

Consolidated™ 2900/2900 TM Series Generation II

Pilot-Operated Safety Relief Valve

A full-nozzle pilot valve matching API 526 Direct-Spring PRV dimensions enabling modernization and carbon footprint reduction.



Table of Contents

Conversion Table	3
Scope of Design	4-9
Main Valve Materials	10
2900/2900 TM Conventional Type Main Valve (Metal Seat)	10-11
2900/2900 TM Bellows Type Main Valve	12-14
2900 TM Series Valve Soft Seats (DA)	14-16
2900/2900 TM Conventional Type Main Valve (Metal Seat) for Section I Liquid Service	16-18
2900/2900 TM Conventional Type Main Valve (Soft Seat) for Section I Liquid Service	18-19
How the Double Seal Works	20
Three Essentials to Tighter and More Secure Seal	20
Main Valve Materials	21
2900 Series Steam Trim (TD) Valves	21
2900 Series Valve Cryodisc (CD)	22
2900 Enhanced Back Pressure Trim (BT)	22
Options	23
Alloy 20	24
Low Temperatures (C1)	25
Duplex	26
Hastelloy C	27
Low Temperatures	28
Monel	29
Stainless Steel	30-31
Sour Gas Trim (N1/N2)	32
High Temperatures	33
Section I Liquid Service (LA1)	34
High Temperatures	35
Soft Goods Selection	36-37
Pressure and Temperature Limits	37
Pilot Designs	38-39
Pilot Materials (PV)	40-49
Pilot Materials (MV)	50-65
Pilot Design Options	66
Options and Accessories	66-72
Piping Configurations	73-87
Valve Installation	88
Dimensions & Weights	89-97
Pressure/Temperature	98-115
Capacities	116-121
Valve Configuration Code	122-126
Ordering 2900/2900 TM Series Generation II Safety Relief Valve	127

Conversion Table

All the USCS values are converted to metric values using the following conversion factors:

USCS Unit	Conversion Factor	Metric Unit
in.	25.4	mm
lb.	0.4535924	kg
in ²	6.4516	cm ²
ft ³ /min	0.02831685	m ³ /min
gal/min	3.785412	L/min
lb/hr	0.4535924	kg/hr
psig	0.06894757	barg
ft lb	1.3558181	Nm
°F	$5/9 (°F - 32)$	°C

Scope of Design

2900/2900 TM Flanged Series Valve Overview

The Consolidated 2900/2900 TM Series pilot-operated safety relief valve is supplied with the same non-flowing pilot valve used on the 3900/3900 TM Series POSRV. 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. A metal seat on the main valve is standard, and an O-ring option is available.

Product Types			
Product Type	Pilot Type	Service	Description
2900/2900 TM	39PV	gas/liquid	pop action - non flowing
2900/2900 TM	39MV	gas/liquid	modulating - non flowing
2900/2900 TM	39PVSS	steam	pop action - non flowing
2900/2900 TM	39MVSS	steam	modulating - non flowing

Because of its modular design, the 39PV07 (pop pilot) can be converted to a 39MV07 (modulator pilot). However, the 39PV37 pop-action pilot is not convertible to a 39MV22 modulating pilot. Adding a heat exchanger expands the range of the 2900/2900 TM to meet high and low temperature requirements. That makes it one of the most versatile pilot-operated safety relief valves available. (The scope of the 2900/2900 TM Series is outlined in this section.)

Standard Valve Connection - D Orifice						
Orifice Area	API			ASME		
	in ²	0.110		in ²	0.128	
	cm ²	0.710		cm ²	0.825	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	1.00	25.4	150	2.00	50.8	150
2906	1.00	25.4	300	2.00	50.8	150
2910	1.00	25.4	300	2.00	50.8	150
2912	1.00	25.4	600	2.00	50.8	150
2914	1.50	38.1	900	2.00	50.8	300
2916	1.50	38.1	1500	2.00	50.8	300
2918	1.50	38.1	2500	3.00	76.2	300
2920	1.00	25.4	300	2.00	50.8	150
2922	1.00	25.4	600	2.00	50.8	150
2924	1.50	38.1	900	2.00	50.8	300
2926	1.50	38.1	1500	2.00	50.8	300
2928	1.50	38.1	2500	3.00	76.2	300

Standard Valve Connection - E Orifice						
Orifice Area	API			ASME		
	in ²	0.196		in ²	0.228	
	cm ²	1.265		cm ²	1.470	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	1.00	25.4	150	2.00	50.8	150
2906	1.00	25.4	300	2.00	50.8	150
2910	1.00	25.4	300	2.00	50.8	150
2912	1.00	25.4	600	2.00	50.8	150
2914	1.50	38.1	900	2.00	50.8	300
2916	1.50	38.1	1500	2.00	50.8	300
2918	1.50	38.1	2500	3.00	76.2	300
2920	1.00	25.4	300	2.00	50.8	150
2922	1.00	25.4	600	2.00	50.8	150
2924	1.50	38.1	900	2.00	50.8	300
2926	1.50	38.1	1500	2.00	50.8	300
2928	1.50	38.1	2500	3.00	76.2	300

Scope of Design

2900/2900 TM Flanged Series Valve Overview

Standard Valve Connection – F Orifice						
Orifice Area	API			ASME		
	in ²	0.307	in ²	0.357		
	cm ²	1.981	cm ²	2.302		
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	1.50	38.1	150	2.00	50.8	150
2906	1.50	38.1	300	2.00	50.8	150
2910	1.50	38.1	300	2.00	50.8	150
2912	1.50	38.1	600	2.00	50.8	150
2914	1.50	38.1	900	3.00	76.2	300
2916	1.50	38.1	1500	3.00	76.2	300
2918	1.50	38.1	2500	3.00	76.2	300
2920	1.50	38.1	300	2.00	50.8	150
2922	1.50	38.1	600	2.00	50.8	150
2924	1.50	38.1	900	3.00	76.2	300
2926	1.50	38.1	1500	3.00	76.2	300
2928	1.50	38.1	2500	3.00	76.2	300

Standard Valve Connection – G Orifice						
Orifice Area	API			ASME		
	in ²	0.503	in ²	0.585		
	cm ²	3.245	cm ²	3.774		
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	1.50	38.1	150	3.00	76.2	150
2906	1.50	38.1	300	3.00	76.2	150
2910	1.50	38.1	300	3.00	76.2	150
2912	1.50	38.1	600	3.00	76.2	150
2914	1.50	38.1	900	3.00	76.2	300
2916	2.00	50.8	1500	3.00	76.2	300
2918	2.00	50.8	2500	3.00	76.2	300
2920	1.50	38.1	300	3.00	76.2	150
2922	1.50	38.1	600	3.00	76.2	150
2924	1.50	38.1	900	3.00	76.2	300
2926	2.00	50.8	1500	3.00	76.2	300
2928	2.00	50.8	2500	3.00	76.2	300

Standard Valve Connection – H Orifice						
Orifice Area	API			ASME		
	in ²	0.785	in ²	0.913		
	cm ²	5.065	cm ²	5.888		
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	1.50	38.1	150	3.00	76.2	150
2906	1.50	38.1	300	3.00	76.2	150
2910	2.00	50.8	300	3.00	76.2	150
2912	2.00	50.8	600	3.00	76.2	150
2914	2.00	50.8	900	3.00	76.2	150
2916	2.00	50.8	1500	3.00	76.2	300
2920	2.00	50.8	300	3.00	76.2	150
2922	2.00	50.8	600	3.00	76.2	150
2924	2.00	50.8	900	3.00	76.2	150
2926	2.00	50.8	1500	3.00	76.2	300

Standard Valve Connection – J Orifice						
Orifice Area	API			ASME		
	in ²	1.287	in ²	1.496		
	cm ²	8.303	cm ²	9.652		
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	2.00	50.8	150	3.00	76.2	150
2906	2.00	50.8	300	3.00	76.2	150
2910	3.00	76.2	300	4.00	101.6	150
2912	3.00	76.2	600	4.00	101.6	150
2914	3.00	76.2	900	4.00	101.6	150
2916	3.00	76.2	1500	4.00	101.6	300
2920	3.00	76.2	300	4.00	101.6	150
2922	3.00	76.2	600	4.00	101.6	150
2924	3.00	76.2	900	4.00	101.6	150
2926	3.00	76.2	1500	4.00	101.6	300

Scope of Design

2900/2900 TM Flanged Series Valve Overview

Standard Valve Connection – K Orifice						
Orifice Area	API			ASME		
	in ²	1.838		in ²	2.138	
	cm ²	11.858		cm ²	13.794	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	3.00	76.2	150	4.00	101.6	150
2906	3.00	76.2	300	4.00	101.6	150
2910	3.00	76.2	300	4.00	101.6	150
2912	3.00	76.2	600	4.00	101.6	150
2914	3.00	76.2	900	6.00	152.4	150
2916	3.00	76.2	1500	6.00	152.4	300
2920	3.00	76.2	300	4.00	101.6	150
2922	3.00	76.2	600	4.00	101.6	150
2924	3.00	76.2	900	6.00	152.4	150
2926	3.00	76.2	1500	6.00	152.4	300

Standard Valve Connection – L Orifice						
Orifice Area	API			ASME		
	in ²	2.853		in ²	3.317	
	cm ²	18.406		cm ²	21.400	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	3.00	76.2	150	4.00	101.6	150
2906	3.00	76.2	300	4.00	101.6	150
2910	4.00	101.6	300	6.00	152.4	150
2912	4.00	101.6	600	6.00	152.4	150
2914	4.00	101.6	900	6.00	152.4	150
2916	4.00	101.6	1500	6.00	152.4	150
2920	4.00	101.6	300	6.00	152.4	150
2922	4.00	101.6	600	6.00	152.4	150
2924	4.00	101.6	900	6.00	152.4	150
2926	4.00	101.6	1500	6.00	152.4	150

Standard Valve Connection – M Orifice						
Orifice Area	API			ASME		
	in ²	3.600		in ²	4.186	
	cm ²	23.226		cm ²	27.006	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	4.00	101.6	150	6.00	152.4	150
2906	4.00	101.6	300	6.00	152.4	150
2910	4.00	101.6	300	6.00	152.4	150
2912	4.00	101.6	600	6.00	152.4	150
2914	4.00	101.6	900	6.00	152.4	150
2920	4.00	101.6	300	6.00	152.4	150
2922	4.00	101.6	600	6.00	152.4	150
2924	4.00	101.6	900	6.00	152.4	150

Standard Valve Connection – N Orifice						
Orifice Area	API			ASME		
	in ²	4.340		in ²	5.047	
	cm ²	28.000		cm ²	32.561	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	4.00	101.6	150	6.00	152.4	150
2906	4.00	101.6	300	6.00	152.4	150
2910	4.00	101.6	300	6.00	152.4	150
2912	4.00	101.6	600	6.00	152.4	150
2914	4.00	101.6	900	6.00	152.4	150
2920	4.00	101.6	300	6.00	152.4	150
2922	4.00	101.6	600	6.00	152.4	150
2924	4.00	101.6	900	6.00	152.4	150

Standard Valve Connection – P Orifice						
Orifice Area	API			ASME		
	in ²	6.380		in ²	7.417	
	cm ²	41.161		cm ²	47.852	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	4.00	101.6	150	6.00	152.4	150
2906	4.00	101.6	300	6.00	152.4	150
2910	4.00	101.6	300	6.00	152.4	150
2912	4.00	101.6	600	6.00	152.4	150
2914	4.00	101.6	900	6.00	152.4	150
2920	4.00	101.6	300	6.00	152.4	150
2923	4.00	101.6	600	6.00	152.4	150
2924	4.00	101.6	900	6.00	152.4	150

Standard Valve Connection – Q Orifice						
Orifice Area	API			ASME		
	in ²	11.050		in ²	12.850	
	cm ²	71.290		cm ²	82.903	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	6.00	152.40	150	8.00	203.2	150
2906	6.00	152.40	300	8.00	203.2	150
2910	6.00	152.40	300	8.00	203.2	150
2912	6.00	152.40	600	8.00	203.2	150
2920	6.00	152.40	300	8.00	203.2	150
2922	6.00	152.40	600	8.00	203.2	150

Scope of Design

2900/2900 TM Flanged Series Valve Overview

Standard Valve Connection – R Orifice						
Orifice Area	API			ASME		
	in ²	16.000		in ²	18.600	
	cm ²	103.226		cm ²	120.000	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	6.00	152.4	150	8.00	203.2	150
2906	6.00	152.4	300	8.00	203.2	150
2910	6.00	152.4	300	10.00	254.0	150
2912	6.00	152.4	600	10.00	254.0	150
2920	6.00	152.4	300	10.00	254.0	150
2922	6.00	152.4	600	10.00	254.0	150

Standard Valve Connection – T Orifice						
Orifice Area	API			ASME		
	in ²	26.000		in ²	30.210	
	cm ²	167.740		cm ²	194.900	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	8.00	203.2	150	10.00	254.0	150
2906	8.00	203.2	300	10.00	254.0	150
2910	8.00	203.2	300	10.00	254.0	150
2912	8.00	203.2	600	10.00	254.0	150
2920	8.00	203.2	300	10.00	254.0	150
2922	8.00	203.2	600	10.00	254.0	150

Standard Valve Connection – U Orifice						
Orifice Area	API			ASME		
	in ²	N/A		in ²	35.000	
	cm ²	N/A		cm ²	225.806	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	8.00	203.2	150	10.00	254.0	150
2906	8.00	203.2	300	10.00	254.0	150
2910	8.00	203.2	300	10.00	254.0	150
2912	8.00	203.2	600	10.00	254.0	150
2920	8.00	203.2	300	10.00	254.0	150
2922	8.00	203.2	600	10.00	254.0	150

Standard Valve Connection – V Orifice						
Orifice Area	API			ASME		
	in ²	N/A		in ²	50.260	
	cm ²	N/A		cm ²	324.257	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	10.00	254.0	150	14.00	355.6	150
2906	10.00	254.0	300	14.00	355.6	150
2910	10.00	254.0	300	14.00	355.6	150
2920	10.00	254.0	300	14.00	355.6	150

Standard Valve Connection – W Orifice						
Orifice Area	API			ASME		
	in ²	N/A		in ²	78.996	
	cm ²	N/A		cm ²	509.651	
Valve Type	Inlet			Outlet		
	Size		ASME Std. Class	Size		ASME Std. Class
	in.	mm		in.	mm	
2905	12.00	304.8	150	16.00	406.4	150
2906	12.00	304.8	300	16.00	406.4	150
2910	12.00	304.8	300	16.00	406.4	150
2920	12.00	304.8	300	16.00	406.4	150

Valve Type	ASME B16.5	EN 1902-1 Class
1905	Class 150	PN 10, PN 16
1910	Class 300	PN 25, PN 40
1912	Class 600	PN 63, PN 100
1914	Class 900	PN 160
1916	Class 1500	PN 250
1918	Class 2500	PN 320, PN 400

Note: These tables (Orifices D-T) apply to valves with EN 1092-1 flange connections. Pressure/Temperature ratings are not equivalent between ASME and EN 1902-1.

Scope of Design

2900/2900 TM Flanged Series Valve Overview

Pressure Limits ^{(1),(2)&(5)}						
Product Type	Pilot Type	Minimum		Maximum		Service
		psig	barg	psig	barg	
2900/2900 TM	39PV	15	1.03	3750	258.55	gas/liquid
2900/2900 TM	39MV	15	1.03	6250	430.92	gas/liquid
2900/2900 TM w/ heat exchanger	39PV	15	1.03	3750	258.55	gas/liquid
2900/2900 TM w/ heat exchanger	39MV	15	1.03	6250	430.92	gas/liquid
2900/2900 TM	39PVSS	15	1.03	750	398.9	steam
2900/2900 TM	39MVSS	15	1.03	750	398.9	steam
2900/2900 TM w/ heat exchanger	39PVSS	15	1.03	2903	1595.0	steam
2900/2900 TM w/ heat exchanger	39MVSS	15	1.03	2903	1595.0	steam

Temperature Limits ^{(1),(2)&(5)}						
Product Type	Pilot Type	Minimum		Maximum		Service
		(°F)	(°C)	(°F)	(°C)	
2900/2900 TM	39PV	-40	-40.0	505	262.8	gas/liquid
2900/2900 TM	39MV	-40	-40.0	505	262.8	gas/liquid
2900/2900 TM w/ heat exchanger	39PV	-450	-267.8	1200	648.9	gas/liquid
2900/2900 TM w/ heat exchanger	39MV	-450	-267.8	1200	648.9	gas/liquid
2900/2900 TM	39PVSS	212	100.0	505	262.8	steam
2900/2900 TM	39MVSS	212	100.0	505	262.8	steam
2900/2900 TM w/ heat exchanger	39PVSS	212	100.0	1200	648.9	steam
2900/2900 TM w/ heat exchanger	39MVSS	212	100.0	1200	648.9	steam

Soft Goods Guide ^{(3),(4)&(5)}																	
Service	Material	Pilot Valve and Modulator								Main Valve							
		Temperature Range				Pressure Range				Temperature Range				Pressure Range			
		min.		max.		min.		max.		min.		max.		min.		max.	
		(°F)	(°C)	(°F)	(°C)	psig	barg	psig	barg	(°F)	(°C)	(°F)	(°C)	psig	barg	psig	barg
liquid/gas	Nitrile (Buna N)	-40	-40.0	250	121.1	15	1.03	6250	430.92	-40	-40.0	250	121.1	15	1.03	3750	258.55
liquid/gas	Fluorocarbon (Viton®)	-15	-26.1	400	204.4	15	1.03	6250	430.92	-15	-26.1	400	204.4	15	1.03	3750	258.55
liquid/gas	Ethylene Propylene	-40	-40.0	500	260.0	15	1.03	3750	258.55	-40	-40.0	250	121.1	15	1.03	3750	258.55
liquid/gas	Kalrez®	-40	-40.0	505	262.8	15	1.03	6250	430.92	-4	-20.0	601	316.1	15	1.03	3750	258.55
liquid/gas	PTFE	-40	-40.0	505	262.8	50	3.45	6250	430.92	-40	-40.0	505	262.8	50	3.45	6250	430.92
liquid/gas	Neoprene	-	-	-	-	-	-	-	-	-45	-42.8	300	148.9	15	1.03	800	55.16
liquid/gas	Silicone	-	-	-	-	-	-	-	-	-40	-40.0	437	225.0	15	1.03	800	55.16
liquid/gas	Chemraz®	-	-	-	-	-	-	-	-	-20	-28.9	500	260.0	-20	-1.38	3750	258.55
steam	Ethylene Propylene	212	100.0	500	260.0	15	1.03	49	3.38	212	100.0	500	260.0	15	1.03	49	3.38
steam	PTFE	212	100.0	505	262.8	50	3.45	3750	258.55	212	100.0	505	262.8	50	3.45	3750	258.55

- The above table is general in nature and is to be used as a guideline only.
- Refer to the Pressure/Temperature Tables beginning on page 97 for actual pressure limits at a given temperature by orifice and materials of construction.
- Refer to the Soft Goods Selection Table on page 35 for material selection for a given pressure, temperature, fluid type, durometer hardness and orifice size.
- When the pressure temperature limits of the soft goods in the pilot valve and main valve are exceeded, the heat exchanger must be used to condition the media to within an acceptable range. A standard metal seat is used on the main base with the heat exchanger.
- Sizing of the heat exchanger is required and may not be suitable for all applications.

Scope of Design

2900/2900 TM Flanged Series Valve Overview

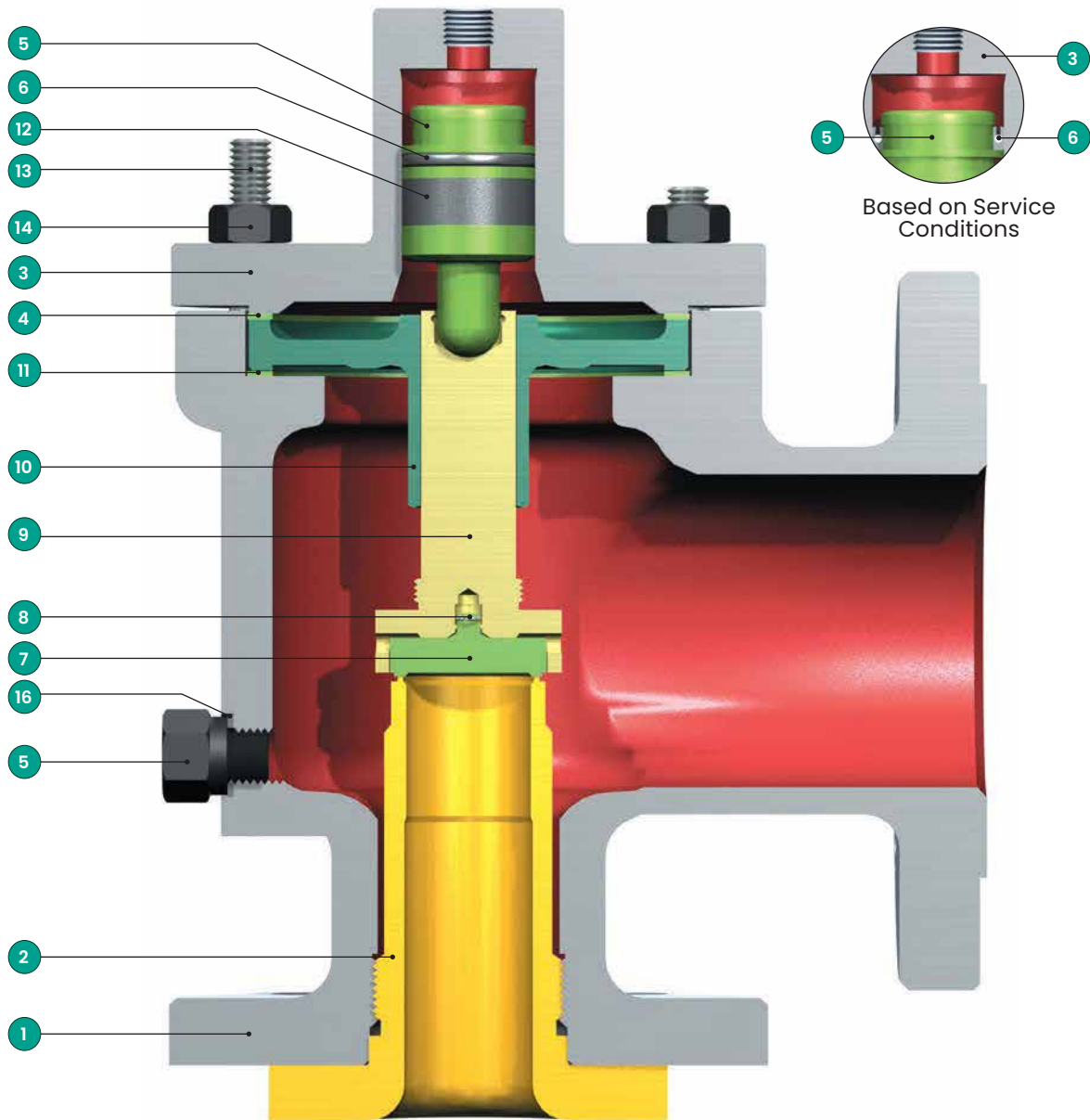
Applications			Options		
Applications	Pilot Type		Options	Pilot Type	
	39PV	39MV		39PV	39MV
Type			Backflow Preventer		
Pop Action - Non Flowing	Yes	No	Bonnet (vented) ⁽²⁾	Yes	Yes
Modulating - Non Flowing	No	Yes	Dirty Service	Yes	Yes
Media			Dual Filters	Yes	Yes
Air, Gas	Yes	Yes	Dual Pilots	Yes	Yes
Vapor	Yes	Yes	Heat Exchanger ⁽³⁾	Yes	Yes
Dirty Vapor (filter required)	Yes	Yes	High Capacity Line Filter (with flush valve)	Yes	Yes
Steam	Yes	Yes	Optional Sensing Line Filter (standard for steam service)	Yes	Yes
Liquid	Yes	Yes	Pilot Discharge to Body Bowl	Yes	Yes
Operational Conditions			Pressure Differential Switch	Yes	Yes
Icing	Yes	Yes	Remote Actuated Blowdown	Yes	Yes
Pulsations	Yes	Yes	Remote Pilot Mounting	Yes	Yes
Reduces Water Hammer (when valve closes)	Yes	Yes	Integral Sense (Recommended)	Yes	Yes
Operational Performance ^{(1),(2),(4)}			Remote Sense ⁽¹⁾	Yes	Yes
Pressure Range:			Sensing Ring	Yes	Yes
15-3750 psig (1.03-258.55 barg) (Gas/Liquid/Vapor)	Yes	Yes	<ol style="list-style-type: none"> When the remote sense option is supplied, the remote sense connection must be piped to the system pressure. When vented bonnet option is selected for steam service, an Inconel X750 spring id supplied. Use of a Heat Exchanger is subject to sizing and may not be suitable for all applications. 		
15-6250 psig (1.03-430.92 barg) (Gas/Liquid/Vapor)	No	Yes			
15-3750 psig (1.03-258.55 barg) (Steam)	Yes	Yes			
Blowdown: 2% to 7% adjustable	Yes	Yes			
Main Valve Seat Tightness (% of set pressure):					
Metal Seat - Per API 527	98%	98%			
Soft Seat - Bubble Tight	98%	98%			
Back Pressure (with pilot vented to body bowl):⁽⁵⁾					
Variable - % of Set Pressure	15%	80% ⁽⁶⁾			
Constant - % of Set Pressure	80% ⁽³⁾	80% ⁽⁶⁾			
Back Pressure (with pilot vented to atmosphere):					
Variable - % of Set Pressure	97%	97%			
Constant - % of Set Pressure	97%	97%			
Temperature: Without Heat Exchanger					
	-40°F to 505°F (-40°C to 262.8°C)	-40°F to 505°F (-40°C to 262.8°C)			
With Heat Exchanger⁽⁴⁾					
	-450°F to 1200°F (-267.8°C to 648.9°C)	-450°F to 1200°F (-267.8°C to 648.9°C)			

- Review Pressure/Temperature tables.
- Review Outlet Flange Ratings and Capacity Correction Factor.
- A Cold Differential Test Pressure (CDTP) must be applied for a 39PV when the constant back pressure is over 15% of set pressure.
- Use of a Heat Exchanger is subject to sizing and may not be suitable for all applications.
- If backflow preventer is installed, total backpressure is limited to 80%
- Back pressure above 80% is allowable up to 97% under certain conditions. Contact the factory for back pressures above this standard limit.

Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Metal Seat)

Main Valve - Metal Seat (D-U Orifices)



Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Metal Seat)

Standard Material for 2900/2900 TM Main Valve D-U Orifices (-00)

Ref. No.	Nomenclature	Standard Material (-CC)
1	Base	
	2905-2918	ASME SA216 Grade WCC CS
	2920-2928	ASME SA217 Grade WC6 AS
1A	Base Plug (Not Shown)	
	2905-2918	Carbon Steel
	2920-2928	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 Grade CF8M St. St.
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-ring ⁽¹⁾	Select
7	Disc	
	Metal Seat	316 Stainless Steel
	Thermodisc (Optional)	616 Stainless Steel
8	Disc Retainer	Inconel X-750
9	Disc Holder	316 Stainless Steel
10	Guide	316 Stainless Steel
11	Guide Gasket	Soft Iron
12	Guide Ring(s)	PTFE
13	Stud (Base)	B7 Alloy Steel
14	Nut (Base)	2H Carbon Steel
15	Plug Adaptor	316 Stainless Steel
16	Plug Adaptor Gasket	Soft Iron
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel
	39PV & 39MV Pilot Material	Material Option - CC ⁽²⁾

Standard Material for 2900/2900 TM Main Valve V&W Orifices (-00)

Ref. No.	Nomenclature	Standard Material (-CC)
1	Base	
	2905-2910	ASME SA216 Grade WCC CS
	2920	ASME SA217 Grade WC6 AS
1A	Base Plug (Not Shown)	
	2905-2910	Carbon Steel
	2920	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 Grade CF8M St. St.
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-ring ⁽¹⁾	Select
7	Disc	
	Metal Seat	316 Stainless Steel
	Thermodisc (Optional)	Nitronic - 60
8A	Disc Retainer Screws	316 Stainless Steel
8B	Disc Retainer Lockwasher	316 Stainless Steel
9	Disc Holder	
	2905-2910	316 Stainless Steel
	2920	316 St. St. (Glide-Alloy Coated)
10	Guide	
	2905-2910	410 Stainless Steel
	2920	316 St. St. (Glide-Alloy Coated)
11	Guide Gasket	Soft Iron
12	Guide Ring(s)	PTFE
13	Stud (Base)	B7 Alloy Steel
14	Nut (Base)	2H Carbon Steel
15	Plug Adaptor	316 Stainless Steel
16	Plug Adaptor Gasket	Soft Iron
24	Guide Rings (Guide)	PTFE
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel
	39PV & 39MV Pilot Material	Material Option - CC ⁽²⁾

1. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

2. Refer Page no. 40, 50 & 51.

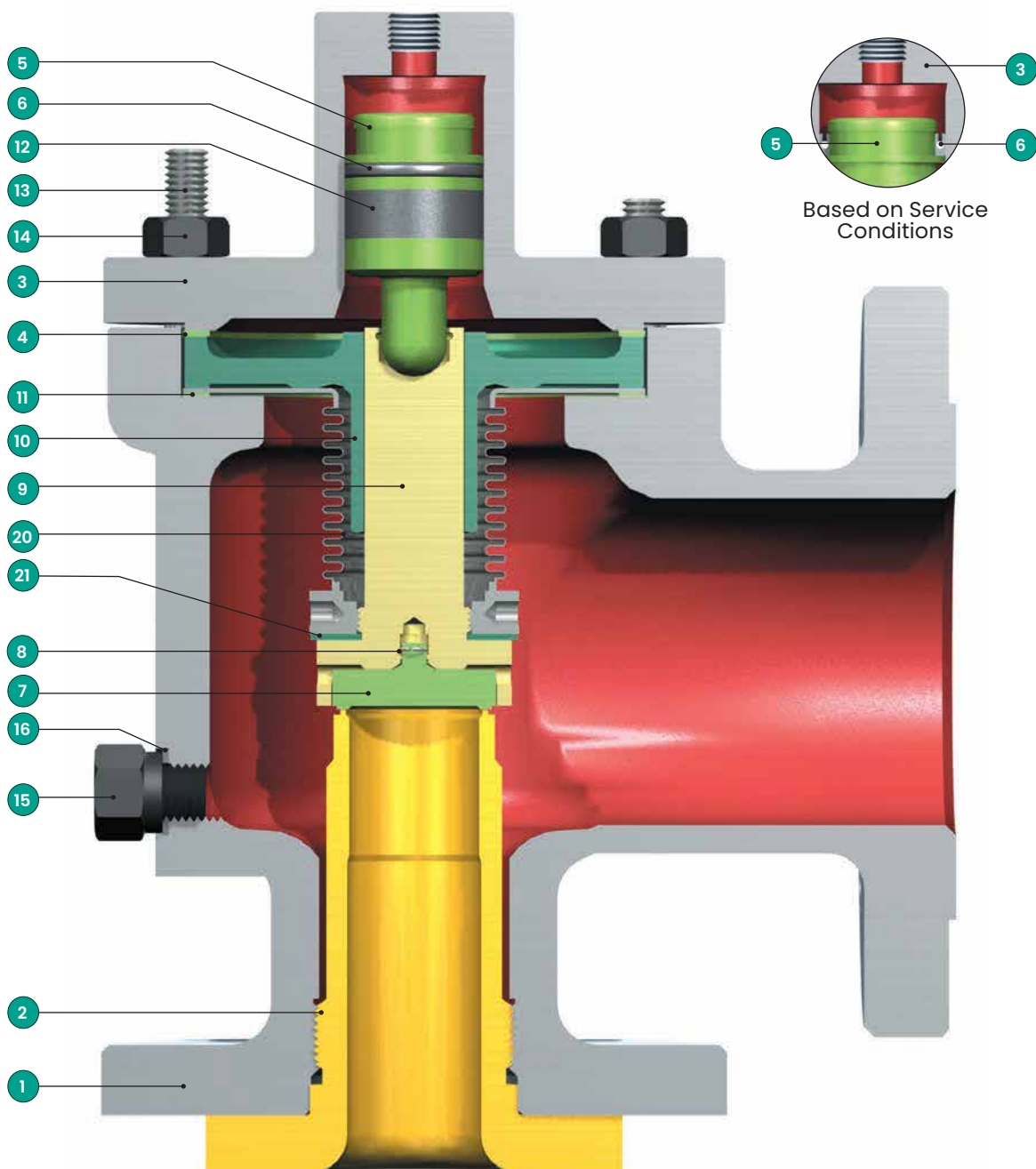
Main Valve Materials

2900/2900 TM Bellows Type Main Valve

A bellows option is available on the 2900/2900 TM Series Generation II. Its primary use is to isolate and protect the guiding surfaces between the disc holder and guide from particulates or a corrosive media. It can also be used when the temperature on superimposed or built-up backpressure is less than -40°F (-40°C) or greater than 505°F (262.8°C). In this event, a factory engineer should be consulted to review the application to determine if the bellows option is a suitable solution.

The bellows is not required for variable or built-up backpressure on a 2900/2900 TM Series Generation II as it is on a 1900 safety relief valve. For backpressure operational performance, review the Applications Table on page 9.

Main Valve - Bellows Type (D-U Orifices)



Main Valve Materials

2900/2900 TM Bellows Type Main Valve

Bellows Material for 2900/2900 TM Main Valve D-U Orifices (-30)

Ref. No.	Nomenclature	Bellows Material (-CC)
1	Base	
	2905-2918	ASME SA216 Grade WCC CS
	2920-2928	ASME SA217 Grade WC6 AS
1A	Base Plug	
	2905-2918	Carbon Steel
	2920-2928	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 Grade CF8M St. St.
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-ring ⁽¹⁾	Select
7	Disc	
	Metal Seat	316 Stainless Steel
	Thermodisc (Optional)	616 Stainless Steel
8	Disc Retainer	Inconel X-750
9	Disc Holder	316 Stainless Steel
10	Guide	316 Stainless Steel
11	Guide Gasket	Soft Iron
12	Guide Ring(s)	PTFE
13	Stud (Base)	B7 Alloy Steel
14	Nut (Base)	2H Carbon Steel
15	Plug Adaptor	316 Stainless Steel
16	Plug Adaptor Gasket	Soft Iron
20	Bellows Assembly	
	Bellows	Inconel 625 LCF
	Bellows Nut	316L Stainless Steel
	Bellows Flange	316L Stainless Steel
21	Bellows Gasket	Soft Iron
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	
Vent Adaptor (Optional)	316 Stainless Steel	
Heat Exchanger (Optional)	316 Stainless Steel	
39PV & 39MV Pilot Material	Material Option - CC ⁽²⁾	

1. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

2. Refer Page no. 40, 50 & 51.

Bellows Material for 2900/2900 TM Main Valve V&W Orifices (-30)

Ref. No.	Nomenclature	Bellows Material (-CC)
1	Base	
	2905-2910	ASME SA216 Grade WCC CS
	2920	ASME SA217 Grade WC6 AS
1A	Base Plug	
	2905-291	Carbon Steel
	2920	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 Grade CF8M St. St.
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-ring ⁽¹⁾	Select
7	Disc	
	Metal Seat	316 Stainless Steel
	Thermodisc (Optional)	Nitronic - 60
8	Disc Retainer	
8	Disc Retainer Screws	316 Stainless Steel
8A	Disc Retainer Lockwasher	316 Stainless Steel
9	Disc Holder	
	2905-2910	316 Stainless Steel
	2920	316 Stainless Steel (Glide-Aloy Coated)
10	Guide	
	2905-2910	410 Stainless Steel
	2920	316 Stainless Steel (Glide-Aloy Coated)
11	Guide Gasket	Soft Iron
12	Guide Ring(s)	PTFE
13	Stud (Base)	B7 Alloy Steel
14	Nut (Base)	2H Carbon Steel
15	Plug Adaptor	316 Stainless Steel
16	Plug Adaptor Gasket	Soft Iron
20	Bellows Assembly	
	Bellows	Inconel 625 LCF
	Bellows Nut	316L Stainless Steel
	Bellows Flange	316L Stainless Steel
21	Bellows Gasket	Soft Iron
	Bellows Bolts	316 Stainless Steel
	Bellows Bolts Lock Washers	316 Stainless Steel
24	Guide Rings (Guide)	PTFE
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel
	39PV & 39MV Pilot Material	Material Option - CC ⁽²⁾

Main Valve Materials

2900 TM Series Valve Soft Seats (DA)

The Double Seal Soft Seat

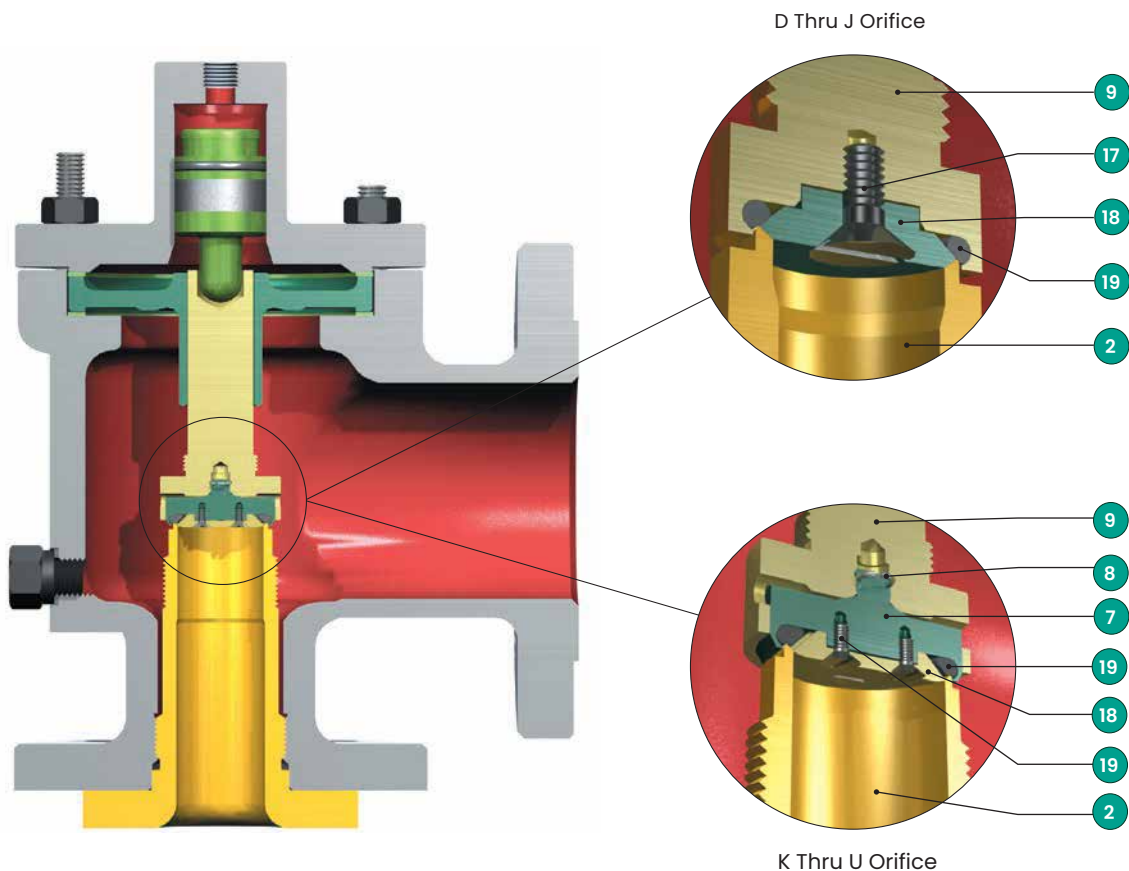
The double seal design incorporates the merits of both a soft seat and a metal seat design valve. The 45° metal seat provides the load bearing surface to transmit piston pressure force, while the slotted O-ring retainer allows the O-ring to be pressurized and accomplish the primary sealing function. For pressure/temperature ratings of the seal, refer to Soft Goods Selection beginning on page 35.

The 2900/2900 TM Series O-ring seat seal valves are bubble tight at 98 percent. They provide positive closure for continuous, trouble-free service and complete valve tightness after numerous "pops".

Note:

The Consolidated 2900/2900 TM Series valve's O-ring design features a secondary metal-to-metal seat which becomes effective if O-ring integrity is lost due to external fire or other causes. The retainer is lapped to the nozzle at assembly assuring seat tightness.

2900/2900 TM Conventional Type Main Valve - Soft Seat



Main Valve Materials

2900/2900 TM Series Valve Soft Seats (DA)

Standard Material for 2900/2900 TM Main Valve – Soft Seat D-U Orifices (-CC)

Ref. No.	Nomenclature	Material (-CC)	
		Conventional Valve Material (-00)	Bellows Valve Material (-30)
1	Base		
	2905-2918	ASME SA216 Grade WCC Carbon Steel	ASME SA216 Grade WCC Carbon Steel
	2920-2928	ASME SA217 Grade WC6 Alloy Steel	ASME SA217 Grade WC6 Alloy Steel
1A	Base Plug		
	2905-2918	Carbon Steel	Carbon Steel
	2920-2928	316 Stainless Steel	316 Stainless Steel
2	Nozzle	316 Stainless Steel	316 Stainless Steel
3	Coverplate	ASME SA351 Grade CF8M Stainless Steel	ASME SA351 Grade CF8M Stainless Steel
4	Coverplate Gasket	Soft Iron	Soft Iron
5	Main Valve Piston	316 Stainless Steel	316 Stainless Steel
6	Main Valve Piston O-ring ⁽¹⁾	Select	Select
7	Disc (K-U)	316 Stainless Steel	316 Stainless Steel
8	Disc Retainer (K-U)	Inconel X-750	Inconel X-750
9	Disc Holder		
	(D-J Orifices) ⁽³⁾	316 Stainless Steel	316 Stainless Steel
	(K-U Orifice)	316 Stainless Steel	316 Stainless Steel
10	Guide	316 Stainless Steel	316 Stainless Steel
11	Guide Gasket	Soft Iron	Soft Iron
12	Guide Ring(s)	PTFE	PTFE
13	Stud (Base)	B7 Alloy Steel	B7 Alloy Steel
14	Nut (Base)	2H Carbon Steel	2H Carbon Steel
15	Plug Adaptor	316 Stainless Steel	316 Stainless Steel
16	Plug Adaptor Gasket	Soft Iron	Soft Iron
17	O-ring Retainer Lock Screw ⁽²⁾	316 Stainless Steel	316 Stainless Steel
18	O-ring Retainer ⁽²⁾	316 Stainless Steel	316 Stainless Steel
19	O-ring Seat Seal ⁽¹⁾	Select	Select
20	Bellows Assembly		
	Bellows	N/A	Inconel 625 LCF
	Bellows Nut	N/A	316L Stainless Steel
	Bellows Flange	N/A	316L Stainless Steel
21	Bellows Gasket	N/A	Soft Iron
	Pilot Mount Bracket	Carbon Steel	Carbon Steel
	Lifting Eye Bolt	Carbon Steel	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel
	39PV & 39MV Pilot Material	Material Option - CC ⁽⁴⁾	Material Option - CC ⁽⁴⁾

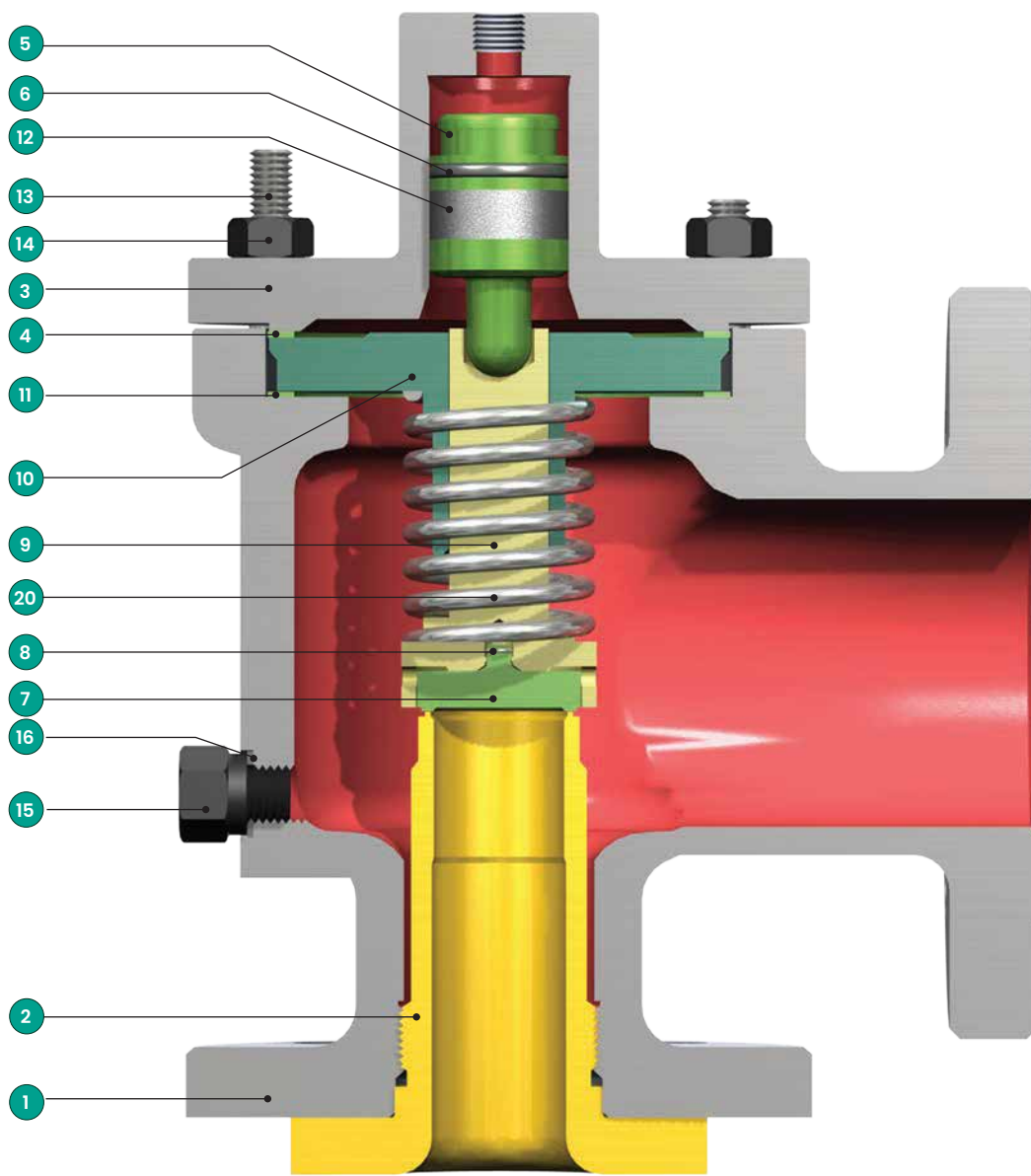
- When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.
- O-ring Retainer material will be Monel for "M" variations and Hastelloy C for "H" variations. The retainer lock screw will be Monel with Nylon locking feature in the "M" variations and Hastelloy C with Nylon locking feature in the "H" variations.
- Disc Holder material for D-J orifice, will be Monel for "M" variations and Hastelloy C for "H" variations.
- Refer Page no. 40, 50 & 51.

Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Metal Seat) for Section I Liquid Service

The 2900/2900 TM Series Metal Seat for Section I Liquid Service applications (LA1) is certified in accordance with ASME B & PVC, Section I and is designed for liquid economizer and thermal fluid heater service. The 2900/2900 TM combines superior performance with shorter blowdown and operation at higher pressures.

