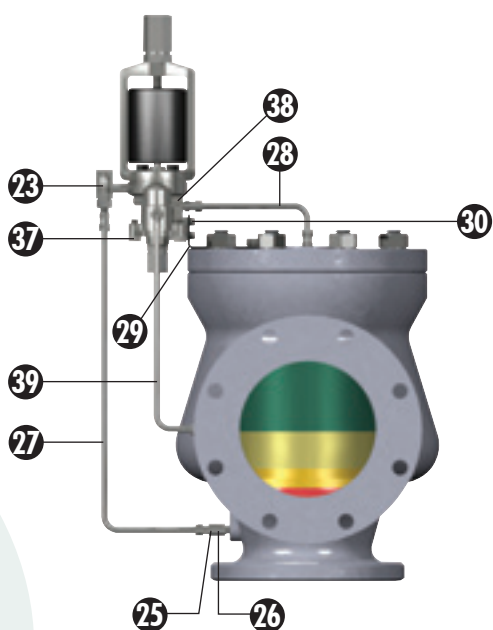
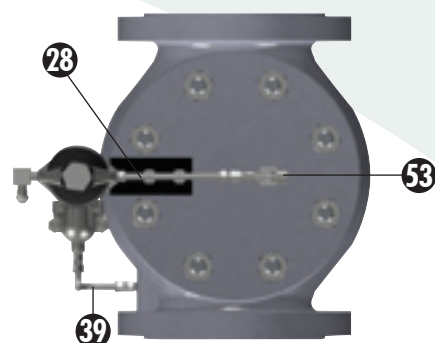
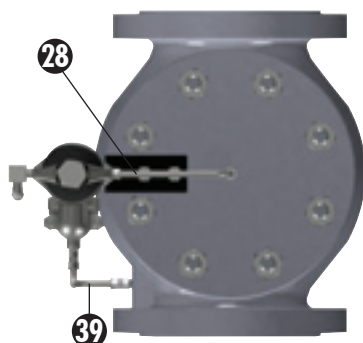


Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

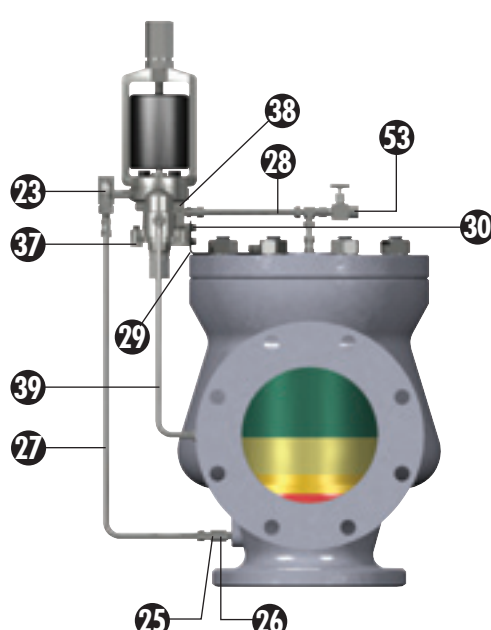
39MPV Series Type 39MV Pilot with Double Outlet

[Pilot Vented to Body Bowl]



**Pilot Valve w/ Field Test Connection
(Standard for All Media Applications)**

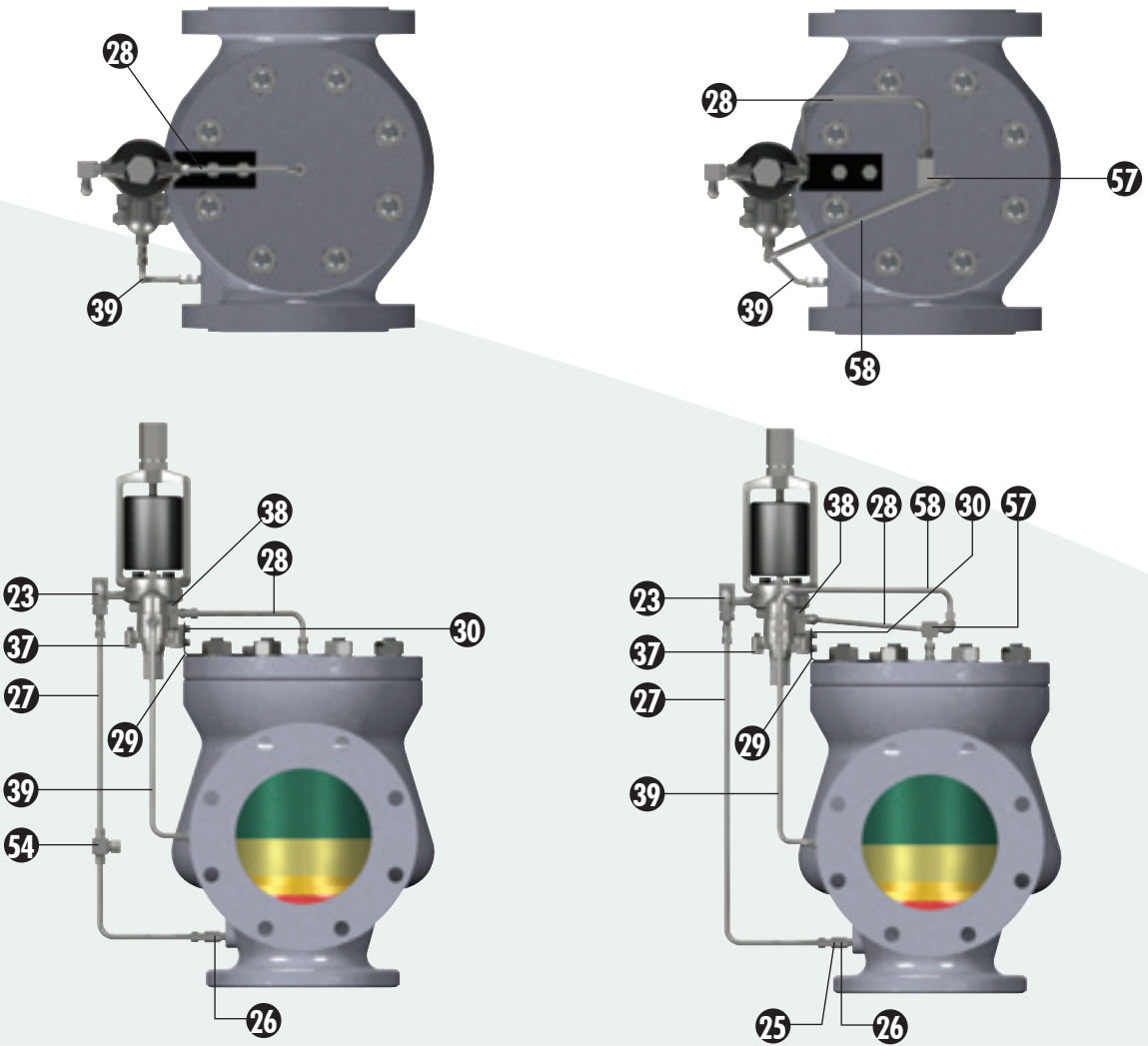
	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel



**Pilot Valve w/ Manual Blowdown
(Optional for All Media Applications)**

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel

39MPV Series Type 39MV Pilot with Double Outlet
[Pilot Vented to Body Bowl]



Pilot Valve w/ Pilot Supply Filter
(Optional for All Media Applications)

