Series 3800

Pilot Operated Pressure Relief Valves

CURTISS WRIGHT
Flow Control Company
Farris Engineering

Numbering System

To simplify the selection and specifying of Farris pressure relief valves, use the following type numbering system. The type numbering system is ideal as the digits which comprise a specific type number have a distinct significance. The digits describe the basic valve series, orifice, seat and internal construction, inlet temperature range, body, and spring material, inlet flange class as well as Code liquid design.

38	D	C	1
Series Number	Orifice Area	Construction	Temperatures & Materials

38

Orifice Letter	Area, Sq. In.		Area, Sq. mm	
	API	Actual	API	Actual
D	0.110	0.150	71	97
E	0.196	0.225	126	145
F	0.307	0.371	198	239
G	0.503	0.559	325	361
H	0.785	0.873	506	563
J	1.287	1.430	830	923
K	1.838	2.042	1186	1317
L	2.853	3.170	1841	2045
M	3.60	4.000	2323	2581
N	4.34	4.822	2800	3111
P	6.38	7.087	4116	4572
Q	11.05	12.27	7129	7916
R	16.0	17.78	10323	11471
T	26.0	28.94	16774	18671
A	—	0.719	—	464
1	—	1.767	—	1140
2	—	2.953	—	1905
3	—	6.605	—	4261
4	—	11.50	—	7419
6	—	26.07	—	16819
8	—	45.66	—	29458

C Elastomer O-Ring Seat & Seals*

T PTFE O-Ring Seat & Seals (Main Valve Only)

*For set pressures above 1480 psig, main seat seal for all valves with 900#, 1500# and 2500# inlet flanges use PTFE.

Designation	Inlet Temperature Range °F	Material	
		Body & Cover	Piston
1	-20 to 450	Carbon Steel	Stainless Steel
2	-20 to + 520	Carbon Steel	PH St. St.
8*	-450 to -50*	Stainless Steel	Stainless Steel

*Use for cyrogenic applications, S4 special material suffix is not required.

Ordering Information

To properly process your order and avoid delay please specify the following:

1. Quantity
2. Inlet and Outlet Size
3. Farris Type Number*
4. Inlet and Outlet Flange Class and Facing
5. Materials of Construction, if other than Standard
6. O-Ring Seal Material (Viton is Standard)
7. Set Pressure*
8. Maximum Inlet Temperature*
9. Allowable Overpressure*
10. Fluid and Fluid State*
11. Backpressure, Superimposed Constant and/or Variable and Built-up*
12. Required Capacity*
13. Physical Properties of Fluid (Molecular Weight, Specific Gravity, etc.)*
14. Accessories, if any required such as:
    a) Manual or Remote Depressurizing
    b) Field Test Connection
    c) Reverse Flow Preventer
    d) Auxiliary Filter
    e) Any other
15. Code Requirements, if any required

*As a customer service we verify your selection and sizing. If this service is desired, you must include this information.

General Notes:
If valve modification or set pressure changes are required, consideration must be given to correct the nameplate and other data.

2	X -	1	2	0	/S4
Inlet Class	**Special Construction**	**Inlet Facing**	**Pilot Control**	**Options**	**Special Material[4]**

Designation	ANSI Nominal Inlet Flange Class
0	150
2	300
3	600
4	900
5	1500
6	2500

(If applicable)

- **L** Liquid Service (Standard Connections)
- **X** Air & Vapor Service (Oversize Connections)
- **Y** Liquid Service (Oversize Connections)
- **D** Air & Vapor Service (Dual Outlet)[1]
- **E** Liquid Service (Dual Outlet)[1]
- **U** Air & Vapor Service (Non-Standard API Connections)
- **N** Air & Vapor Service (Non-Standard API Connections)

- **0** Special[2]
- **1** Raised Face, ANSI Std. (125 to 160 AARH)
- **9** Ring Joint ANSI Std. (Octagonal)
- **H** 63 to 83 AARH Raised Face (Inlet only)