Main Valve - Metal Seat (D-U Orifices)



Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Metal Seat) for Section I Liquid Service

Standard Material for 2900/2900 TM Metal Seat Main Valve		
Ref. No.	Nomenclature	Material
1	Base	
	2905-2918	ASME SA216 WCC Carbon Steel
	2920-2928	ASME SA217 WC6 Alloy Steel
1A	Base Plug	
	2905-2918	Carbon Steel
	2920-2928	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 CF8M Stainless Steel
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-Ring	Select
7	Disc	
	Metal Seat	316 Stainless Steel
	Thermodisc (Optional) ⁽²⁾	616 Stainless Steel
8	Disc Retainer	Inconel X-750
9	Disc Holder	316 Stainless Steel
10	Guide	316 Stainless Steel
11	Guide Gasket	Soft Iron
12	Guide Ring	PTFE
13	Stud (Base)	ASME SA193 B7 Alloy Steel
14	Nut (Base)	ASME SA194 2H Alloy Steel
15	Plug/Adaptor	316 Stainless Steel
16	Plug/Adaptor Gasket	Soft Iron
20	Spring	Inconel X-750
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel
	39PV Pilot Material	Material Option (-CC) ⁽¹⁾

1. Refer to Page 40.

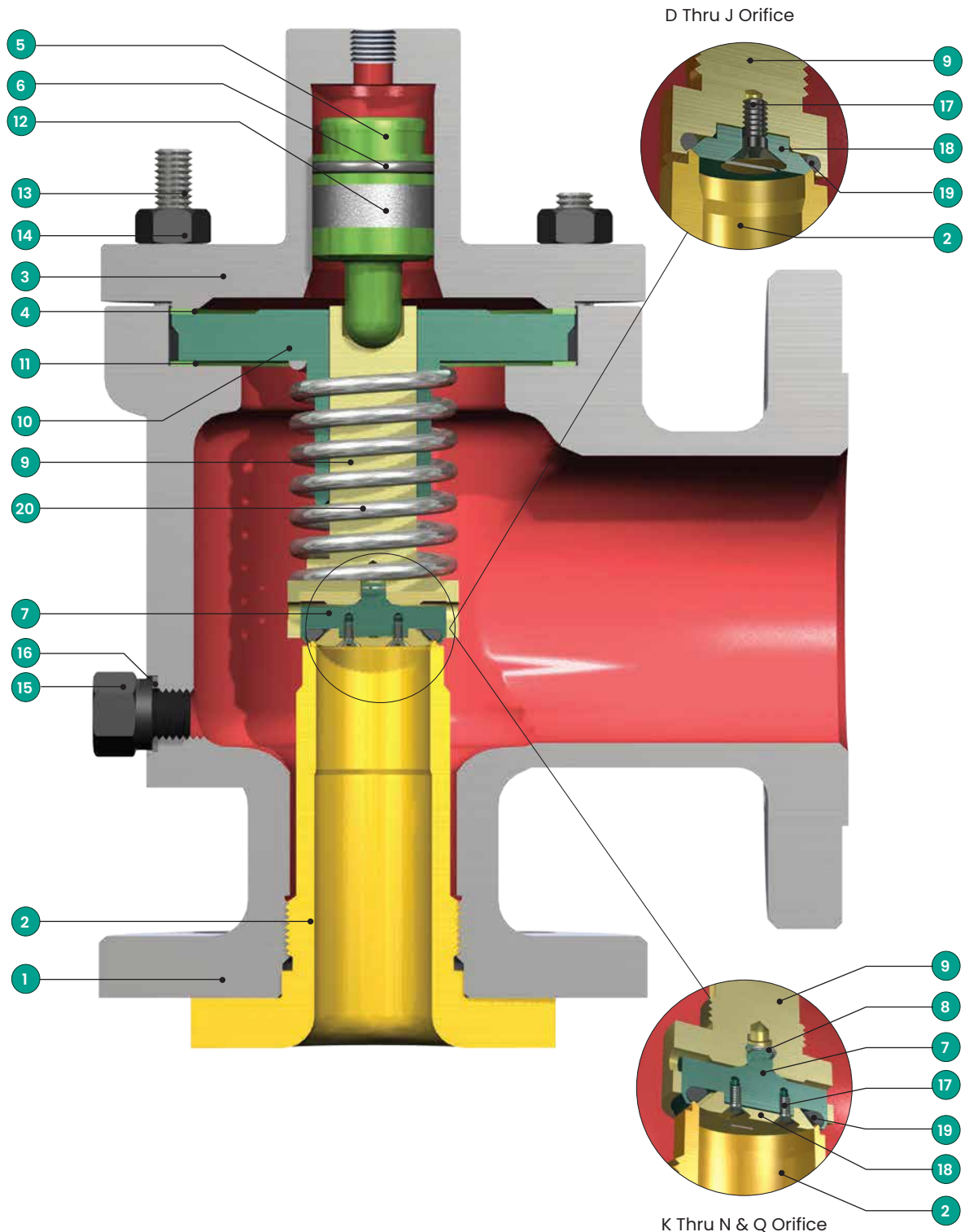
2. For steam service only

Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Soft Seat) for Section I Liquid Service

The 2900/2900 TM Series Soft Seat for Section I Liquid Service applications (LA1) is certified in accordance with ASME B & PVC, Section I and designed for liquid economizer and thermal fluid heater service. The 2900/2900 TM combines superior performance with shorter blow down and operation at higher pressures.

Main Valve - Soft Seat



Main Valve Materials

2900/2900 TM Conventional Type Main Valve (Metal Seat) for Section I Liquid Service

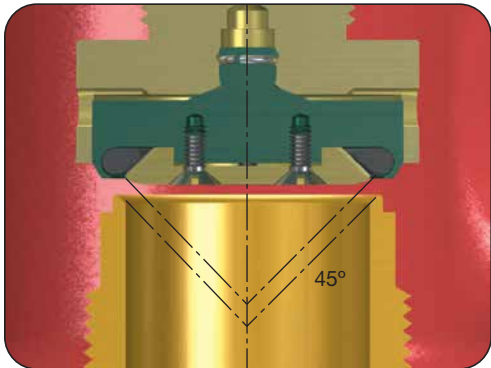
Note:
The Consolidated 2900/2900 TM Series O-Ring design features a secondary metal-to-metal seat which becomes effective if O-Ring integrity is lost due to external fire or other causes. The retainer is lapped to the nozzle at assembly assuring seat tightness.

Standard Material for 2900/2900 TM Soft Seat Main Valve		
Ref. No.	Nomenclature	Material
1	Base	
	2905-2918	ASME SA216 WCC Carbon Steel
	2920-2928	ASME SA217 WC6 Alloy Steel
1A	Base Plug	
	2905-2918	Carbon Steel
	2920-2928	316 Stainless Steel
2	Nozzle	316 Stainless Steel
3	Coverplate	ASME SA351 CF8M Stainless Steel
4	Coverplate Gasket	Soft Iron
5	Main Valve Piston	316 Stainless Steel
6	Main Valve Piston O-Ring	Select
7	Disc	
	Metal Seat/Soft Seat	316 Stainless Steel
8	Disc Retainer	Inconel X-750
9	Disc Holder	316 Stainless Steel
10	Guide	316 Stainless Steel
11	Guide Gasket	Soft Iron
12	Guide Ring	PTFE
13	Stud (Base)	ASME SA193 B7 Alloy Steel
14	Nut (Base)	ASME SA194 2H Alloy Steel
15	Plug/Adaptor	316 Stainless Steel
16	Plug/Adaptor Gasket	Soft Iron
17	O-Ring Retainer Lock Screw	316 Stainless Steel
18	O-Ring Retainer	316 Stainless Steel
19	O-Ring Seat Seal	Select
20	Spring	Inconel X-750
	Pilot Mount Bracket	Carbon Steel
	Lifting Eye Bolt	Carbon Steel
	Sensing Ring (Optional)	316 Stainless Steel
	Sensing Tube (Optional)	316 Stainless Steel
	Integral Sensing Ring (Optional)	316 Stainless Steel
	Integral Sensing Ring Gasket (Optional)	Flexitallic
	Vent Adaptor (Optional)	316 Stainless Steel
	Heat Exchanger (Optional)	316 Stainless Steel
	39PV Pilot Material	Material Option (-CC) ⁽¹⁾

1. Refer to Page 40.

Main Valve Materials

How the Double Seal Works



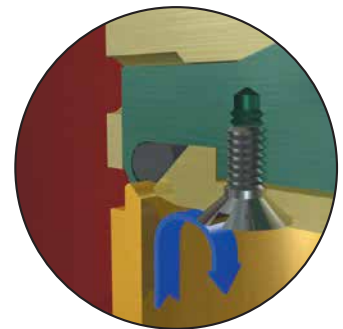
Double Seal

Two unique features distinguish the Consolidated O-ring seat seal safety valve from other designs. These are the 45° metal-to-metal load-bearing seats and the slotted O-ring retainer.

Three Essentials to Tighter and More Secure Seal

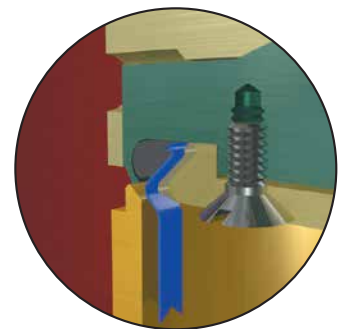
1. Concentric Alignment

The nozzle bore and O-ring retainer are both machined to an angle of 45°. 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, or the body and the disc guide and disc holder, also help to ensure a tight seal when the valve is closed. Accurate alignment, coupled with the load-bearing function of the O-ring retainer, virtually eliminates O-ring abrasion from valve action.



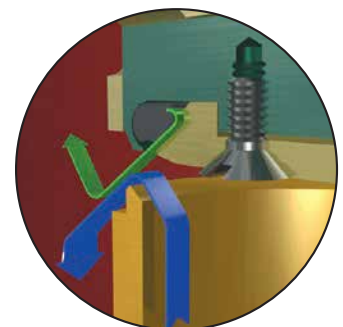
2. Maximum Sealing Force

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 holder. 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 break-away pressure is reached.



3. O-ring Retention

When the valve opens, the pressure behind the O-ring escapes from the 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 pulled from its setting by the high-velocity, low-pressure discharge inside the upper valve body.



Main Valve Materials

2900 Series Steam Trim (TD) Valves

The Consolidated 2900/2900 TM Series Valve Steam Trim (TD) option is specifically designed for steam service and organic heat transfer media and is certified to ASME Code Section VIII .

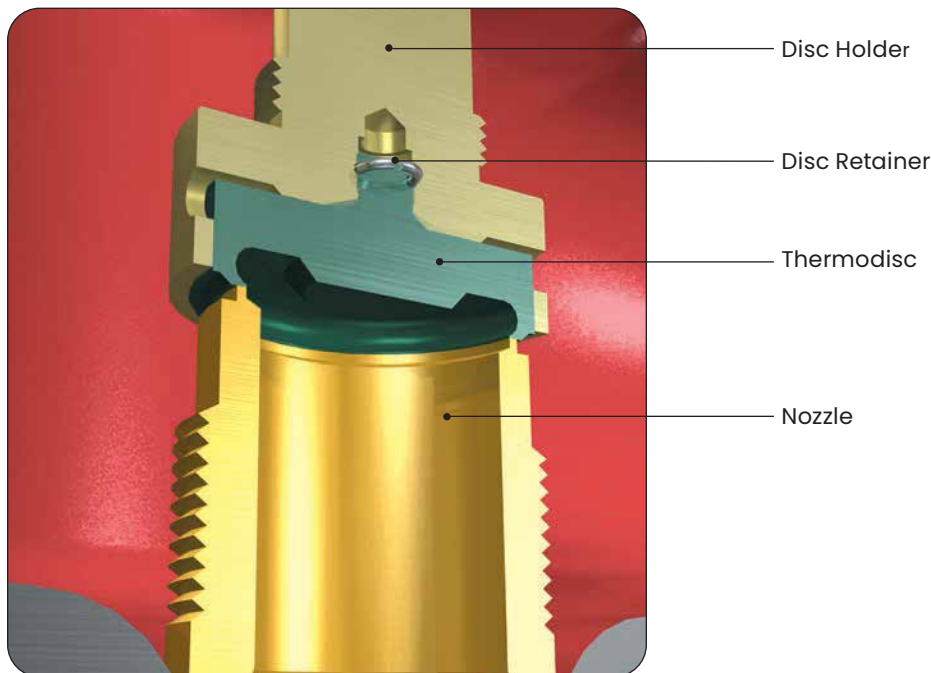
For consistent performance on these medias, specify the "TD" design which utilizes the exclusive Thermodisc design.

Designed for use on high-temperature fluids, Thermodisc has more than 40 years of field-proven performance.

A Thermodisc is required for steam service.

The martensitic stainless steel disc construction allows for high strength and toughness. As the set point of the valve is approached, the pressure sealing effect of the Thermodisc helps to tighten the seat, as does the rapid thermal equalization that occurs due to the thin sealing section.

Steam Trim Valve Internals

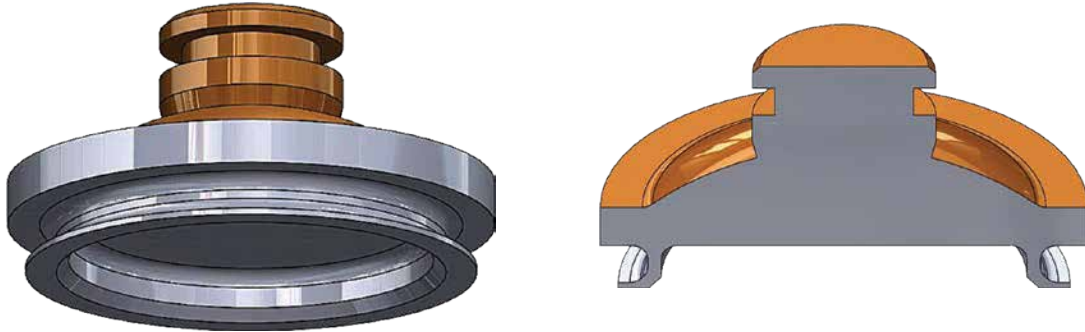


2900 Series Valve Cryodisc (CD)

Most PRV leakage in cryogenic applications is a result of dramatic thermal stresses in the seating components which can rapidly lead to process waste and fugitive emissions.

Our patented Cryodisc technology offers enhanced seat tightness before and after a relief event. The low temperature media creates thermal stresses in the material that deflect the patented disc thermolip downward creating uniform contact pressure on the nozzle seat resulting in enhanced seat tightness. Titanium Nitride (TiN) coating, an extremely hard ceramic material, is applied to the bearing surface prevent galling induced wear under extreme cryogenic conditions.

The Cryodisc is optional for the L1 and L2 material variations and is standard for the L3 material variation. The standard Cryodisc material is Inconel X-750 with Titanium Nitride coating.



Triple Media (TM) Certified

The 2900 Triple Media (TM) Series POSRV is engineered to perform on liquid, air/gas, and steam media and are multimedia certified to meet multiple media (liquid, gas and steam) capacity stamping⁽¹⁾ per ASME B & PVC Code Case 2787.

- Dual Certified, as defined by API Standard 520 Part 1 – Sizing and Selection, 10th Edition.
 - Dual Certified is defined as pressure relief valves that are both vapor/gas flow certified, and liquid flow certified where dual certification is achieved without making any modifications or adjustments to the relief device when switching fluids during the flow testing.

The 2900 TM Series provides exceptional set pressure performance, stable opening and closing, and exceptional blowdown performance ensuring the system is efficiently protected from an overpressure event with air/gas, liquid, steam, or a two-phase mixture as the relieving media.

The 2900 TM Series is the ideal solution for any liquid/gas/steam application, two-phase liquid and gas, flashing or multiple relief case scenarios.

⁽¹⁾ *Stamping for up to three nameplate capacities is available. The number of capacities listed on the 2900 TM nameplate is determined by primary and secondary sizing cases provided by the end-user.*

2900 Enhanced Back Pressure Trim (BT) ⁽¹⁾

The 2900 Series BT Design provides an enhanced main valve trim that is optimized for back pressure applications. This new trim improves the back pressure correction factor (K_b), generating more efficient flow with higher capacities for each size. Under certain back pressure conditions, the 2900 Series can have up to 30% more capacity than comparable SRVs in the market, resulting in smaller-size valves and cost savings for end-users for the full product life cycle.

1. Patent pending

Special Materials

Options

The 2900/2900 TM Series valve requires various material options to satisfy customer needs and API standards. The most common options are listed in this section. For options not listed here, contact the factory. Specify the material construction classification using the construction variations, such as S2 or H4.

Options included are:

Page Number

A1 - Alloy 20 - Wetted Parts when valve is in closed position.....	23
A2 - Alloy 20 - Internal Parts	23
A4 - Alloy 20 - Complete Valve	23
C1 - LCC Carbon Steel - Ambient Temperatures to -50°F (-45.6°C).....	24
D1 - Duplex - Wetted Parts when valve is in closed position	25
D2 - Duplex - Internal Parts	25
D4 - Duplex - Complete Valve	25
H1 - Hastelloy C - Wetted Parts when valve is in closed position.....	26
H2 - Hastelloy C - Internal Parts	26
H4 - Hastelloy C - Complete Valve.....	26
L1 - Low Temperature Service (-21°F to -75°F) (-29.4°C to -59.4°C)	27
L2 - Low Temperature Service (-76°F to -150°F) (-60°C to -101.1°C)	27
L3 - Low Temperature Service (-151°F to -450°F) (-101.7°C to -267.8°C)	27
M1 - Monel - Wetted Parts when valve is in closed position	28
MB - (M1 1/2) - Wetted Parts when valve is in closed position plus disc holder.....	28
M2 - Monel - Internal Parts.....	28
M4 - Monel - Complete Valve.....	28
S2 - Stainless Steel - Internal Parts	28
S4 - Stainless Steel - Complete Valve	28
N1 - Sour Gas Service Carbon Steel.....	31
N2 - Sour Gas Service Stainless Steel.....	31
T1 - High Temperature Service - (1001°F to 1200°F) (538.3°C to 648.9°C)	32
Section I Liquid Service (LA1)	33-34

Many other special options are available not necessarily of a material nature. These include, but are not limited to, special facings on connections or special connections. Contact the factory for special requirements.

Special Materials

Alloy 20

Corrosive Service, Alloy Materials ^{(1)&(2)}			
Component	Construction Variation		
	A1	A2	A4
Common Components (-00 & -30)			
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA216 Grade WCC CS	ASME SA351 Grade CN7M AS
Base: 2920-2928	ASME SA217 Grade WC6 AS	ASME SA217 Grade WC6 AS	ASME SA351 Grade CN7M AS
Base Plug: 2905-2918	Carbon Steel	Carbon Steel	Alloy 20
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel	Alloy 20
Nozzle	Alloy 20	Alloy 20	Alloy 20
Coverplate	ASME SA351 Grade CN7M AS	ASME SA351 Grade CN7M AS	ASME SA351 Grade CN7M AS
Main Valve Piston	Alloy 20	Alloy 20	Alloy 20
Main Valve Piston O-ring ⁽³⁾	Select	Select	Select
Disc: Metal Seat	Alloy 20	Alloy 20	Alloy 20
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750	Inconel X-750
Disc Retainer	Inconel X-750	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	Alloy 20	Alloy 20
Guide Gasket	Soft Iron	Monel	Monel
Guide Ring(s)	PTFE	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel	ASTM B473 UNS N08020 (Alloy 20)
Nut (Base)	2H Carbon Steel	2H Carbon Steel	ASTM B473 UNS N08020 (Alloy 20)
Plug Adaptor	316 Stainless Steel	Alloy 20	Alloy 20
Plug Adaptor Gasket	Soft Iron	Monel	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	Alloy 20	Alloy 20	Alloy 20
Sensing Tube (Optional)	Alloy 20	Alloy 20	Alloy 20
Integral Sensing Ring (Optional)	Alloy 20	Alloy 20	Alloy 20
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	Alloy 20	Alloy 20
Heat Exchanger (Optional)	Alloy 20	Alloy 20	Alloy 20
39PV & 39MV Pilot Material	Material Option - A1 ⁽⁴⁾	Material Option - A1 ⁽⁴⁾	Material Option - A4 ⁽⁴⁾
Conventional (Standard) Components (-00)			
Coverplate Gasket	Soft Iron	Monel	Monel
Guide	316 Stainless Steel	Alloy 20	Alloy 20
Bellows Components (-30)			
Coverplate Gasket	Soft Iron	Soft Iron	Monel
Guide	316 Stainless Steel	316 Stainless Steel	Alloy 20
Bellows Assembly			
Bellows	Inconel 625 LCF	Inconel 625 LCF	Inconel 625 LCF
Bellows Nut, Bellows Flange	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
Bellows Gasket	Soft Iron	Monel	Monel

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/A4 or 2910-30L/A4.

3. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

4. Refer Page no. 41, 52 & 60.

Special Materials

Low Temperatures (C1)

Special Materials for Low Ambient Temperatures [to -50°F (-45.6°C)] ^{(1)&(2)}	
Component	Construction Variation - LCC Carbon Steel
	C1 ⁽³⁾
Common Components (-00 & -30)	
Base: 2905-2918	ASME SA352 Grade LCC Carbon Steel
Base Plug: 2905-2918	316 Stainless Steel
Nozzle	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M Stainless Steel
Coverplate Gasket	Soft Iron
Main Valve Piston	316 Stainless Steel
Main Valve Piston O-ring ⁽⁴⁾	Select
Disc: Metal Seat	316 Stainless Steel
Disc: Thermodisc (Optional)	616 Stainless Steel
Disc Retainer	Inconel X-750
Disc Holder	316 Stainless Steel
Guide	316 Stainless Steel
Guide Gasket	Soft Iron
Guide Ring(s)	PTFE
Stud (Base)	ASME SA193 Grade B8M Stainless Steel
Nut (Base)	ASME SA194 Grade 8M Stainless Steel
Plug Adaptor	316 Stainless Steel
Plug Adaptor Gasket	Soft Iron
Pilot Mount Bracket	316 Stainless Steel
Lifting Eye Bolt	316 Stainless Steel
Sensing Ring (Optional)	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel
Heat Exchanger (Optional)	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - CC ⁽⁵⁾
Bellows Components (-30)	
Bellows Assembly	
Bellows	Inconel 625 LCF
Bellows Nut	316L Stainless Steel
Bellows Flange	316L Stainless Steel
Bellows Gasket	Soft Iron

1. The materials in red denote variation from standard material construction.
2. Material substitution for standard valve configuration. Not for low temperature fluid service. For use primarily by Canada. In low ambient temperature environments [to -50°F (-45.6°C)]. Media temperature may impact valve temperature. Consult factory for assistance.
3. To specify valves, add material designation to the valve type, 2910L/C1 or 2910-30L/C1.
4. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.
5. Refer Page no. 40, 50 & 51.

Special Materials

Duplex

Corrosive Service, Duplex Materials ^{(1),(2)&(3)}			
Component	Construction Variation		
	D1	D2	D4
Common Components (-00 & -30)			
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA216 Grade WCC CS	ASME SA995 Grade CE8MN ⁴
Base: 2920-2928	ASME SA217 Grade WC6 AS	ASME SA217 Grade WC6 AS	ASME SA995 Grade CE8MN ⁴
Base Plug: 2905-2918	Carbon Steel	Carbon Steel	Duplex
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel	Duplex
Nozzle, Main Valve Piston	Duplex	Duplex	Duplex
Coverplate	ASME SA995 Grade CE8MN ⁴	ASME SA995 Grade CE8MN ⁴	ASME SA995 Grade CE8MN ⁴
Main Valve Piston O-ring ⁵	Select	Select	Select
Disc: Metal Seat	Duplex	Duplex	Duplex
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750	Inconel X-750
Disc Retainer	Inconel X-750	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	Duplex	Duplex
Guide	316 Stainless Steel	Duplex	Duplex
Guide Gasket	Soft Iron	Monel	Monel
Guide Ring(s)	PTFE	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel	ASME SA193 B8M Stainless Steel
Nut (Base)	2H Carbon Steel	2H Carbon Steel	ASME SA194 8M Stainless Steel
Plug Adaptor	316 Stainless Steel	Duplex	Duplex
Plug Adaptor Gasket	Soft Iron	Monel	Monel
Sensing Ring (Optional)	Duplex	Duplex	Duplex
Sensing Tube (Optional)	Duplex	Duplex	Duplex
Integral Sensing Ring (Optional)	Duplex	Duplex	Duplex
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel	Duplex
Heat Exchanger (Optional)	Duplex	Duplex	Duplex
39PV & 39MV Pilot Material	Material Option - D1 ⁶	Material Option - D1 ⁶	Material Option - D4 ⁶
Standard (Conventional) Components (-00)			
Coverplate Gasket	Soft Iron	Monel	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	316 Stainless Steel
Bellows Components (-30)			
Coverplate Gasket	Soft Iron	Soft Iron	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	Carbon Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	Carbon Steel
Bellows Assembly			
Bellows	Inconel 625 LCF	Inconel 625 LCF	Inconel 625
Bellows Nut, Bellows Flange	316L Stainless Steel	316L Stainless Steel	Inconel 625
Bellows Gasket	Soft Iron	Monel	Monel

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/D4 or 2910-30L/D4.

3. Parts made from castings shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts made from barstock shall be constructed from ASME SA479 UNS 31803 Duplex.

4. (UNS J93345.)

5. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

6. Refer Page no. 42, 53 & 61.

Special Materials

Hastelloy™ C

Corrosive Service, Hastelloy Materials ^{(1)&(2)}			
Component	Construction Variation		
	H1	H2	H4
Common Components (-00 & -30)			
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA216 Grade WCC CS	ASME SA494 CW12MW Nickel Alloy
Base: 2920-2928	ASME SA217 Grade WC6 AS	ASME SA217 Grade WC6 AS	ASME SA494 CW12MW Nickel Alloy
Base Plug: 2905-2918	Carbon Steel	Carbon Steel	Hastelloy C
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel	Hastelloy C
Nozzle	Hastelloy C	Hastelloy C	Hastelloy C
Coverplate	ASME SA494 CW12MW Nickel Alloy	ASME SA494 CW12MW Nickel Alloy	ASME SA494 CW12MW Nickel Alloy
Main Valve Piston	Hastelloy C	Hastelloy C	Hastelloy C
Main Valve Piston O-ring ⁽³⁾	Select	Select	Select
Disc: Metal Seat	Hastelloy C	Hastelloy C	Hastelloy C
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750	Inconel X-750
Disc Retainer	Inconel X-750	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	Hastelloy C	Hastelloy C
Guide	316 Stainless Steel	Hastelloy C	Hastelloy C
Guide Gasket	Soft Iron	Monel	Monel
Guide Ring(s)	PTFE	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel	Hastelloy C
Nut (Base)	2H Carbon Steel	2H Carbon Steel	Hastelloy C
Plug Adaptor	316 Stainless Steel	Hastelloy C	Hastelloy C
Plug Adaptor Gasket	Soft Iron	Monel	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	Hastelloy C	Hastelloy C	Hastelloy C
Sensing Tube (Optional)	Hastelloy C	Hastelloy C	Hastelloy C
Integral Sensing Ring (Optional)	Hastelloy C	Hastelloy C	Hastelloy C
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	Hastelloy C	Hastelloy C
Heat Exchanger (Optional)	Hastelloy C	Hastelloy C	Hastelloy C
39PV & 39MV Pilot Material	Material Option - H1 ⁽⁴⁾	Material Option - H1 ⁽⁴⁾	Material Option - H4 ⁽⁴⁾
Standard (Conventional) Components (-00)			
Coverplate Gasket	Soft Iron	Monel	Monel
Bellows Components (-30)			
Coverplate Gasket	Soft Iron	Soft Iron	Monel
Bellows Assembly			
Bellows	Inconel 625 LCF	Inconel 625 LCF	Monel
Bellows Nut, Bellows Flange	316L Stainless Steel	316L Stainless Steel	Monel
Bellows Gasket	Soft Iron	Monel	Monel

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/H4 or 2910-30L/H4.

3. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

4. Refer Page no. 43, 54 & 62.

Special Materials

Low Temperatures

Special Materials for Low Process Fluid Temperature ^{(1)&(2)}			
Component	Construction Variation- Low Temperature Service		
	-21 to -75°F (-29 to -59°C)	-76 to -150°F (-60 to -101°C)	-151 to -450°F (-102 to -268°C)
	L1 ⁽³⁾	L2	L3
Common Components (-00 & -30)			
Base: 2905-2918	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.
Base: 2920-2928	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.
Base Plug: 2905-2918	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Nozzle	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.
Coverplate Gasket	Monel	Monel	Monel
Main Valve Piston	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Main Valve Piston O-ring ⁽⁴⁾	Select	Select	Select
Disc: Metal Seat	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750	Inconel X-750
Cryodisc ⁽⁶⁾	Inconel X-750 ⁽⁷⁾	Inconel X-750 ⁽⁷⁾	Inconel X-750 ⁽⁷⁾
Disc Retainer	Inconel X-750	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Guide	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Guide Gasket	Monel	Monel	Monel
Guide Ring(s)	PTFE	PTFE	PTFE
Stud (Base)	ASME SA193 Grade B8M St. St.	ASME SA193 Grade B8M St. St.	ASME SA193 Grade B8M St. St.
Nut (Base)	ASME SA194 8M Stainless Steel	ASME SA194 8M Stainless Steel	ASME SA194 8M Stainless Steel
Plug Adaptor	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Plug Adaptor Gasket	Monel	Monel	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - CC ⁽⁵⁾	Material Option - CC ⁽⁵⁾	Material Option - CC ⁽⁵⁾
Bellows Components (-30)			
Bellows Assembly			
Bellows	Inconel 625 LCF	Inconel 625 LCF	316L Stainless Steel
Bellows Nut	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
Bellows Flange	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
Bellows Gasket	Monel	Monel	Monel

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/L3 or 2910-30L/L3.

3. ASME SA352 LCC Carbon Steel can be substituted for bases down to -50°F (-45.6°C) when requested.

4. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

5. Refer Page no. 40, 50 & 51.

6. Optional for L1 and L2, Mandatory for L3.

7. With Titanium Nitride Coating.

Special Materials

Monel™

Corrosive Service, Monel Materials ^{(1)&(2)}				
Component	Construction Variation			
	M1	MB (M 1-1/2)	M2	M4
Common Components (-00 & -30)				
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA216 Grade WCC CS	ASME SA216 Grade WCC CS	ASME SA494 Grade M35-1 ⁽³⁾
Base: 2920-2928	ASME SA217 Grade WC6 AS	ASME SA217 Grade WC6 AS	ASME SA217 Grade WC6 AS	ASME SA494 Grade M35-1 ⁽³⁾
Base Plug: 2905-2918	Carbon Steel	Carbon Steel	Carbon Steel	Monel
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	Monel
Nozzle	Monel	Monel	Monel	Monel
Coverplate	ASME SA494 Grade M35-1 ⁽³⁾	ASME SA494 Grade M35-1 ⁽³⁾	ASME SA494 Grade M35-1 ⁽³⁾	ASME SA494 Grade M35-1 ⁽³⁾
Main Valve Piston	Monel	Monel	Monel	Monel
Main Valve Piston O-ring ⁽⁴⁾	Select	Select	Select	Select
Disc: Metal Seat	Monel	Monel	Monel	Monel
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
Disc Retainer	Inconel X-750	Inconel X-750	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	Monel	Monel	Monel
Guide	316 Stainless Steel	316 Stainless Steel	Monel	Monel
Guide Gasket	Soft Iron	Monel	Monel	Monel
Guide Ring(s)	PTFE	PTFE	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel	B7 Alloy Steel	Monel K500
Nut (Base)	2H Carbon Steel	2H Carbon Steel	2H Carbon Steel	Monel K500
Plug Adaptor	316 Stainless Steel	316 Stainless Steel	Monel	Monel
Plug Adaptor Gasket	Soft Iron	Monel	Monel	Monel
Pilot Mount Bracket	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	Monel	Monel	Monel	Monel
Sensing Tube (Optional)	Monel	Monel	Monel	Monel
Integral Sensing Ring (Optional)	Monel	Monel	Monel	Monel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel	Monel	Monel
Heat Exchanger (Optional)	Monel	Monel	Monel	Monel
39PV & 39MV Pilot Material	Material Option - M1 ⁽⁵⁾	Material Option - M1 ⁽⁵⁾	Material Option - M1 ⁽⁵⁾	Material Option - M4 ⁽⁵⁾
Conventional (Standard) Components (-00)				
Coverplate Gasket	Soft Iron	Monel	Monel	Monel
Bellows Components (-30)				
Coverplate Gasket	Soft Iron	Soft Iron	Monel	Monel
Bellows Assembly				
Bellows	Inconel 625 LCF	Inconel 625 LCF	Monel	Monel
Bellows Nut	316L Stainless Steel	316L Stainless Steel	Monel	Monel
Bellows Flange	316L Stainless Steel	316L Stainless Steel	Monel	Monel
Bellows Gasket	Soft Iron	Monel	Monel	Monel

1. The materials in red denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/M4 or 2910-30L/M4.

3. Nickel Copper Alloy (ASME Code Case 1750-22).

4. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

5. Refer Page no. 44, 55 & 63.

Special Materials

Stainless Steel

Corrosive Service, Stainless Steel Materials (D-U Orifices) ^{(1)&(2)}		
Component	Construction Variation	
	S2	S4
Common Components (-00 & -30)		
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA351 Grade CF8M St. St.
Base: 2920-2928	ASME SA217 Grade WC6 Alloy Steel	ASME SA351 Grade CF8M St. St.
Base Plug: 2905-2918	Carbon Steel	316 Stainless Steel
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel
Nozzle	316 Stainless Steel	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.
Main Valve Piston	316 Stainless Steel	316 Stainless Steel
Main Valve Piston O-ring ⁽³⁾	Select	Select
Disc: Metal Seat	316 Stainless Steel	316 Stainless Steel
Disc: Thermodisc (Optional)	616 Stainless Steel	616 Stainless Steel
Disc Retainer	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	316 Stainless Steel
Guide	316 Stainless Steel	316 Stainless Steel
Guide Gasket	Monel	Monel
Guide Ring(s)	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	ASME SA193 B8M Stainless Steel
Nut (Base)	2H Carbon Steel	ASME SA194 8M Stainless Steel
Plug Adaptor	316 Stainless Steel	316 Stainless Steel
Plug Adaptor Gasket	Monel	Monel
Pilot Mount Bracket	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel
Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - CC ⁽⁴⁾	Material Option - CC ⁽⁴⁾
Conventional (Standard) Components (-00)		
Coverplate Gasket	Monel	Monel
Bellows Components (-30)		
Coverplate Gasket	Soft Iron	Monel
Bellows Assembly		
Bellows	Inconel 625 LCF	Inconel 625 LCF
Bellows Nut	316L Stainless Steel	316L Stainless Steel
Bellows Flange	316L Stainless Steel	316L Stainless Steel
Bellows Gasket	Monel	Monel

1. The materials in red denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/S4 or 2910-30L/S4.

3. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

4. Refer Page no. 40, 50 & 51.

Special Materials

Stainless Steel

Corrosive Service, Stainless Steel Materials (V&W Orifices) ^{(1)&(2)}		
Component	Construction Variation	
	S2	S4
Common Components (-00 & -30)		
Base: 2905-2910	ASME SA216 Grade WCC Carbon Steel	ASME SA351 Grade CF8M Stainless Steel
Base: 2920	ASME SA217 Grade WC6 Alloy Steel	ASME SA351 Grade CF8M Stainless Steel
Base Plug: 2905-2910	Carbon Steel	316 Stainless Steel
Base Plug: 2920	316 Stainless Steel	316 Stainless Steel
Nozzle	316 Stainless Steel	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M Stainless Steel	ASME SA351 Grade CF8M Stainless Steel
Main Valve Piston	316 Stainless Steel	316 Stainless Steel
Main Valve Piston O-ring ⁽³⁾	Select	Select
Disc: Metal Seat	316 Stainless Steel	316 Stainless Steel
Disc: Thermodisc (Optional)	Nitronic - 60	Nitronic - 60
Disc Retainer Screws	316 Stainless Steel	316 Stainless Steel
Disc Retainer Lockwasher	316 Stainless Steel	316 Stainless Steel
Disc Holder: 2905-2910	316 Stainless Steel	316 Stainless Steel
Disc Holder: 2920, Guide: 2920	316 Stainless Steel (Glide-Aloy Coated)	316 Stainless Steel (Glide-Aloy Coated)
Guide: 2905-2910	316 Stainless Steel	316 Stainless Steel
Guide Gasket, Plug Adaptor Gasket	Monel	Monel
Guide Ring(s) (Piston, Guide)	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel
Nut (Base)	2H Carbon Steel	2H Carbon Steel
Plug Adaptor	316 Stainless Steel	316 Stainless Steel
Pilot Mount Bracket, Lifting Eye Bolt	Carbon Steel	Carbon Steel
Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel
Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - CC ⁽⁴⁾	Material Option - CC ⁽⁴⁾
Conventional (Standard) Components (-00)		
Coverplate Gasket	Monel	Monel
Bellows Components (-30)		
Coverplate Gasket	Soft Iron	Monel
Bellows Assembly		
Bellows	Inconel 625 LCF	Inconel 625 LCF
Bellows Nut, Bellows Flange	316L Stainless Steel	316L Stainless Steel
Bellows Gasket	Monel	Monel
Bellows Bolts, Bellows Bolts Lock Washers	316 Stainless Steel	316 Stainless Steel

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type, 2910L/S4 or 2910-30L/S4.

3. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

4. Refer Page no. 40, 50 & 51.

Special Materials

Sour Gas Trim (N1/N2)

Special Material for Sour Gas Service ^{(1),(2)&(3)}		
Component	Construction Variation	
	N1	N2
Common Components (-00 & -30)		
Base: 2905-2918	ASME SA216 Grade WCC CS	ASME SA351 CF8M SS
Base: 2920-2928	ASME SA217 Grade WC6 AS	ASME SA351 CF8M SS
Base Plug: 2905-2918	Carbon Steel	316 Stainless Steel
Base Plug: 2920-2928	316 Stainless Steel	316 Stainless Steel
Nozzle	316 Stainless Steel	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M St. St.	ASME SA351 Grade CF8M St. St.
Coverplate Gasket	Soft Iron	Monel
Main Valve Piston	316 Stainless Steel	316 Stainless Steel
Main Valve Piston O-ring ⁽⁴⁾	Select	Select
Disc: Metal Seat	316 Stainless Steel	316 Stainless Steel
Disc: Thermodisc (Optional)	Inconel X-750	Inconel X-750
Disc Retainer	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	316 Stainless Steel
Guide	316 Stainless Steel	316 Stainless Steel
Guide Gasket	Soft Iron	Monel
Guide Ring(s)	PTFE	PTFE
Stud (Base)	B7 Alloy Steel	B7 Alloy Steel
Nut (Base)	2H Carbon Steel	2H Carbon Steel
Plug Adaptor	316 Stainless Steel	316 Stainless Steel
Plug Adaptor Gasket	Soft Iron	Monel
Pilot Mount Bracket	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel
Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - N2 ⁽⁴⁾	Material Option - N2 ⁽⁴⁾
Bellows Components (-30)		
Bellows Assembly		
Bellows	Inconel 625 LCF (Heat Treated)	Inconel 625 LCF (Heat Treated)
Bellows Nut	316L Stainless Steel	316L Stainless Steel
Bellows Flange	316L Stainless Steel	316L Stainless Steel
Bellows Gasket	Monel	Monel

1. The materials in red denote variation from standard material construction.
2. Compliance to NACE MR0175 requires media and materials evaluation. Please contact factory sales.
3. N1 and N2 valves are for installations for compliance to NACE MR0103-2015 and prior editions.
4. Refer Page no. 45, 56 & 64.
5. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

Special Materials

High Temperatures

Special Material for High Temperature Service [(1001 to 1200°F (538.3 to 648.9°C)] ^{(1)&(2)}	
Component	Construction Variation - T1
Common Components (-00 & -30)	
Base: 2905-2918	ASME SA351 Grade CF8M Stainless Steel
Base: 2920-2928	ASME SA351 Grade CF8M Stainless Steel
Base Plug: 2905-2918	316 Stainless Steel
Base Plug: 2920-2928	316 Stainless Steel
Nozzle	316 Stainless Steel
Coverplate	ASME SA351 Grade CF8M Stainless Steel
Coverplate Gasket	Monel
Main Valve Piston	316 Stainless Steel
Main Valve Piston O-ring ⁽³⁾	Select
Disc: Metal Seat	316 Stainless Steel
Disc: Thermodisc (Optional)	Inconel X-750
Disc Retainer	Inconel X-750
Disc Holder	316 Stainless Steel (Glide-Aloy Coated)
Guide	316 Stainless Steel
Guide Gasket	Monel
Guide Ring(s)	PTFE
Stud (Base)	ASME SA193 B8M Stainless Steel
Nut (Base)	ASME SA194 8M Stainless Steel
Plug Adaptor	316 Stainless Steel
Plug Adaptor Gasket	Monel
Pilot Mount Bracket	Carbon Steel
Lifting Eye Bolt	Carbon Steel
Sensing Ring (Optional)	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel
Vent Adaptor (Optional)	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic
Heat Exchanger (Optional)	316 Stainless Steel
39PV & 39MV Pilot Material	Material Option - CC ⁽⁴⁾
Bellows Components (-30)	
Bellows Assembly	
Bellows	Inconel 625 LCF
Bellows Nut	Inconel 625
Bellows Flange	Inconel 625
Bellows Gasket	Monel

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type, 2910L/T1 or 2910-30L/T1.
3. When main valve is equipped with O-ring seat, O-ring for seat and piston shall be of the same material and durometer. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.
4. Refer Page no. 40, 50 & 51.

Special Materials

Section I Liquid Service (LA1)

The 2900/2900 TM Series valve requires various material options to satisfy customer needs and API standards. The most common options are listed in this section. For options not listed here, contact the factory. Specify the material construction classification using the construction variations, such as: S2, T1, etc.

Options included are:

- S2 - Stainless Steel - Internal Parts
- S4 - Stainless Steel - Complete Valve
- T1 - High Temperature Service - [1001°F to 1200°F (538°C to 649°C)]

Many other special options are available not necessarily of a material nature. These include, but are not limited to, special facings on connections or special connections. Contact the factory for special requirements.

Stainless Steel

Corrosive Service, Stainless Steel Materials ^{(1)&(2)}		
Component	Construction Variation	
	S2	S4
Common Components		
Base: Types 2905 thru 2918	ASME SA216 WCC Carbon Steel	ASME SA351 CF8M Stainless Steel
Base: Types 2920 thru 2928	ASME SA217 WC6 Alloy Steel	ASME SA351 CF8M Stainless Steel
Base Plug: Types 2905 thru 2918	Carbon Steel	316 Stainless Steel
Base Plug: Types 2920 thru 2928	316 Stainless Steel	316 Stainless Steel
Nozzle	316 Stainless Steel	316 Stainless Steel
Coverplate	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Coverplate Gasket	Monel	Monel
Main Valve Piston	316 Stainless Steel	316 Stainless Steel
Main Valve Piston O-Ring	Select	Select
Disc		
Metal Seat/Soft Seat	316 Stainless Steel	316 Stainless Steel
Thermodisc (Optional) ⁽⁴⁾	616 Stainless Steel	616 Stainless Steel
Disc Retainer	Inconel X-750	Inconel X-750
Disc Holder	316 Stainless Steel	316 Stainless Steel
Guide	316 Stainless Steel	316 Stainless Steel
Guide Gasket	Monel	Monel
Guide Ring	PTFE	PTFE
Stud (Base)	ASME SA193 B7 Alloy Steel	ASME SA193 B8M Alloy Steel
Nut (Base)	ASME SA194 2H Alloy Steel	ASME SA194 8M Alloy Steel
Plug/Adaptor	316 Stainless Steel	316 Stainless Steel
Plug/Adaptor Gasket	Monel	Monel
O-Ring Retainer Lock Screw	316 Stainless Steel	316 Stainless Steel
O-Ring Retainer	316 Stainless Steel	316 Stainless Steel
O-Ring Seat Seal	Select	Select
Spring	Inconel X-750	Inconel X-750
Pilot Mount Bracket	Carbon Steel	316 Stainless Steel
Lifting Eye Bolt	Carbon Steel	316 Stainless Steel
Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel	316 Stainless Steel
Vent Adaptor (Optional)	316 Stainless Steel	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic	Flexitallic
Heat Exchanger (Optional)	316 Stainless Steel	316 Stainless Steel
39PV Pilot Material	Material Option (-CC) ⁽³⁾	Material Option (-CC) ⁽³⁾

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type, 2900L/S2.
3. Refer to Page 40.
4. For steam service only.

Special Materials

High Temperatures

Special Material for High Temperature Service ^{(1), (2)&(3)} [1001 to 1200°F (538 to 649°C)]	
Component	Construction Variation (T1)
Common Components	
Base: Types 2905 thru 2918	ASME SA351 CF8M Stainless Steel
Base: Types 2920 thru 2928	ASME SA351 CF8M Stainless Steel
Base Plug: Types 2905 thru 2918	316 Stainless Steel
Base Plug: Types 2920 thru 2928	316 Stainless Steel
Nozzle	316 Stainless Steel
Coverplate	ASME SA351 CF8M Stainless Steel
Coverplate Gasket	Monel
Main Valve Piston	316 Stainless Steel
Main Valve Piston O-Ring	Select
Disc	
Metal Seat/Soft Seat	316 Stainless Steel
Thermodisc (Optional) ⁽⁵⁾	Inconel X-750
Disc Retainer	Inconel X-750
Disc Holder	316 Stainless Steel/Glide Alloy Coated
Guide	316 Stainless Steel
Guide Gasket	Monel
Guide Ring	PTFE
Stud (Base)	ASME SA193 B8M Alloy Steel
Nut (Base)	ASME SA194 8M Alloy Steel
Plug/Adaptor	316 Stainless Steel
Plug/Adaptor Gasket	Monel
O-Ring Retainer Lock Screw	316 Stainless Steel
O-Ring Retainer	316 Stainless Steel
O-Ring Seat Seal	Select
Spring	Inconel X-750
Pilot Mount Bracket	Carbon Steel
Lifting Eye Bolt	Carbon Steel
Sensing Ring (Optional)	316 Stainless Steel
Sensing Tube (Optional)	316 Stainless Steel
Integral Sensing Ring (Optional)	316 Stainless Steel
Vent Adaptor (Optional)	316 Stainless Steel
Integral Sensing Ring Gasket (Optional)	Flexitallic
Heat Exchanger (Optional)	316 Stainless Steel
39PV Pilot Material	Material Option (-CC) ⁽⁴⁾

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type, 2900L/T1.
3. For temperatures 505°F (263°C) and above, a heat exchanger must be specified.
4. Refer to Page 40.
5. For steam service only.

Soft Goods Selection

Soft goods Selection Chart

2900/2900 TM Series Valve Soft Goods Selection Chart ⁽⁴⁾				
Component	Description	Service		
		Liquid/Gas ⁽³⁾	Steam	
			15 to 6250 psig (1.03 to 430.92 barg)	15 to 49 psig (1.03 to 3.38 barg)
Main Valve ⁽¹⁾	Seat O-ring Option	Select	ethylene/propylene 90	PTFE
	Piston Spring Seal ⁽²⁾	PTFE	N/A	PTFE
	Piston O-ring ⁽²⁾	Select	ethylene/propylene 90	N/A
	Piston Guide Ring	PTFE	PTFE	PTFE
Pilot Valve	Adjuster Bottom O-ring	Select	ethylene/propylene 90	PTFE
	Adjuster Top O-ring	Select	ethylene/propylene 90	PTFE
	Insert O-ring	Select	ethylene/propylene 90	PTFE
	Base O-ring	Select	ethylene/propylene 90	PTFE
	Piston Spring Seal	PTFE	PTFE	PTFE
	Adjuster Top Spring Seal	PTFE	PTFE	PTFE
	Insert Spring Seal	PTFE	PTFE	PTFE
Modulator	Base O-ring	Select	ethylene/propylene 90	PTFE
	Stop O-ring	Select	ethylene/propylene 90	PTFE
	Seat O-ring	Select	ethylene/propylene 90	PTFE
	Piston Bottom O-ring	Select	ethylene/propylene 90	PTFE
	Piston Bottom Spring Seal	PTFE	PTFE	PTFE
	Piston Top Spring Seal	PTFE	PTFE	PTFE

1. When main valve is equipped with O-ring seat, O-rings for seat and piston shall be of the same material and durometer.
2. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.
3. Select soft good using charts for fluid, pressure and temperature. See selection instructions below.
4. When a Heat Exchanger is required, use the exit temperature of the Heat Exchanger to select the soft goods.
(A standard metal seat is used on the main base with the heat exchanger.)