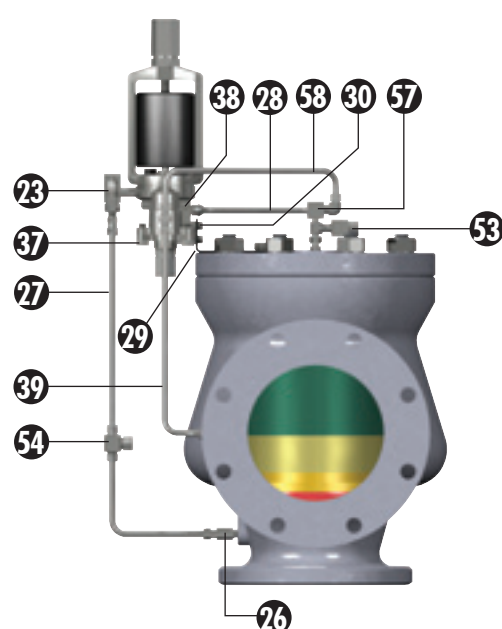
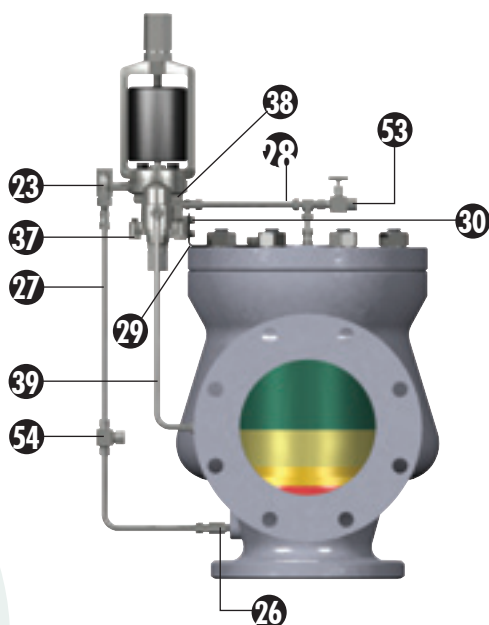
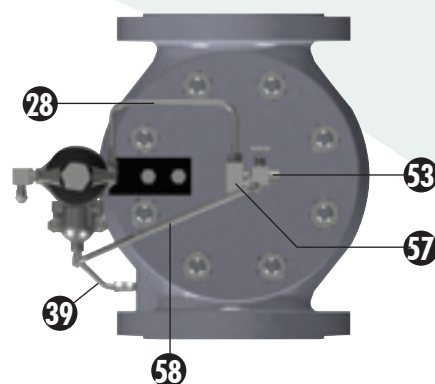
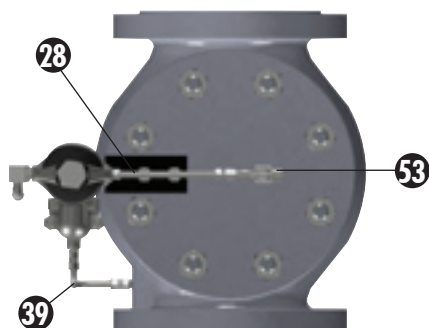
	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Backflow Preventer
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
25	Plug Filter	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

39MPV Series Type 39MV Pilot with Double Outlet

[Pilot Vented to Body Bowl]



Pilot Valve w/ Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel

Pilot Valve w/ Manual Blowdown & Pilot Supply Filter & Backflow Preventer
(Optional For Steam Applications)

	Part	Material
23	Field Test Connection	316 Stainless Steel
26	Sensing Tube	316 Stainless Steel
27	Sensing Line	316 Stainless Steel
28	Dome Line	316 Stainless Steel
29	Bracket	Carbon Steel
30	Bracket Cap Screw	316 Stainless Steel
37	Mod. Cap Screw	316 Stainless Steel
38	Soc. Head Cap Screw	316 Stainless Steel
39	Discharge Line	316 Stainless Steel
53	Needle Valve (Manual Blowdown)	316 Stainless Steel
54	Pilot Supply Filter	316 Stainless Steel
57	Backflow Preventer	316 Stainless Steel
58	Backflow Preventer Line	316 Stainless Steel

3900 Dimensions & Weights Index

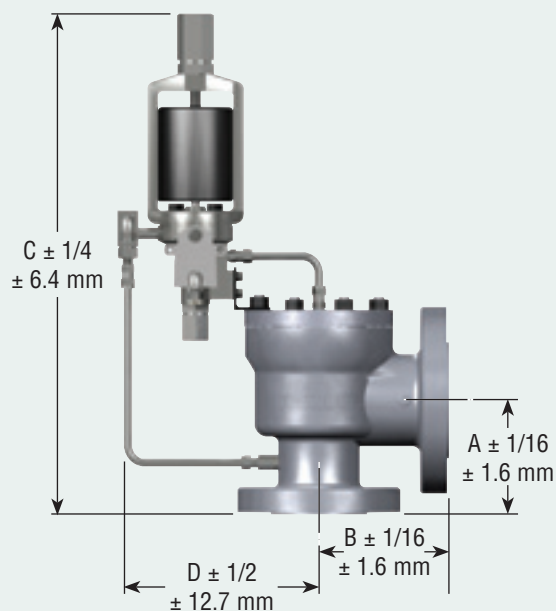
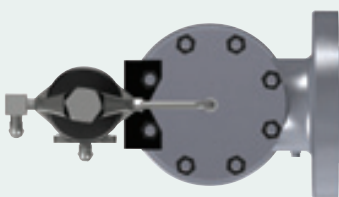
39MPV Series with Type 39PV (Pop) Pilot

Single Outlet - Standard Bore	3900.47
Single Outlet - Full Bore	3900.49
Double Outlet - Full Bore	3900.49

39MPV Series with Type 39MV (Modulating) Pilot

Single Outlet - Standard Bore	3900.51
Single Outlet - Full Bore	3900.53
Double Outlet - Full Bore	3900.53

39MPV Series Type 39PV Pilot Single Outlet, Standard Bore & Full Bore*



39PV w/ Single Outlet - Standard Bore

*See page 3900.49 for full bore single outlet dimensions and weights.

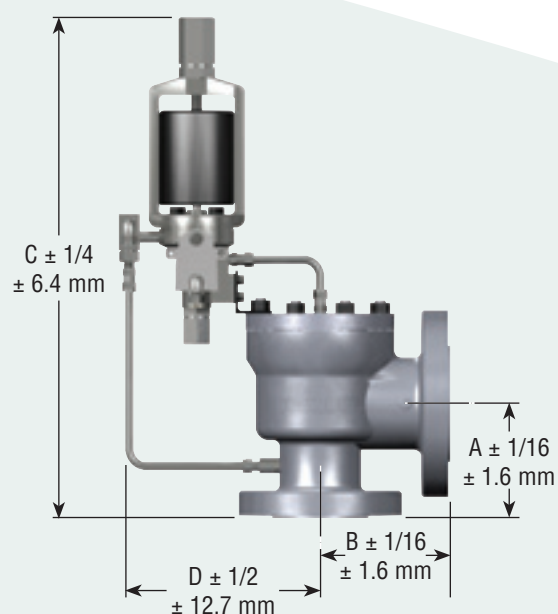
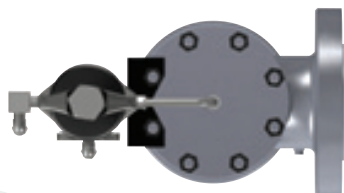
NOTE: All weights listed in this document are approximations.