Although not applicable to the inlet facing only, the following first digit letters are also used:

- **J** 63 to 83 AARH (Outlet only)
- **K** 63 to 83 AARH (Inlet and outlet)
- **X** High Pressure Hub Connection[3]

- **2** PCF5 Snap Acting Control
- **3** PCL Liquid Snap Acting Control
- **4** PCM Modulating Control
- **5** PCMS Steam Modulating Control
- **6** HPCM High Pressure Modulating Control

- **0** No Options
- **1** Test Gag
- **2** Dual Pilot Controls
- **3** Auxiliary Filter
- **4** Manual Depressurizing
- **5** Field Test Connection
- **6** Reverse Flow Preventer
- **7** Pressure Spike Snubbers
- **8** Remote Depressurizing
- **F** Field Test Connection with Indicator
- **R** Remote Sensing
- **V** Pilot Control Discharge Connected to Main Valve Outlet

See table below for combinations

- **S3** Complete 316 St. St. PH St. St. Piston
- **S4** Complete 316 St. St.
- **N1** NACE Compliant Carbon St. Body
- **N3** NACE Compliant PH St. St. Piston
- **N4** NACE Compliant Complete 316 St. St.
- **M4*** Complete Monel®
- **H4*** Complete Hastelloy® C

*Add "N" for NACE
E.g. M4N, H4N, etc.

Parts Replacement

Valves: If an exact replacement valve is required, the valve type, size and serial number must be specified to assure proper dimensions and material being supplied. If a specific valve has become obsolete, a recommendation for the current equivalent, if any, will be made.

Spare Parts: When ordering parts, use part names as listed in the bills of material in this catalog. Specify valve type, size and serial number. If serial number is not available, the original Farris factory order number will assist in our supplying the proper part and material.

Springs: Order as an assembly to include spring with upper and lower spring buttons. Specify valve type, size, serial number, set pressure and back pressure, if any.