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

- A) Material Selection
 - The customer must specify the O-ring material.
- B) Main Valve Pressure Limits
 - Refer to Table 1 on page 36.
 - Locate the valve orifice and select the durometer for the required set pressure.
- C) Main Valve Temperature Limits
 - Refer to Table 2 on page 36.
 - 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 application engineer.
- D) Pilot Valve Pressure and Temperature Limits
 - Refer to Table 3 on page 36.
 - Locate the service and review the pressure and temperature ranges, then select the material and durometer.

Soft Goods Selection

Pressure and Temperature Limits

Main Valve and Pilot Valve/Modulator

Table 1: Main Valve Pressure Limits

Orifice	Durometer ⁽²⁾										PTFE ⁽³⁾							
	50		70-75 ⁽¹⁾				90				-300 to + 200°F (-184.4 to + 93.3°F)				201 to 505°F (93.9 to 262.8°C)			
	min.	max.	min.		max.		min.		max.		min.		max.		min.		max.	
			psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg		
2900/2900 TM D	N/A	N/A	15	1.03	800	55.16	801	55.23	3750	258.55	2000	137.90	6000	413.69	50	3.45	6250	430.92
2900/2900 TM E	N/A	N/A	15	1.03	800	55.16	801	55.23	3750	258.55	2000	137.90	6000	413.69	50	3.45	6250	430.92
2900/2900 TM F	N/A	N/A	15	1.03	800	55.16	801	55.23	3750	258.55	2000	137.90	6000	413.69	50	3.45	6250	430.92
2900/2900 TM G	N/A	N/A	15	1.03	780	53.78	781	53.85	3750	258.55	1900	131.00	6000	413.69	50	3.45	6250	430.92
2900/2900 TM H	N/A	N/A	15	1.03	780	53.78	781	53.85	3750	258.55	1900	131.00	3600	248.21	50	3.45	3750	258.55
2900/2900 TM J	N/A	N/A	15	1.03	780	53.78	781	53.85	3750	258.55	1900	131.00	3600	248.21	50	3.45	3750	258.55
2900/2900 TM K	N/A	N/A	15	1.03	580	39.99	581	40.06	3750	258.55	1400	96.53	3600	248.21	50	3.45	3750	258.55
2900/2900 TM L	N/A	N/A	15	1.03	580	39.99	581	40.06	3750	258.55	1400	96.53	2160	148.93	50	3.45	3750	258.55
2900/2900 TM M	N/A	N/A	15	1.03	580	39.99	581	40.06	2250	155.13	1400	96.53	1440	99.28	50	3.45	2250	155.13
2900/2900 TM N	N/A	N/A	15	1.03	580	39.99	581	40.06	2250	155.13	1400	96.53	1440	99.28	50	3.45	2250	155.13
2900/2900 TM P	N/A	N/A	15	1.03	500	34.47	501	34.54	2250	155.13	-	-	-	-	50	3.45	2250	155.13
2900/2900 TM Q	N/A	N/A	15	1.03	420	28.96	421	29.03	1500	103.42	-	-	-	-	50	3.45	1500	103.42
2900/2900 TM R	N/A	N/A	15	1.03	420	28.96	421	29.03	1500	103.42	-	-	-	-	50	3.45	1500	103.42
2900/2900 TM T	N/A	N/A	15	1.03	300	20.68	301	20.75	905	62.40	-	-	-	-	50	3.45	905	62.40
2900/2900 TM V	N/A	N/A	15	1.03	300	20.68	301	20.75	675	46.54	-	-	-	-	50	3.45	675	46.54
2900/2900 TM W	N/A	N/A	15	1.03	300	20.68	301	20.75	535	36.89	-	-	-	-	50	3.45	535	36.89

1. Maximum set pressure for silicone compounds is 1/2 of the maximum value.
2. When main valve is equipped with O-ring seat, O-rings for seat and piston shall be of the same material and durometer.
3. When PTFE material is selected, piston shall be equipped with a PTFE energized seal instead of an O-ring.

Table 2: Main Valve Temperature Limits

Material	Durometer	Temperature Limits				Material	Durometer	Temperature Limits			
		min.		max.				min.		max.	
		°F	°C	°F	°C			°F	°C	°F	°C
Nitrile (Buna-N) ⁽²⁾	70	-40	-40.0	250	121.1	Silicone*	70	-65	-53.9	437	225
	90	-40	-40.0	250	121.1	PTFE	N/A	-300	-184.4	505	262.8
Ethylene/Propylene	70	-65	-53.9	212	100.0	Kalrez ⁽¹⁾	82	-4	-20.0	550	287.8
	90	-70	-56.7	500	260.0		75	-4	-20.0	600	315.6
Fluorocarbon (Viton)	75	-15	-26.1	400	204.4	Kalrez ⁽¹⁾	91	-4	-20.0	550	287.8
	90	-15	-26.1	400	204.4		75	-4	-20.0	525	273.9
Neoprene*	70	-45	-42.8	300	148.9	Chemraz ^{*1}	90	-20	-28.9	500	260

1. Consult application engineer before selecting.
2. Standard O-ring Material.

Table 3: Pilot Valve and modulator Pressure/Temperature Limits

Service	O-ring Material ⁽²⁾	Durometer	Temperature Limit				Pressure Limits			
			min.		max.		min.		max.	
			°F	°C	°F	°C	psig	barg	psig	barg
LA/GS	Nitrile (Buna-N) ⁽³⁾	70	-40	-40.0	250	121.1	15	1.03	3750	258.55
		90	-40	-40.0	250	121.1	3751	258.62	6250	430.92
LA/GS	Fluorocarbon (Viton)	75	-15	-26.1	400	204.4	15	1.03	3750	258.55
		90	-15	-26.1	400	204.4	3751	258.62	6250	430.92
LA/GS	Ethylene Propylene	70	-40	-40.0	212	100.0	15	1.03	3750	258.55
		90	-40	-40.0	250	121.1	3751	258.62	6250	430.92
SS	Ethylene Propylene	90	212	100.0	500	260.0	15	1.03	680	46.88
LA/GS	Kalrez ⁽¹⁾	-	-40	-40.0	505	262.8	15	1.03	6250	430.92
LA/GS	PTFE	N/A	-40	-40.0	505	262.8	50	3.45	6250	430.92
SS	PTFE	N/A	212	100.0	505	262.8	50	3.45	3750	258.55

1. Consult factory concerning use of Kalrez.
2. Other materials are dependant upon application. Consult factory for availability of other materials.
3. Standard O-ring material.

Pilot Designs

Introduction

With its modular design, the Consolidated pilot valve can be used in applications that require a pop or a modulating action. The modular design concept allows the pop pilot to be used for modulation by simply adding a small compact modulator to the pop pilot. By removing the modulator, the pilot valve is returned to a pop pilot. End users can modify their pilot valve population to meet their changing requirements at a minimum expense.

A pilot design selection is determined primarily on the following:

1. Need for either pop action or modulating action, which describes the operating motion of the disc
2. Set pressure limits
3. Temperature limits
4. The service application

This section describes the following pilot designs:

- 39PV Pop Action - Non-Flowing
- 39MV Modulating Action - Non-Flowing

Integral Sensing

The new integral sense configuration is the default & recommended pressure sensing option when remote sense is not required due to high inlet line loss. With the new integral sense option, the pilot valve pressure can be picked up through the integral sense ring located around the base of the full through nozzle.

Unlike other integrally sensed full nozzle pilot valve designs, the Generation II 2900/2900 TM Series with the integral sense option does not affect the centerline-to-face dimensions of the main valve because the integral sense ring wraps around the nozzle rather than sitting beneath. This unique design ensures that the integrally sensed Generation II 2900/2900 TM Series will match all API 526 Direct Spring PRV centerline-to-face dimensions, including the Consolidated 1900 Series.

Remote Sensing at the Source of System Pressure

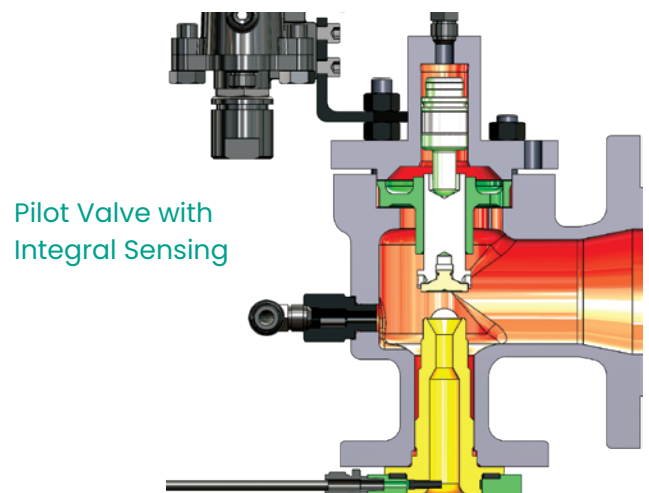
If the pressure drop from the equipment being protected to the relief valve inlet exceeds 3 percent, remote sensing can provide a solution. Remote sensing minimizes the effects of excessive inlet pressure loss and eliminates the resulting valve chatter. The modulator is suggested when the POSRV could relieve at various capacity levels.

For the remote sensing option, the sensing line is not connected to the main valve inlet. The system pressure is sensed remotely or at the pressure vessel and equipment that is being protected.

The 2900/2900 TM Series valves with remote sensing option can be used to upgrade or replace current Consolidated 1900 Series valves and competitors' API 526 spring-operated PRVs to the 2900/2900 TM pilot-operated safety relief valve, because the center-to-face dimensions on both the inlet and outlet are the same.



Pilot Valve with Remote Sensing

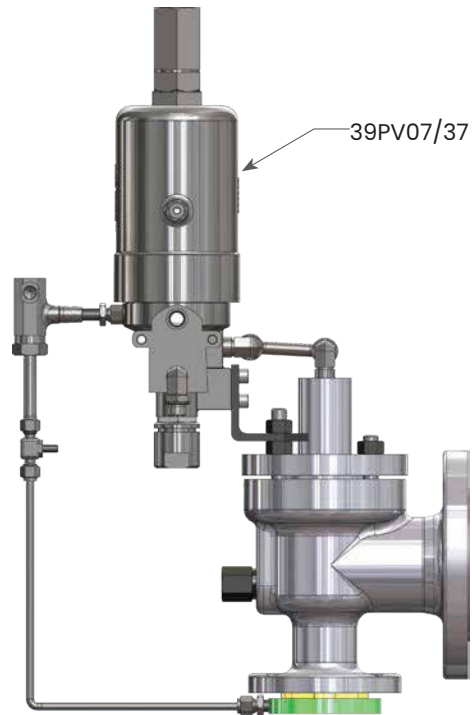


Pilot Valve with Integral Sensing

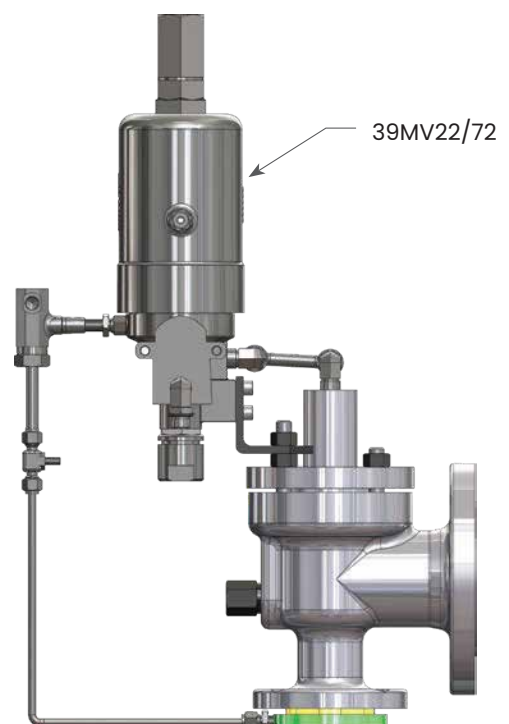
Pilot Designs

Non-Flowing Pilot-Operated Safety Relief Valves

2900/2900 TM Series Valve with 39PV Pop Action



2900/2900 TM Series Valve with 39MV Modulating Action



Pilot Materials (PV)

Pop Action, Non-Flowing for Set Pressures

[15 to 3750 psig (1.03 to 258.55 barg)]

2900/2900 TM Series Valve with 39PV Pop Action



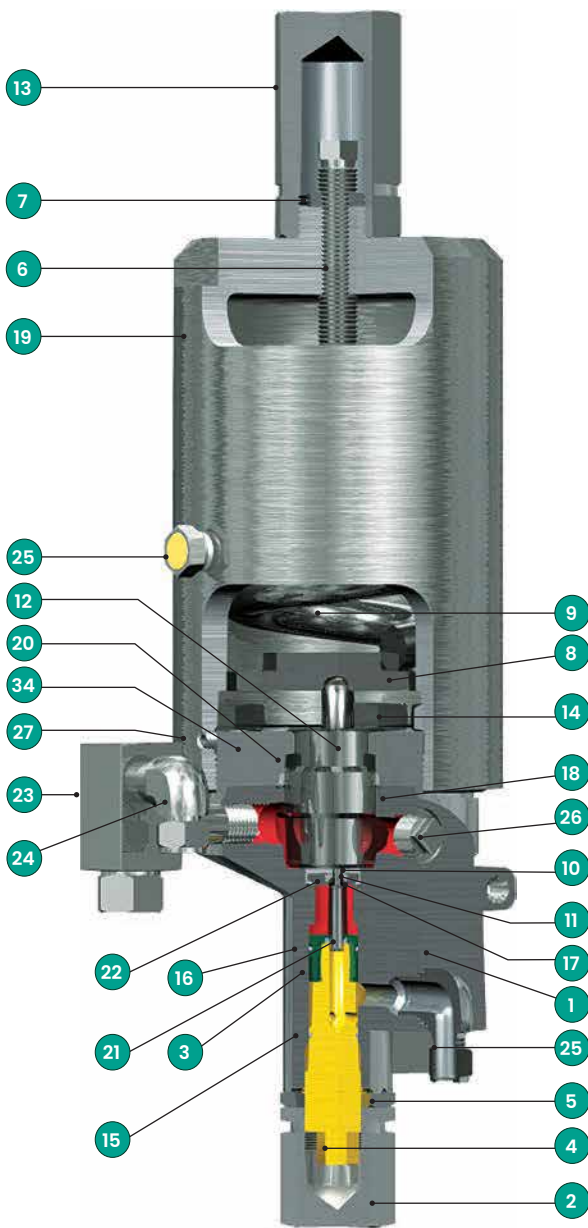
Unique Characteristics

The Consolidated 39PV07 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. The 39PV pilot has two unique features: It has the ability to be used on liquid, gas or steam service without any adjustments, and it may be converted to the 39MV07 modulating pilot by simply installing the modulator assembly. This simple, modular design allows for easier maintenance and fewer spare parts. The 39PV37 pop action pilot is not convertible to a 39MV22 modulating pilot.

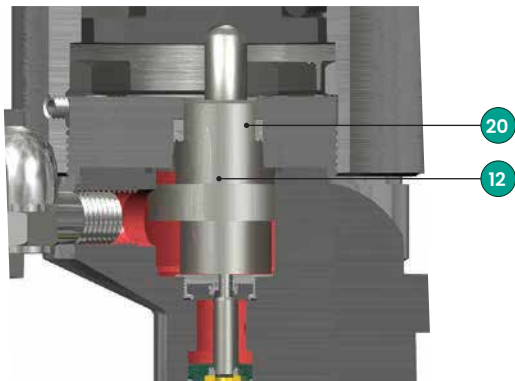
Set pressures are field adjustable and testing is easily performed using the standard field test connection. Manual blowdown, sensing line filter, backflow preventer, and remote sensing are available as options.

Pilot Materials (PV)

39PV07/37 Pilot Construction



High Pressure



39PV07/37 Pilot Standard Material Variation

Ref. No.	Nomenclature	Material (-CC)
1	Main Base	ASME SA351 CF8M St. St.
2	Adjuster Cap	316 Stainless Steel
3	Adjuster Top	316 Stainless Steel
4	Adjuster Bottom	316 Stainless Steel
5	Adjuster Lock Nut	316 Stainless Steel
6	Compression Screw	316 Stainless Steel
7	Compression Screw Lock Nut	316 Stainless Steel
8	Spring Washer	316 Stainless Steel
9	Spring	Chrome St. (Phosphate Coated)
10	Insert Top	316 Stainless Steel
11	Insert Bottom	316 Stainless Steel
12	Main Piston	316 Stainless Steel
13	Cap (Compression Screw)	316 Stainless Steel
14	Cap Screw (Top Plate)	ASME SA193 B8M St. St.
15	O-ring (Adjuster Bottom)	Select
16	O-ring (Adjuster Top)	Select
17	O-ring (Insert)	Select
18	O-ring (Top Plate)	Select
19	Bonnet	ASME SA351 CF8M St. St.
20	Spring Seal (Main Piston)	PTFE
21	Spring Seal (Adjuster Top)	PTFE
22	Spring Seal (Insert)	PTFE
23	Field Test Connector	
	Ball	316 Stainless Steel
	Seat O-ring	Select
	Plug O-ring	Select
	Shuttle Base	316 Stainless Steel
	Shuttle Plug	316 Stainless Steel
	Tube Filter	304 Stainless Steel
24	Vent Assembly/Bug Screen (Field Test Connection)	
	Male Elbow	316 Stainless Steel
	Screen	304 Stainless Steel
25	Vent Assembly (Bonnet Vent) ⁽¹⁾	Nickel Steel/Bronze
26	Pipe Plug (Pilot Valve)	304 Stainless Steel
27	Set Screw (Bonnet)	316 Stainless Steel
34	Top Plate	316 Stainless Steel

1. Standard material is a filter plug. For special materials, vent assembly is supplied.

Pilot Special Materials (PV)

39PV07/37 Pilot Standard Material Variation

Alloy 20 Construction

Alloy 20 Construction ^{(1)&(2)}		
Part	Construction Variation	
	A1	A4
Main Base, Insert Top, Insert Bottom, Main Piston	Alloy 20	Alloy 20
Adjuster Cap	316 Stainless Steel	Alloy 20
Adjuster Top, Adjuster Bottom	Alloy 20	Alloy 20
Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Alloy 20
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Alloy 20
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Cap (Compression Screw)	316 Stainless Steel	Alloy 20
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	Alloy 20
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	Alloy 20
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	Alloy 20	Alloy 20
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug	Alloy 20	Alloy 20
Tube Filter	Alloy 20	Alloy 20
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Alloy 20
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	
Male Elbow	-	Alloy 20
Screen	-	304 Stainless Steel
Pipe Plug (Pilot Valve), Tube Fittings, Tube Lines, Top Plate	Alloy 20	Alloy 20
Set Screw (Bonnet)	316 Stainless Steel	Alloy 20
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20
Release Nut, Release Locknut	316 Stainless Steel	Alloy 20
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug	316 Stainless Steel	Alloy 20
Bonnet, Compression Screw	316 Stainless Steel	Alloy 20
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Alloy 20
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39PV/A4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Standard Material Variation

Duplex Construction

Duplex Construction ^{(1),(2)&(3)}		
Part	Construction Variation	
	D1	D4
Main Base, Adjuster Top, Adjuster Bottom	Duplex	Duplex
Adjuster Cap, Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Duplex
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Duplex
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Duplex	Duplex
Cap (Compression Screw), Cam Bushing, Cam Shaft	316 Stainless Steel	Duplex
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	Duplex
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	Duplex
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	316 Stainless Steel ⁽⁶⁾	316 Stainless Steel ⁽⁶⁾
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug	Duplex	Duplex
Tube Filter	304 Stainless Steel ⁽⁶⁾	304 Stainless Steel ⁽⁶⁾
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Duplex ⁽⁷⁾
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽⁴⁾		
Male Elbow	-	Duplex ⁽⁷⁾
Screen	-	304 Stainless Steel
Pipe Plug (Pilot Valve)	Duplex	Duplex
Tube Fittings, Tube Lines, Top Plate	Duplex ⁽⁷⁾	Duplex ⁽⁷⁾
Set Screw (Bonnet)	316 Stainless Steel	Duplex
Lifting Lever Assembly ⁽⁵⁾		
Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex
Gag Bolt ⁽⁵⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug	316 Stainless Steel	Duplex
Bonnet, Compression Screw	316 Stainless Steel	Duplex
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Duplex
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex

1. The materials in **red** denote variation from standard material construction.

2. To specify valves, add material designation to the valve type 39PV/D4.

3. Parts from casting shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts from barstock shall be constructed from ASME SA479 UNS S31803 Duplex.

4. Standard material is a filter plug. For special materials, vent assembly is supplied.

5. 39PV-3 design is required for this option.

6. Can not get filter or .281" (7.14 mm) ball in Duplex material.

7. All tube fittings and/or valves shall be made from Grade SAF 2507, UNS S32750. Tubes shall be made from ASTM A789, Grade SAF2507, UNS S32750. Note: Do not mix components from other materials with SAF 2507, UNS S32750.

Pilot Special Materials (PV)

39PV07/37 Pilot Standard Material Variation

Hastelloy Construction

Hastelloy Construction ^{(1)&(2)}		
Part	Construction Variation	
	H1	H4
Main Base	ASME SA494 CW12MW Nickel Alloy	ASME SA494 CW12MW Nickel Alloy
Adjuster Cap, Cap (Compression Screw)	316 Stainless Steel	Hastelloy
Adjuster Top, Adjuster Bottom	Hastelloy	Hastelloy
Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Hastelloy
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Hastelloy
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Hastelloy	Hastelloy
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	Hastelloy
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	Hastelloy
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	Hastelloy	Hastelloy
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug, Tube Filter	Hastelloy	Hastelloy
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Hastelloy
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾		
Male Elbow	-	Hastelloy
Screen	-	304 Stainless Steel
Pipe Plug (Pilot Valve), Tube Fittings	Hastelloy	Hastelloy
Tube Lines, Top Plate	Hastelloy	Hastelloy
Set Screw (Bonnet)	316 Stainless Steel	Hastelloy
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	Hastelloy
Release Nut, Release Locknut	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug	316 Stainless Steel	Hastelloy
Bonnet, Compression Screw	316 Stainless Steel	Hastelloy
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Hastelloy
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39PV/H4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Standard Material Variation

Monel Construction

Monel Construction ^{(1)&(2)}		
Part	Construction Variation	
	M1	M4
Main Base	ASME SA494 M35-1 NCA ⁽³⁾	ASME SA494 M35-1 NCA ⁽³⁾
Adjuster Cap, Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Monel
Adjuster Top, Adjuster Bottom	Monel	Monel
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Monel
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Monel	Monel
Cap (Compression Screw)	316 Stainless Steel	Monel
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	Monel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	Monel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Monel	Monel
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Monel
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽⁴⁾		
Male Elbow	-	Monel
Screen	-	304 Stainless Steel
Pipe Plug (Pilot Valve), Top Plate	Monel	Monel
Tube Fittings, Tube Lines	316 Stainless Steel	Monel
Set Screw (Bonnet)	316 Stainless Steel	Monel
Lifting Lever Assembly ⁽⁵⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	Monel
Release Nut, Release Locknut	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel
Gag Bolt ⁽⁵⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug	316 Stainless Steel	Monel
Bonnet, Compression Screw	316 Stainless Steel	Monel
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Monel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39PV/H4.
3. Nickel Copper Alloy (ASME Code Case 1750-22).
4. Standard material is a filter plug. For special materials, vent assembly is supplied.
5. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Standard Material Variation

Sour Gas Service (N2)

Materials for Sour Gas Service ^{(1)&(2)}	
Part	Construction Variation - N2
Main Base	SA351 Grade CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Adjuster Lock Nut, Insert Top, Insert Bottom, Main Piston	316 Stainless Steel
Spring	Inconel X-750
Spring Washer, Cap (Compression Screw)	316 Stainless Steel
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select
Bonnet	ASME SA351 CF8M Stainless Steel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE
Field Test Connector	
Ball, Shuttle Base, Shuttle Plug	316 Stainless Steel
Seat O-ring, Plug O-ring	Select
Tube Filter	304 Stainless Steel
Vent Assembly/Bug Screen (Field Test Connection)	
Male Elbow	316 Stainless Steel
Screen	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze
Pipe Plug (Pilot Valve)	304 Stainless Steel
Tube Fittings, Tube Lines, Top Plate, Set Screw (Bonnet)	316 Stainless Steel
Lifting Lever Assembly ⁽⁴⁾	
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel
Drive Pin	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel
Gag Bolt ⁽⁴⁾	316 Stainless Steel
39PV-3	
Cap (Compression Screw), Sealing Plug, Bonnet	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Top Spring Washer	316 Stainless Steel
Lower Spring Washer Assembly	
Spring Washer, Lifting Stem	316 Stainless Steel
Drive Pin	303 Stainless Steel

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39PV/N2.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Dirty Service Material Variation

Dirty Service – Standard & Sour Gas

Dirty Service – Standard & Sour Gas		
Part	Dirty Service Material Construction Variation	
	Standard (-CC & -DS)	Sour Gas (-N2 & -DS) ⁽¹⁾
Main Base	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom	316 Stainless Steel	316 Stainless Steel
Adjuster Lock Nut, Compression Screw	316 Stainless Steel	316 Stainless Steel
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Insert Bottom		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Main Piston, Cap (Compression Screw)	316 Stainless Steel	316 Stainless Steel
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	ASME SA193 B8M Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug	316 Stainless Steel	316 Stainless Steel
Seat O-ring, Plug O-ring	Select	Select
Tube Filter	304 Stainless Steel	304 Stainless Steel
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽²⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Pipe Plug (Pilot Valve)	316 Stainless Steel	316 Stainless Steel
Tube Fittings		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Tube Lines		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Top Plate, Set Screw (Bonnet), Dirty Service Insert	316 Stainless Steel	316 Stainless Steel
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽³⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel	316 Stainless Steel
Gag Bolt ⁽³⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug, Bonnet	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	316 Stainless Steel
Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

1. The materials in **red** denote variation from standard material construction.
2. Standard material is a filter plug. For special materials, vent assembly is supplied.
3. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Dirty Service Material Variation

Dirty Service - Monel & Hastelloy

Dirty Service - Monel & Hastelloy ^{(1)&(2)}		
Part	Dirty Service Material Construction Variation	
	Monel (-MI & -DS)	Hastelloy (-HI & -DS)
Main Base	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom	316 Stainless Steel	316 Stainless Steel
Adjuster Lock Nut, Compression Screw	316 Stainless Steel	316 Stainless Steel
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Chrome Steel (Phosphate Coated)
Insert Top, Insert Bottom		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Monel	Hastelloy
Main Piston	Monel	Hastelloy
Cap (Compression Screw)	316 Stainless Steel	316 Stainless Steel
Cap Screw (Top Plate)	ASME SA193 B8M Stainless Steel	ASME SA193 B8M Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Monel	Hastelloy
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Pipe Plug (Pilot Valve)	316 Stainless Steel	316 Stainless Steel
Tube Fittings, Tube Lines		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Monel	Hastelloy
Top Plate, Dirty Service Insert	Monel	Hastelloy
Set Screw (Bonnet)	316 Stainless Steel	316 Stainless Steel
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel	316 Stainless Steel
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug	316 Stainless Steel	316 Stainless Steel
Bonnet, Compression Screw	316 Stainless Steel	316 Stainless Steel
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39PV/MI&DS or 39PV/HI&DS.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39PV-3 design is required for this option.

Pilot Special Materials (PV)

39PV07/37 Pilot Dirty Service Material Variation

Dirty Service – Duplex & Alloy 20

Dirty Service – Duplex & Alloy 20 ^{(1)&(2)}		
Part	Dirty Service Material Construction Variation	
	Duplex (-D1 & -DS) ⁽³⁾	Alloy 20 (-A1 & -DS)
Main Base	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom, Adjuster Lock Nut	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Chrome Steel (Phosphate Coated)
Insert Top, Insert Bottom		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Duplex	Alloy 20
Main Piston	Duplex	Alloy 20
Cap (Compression Screw)	316 Stainless Steel	316 Stainless Steel
Cap Screw (Top Plate)	ASME SAI93 B8M Stainless Steel	ASME SAI93 B8M Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	ASME SA351 CF8M Stainless Steel	ASME SA351 CF8M Stainless Steel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	316 Stainless Steel ⁽⁴⁾	Alloy 20
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug	Duplex	Alloy 20
Tube Filter	304 Stainless Steel ⁽⁴⁾	Alloy 20
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽⁵⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Male Elbow	-	-
Screen	-	-
Pipe Plug (Pilot Valve)	316 Stainless Steel	316 Stainless Steel
Tube Fittings, Tube Lines		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Duplex ⁽⁶⁾	Alloy 20
Top Plate	Duplex	Alloy 20
Set Screw (Bonnet)	316 Stainless Steel	316 Stainless Steel
Dirty Service Insert	Duplex	316 Stainless Steel
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽⁷⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel	316 Stainless Steel
Gag Bolt ⁽⁷⁾	316 Stainless Steel	316 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug, Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut, Bonnet	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

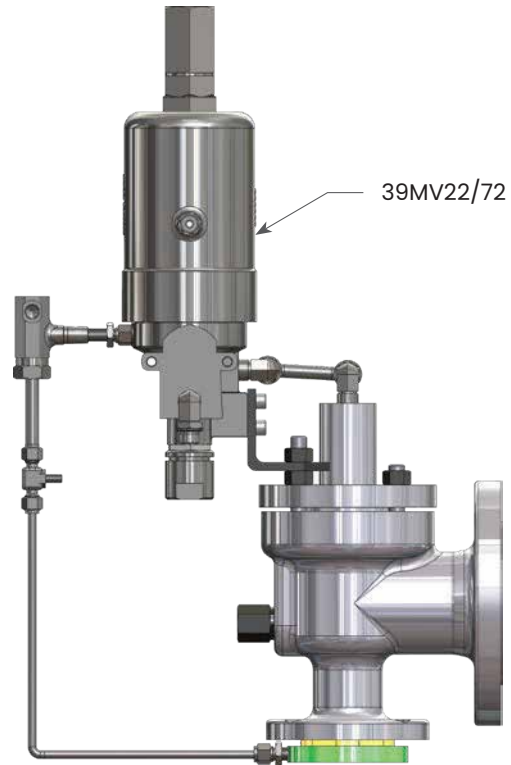
- The materials in **red** denote variation from standard material construction.
- To specify valves, add material designation to the valve type 39PV/D1&DS or 39PV/A1&DS.
- Parts from casting shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts from barstock shall be constructed from ASME SA479 UNS S31803 Duplex Standard material is a filter plug.
- Cannot get filter or .281" (7.14 mm) ball in Duplex material.
- For special materials, vent assembly is supplied.
- All tube fittings and/or valves shall be made from grade SAF 2507, UNS S32750. Tubes shall be made from ASTM A789, grade SAF 2507, UNS S32750.
- 39PV-3 design is required for this option.

Pilot Materials (MV)

Modulating Action, Non-Flowing for Set Pressures

[15 to 6250 psig (1.03 to 430.92 barg)]

2900/2900 TM Series Valve with 39MV Modulating Action



Quality, Reliability, Simplicity

The Consolidated 39MV Series Pilot-Operated Safety Relief Valve is a non-flowing modulating pilot valve that provides exceptional performance and stable operation. Since the 39MV design controls the attached main valve, relieving only enough system pressure to control the system upset, loss of media is minimal. This patented technology is the latest advancement in pilot design within the pressure range of 15 to 6250 psig (1.03 to 430.92 barg) for vapor, gas and liquid service, and 15 to 3750 psig (258.55 barg) for steam service. The 39MV design is the only non-flowing modulating valve of its kind available with adjustable blowdown. The unique modulator of the 39MV07 pilot is an addition to the 39PV pop action design whose simplicity allows for easier maintenance and for lower spare parts inventory.

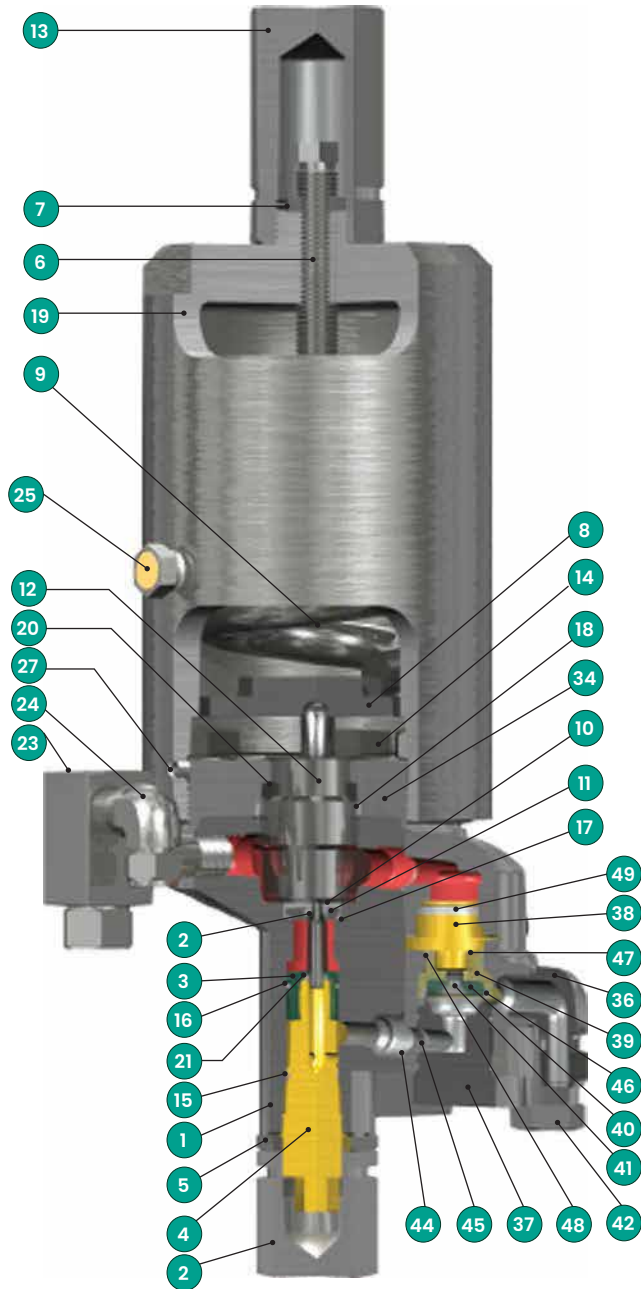
The 39MV22/72 modulating pilot features a modulator built into the pilot valve. This design reduces product cost, improves modulating performance, and increases energized seal life as well as the capable pressure range of the pilot valve to 6250 psig (430.92 barg).

Pilot Materials (MV)

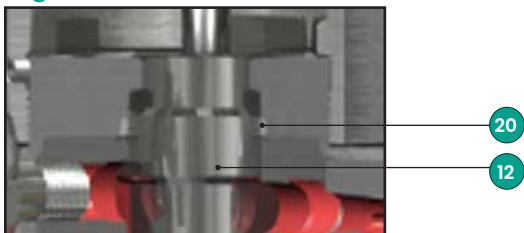
2900/2900 TM Series 39PV07 Pilot

[15 to 750 psig (1.03 to 51.71 barg)]

39MV07 Pilot Construction



High Pressure



39MV07 Pilot Standard Material Variation

Ref. No.	Nomenclature	Material
1	Main Base	SA351 Grade CF8M St. St.
2	Adjuster Cap	316 Stainless Steel
3	Adjuster Top	316 Stainless Steel
4	Adjuster Bottom	316 Stainless Steel
5	Adjuster Lock Nut	316 Stainless Steel
6	Compression Screw	316 Stainless Steel
7	Compression Screw Lock Nut	316 Stainless Steel
8	Spring Washer	316 Stainless Steel
9	Spring	Chrome St. (Phospate Coated)
10	Insert Top	316 Stainless Steel
11	Insert Bottom	316 Stainless Steel
12	Main Piston	316 Stainless Steel
13	Cap (Compression Screw)	316 Stainless Steel
14	Cap Screw (Top Plate)	316 Stainless Steel
15	O-ring (Adjuster Bottom)	Select
16	O-ring (Adjuster Top)	Select
17	O-ring (Insert)	Select
18	O-ring (Top Plate)	Select
19	Bonnet	SA351 Grade CF8M St. St.
20	Spring Seal (Main Piston)	PTFE
21	Spring Seal (Adjuster Top)	PTFE
22	Spring Seal (Insert)	PTFE
23	Field Test Connector	
	Ball	316 Stainless Steel
	Seat O-ring	Select
	Plug O-ring	Select
	Shuttle Base	316 Stainless Steel
	Shuttle Plug	316 Stainless Steel
	Tube Filter	304 Stainless Steel
24	Vent Assembly/Bug Screen (Field Test Connection)	
	Male Elbow	316 Stainless Steel
	Screen	304 Stainless Steel
25	Vent Assembly (Bonnet Vent) ⁽¹⁾	Nickel Steel/Bronze
27	Set Screw (Bonnet)	316 Stainless Steel
34	Top Plate	316 Stainless Steel
35	Plug Filter	SA351 Grade CF8M St. St.
36	Modulator Base	SA351 Grade CF8M St. St.
37	Modulator Stop	316 Stainless Steel
38	Modulator Piston Top	316 Stainless Steel
39	Modulator Piston Bottom	316 Stainless Steel
40	O-ring Retainer	316 Stainless Steel
41	Lock Screw (Retainer)	316 Stainless Steel
42	Cap Screw (Modulator)	316 Stainless Steel
43	Socket Head Cap Screw (Mod.)	Select
44	O-ring (Mod. Base)	Select
45	O-ring (Mod. Stop)	Select
46	O-ring (Mod. Seat)	Select
47	O-ring (Mod. Piston Bottom)	PTFE
48	Spring Seal (Piston Bottom)	PTFE
49	Spring Seal (Piston Top)	PTFE

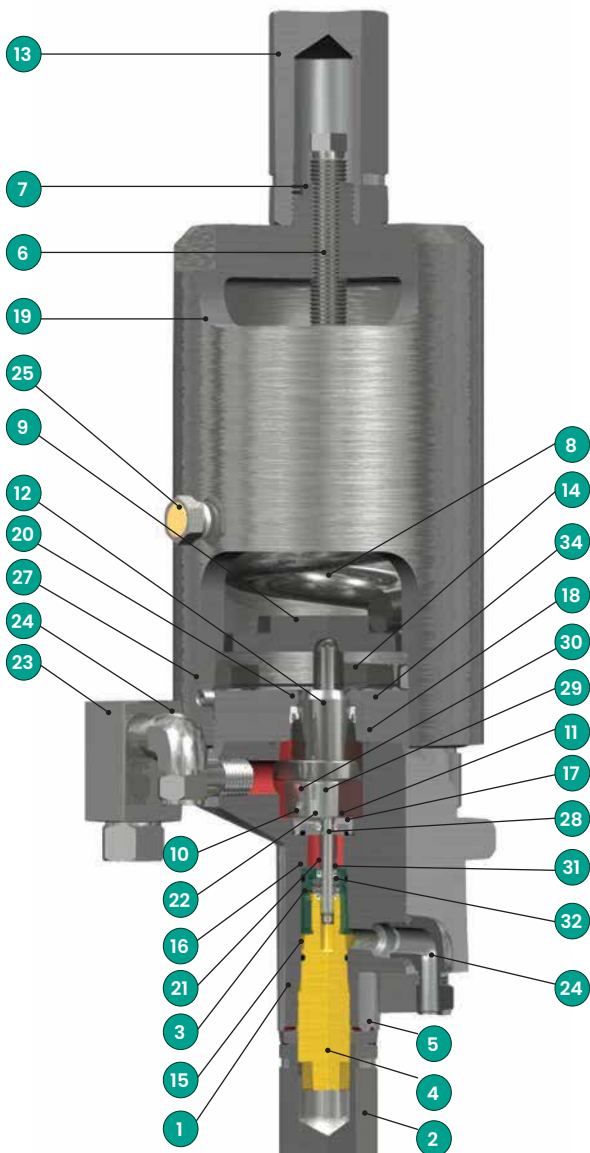
1. Standard material is a filter plug. For special materials, vent assembly is supplied.

Pilot Materials (MV)

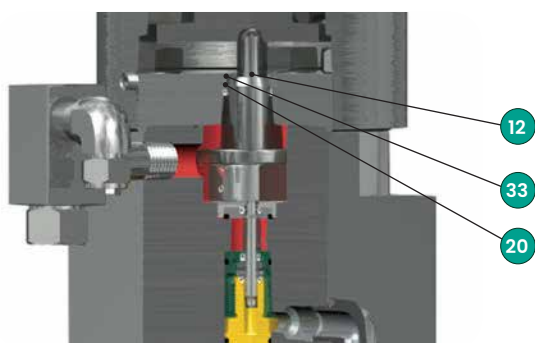
2900/2900 TM Series 39MV22/72 Pilot

[[751 to 6250 psig (51.78 to 430.92 barg)]]

39MV22 Pilot Construction



39MV72 Pilot Construction



39MV22/72 Pilot Standard Material Variation

Ref. No.	Nomenclature	Material (-CC)
1	Main Base	SA351 Grade CF8M St. St.
2	Adjuster Cap	316 Stainless Steel
3	Adjuster Top	316 Stainless Steel
4	Adjuster Bottom	316 Stainless Steel
5	Adjuster Lock Nut	316 Stainless Steel
6	Compression Screw	316 Stainless Steel
7	Compression Screw Lock Nut	316 Stainless Steel
8	Spring Washer	316 Stainless Steel
9	Spring	Chrome St. (Phosphate Coated)
10	Insert Top	316 Stainless Steel
11	Insert Bottom	316 Stainless Steel
12	Main Piston	316 Stainless Steel
13	Cap (Compression Screw)	316 Stainless Steel
14	Cap Screw (Top Plate)	316 Stainless Steel
15	O-ring (Adjuster Bottom)	Select
16	O-ring (Adjuster Top)	Select
17	O-ring (Insert)	Select
18	O-ring (Top Plate)	Select
19	Bonnet	SA351 Grade CF8M St. St.
20	Spring Seal (Main Piston)	PTFE
21	Spring Seal (Adjuster Top)	PTFE
22	Spring Seal (Insert)	PTFE
23	Field Test Connector	
	Ball	316 Stainless Steel
	Seat O-ring	Select
	Plug O-ring	Select
	Shuttle Base	316 Stainless Steel
	Shuttle Plug	316 Stainless Steel
	Tube Filter	304 Stainless Steel
24	Vent Assembly/Bug Screen (Field Test Connection)	
	Male Elbow	316 Stainless Steel
	Screen	304 Stainless Steel
25	Vent Assembly (Bonnet Vent) ⁽¹⁾	Nickel Steel/Bronze
27	Set Screw (Bonnet)	316 Stainless Steel
28	Piston Nose	316 Stainless Steel
29	Piston retainer Nut	316 Stainless Steel
30	Set Screw (Piston)	Carbon Steel
31	Vent Seal (Adaptor)	316 Stainless Steel
32	Spring Seal (Vent Seal Adaptor)	PTFE
33	Back-up Ring (39MV72 only)	Rulon 55
34	Top Plate	316 Stainless Steel

1. Standard material is a filter plug. For special materials, vent assembly is supplied.

Pilot Special Materials (MV)

39PV07 Pilot Standard Material Variation

Alloy 20 Construction

Alloy 20 Construction ^{(1)&(2)}		
Part	Construction Variation	
	A1	A4
Main Base, Adjuster Top, Adjuster Bottom	Alloy 20	Alloy 20
Adjuster Cap, Adjuster Lock Nut, Spring Washer	316 Stainless Steel	Alloy 20
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Alloy 20
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Alloy 20	Alloy 20
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	Alloy 20
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M Stainless Steel	Alloy 20
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Alloy 20	Alloy 20
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Alloy 20
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines, Modulator Base	Alloy 20	Alloy 20
Modulator Stop, Modulator Piston Top, Lock Screw (Retainer)	Alloy 20	Alloy 20
Modulator Piston Bottom, O-ring Retainer	Alloy 20	Alloy 20
Cap Screw (Modulator), Socket Head Cap Screw (Modulator)	316 Stainless Steel	Alloy 20
O-ring (Modulator Base, Modulator Stop)	Select	Select
O-ring (Modulator Seat, Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	
Male Elbow	-	Alloy 20
Screen	-	304 Stainless Steel
Top Plate	Alloy 20	Alloy 20
Set Screw (Bonnet)	316 Stainless Steel	Alloy 20
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20
Release Nut, Release Locknut	316 Stainless Steel	Alloy 20
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Compression Screw	316 Stainless Steel	Alloy 20
Bonnet, Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Alloy 20
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/A4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV07 Pilot Material Variation

Duplex Construction

Duplex Construction ^{(1),(2)&(3)}		
Part	Construction Variation	
	D1	D4
Main Base, Adjuster Top, Adjuster Bottom	Duplex	Duplex
Adjuster Cap, Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Duplex
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Duplex
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Duplex	Duplex
Cap (Compression Screw) , Cap Screw (Top Plate)	316 Stainless Steel	Duplex
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M Stainless Steel	Duplex
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	316 Stainless Steel ⁽⁴⁾	316 Stainless Steel ⁽⁴⁾
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug	Duplex	Duplex
Tube Filter	316 Stainless Steel ⁽⁴⁾	316 Stainless Steel ⁽⁴⁾
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Duplex
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines	Duplex ⁽⁵⁾	Duplex ⁽⁵⁾
Modulator Base, Modulator Stop, Modulator Piston Top	Duplex	Duplex
Modulator Piston Bottom, O-ring Retainer, Lock Screw (Retainer)	Duplex	Duplex
Cap Screw (Modulator), Socket Head Cap Screw, Modulator, Modulator Base	316 Stainless Steel	Duplex
Modulator Stop, Modulator Seat, Modulator Piston Bottom	316 Stainless Steel	Duplex
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽⁶⁾	Nickel Steel/Bronze	
Male Elbow	-	Duplex
Screen	-	304 Stainless Steel
Top Plate	Duplex	Duplex
Set Screw (Bonnet)	316 Stainless Steel	Duplex
Lifting Lever Assembly ⁽⁷⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex
Gag Bolt ⁽⁷⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Duplex
Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	Duplex
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/D4.
3. Parts from casting shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts from barstock shall be constructed from ASME SA479 UNS S31803 Duplex.
4. Cannot get filter or .281" (7.14 mm) ball in Duplex material.
5. All tube fittings and/or valves shall be made from Grade SAF 2507, UNS S32750. Tubes shall be made from ASTM A789, Grade SAF2507, UNS S32750. Do not mix components from other materials with SAF 2507, UNS S32750.
6. Standard material is a filter plug. For special materials, vent assembly is supplied.
7. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV07 Pilot Material Variation