39MPV Series Type 39PV - Dimensions & Weights

Single Outlet, Standard Bore

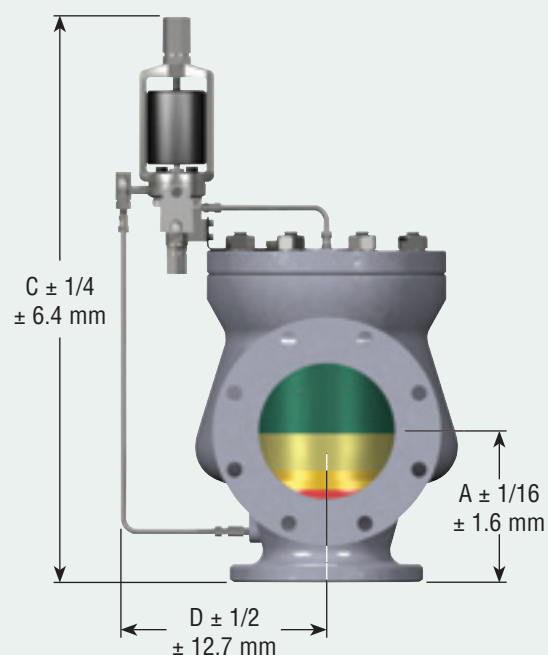
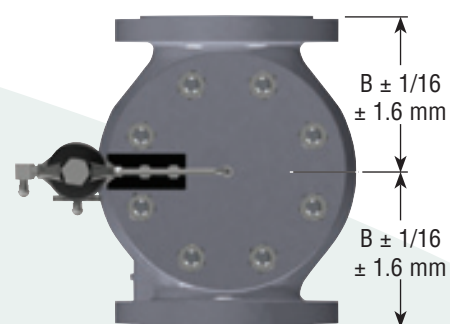
Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
1 - 3905	D,E,F	1 - 150	2 - 150	4-1/8 (104.8)	4-1/2 (114.3)	21-3/16 (538.2)	8-1/2 (215.9)	39 (17.7)
1 - 3910	D,E,F	1 - 300	2 - 150	4-3/8 (111.1)	4-1/2 (114.3)	21-7/16 (544.5)	8-1/2 (215.9)	40 (18.1)
1 - 3912	D,E,F	1 - 600	2 - 150	4-3/8 (111.1)	4-1/2 (114.3)	21-7/16 (544.5)	8-1/2 (215.9)	43 (19.5)
1 - 3914	D,E,F	1 - 900	2 - 300	4-15/16 (125.4)	4-3/4 (120.7)	22 (558.8)	8-1/2 (215.9)	49 (22.2)
1 - 3916	D,E,F	1 - 1500	2 - 300	4-15/16 (125.4)	4-3/4 (120.7)	22 (558.8)	8-1/2 (215.9)	49 (22.2)
1-1/2 - 3905	D,E,F	1-1/2 - 150	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	46 (20.9)
1-1/2 - 3910	D,E,F	1-1/2 - 300	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	47 (21.3)
1-1/2 - 3912	D,E,F	1-1/2 - 600	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	48 (21.8)
1-1/2 - 3914	D,E,F	1-1/2 - 900	2 - 300	5-7/8 (149.2)	5-1/2 (139.7)	22-15/16 (582.6)	8-1/2 (215.9)	61 (27.7)
1-1/2 - 3916	D,E,F	1-1/2 - 1500	2 - 300	5-7/8 (149.2)	5-1/2 (139.7)	22-15/16 (582.6)	8-1/2 (215.9)	61 (27.7)
1-1/2 - 3905	G,H	1-1/2 - 150	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	53 (24.0)
1-1/2 - 3910	G,H	1-1/2 - 300	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	55 (24.9)
1-1/2 - 3912	G,H	1-1/2 - 600	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	57 (25.9)
1-1/2 - 3914	G,H	1-1/2 - 900	3 - 300	6-3/8 (161.9)	6-3/4 (171.5)	24-9/16 (623.9)	9-5/16 (236.5)	66 (29.9)
1-1/2 - 3916	G,H	1-1/2 - 1500	3 - 300	6-3/8 (161.9)	6-3/4 (171.5)	24-9/16 (623.9)	9-5/16 (236.5)	66 (29.9)
2 - 3905	G,H,J	2 - 150	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	53 (24.0)
2 - 3910	G,H,J	2 - 300	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	55 (24.9)
2 - 3912	G,H,J	2 - 600	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	57 (25.9)
2 - 3914	G,H,J	2 - 900	3 - 300	6-9/16 (166.7)	6-3/4 (171.5)	24-3/4 (628.7)	9-5/16 (236.5)	80 (36.3)
2 - 3916	G,H,J	2 - 1500	3 - 300	6-9/16 (166.7)	6-3/4 (171.5)	24-3/4 (628.7)	9-5/16 (236.5)	80 (36.3)
3 - 3905	J,K,L	3 - 150	4 - 150	6-1/8 (155.6)	6-3/8 (161.9)	25-1/8 (638.2)	9-3/4 (247.7)	80 (36.3)
3 - 3910	J,K,L	3 - 300	4 - 150	6-1/8 (155.6)	6-3/8 (161.9)	25-1/8 (638.2)	9-3/4 (247.7)	83 (37.6)
3 - 3912	J,K,L	3 - 600	4 - 150	6-3/8 (161.9)	6-3/8 (161.9)	25-3/8 (644.5)	9-3/4 (247.7)	87 (39.5)
3 - 3914	J,K,L	3 - 900	4 - 300	7-1/2 (190.5)	7-1/8 (181.0)	26-13/16 (681.0)	9-13/16 (249.2)	140 (63.5)
3 - 3916	J,K,L	3 - 1500	4 - 300	7-1/2 (190.5)	7-1/8 (181.0)	26-13/16 (681.0)	9-13/16 (249.2)	157 (71.2)
4 - 3905	L,M,N,P	4 - 150	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	191 (86.6)
4 - 3910	L,M,N,P	4 - 300	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	199 (90.3)
4 - 3912	L,M,N,P	4 - 600	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	206 (93.4)
4 - 3914	L,M,N,P	4 - 900	6 - 300	9-13/16 (249.2)	9-3/16 (233.4)	31-1/16 (789.0)	11-3/8 (288.9)	240 (108.9)
4 - 3916	L,M,N,P	4 - 1500	6 - 300	9-13/16 (249.2)	9-3/16 (233.4)	31-1/16 (789.0)	11-3/8 (288.9)	259 (117.5)
6 - 3905	Q,R	6 - 150	8 - 150	9-7/16 (239.7)	9-1/2 (241.3)	31-15/16 (811.2)	12-5/16 (312.7)	348 (157.9)
6 - 3910	Q,R	6 - 300	8 - 150	9-7/16 (239.7)	9-1/2 (241.3)	31-15/16 (811.2)	12-5/16 (312.7)	367 (166.5)
6 - 3912	Q,R	6 - 600	8 - 150	9-11/16 (246.1)	9-1/2 (241.3)	32-3/16 (817.6)	12-5/16 (312.7)	415.7 (188.6)
8 - 3905	T	8 - 150	10 - 150	10-7/8 (276.2)	11 (279.4)	35-7/16 (900.1)	13-1/4 (336.6)	516.7 (234.4)
8 - 3910	T	8 - 300	10 - 150	10-7/8 (276.2)	11 (279.4)	35-7/16 (900.1)	13-1/4 (336.6)	544.7 (247.1)
8 - 3912	T	8 - 600	10 - 150	11-11/16 (296.9)	11 (279.4)	36-1/4 (920.8)	13-1/4 (336.6)	601 (272.6)

39MPV Series Type 39PV Pilot Full Bore



39PV w/ Single Outlet - Full Bore

NOTE: All weights listed in this document are approximations.



39PV w/ Double Outlet - Full Bore

NOTE: All weights listed in this document are approximations.

39MPV Series Type 39PV - Dimensions & Weights

Single Outlet, Full Bore

Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	OUTLET TYPE	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
3 - 3905B	3" Full Bore	3 - 150	4 - 150	Single	5-9/16 (141.3)	7 (177.8)	28-3/8 (720.7)	11-7/16 (290.5)	191 (86.6)
3 - 3910B	3" Full Bore	3 - 300	4 - 150	Single	5-13/16 (147.6)	7 (177.8)	28-5/8 (727.1)	11-7/16 (290.5)	199 (90.3)
3 - 3912B	3" Full Bore	3 - 600	4 - 150	Single	6-1/8 (155.6)	7 (177.8)	28-15/16 (735.0)	11-7/16 (290.5)	206 (93.4)
4 - 3905B	4" Full Bore	4 - 150	6 - 150	Single	6-15/16 (176.2)	7-3/8 (187.3)	28-11/16 (728.7)	11-7/16 (290.5)	191 (86.6)
4 - 3910B	4" Full Bore	4 - 300	6 - 150	Single	7-7/16 (188.9)	7-3/8 (187.3)	29-3/16 (741.4)	11-7/16 (290.5)	199 (90.3)
4 - 3912B	4" Full Bore	4 - 600	6 - 150	Single	7-15/16 (201.6)	7-3/8 (187.3)	29-11/16 (754.1)	11-7/16 (290.5)	206 (93.4)

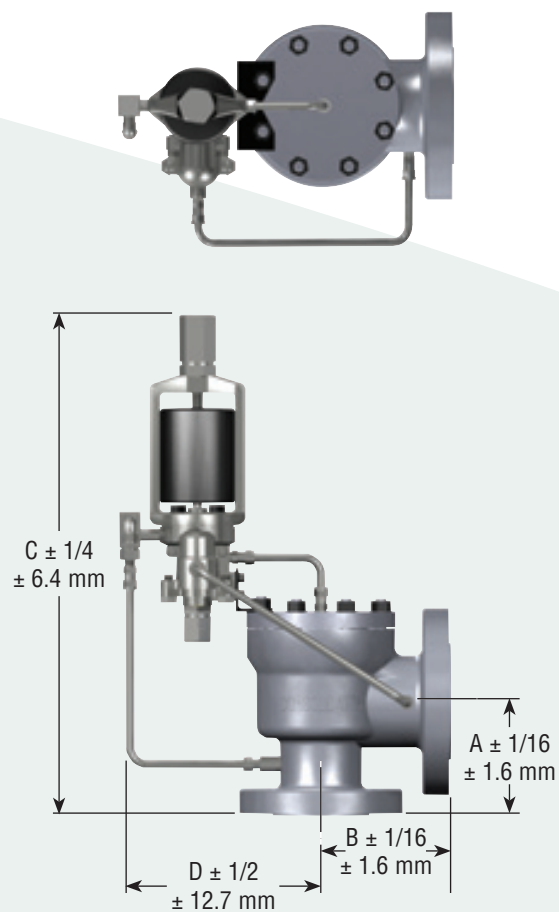
NOTE: For Dimensions For 1-1/2" & 2" Full Bore Valves, Contact Factory.