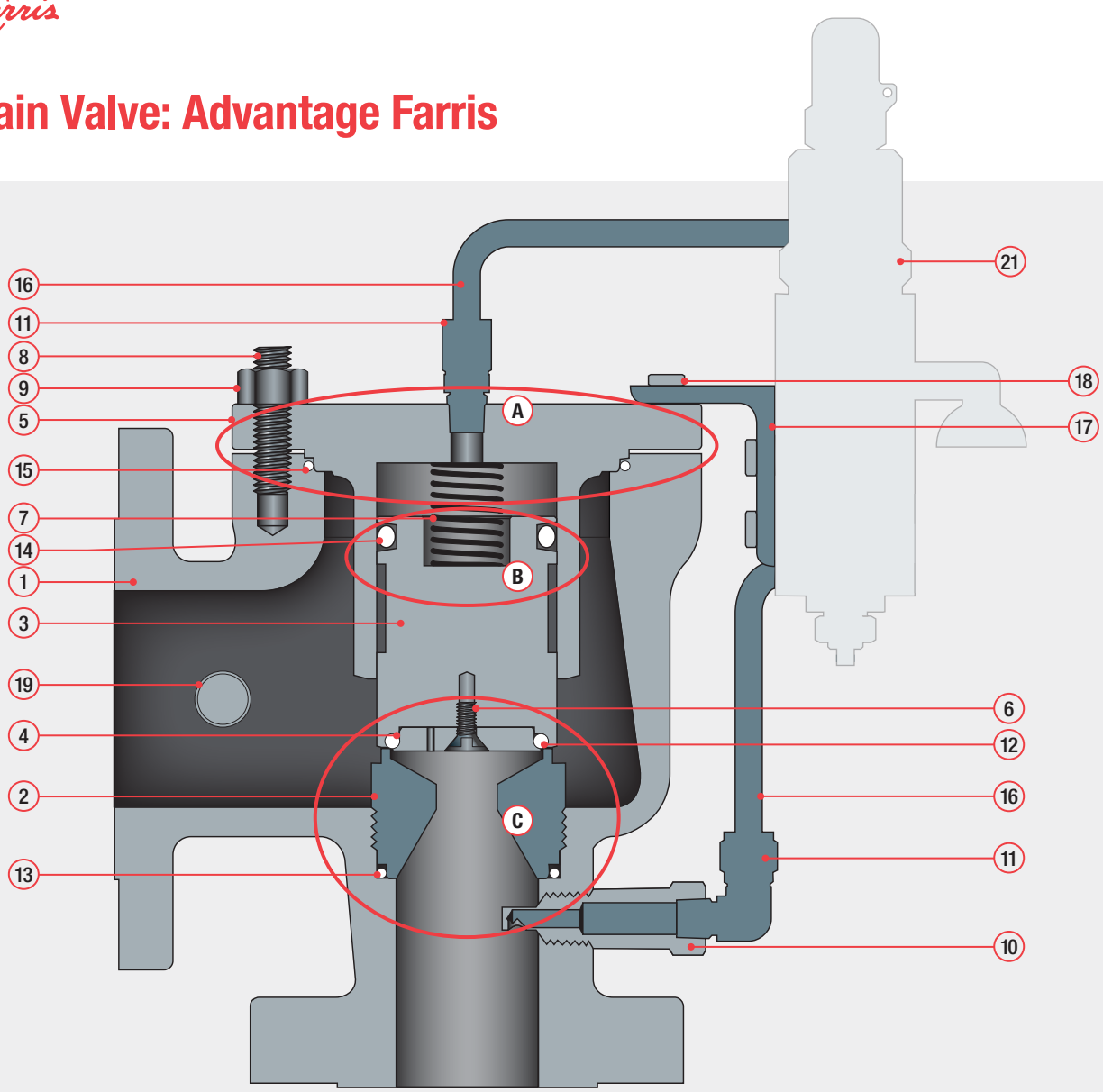
Codes for Common Accessory Combinations

9	Four Auxiliary Functions: Options 4, 5 or F*, 6 & 8
A	Combo – Auxiliary Filter (3) & Field Test Connection (5 or F)*
B	Combo – Field Test Connection (5 or F)* & Reverse Flow Preventer (6)
E	Combo – Auxiliary Filter (3), Field Test Connection (5 or F)* & Reverse Flow Preventer (6)
C	Designation for combinations of options not listed

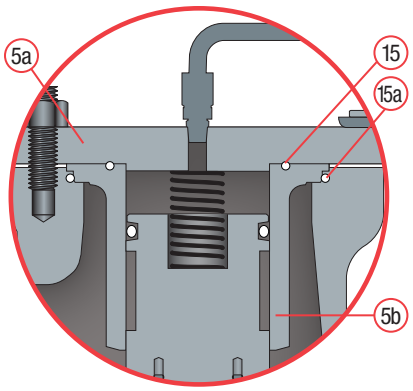
* For Modulating Controls, Field Test Connection w/ Indicator (F) is automatically supplied, unless specified otherwise.

General Notes:
1. Available on 6" and 8" inlet size valves only.
2. Historical designation for special inlet connections. This designation is obsolete.
3. Not available for all valve sizes or pressure classes. Please consult factory.
4. Duplex available upon request, contact factory.