Hastelloy Construction

Hastelloy Construction ^{(1)&(2)}		
Part	Construction Variation	
	H1	H4
Main Base	ASME SA494 CW12MW NA	ASME SA494 CW12MW NA
Adjuster Cap, Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Hastelloy
Adjuster Top, Adjuster Bottom, Insert Top, Insert Bottom, Main Piston	Hastelloy	Hastelloy
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Hastelloy
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	Hastelloy
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M St. St.	Hastelloy
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Hastelloy	Hastelloy
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Hastelloy
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines	Hastelloy	Hastelloy
Modulator Base, Modulator Stop	ASME SA494 CW12MW NA	ASME SA494 CW12MW NA
Modulator Piston Top, Modulator Piston Bottom	Hastelloy	Hastelloy
O-ring Retainer, Lock Screw (Retainer), Top Plate	Hastelloy	Hastelloy
Cap Screw (Modulator), Socket Head Cap Screw (Modulator)	316 Stainless Steel	Hastelloy
O-ring (Modulator Base, Modulator Stop, Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	
Male Elbow	-	Hastelloy
Screen	-	304 Stainless Steel
Set Screw (Bonnet)	316 Stainless Steel	Hastelloy
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Compression Screw	316 Stainless Steel	Hastelloy
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Hastelloy
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/H4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV07 Pilot Material Variation

Monel Construction

Monel Construction ^{(1)&(2)}		
Part	Construction Variation	
	M1	M4
Main Base, Modulator Base, Modulator Stop	ASME SA494 M35-1 NCA ⁽³⁾	ASME SA494 M35-1 NCA ⁽³⁾
Adjuster Cap, Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Monel
Adjuster Top, Adjuster Bottom, Insert Top, Insert Bottom, Main Piston	Monel	Monel
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Monel
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Cap (Compression Screw), Cap Screw (Top Plate), Set Screw (Bonnet)	316 Stainless Steel	Monel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M St. St.	Monel
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Monel	Monel
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Monel
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines, Modulator Piston Top, Modulator Piston Bottom	Monel	Monel
O-ring Retainer, Lock Screw (Retainer), Top Plate	Monel	Monel
Cap Screw (Modulator), Socket Head Cap Screw (Modulator)	316 Stainless Steel	316 Stainless Steel
O-ring (Modulator Base, Modulator Stop)	Select	Select
O-ring (Modulator Seat, Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽⁴⁾	Nickel Steel/Bronze	
Male Elbow	-	Monel
Screen	-	304 Stainless Steel
Lifting Lever Assembly ⁽⁵⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel
Gag Bolt ⁽⁵⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Compression Screw	316 Stainless Steel	Monel
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	Monel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/H4.
3. Nickel Copper Alloy (ASME Code Case 1750-22).
4. Standard material is a filter plug. For special materials, vent assembly is supplied.
5. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV07 Pilot Material Variation

Sour Gas Construction

Sour Gas Construction ^{(1)&(2)}	
Part	Construction Variation - N2
Main Base, Bonnet	SA351 Grade CF8M St. St.
Adjuster Cap, Adjuster Top, Adjuster Bottom, Adjuster Lock Nut	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Spring Washer	316 Stainless Steel
Spring	Inconel X-750
Insert Top, Insert Bottom, Main Piston	316 Stainless Steel
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE
Field Test Connector	
Ball, Shuttle Base, Shuttle Plug	316 Stainless Steel
Seat O-ring, Plug O-ring	Select
Tube Filter	304 Stainless Steel
Vent Assembly/Bug Screen (Field Test Connection)	
Male Elbow	316 Stainless Steel
Screen	304 Stainless Steel
Tube Fittings, Tube Lines	316 Stainless Steel
Modulator Base, Modulator Stop	SA351 Grade CF8M St. St.
Modulator Piston Top, Modulator Piston Bottom, O-ring Retainer	316 Stainless Steel
Cap Screw (Modulator), Socket Head Cap Screw (Modulator)	316 Stainless Steel
Lock Screw (Retainer), Top Plate, Set Screw (Bonnet)	316 Stainless Steel
O-ring (Modulator Base, Modulator Stop)	Select
O-ring (Modulator Seat, Modulator Piston Bottom)	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze
Lifting Lever Assembly ⁽⁴⁾	
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel
Drive Pin	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel
Gag Bolt ⁽⁴⁾	316 Stainless Steel
39MV-3	
Cap (Compression Screw), Sealing Plug, Bonnet	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Top Spring Washer	316 Stainless Steel
Lower Spring Washer Assembly	
Spring Washer, Lifting Stem	316 Stainless Steel
Drive Pin	303 Stainless Steel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/N2.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV07 Pilot Material Variation

Dirty Service – Standard & Sour Gas

Dirty Service – Standard & Sour Gas ⁽²⁾		
Part	Dirty Service Material Construction Variation	
	Standard (-CC & -DS)	Sour Gas (-N2 & -DS) ⁽¹⁾
Main Base, Bonnet	SA351 Grade CF8M Stainless Steel	SA351 Grade CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom, Adjuster Lock Nut	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Main Piston, Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	316 Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug	316 Stainless Steel	316 Stainless Steel
Seat O-ring, Plug O-ring	Select	Select
Tube Filter	304 Stainless Steel	304 Stainless Steel
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Bonnet		
Clean Service Media (CS), Dirty Service Media (DS)	316 Stainless Steel	316 Stainless Steel
Modulator Base, Modulator Stop	SA351 Grade CF8M Stainless Steel	SA351 Grade CF8M Stainless Steel
Modulator Piston Top, Modulator Piston Bottom	316 Stainless Steel	316 Stainless Steel
O-ring Retainer, Lock Screw (Retainer), Cap Screw (Modulator)	316 Stainless Steel	316 Stainless Steel
Socket Head Cap Screw (Modulator)	316 Stainless Steel	316 Stainless Steel
O-ring (Modulator Base, Modulator Stop, Modulator Seat)	Select	Select
O-ring (Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Top Plate, Set Screw (Bonnet), Dirty Service Insert	316 Stainless Steel	316 Stainless Steel
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Bonnet, Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/CC&DS or 39MV/N2&DS.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV07 Pilot Dirty Service Material Variation

Dirty Service - Monel and Hastelloy

Dirty Service - Monel and Hastelloy ^{(1)&(2)}		
Part	Dirty Service Material Construction Variation	
	Monel (-M1 & -DS)	Hastelloy (-H1 & -DS)
Main Base, Bonnet	SA351 Grade CF8M Stainless Steel	SA351 Grade CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom, Adjuster Lock Nut	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Chrome Steel (Phosphate Coated)
Insert Top, Insert Bottom		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Monel	Hastelloy
Main Piston	Monel	Hastelloy
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	316 Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Monel	Hastelloy
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Monel	Hastelloy
Modulator Base, Modulator Stop	SA351 Grade CF8M Stainless Steel	SA351 Grade CF8M Stainless Steel
Modulator Piston Top, Modulator Piston Bottom, O-ring Retainer	316 Stainless Steel	316 Stainless Steel
Lock Screw (Retainer)	316 Stainless Steel	316 Stainless Steel
Cap Screw (Modulator), Socket Head Cap Screw (Modulator)	316 Stainless Steel	316 Stainless Steel
O-ring (Modulator Base, Modulator Stop, Modulator Seat)	Select	Select
O-ring (Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Top Plate, Dirty Service Insert	Monel	Hastelloy
Set Screw (Bonnet), Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel
39PV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

1. The materials in red denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/M1&DS or 39MV/H1&DS.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV07 Pilot Dirty Service Material Variation

Dirty Service – Duplex & Alloy 20

Dirty Service – Duplex & Alloy 20 ^{(1)&(2)}		
Part	Dirty Service Material Construction Variation	
	Duplex (-DI & -DS) ⁽³⁾	Alloy 20 (-A1 & -DS)
Main Base, Bonnet, Modulator Base, Modulator Stop	SA351 Grade CF8M Stainless Steel	SA351 Grade CF8M Stainless Steel
Adjuster Cap, Adjuster Top, Adjuster Bottom	316 Stainless Steel	316 Stainless Steel
Adjuster Lock Nut, Compression Screw, Cap (Compression Screw)	316 Stainless Steel	316 Stainless Steel
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	316 Stainless Steel
Spring	Chrome Steel (Phosphate Coated)	Chrome Steel (Phosphate Coated)
Insert Top, Insert Bottom		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Duplex	Alloy 20
Main Piston, Top Plate, Dirty Service Insert	Duplex	Alloy 20
Cap Screw (Top Plate, Adjuster Bottom, Adjuster Top)	316 Stainless Steel	316 Stainless Steel
O-ring (Insert, Top Plate)	Select	Select
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball	316 Stainless Steel ⁽⁵⁾	Alloy 20
Seat O-ring, Plug O-ring	Select	Select
Shuttle Base, Shuttle Plug	Duplex	Alloy 20
Tube Filter	304 Stainless Steel ⁽⁵⁾	Alloy 20
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	316 Stainless Steel
Screen	304 Stainless Steel	304 Stainless Steel
Tube Fittings, Tube Lines		
Clean Service Media (CS)	316 Stainless Steel	316 Stainless Steel
Dirty Service Media (DS)	Duplex ⁽⁴⁾	Alloy 20
Modulator Piston Top, Modulator Piston Bottom, Gag Bolt ⁽⁷⁾	316 Stainless Steel	316 Stainless Steel
O-ring Retainer, Lock Screw (Retainer), Cap Screw (Modulator)	316 Stainless Steel	316 Stainless Steel
Socket Head Cap Screw (Modulator), Set Screw (Bonnet)	316 Stainless Steel	316 Stainless Steel
O-ring (Modulator Base, Modulator Stop)	Select	Select
O-ring (Modulator Seat, Modulator Piston Bottom)	Select	Select
Spring Seal (Piston Bottom, Piston Top)	PTFE	PTFE
Vent Assembly (Bonnet Vent) ⁽⁶⁾	Nickel Steel/Bronze	Nickel Steel/Bronze
Regulator	Aluminum/Brass	Aluminum/Brass
Lifting Lever Assembly ⁽⁷⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Drive Pin, Release Nut	316 Stainless Steel	316 Stainless Steel
Release Locknut	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Compression Screw	316 Stainless Steel	316 Stainless Steel
Compression Screw Lock Nut, Top Spring Washer	316 Stainless Steel	316 Stainless Steel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	316 Stainless Steel
Drive Pin	303 Stainless Steel	303 Stainless Steel

- The materials in red denote variation from standard material construction.
- To specify valves, add material designation to the valve type 39MV/DI&DS or 39MV/A1&DS.
- Parts from casting shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts from barstock shall be constructed from ASME SA479 UNS S31803 Duplex.
- All tube fittings and/or valves shall be made from Grade SAF 2507, UNS S32750. Tubes shall be made from ASTM A789, Grade SAF2507, UNS S32750.
Note: Do not mix components from other materials with SAF 2507, UNS S32750.
- Can not get filter or 9/32 inch ball in Duplex material.
- Standard material is a filter plug. For special materials, vent assembly is supplied.
- 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV22/72 Pilot Standard Material Variation

Alloy 20 Construction

Alloy 20 Construction ^{(1)&(2)}		
Part	Construction Variation	
	A1	A4
Main Base, Adjuster Top, Adjuster Bottom	Alloy 20	Alloy 20
Adjuster Cap	316 Stainless Steel	Alloy 20
Adjuster Lock Nut, Compression Screw	316 Stainless Steel	Alloy 20
Compression Screw Lock Nut, Spring Washer	316 Stainless Steel	Alloy 20
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Alloy 20	Alloy 20
Cap (Compression Screw), Cap Screw (Top Plate), Set Screw (Bonnet)	316 Stainless Steel	Alloy 20
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M Stainless Steel	Alloy 20
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Alloy 20	Alloy 20
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Alloy 20
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	
Male Elbow	-	Alloy 20
Screen	-	304 Stainless Steel
Piston Nose, Piston Retainer Nut, Set Screw (Piston)	Alloy 20	Alloy 20
Vent Seal (Adaptor), Top Plate, Tube Fittings, Tube Lines	Alloy 20	Alloy 20
Spring Seal (Vent Seal Adaptor)	PTFE	PTFE
Back-up Ring (39MV72 Only)	Rulon 55	Rulon 55
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	Alloy 20
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Alloy 20
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Alloy 20
Drive Pin	303 Stainless Steel	Alloy 20

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV22/A4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV22/72 Pilot Material Variation

Duplex Construction

Duplex Construction ^{(1),(2)&(3)}		
Part	Construction Variation	
	D1	D4
Main Base, Adjuster Top, Adjuster Bottom	Duplex	Duplex
Adjuster Cap, Adjuster Lock Nut, Spring Washer, Compression Screw	316 Stainless Steel	Duplex
Compression Screw Lock Nut, Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	Duplex
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Insert Top, Insert Bottom, Main Piston	Duplex	Duplex
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M Stainless Steel	Duplex
Spring Seal (Main Piston, Adjuster Top, Insert), Spring Seal (Vent Seal Adaptor)	PTFE	PTFE
Field Test Connector		
Ball	316 Stainless Steel ⁽⁴⁾	316 Stainless Steel ⁽⁴⁾
Seat O-ring, Plug O-ring	Select	Select
Shuttle Plug, Shuttle Base	Duplex	Duplex
Tube Filter	304 Stainless Steel ⁽⁴⁾	304 Stainless Steel ⁽⁴⁾
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Duplex ⁽⁵⁾
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽⁶⁾	Nickel Steel/Bronze	
Male Elbow	-	Duplex ⁽⁵⁾
Screen	-	Duplex
Set Screw (Bonnet)	316 Stainless Steel	Duplex
Piston Nose, Piston Retainer Nut, Set Screw (Piston), Vent Seal (Adaptor)	Duplex	Duplex
Back-up Ring (39MV72 Only)	Rulon 55	Rulon 55
Top Plate	Duplex	Duplex
Tube Fittings, Tube Lines	Duplex ⁽⁵⁾	Duplex ⁽⁵⁾
Lifting Lever Assembly ⁽⁷⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex
Gag Bolt ⁽⁷⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	Duplex
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Duplex
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Duplex
Drive Pin	303 Stainless Steel	Duplex

1. The materials in red denote variation from standard material construction.

2. To specify valves, add material designation to the valve type 39MV22/D4.

3. Parts from casting shall be constructed from ASME SA995 Grade CE8MN Duplex. Parts from barstock shall be constructed from ASME SA479 UNS S31803 Duplex.

4. Cannot get filter or .281" (7.14 mm) ball in Duplex material.

5. All tube fittings and/or valves shall be made from Grade SAF 2507, UNS S32750. Tubes shall be made from ASTM A789, Grade SAF2507, UNS S32750. Do not mix components from other materials with SAF 2507, UNS S32750.

6. Standard material is a filter plug. For special materials, vent assembly is supplied.

7. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV22/72 Pilot Material Variation

Hastelloy Construction

Hastelloy Construction ^{(1)&(2)}		
Part	Construction Variation	
	H1	H4
Main Base	ASME SA494 CW12MW NA	ASME SA494 CW12MW NA
Adjuster Cap, Adjuster Lock Nut, Compression Screw, Cap Screw (Top Plate)	316 Stainless Steel	Hastelloy
Adjuster Top, Adjuster Bottom, Insert Top, Insert Bottom, Main Piston	Hastelloy	Hastelloy
Compression Screw Lock Nut, Spring Washer, Cap (Compression Screw)	316 Stainless Steel	Hastelloy
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M St. St.	Hastelloy
Spring Seal (Main Piston, Adjuster Top, Insert), Spring Seal (Vent Seal Adaptor)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Hastelloy	Hastelloy
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Hastelloy
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze	
Male Elbow	-	Hastelloy
Screen	-	304 Stainless Steel
Set Screw (Bonnet)	316 Stainless Steel	Hastelloy
Piston Nose, Piston Retainer Nut, Set Screw (Piston), Vent Seal (Adaptor)	Hastelloy	Hastelloy
Back-up Ring (39MV72 Only)	Rulon 55	Rulon 55
Top Plate, Tube Fittings, Tube Lines	Hastelloy	Hastelloy
Lifting Lever Assembly ⁽⁴⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy
Gag Bolt ⁽⁴⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	Hastelloy
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Hastelloy
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Hastelloy
Drive Pin	303 Stainless Steel	Hastelloy

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV22/H4.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39MV22/72 Pilot Material Variation

Monel Construction

Monel Construction ^{(1)&(2)}		
Part	Construction Variation	
	M1	M4
Main Base	ASME SA494 M35-1 NCA ⁽³⁾	ASME SA494 M35-1 NCA ⁽³⁾
Adjuster Cap, Adjuster Lock Nut, Spring Washer, Set Screw (Bonnet)	316 Stainless Steel	Monel
Adjuster Top, Adjuster Bottom, Insert Top, Insert Bottom, Main Piston	Monel	Monel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Monel
Spring	Chrome Steel (Phosphate Coated)	Inconel X-750
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel	Monel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select	Select
Bonnet	SA351 Grade CF8M St. St.	Monel
Spring Seal (Main Piston, Adjuster Top, Insert), Spring Seal (Vent Seal Adaptor)	PTFE	PTFE
Field Test Connector		
Ball, Shuttle Base, Shuttle Plug, Tube Filter	Monel	Monel
Seat O-ring, Plug O-ring	Select	Select
Vent Assembly/Bug Screen (Field Test Connection)		
Male Elbow	316 Stainless Steel	Monel
Screen	304 Stainless Steel	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽⁴⁾	Nickel Steel/Bronze	
Male Elbow	-	Monel
Screen	-	304 Stainless Steel
Piston Nose, Piston Retainer Nut, Set Screw (Piston), Vent Seal (Adaptor)	Monel	Monel
Back-up Ring (39MV72 Only)	Rulon 55	Rulon 55
Top Plate, Tube Fittings, Tube Lines	Monel	Monel
Lifting Lever Assembly ⁽⁵⁾		
Cam Bushing, Cam Shaft, Lifting Lever, Release Nut, Release Locknut	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel
Gag Bolt ⁽⁵⁾	316 Stainless Steel	316 Stainless Steel
39MV-3		
Cap (Compression Screw), Sealing Plug, Bonnet, Top Spring Washer	316 Stainless Steel	Monel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel	Monel
Lower Spring Washer Assembly		
Spring Washer, Lifting Stem	316 Stainless Steel	Monel
Drive Pin	303 Stainless Steel	Monel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV/H4.
3. Nickel Copper Alloy (ASME Code Case 1750-22).
4. Standard material is a filter plug. For special materials, vent assembly is supplied.
5. 39MV-3 design is required for this option.

Pilot Special Materials (MV)

39PV22/72 Pilot Material Variation

Sour Gas Construction

Sour Gas Construction ^{(1)&(2)}	
Part	Construction Variation - N2
Main Base, Bonnet	SA351 Grade CF8M St. St.
Adjuster Cap, Adjuster Top, Adjuster Bottom, Adjuster Lock Nut	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Spring Washer, Insert Top, Insert Bottom, Main Piston	316 Stainless Steel
Spring	Inconel X-750
Cap (Compression Screw), Cap Screw (Top Plate)	316 Stainless Steel
O-ring (Adjuster Bottom, Adjuster Top, Insert, Top Plate)	Select
Spring Seal (Main Piston, Adjuster Top, Insert)	PTFE
Field Test Connector	
Ball, Shuttle Base, Shuttle Plug	316 Stainless Steel
Seat O-ring, Plug O-ring	Select
Tube Filter	304 Stainless Steel
Vent Assembly/Bug Screen (Field Test Connection)	
Male Elbow	316 Stainless Steel
Screen	304 Stainless Steel
Vent Assembly (Bonnet Vent) ⁽³⁾	Nickel Steel/Bronze
Set Screw (Bonnet), Piston Nose, Piston Retainer Nut	316 Stainless Steel
Set Screw (Piston)	Carbon Steel
Vent Seal (Adaptor), Top Plate, Tube Fittings, Tube Lines	316 Stainless Steel
Spring Seal (Vent Seal Adaptor)	PTFE
Back-up Ring (39MV72 Only)	Rulon 55
Lifting Lever Assembly ⁽⁴⁾	
Cam Bushing, Cam Shaft, Lifting Lever	316 Stainless Steel
Drive Pin	303 Stainless Steel
Release Nut, Release Locknut	316 Stainless Steel
Gag Bolt ⁽⁴⁾	316 Stainless Steel
39MV-3	
Cap (Compression Screw), Sealing Plug, Bonnet	316 Stainless Steel
Compression Screw, Compression Screw Lock Nut	316 Stainless Steel
Top Spring Washer	316 Stainless Steel
Lower Spring Washer Assembly	
Spring Washer, Lifting Stem	316 Stainless Steel
Drive Pin	303 Stainless Steel

1. The materials in **red** denote variation from standard material construction.
2. To specify valves, add material designation to the valve type 39MV22/N2.
3. Standard material is a filter plug. For special materials, vent assembly is supplied.
4. 39MV-3 design is required for this option.

Pilot Design Options

Options and Accessories

Option	Page	Option.....	Page
Manual Blowdown	65	Remote Pilot Mounting	66
Field Test Connection.....	65	Dual Pilots.....	66
Filters (Sensing Line, High Capacity & Dual)	65	Integral Sensing Ring.....	67
Backflow Preventer	65	Sensing Ring.....	68
Pilot Valve Tester	66	Heat Exchanger	69
Pressure Differential Switch.....	66	Dirty Service	70

Manual Blowdown Valve

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

For all air, hot water (over 140°F), or steam service applications, ASME Section XIII (UV Designator) 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 3.2.7 (a)(b)).

Field Test Connection

A 1/4" FNPT field test connection is standard on all pilot valves. 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, such as air or nitrogen. An internal check valve that is present in the field test connection isolates the inlet media from the test media while 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. An optional sensing line filter is available for the 39PV and 39MV. This filter, which is standard for steam service, has a 316 stainless steel body, PTFE seals, and a 40-50-micron stainless steel filter element.

Other high capacity filter options include: (1) a carbon steel 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 PTFE. These filters may be equipped with a manually operated needle valve that 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.

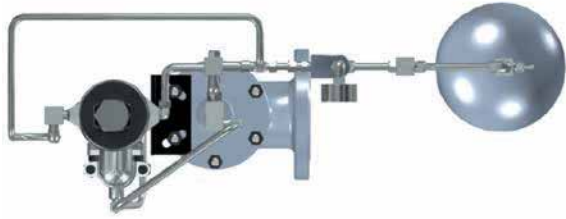
Pressure Snubber

the use of a pressure spike snubber for all applications which may have high frequency pressure spikes. The pressure spike snubber is designed to dampen the pressure spikes which could cause unnecessary parts wear, premature valve opening and valve chatter due to water hammer. A pressure snubber is standard for the 2900/2900 TM Series ASME B and PVC, Section I Liquid Service (LA1) valve for liquid economizer and thermal fluid heater service.

Backflow Preventer

When the pilot-operated safety relief valve is not vented directly to the 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 Design Options



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 at left is available for remote or local testing.



Pressure Differential Switch

Electrical: A pressure differential switch is available that 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 also will 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.

Pilot Design Options

Integral Sense

The new integral sense configuration is the default and recommended pressure sensing option when remote sense is not required due to high inlet line loss. With the new integral sense option, the pilot valve pressure can be picked up through the integral sense ring located around the base of the full through nozzle.

Unlike other integrally sensed full nozzle pilot valve designs, the Generation II 2900/2900 TM Series with the integral sense option does not affect the centerline-to-face dimensions of the main valve because the integral sense ring wraps around the nozzle rather than sitting beneath. This unique design ensures that the integrally sensed Generation II 2900/2900 TM Series will match all API 526 Direct Spring PRV centerline-to-face dimensions, including

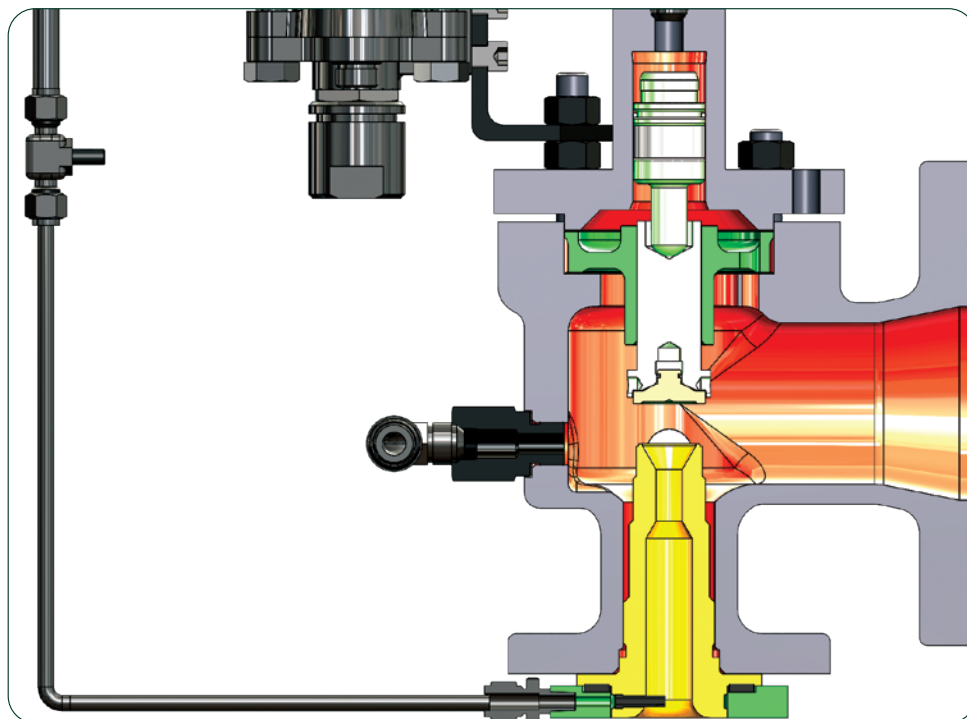
the Consolidated 1900 Series.

The parts included in the Integral Sense option are the integral sense nozzle, integral sense ring, and a gasket.

This option is recommended when there is an opportunity to upgrade or replace an existing API 526 Direct-Spring PRV with a full nozzle pilot valve to achieve the following benefits:

- Reduce maintenance costs by eliminating the need for a costly fragile Inconel bellows
- Eliminate PRV leakage and enhance operating efficiency in high operating pressures above 90% of set pressure
- Improve valve stability with modulating action

Pilot Valve with Integral Sensing



Pilot Design Options

Sensing Ring Option

Remote sensing is the standard pressure connection to the pilot valve used on the 2900/2900 TM Series pilot-operated relief valve. However, with the sensing ring option, the pilot valve pressure can be picked up through a sensing ring located just before the inlet of the main valve.

This is required because the base, unlike the one for the 3900 Series pilot-operated safety relief valve, utilizes a through or full nozzle design. As a result of using the through nozzle design, all metal wetted parts in the closed position for the 2900/2900 TM Series valve are made of 216 Stainless Steel material. These parts consist of the sensing ring, nozzle, disc, dome coverplate, dome piston, tubing, and pilot valve. By simply upgrading the base material to 316SS, the valve would become an all-316SS design.

Note: *The sensing ring option is a legacy integral sense option which has been superseded by the Integral Sense option. Sensing Ring option is only recommended when replacing an existing 2900/2900 TM Series with the sensing ring option.*

The center-to-face dimensions for a 1900 Series safety relief valve being replaced or converted should be reviewed. The 2900/2900 TM Series center-to-outlet dimension remains the same as a 1900 Series safety relief valve. However, the center-to-outlet dimension increases by 1.5" (38.1 mm) due to the sensing ring requirement. In addition, the thicknesses of two inlet gaskets need to be added. The two gaskets are supplied by the customer and go in between the inlet nozzle flange and the sensing ring and also in between the sensing ring and the system flange.

Note: *For closed systems where the Takeout dimensions cannot be changed, remote sensing should be used.*

Pilot Valve with Inlet Sensing through the Sensing Ring



Pilot Design Options

Heat Exchanger Option

The new Integral Sense option is available in all of the same configurations as the sensing ring options shown throughout the pilot design options section.

For Integral Sense components and materials, see materials table sections.

Pilot valves are traditionally limited to the service ranges on the elastomers and PTFE products.

The 2900/2900 TM Series pilot valve, metal seat design, is able to operate at a design temperature above 505°F (262.8°C) and below -40°F (-40°C) with the use of an air-cooled or air-warmed heat exchanger.

For temperatures from 506 to 1200°F (263°C to 649°C), or temperatures from -41°F to -450°F (-40.6°C to -268°C), consult the factory. The heat exchanger is located upstream of the pilot valve to condition the temperature of the process fluid to within the acceptable temperature range of the pilot and soft goods (see illustrations below). It is sized to maintain seal integrity, proper valve function and performance. The heat exchanger is sized and selected to meet the service conditions for each application and valve size. The following information is needed to properly size a heat exchanger by a factory engineer:

Heat Exchanger Sizing - Input Form

Date:	
Customer:	
For Valve Model Number:	

Steam Input Required

P_1 = Set Pressure		_____ psig _____ barg
Ta max. = Maximum temperature of ambient air °F ⁽¹⁾		_____ °F _____ °C
Ta min. = Minimum temperature of ambient air °F ⁽¹⁾		_____ °F _____ °C
T ₁ = Media temperature before it enters the heat exchanger °F		_____ °F _____ °C
T ₂ = Built-up or superimposed backpressure temperature °F if applicable ⁽²⁾		_____ °F _____ °C

Gas and liquid Input Required

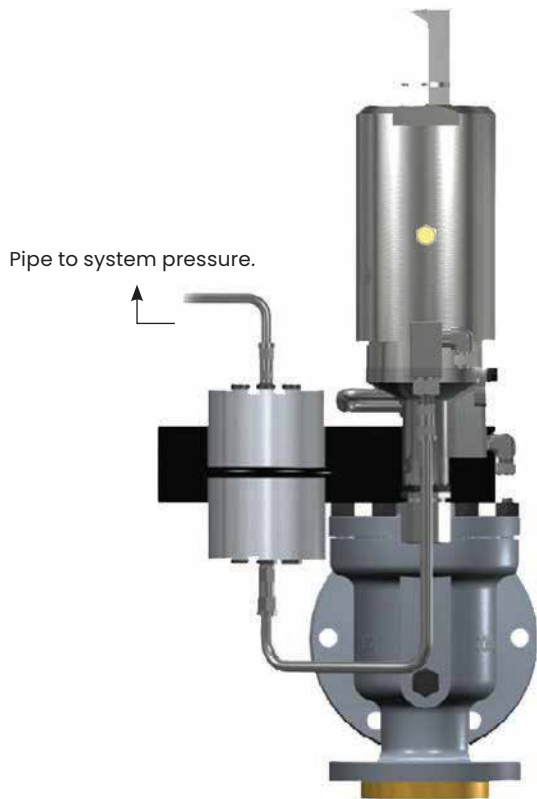
P_1 = Set Pressure (psig)		_____ psig _____ barg
ρ = Density of media at inlet conditions lbm/ft ³		_____ lb/ft ³ _____ kg/m ³
Cp = Specific heat of media at inlet conditions (btu/lbm*°R)		btu/lbm*°R
Ta max. = Maximum temperature of ambient air °F ⁽¹⁾		_____ °F _____ °C
Ta min. = Minimum temperature of ambient air °F ⁽¹⁾		_____ °F _____ °C
T ₁ = Media temperature before it enters the heat exchanger °F		_____ °F _____ °C
T ₂ = Built-up or superimposed backpressure temperature °F if applicable ⁽²⁾		_____ °F _____ °C

- Over time, the fluid temperature in a Heat Exchanger may approach the ambient temperature. Special consideration should be given to the freezing point of a condensed fluid.
- Special consideration should be given to back pressure temperature to determine if the application can be met.

Pilot Design Options

Heat Exchanger Option

Heat Exchanger with Remote Sensing
(Standard), (High Temperature Configuration)



Heat Exchanger and Convection with Sensing Ring
(High Temperature Configuration)



Pilot Design Options

Dome Assist Option

Low pressure/vacuum dome loads, high system pressure ramp rates, severe dirty service, precipitation and viscous fluid problems can be solved using the dome assist option offered on the 2900/2900 TM Series POSRV. A dome assist module is an option accessory that can be retrofitted to Consolidated's standard pilot valves. 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 process media. The process media pressure still controls the set pressure and blowdown of the POSRV.

For applications requiring loading the dome to prevent premature opening of the main valve, an alternative pressure source is piped to the pilot valve. The integral/remote sense line reference the system's operating pressure is connected to the dome assist module. The alternative pressure source must be set at the same pressure as the set pressure of the pilot valve, but cannot exceed 3750 psig (258.55 barg), which is the design limit of the pilot valve. In the event that the alternative pressure source is lost, the main valve will fail in the open position.

For applications requiring the main valve to relieve the dirty fluid, an alternative clean media supply is piped to the pilot. The dirty process media is supplied to the dome assist module. The alternative clean media must be set at the same pressure as the set pressure of the pilot valve, but cannot exceed 3750 psig (258.55 barg), 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.

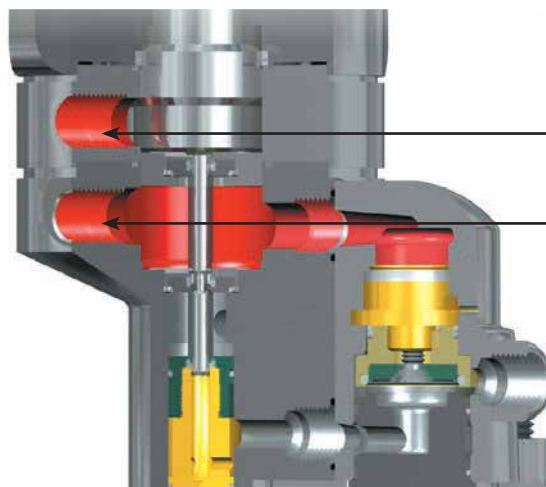
For both applications, the sensing line from the main valve and the connection to the main valve dome is connected to the pilot in the normal manner. The pilot is set to operate at the design pressure of the system/dirty process. When the system/dirty process pressure reaches the set to open pressure of the pilot, the pilot is stroked by the increase in the system/dirty process pressure and the pilot performs the block and bleed operations to effect opening of the main valve. When the system/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 bring about the closing of the main valve.

The dome assist module is a closed chamber. The flow of process media to the pilot valve is only that volume required to stroke the pilot in response to increasing process pressure. The limited volume of flowing media entering the pilot makes plugging of the module an unlikely possibility in dirty service applications. 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 dome assist option can provide cost savings in material selection for corrosive service. It is possible that only the material of construction for the dome assist option will need to be upgraded. The remaining parts in contact with clean media can be of standard construction materials.

Note:
For special material options on the dome assist option consult the factory.

Dome Assist Pilot



Dome assist module port: Process media controls the set pressure and blowdown.

Alternative pressure/clean media supply piped to pilot.

Piping Configurations

Alternate Piping Arrangements

39 PV with Pilot Valve Vented to Atmosphere

Standard Field Test Connection	73
Manual Blowdown	73
Pilot Supply Filter	74
Backflow Preventer	74
Manual Blowdown and Pilot Supply Filter	75
Backflow Preventer, Manual Blowdown, and Pilot Supply Filter	75

39 MV with Pilot Valve Vented to Atmosphere

Standard Field Test Connection	76
Manual Blowdown	76
Pilot Supply Filter	77
Backflow Preventer	77
Manual Blowdown and Pilot Supply Filter	78
Backflow Preventer, Manual Blowdown, and Pilot Supply Filter	78

39 PV with Pilot Valve Vented to Body Bowl

Standard Field Test Connection	79
Manual Blowdown	79
Pilot Supply Filter	80
Backflow Preventer	80
Manual Blowdown and Pilot Supply Filter	81
Backflow Preventer, Manual Blowdown, and Pilot Supply Filter	81

39 MV with Pilot Valve Vented to Body Bowl

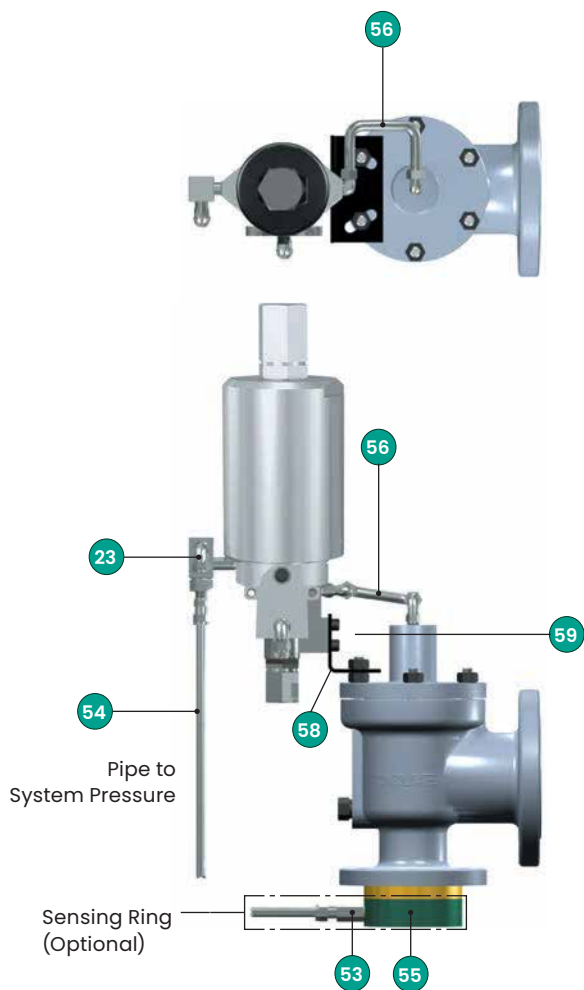
Standard Field Test Connection	82
Manual Blowdown	82
Pilot Supply Filter	83
Backflow Preventer	83
Manual Blowdown and Pilot Supply Filter	84
Backflow Preventer, Manual Blowdown, and Pilot Supply Filter	84
Manual Blowdown, Pilot Supply Filter, and Heat Exchanger for Hot Service	85
Manual Blowdown, Pilot Supply Filter, and Heat Exchanger for Cold Service	86

Piping Configurations

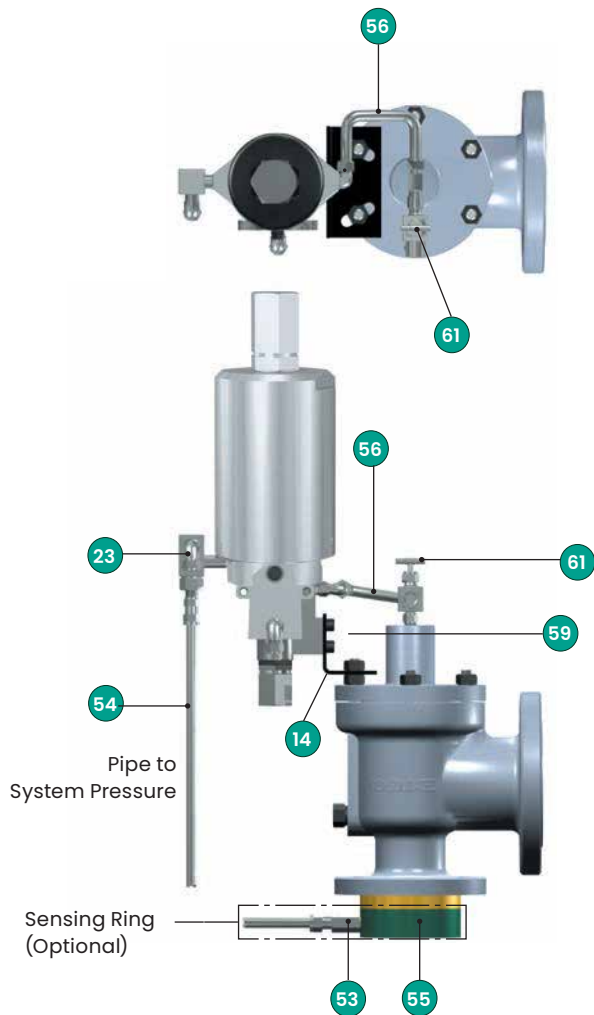
2900/2900 TM Series Type 39PV Pop Pilot

Vented to Atmosphere

Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)



Pilot Valve with Manual Blowdown
(Optional for all Media Applications)



Pilot Valve with Standard Field Test Connection (Standard for all Media Applications)		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel

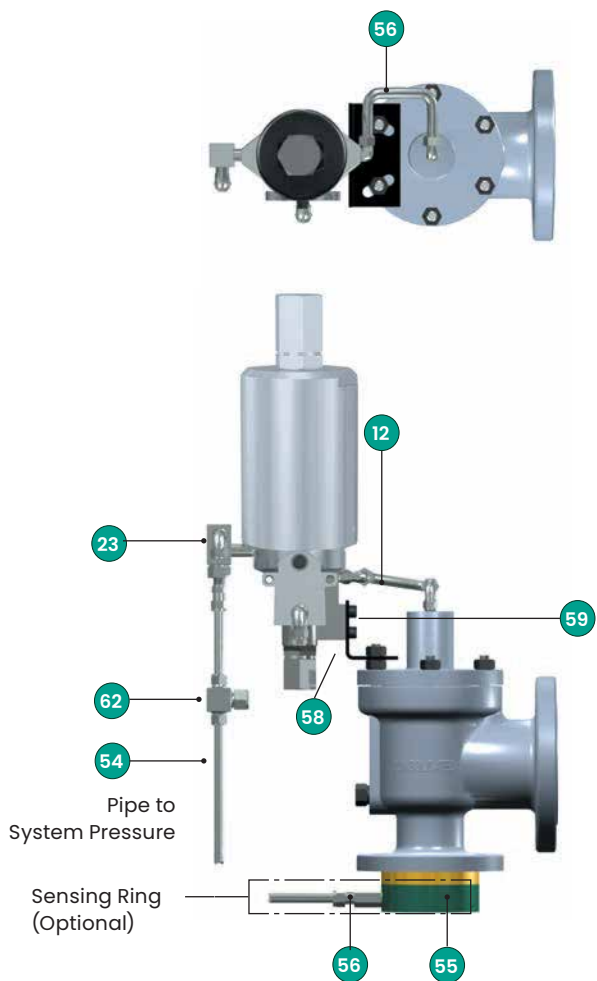
Pilot Valve with Manual Blowdown (Optional for all Media Applications)		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel

Piping Configurations

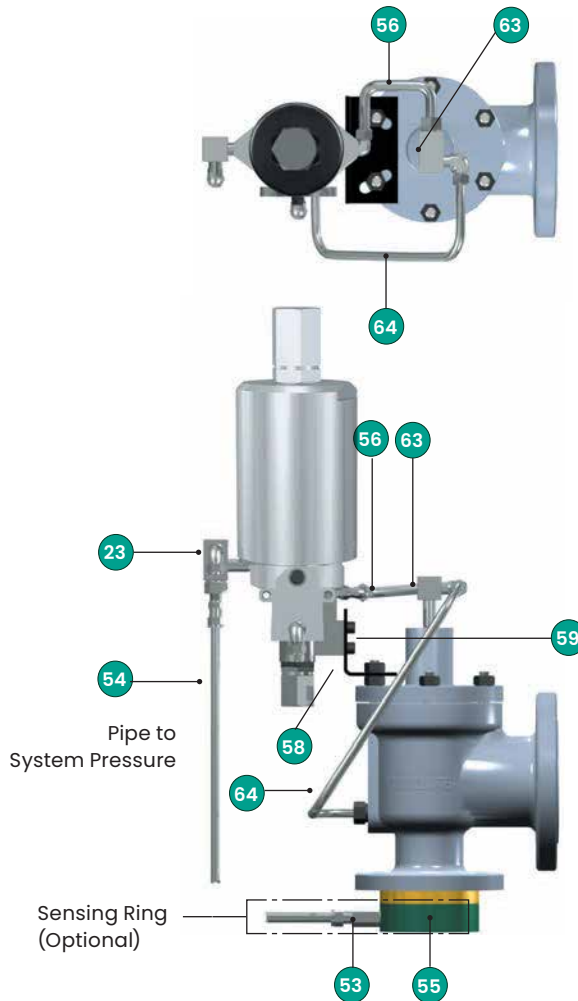
2900/2900 TM Series Type 39PV Pop Pilot

Vented to Atmosphere

Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)



Pilot Valve with Backflow Preventer
(Optional for Liquid and Gas Applications)



**Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

**Pilot Valve with Backflow Preventer
(Optional for Liquid and Gas Applications)**

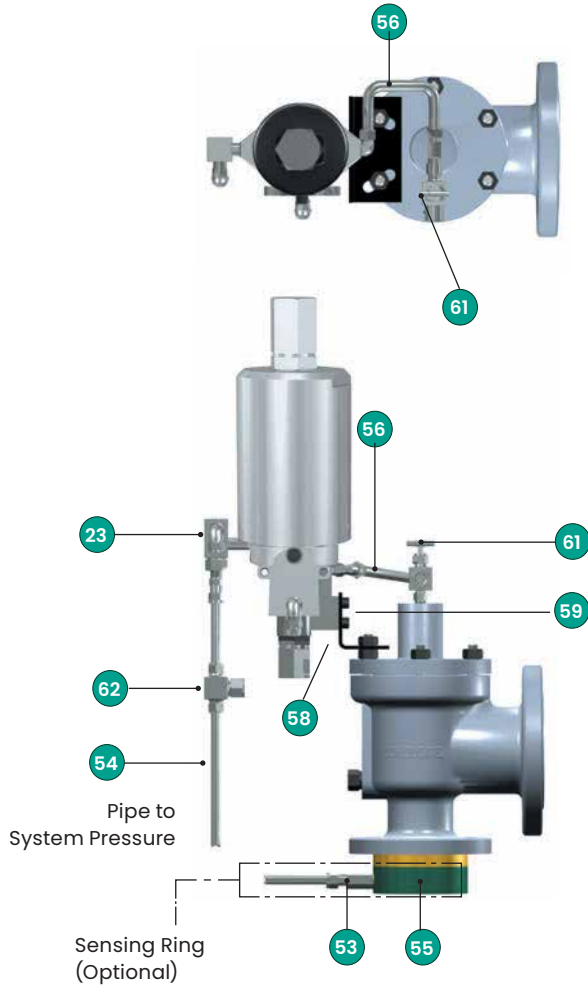
No.	Part	Material
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53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

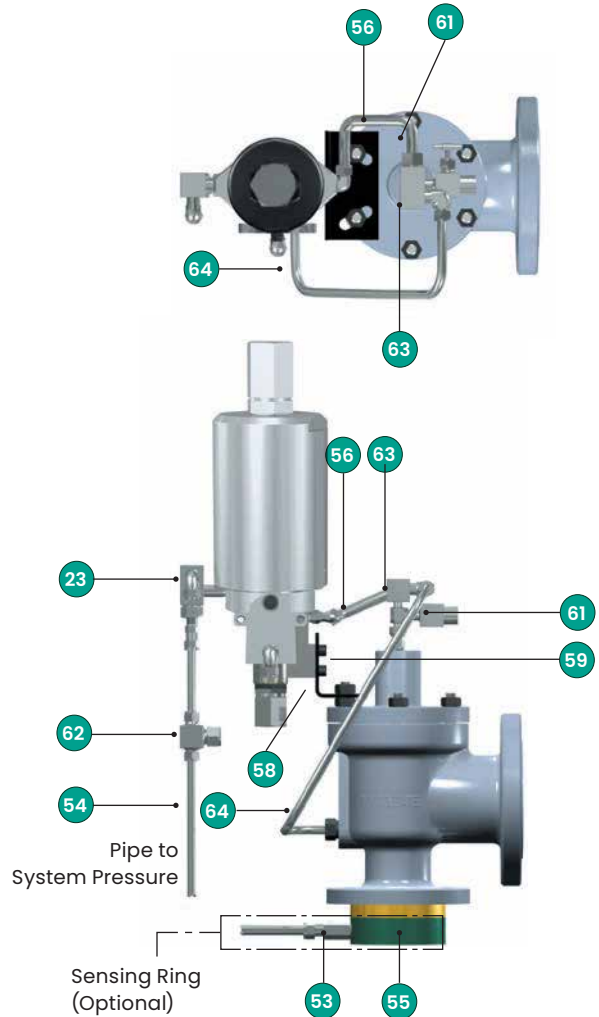
2900/2900 TM Series Type 39PV Pop Pilot

Vented to Atmosphere

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



Pilot Valve with Backflow Preventer, Manual Blowdown and Pilot Supply Filter
(Optional for Steam Applications)