39MPV Series Type 39PV - Dimensions & Weights

Double Outlet, Full Bore

Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	OUTLET TYPE	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
6 - 3905B	6" Full Bore	6 - 150	8 - 150	Double	8-7/8 (225.4)	8-1/4 (209.6)	34-7/16 (874.7)	13-1/4 (336.6)	516.7 (234.4)
6 - 3910B	6" Full Bore	6 - 300	8 - 150	Double	9-5/16 (236.5)	8-1/4 (209.6)	34-7/8 (885.8)	13-1/4 (336.6)	544.7 (247.1)
6 - 3912B	6" Full Bore	6 - 600	8 - 150	Double	10 (254.0)	8-1/4 (209.6)	35-9/16 (903.3)	13-1/4 (336.6)	601.0 (272.6)
8 - 3905B	8" Full Bore	8 - 150	10 - 150	Double	10-1/4 (260.4)	11-1/16 (281.0)	37-5/8 (955.7)	14-5/8 (371.5)	975.2 (442.4)
8 - 3910B	8" Full Bore	8 - 300	10 - 150	Double	10-15/16 (277.8)	11-1/16 (281.0)	38-5/16 (973.1)	14-5/8 (371.5)	985.2 (446.9)
8 - 3912B	8" Full Bore	8 - 600	10 - 150	Double	11-3/4 (298.5)	11-1/16 (281.0)	39-1/8 (993.8)	14-5/8 (371.5)	1005.2 (456.0)
10 - 3905B	10" Full Bore	10 - 150	10 - 150	Double	10-1/4 (260.4)	12-3/4 (323.9)	40-1/2 (1028.7)	16-1/16 (408.0)	1282.2 (581.6)
10 - 3910B	10" Full Bore	10 - 300	10 - 150	Double	10-15/16 (277.8)	12-3/4 (323.9)	41-3/16 (1046.2)	16-1/16 (408.0)	1292.2 (586.1)

39MPV Series Type 39MV Pilot Single Outlet, Standard Bore and Full Bore



39MV w/ Single Outlet - Standard Bore

*See page 3900.53 for full bore single outlet dimensions and weights.

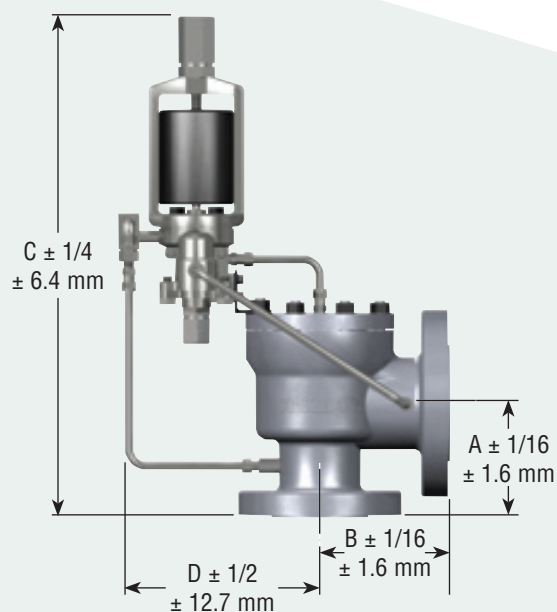
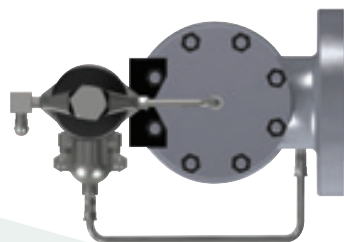
NOTE: All weights listed in this document are approximations.

39MPV Series Type 39MV - Dimensions & Weights

Single Outlet, Standard Bore

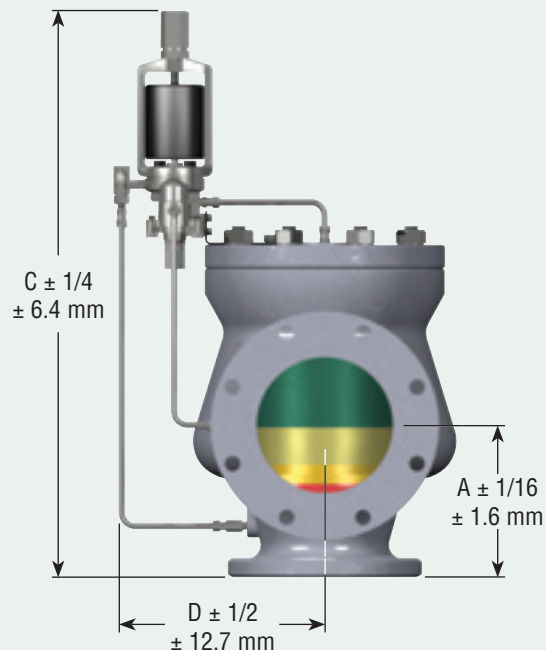
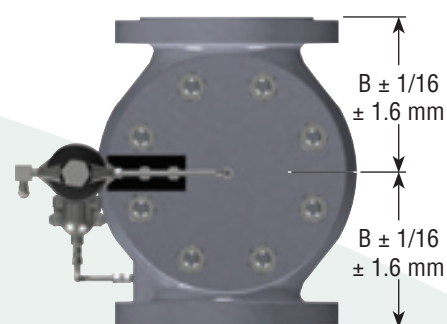
Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
1 - 3905	D,E,F	1 - 150	2 - 150	4-1/8 (104.8)	4-1/2 (114.3)	21-3/16 (538.2)	8-1/2 (215.9)	42 (19.1)
1 - 3910	D,E,F	1 - 300	2 - 150	4-3/8 (111.1)	4-1/2 (114.3)	21-7/16 (544.5)	8-1/2 (215.9)	43 (19.5)
1 - 3912	D,E,F	1 - 600	2 - 150	4-3/8 (111.1)	4-1/2 (114.3)	21-7/16 (544.5)	8-1/2 (215.9)	46 (20.9)
1 - 3914	D,E,F	1 - 900	2 - 300	4-15/16 (125.4)	4-3/4 (120.7)	22 (558.8)	8-1/2 (215.9)	52 (23.6)
1 - 3916	D,E,F	1 - 1500	2 - 300	4-15/16 (125.4)	4-3/4 (120.7)	22 (558.8)	8-1/2 (215.9)	52 (23.6)
1-1/2 - 3905	D,E,F	1-1/2 - 150	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	48.4 (22.0)
1-1/2 - 3910	D,E,F	1-1/2 - 300	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	50.0 (22.7)
1-1/2 - 3912	D,E,F	1-1/2 - 600	2 - 150	4-7/8 (123.8)	4-3/4 (120.7)	21-15/16 (557.2)	8-1/2 (215.9)	50.2 (22.8)
1-1/2 - 3914	D,E,F	1-1/2 - 900	2 - 300	5-7/8 (149.2)	5-1/2 (139.7)	22-15/16 (582.6)	8-1/2 (215.9)	63.2 (28.7)
1-1/2 - 3916	D,E,F	1-1/2 - 1500	2 - 300	5-7/8 (149.2)	5-1/2 (139.7)	22-15/16 (582.6)	8-1/2 (215.9)	63.2 (28.7)
1-1/2 - 3905	G,H	1-1/2 - 150	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	56 (25.4)
1-1/2 - 3910	G,H	1-1/2 - 300	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	58 (26.3)
1-1/2 - 3912	G,H	1-1/2 - 600	3 - 150	5-1/8 (130.2)	4-7/8 (123.8)	23-5/16 (592.1)	9-5/16 (236.5)	60 (27.2)
1-1/2 - 3914	G,H	1-1/2 - 900	3 - 300	6-3/8 (161.9)	6-3/4 (171.5)	24-9/16 (623.9)	9-5/16 (236.5)	69 (31.3)
1-1/2 - 3916	G,H	1-1/2 - 1500	3 - 300	6-3/8 (161.9)	6-3/4 (171.5)	24-9/16 (623.9)	9-5/16 (236.5)	69 (31.3)
2 - 3905	G,H,J	2 - 150	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	56 (25.4)
2 - 3910	G,H,J	2 - 300	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	58 (26.3)
2 - 3912	G,H,J	2 - 600	3 - 150	5-3/8 (136.5)	4-7/8 (123.8)	23-9/16 (598.5)	9-5/16 (236.5)	60 (27.2)
2 - 3914	G,H,J	2 - 900	3 - 300	6-9/16 (166.7)	6-3/4 (171.5)	24-3/4 (628.7)	9-5/16 (236.5)	83 (37.6)
2 - 3916	G,H,J	2 - 1500	3 - 300	6-9/16 (166.7)	6-3/4 (171.5)	24-3/4 (628.7)	9-5/16 (236.5)	83 (37.6)
3 - 3905	J,K,L	3 - 150	4 - 150	6-1/8 (155.6)	6-3/8 (161.9)	25-1/8 (638.2)	9-3/4 (247.7)	83 (37.6)
3 - 3910	J,K,L	3 - 300	4 - 150	6-1/8 (155.6)	6-3/8 (161.9)	25-1/8 (638.2)	9-3/4 (247.7)	86 (39.0)
3 - 3912	J,K,L	3 - 600	4 - 150	6-3/8 (161.9)	6-3/8 (161.9)	25-3/8 (644.5)	9-3/4 (247.7)	90 (40.8)
3 - 3914	J,K,L	3 - 900	4 - 300	7-1/2 (190.5)	7-1/8 (181.0)	26-13/16 (681.0)	9-13/16 (249.2)	143 (64.9)
3 - 3916	J,K,L	3 - 1500	4 - 300	7-1/2 (190.5)	7-1/8 (181.0)	26-13/16 (681.0)	9-13/16 (249.2)	160 (72.6)
4 - 3905	L,M,N,P	4 - 150	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	194 (88.0)
4 - 3910	L,M,N,P	4 - 300	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	202 (91.6)
4 - 3912	L,M,N,P	4 - 600	6 - 150	7-3/4 (196.9)	8-1/4 (209.6)	28-1/2 (723.9)	11-7/16 (290.5)	209 (94.8)
4 - 3914	L,M,N,P	4 - 900	6 - 300	9-13/16 (249.2)	9-3/16 (233.4)	31-1/16 (789.0)	11-3/8 (288.9)	243 (110.2)
4 - 3916	L,M,N,P	4 - 1500	6 - 300	9-13/16 (249.2)	9-3/16 (233.4)	31-1/16 (789.0)	11-3/8 (288.9)	262 (118.8)
6 - 3905	Q,R	6 - 150	8 - 150	9-7/16 (239.7)	9-1/2 (241.3)	31-15/16 (811.2)	12-5/16 (312.7)	351 (159.2)
6 - 3910	Q,R	6 - 300	8 - 150	9-7/16 (239.7)	9-1/2 (241.3)	31-15/16 (811.2)	12-5/16 (312.7)	370 (167.8)
6 - 3912	Q,R	6 - 600	8 - 150	9-11/16 (246.1)	9-1/2 (241.3)	32-3/16 (817.6)	12-5/16 (312.7)	418.7 (189.9)
8 - 3905	T	8 - 150	10 - 150	10-7/8 (276.2)	11 (279.4)	35-7/16 (900.1)	13-1/4 (336.6)	519.7 (235.7)
8 - 3910	T	8 - 300	10 - 150	10-7/8 (276.2)	11 (279.4)	35-7/16 (900.1)	13-1/4 (336.6)	547.7 (248.4)
8 - 3912	T	8 - 600	10 - 150	11-11/16 (296.9)	11 (279.4)	36-1/4 (920.8)	13-1/4 (336.6)	604 (274.0)

