

**CURTISS -  
WRIGHT**

# Valve Group



## Series 2700

Farris Engineering  
Pressure Relief Valves



CV CONTROL

Representante Oficial  
Tel: +54 11 4932-2322  
Email: [ventas@cvcontrol.com.ar](mailto:ventas@cvcontrol.com.ar)  
[www.cvcontrol.com.ar](http://www.cvcontrol.com.ar)



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# Introduction

Designed to provide customers with the widest selection of sizes, orifices and construction materials, Series 2700 meets the exacting demands of the process industry.

## Superior Design

- A single design handles air, steam, vapor and liquid services.
- Maximum interchangeability of parts affords easy maintenance and lower costs.
- Fixed blowdown design simplifies testing and repair. Maximum blowdown of 5% to 15% regardless of service.<sup>1</sup>
- A built-in lift stop ensures stable performance.
- Balanced design in “C” and “D” orifices nullifies the effects of back pressure on set point.

## ASME Code Certification

- Manufactured in conformance to Section VIII of the ASME Boiler and Pressure Vessel Code for air, steam, and water service.
- Capacities certified by The National Board of Boiler and Pressure Vessel Inspectors.

## Optional O-Ring Seat Design

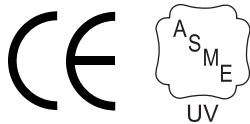
- O-ring seat design available for maximum seat tightness.
- Teflon® available at higher pressures to provide the same zero bubbles per minute leakage as elastomer O-ring seats.

## Comprehensive Product Line

- Set pressures from 15 psig to 6500 psig with orifice areas from 0.068 to 0.573 sq. in.
- Standard valves have MNPT inlet x FNPT outlet. Optional female inlet thread, flanged, socket weld, welding nipple, and sanitary connections available.

## Maximum Selection of Materials

- Standard construction includes 316 stainless steel body, trim and spring, with carbon steel bonnet.
- Optional materials include Monel®, Hastelloy C®, and materials suitable for NACE service.



General Notes:  
1. Blowdown on liquid service may slightly exceed 15% in certain applications.

Teflon is a registered trademark of the DuPont Company.  
Monel is a registered trademark of Inco Alloys International Inc.  
Hastelloy and Hastelloy C are registered trademarks of Haynes International Inc.

## Warranty

All products manufactured by Farris Engineering are warranted free of defects in material and workmanship when used within the range recommended for a period of one year after installation or eighteen months from delivery. When authorized, any defective product may be returned to the factory and if found defective will be repaired or replaced free of charge, solely at the discretion of Farris Engineering, ex-works our factory. No charge for labor or other expense incurred will be allowed, as the liability of Farris Engineering is measured by the refund price of the defective product only. All warranties are based on the product being used within the range recommended and does not cover damages or defects due to normal wear and tear, misuse, alteration or neglect. The purchaser shall determine the suitability of the product for use and assumes all risks and liabilities in connection therewith.

This warranty does not cover the performance of valves tested at site on test equipment that is not to the same technical standard as that used by the manufacturer.

# Numbering System

Selecting and specifying Farris pressure relief valves is simple using the numbering system that follows. Each digit of the type number has a distinct significance. The digits describe the basic valve series, orifice, seat design, inlet temperature range, body, bonnet and spring material, inlet type and pressure rating.