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

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

Pilot Valve with Backflow Preventer, Manual Blowdown & Pilot Supply Filter (Optional for Steam Applications)

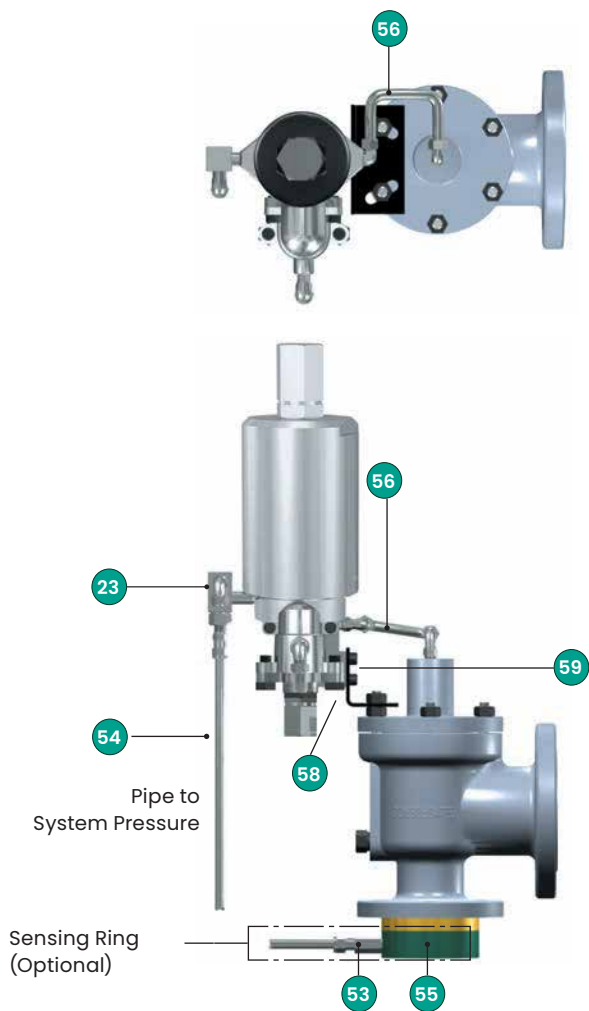
No.	Part	Material
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53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

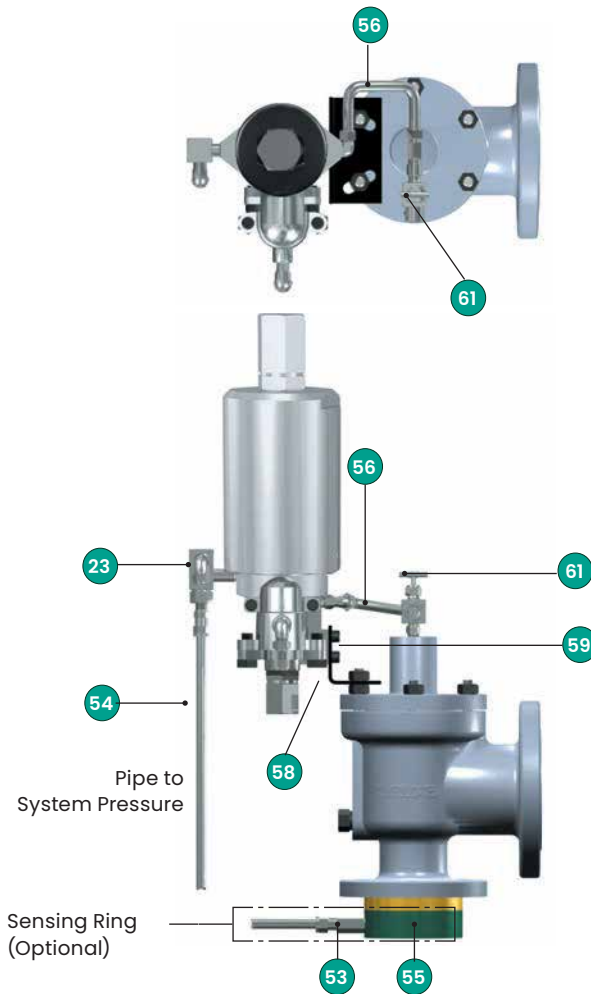
2900/2900 TM Series Type 39MV Modulating Pilot

Vented to Atmosphere

Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)



Pilot Valve with Manual Blowdown
(Optional for all Media Applications)



**Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel

**Pilot Valve with Manual Blowdown
(Optional for all Media Applications)**

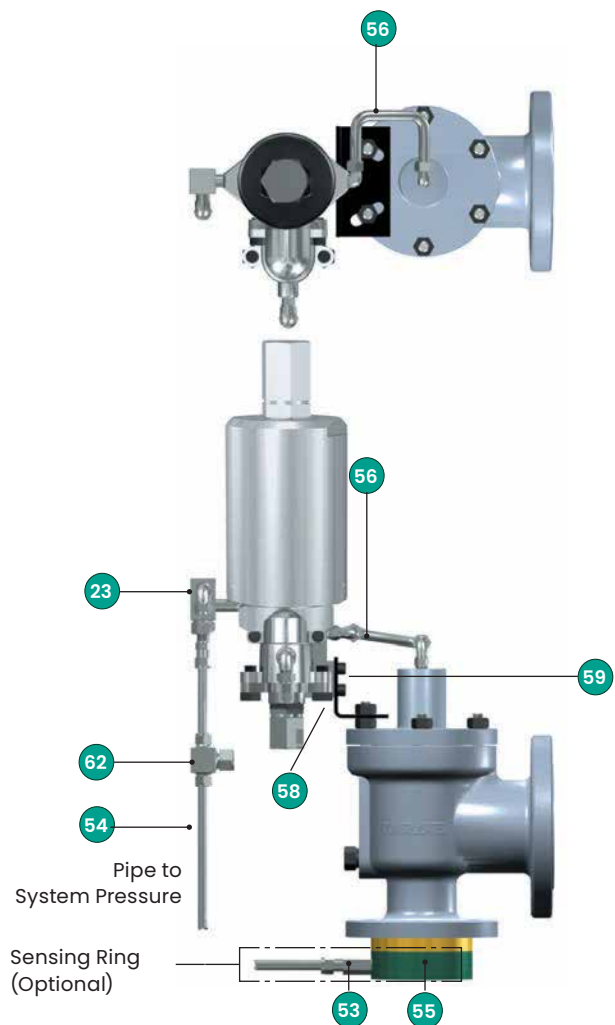
No.	Part	Material
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53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel

Piping Configurations

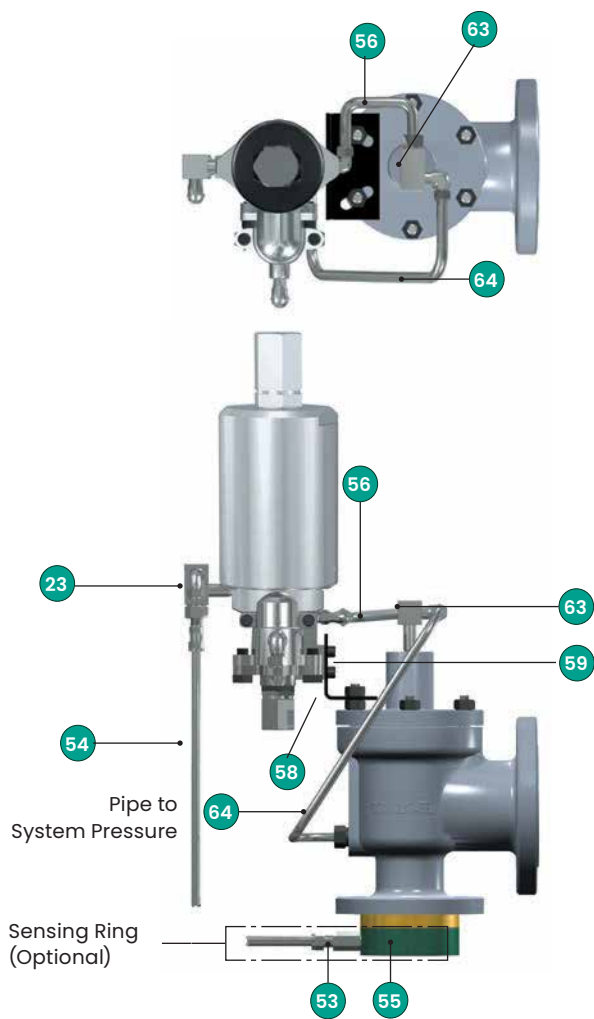
2900/2900 TM Series Type 39MV Modulating Pilot

Vented to Atmosphere

Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)



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



**Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

**Pilot Valve with Backflow Preventer
(Optional for Liquid & Gas Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	Screw 316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

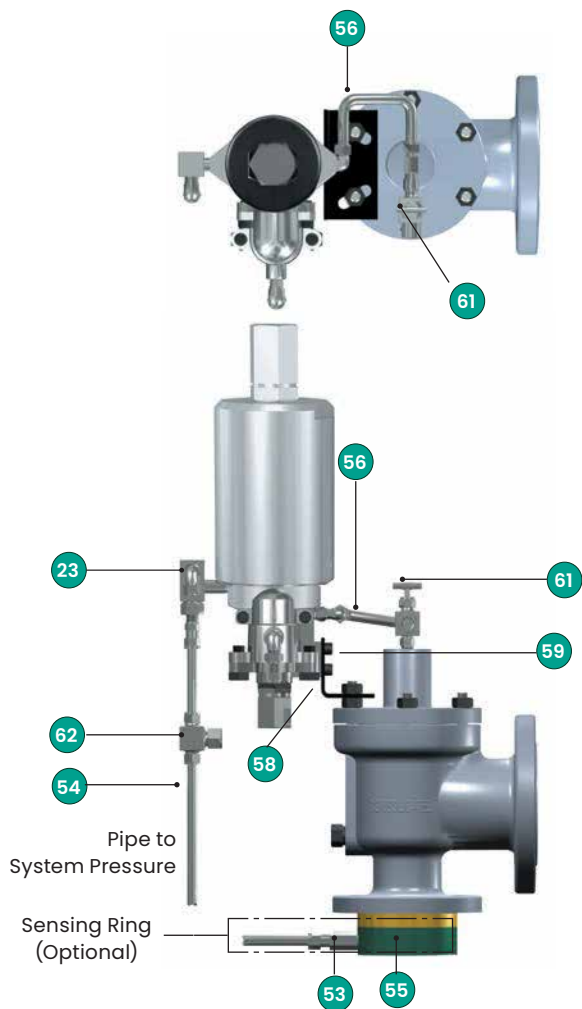
Piping Configurations

2900/2900 TM Series Type 39MV Modulating Pilot

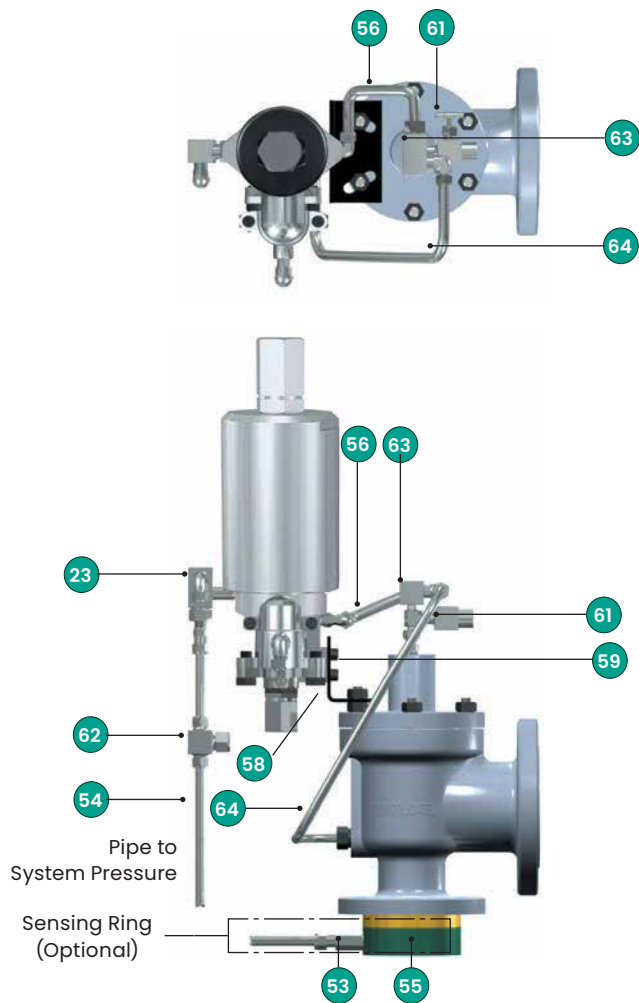
Vented to Atmosphere

Pilot Valve with Manual Blowdown & Pilot Supply Filter
(Standard for Steam Applications)

(Optional for Liquid & Gas Applications)



Pilot Valve with Backflow Preventer,
Manual Blowdown and Pilot Supply Filter
(Optional for Steam Applications)



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

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

**Pilot Valve with Backflow Preventer,
Manual Blowdown & Pilot Supply Filter
(Optional for Steam Applications)**

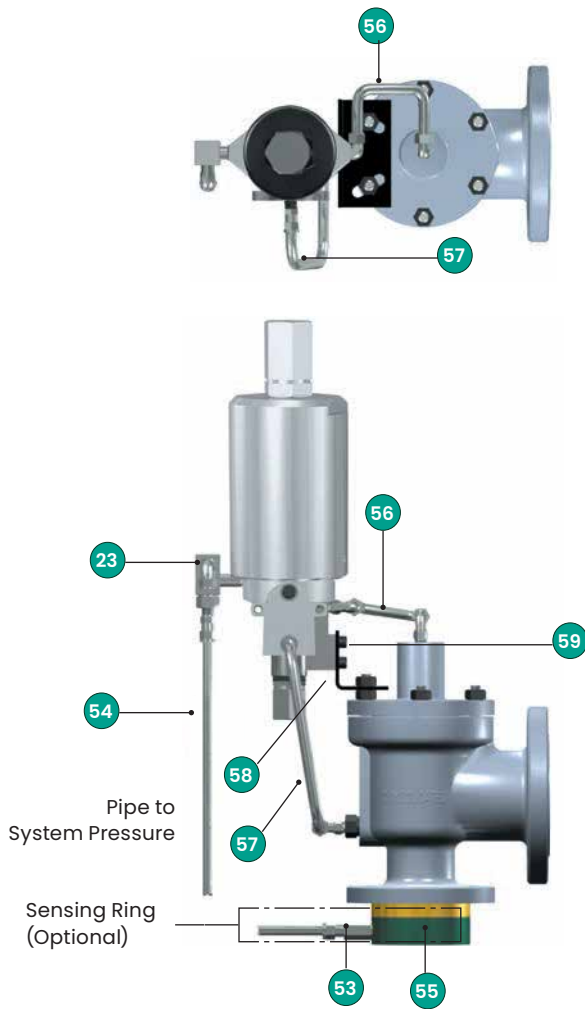
No.	Part	Material
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53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

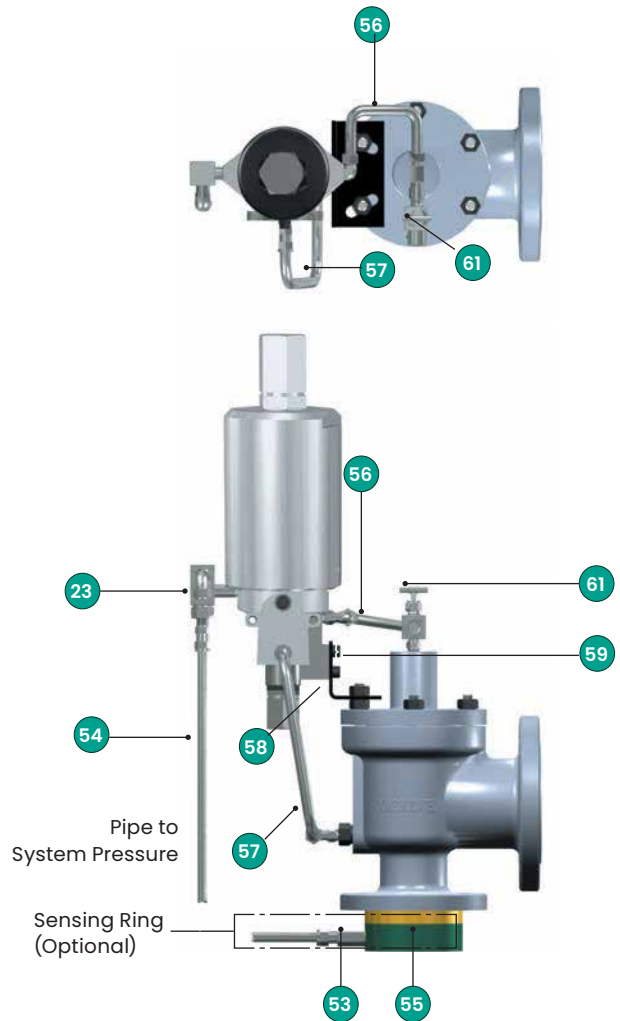
2900/2900 TM Series Type 39PV Pop Pilot

Vented to Body Bowl

Pilot Valve with Standard Field Test Connector
(Standard for all Media Applications)



Pilot Valve with Manual Blowdown
(Optional for all Media Applications)



**Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel

**Pilot Valve with Manual Blowdown
(Optional for all Media Applications)**

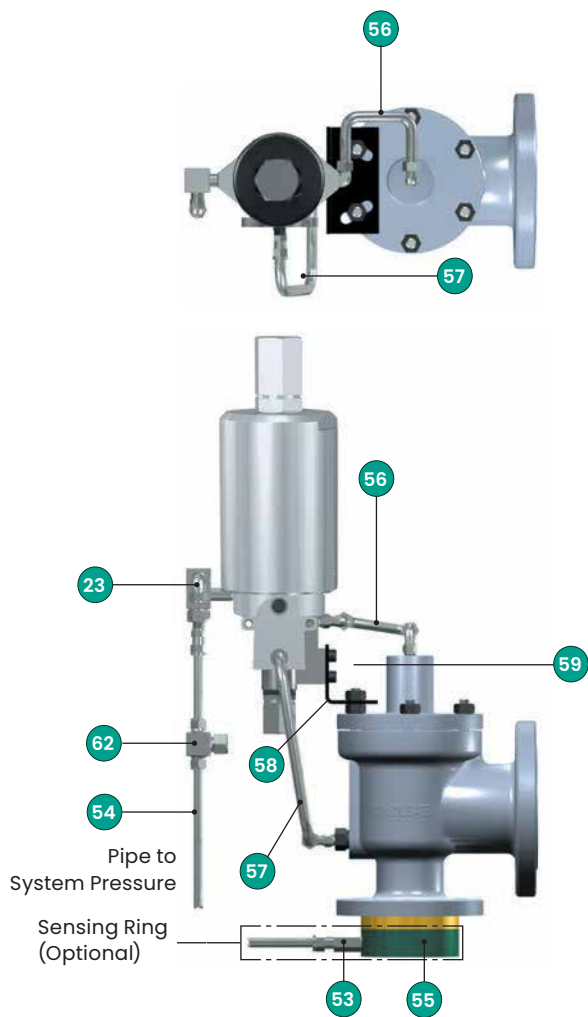
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel

Piping Configurations

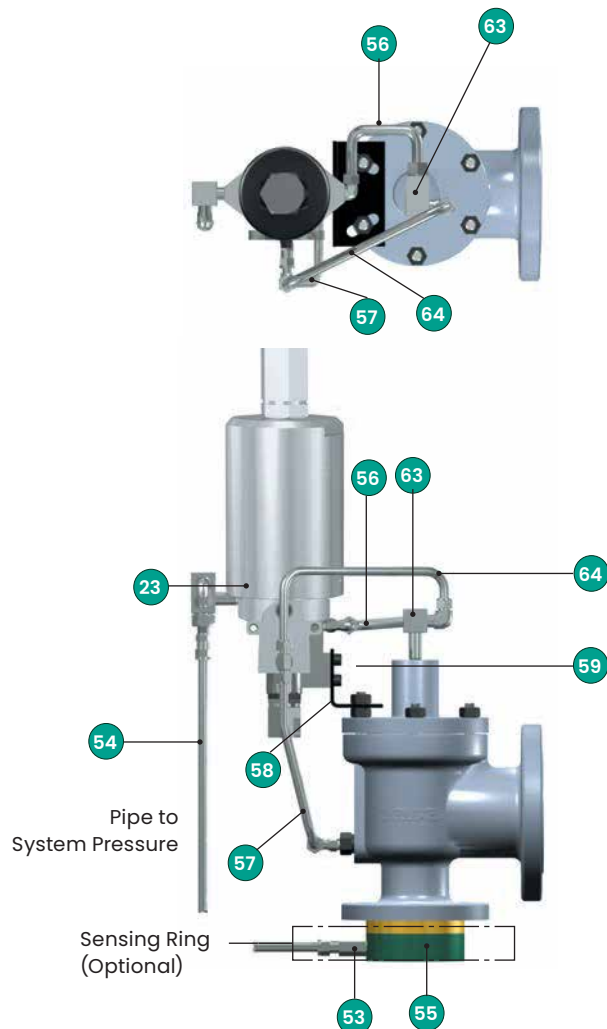
2900/2900 TM Series Type 39PV Pop Pilot

Vented to Body Bowl

Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)



Pilot Valve with Backflow Preventer
(Optional for all Liquid & Gas Applications)



**Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

**Pilot Valve with Backflow Preventer
(Optional for all Liquid & Gas Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

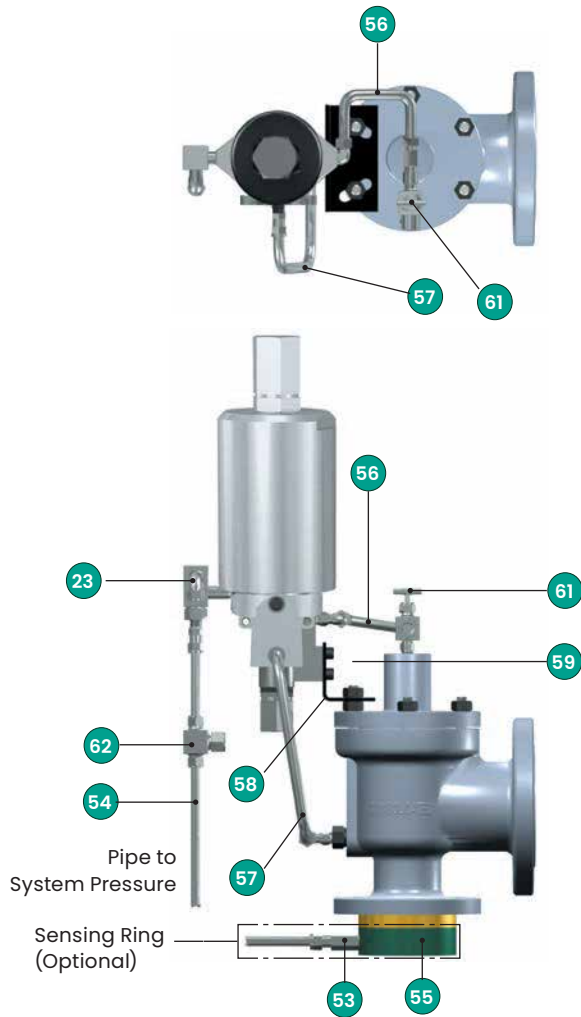
Piping Configurations

2900/2900 TM Series Type 39PV Pop Pilot

Vented to Body Bowl

Pilot Valve with Manual Blowdown and Pilot Supply Filter
(Standard for Steam Applications)

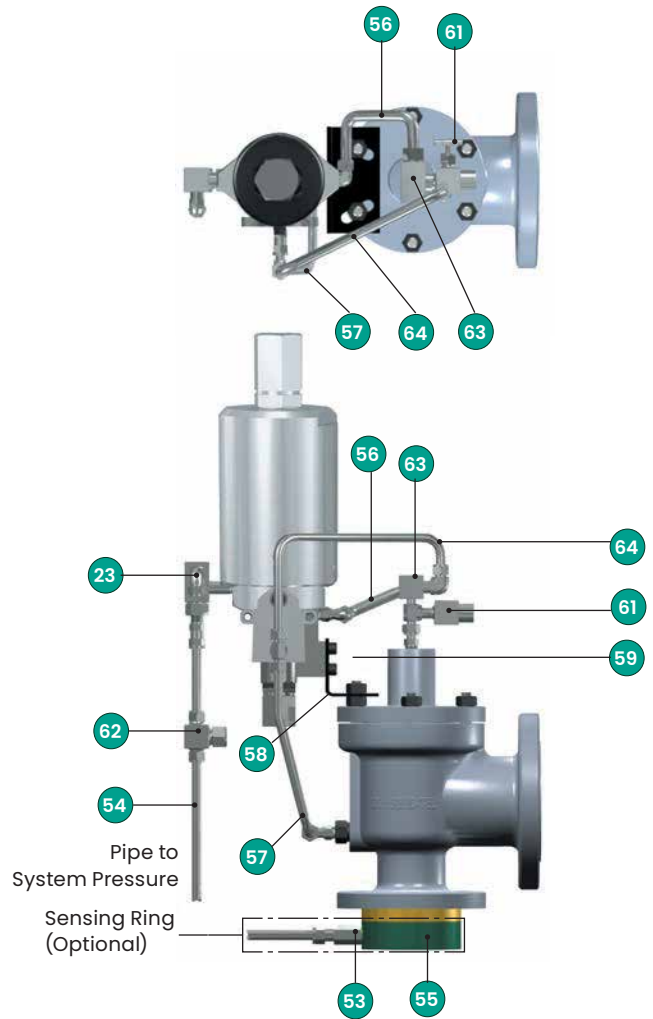
(Optional for Liquid & Gas Applications)



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

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

Pilot Valve with Backflow Preventer, Manual Blowdown and Pilot Supply Filter
(Optional for Steam Applications)



Pilot Valve with Backflow Preventer, Manual Blowdown & Pilot Supply Filter
(Optional for Steam Applications)

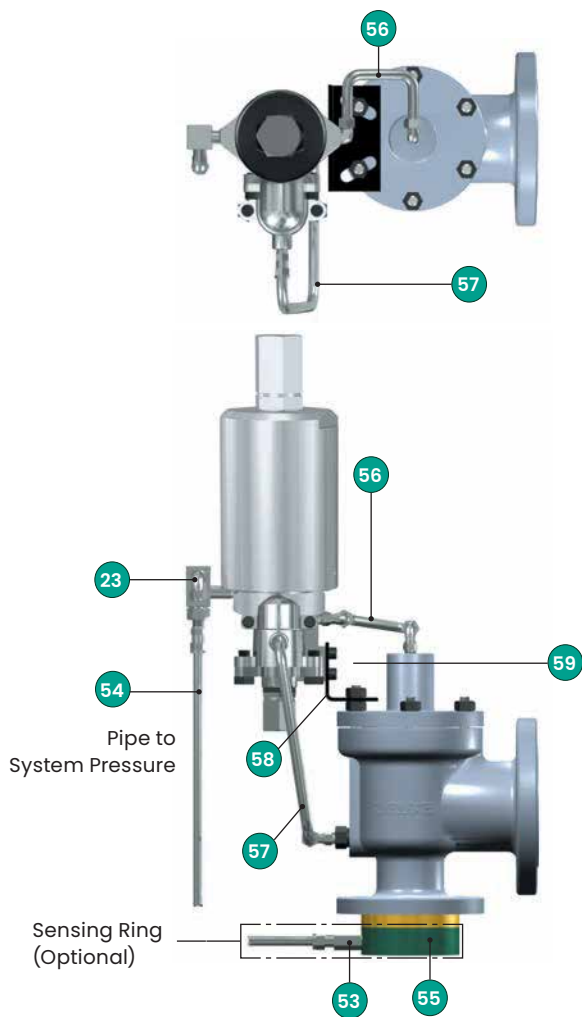
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

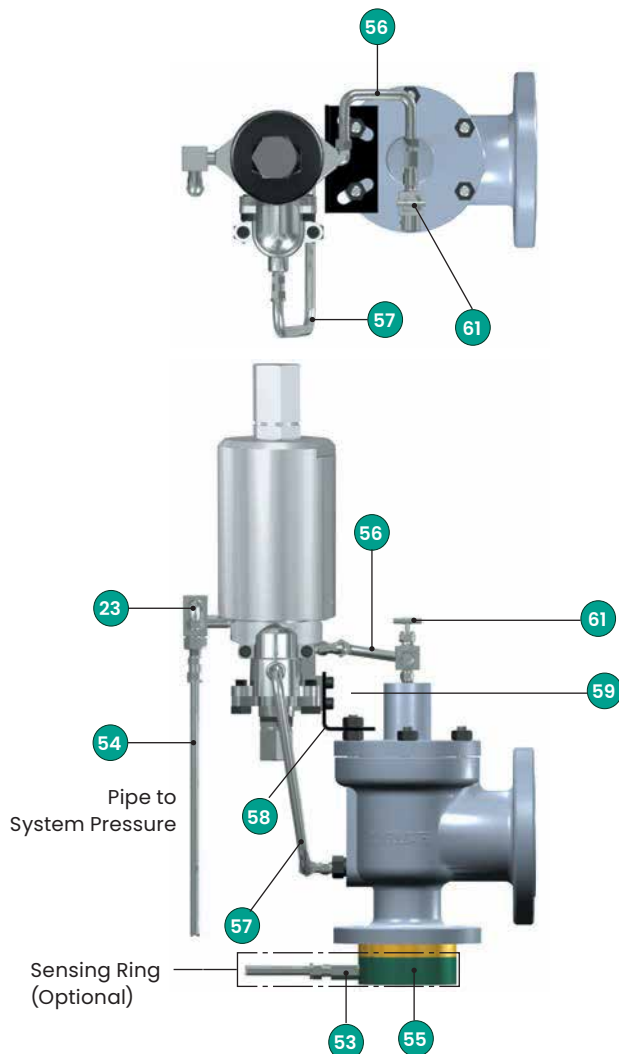
2900/2900 TM Series Type 39MV Modulating Pilot

Vented to Body Bowl

Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)



Pilot Valve with Manual Blowdown
(Optional for all Media Applications)



**Pilot Valve with Standard Field Test Connection
(Standard for all Media Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel

**Pilot Valve with Manual Blowdown
(Optional for all Media Applications)**

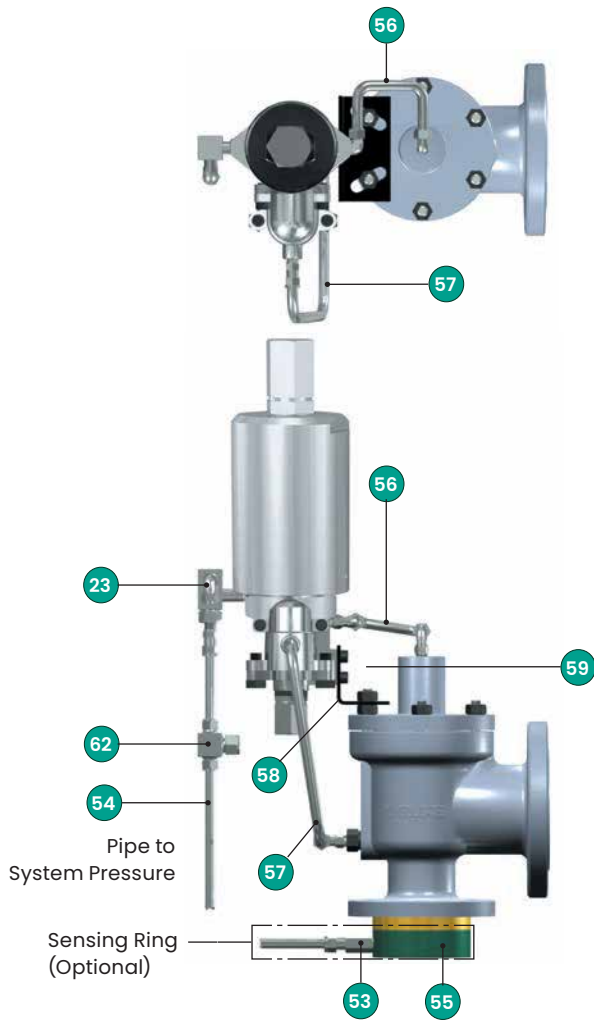
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel

Piping Configurations

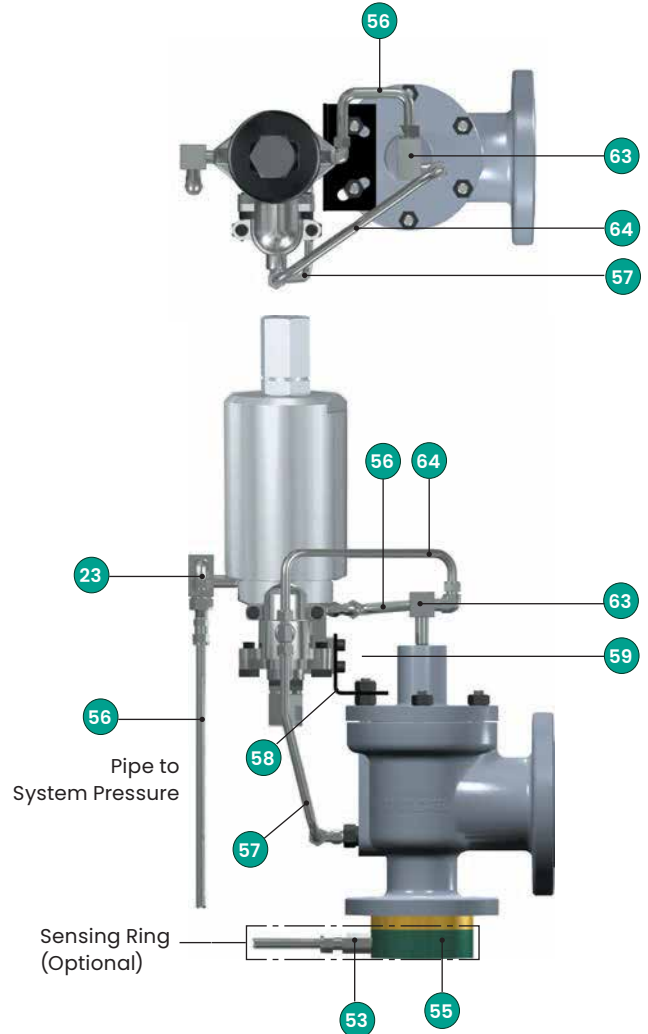
2900/2900 TM Series Type 39MV Modulating Pilot

Vented to Body Bowl

Pilot Valve with Pilot Supply Filter
(Optional for all Media Applications)



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



Pilot Valve with Pilot Supply Filter (Optional for all Media Applications)		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

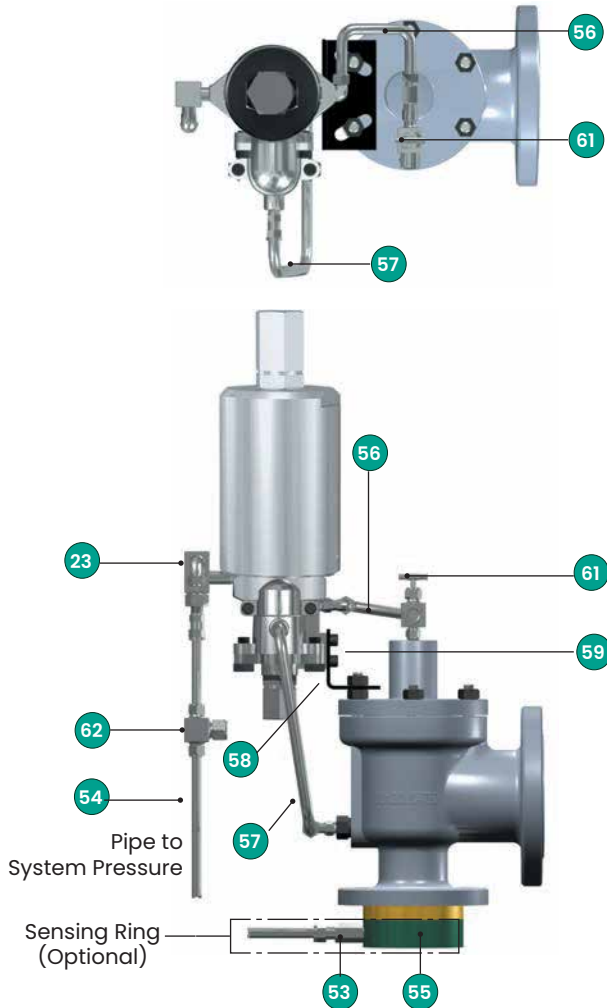
Pilot Valve with Backflow Preventer (Optional for Liquid & Gas Applications)		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

2900/2900 TM Series Type 39MV Modulating Pilot

Vented to Body Bowl

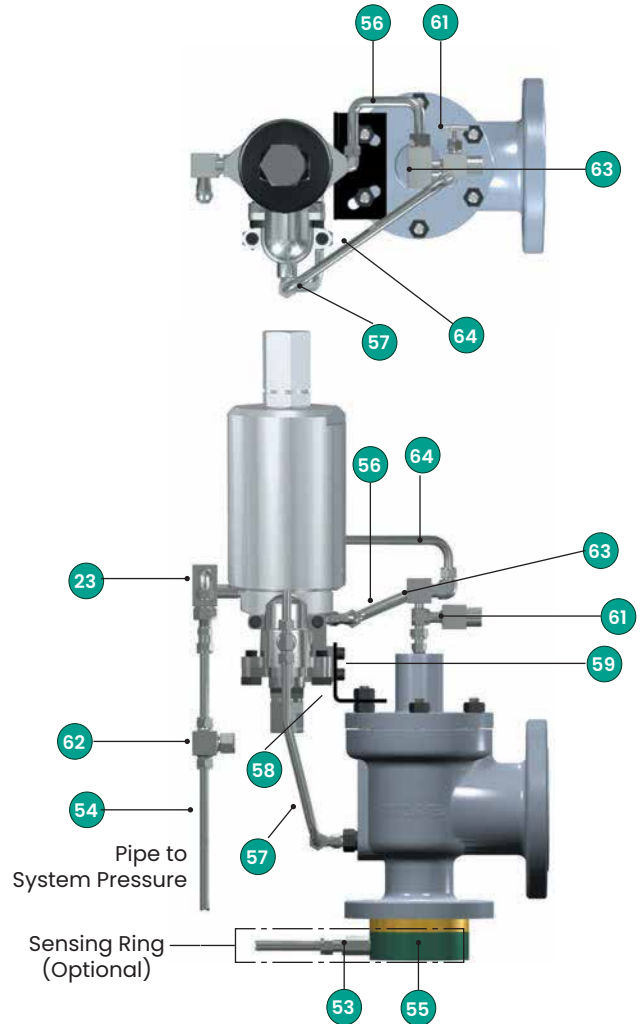
Pilot Valve with Manual Blowdown and Pilot Supply Filter
(Standard for Steam Applications)
(Optional for Liquid & Gas Applications)



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

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel

Pilot Valve with Backflow Preventer, Manual Blowdown,
and Pilot Supply Filter
(Optional for Steam Applications)



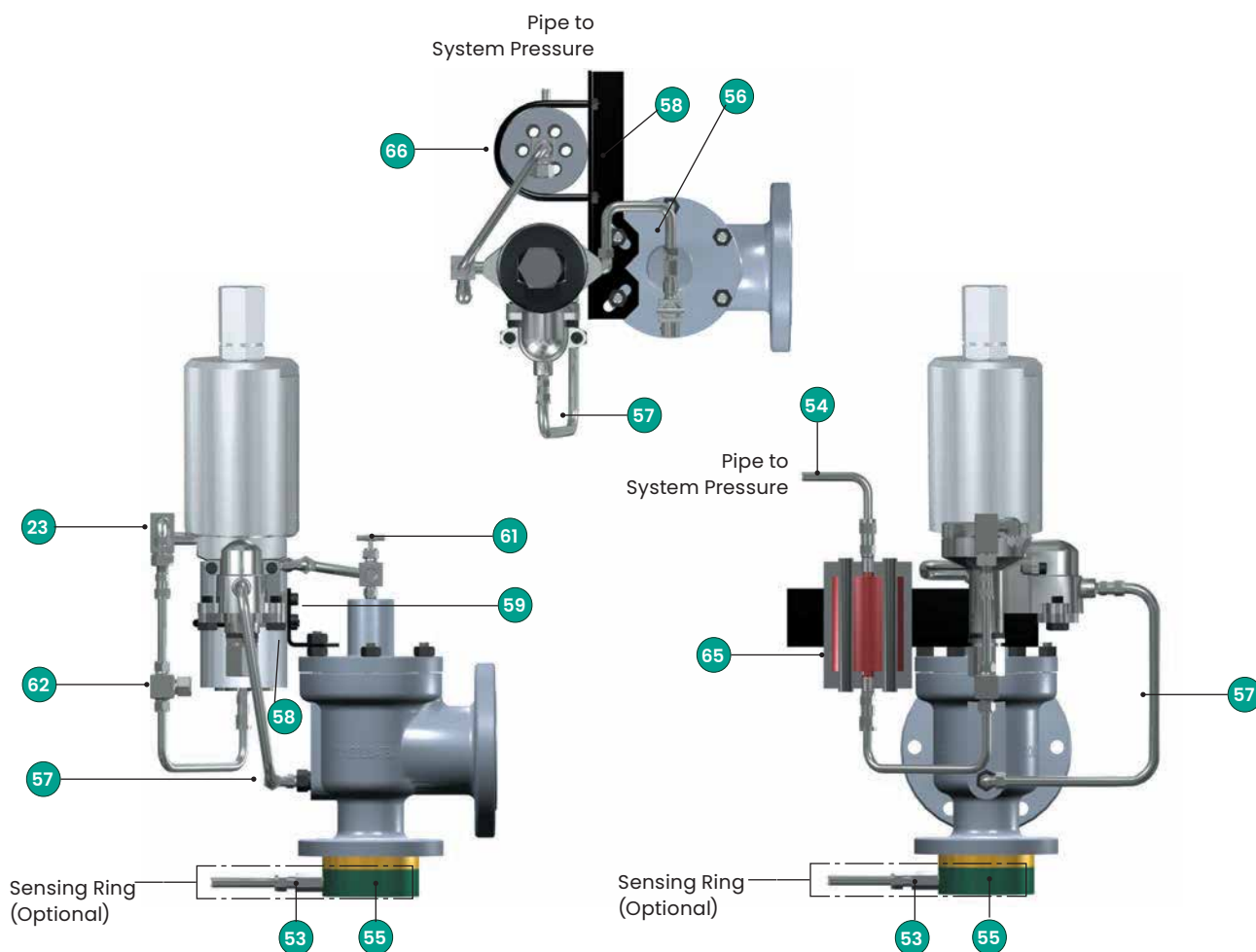
**Pilot Valve with Backflow Preventer,
Manual Blowdown & Pilot Supply Filter
(Optional for Steam Applications)**

No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
63	Backflow Preventer	316 Stainless Steel
64	Backflow Preventer Line	316 Stainless Steel

Piping Configurations

Alternate Piping Arrangement

2900/2900 TM Series Type 39MV Modulating Pilot with Heat Exchanger Hot Service
(Also available with Pop Pilot)

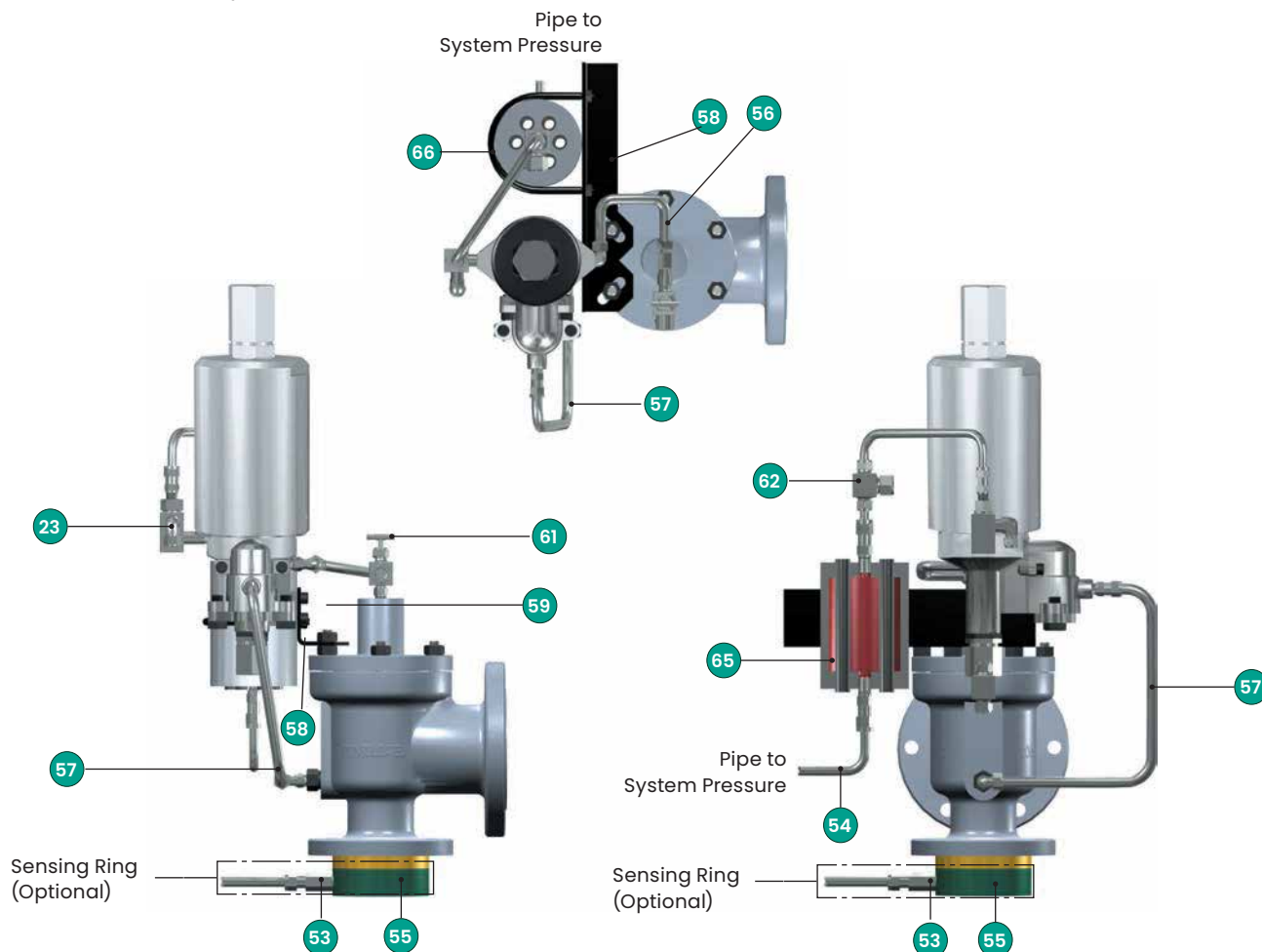


Pilot Valve with Manual Blowdown, Pilot Supply Filter & Heat Exchanger High Temp. [Media above 505°F (263°C)]		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
65	Heat Exchanger	316 Stainless Steel
66	Heat Exchanger U-Bolt	316 Stainless Steel

Piping Configurations

2900/2900 TM Series Type 39MV Modulating Pilot & Heat Exchanger

2900/2900 TM Series Type 39MV Modulating Pilot with Heat Exchanger Cold Service
(Also available with Pop Pilot)



Pilot Valve with Manual Blowdown, Pilot Supply Filter & Heat Exchanger Low Temp. [Media below -40°F (-40°C)]		
No.	Part	Material
23	Field Test Connection	316 Stainless Steel
53	Sensing Tube	316 Stainless Steel
54	Sensing Line	316 Stainless Steel
55	Sensing Ring	316 Stainless Steel
56	Dome Line	316 Stainless Steel
57	Discharge Line	316 Stainless Steel
58	Bracket	Carbon Steel
59	Bracket Cap Screw	316 Stainless Steel
61	Needle Valve (Manual Blowdown)	316 Stainless Steel
62	Pilot Supply Filter	316 Stainless Steel
65	Heat Exchanger	316 Stainless Steel
66	Heat Exchanger U-Bolt	316 Stainless Steel

Valve Installation

Valve Connections

The Consolidated 2900/2900 TM Series flanged valves are equipped with ASME B16 .5 flanges.