39MPV Series Type 39MV Pilot Full Bore



39MV w/ Single Outlet - Full Bore

NOTE: All weights listed in this document are approximations.



39MV w/ Double Outlet - Full Bore

NOTE: All weights listed in this document are approximations.

39MPV Series Type 39MV - Dimensions & Weights

Single Outlet, Full Bore

Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	OUTLET TYPE	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
3 - 3905B	3" Full Bore	3 - 150	4 - 150	Single	5-9/16 (141.3)	7 (177.8)	28-3/8 (720.7)	11-7/16 (290.5)	194 (88.0)
3 - 3910B	3" Full Bore	3 - 300	4 - 150	Single	5-13/16 (147.6)	7 (177.8)	28-5/8 (727.1)	11-7/16 (290.5)	202 (91.6)
3 - 3912B	3" Full Bore	3 - 600	4 - 150	Single	6-1/8 (155.6)	7 (177.8)	28-15/16 (735.0)	11-7/16 (290.5)	209 (94.8)
4 - 3905B	4" Full Bore	4 - 150	6 - 150	Single	6-15/16 (176.2)	7-3/8 (187.3)	28-11/16 (728.7)	11-7/16 (290.5)	194 (88.0)
4 - 3910B	4" Full Bore	4 - 300	6 - 150	Single	7-7/16 (188.9)	7-3/8 (187.3)	29-3/16 (741.4)	11-7/16 (290.5)	202 (91.6)
4 - 3912B	4" Full Bore	4 - 600	6 - 150	Single	7-15/16 (201.6)	7-3/8 (187.3)	29-11/16 (754.1)	11-7/16 (290.5)	209 (94.8)

Note: For Dimensions For 1-1/2" & 2" Full Bore Valves, Contact Factory.

39MPV Series Type 39MV - Dimensions & Weights

Double Outlet, Full Bore

Valve Size (in.) & Type	ORIFICES	INLET FLANGE Size (in.) & Class	OUTLET FLANGE Size (in.) & Class	OUTLET TYPE	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	WEIGHT lb. (kg)
6 - 3905B	6" Full Bore	6 - 150	8 - 150	Double	8-7/8 (225.4)	8-1/4 (209.6)	34-7/16 (874.7)	13-1/4 (336.6)	519.7 (235.7)
6 - 3910B	6" Full Bore	6 - 300	8 - 150	Double	9-5/16 (236.5)	8-1/4 (209.6)	34-7/8 (885.8)	13-1/4 (336.6)	547.7 (248.4)
6 - 3912B	6" Full Bore	6 - 600	8 - 150	Double	10 (254.0)	8-1/4 (209.6)	35-9/16 (903.3)	13-1/4 (336.6)	604 (274.0)
8 - 3905B	8" Full Bore	8 - 150	10 - 150	Double	10-1/4 (260.4)	11-1/16 (281.0)	37-5/8 (955.7)	14-5/8 (371.5)	978.2 (443.7)
8 - 3910B	8" Full Bore	8 - 300	10 - 150	Double	10-15/16 (277.8)	11-1/16 (281.0)	38-5/16 (973.1)	14-5/8 (371.5)	988.2 (448.2)
8 - 3912B	8" Full Bore	8 - 600	10 - 150	Double	11-3/4 (298.5)	11-1/16 (281.0)	39-1/8 (993.8)	14-5/8 (371.5)	1008.2 (457.3)
10 - 3905B	10" Full Bore	10 - 150	10 - 150	Double	10-1/4 (260.4)	12-3/4 (323.9)	40-1/2 (1028.7)	16-1/16 (408.0)	1285.2 (583.0)
10 - 3910B	10" Full Bore	10 - 300	10 - 150	Double	10-15/16 (277.8)	12-3/4 (323.9)	41-3/16 (1046.2)	16-1/16 (408.0)	1295.2 (587.5)

USCS Pressure - Temperature Rating Charts

Type	SA216 WCC Carbon Steel					SA351 CF8M Stainless Steel				
	3905	3910	3912	3914	3916	3905	3910	3912	3914	3916
Pressure Class From -20°F to:	150	300	600	900	1500	150	300	600	900	1500
100	290	750	1500	2250	3750	275	720	1440	2160	3600
110	287	750	1500	2250	3750	272	710	1420	2130	3550
120	284	750	1500	2250	3750	268	700	1400	2100	3499
130	281	750	1500	2250	3750	265	690	1380	2070	3449
140	278	750	1500	2250	3750	261	680	1360	2040	3398
150	275	750	1500	2250	3750	258	670	1340	2010	3348
160	272	750	1500	2250	3750	254	660	1320	1980	3297
170	269	750	1500	2250	3750	251	650	1300	1950	3247
180	266	750	1500	2250	3750	247	640	1280	1920	3196
190	263	750	1500	2250	3750	244	630	1260	1890	3146
200	260	750	1500	2250	3750	240	620	1240	1860	3095
210	257	748	1496	2244	3739	238	614	1228	1842	3065
220	254	746	1491	2237	3728	235	608	1216	1824	3035
230	251	744	1487	2231	3717	233	602	1204	1806	3005
240	248	742	1482	2224	3706	230	596	1192	1788	2975
250	245	740	1478	2218	3695	228	590	1180	1770	2945
260	242	738	1473	2211	3684	225	584	1168	1752	2915
270	239	736	1469	2205	3673	223	578	1156	1735	2885
280	236	734	1464	2198	3662	220	572	1144	1716	2855
290	233	732	1460	2192	3651	218	566	1132	1698	2825
300	230	730	1455	2185	3640	215	560	1120	1680	2795
310	227	728	1451	2178	3629	213	556	1111	1666	2773
320	224	725	1446	2171	3618	211	551	1102	1652	2750
330	221	723	1442	2164	3607	209	547	1093	1638	2728
340	218	720	1437	2157	3596	207	542	1084	1624	2705
350	215	718	1433	2150	3585	205	538	1075	1610	2683
360	212	715	1428	2143	3574	203	533	1066	1596	2660
370	209	713	1424	2136	3563	201	529	1058	1582	2638
380	206	710	1419	2129	3552	199	524	1048	1568	2615
390	203	708	1415	2122	3541	197	520	1039	1554	2593
400	200	705	1410	2115	3530	195	515	1030	1540	2570
505	168	662	1324	1986	3310	168	478	952	1431	2383

Series 3905 - 3916 Type PV & MV Pilots
STANDARD BORE - ORIFICE CAPACITIES - AIR
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in standard cubic feet per minute @ 60°F.