Main Valve: Advantage Farris

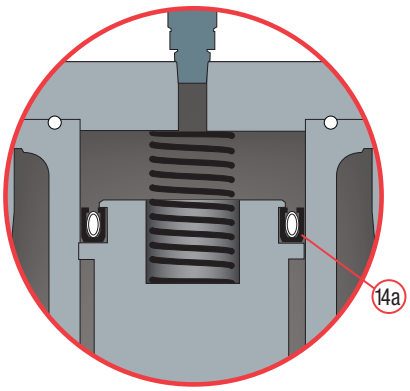


A Two Piece Cover and Guide



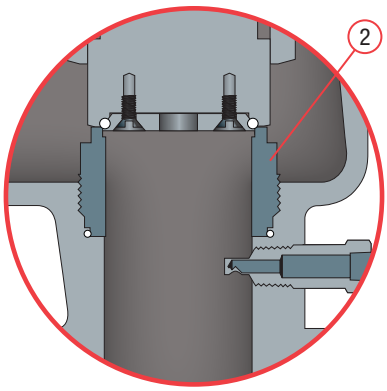
Valves with 3" inlet and larger

B Energized Piston Seal



Used for cyrogenic, steam and special service

C Full Port Nozzle



Not available for liquid service

ASME UV

Built in conformance to ASME Code Section VIII for Air, Gas, Steam, and Liquid Service.
ASME Code stamping not available on full port design in liquid service.

Snap Acting Pilot Control Features

Snap-Acting, Non-Flowing: the PCF5 and PCL pilot controls are snap acting and non-flowing, minimizing the flow of process media through the pilot for reduced fugitive emissions and extended valve life.

Full 316 Stainless Steel Construction: resists corrosion and extends the life and versatility of the PCF5 and PCL controls.

Adjustable Blowdown: allows setting blowdown at 3% of set pressure so that product loss is minimized and fugitive emissions reduced.

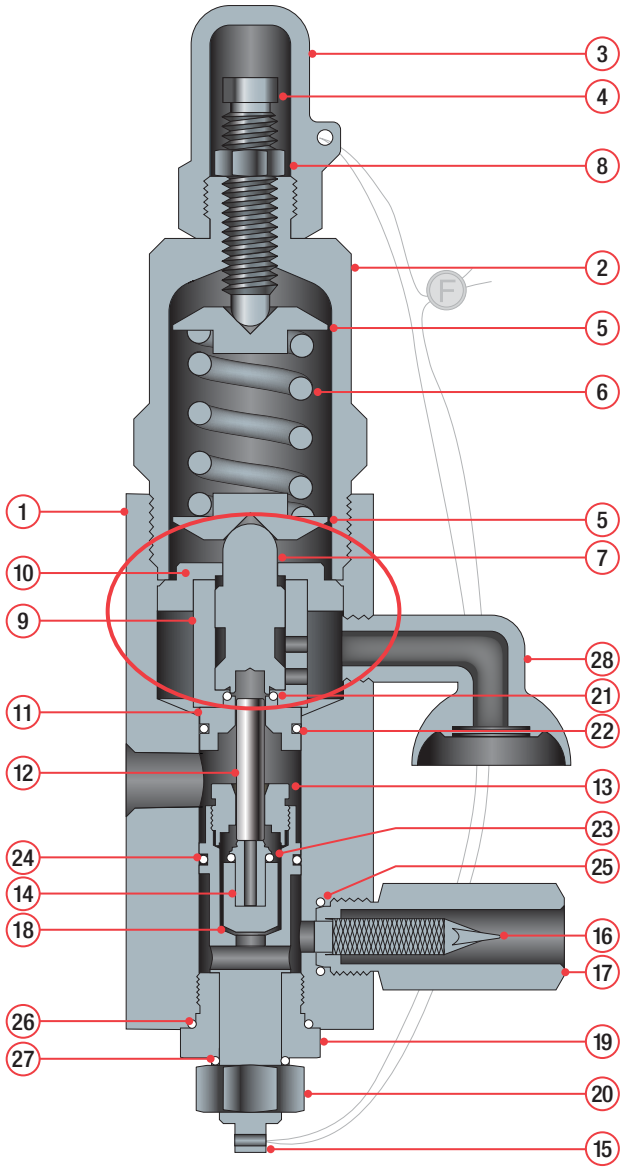
Viton Seats and Seals: these chemical-resistant seals and seats enhance a control's life. Neoprene, ethylene propylene, silicone, and Buna-N soft goods are optional and extend temperature ranges from -65°F to 450°F. Kalrez available when maximum resistance to chemical attack is required. Contact factory for more information.