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

All flanged drilling straddles the centerlines of the valve.

Handling and Storage

Safety relief valves should be handled carefully. The internal 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 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. If this is not 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 percent 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 those stated in the Technical Information Section of this catalog, i.e., anything 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 in a 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.

Note: *In no event should the outlet piping be smaller in diameter than the outlet connection of the valve.*

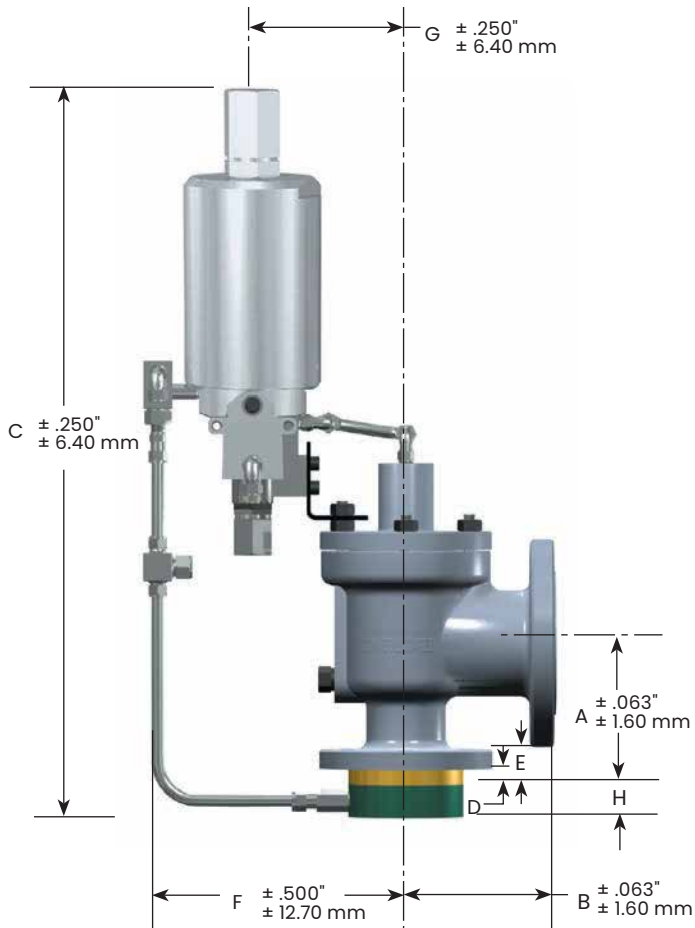
Dimensions & Weights

2900/2900 TM Series Type 39PV Pop Pilot

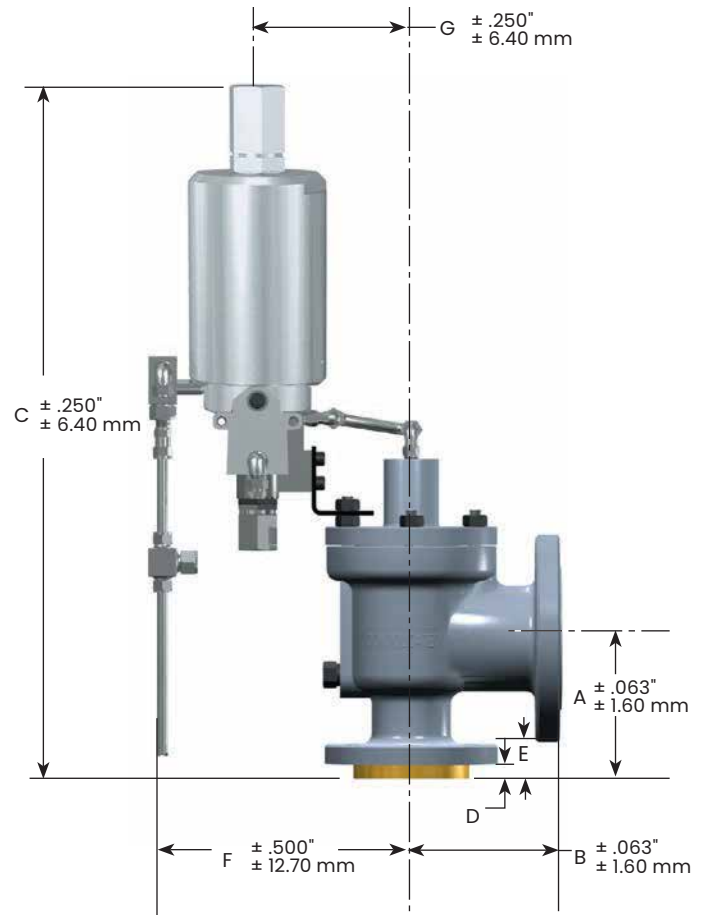
Pilot Vented to Atmosphere

2900/2900 TM Series Type 39PV Pop Pilot
(Pilot Vented to Atmosphere)

With Sensing Ring Option



With Integral Sense or Remote Sense



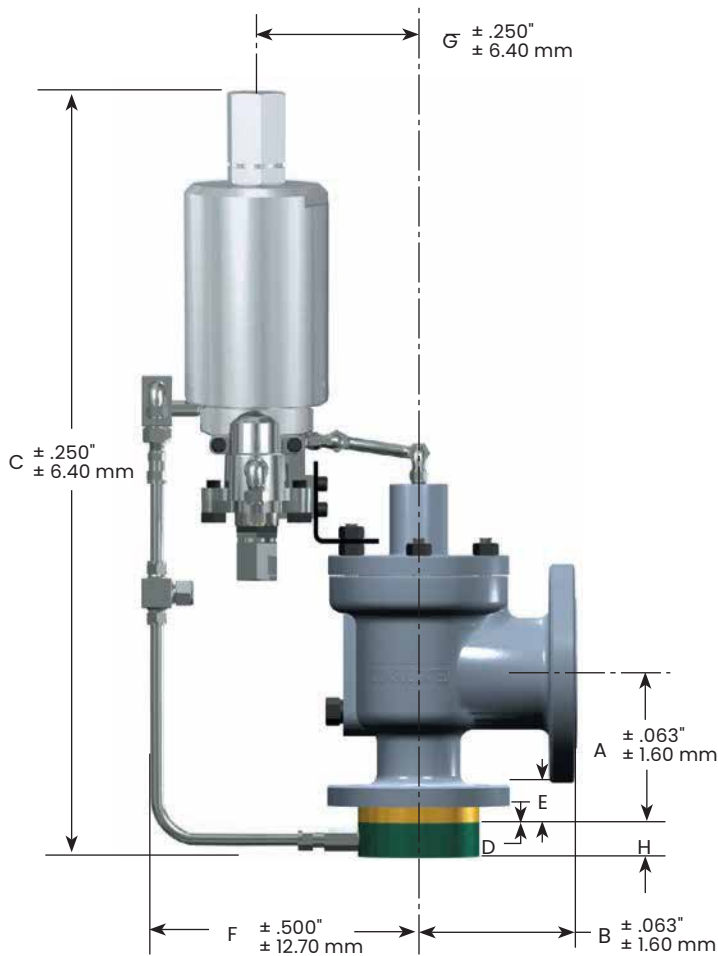
Dimensions & Weights

2900/2900 TM Series Type 39MV Pop Pilot

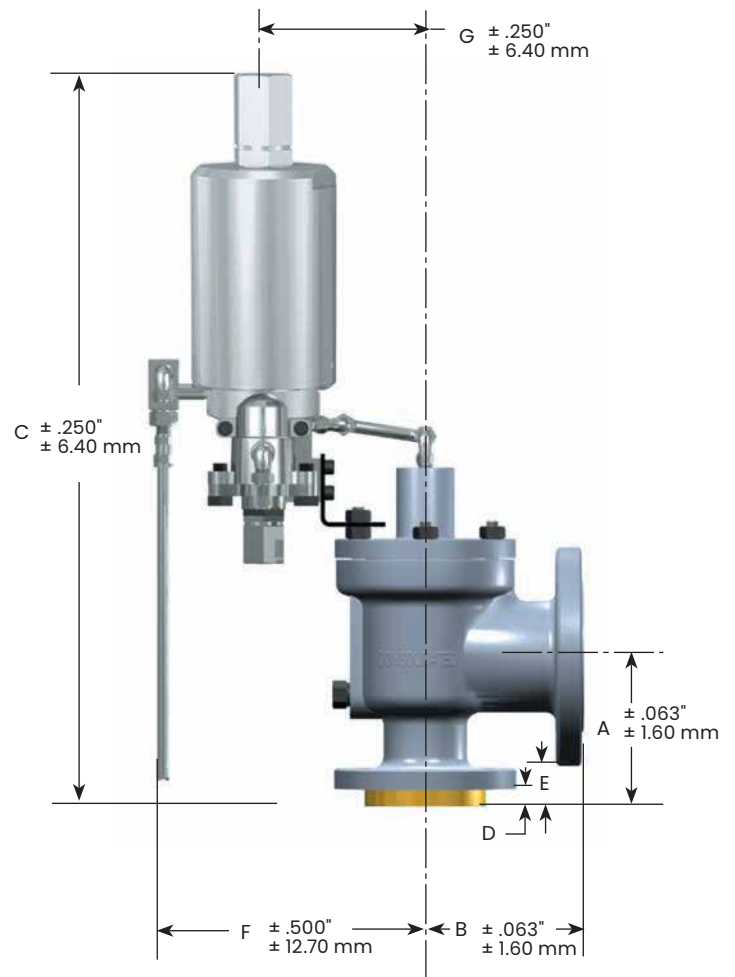
Pilot Vented to Atmosphere

2900/2900 TM Series Type 39MV Pop Pilot
(Pilot Vented to Atmosphere)

With Sensing Ring Option



With Integral Sense or Remote Sense



Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

These tables also apply to valves supplied with EN 1092-1 flanges.

Dimensions and Weights – D Orifice																				
Valve Type	A		B		C				D		E		F		G		HI		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.13	28.6	8.25	209.6	4.88	123.8	1.50	38.1	40	18.1
2906	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	40	18.1
2910	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2912	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	9.16	232.6	5.75	146.1	1.50	38.1	50	22.7
2914	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2916	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2918	5.50	139.7	7.00	177.8	24.63	625.5	25.63	650.9	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0
2920	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2922	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2924	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2926	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2928	5.50	139.7	7.00	177.8	24.63	625.5	25.63	650.9	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0

Dimensions and Weights – E Orifice																				
Valve Type	A		B		C				D		E		F		G		HI		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.13	28.6	8.25	209.6	4.88	123.8	1.50	38.1	40	18.1
2906	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	40	18.1
2910	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2912	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	9.16	232.6	5.75	146.1	1.50	38.1	50	22.7
2914	4.13	104.8	5.50	139.7	23.25	590.6	23.25	590.6	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2916	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2918	5.50	139.7	7.00	177.8	24.63	625.5	25.63	650.9	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0
2920	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2922	4.13	104.8	4.50	114.3	22.63	574.7	23.63	600.1	.69	17.5	1.38	34.9	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2924	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2926	4.13	104.8	5.50	139.7	23.25	590.6	24.25	616.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	70	31.8
2928	5.50	139.7	7.00	177.8	24.63	625.5	25.63	650.9	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - F Orifice																				
Valve Type	A		B		C				D		E		F		G		HI		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	4.88	123.8	4.75	120.7	23.25	590.6	24.25	616.0	.69	17.5	1.25	31.8	8.25	209.6	4.88	123.8	1.50	38.1	45	20.4
2906	4.88	123.8	4.75	120.7	23.25	590.6	24.25	616.0	.69	17.5	1.50	38.1	8.25	209.6	4.88	123.8	1.50	38.1	45	20.4
2910	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2912	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	9.16	232.6	5.75	146.1	1.50	38.1	60	27.2
2914	4.88	123.8	6.50	165.1	23.94	608.0	24.94	633.4	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2916	4.88	123.8	6.50	165.1	23.94	608.0	24.94	633.4	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2918	5.50	139.7	7.00	177.8	24.75	628.7	25.75	654.1	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0
2920	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2922	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	50	22.7
2924	4.88	123.8	6.50	165.1	23.94	608.0	24.94	633.4	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2926	4.88	123.8	6.50	165.1	23.94	608.0	24.94	633.4	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2928	5.50	139.7	7.00	177.8	24.75	628.7	25.75	654.1	.69	17.5	2.44	61.9	10.47	265.9	7.09	180.2	1.50	38.1	150	68.0

Dimensions and Weights - G Orifice																				
Valve Type	A		B		C				D		E		F		G		HI		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	4.88	123.8	4.75	120.7	23.25	590.6	24.25	616.0	.69	17.5	1.25	31.8	8.25	209.6	4.88	123.8	1.50	38.1	55	24.9
2906	4.88	123.8	4.75	120.7	23.25	590.6	24.25	616.0	.69	17.5	1.50	38.1	8.25	209.6	4.88	123.8	1.50	38.1	55	24.9
2910	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	60	27.2
2912	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	9.16	232.6	5.75	146.1	1.50	38.1	65	29.5
2914	4.88	123.8	6.50	165.1	23.94	608.1	25.19	639.8	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	95	43.1
2916	6.13	155.6	6.75	171.5	25.19	639.8	26.44	671.6	.69	17.5	2.19	55.6	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2918	6.13	155.6	6.75	171.5	25.19	639.8	26.44	671.6	.69	17.5	2.69	68.3	10.00	254.0	6.63	168.3	1.50	38.1	110	49.9
2920	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	60	27.2
2922	4.88	123.8	6.00	152.4	23.25	590.6	24.25	616.0	.69	17.5	1.56	39.7	9.16	232.6	5.75	146.1	1.50	38.1	65	29.5
2924	4.88	123.8	6.50	165.1	23.94	608.1	25.19	639.8	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	95	43.1
2926	6.13	155.6	6.75	171.5	25.19	639.8	26.44	671.6	.69	17.5	2.19	55.6	10.00	254.0	6.63	168.3	1.50	38.1	100	45.4
2928	6.13	155.6	6.75	171.5	25.19	639.8	26.44	671.6	.69	17.5	2.69	68.3	10.00	254.0	6.63	168.3	1.50	38.1	110	49.9

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - H Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	5.13	130.2	4.88	123.8	24.56	623.9	24.56	623.9	.69	17.5	1.25	31.8	8.25	209.6	4.88	123.8	1.50	38.1	60	27.2
2906	5.13	130.2	4.88	123.8	24.56	623.9	24.56	623.9	.69	17.5	1.56	39.7	8.25	209.6	4.88	123.8	1.50	38.1	60	27.2
2910	5.13	130.2	4.88	123.8	24.56	623.9	24.56	623.9	.69	17.5	1.69	42.9	9.19	233.4	5.81	147.7	1.50	38.1	65	29.5
2912	6.06	154.0	6.38	161.9	25.63	650.9	25.63	650.9	.69	17.5	1.69	42.9	9.25	235.0	5.88	149.2	1.50	38.1	85	38.6
2914	6.06	154.0	6.38	161.9	26.13	663.6	26.13	663.6	.69	17.5	2.19	55.6	10.31	262.0	6.94	176.2	1.50	38.1	130	59.0
2916	6.06	154.0	6.38	161.9	26.13	663.6	26.13	663.6	.69	17.5	2.19	55.6	10.31	262.0	6.94	176.2	1.50	38.1	140	63.5
2920	5.13	130.2	4.88	123.8	24.56	623.9	24.56	623.9	.69	17.5	1.69	42.9	9.19	233.4	5.81	147.7	1.50	38.1	65	29.5
2922	5.13	130.2	4.88	123.8	24.56	623.9	24.56	623.9	.69	17.5	1.69	42.9	9.19	233.4	5.81	147.7	1.50	38.1	65	29.5
2924	6.06	154.0	6.38	161.9	25.69	652.5	25.69	652.5	.69	17.5	2.19	55.6	9.25	235.0	5.88	149.2	1.50	38.1	90	40.8
2926	6.06	154.0	6.38	161.9	26.13	663.6	26.13	663.6	.69	17.5	2.19	55.6	10.31	262.0	6.94	176.2	1.50	38.1	140	63.5

Dimensions and Weights - J Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	5.38	136.5	4.88	123.8	25.34	643.7	25.34	643.7	.69	17.5	1.31	33.4	9.25	235.0	5.88	149.2	1.50	38.1	75	34.0
2906	5.38	136.5	4.88	123.8	25.34	643.7	25.34	643.7	.69	17.5	1.56	39.7	9.25	235.0	5.88	149.2	1.50	38.1	75	34.0
2910	7.25	184.2	7.13	181.0	25.09	637.4	25.09	637.4	.69	17.5	1.81	46.1	9.38	238.1	6.00	152.4	1.50	38.1	100	45.4
2912	7.25	184.2	7.13	181.0	27.81	706.5	27.81	706.5	.69	17.5	1.81	46.1	10.50	266.7	7.13	181.0	1.50	38.1	170	77.1
2914	7.25	184.2	7.13	181.0	27.81	706.5	27.81	706.5	.69	17.5	2.19	55.6	10.50	266.7	7.13	181.0	1.50	38.1	195	88.5
2916	7.25	184.2	7.13	181.0	27.81	706.5	27.81	706.5	.69	17.5	2.56	65.1	10.50	266.7	7.13	181.0	1.50	38.1	220	99.8
2920	7.25	184.2	7.13	181.0	25.09	637.4	25.09	637.4	.69	17.5	1.81	46.1	9.38	238.1	6.00	152.4	1.50	38.1	100	45.4
2922	7.25	184.2	7.13	181.0	27.69	703.3	27.69	703.3	.69	17.5	1.81	46.1	10.50	266.7	7.13	181.0	1.50	38.1	100	45.4
2924	7.25	184.2	7.13	181.0	27.81	706.5	27.81	706.5	.69	17.5	2.19	55.6	10.50	266.7	7.13	181.0	1.50	38.1	180	81.6
2926	7.25	184.2	7.13	181.0	27.81	706.5	27.81	706.5	.69	17.5	2.56	65.1	10.50	266.7	7.13	181.0	1.50	38.1	220	99.8

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - K Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	6.13	155.6	6.38	161.9	25.88	657.2	25.88	657.2	.69	17.5	1.44	36.5	9.38	238.1	6.00	152.4	1.50	38.1	110	49.9
2906	6.13	155.6	6.38	161.9	25.88	657.2	25.88	657.2	.69	17.5	1.81	46.1	9.38	238.1	6.00	152.4	1.50	38.1	115	52.2
2910	6.13	155.6	6.38	161.9	26.06	662.0	26.06	662.0	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	140	63.5
2912	7.25	184.2	7.13	181.0	27.19	690.6	27.19	690.6	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	150	68.0
2914	7.81	198.5	8.50	215.9	28.56	725.5	28.56	725.5	.69	17.5	2.19	55.6	10.88	276.2	7.50	190.5	1.50	38.1	300	136.1
2916	7.75	196.9	8.50	215.9	28.50	723.9	28.25	717.6	.69	17.5	2.56	65.1	10.88	276.2	7.50	190.5	1.50	38.1	320	145.2
2920	6.13	155.6	6.38	161.9	26.19	665.2	26.19	665.2	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	140	63.5
2922	6.13	155.6	6.38	161.9	26.19	665.2	26.19	665.2	.69	17.5	1.94	49.2	10.00	254.0	6.63	168.3	1.50	38.1	140	63.5
2924	7.25	184.2	7.13	181.0	27.31	693.8	28.56	725.5	.69	17.5	2.19	55.6	10.00	254.0	6.63	168.3	1.50	38.1	165	74.8
2926	7.75	196.9	8.50	215.9	28.50	723.9	26.13	663.6	.69	17.5	2.56	65.1	10.88	276.2	7.50	190.5	1.50	38.1	320	145.2

Dimensions and Weights - L Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	6.13	155.6	6.50	165.1	26.88	682.6	26.88	682.6	.69	17.5	1.44	36.5	10.25	260.4	6.88	174.6	1.50	38.1	140	63.5
2906	6.13	155.6	6.50	165.1	26.88	682.6	26.88	682.6	.69	17.5	1.81	46.1	10.25	260.4	6.88	174.6	1.50	38.1	145	65.8
2910	7.06	179.4	7.13	181.0	28.19	716.0	28.19	716.0	.69	17.5	1.94	49.2	10.63	269.9	7.25	184.2	1.50	38.1	220	99.8
2912	7.06	179.4	8.00	203.2	28.19	716.0	28.19	716.0	.69	17.5	2.19	55.6	10.63	269.9	7.25	184.2	1.50	38.1	230	104.3
2914	7.75	196.9	8.75	222.3	29.50	749.3	29.25	743.0	.69	17.5	2.44	61.9	12.19	309.6	8.81	223.9	1.50	38.1	360	163.3
2916	7.75	196.9	8.75	222.3	29.50	749.3	29.25	743.0	.69	17.5	2.81	71.5	12.19	309.6	8.81	223.9	1.50	38.1	370	167.8
2920	7.06	179.4	7.13	181.0	28.19	716.0	28.19	716.0	.69	17.5	1.94	49.2	10.63	269.9	7.25	184.2	1.50	38.1	220	99.8
2922	7.06	179.4	8.00	203.2	28.19	716.0	28.19	716.0	.69	17.5	2.19	55.6	10.63	269.9	7.25	184.2	1.50	38.1	230	104.3
2924	7.75	196.9	8.75	222.3	29.50	749.3	29.25	743.0	.69	17.5	2.44	61.9	12.19	309.6	8.81	223.9	1.50	38.1	360	163.3
2926	7.75	196.9	8.75	222.3	29.50	749.3	29.25	743.0	.69	17.5	2.81	71.5	12.19	309.6	8.81	223.9	1.50	38.1	370	167.8

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - M Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows												lb	kg
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		
2905	7.00	177.8	7.25	184.2	27.88	708.0	27.88	708.0	.69	17.5	1.63	41.3	10.44	265.1	7.06	179.4	1.50	38.1	185	83.9
2906	7.00	177.8	7.25	184.2	27.88	708.0	27.88	708.0	.69	17.5	1.94	49.2	10.44	265.1	7.06	179.4	1.50	38.1	190	86.2
2910	7.00	177.8	7.25	184.2	28.13	714.4	28.13	714.4	.69	17.5	1.94	49.2	10.44	265.1	7.06	179.4	1.50	38.1	230	104.3
2912	7.00	177.8	8.00	203.2	28.69	728.7	28.69	728.7	.69	17.5	2.19	55.6	11.75	298.5	8.38	212.7	1.50	38.1	300	136.1
2914	7.75	196.9	8.75	222.3	29.44	747.7	29.44	747.7	.69	17.5	2.44	61.9	11.75	298.5	8.38	212.7	1.50	38.1	340	154.2
2920	7.00	177.8	7.25	184.2	28.13	714.4	28.13	714.4	.69	17.5	1.94	49.2	10.44	265.1	7.06	179.4	1.50	38.1	230	104.3
2922	7.00	177.8	8.00	203.2	28.69	728.7	28.69	728.7	.69	17.5	2.19	55.6	10.44	265.1	7.06	179.4	1.50	38.1	300	136.1
2924	7.75	196.9	8.75	222.3	29.44	747.7	29.44	747.7	.69	17.5	2.44	61.9	11.75	298.5	8.38	212.7	1.50	38.1	340	154.2

Dimensions and Weights - N Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows												lb	kg
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		
2905	7.75	196.9	8.25	209.6	29.06	738.2	29.06	738.2	.69	17.5	1.63	41.3	10.63	269.9	7.25	184.2	1.50	38.1	220	99.8
2906	7.75	196.9	8.25	209.6	29.06	738.2	29.06	738.2	.69	17.5	1.94	49.2	10.63	269.9	7.25	184.2	1.50	38.1	225	102.1
2910	7.75	196.9	8.25	209.6	29.44	747.7	29.44	747.7	.69	17.5	1.94	49.2	10.94	277.8	7.56	192.1	1.50	38.1	260	117.9
2912	7.75	196.9	8.75	222.3	29.94	760.4	29.94	760.4	.69	17.5	2.19	55.6	12.13	308.0	8.75	222.3	1.50	38.1	360	163.3
2914	7.75	196.9	8.75	222.3	29.94	760.4	29.94	760.4	.69	17.5	2.44	61.9	12.13	308.0	8.75	222.3	1.50	38.1	380	172.4
2920	7.75	196.9	8.25	209.6	29.44	747.7	29.44	747.7	.69	17.5	1.94	49.2	10.94	277.8	7.56	192.1	1.50	38.1	260	117.9
2922	7.75	196.9	8.75	222.3	29.94	760.4	29.94	760.4	.69	17.5	2.19	55.6	12.13	308.0	8.75	222.3	1.50	38.1	360	163.3
2924	7.75	196.9	8.75	222.3	29.94	760.4	29.94	760.4	.69	17.5	2.44	61.9	12.13	308.0	8.75	222.3	1.50	38.1	380	172.4

Dimensions and Weights - P Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows												lb	kg
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		
2905	7.13	181.0	9.00	228.6	30.25	768.4	30.25	768.4	.69	17.5	1.63	41.3	10.88	276.2	7.50	190.5	1.50	38.1	260	117.9
2906	7.13	181.0	9.00	228.6	30.25	768.4	30.25	768.4	.69	17.5	1.94	49.2	10.88	276.2	7.50	190.5	1.50	38.1	270	122.5
2910	8.88	225.4	10.00	254.0	32.44	823.9	32.44	823.9	.69	17.5	1.94	49.2	11.19	284.2	7.81	198.5	1.50	38.1	350	158.8
2912	8.88	225.4	10.00	254.0	32.94	836.6	32.94	836.6	.69	17.5	2.19	55.6	12.75	323.9	9.38	238.1	1.50	38.1	530	240.4
2914	8.88	225.4	10.00	254.0	32.94	836.6	32.94	836.6	.69	17.5	2.44	61.9	12.75	323.9	9.38	238.1	1.50	38.1	545	247.2
2920	8.88	225.4	10.00	254.0	32.44	823.9	32.44	823.9	.69	17.5	1.94	49.2	11.19	284.2	7.81	198.5	1.50	38.1	350	158.8
2923	8.88	225.4	10.00	254.0	32.94	836.6	32.94	836.6	.69	17.5	2.19	55.6	12.75	323.9	9.38	238.1	1.50	38.1	530	240.4
2924	8.88	225.4	10.00	254.0	32.94	836.6	32.94	836.6	.69	17.5	2.44	61.9	12.75	323.9	9.38	238.1	1.50	38.1	545	247.2

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - Q Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
	STD		Bellows		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
	in	mm	in	mm																
2905	9.44	239.7	9.50	241.3	32.50	825.5	32.50	825.5	.81	20.7	1.81	46.1	12.63	320.7	9.25	235.0	1.50	38.1	430	195.0
2906	9.44	239.7	9.50	241.3	32.50	825.5	32.50	825.5	.81	20.7	2.25	57.2	12.63	320.7	9.25	235.0	1.50	38.1	445	201.8
2910	9.44	239.7	9.50	241.3	33.13	841.4	33.13	841.4	.81	20.7	2.25	57.2	12.88	327.0	9.50	241.3	1.50	38.1	530	240.4
2912	9.44	239.7	9.50	241.3	33.75	857.3	33.75	857.3	.81	20.7	2.69	68.3	12.94	328.6	9.56	242.9	1.50	38.1	645	292.6
2920	9.44	239.7	9.50	241.3	32.25	819.2	32.25	819.2	.81	20.7	2.25	57.2	12.63	320.7	9.25	235.0	1.50	38.1	445	201.8
2922	9.44	239.7	9.50	241.3	33.75	857.3	33.75	857.3	.81	20.7	2.69	68.3	12.94	328.6	9.56	242.9	1.50	38.1	645	292.6

Dimensions and Weights - R Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
	STD		Bellows		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
	in	mm	in	mm																
2905	9.44	239.7	9.50	241.3	34.63	879.5	34.63	879.5	.81	20.7	1.81	46.1	12.94	328.6	9.56	242.9	1.50	38.1	495	224.5
2906	9.44	239.7	9.50	241.3	34.63	879.5	34.63	879.5	.81	20.7	2.25	57.2	12.94	328.6	9.56	242.9	1.50	38.1	510	231.3
2910	9.44	239.7	10.50	266.7	34.63	879.5	34.63	879.5	.81	20.7	2.25	57.2	12.94	328.6	9.56	242.9	1.50	38.1	550	249.5
2912	9.44	239.7	10.50	266.7	34.88	885.8	34.88	885.8	.81	20.7	2.69	68.3	13.25	336.6	9.88	250.8	1.50	38.1	675	306.2
2920	9.44	239.7	9.50	241.3	34.63	879.5	34.63	879.5	.81	20.7	2.25	57.2	12.94	328.6	9.56	242.9	1.50	38.1	510	231.3
2922	9.44	239.7	10.50	266.7	34.88	885.8	34.88	885.8	.81	20.7	2.69	68.3	13.25	336.6	9.88	250.8	1.50	38.1	675	306.2

Dimensions and Weights - T Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
	STD		Bellows		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
	in	mm	in	mm																
2905	10.88	276.2	11.00	279.4	35.00	889.0	35.00	889.0	.81	20.7	1.94	49.2	13.75	349.3	10.38	263.5	1.50	38.1	620	281.2
2906	10.88	276.2	11.00	279.4	35.00	889.0	35.00	889.0	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	640	290.3
2910	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	840	381.0
2912	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	3.00	76.2	13.75	349.3	10.38	263.5	1.50	38.1	925	419.6
2920	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	840	381.0
2922	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	3.00	76.2	13.75	349.3	10.38	263.5	1.50	38.1	925	419.6

Note: Does not include thickness of two gaskets required.

Dimensions & Weights

2900/2900 TM Series with Type 39PV & 39MV Pilot

Dimensions and Weights - U Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	10.88	276.2	11.00	279.4	35.00	889.0	35.00	889.0	.81	20.7	1.94	49.2	13.75	349.3	10.38	263.5	1.50	38.1	620	281.2
2906	10.88	276.2	11.00	279.4	35.00	889.0	35.00	889.0	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	640	290.3
2910	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	840	381.0
2912	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.6	3.00	76.2	13.75	349.3	10.38	263.5	1.50	38.1	925	419.6
2920	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.7	2.44	61.9	13.75	349.3	10.38	263.5	1.50	38.1	840	381.0
2922	10.88	276.2	11.00	279.4	35.25	895.4	35.25	895.4	.81	20.6	3.00	76.2	13.75	349.3	10.38	263.5	1.50	38.1	925	419.6

Dimensions and Weights - V Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	12.00	304.8	16.00	406.4	43.50	1104.9	43.50	1104.9	.81	20.7	2.00	50.8	16.94	430.2	13.25	336.6	1.50	38.1	1600	725.7
2906	12.00	304.8	16.00	406.4	43.50	1104.9	43.50	1104.9	.81	20.7	2.69	68.3	16.94	430.2	13.25	336.6	1.50	38.1	1700	771.1
2910	12.00	304.8	16.00	406.4	46.38	1177.9	46.38	1177.9	.81	20.7	2.69	68.3	17.94	455.6	14.25	362.0	1.50	38.1	2000	907.2
2920	12.00	304.8	16.00	406.4	46.38	1177.9	46.38	1177.9	.81	20.7	2.69	68.3	17.94	455.6	14.25	362.0	1.50	38.1	2000	907.2

Dimensions and Weights - W Orifice																				
Valve Type	A		B		C				D		E		F		G		H1		Approximate Weight	
					STD		Bellows													
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2905	14.00	355.6	16.00	406.4	49.25	1251.0	49.25	1251.0	.81	20.7	2.81	71.5	17.94	455.6	14.25	362.0	1.50	38.1	2800	1270.1
2906	14.00	355.6	16.00	406.4	49.25	1251.0	49.25	1251.0	.81	20.7	2.94	74.6	17.94	455.6	14.25	362.0	1.50	38.1	2860	1297.3
2910	14.00	355.6	16.00	406.4	49.25	1251.0	49.25	1251.0	.81	20.7	2.94	74.6	17.94	455.6	14.25	362.0	1.50	38.1	2860	1297.3
2920	14.00	355.6	16.00	406.4	49.25	1251.0	49.25	1251.0	.81	20.7	2.94	74.6	17.94	455.6	14.25	362.0	1.50	38.1	2860	1297.3

Note: Does not include thickness of two gaskets required.

Pressure/Temperature

Pressure Temperature Tables

How to Use Rating Tables

The pressure/temperature limitations of the 2900/2900 TM Series valves are based on the latest ASME B16 .5, 1996 Edition, the design limit of the pilot (6250 psig [430.92 barg]), and the base coverplate bolting material. The tables on the following pages give the ratings for standard valves. For valves made from special materials, the maximum pressure may exceed the pressure stated in the tables, but may be limited to the pressure ratings given in ASME B16.5.

The included tables specify important data about the valve sizes, flange ratings, pressure and temperature limits, back pressure ratings, and materials with allowable temperature ranges.

After determining valve size from the Valve Sizing section or capacity tables in this section, select the proper set of tables and graphs (in the following pages) for the size valve. Enter the pressure/temperature graphs and determine valve type. Review the table of data for that size valve to get other pertinent information.

Procedure

Enter the graph on page 103 for the "J" size, select set pressure on the bottom scale at 500 psig (34.47 barg), then follow this line vertically upward until it intersects the 100°F (38°C) line. The selection is a 2910J valve.

Example	
Valve Set Pressure	500 psig (34.47 barg)
Back Pressure	50 psig (3.45 barg)
Temperature	100°F (37.8°C)
Valve	"J"

Valves supplied with EN 1092-1 flanges will follow pressure/temperature ratings from the applicable material group from the EN 1092-1 standard, latest edition. See configuration code for model designators for EN 1092-1 flanges.

Results

Referring to the table on page 108, the valve is 3" (76.20 mm) -300 x 4" (101.60 mm)-150 without a heat exchanger. The back pressure limit is satisfactory for 50 psig (3.45 barg) back pressure.

Heat Exchange

For temperatures below -40°F (-40°C) and above 505°F (262.8°C), a heat exchanger must be used.

Important Information

The lowest temperature for valves with Inconel® 625

LCF Bellows is -400°F (-240°C). In 1995, API made a change in the centerline dimensions for safety relief valves eliminating the 2.5" (63.50 mm) connections. Wherever Consolidated safety relief valves specify 2.5" (63.50 mm) inlets or outlets, these have been changed to 3" (76.20 mm). The 2.5" (63.50 mm) connections specified in API 526 Third Edition, February 1984, are available on special order for replacement of existing valves. In these cases the pressure/temperature limits are the same for either size.

Notes:

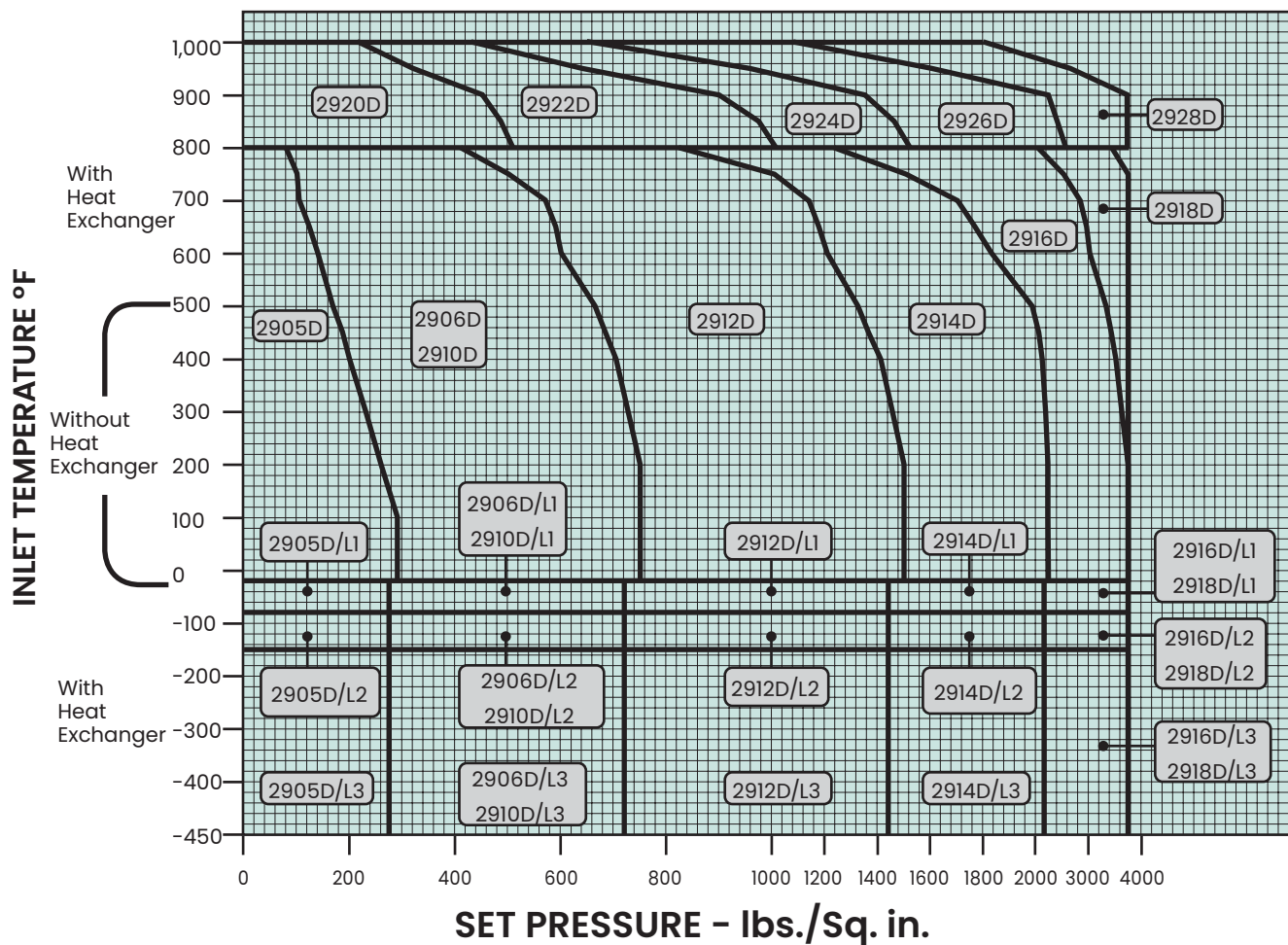
1. All information stated here for the 2900/2900 TM valve is based on ASME Section XIII Code and ASME B16.5.
2. When soft seats are used, they may govern the valve pressure/temperature rating.
3. Not every application is suitable for using a heat exchanger. The heat exchanger must be sized to meet the service conditions for each application.

Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, D Orifice - ASME Area: 0.128 in² (0.825 cm²)

Pressure Temperature Ratings for "D" Orifice										
Valve Type	ASME Ratings, D Orifice - (0.128 in ² (0.825 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	750	51.71
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2918	6250	430.92	5700	393.00	3430	236.49	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	750	51.71
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71
2928	-	-	-	-	4230	291.64	1800	124.10	750	51.71

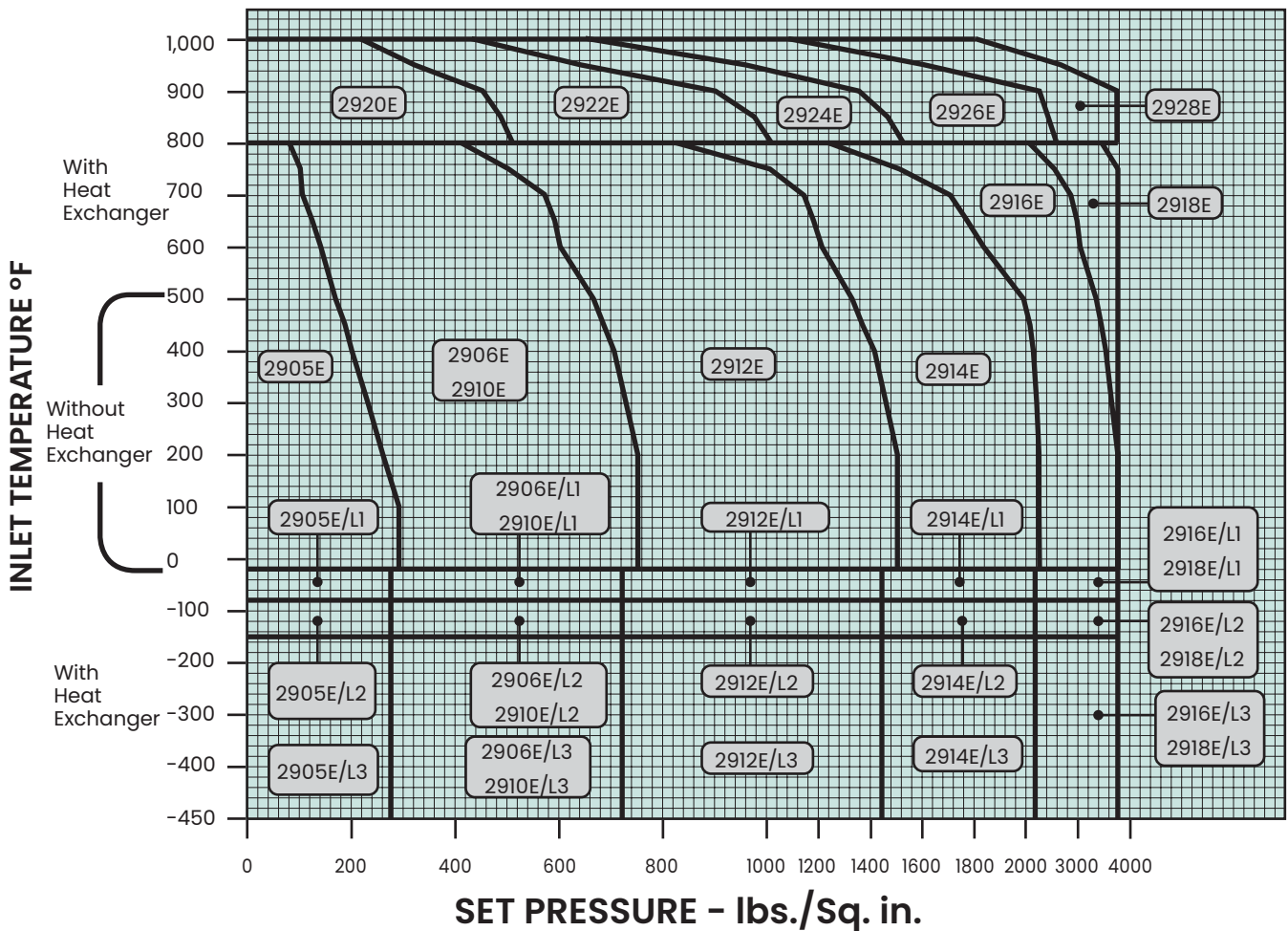


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, E Orifice - ASME Area: 0.228 in² (1.470 cm²)

Pressure Temperature Ratings for "E" Orifice										
Valve Type	ASME Ratings, E Orifice - (0.228 in ² (1.470 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	750	51.71
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2918	6250	430.92	5700	393.00	3430	236.49	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	750	51.71
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71
2928	-	-	-	-	4230	291.64	1800	124.10	750	51.71

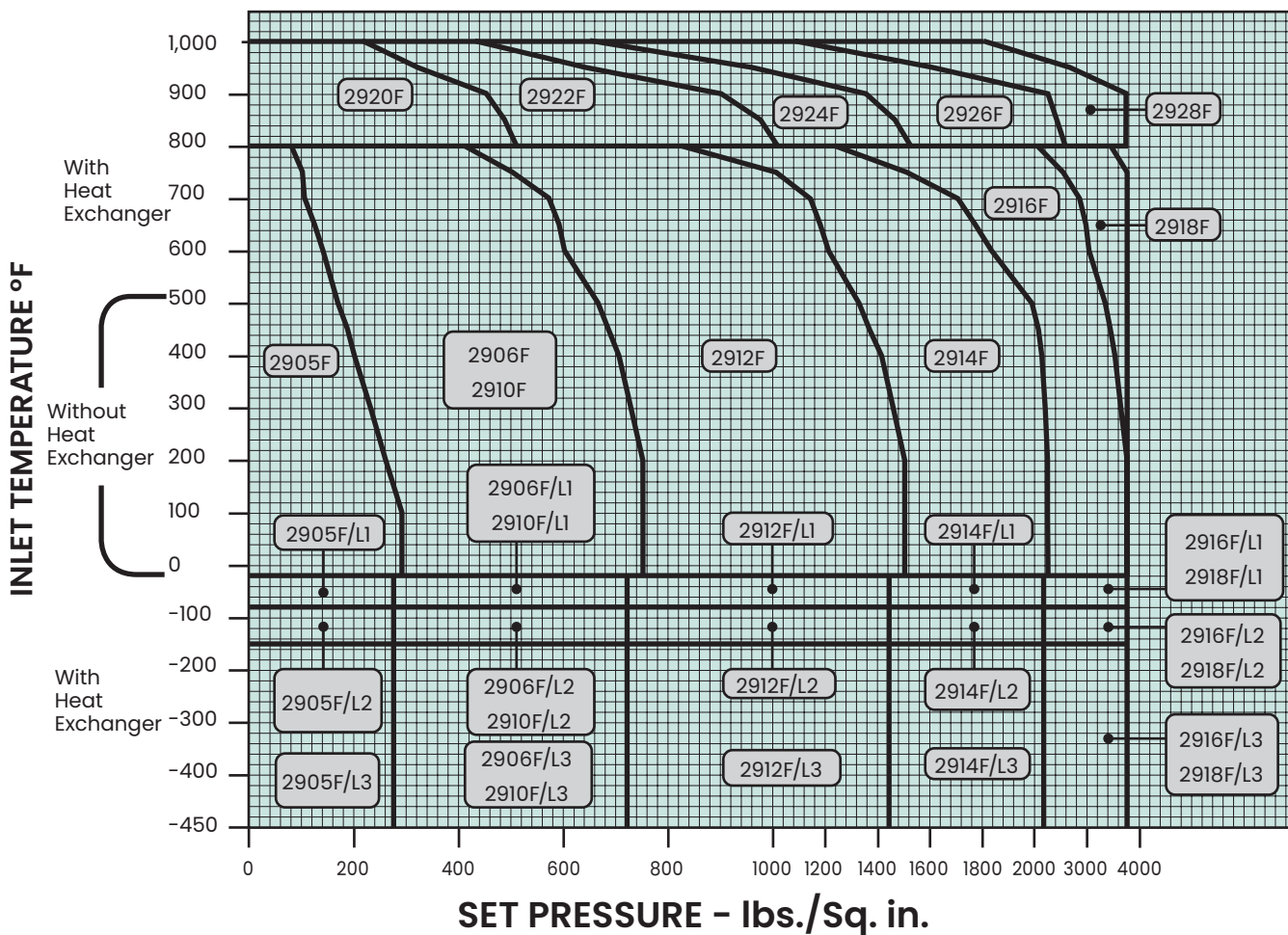


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, F Orifice - ASME Area: 0.357 in² (2.302 cm²)

Pressure Temperature Ratings for "F" Orifice										
Valve Type	ASME Ratings, F Orifice - (0.357 in ² (2.302 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	750	51.71
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2918	6250	430.92	5700	393.00	3430	236.49	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	750	51.71
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71
2928	-	-	-	-	4230	291.64	1800	124.10	750	51.71