Set Press. (psig)	Orifice Area (Sq. in.)													
	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	M 4.186	N 5.047	P 7.417	Q 12.85	R 18.6	T 30.21
15	67	120	188	308	481	788	1126	1748	2205	2659	3908	6771	9801	15920
20	77	138	216	355	554	908	1299	2015	2543	3066	4506	7807	11300	18354
30	98	175	274	449	701	1150	1643	2549	3217	3879	5701	9877	14298	23222
40	121	215	337	553	863	1415	2022	3137	3959	4774	7016	12155	17595	28578
50	143	256	400	657	1025	1680	2401	3725	4701	5669	8331	14433	20892	33933
60	166	296	464	760	1187	1945	2780	4313	5444	6563	9646	16711	24189	39288
70	189	336	527	864	1348	2210	3159	4901	6186	7458	10960	18989	27486	44644
80	211	377	590	968	1510	2476	3538	5489	6928	8353	12275	21267	30784	49999
90	234	417	653	1071	1672	2741	3917	6077	7670	9247	13590	23545	34081	55354
100	257	458	717	1175	1834	3006	4296	6665	8412	10142	14905	25823	37378	60710
120	302	538	843	1382	2157	3536	5054	7841	9896	11931	17534	30379	43973	71420
140	347	619	970	1590	2481	4067	5812	9017	11380	13721	20164	34935	50567	82131
160	393	700	1096	1797	2804	4597	6570	10193	12864	15510	22794	39491	57162	92842
180	438	781	1223	2004	3128	5127	7328	11369	14348	17300	25423	44046	63756	103552
200	483	862	1349	2212	3452	5658	8086	12545	15832	19089	28053	48602	70351	114263
220	529	942	1476	2419	3775	6188	8844	13721	17316	20878	30683	53158	76945	124974
240	574	1023	1602	2627	4099	6719	9602	14898	18801	22668	33312	57714	83539	135685
260	619	1104	1729	2834	4422	7249	10360	16074	20285	24457	35942	62270	90134	146395
280	665	1185	1855	3041	4746	7779	11118	17250	21769	26246	38571	66826	96728	157106
300	710	1266	1982	3249	5070	8310	11876	18426	23253	28036	41201	71382	103323	167817
320	755	1346	2108	3456	5393	8840	12634	19602	24737	29825	43831	75937	109917	178527
340	801	1427	2235	3663	5717	9371	13392	20778	26221	31614	46460	80493	116512	189238
360	846	1508	2361	3871	6040	9901	14150	21954	27705	33404	49090	85049	123106	199949
380	891	1589	2488	4078	6364	10431	14908	23130	29189	35193	51720	89605	129701	210659
400	937	1670	2614	4286	6688	10962	15666	24306	30673	36983	54349	94161	136295	221370
420	982	1750	2741	4493	7011	11492	16424	25482	32158	38772	56979	98717	142890	232081
440	1027	1831	2867	4700	7335	12023	17182	26658	33642	40561	59609	103273	149484	242791
460	1073	1912	2994	4908	7658	12553	17940	27834	35126	42351	62238	107828	156079	253502
480	1118	1993	3120	5115	7982	13083	18698	29010	36610	44140	64868	112384	162673	264213
500	1163	2074	3247	5322	8306	13614	19456	30186	38094	45929	67497	116940	169268	274924
600	1390	2478	3879	6359	9923	16266	23246	36066	45515	54876	80646	139719	202240	328477
700	1617	2882	4512	7396	11541	18918	27036	41946	52935	63823	93794	162499	235212	382031
750	1730	3084	4828	7915	12350	20244	28931	44886	56645	68297	100368	173888	251698	408807
800	1844	3286	5144	8433	13159	21570	30826	47826	60356	72770	106942	185278	268185	435584
900	2070	3690	5777	9470	14777	24222	34616	53706	67776	81717	120090	208057	301157	489137
1000	2297	4094	6409	10507	16395	26874	38407	59586	75197	90664	133238	230836	334129	542691
1100	2524	4498	7042	11544	18013	29526	42197	65466	82617	99611	146386	253616	367102	596244
1200	2751	4902	7674	12580	19631	32178	45987	71346	90038	108557	159535	276395	400074	649798
1300	2977	5306	8307	13617	21249	34830	49777	77226	97458	117504	172683	299174	433046	703351
1400	3204	5710	8939	14654	22867	37482	53567	83106	104879	126451	185831	321954	466019	756905
1500	3431	6114	9572	15691	24485	40133	57357	88986	112299	135398	198979	344733	498991	810458
1600	3658	6518	10204	16728	26103	42785	61147	94866	119720	144345	212127	—	—	—
1700	3884	6922	10837	17765	27721	45437	64937	100746	127141	153292	225275	—	—	—
1800	4111	7326	11469	18802	29339	48089	68727	106627	134561	162238	238424	—	—	—
1900	4338	7730	12102	19838	30957	50741	72517	112507	141982	171185	251572	—	—	—
2000	4564	8134	12734	20875	32575	53393	76307	118387	149402	180132	264720	—	—	—
2500	5698	10154	15897	26060	40664	66653	95257	147787	186505	224866	330461	—	—	—
3000	6832	12174	19059	31244	48754	79913	114207	177187	223608	269601	396202	—	—	—
3750	8532	15204	23803	39020	60889	99803	142633	221288	279262	336702	494813	—	—	—

APPROVED: ASME Boiler & Pressure Vessel Code, Section VIII (for set pressure 15 psig and above).
CERTIFIED: National Board of Boiler and Pressure Vessel Inspectors.

Series 3905 - 3916 Type PV & MV Pilots
FULL BORE - ORIFICE CAPACITIES - AIR
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in standard cubic feet per minute @ 60°F.

Set Press. (psig)	Orifice Area (Sq. in.)						
	1.5" FB	2" FB	3" FB	4" FB	6" FB	8" FB	10" FB
	1.622	2.764	6.321	10.76	24.95	44.18	69.94
15	854	1456	3331	5670	13148	23281	36856
20	985	1679	3840	6537	15158	26841	42492
30	1246	2124	4859	8271	19179	33961	53763
40	1534	2614	5979	10178	23602	41793	66161
50	1821	3104	7100	12086	28025	49625	78560
60	2109	3594	8220	13993	32448	57457	90958
70	2397	4084	9341	15901	36870	65288	103356
80	2684	4574	10461	17808	41293	73120	115755
90	2972	5064	11582	19715	45716	80952	128153
100	3259	5554	12702	21623	50139	88784	140551
120	3834	6534	14943	25438	58985	104448	165348
140	4409	7514	17184	29253	67831	120111	190145
160	4984	8494	19425	33067	76677	135775	214941
180	5559	9474	21666	36882	85522	151438	239738
200	6134	10454	23908	40697	94368	167102	264534
220	6710	11434	26149	44512	103214	182766	289331
240	7285	12414	28390	48327	112060	198429	314128
260	7860	13394	30631	52142	120906	214093	338924
280	8435	14374	32872	55957	129751	229757	363721
300	9010	15354	35113	59772	138597	245420	388517
320	9585	16334	37354	63586	147443	261084	413314
340	10160	17314	39595	67401	156289	276748	438111
360	10735	18293	41836	71216	165135	292411	462907
380	11310	19273	44077	75031	173980	308075	487704
400	11885	20253	46318	78846	182826	323738	512501
420	12460	21233	48559	82661	191672	339402	537297
440	13035	22213	50800	86476	200518	355066	562094
460	13610	23193	53041	90290	209364	370729	586890
480	14185	24173	55282	94105	218209	386393	611687
500	14760	25153	57523	97920	227055	402057	636484
600	17636	30053	68729	116995	271284	480375	760467
700	20511	34953	79934	136069	315513	558693	884450
750	21949	37403	85537	145606	337628	597852	946441
800	23386	39852	91139	155143	359742	637011	—
900	26262	44752	102344	174217	403971	715329	—
1000	29137	49652	113550	193292	448200	793647	—
1100	32012	54552	124755	212366	492429	871966	—
1200	34888	59451	135960	231440	536659	950284	—
1300	37763	64351	147166	250515	580888	1028602	—
1400	40638	69251	158371	269589	625117	1106920	—
1500	43514	74151	169576	288663	669346	1185238	—
1600	46389	79051	180781	307738	—	—	—
1700	49264	83950	191987	326812	—	—	—
1800	52140	88850	203192	345886	—	—	—
1900	55015	93750	214397	364961	—	—	—
2000	57890	98650	225603	384035	—	—	—
2500	72267	123148	281629	479407	—	—	—
3000	86644	147647	337655	574778	—	—	—
3750	108209	184395	421695	717836	—	—	—

APPROVED: ASME Boiler & Pressure Vessel Code, Section VIII (for set pressure 15 psig and above).
CERTIFIED: National Board of Boiler and Pressure Vessel Inspectors.