Set Pressures and Blowdown Set at Pilot Control: in line service, settings and blowdown adjustments are completed quickly and easily without main valve intrusion. Subsequent reduction in product loss and fugitive emissions add to system profitability.

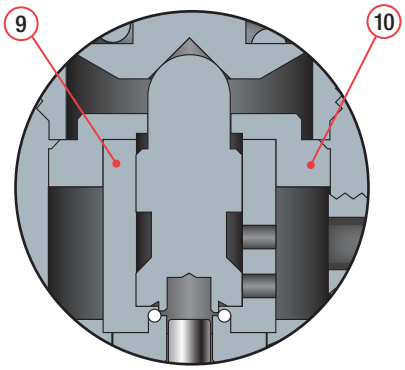
Field Test Capable: the use of a field test connection allows cycling the pilot control without interrupting system protection or removing the valve from the line. Field testing verifies system integrity in accordance with the requirements of the Code.

Remote Sensing Capable: when there is excessive inlet piping losses, or when the main valve must be installed at a different location on the protected system because of its service limitations, the pilot sensing line can be installed separate from the main valve.

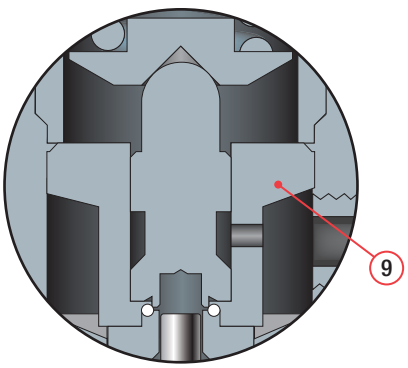
Suitable for NACE Service: for high quality materials of construction that meet NACE MR0103 or MR0175 service, refer to N1 trim for carbon steel body and N4 trim for stainless steel.



PCF5(2): Snap Acting Control – Air, Gas, Vapor Service



PCL(3): Snap Acting Control – Liquid Service



Built in conformance to ASME Code Section VIII for Air, Gas, and Liquid Service.
ASME Code stamping not available on full port design in liquid service.

Modulating Pilot Control Features

Modulating, Non-Flowing: the PCM, PCMS and HPCM pilot controls are modulating and non-flowing, minimizing the flow of process media through the pilot for reduced fugitive emissions and extended valve life.

Full 316 Stainless Steel Construction: resists corrosion and extends the operation and versatility of the modulating control.

Blowdown: The modulating controls are a fixed blowdown pilot control with no external adjustment. Depending on fluid service, a blowdown of 3% to 6% is typical.