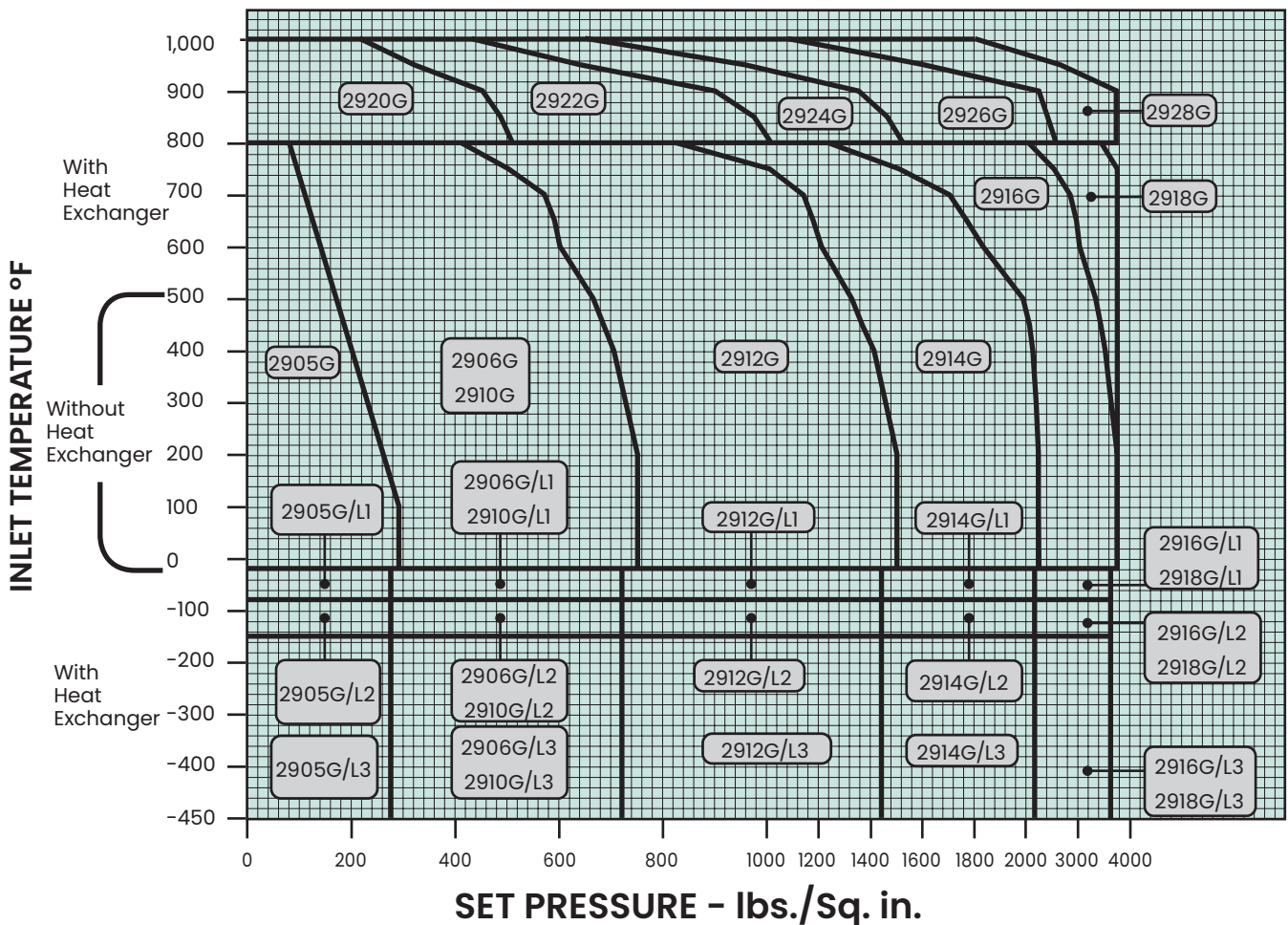


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, G Orifice - ASME Area: 0.585 in² (3.774 cm²)

Pressure Temperature Ratings for "G" Orifice										
Valve Type	ASME Ratings, G Orifice - (0.585 in ² (3.774 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	750	51.71
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2918	6250	430.92	5700	393.00	3430	236.49	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	750	51.71
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71
2928	-	-	-	-	4230	291.64	1800	124.10	750	51.71

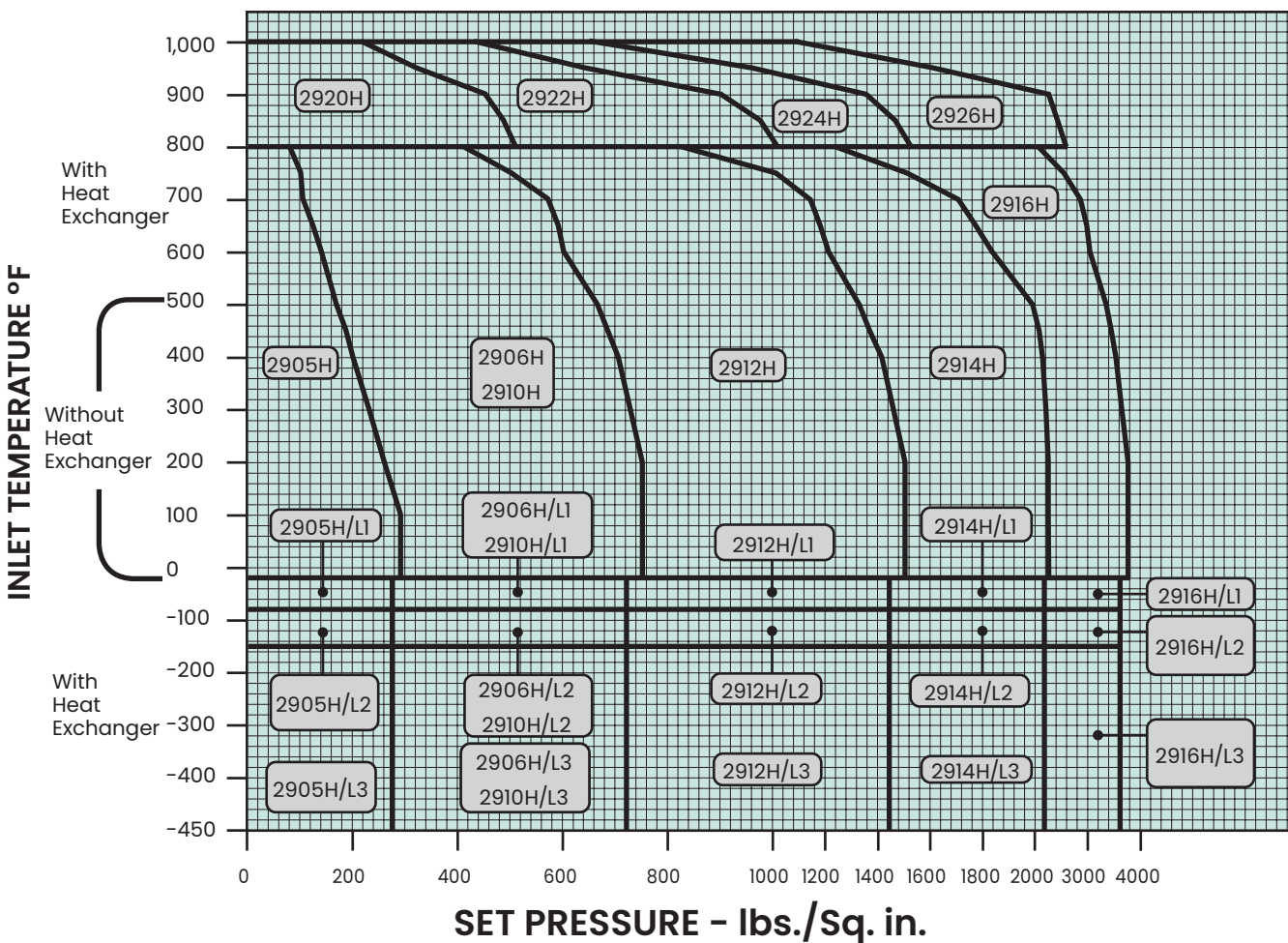


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, H Orifice - ASME Area: 0.913 in² (5.888 cm²)

Pressure Temperature Ratings for "H" Orifice										
Valve Type	ASME Ratings, H Orifice - (0.913 in ² (5.888 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71

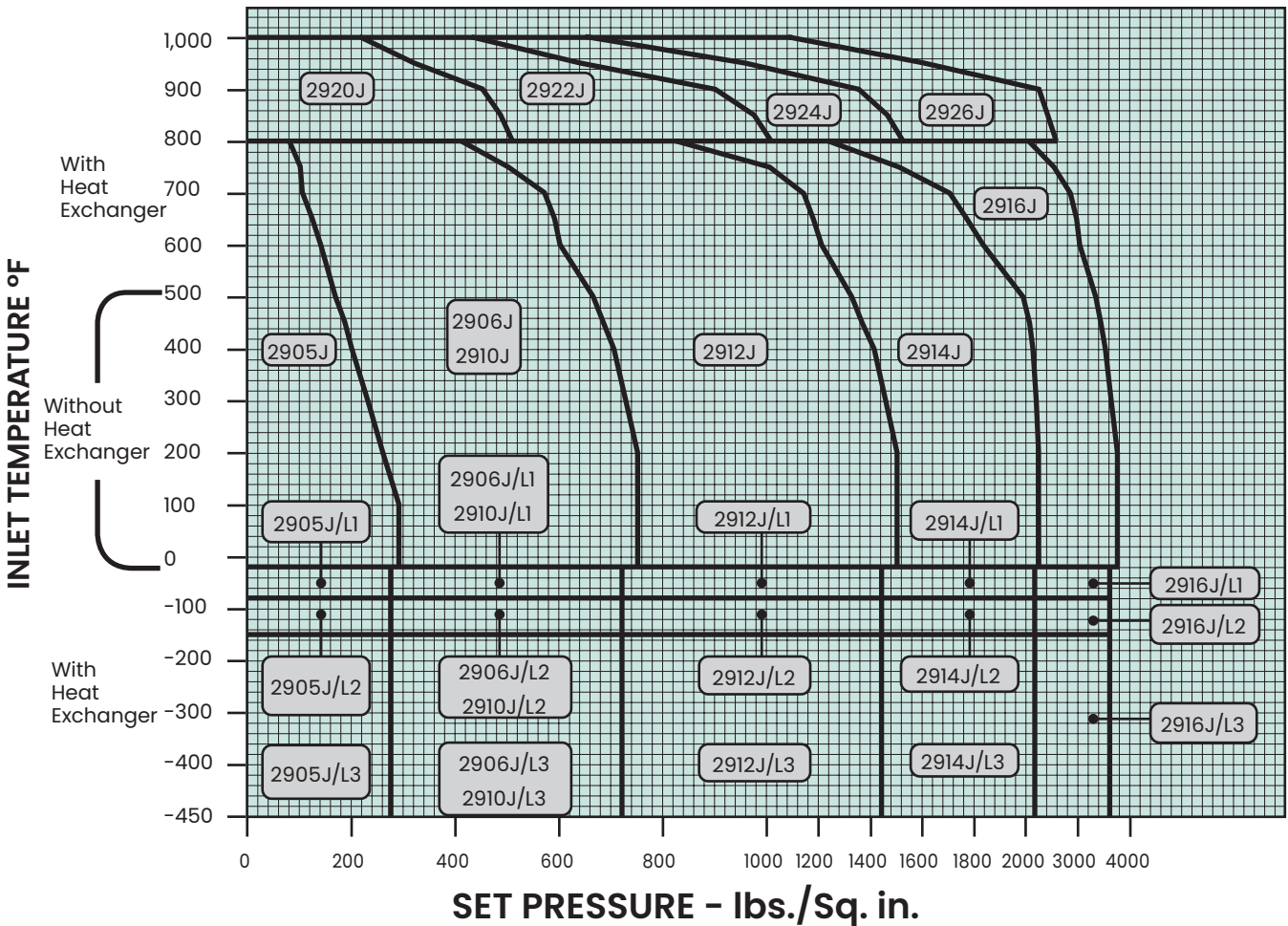


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, J Orifice - ASME Area: 1.496 in² (9.652 cm²)

Pressure Temperature Ratings for "J" Orifice										
Valve Type	ASME Ratings, J Orifice - (1.496 in ² (9.652 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2916	3750	258.55	3420	235.80	2055	141.68	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99
2926	-	-	-	-	2540	175.12	1080	74.46	750	51.71

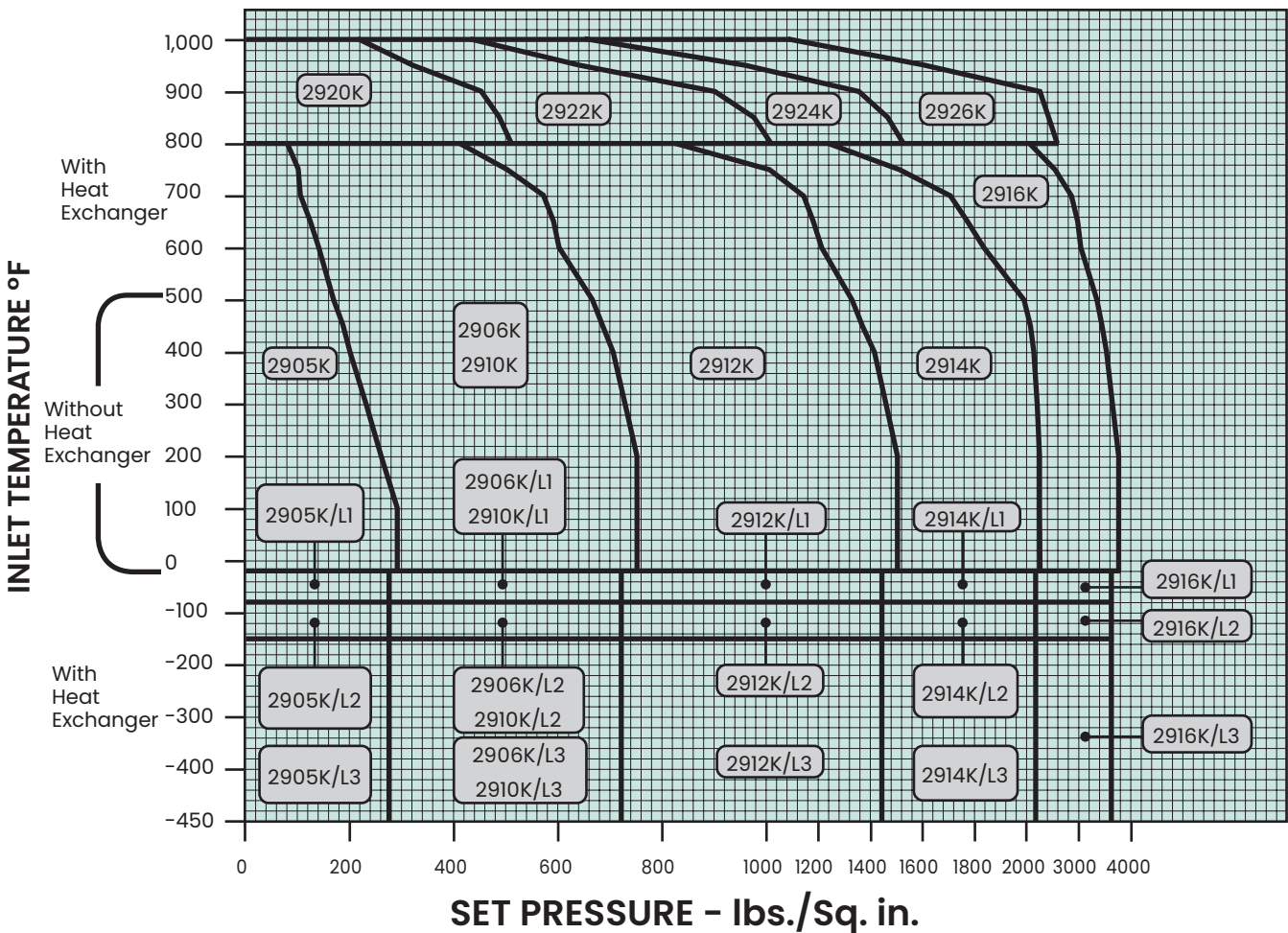


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, K Orifice - ASME Area: 2.138 in² (13.794 cm²)

Pressure Temperature Ratings for "K" Orifice										
Valve Type	ASME Ratings, K Orifice - (2.138 in ² (13.794 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.76	80	5.52	-	-	280	19.31
2906	750	51.71	685	47.23	410	28.27	-	-	290	19.99
2910	750	51.71	685	47.23	410	28.27	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2916	3750	258.55	3420	235.80	2055	141.69	-	-	750	51.71
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.65	290	19.99
2924	-	-	-	-	1525	105.15	650	44.82	290	19.99
2926	-	-	-	-	2540	175.13	1080	74.46	750	51.71

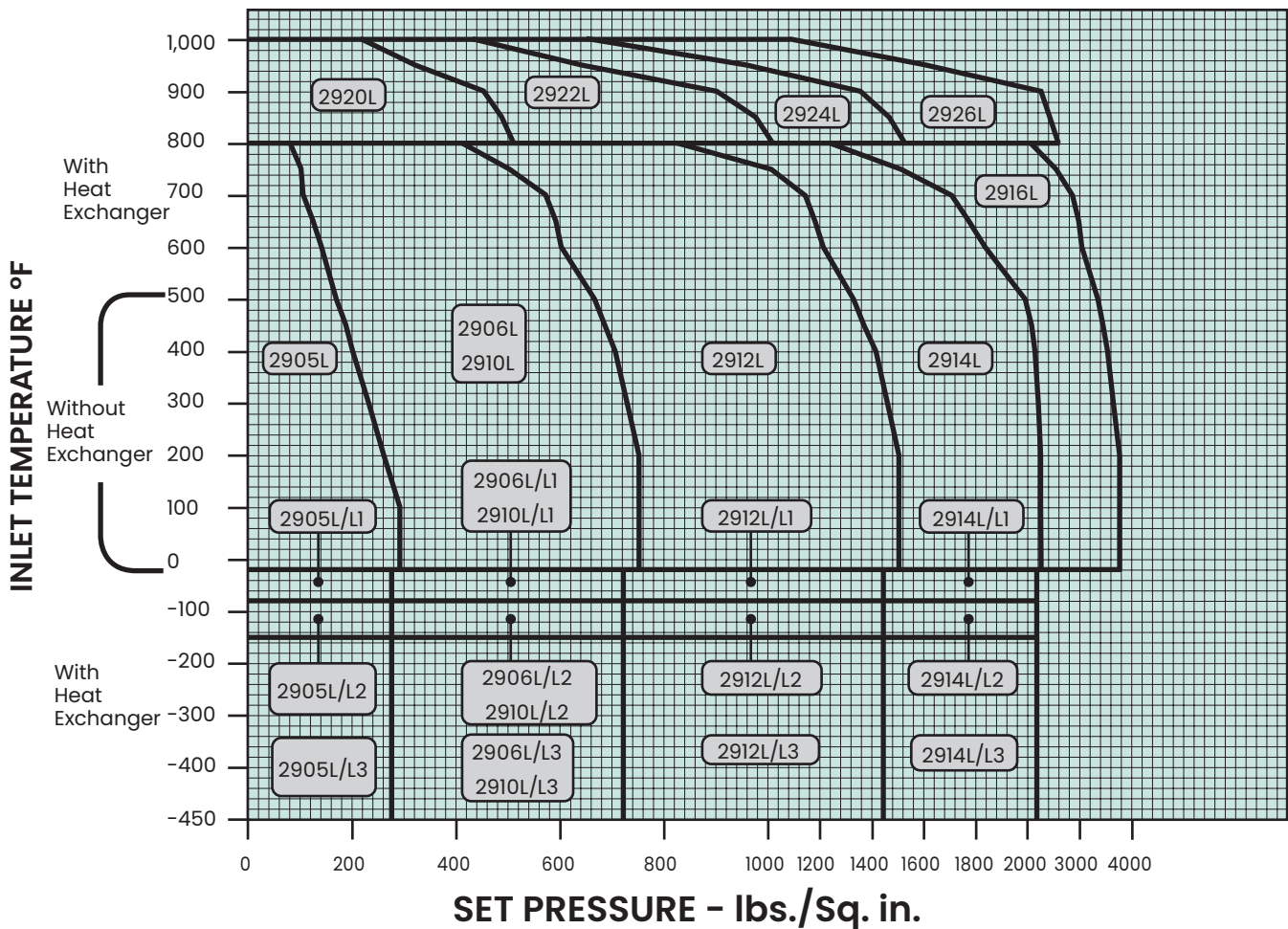


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, L Orifice - ASME Area: 3.317 in² (21.400 cm²)

Pressure Temperature Ratings for "L" Orifice										
Valve Type	ASME Ratings, L Orifice - (3.317 in ² (21.400 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	290	19.99	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2916	3750	258.55	3420	235.80	2055	141.68	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99
2926	-	-	-	-	2540	175.12	1080	74.46	290	19.99

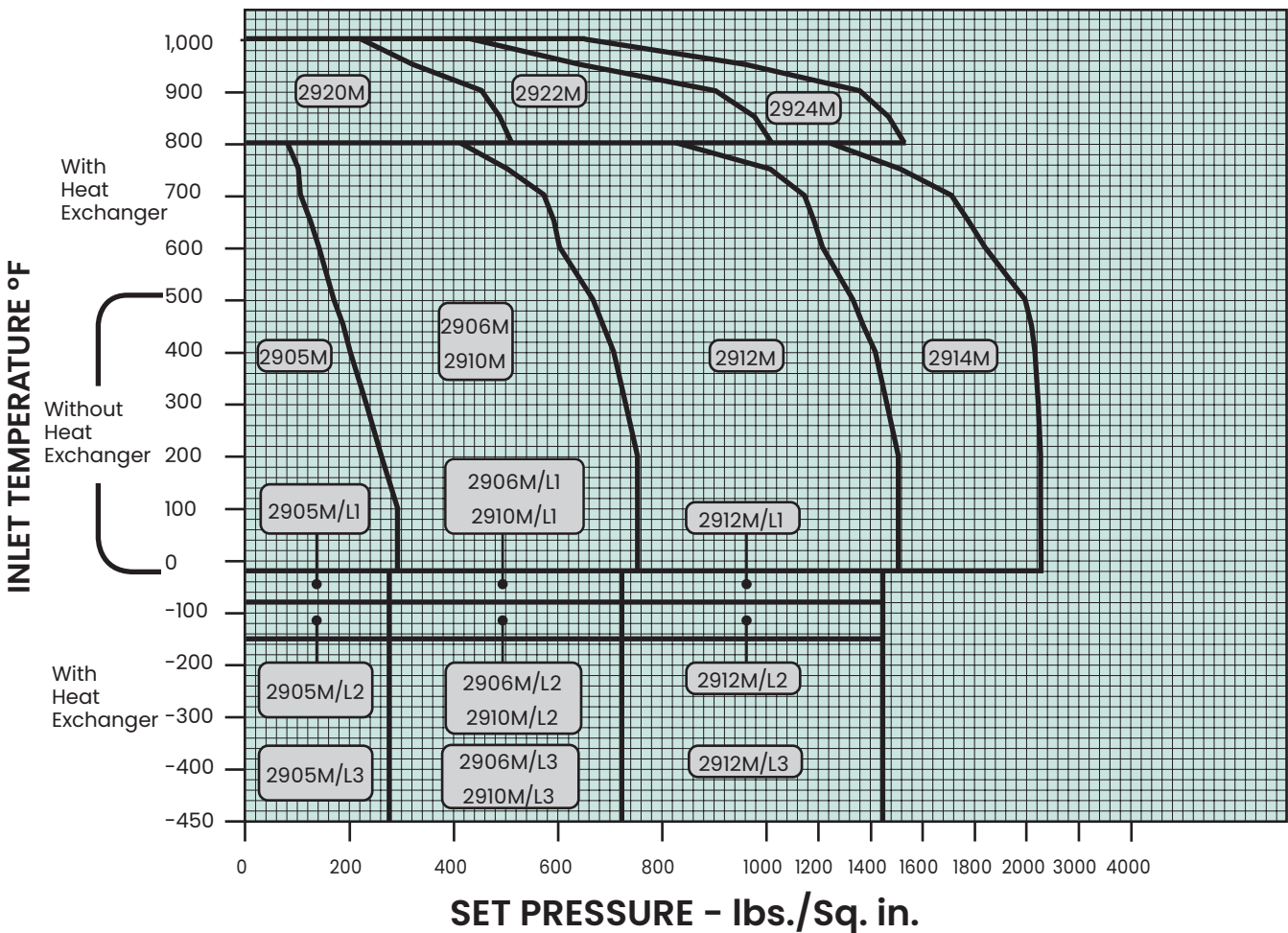


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, M Orifice - ASME Area: 4.186 in² (27.006 cm²)

Pressure Temperature Ratings for "M" Orifice										
Valve Type	ASME Ratings, M Orifice - (4.186 in ² (27.006 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100°F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99

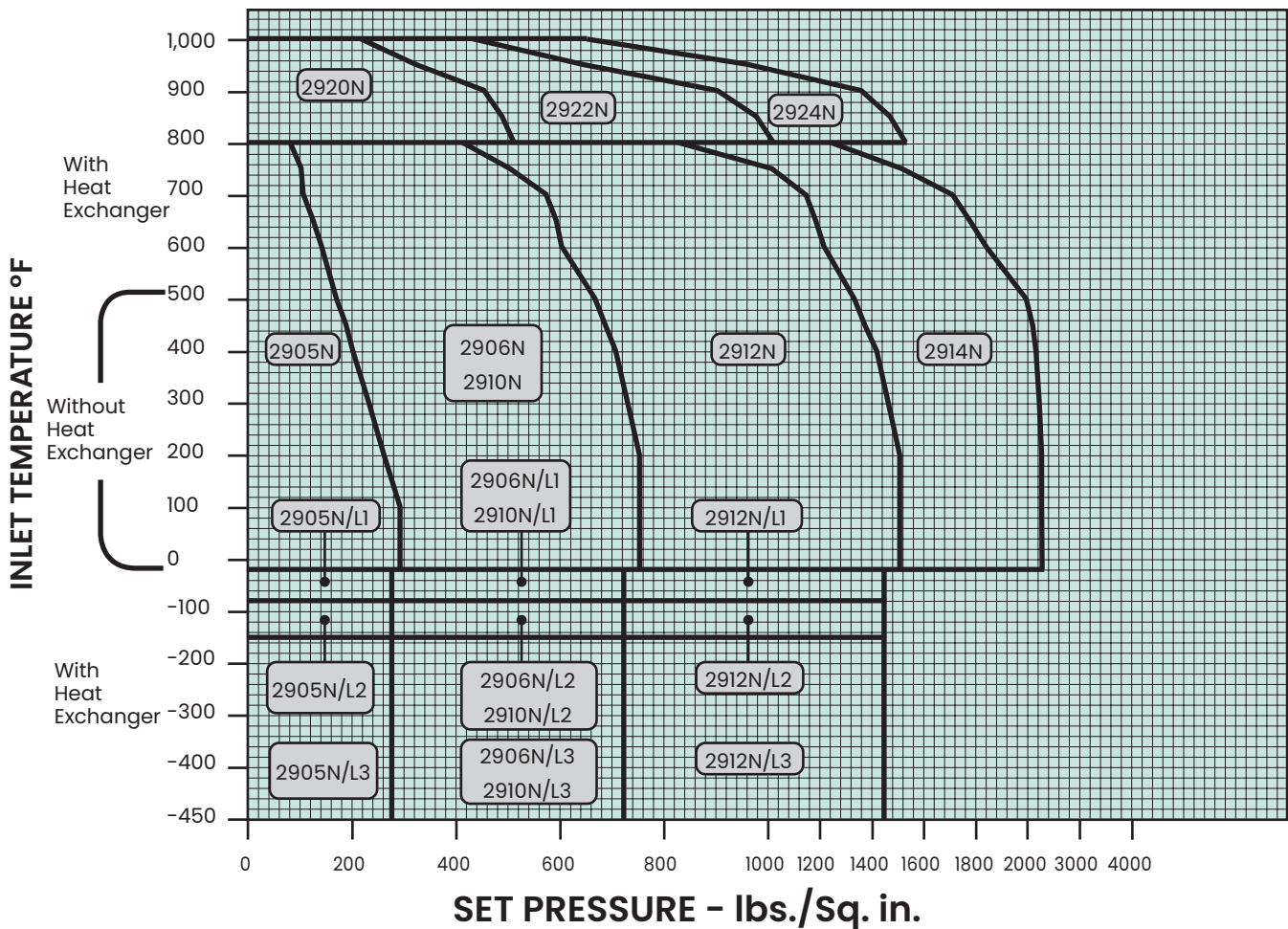


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, N Orifice - ASME Area: 5.047 in² (32.561 cm²)

Pressure Temperature Ratings for "N" Orifice										
Valve Type	ASME Ratings, N Orifice - (5.047 in ² (32.561 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99

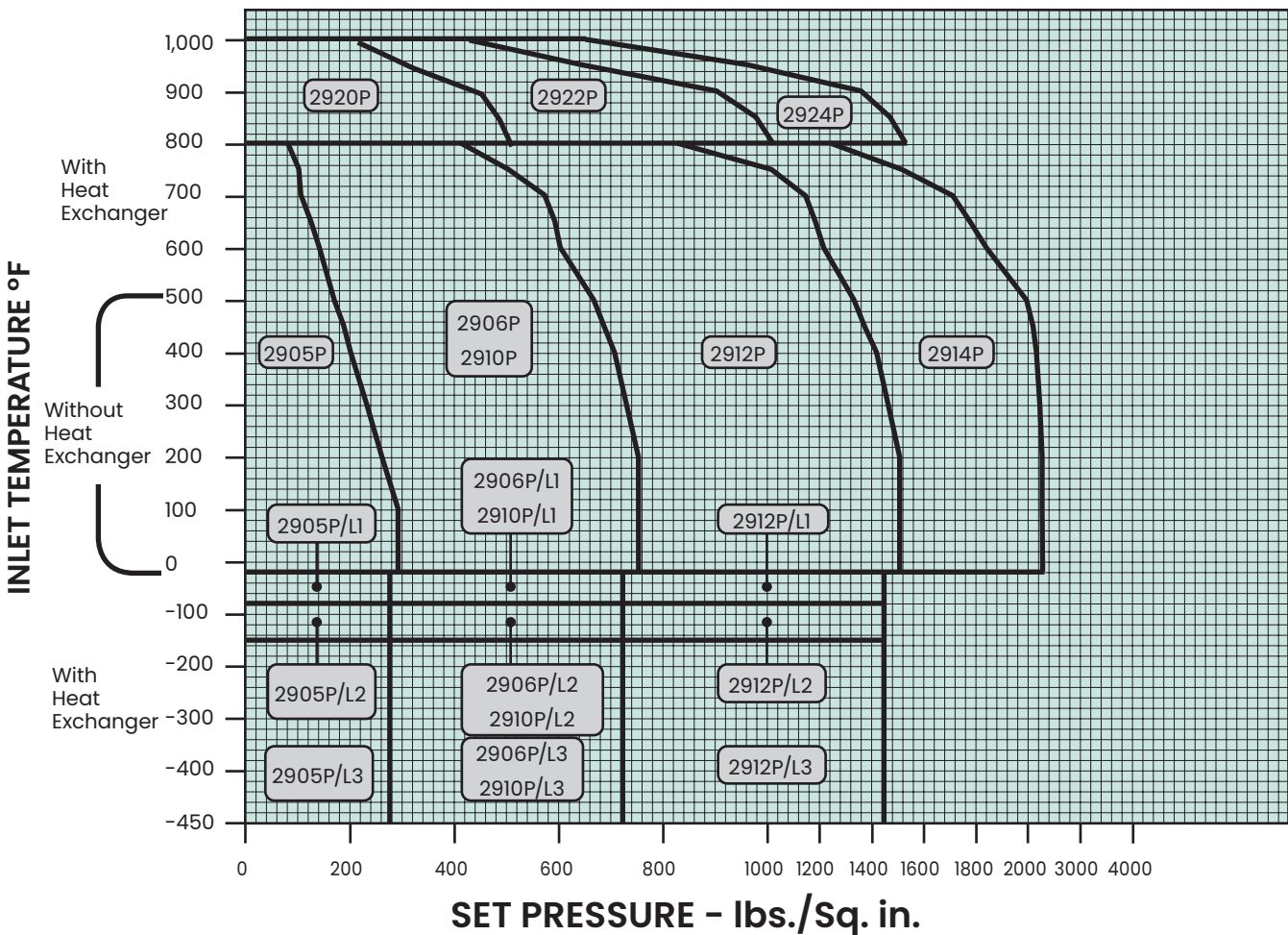


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, P Orifice - ASME Area: 7.417 in² (47.852 cm²)

Pressure Temperature Ratings for "P" Orifice										
Valve Type	ASME Ratings, P Orifice - (7.417 in ² (47.852 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2914	2250	155.13	2050	141.34	1235	85.15	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99
2924	-	-	-	-	1525	105.14	650	44.81	290	19.99

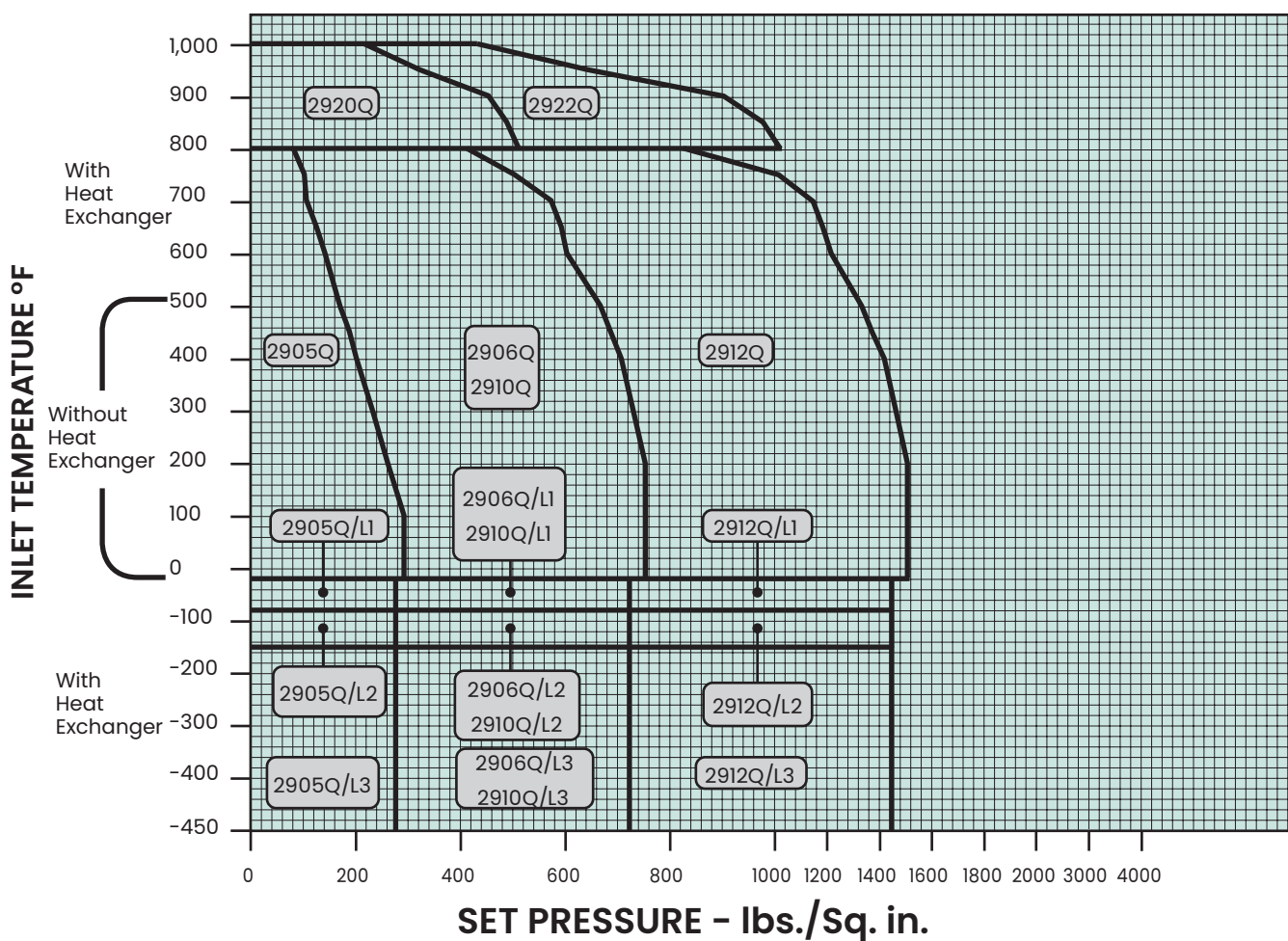


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, Q Orifice - ASME Area: 12.850 in² (82.903 cm²)

Pressure Temperature Ratings for "Q" Orifice										
Valve Type	ASME Ratings, Q Orifice - (12.850 in ² (82.903 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99

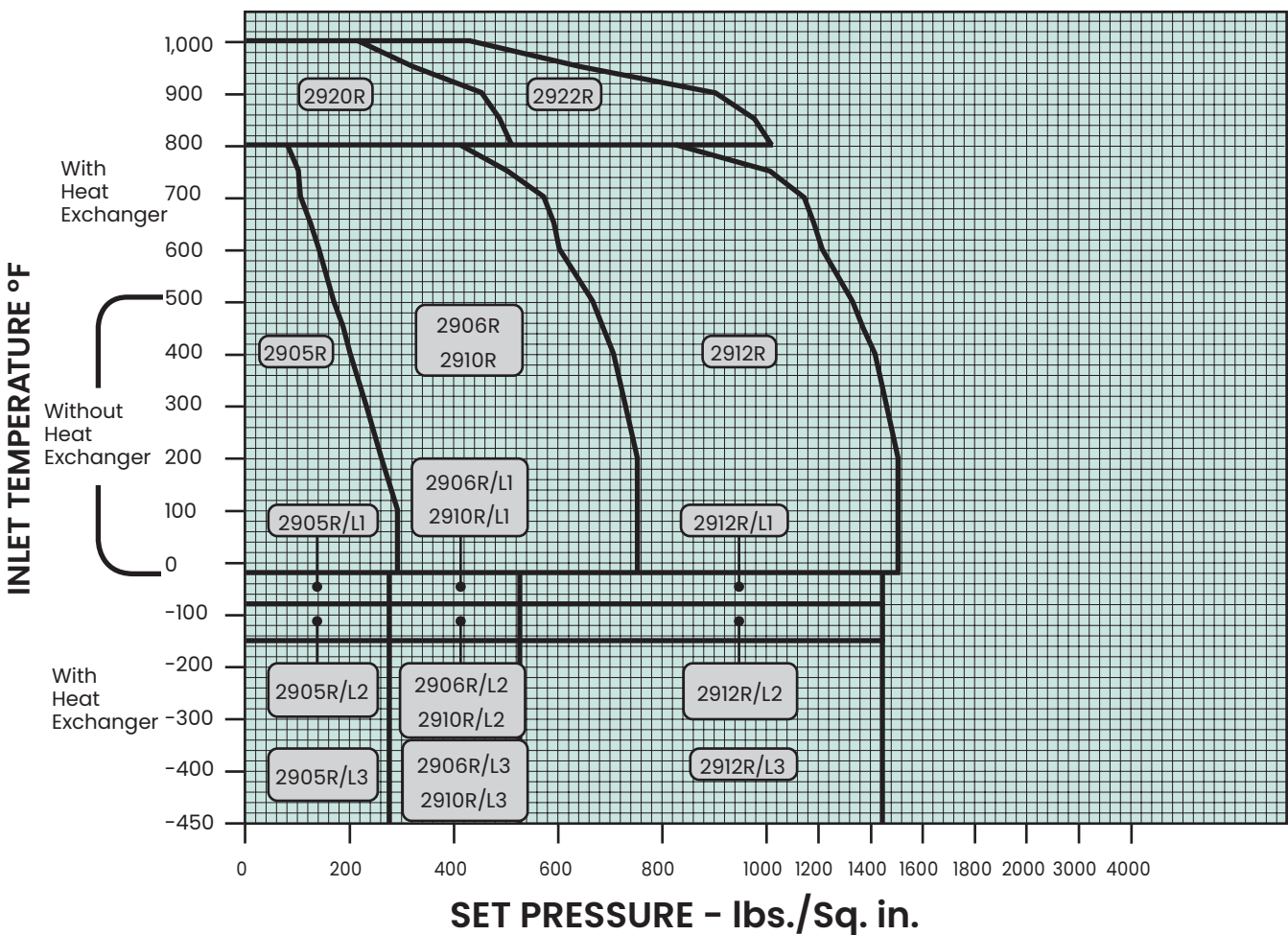


Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, R Orifice - ASME Area: 18.600 in² (120.000 cm²)

Pressure Temperature Ratings for "R" Orifice										
Valve Type	ASME Ratings, R Orifice - (18.600 in ² (120.000 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912	1500	103.42	1365	94.11	825	56.88	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922	-	-	-	-	1015	69.98	430	29.64	290	19.99



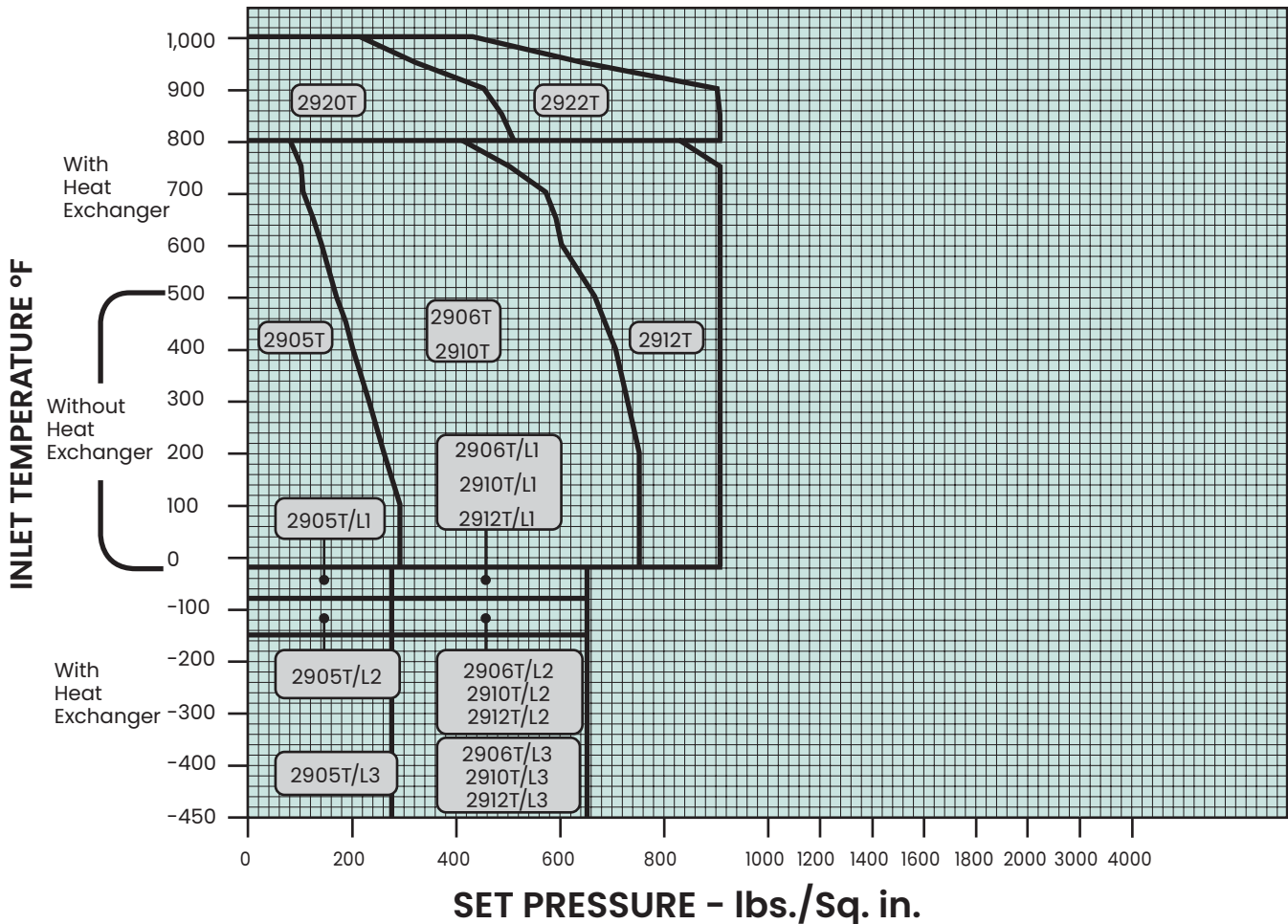
Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, T Orifice - ASME Area: 30.21 in² (194.903 cm²)

Pressure Temperature Ratings for "T" Orifice										
Valve Type	ASME Ratings, T Orifice - (30.210 in ² (194.903 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912 ⁽¹⁾	905	62.39	905	62.39	825	56.88	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922 ⁽¹⁾	-	-	-	-	905	62.39	430	29.64	290	19.99

1. Pressure/Temperature rating is limited by the base to coverplate bolting (B7 material).



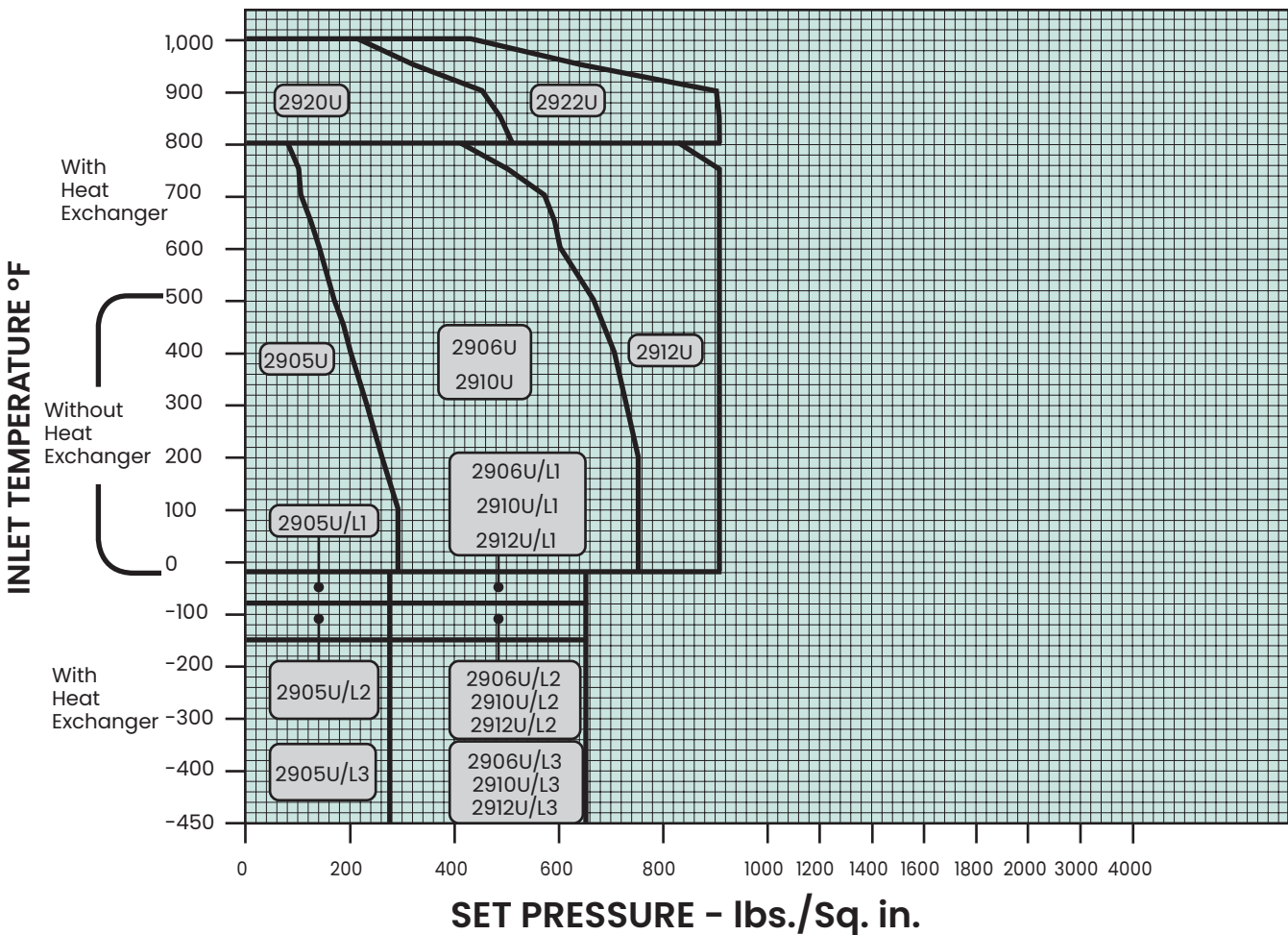
Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, U Orifice - ASME Area: 35.000 in² (225.806 cm²)