Series 3905 - 3916 Type PV & MV Pilots
STANDARD BORE - ORIFICE CAPACITIES - WATER
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in gallons of water per minute @ 70°F,
and 0 psig back pressure.

Set Press. (psig)	Orifice Area (Sq. in.)													
	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	M 4.186	N 5.047	P 7.417	Q 12.85	R 18.6	T 30.21
15	15	27	42	70	109	179	256	397	501	604	888	1539	2228	3618
20	17	30	48	79	123	202	289	449	566	683	1004	1740	2518	4090
30	20	37	57	94	148	242	346	538	678	818	1203	2084	3016	4899
40	24	42	66	109	170	280	400	621	784	945	1389	2406	3483	5657
50	26	47	74	122	191	313	447	694	876	1056	1553	2690	3894	6325
60	29	52	81	134	209	343	490	760	960	1157	1701	2947	4266	6929
70	31	56	88	144	226	370	529	821	1037	1250	1837	3183	4608	7484
80	33	60	94	154	241	396	566	878	1108	1336	1964	3403	4926	8001
90	35	64	100	164	256	420	600	931	1176	1417	2083	3609	5225	8486
100	37	67	105	173	270	443	633	982	1239	1494	2196	3805	5507	8945
120	41	73	115	189	296	485	693	1076	1357	1637	2406	4168	6033	9799
140	44	79	125	204	319	524	749	1162	1466	1768	2598	4502	6517	10584
160	47	85	133	219	341	560	800	1242	1567	1890	2778	4813	6966	11315
180	50	90	141	232	362	594	849	1317	1663	2005	2946	5105	7389	12002
200	53	95	149	244	382	626	895	1389	1753	2113	3106	5381	7789	12651
220	56	100	156	256	400	657	939	1456	1838	2216	3257	5644	8169	13268
240	58	104	163	268	418	686	980	1521	1920	2315	3402	5894	8532	13858
260	61	108	170	279	435	714	1020	1583	1998	2409	3541	6135	8881	14424
280	63	112	176	289	452	741	1059	1643	2074	2500	3675	6367	9216	14969
300	65	116	183	300	468	767	1096	1701	2147	2588	3804	6590	9539	15494
320	67	120	189	309	483	792	1132	1757	2217	2673	3928	6806	9852	16002
340	69	124	194	319	498	816	1167	1811	2285	2755	4049	7016	10156	16495
360	71	128	200	328	512	840	1201	1863	2351	2835	4167	7219	10450	16973
380	73	131	206	337	526	863	1234	1914	2416	2913	4281	7417	10736	17438
400	75	135	211	346	540	886	1266	1964	2479	2989	4392	7610	11015	17891
420	77	138	216	355	553	907	1297	2013	2540	3062	4501	7798	11287	18333
440	79	141	221	363	566	929	1328	2060	2600	3134	4607	7981	11553	18764
460	81	144	226	371	579	950	1357	2106	2658	3205	4710	8161	11813	19186
480	83	147	231	379	592	970	1387	2152	2715	3274	4811	8336	12067	19599
500	84	150	236	387	604	990	1415	2196	2771	3341	4911	8508	12315	20003
600	92	165	258	424	662	1085	1550	2406	3036	3660	5379	9320	13491	21912
700	100	178	279	458	715	1172	1675	2598	3279	3954	5810	10067	14572	23668
750	103	184	289	474	740	1213	1733	2690	3394	4092	6014	10420	15083	24499
800	107	190	298	489	764	1253	1790	2778	3506	4227	6212	10762	15578	25302
900	113	202	317	519	810	1329	1899	2946	3718	4483	6589	11415	16523	26837
1000	119	213	334	547	854	1400	2002	3106	3919	4726	6945	12032	17417	28289
1100	125	223	350	574	896	1469	2099	3257	4111	4956	7284	12620	18267	29669
1200	131	233	366	600	936	1534	2193	3402	4294	5177	7608	13181	19079	30989
1300	136	243	380	624	974	1597	2282	3541	4469	5388	7919	13719	19858	32254
1400	141	252	395	648	1011	1657	2368	3675	4638	5592	8217	14237	20608	33472
1500	146	261	409	670	1046	1715	2452	3804	4800	5788	8506	14737	21331	34647
1600	151	269	422	692	1081	1772	2532	3928	4958	5978	8785	—	—	—
1700	156	278	435	714	1114	1826	2610	4049	5110	6162	9055	—	—	—
1800	160	286	448	734	1146	1879	2686	4167	5259	6340	9318	—	—	—
1900	165	294	460	755	1178	1931	2759	4281	5403	6514	9573	—	—	—
2000	169	301	472	774	1208	1981	2831	4392	5543	6683	9822	—	—	—
2500	189	337	528	866	1351	2215	3165	4911	6197	7472	10981	—	—	—
3000	207	369	578	948	1480	2426	3467	5379	6789	8185	12029	—	—	—
3750	231	413	647	1060	1655	2712	3877	6014	7590	9152	13449	—	—	—

APPROVED: ASME Boiler & Pressure Vessel Code, Section VIII (for set pressure 15 psig and above).
CERTIFIED: National Board of Boiler and Pressure Vessel Inspectors.

Series 3905 - 3916 Type PV & MV Pilots
FULL BORE - ORIFICE CAPACITIES - WATER
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in gallons of water per minute @ 70° F,
and zero psig back pressure.

Set Press. (psig)	Orifice Area (Sq. in.)						
	1.5" FB	2" FB	3" FB	4" FB	6" FB	8" FB	10" FB
	1.622	2.764	6.321	10.76	24.95	44.18	69.94
15	194	331	757	1288	2988	5292	8377
20	219	374	855	1457	3378	5982	9470
30	263	448	1025	1745	4046	7165	11343
40	303	517	1183	2015	4672	8274	13098
50	339	578	1323	2253	5224	9250	14644
60	372	634	1449	2468	5722	10133	16042
70	401	684	1566	2665	6181	10945	17327
80	429	732	1674	2849	6608	11701	18524
90	455	776	1775	3022	7009	12411	19647
100	480	818	1871	3186	7388	13082	20710
120	526	896	2050	3490	8093	14331	22687
140	568	968	2214	3770	8741	15479	24505
160	607	1035	2367	4030	9345	16548	26197
180	644	1098	2511	4274	9912	17552	27786
200	679	1157	2647	4506	10448	18501	29289
220	712	1214	2776	4726	10958	19404	30718
240	744	1268	2899	4936	11445	20267	32084
260	774	1319	3018	5137	11913	21095	33395
280	803	1369	3132	5331	12362	21891	34655
300	831	1417	3242	5518	12796	22659	35872
320	859	1464	3348	5699	13216	23402	37048
340	885	1509	3451	5875	13626	24123	38188
360	911	1553	3551	6045	14018	24822	39295
380	936	1595	3648	6211	14402	25502	40372
400	960	1637	3743	6372	14776	26165	41421
420	984	1677	3836	6529	15141	26811	42444
440	1007	1716	3926	6683	15497	27442	43443
460	1030	1755	4014	6833	15845	28059	44419
480	1052	1793	4100	6980	16186	28662	45374
500	1074	1830	4185	7124	16520	29253	46310
600	1176	2004	4584	7804	18097	32045	50730
700	1270	2165	4952	8430	19547	34613	54795
750	1315	2241	5126	8725	20233	35828	56718
800	1358	2315	5294	9012	20897	37003	—
900	1440	2455	5615	9558	22164	39247	—
1000	1518	2588	5919	10075	23363	41370	—
1100	1593	2714	6208	10567	24503	43390	—
1200	1663	2835	6484	11037	25593	45319	—
1300	1731	2951	6748	11488	26638	47170	—
1400	1797	3062	7003	11921	27644	48950	—
1500	1860	3170	7249	12340	28614	50668	—
1600	1921	3273	7487	12745	—	—	—
1700	1980	3374	7717	13137	—	—	—
1800	2037	3472	7941	13518	—	—	—
1900	2093	3567	8158	13888	—	—	—
2000	2148	3660	8370	14249	—	—	—
2500	2401	4092	9358	15931	—	—	—
3000	2630	4483	10252	17451	—	—	—
3750	2941	5012	11462	19511	—	—	—

APPROVED: ASME Boiler & Pressure Vessel Code, Section VIII (for set pressure 15 psig and above).
CERTIFIED: National Board of Boiler and Pressure Vessel Inspectors.