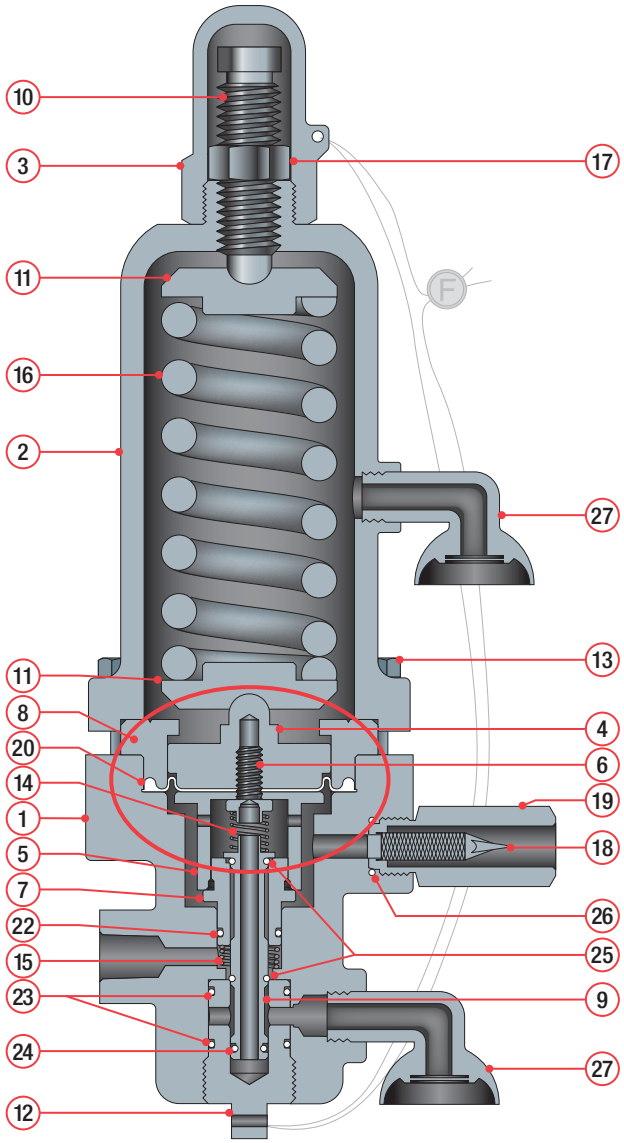
Viton Seats and Seals: have a wide spectrum of chemical compatibility and temperature range to meet most applications and enhance valve life. Buna-N and ethylene propylene soft goods are optional and extend temperature ranges from -65°F to 450°F. Contact the Farris Factory for more information on other construction materials.

Set Pressure Set at Pilot Control: in-line service and setting adjustments are done quickly and easily without main valve intrusion. Subsequent reduction in product loss and fugitive emissions adds to the system's profitability.

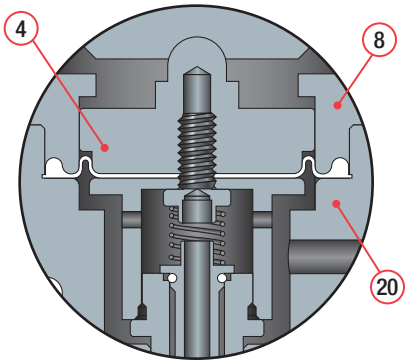
Field Test Capable: using a field test connection allows cycling the pilot control without interrupting system protection or removing the valve from the line. Field testing verifies system integrity in accordance with the ASME Code.

Remote Sensing Capable: when there is excessive inlet piping losses, or when the main valve must be installed at a different location on the protected system because of its service limitations, the pilot sensing line can be installed separate from the main valve.

Suitable for NACE Service: for high quality materials of construction that meet NACE MR0103 or MR0175 service, refer to N1 trim for carbon steel body and N4 trim for stainless steel.

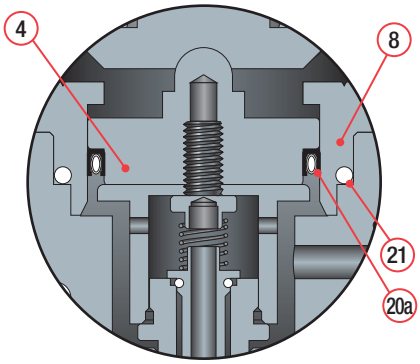


PCM(4): Modulating Control – 15 to 740 psig



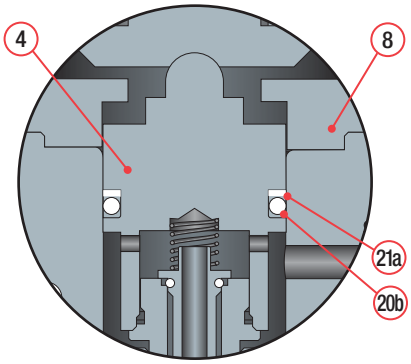
Air, Gas, Vapor and Liquid Service

PCMS(5): Modulating Control – 15 to 740 psig



Air, Gas, Vapor, Liquid and Steam Service

HPCM(6): Modulating Control – 740 to 2220 psig



Air, Gas, Vapor and Liquid Service

ASME UV

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