Pressure Temperature Ratings for "U" Orifice										
Valve Type	ASME Ratings, U Orifice - (35.000 in ² (225.806 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2910	750	51.71	685	47.22	410	28.26	-	-	290	19.99
2912 (1)	905	62.39	905	62.39	825	56.88	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99
2922 (1)	-	-	-	-	905	62.39	430	29.64	290	19.99

1. Pressure/Temperature rating is limited by the base to coverplate bolting (B7 material).



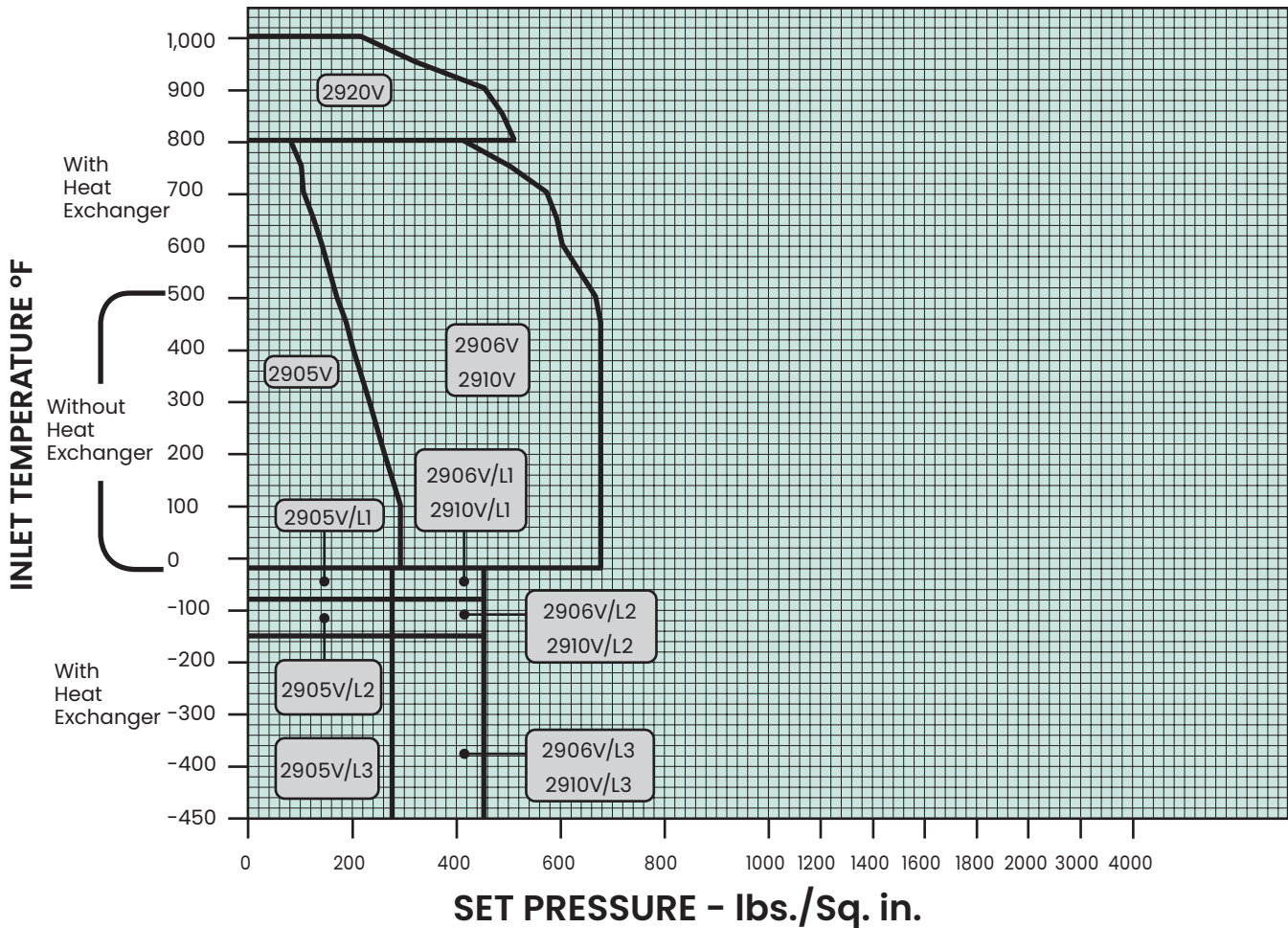
Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, V Orifice - ASME Area: 50.260 in² (324.257 cm²)

Pressure Temperature Ratings for "V" Orifice										
Valve Type	ASME Ratings, V Orifice - (50.260 in ² (324.257 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.75	80	5.51	-	-	280	19.30
2906 ⁽¹⁾	675	46.53	675	46.53	410	28.26	-	-	290	19.99
2910 ⁽¹⁾	675	46.53	675	46.53	410	28.26	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99

1. Pressure/Temperature rating is limited by the base to coverplate bolting (B7 material).



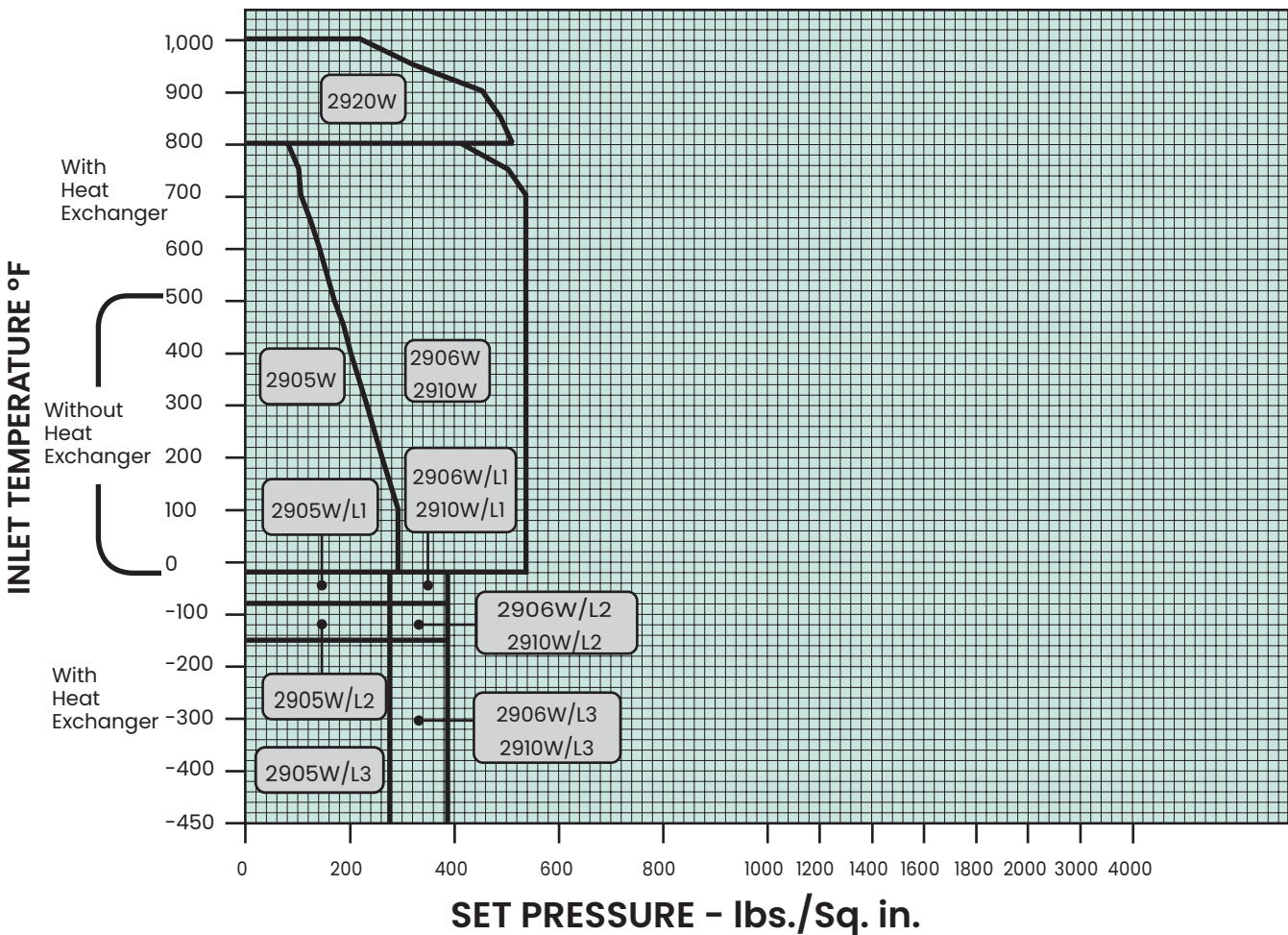
Temperature/Pressure

Selection Table for Vapors, Gases and Liquids

2900/2900 TM Series Valve, W Orifice - ASME Area: 78.996 in² (509.651 cm²)

Pressure Temperature Ratings for "W" Orifice										
Valve Type	ASME Ratings, W Orifice - (78.996 in ² (509.651 cm ²) Actual)								Backpressure Limits @ 100°F (37.8°C)	
	Standard Material of Construction								Conventional & Bellows	
	-20 to 100 °F (-28.9 to 37.8°C)		450°F (232.2°C)		800°F (426.7°C)		1000°F (537.8°C)			
	psig	barg	psig	barg	psig	barg	psig	barg	psig	barg
2905	290	19.99	185	12.76	80	5.52	-	-	280	19.31
2906 ⁽¹⁾	535	36.89	535	36.89	410	28.27	-	-	290	19.99
2910 ⁽¹⁾	535	36.89	535	36.89	410	28.27	-	-	290	19.99
2920	-	-	-	-	510	35.16	215	14.82	290	19.99

1. Pressure/Temperature rating is limited by the base to coverplate bolting (B7 material).



Capacities

Steam

Valve Capacity for ASME B&PV Code Section XIII (UV), for Saturated Steam⁽¹⁾

Based at 10% overpressure or 3 psig (0.21 barg), whichever is greater, showing 90% of actual capacity in accordance with latest ASME Code requirements.

Orifice Designation		D		E		F		G		H		J		K		L		M	
		in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²
Orifice Area		0.128	0.825	0.228	1.470	0.357	2.302	0.585	3.774	0.913	5.888	1.496	9.652	2.138	13.794	3.317	21.400	4.186	27.006
Set Pressure		Orifice Capacity																	
psig	barg	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr
15	1.03	184	83.46	328	148.78	513	232.69	842	381.92	1314	596.02	2154	977.04	3078	1396.16	4776	2166.36	6027	2733.80
20	1.37	212	96.16	378	171.46	592	268.53	970	439.98	1515	687.19	2483	1126.27	3549	1609.80	5506	2497.48	6948	3151.56
30	2.06	268	121.56	478	216.82	749	339.74	1228	557.01	1916	869.08	3142	1425.19	4490	2036.63	6966	3159.72	8792	3987.98
40	2.75	330	149.69	589	267.17	922	418.21	1511	685.38	2359	1070.02	3866	1753.59	5526	2505.55	8573	3888.65	10819	4907.42
50	3.44	392	177.81	699	317.06	1095	496.68	1795	814.20	2801	1270.51	4591	2082.44	6561	2976.02	10180	4617.57	12847	5827.30
60	4.13	454	205.93	809	366.96	1267	574.70	2078	942.57	3243	1471.00	5315	2410.84	7597	3445.94	11786	5346.04	14874	6746.73
70	4.82	516	234.05	920	417.31	1440	653.17	2361	1070.93	3685	1671.49	6040	2739.70	8632	3915.41	13393	6074.96	16902	7666.62
80	5.51	578	262.18	1030	467.20	1613	731.64	2644	1199.30	4127	1871.98	6765	3068.55	9668	4385.33	14999	6803.43	18929	8586.05
90	6.20	640	290.30	1140	517.10	1786	810.12	2928	1328.12	4569	2072.46	7489	3396.95	10703	4854.80	16606	7532.36	20957	9505.94
100	6.89	702	318.42	1251	567.44	1959	888.59	3211	1456.49	5011	2272.95	8214	3725.81	11739	5324.72	18213	8261.28	22984	10425.37
120	8.27	826	374.67	1472	667.69	2304	1045.08	3778	1713.67	5895	2673.93	9663	4383.06	13810	6264.11	21426	9718.67	27039	12264.68
140	9.65	950	430.91	1692	767.48	2650	1202.02	4344	1970.41	6779	3074.90	11112	5040.32	15881	7203.50	24639	11176.06	31094	14104.00
160	11.03	1073	486.70	1913	867.72	2996	1358.96	4911	2227.59	7663	3475.88	12561	5697.57	17952	8142.89	27852	12633.46	35149	15943.32
180	12.41	1197	542.95	2134	967.97	3341	1515.45	5478	2484.78	8548	3877.31	14011	6355.28	20023	9082.28	31066	14091.30	39204	17782.64
200	13.78	1321	599.20	2355	1068.21	3687	1672.40	6044	2741.51	9432	4278.28	15460	7012.54	22095	10022.12	34279	15548.69	43259	19621.95
220	15.16	1445	655.44	2575	1168.00	4032	1828.88	6611	2998.70	10316	4679.26	16909	7669.79	24166	10961.51	37492	17006.09	47314	21461.27
240	16.54	1569	711.69	2796	1268.24	4378	1985.83	7177	3255.43	11200	5080.23	18358	8327.05	26237	11900.90	40705	18463.48	51369	23300.59
260	17.92	1693	767.93	3017	1368.49	4724	2142.77	7744	3512.62	12084	5481.21	19807	8984.30	28308	12840.29	43918	19920.87	55425	25140.36
280	19.30	1817	824.18	3238	1468.73	5069	2299.26	8311	3769.81	12968	5882.19	21257	9642.01	30379	13779.68	47132	21378.72	59480	26979.68
300	20.68	1941	880.42	3459	1568.98	5415	2456.20	8877	4026.54	13852	6283.16	22706	10299.27	32450	14719.07	50345	22836.11	63535	28818.99
320	22.06	2065	936.67	3679	1668.77	5761	2613.15	9444	4283.73	14737	6684.59	24155	10956.52	34521	15658.46	53558	24293.50	67590	30658.31
340	23.44	2189	992.91	3900	1769.01	6106	2769.64	10010	4540.46	15621	7085.57	25604	11613.78	36592	16597.85	56771	25750.89	71645	32497.63
360	24.82	2312	1048.71	4121	1869.25	6452	2926.58	10577	4797.65	16505	7486.54	27053	12271.04	38663	17537.24	59985	27208.74	75700	34336.94
380	26.20	2436	1104.95	4342	1969.50	6798	3083.52	11144	5054.83	17389	7887.52	28503	12928.74	40735	18477.09	63198	28666.13	79755	36176.26
400	27.57	2560	1161.20	4562	2069.29	7143	3240.01	11710	5311.57	18273	8288.49	29952	13586.00	42806	19416.48	66411	30123.52	83810	38015.58
420	28.95	2684	1217.44	4783	2169.53	7489	3396.95	12277	5568.75	19157	8689.47	31401	14243.25	44877	20355.87	69624	31580.92	87865	39854.90
440	30.33	2808	1273.69	5004	2269.78	7834	3553.44	12843	5825.49	20041	9090.45	32850	14900.51	46948	21295.26	72838	33038.76	91920	41694.21
460	31.71	2932	1329.93	5225	2370.02	8180	3710.39	13410	6082.67	20926	9491.87	34299	15557.77	49019	22234.65	76051	34496.16	95975	43533.53
480	33.09	3056	1386.18	5445	2469.81	8526	3867.33	13977	6339.86	21810	9892.85	35749	16215.47	51090	23174.04	79264	35953.55	100030	45372.85
500	34.47	3180	1442.42	5666	2570.05	8871	4023.82	14543	6596.59	22694	10293.83	37198	16872.73	53161	24113.43	82477	37410.94	104085	47212.16
600	41.36	3799	1723.20	6770	3070.82	10600	4808.08	17376	7881.62	27115	12299.16	44444	20159.46	63517	28810.83	98543	44698.36	124360	56408.75
700	48.26	4419	2004.42	7874	3571.59	12328	5591.89	20209	9166.65	31535	14304.04	51690	23446.19	73872	33507.78	114609	51985.77	144635	65605.34
800	55.15	5038	2285.20	8978	4072.35	14056	6375.69	23042	10451.68	35956	16309.37	58936	26732.92	84228	38205.18	130676	59273.64	164911	74802.38
900	62.05	5658	2566.43	10082	4573.12	15784	7159.50	25875	11736.70	40377	18314.70	66182	30019.65	94583	42902.13	146742	66561.06	185186	83998.96
1000	68.94	6277	2847.20	11186	5073.88	17512	7943.31	28708	13021.73	44798	20320.03	73428	33306.38	104939	47599.53	162808	73848.47	205461	93195.55
1100	75.84	6897	3128.43	12289	5574.20	19241	8727.57	31541	14306.76	49218	22324.91	80674	36593.11	115295	52296.94	178874	81135.89	225736	102392.13
1200	82.73	7516	3409.20	13393	6074.96	20969	9511.38	34374	15591.79	53639	24330.24	87920	39879.84	125650	56993.89	194940	88423.30	246011	111588.72
1300	89.63	8136	3690.43	14497	6575.73	22697	10295.19	37207	16876.81	58060	26335.57	95166	43166.57	136006	61691.29	211006	95710.72	266287	120785.76
1400	96.52	8755	3971.20	15601	7076.50	24425	11078.99	40040	18161.84	62481	28340.91	102412	46453.30	146361	66388.24	227072	102998.13	286562	129982.35
1423 ⁽¹⁾	98.11	8898	4036.07	15855	7191.71	24823	11259.52	40692	18457.58	63497	28801.76	104078	47208.99	148743	67468.69	230768	104674.61	291225	132097.45
1500	103.42	9420	4272.84	16785	7613.55	26279	11919.95	43079	19540.31	67222	30491.39	110183	49978.17	157468	71426.29	244304	110814.44	308308	139846.17
2000	137.89	13024	5907.59	23207	10526.52	36334	16480.83	59562	27016.87	92943	42158.24	152343	69101.63	217721	98756.59	337783	153215.80	426276	193355.55
2500	172.36	17235	7817.67	30711	13930.28	48082	21809.63	78821	35752.61	122995	55789.60	201601	91444.68	288117	130687.68	447000	202755.80	564107	255874.65
2903 ^{(1),(2)}	200.15	21551	9775.37	38401	17418.40	60121	27270.43	98557	44704.71	153792	69758.88	252080	114341.57	360259	163410.74	558924	253523.68	—	—

1. The following Napier Factor is applied to the capacity of pressures between 1423 psig (98.11 barg) and 2903 psig (200.15 barg):

$$\left[\frac{0.1906 \times P_{psia} - 1000}{0.2292 \times P_{psia} - 1061} \right]$$

2. Maximum permissible set pressure on steam is 2903 psig (200.15 barg). Value has been interpolated.

Capacities

Steam

Valve Capacity for ASME B&PV Code Section XIII (UV), for Saturated Steam⁽¹⁾

Based at 10% overpressure or 3 psig (0.21 barg), whichever is greater,
showing 90% of actual capacity in accordance with latest ASME Code requirements.

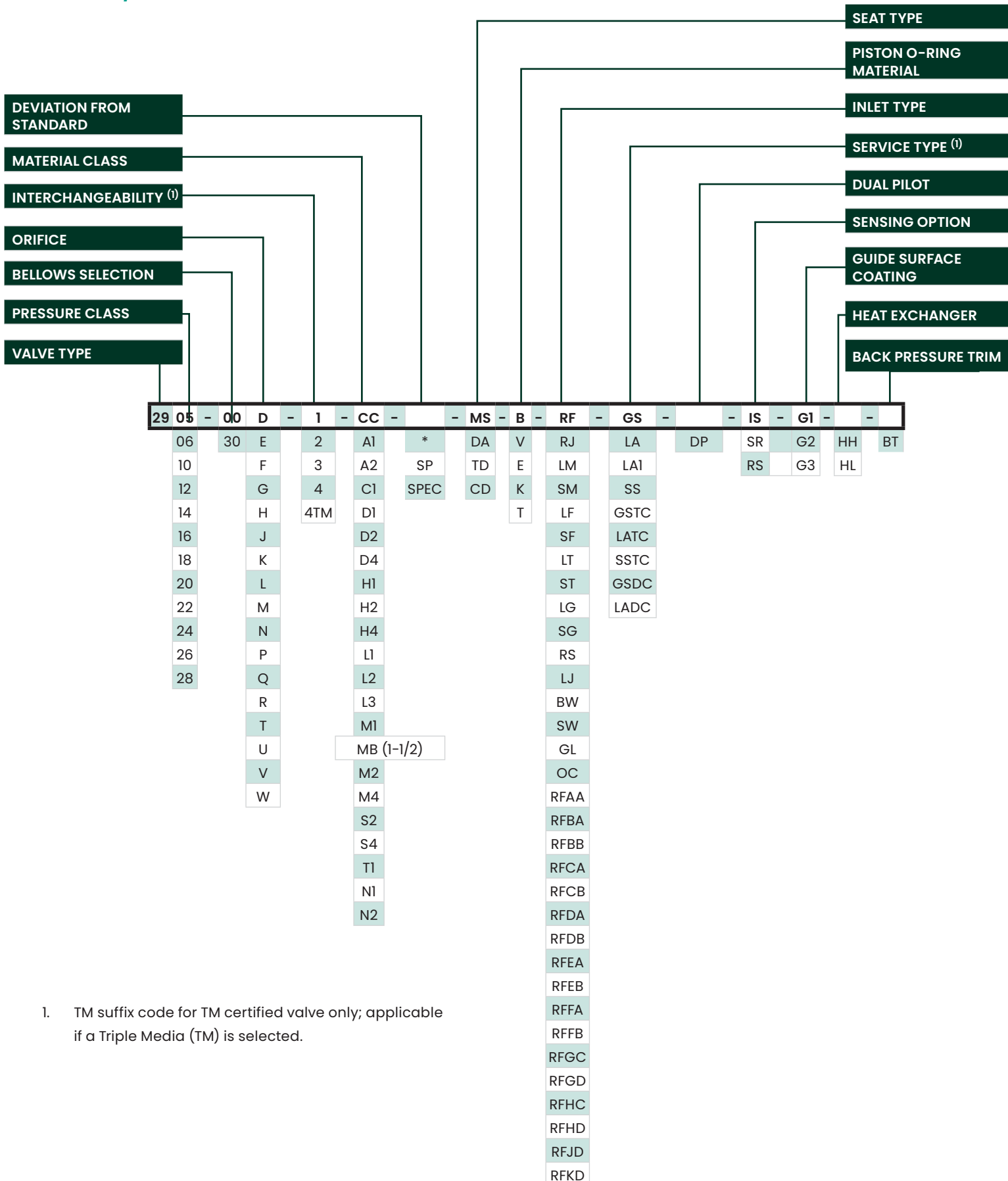
Orifice Designation		N		P		Q		R		T		U		V		W	
Orifice Area		in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²
		5.047	32.561	7.417	47.852	12.850	82.903	18.600	120.000	30.210	194.903	35.000	225.806	50.260	324.257	78.996	509.651
Set Pressure		Orifice Capacity															
psig	barg	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr	lb/hr	kg/hr
15	1.03	7266	3295.80	10679	4843.91	18502	8392.37	26781	12147.66	43498	19730.36	50395	22858.79	72367	32825.12	113743	51592.96
20	1.37	8378	3800.20	12312	5584.63	21331	9675.58	30876	14005.12	50149	22747.21	58100	26353.72	83432	37844.12	131135	59481.84
30	2.06	10600	4808.08	15578	7066.06	26989	12242.01	39066	17720.04	63451	28780.89	73512	33344.48	105563	47882.57	165919	75259.60
40	2.75	13045	5917.11	19170	8695.37	33213	15065.16	48075	21806.45	78084	35418.31	90464	41033.78	129907	58924.83	204181	92614.95
50	3.44	15489	7025.69	22763	10325.12	39437	17888.32	57084	25892.87	92716	42055.27	107417	48723.53	154251	69967.08	242443	109970.30
60	4.13	17934	8134.73	26355	11954.43	45661	20711.48	66093	29979.28	107348	48692.24	124369	56412.83	178595	81009.33	280706	127326.11
70	4.82	20378	9243.31	29948	13584.19	51885	23534.64	75102	34065.70	121981	55329.65	141322	64102.59	202938	92051.13	318968	144681.46
80	5.51	22823	10352.34	33540	15213.49	58109	26357.80	84111	38152.11	136613	61966.62	158274	71791.88	227282	103093.39	357230	162036.81
90	6.20	25267	11460.92	37133	16843.25	64333	29180.96	93120	42238.52	151246	68604.04	175227	79481.64	251626	114135.64	395493	179392.62
100	6.89	27712	12569.95	40725	18472.55	70557	32004.12	102129	46324.94	165878	75241.00	192179	87170.93	275970	125177.89	433755	196747.97
120	8.27	32601	14787.57	47910	21731.61	83005	37650.44	120147	54497.77	195143	88515.38	226084	102549.98	324657	147261.95	510280	231459.13
140	9.65	37490	17005.18	55095	24990.67	95453	43296.76	138166	62671.05	224408	101789.76	259989	117929.03	373345	169346.45	586804	266169.83
160	11.03	42379	19222.79	62280	28249.73	107901	48943.07	156184	70843.88	253673	115064.14	293894	133308.08	422033	191430.96	663329	300880.99
180	12.41	47268	21440.41	69465	31508.80	120349	54589.39	174202	79016.70	282938	128338.53	327799	148687.14	470720	213515.01	739853	335591.70
200	13.78	52157	23658.02	76650	34767.86	132797	60235.71	192220	87189.53	312203	141612.91	361704	164066.19	519408	235599.52	816378	370302.86
220	15.16	57046	25875.63	83835	38026.92	145245	65882.03	210238	95362.36	341467	154886.84	395609	179445.24	568095	257683.57	892903	405014.01
240	16.54	61936	28093.70	91020	41285.98	157693	71528.35	228256	103535.19	370732	168161.22	429515	194824.74	616783	279768.08	969427	439724.72
260	17.92	66825	30311.31	98205	44545.04	170141	77174.66	246274	111708.01	399997	181435.60	463420	210203.79	665471	301852.59	1045952	474435.88
280	19.30	71714	32528.93	105390	47804.10	182589	82820.98	264292	119880.84	429262	194709.98	497325	225582.84	714158	323936.64	1122476	509146.58
300	20.68	76603	34746.54	112575	51063.16	195037	88467.30	282310	128053.67	458527	207984.36	531230	240961.89	762846	346021.15	1199001	543857.74
320	22.06	81492	36964.15	119760	54322.23	207485	94113.62	300328	136226.50	487792	221258.74	565135	256340.94	811534	368105.65	1275526	578568.90
340	23.44	86381	39181.77	126945	57581.29	219933	99759.94	318347	144399.78	517057	234533.13	599040	271719.99	860221	390189.71	1352050	613279.60
360	24.82	91270	41399.38	134130	60840.35	232381	105406.26	336365	152572.61	546322	247807.51	632945	287099.04	908909	412274.21	1428575	647990.76
380	26.20	96159	43616.99	141315	64099.41	244829	110525.57	354383	160745.44	575586	261081.44	666850	302478.09	957596	434358.27	1505099	682701.47
400	27.57	101048	45834.60	148500	67358.47	257277	116698.89	372401	168918.26	604851	274355.82	700755	317857.14	1006284	456442.77	1581624	717412.63
420	28.95	105938	48052.67	155685	70617.53	269725	122345.21	390419	177091.09	634116	287630.20	734660	333236.19	1054972	478527.28	1658149	752123.78
440	30.33	110827	50270.28	162869	73876.14	282173	127991.53	408437	185263.92	663381	300904.58	768565	348615.24	1103659	500611.33	1734673	786834.49
460	31.71	115716	52487.90	170054	77135.20	294621	133637.85	426455	193436.75	692646	314178.96	802470	363994.29	1152347	522695.84	1811198	821545.65
480	33.09	120605	54705.51	177239	80394.26	307069	139284.16	444473	201609.57	721911	327453.34	836375	379373.34	1201034	544779.89	1887722	856256.35
500	34.47	125494	56923.12	184424	83653.32	319517	144930.48	462491	209782.40	751176	340727.72	870280	394752.39	1249722	566864.00	1964247	890967.51
600	41.36	149939	68011.19	220349	99948.63	381757	173162.07	552582	250647.00	897500	407099.18	1039805	471647.65	1493160	677286.03	2346870	1064522.40
700	48.26	174385	79099.71	256274	116243.94	443997	201393.66	642672	291511.13	1043825	473471.09	1209330	548542.90	1736598	787707.65	—	—
800	55.15	198830	90187.78	292199	132539.25	506237	229625.26	732763	332375.73	1190149	539842.54	1378855	625438.15	—	—	—	—
900	62.05	223276	101276.30	328124	148834.55	568476	257856.39	822853	373239.87	1336473	606214.00	1548380	702333.40	—	—	—	—
1000	68.94	247722	112364.82	364048	165129.41	630716	286087.98	912944	414104.46	1482798	672585.90	1717905	779228.65	—	—	—	—
1100	75.84	272167	123452.88	399973	181424.71	692956	314319.58	1003034	454968.60	—	—	—	—	—	—	—	—
1200	82.73	296613	134541.40	435898	197720.02	755196	342551.17	1093125	495833.19	—	—	—	—	—	—	—	—
1300	89.63	321058	145629.47	471823	214015.33	817436	370782.76	1183215	536697.33	—	—	—	—	—	—	—	—
1400	96.52	345504	156717.99	507747	230310.18	879676	399014.35	1273306	577561.92	—	—	—	—	—	—	—	—
1423 ⁽¹⁾	98.11	351126	159268.09	516010	234058.21	893991	405507.52	1294027	586960.81	—	—	—	—	—	—	—	—
1500	103.42	371723	168610.73	546279	247788.00	946432	429294.36	1369933	621391.20	—	—	—	—	—	—	—	—
2000	137.89	513956	233126.54	755302	342599.25	1308566	593555.59	1894111	859154.35	—	—	—	—	—	—	—	—
2500	172.36	680136	308504.52	999518	453373.77	—	—	—	—	—	—	—	—	—	—	—	—
2903 ^{(1),(2)}	200.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

1. The following Napier Factor is applied to the capacity of pressures between 1423 psig (98.11 barg) and 2903 psig (200.15 barg): $\left[\frac{0.1906 \times P_{psia} - 1000}{0.2292 \times P_{psia} - 1061} \right]$

2. Maximum permissible set pressure on steam is 2903 psig (200.15 barg). Value has been interpolated.

Valve Configuration Code

2900/2900 TM Series Main Valve



1. TM suffix code for TM certified valve only; applicable if a Triple Media (TM) is selected.

Valve Configuration Code

2900/2900 TM Series Main Valve

Pressure Class	
Designation	Class
05	150
06	300
10	300
12	600
14	900
16	1500
18	2500
20	300
22	600
23 (P Only)	900
24	900
26	1500
28	2500

Seat Design	
Designation	Type
MS	Metal Seat
DA	O-ring
TD	Thermodisc
CD	Cryodisc

Heat Exchanger	
Designation	Type
HH	Media is 506°F (263.3°C) or Above
HL	Media is -41°F (-40.6°C) or Below

Interchangeability Number	
Designation	Type
1 to 4	Numerical Values Vary by Orifice
4TM	Tri-Media CC2787

Service	
Designation	Type
GS	Gas
LA	Liquid
LAI	Section I Liquid Service
SS	Steam
GSTC	Gas, Triple Certified per CC2787 (2900 TM)
LATC	Liquid, Triple Certified per CC2787 (2900 TM)
SSTC	Steam, Triple Certified per CC2787 (3900 TM)
GSDC	Sized for Gas, Dual Certified per CC2787, Liquid Secondary
LADC	Sized for Liquid, Dual Certified per CC2787, Gas Secondary

Guide Surface Coating	
Designation	Part Coated
G1	Glide-Aloy™ Disc Holder and Piston
G2	Glide-Aloy™ Guide and Coverplate
G3	Glide-Aloy™ Disc Holder, Piston, Guide and Coverplate

Inlet Type	
EN 1092-1 Form B1 Raised Face	
Designation	Connection Type
RFAA	PN 10 x PN 10
RFBA	PN 16 x PN 10
RFBB	PN 16 x PN 16
RFCA	PN 25 x PN 10
RFCB	PN 25 x PN 16
RFDA	PN 40 x PN 10
RFDB	PN 40 x PN 16
RFEA	PN 63 x PN 10
RFEB	PN 63 x PN 16
RFFA	PN 100 x PN 10
RFFB	PN 100 x PN 16
RFGC	PN 160 x PN 25
RFGD	PN 160 x PN 40
RFHC	PN 250 x PN 25
RFHD	PN 250 x PN 40
RFJD	PN 320 x PN 40
RFKD	PN 400 x PN 40

Inlet Type	
Designation	Facing
RF	Raised Face Serrated
RJ	Ring Joint
LM	Large Male
SM	Small Male
LF	Large Female
SF	Small Female
LT	Large Tongue
ST	Small Tongue
LG	Large Groove
SG	Small Groove
RS	Raised Face, Smooth
LJ	Lens Joint
BW	Butt Weld
SW	Socket Weld
GL	Grayloc
OC	Oteco

Standard Orifice Area				
Designation	Area (API)		Area (ASME)	
	in ²	cm ²	in ²	cm ²
D	0.110	2.794	0.128	0.825
E	0.196	4.978	0.228	1.470
F	0.307	7.798	0.357	2.302
G	0.503	12.776	0.585	3.774
H	0.785	19.939	0.913	5.888
J	1.287	32.690	1.496	9.652
K	1.838	46.685	2.138	13.794
L	2.853	72.466	3.317	21.400
M	3.600	91.440	4.186	27.006
N	4.340	110.236	5.047	32.561
P	6.380	162.052	7.417	47.852
Q	11.050	280.670	12.850	82.903
R	16.000	406.400	18.600	120.000
T	26.000	660.400	30.210	194.903
U	N/A	N/A	35.000	225.806
V	N/A	N/A	50.260	324.257
W	N/A	N/A	78.996	509.651

Valve Configuration Code

2900/2900 TM Series Main Valve

Material Class Variations	
Designation	Variation
CC	Standard Material
A1	Alloy 20 [Nozzle & Disc]
A2	Alloy 20 [Internals]
A4	Alloy 20 [Complete Valve]
C1	Ambient temp. to -50°F (-45.6°C) [LCC construction]
D1	Duplex [Nozzle & Disc]
D2	Duplex [Internals]
D4	Duplex [Complete Valve]
H1	Hastelloy C [Nozzle & Disc]
H2	Hastelloy C [Internals]
H4	Hastelloy C [Complete Valve]
L1	Low Temperature Service [-21°F (-29.4°C) to -75°F (-59.4°C)]
L2	Low Temperature Service [-76°F (-60°C) to -150°F (-101.1°C)]
L3	Low Temperature Service [-151°F (-101.7°C) to -450°F (-267.8°C)]
M1	Monel [Nozzle & Disc]
MB (M1-1/2)	Monel [M1+Disc Holder]
M2	Monel [Internals]
M4	Monel [Complete Valve]
S2	Stainless St. [Internals]
S4	Stainless St. [Complete Valve]
T1	High Temperature Service [1001°F (538.3°C) to 1200°F (648.9°C)]
N1	Sour Gas Carbon Steel
N2	Sour Gas Stainless Steel

Sour Gas Applications	
Designation	Type
SG	Non-Bellows

Remote Sensing	
Designation	Type
RS	Remote Sensing
SR	Sensing Ring
IS	Integral Sense

Piston O-ring Material	
Designation	Type
B	Burma
V	Viton
E	Ethylene/Propylene
K	Kalrez
T	PTFE

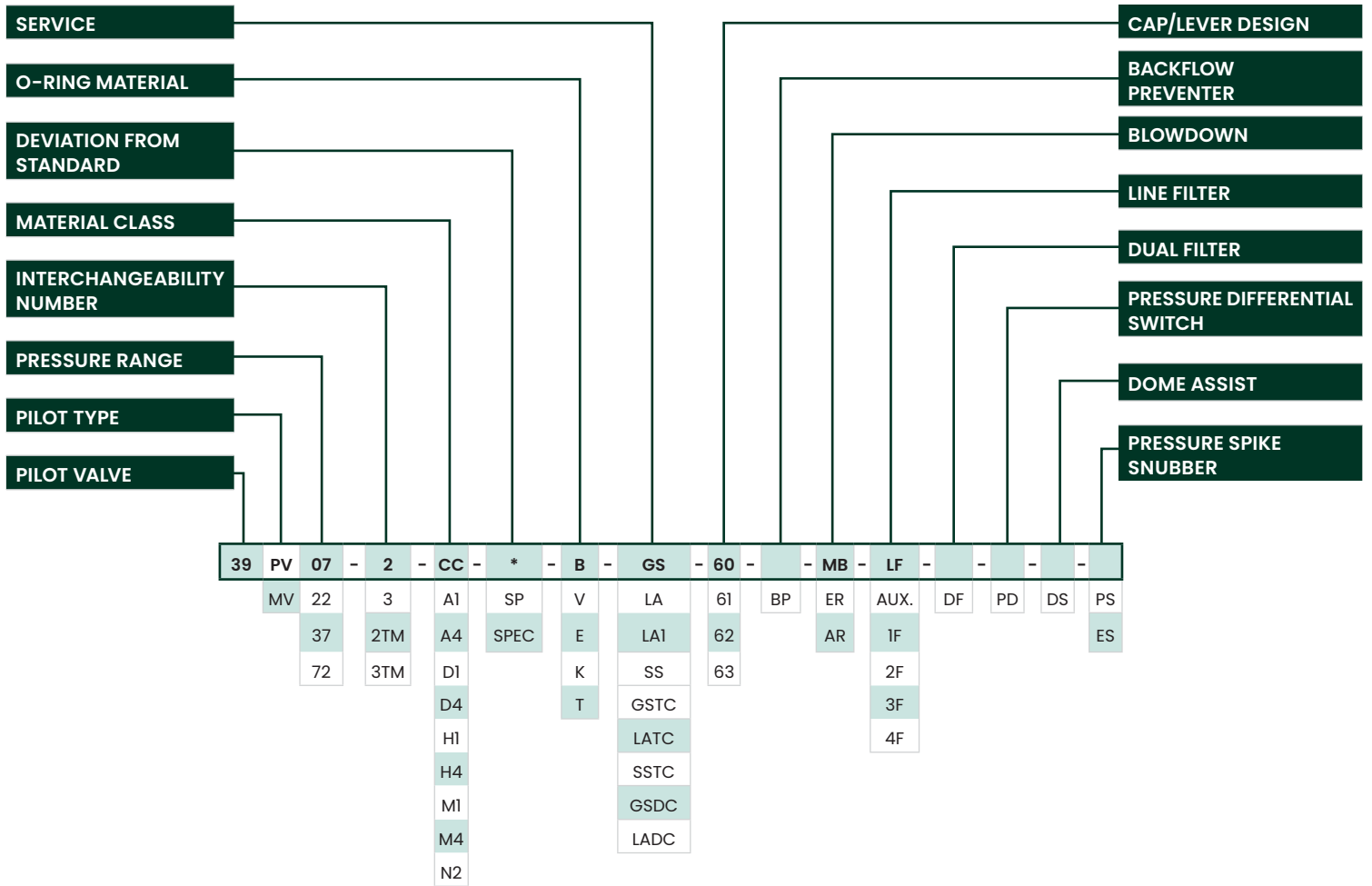
Valve Type	Orifice	Standard Outlet Flange Rating	Actual Body Class Rating	Actual Outlet Flange Class	Mated "M" – Rated "R"	Non Standard Outlet Code ⁽¹⁾	Additional Tag	Tag Part Number
2905-2912	All	150	150	300	M	15	Yes	7592401
				600		16		
				900		17		
				1500		18		
				2500		19		
2912-2918	D-G	300	300	600	M	16	Yes	7592601
				900		17		
				1500		18		
2916	H-L	300	300	2500	M	19	Yes	7592601
2918	J-K	300	300	2500	<	19	Yes	7592601
2900	All	> 150	300	300	R (FULLY RATED)	20	No	N/A
				600		21		
				900		22		
				1500		23		
				2500		24		

1. The configuration code is modified by adding the "Non-Standard Outlet Code" from this column to the interchangeability number. For example: the interchangeability number is -1 and the Configuration Code from this table is 15 then the interchangeability number is -15.

- See AS043 for installation instructions.

Valve Configuration Code

2900/2900 TM Series Pilot Valve



Valve Configuration Code

2900/2900 TM Series Pilot Valve

Pilot Type	
Designation	Description
PV	Pop Pilot
MV	Modulating Pilot

Pressure Range	
Designation	Description
07	15 to 750 psig (1.03 - 51.71 barg)
22	751 to 3750 psig (51.78 - 258.55 barg) MV only
37	751 to 3750 psig (51.78 - 258.55 barg) PV only
72	3751 to 6250 psig (258.62 - 430.92 barg) MV only

Interchangeability Number	
Designation	Description
2	Screwed Cap
3	Lifting Lever and/or Gag
2TM	Screwed Cap, Triple Media- CC2787 (2900 TM)
3TM	Screwed Cap, Triple Media- CC2787 (2900 TM)

Blowdown	
Designation	Description
MB	Manual Blowdown
ER	Electronic Remote
AR	Air Remote

Pressure Spike Snubber	
Designation	Description
PS	Pressure Snubber
ES	Section I Pressure Snubber for 2900/2900 TM (LA1) Configuration

O-ring Material	
Designation	Description
B	Buna (Nitrile)
V	Viton (Fluorocarbon)
E	Ethylene Propylene
K	Kalrez
T	PTFE

Cap / Lever Design	
Designation	Description
60	Screwed Cap (No Gag or Lifting Lever)
61	Gag Only
62	Lifting Lever
63	Gag and Lifting Lever

Sensing Line Filter	
Designation	Description
LF	Line Filter (Standard)
AUX.	High Capacity Filter
1F	Carbon Steel
2F	Stainless Steel
3F	Carbon Steel With Flush Valve
4F	Stainless Steel With Flush Valve

Service	
Designation	Description
GS	Gas
LA	Liquid
LA1	Section I liquid service
SS	Steam
GSTC	Gas, Triple Certified per CC2787 (2900 TM)
LATC	Liquid, Triple Certified per CC2787 (2900 TM)
SSTC	Steam, Triple Certified per CC2787 (2900 TM)
GSDC	Sized for Gas, Dual Certified per CC2787, Liquid Secondary
LADC	Sized for Liquid, Dual Certified per CC2787, Gas Secondary

Material Class Variations	
Designation	Description
CC	Standard Material
A1	Alloy 20 [Wetted Parts] (Consult Factory)
A4	Alloy 20 [Complete Valve] (Consult Factory)
D1	Duplex [Wetted Parts] (Consult Factory)
D4	Duplex [Complete Valve] (Consult Factory)
H1	Hastelloy C [Wetted Parts]
H4	Hastelloy C [Complete Valve]
M1	Monel [Wetted Parts]
M4	Monel [Complete Valve]
N2	Sour Gas

Ordering 2900/2900 TM Series Generation II Safety Relief Valve

Specification Sheet

Page _____ of _____

Requisition No. _____
 Job No. _____
 Date _____
 Revised By _____

General

1. Item Number:
 2. Tag Number:
 3. Service, Line or Equipment No:
 4. Number Required:

Basis of Selection

5. Code: ASME I (Liquid) Required:
 YES NO Other Specify:
 6. Code: ASME XIII (UV) Required:
 YES NO Other Specify:
 7. Comply with API 526: YES NO
 8. Fire Other Specify:
 9. Rupture Disk: YES NO

Valve Design, Pilot

10. Design Type: Pilot
 11. No. of Pilots:
 12. Pilot Action: Pop Modulating
 13. Pilot Sense: Internal Remote¹
 14. Seat Type: Resilient
 15. Seat Tightness: API 527 Other Specify:
 16. Pilot Vent: Atmosphere Outlet Other Specify:

Valve Design, Main Base

17. Metal Seat Resilient Seat
 18. Bellows: YES NO

Connections

19. Inlet Size: Rating: Facing:
 20. Outlet Size: Rating: Facing:
 21. Other Specify:

Materials, Main Valve

22. Body:
 23. Nozzle:
 24. Seat O-ring:
 25. Disc:
 26. Piston Seal:
 27. Other O-rings:
 28. Guide:
 29. Cover Plate:

Materials, Pilot

30. Body/Bonnet:
 31. Internals:
 32. Seals:
 33. Tubing/Fittings:
 34. Spring:
 35. Comply with NACE MR0175: YES NO
 36. OTHER Specify:

Accessories

37. External Filter: YES NO
 38. Lifting Lever: N/A
 39. Field Test Connection: YES NO
 40. Backflow Preventer: YES NO
 41. Manual Blowdown Valve: YES NO
 42. Heat Exchange (For High & Low Temperature Applications): YES NO
 43. Dome Assist: YES NO OTHER Specify:

Service Conditions

44. Fluid and State:
 45. Required Capacity per Valve & Units:
 46. Molecular Weight or Specific Gravity:
 47. Viscosity at Flowing Temperature & Units:
 48. Operating Pressure & Units:
 49. Blowdown: Standard Other
 50. Latent Heat of Vaporization & Units:
 51. Operating Temperature & Units:
 52. Relieving Temperature & Units:
 53. Built-up Back Pressure & Units:
 54. Superimposed Back Pressure & Units:
 55. Cold differential Test Pressure & Units:
 56. Allowable Overpressure in Percent or Units:
 57. Compressibility Factor, Z:
 58. Ratio of Specific Heats:

Sizing and Selection

59. Calculated Orifice Area: _____ in² _____ cm²
 60. Selected Orifice Area: _____ in² _____ cm²
 61. Orifice Designation (letter):
 62. Manufacturer:
 63. Model Number:
 64. Vendor Calculations Required: YES NO

Heat Exchanger

65. Sizing Required:
 66. Back Pressure Restrictions on Temperature:
 67. Set Pressure: _____ psig _____ barg
 68. Specific Volume of Media at Inlet Conditions:
 _____ lbm/ft³ _____ kgm/mtr³
 69. Entropy of Media at Inlet Conditions (btu/lbm*°R): _____
 70. Temperature of Ambient Air (°F/°C) (min./max.):
 71. Media Temperature before it enters the Heat Exchanger:
 _____ °F _____ °C

Remote Sensing

72. Sizing Required:
 73. Set Pressure: _____ psig _____ barg
 74. Orifice Selection:
 75. Fluid Density of Media in condensed state:
 _____ lbm/ft³ _____ kgm/mtr³
 76. Length of Sensing Line⁽¹⁾: _____ ft _____ mtr
 77. Equivalent Length of Sensing Line for Valves, Elbows, Tees etc.:
 78. Total change in Height: _____ ft _____ mtr

1. To assure proper valve operation when pilot is remotely sensed use .375" (9.53 mm) diameter tubing for lengths up to ten feet (3.05 mtr). Contact factory for proper size of tubing when sensing line exceeds ten feet (3.05 mtr).



CONTROLS SUPPLY CHAIN

VALVES ACTUATORS INSTRUMENTATIONS