Series 3905 - 3916 Type PV & MV Pilots
STANDARD BORE - ORIFICE CAPACITIES - STEAM
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in pounds per hour saturated steam.

Set Press. (psig)	Orifice Area (Sq. in.)													
	D 0.1279	E 0.2279	F 0.3568	G 0.5849	H 0.9127	J 1.496	K 2.138	L 3.317	M 4.186	N 5.047	P 7.417	Q 12.85	R 18.6	T 30.21
15	189	337	527	864	1349	2212	3161	4904	6189	7462	10966	19000	27501	44668
20	218	388	608	997	1555	2550	3644	5654	7135	8603	12643	21905	31707	51498
30	275	491	769	1261	1968	3226	4611	7154	9028	10885	15997	27715	40117	65158
40	339	604	947	1552	2422	3970	5674	8804	11110	13395	19686	34107	49368	80184
50	403	718	1124	1843	2876	4714	6738	10453	13192	15906	23375	40498	58620	95210
60	466	831	1302	2134	3330	5458	7801	12103	15274	18416	27064	46889	67871	110236
70	530	945	1479	2425	3784	6203	8865	13753	17356	20926	30753	53281	77123	125262
80	593	1058	1656	2716	4238	6947	9928	15403	19438	23437	34443	59672	86374	140288
90	657	1171	1834	3007	4692	7691	10991	17053	21520	25947	38132	66064	95625	155314
100	721	1285	2011	3298	5146	8435	12055	18703	23603	28457	41821	72455	104877	170340
120	848	1511	2366	3879	6054	9923	14182	22002	27767	33478	49199	85238	123380	200393
140	975	1738	2721	4461	6962	11411	16308	25302	31931	38499	56577	98021	141882	230445
160	1102	1965	3076	5043	7870	12899	18435	28602	36095	43519	63955	110804	160385	260497
180	1230	2191	3431	5625	8778	14388	20562	31901	40259	48540	71334	123586	178888	290549
200	1357	2418	3786	6207	9686	15876	22689	35201	44423	53560	78712	136369	197391	320601
220	1484	2645	4141	6789	10593	17364	24816	38501	48587	58581	86090	149152	215894	350653
240	1611	2872	4496	7370	11501	18852	26943	41800	52751	63602	93468	161935	234396	380705
260	1739	3098	4851	7952	12409	20340	29069	45100	56916	68622	100847	174718	252899	410757
280	1866	3325	5206	8534	13317	21828	31196	48400	61080	73643	108225	187501	271402	440810
300	1993	3552	5561	9116	14225	23317	33323	51699	65244	78664	115603	200284	289905	470862
320	2120	3778	5916	9698	15133	24805	35450	54999	69408	83684	122981	213066	308408	500914
340	2248	4005	6271	10280	16041	26293	37577	58299	73572	88705	130360	225849	326910	530966
360	2375	4232	6626	10862	16949	27781	39704	61598	77736	93725	137738	238632	345413	561018
380	2502	4459	6980	11443	17857	29269	41830	64898	81900	98746	145116	251415	363916	591070
400	2629	4685	7335	12025	18765	30758	43957	68198	86064	103767	152494	264198	382419	621122
420	2756	4912	7690	12607	19673	32246	46084	71497	90229	108787	159873	276981	400922	651174
440	2884	5139	8045	13189	20581	33734	48211	74797	94393	113808	167251	289763	419424	681227
460	3011	5365	8400	13771	21489	35222	50338	78097	98557	118829	174629	302546	437927	711279
480	3138	5592	8755	14353	22397	36710	52465	81396	102721	123849	182007	315329	456430	741331
500	3265	5819	9110	14934	23304	38198	54591	84696	106885	128870	189386	328112	474933	771383
600	3902	6952	10885	17844	27844	45639	65225	101194	127706	153973	226277	392026	567447	921644
700	4538	8086	12659	20753	32384	53080	75860	117693	148526	179076	263168	455940	659961	1071904
750	4856	8653	13547	22207	34654	56801	81177	125942	158937	191628	281614	487898	706218	1147034

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Series 3905 - 3916 Type PV & MV Pilots
FULL BORE - ORIFICE CAPACITIES - STEAM
(USCS Units)

Capacities based on set pressure plus 10%
or 3 psi overpressure, whichever is greater.
Capacities in pounds per hour saturated steam.

Set Press. (psig)	Orifice Area (Sq. in.)						
	1.5" FB	2" FB	3" FB	4" FB	6" FB	8" FB	10" FB
	1.622	2.764	6.321	10.76	24.95	44.18	69.94
15	2398	4086	9346	15909	36891	65324	103413
20	2765	4711	10775	18342	42531	75312	119225
30	3498	5961	13633	23207	53813	95289	150850
40	4305	7336	16777	28559	66223	117264	185637
50	5111	8711	19921	33911	78633	139238	220424
60	5918	10085	23065	39263	91042	161213	255211
70	6725	11460	26209	44615	103452	183187	289999
80	7532	12835	29353	49967	115862	205162	324786
90	8339	14210	32497	55319	128272	227137	359573
100	9145	15585	35641	60670	140682	249111	394360
120	10759	18334	41929	71374	165501	293060	463935
140	12372	21084	48217	82078	190321	337009	533509
160	13986	23833	54505	92782	215140	380958	603084
180	15599	26583	60793	103486	239960	424908	672658
200	17213	29332	67081	114189	264780	468857	742233
220	18826	32082	73369	124893	289599	512806	811807
240	20440	34831	79657	135597	314419	556755	881382
260	22053	37581	85945	146301	339239	600704	950956
280	23667	40331	92233	157004	364058	644653	1020531
300	25281	43080	98521	167708	388878	688602	1090105
320	26894	45830	104809	178412	413697	732551	1159680
340	28508	48579	111096	189116	438517	776501	1229254
360	30121	51329	117384	199819	463337	820450	1298829
380	31735	54078	123672	210523	488156	864399	1368403
400	33348	56828	129960	221227	512976	908348	1437978
420	34962	59577	136248	231931	537795	952297	1507552
440	36575	62327	142536	242635	562615	996246	1577127
460	38189	65077	148824	253338	587435	1040195	1646701
480	39802	67826	155112	264042	612254	1084144	1716276
500	41416	70576	161400	274746	637074	1128093	1785850
600	49483	84323	192840	328265	761172	1347839	2133723
700	57551	98071	224280	381784	885270	1567585	2481595
750	61585	104945	240000	408543	947319	1677457	2655531

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Valve Installation

Valve Connections

The CONSOLIDATED 39MPV Series flanged valves are equipped with ANSI B16.5 flanges. For other standards, contact the factory for your needs.

The facing on raised flanges is a spiral finish, 125 to 250 micro inch roughness (R_a).

All flange drilling straddles the centerlines of the valve.

Handling and Storage

Safety relief valves should be handled carefully. The internal parts of a pilot operated safety relief valve are precision machined and fitted together to maintain perfect alignment. Rough handling may damage the external tubing, pilot, and main valve seats or may cause misalignment sufficient to incur leakage or erratic operation. Safety relief valves are shipped with a protective covering over the inlet and the outlet. This is to prevent damage to the flanged surfaces and to prevent entry of foreign material into the valve. If the valves are to be stored before installation, the protective covering should be left intact until installation. A clean, dry storage area is recommended. Valves should always be protected with a suitable covering to prevent entry of foreign material.

Inlet Piping

Pilot operated safety relief valves must be installed in a vertical upright position. The inlet piping to the valve should be short and direct from the vessel or equipment being protected. The connection to the vessel should be provided with a radius to permit smooth flow to the valve. Sharp corners should be avoided. Should this not be practical, then the inlet should be swaged out at least one additional pipe diameter.

In any event, the pressure drop from the vessel to the valve should not exceed 3% of set pressure when the valve is flowing full capacity. In no event should the inlet piping be smaller in diameter than the inlet connection of the valve.

Outlet Piping

Alignment of the internal parts of a pilot operated safety relief valve is important to ensure proper operation. Although the valve body will withstand a considerable mechanical load, unsupported discharge piping should not impose loads any higher than that stated in the Technical Information section of this catalog, consisting of more than a companion flange, long radius elbow and a short vertical pipe. Care should be taken to ensure thermal expansion of piping and supports does not produce strains on the valve. Spring supports are recommended where necessary to avoid this condition. The discharge piping should be designed to allow for vessel expansion as well as expansion of the discharge pipe itself. This is particularly important on long discharge lines.

Consideration should be given to discharge pipe movement resulting from wind loads. Any oscillation of the discharge piping introduces stress distortion in the valve body, and the resultant movement of the internal parts may cause leakage.