27	D	A	2	3	H-	M	2	0	/S4 <sup>4</sup>				
Series Number	Orifice Area	Seat Construction <sup>5</sup>	Inlet Size <sup>1</sup>	Outlet Size <sup>1</sup>	Special Variations	Inlet Connections	Cap Construction	Test Gag <sup>2</sup>	Special Materials				
27	<b>US Customary Units</b> <b>Sq. In.</b>	<b>A</b> Metal Seat	<b>1</b> 1/2"	<b>3</b> 1"	<b>H</b> High pressure variations of standard types	<b>M</b> MNPT	<b>2</b> Plain	<b>0</b> No Gag	<b>S4</b> Complete 316 St. St. <b>N1</b> NACE Trim: Standard <b>N4</b> NACE Trim: All St. St. <b>M1</b> Monel Body & Disc <b>M2</b> Monel Internals <b>M4</b> Complete Monel <b>H1</b> Hastelloy C Body & Disc <b>H2</b> Hastelloy C Internals <b>H4</b> Complete Hastelloy C				
	<b>C</b> 0.068	<b>C</b> Soft Seat	<b>2</b> 3/4"	<b>4</b> 1-1/2"						<b>B</b> Balanced design <sup>3</sup>	<b>F</b> FNPT	<b>4</b> Packed Lever	<b>1</b> Test Gag
	<b>D</b> 0.125	<b>T</b> Teflon Seat	<b>3</b> 1"	<b>5</b> 2"									
	<b>E</b> 0.223				<b>4</b> 1-1/2"	<b>6</b> 2-1/2"	<b>E</b> Heat transfer fluid high pressure	<b>2</b> Flanged-300RF					
	<b>F</b> 0.350	<b>5</b> Flanged-1500RF	<b>3</b> Flanged-600RF	<b>4</b> Flanged-900RF									
	<b>G</b> 0.573				<b>6</b> Flanged-2500RF	<b>0</b> Special	<b>S</b> Socket Weld						
	<b>Metric mm<sup>2</sup></b>	<b>T</b> Sanitary	<b>W</b> Welding Nipple										
	<b>C</b> 43.87			<b>D</b> 80.65	<b>E</b> 143.87	<b>F</b> 225.81	<b>G</b> 369.68						

# Ordering Information

Please specify the following so that we may process your order as quickly as possible.

- Quantity.\*
- Inlet and outlet sizes.
- Farris type number.\*
- Inlet and outlet connections: MNPT, FNPT, flanged, socket weld, sanitary inlet or welding nipple.
- Materials of construction if other than standard.
- O-ring seat pressure seal material, if required.
- Set pressure.\*
- Operating and relieving temperatures.\*
- Allowable overpressure.\*
- Fluid and fluid state.\*
- Backpressure, superimposed constant and/or variable, and built-up.\*
- Required capacity.\*
- Accessories: open or packed lever if required; test gag.
- Code requirements, if any.

\*As a customer service, we verify your selection and sizing. In order to do this, we must have this information.

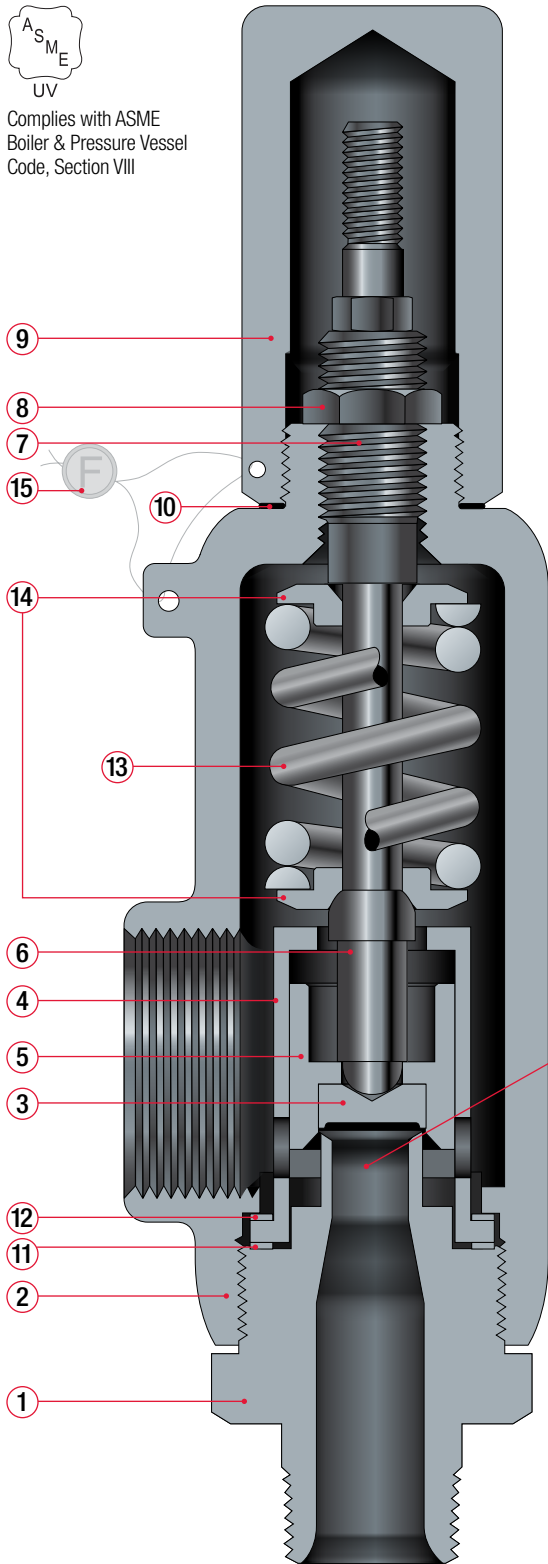
General Notes:

- Not all combinations of inlet and outlet sizes shown are available. Consult the selection tables of pages 4 and 5.
- Test gag option is not available with open lever cap.
- Available in O-ring seat design only. Consult the Farris Factory.
- Duplex stainless steel available upon request, consult the factory.
- Selection of proper soft good material is customer's responsibility.

# 2700 Series – Conventional

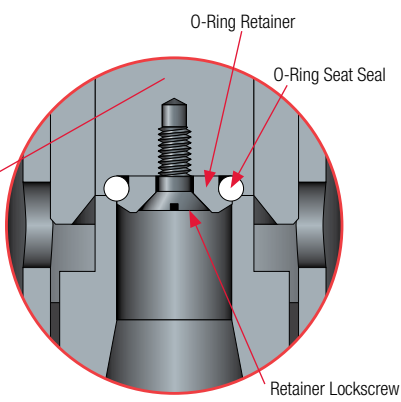


Complies with ASME  
Boiler & Pressure Vessel  
Code, Section VIII

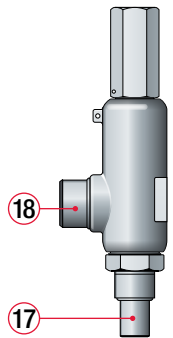


## Bill of Materials – Conventional

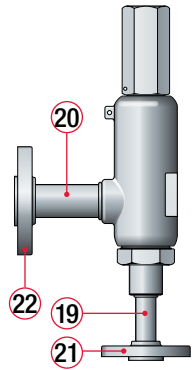
Item	Part Name	Standard Material
1	Body	SA-351 Gr. CF8M St. St. or SA-479 Type 316 St. St.
2	Bonnet	SA-216 Gr. WCB, Carb. St.
3	Disc	316 St. St.
4	Guide	316 St. St.
5	Disc Holder	316 St. St.
6	Stem	316 St. St.
7	Spring Adj. Screw	316 St. St.
8	Jam Nut	316 St. St.
9	Cap, Plain Screwed	Carbon Steel
10	Cap Gasket	316 St. St.
11	Body Gasket	316 St. St.
12	Guide Gasket	316 St. St.
13	Spring (-50°F to +750°F)	Stainless Steel
14	Spring Buttons	316 St. St.
15	Wire Seal	St. St. Wire / Lead Seal
16	Nameplate (Not Shown)	Stainless Steel
17	Welding Nipple (Inlet)	316 St. St.
18	Welding Nipple (Outlet)	Carbon Steel
19	Lap Joint Stub End (Inlet)	316 St. St.
20	Lap Joint Stub End (Outlet)	Carbon Steel
21	Lap Joint Flange (Inlet)	Carbon Steel
22	Lap Joint Flange (Outlet)	Carbon Steel



O-Ring Design (Optional)

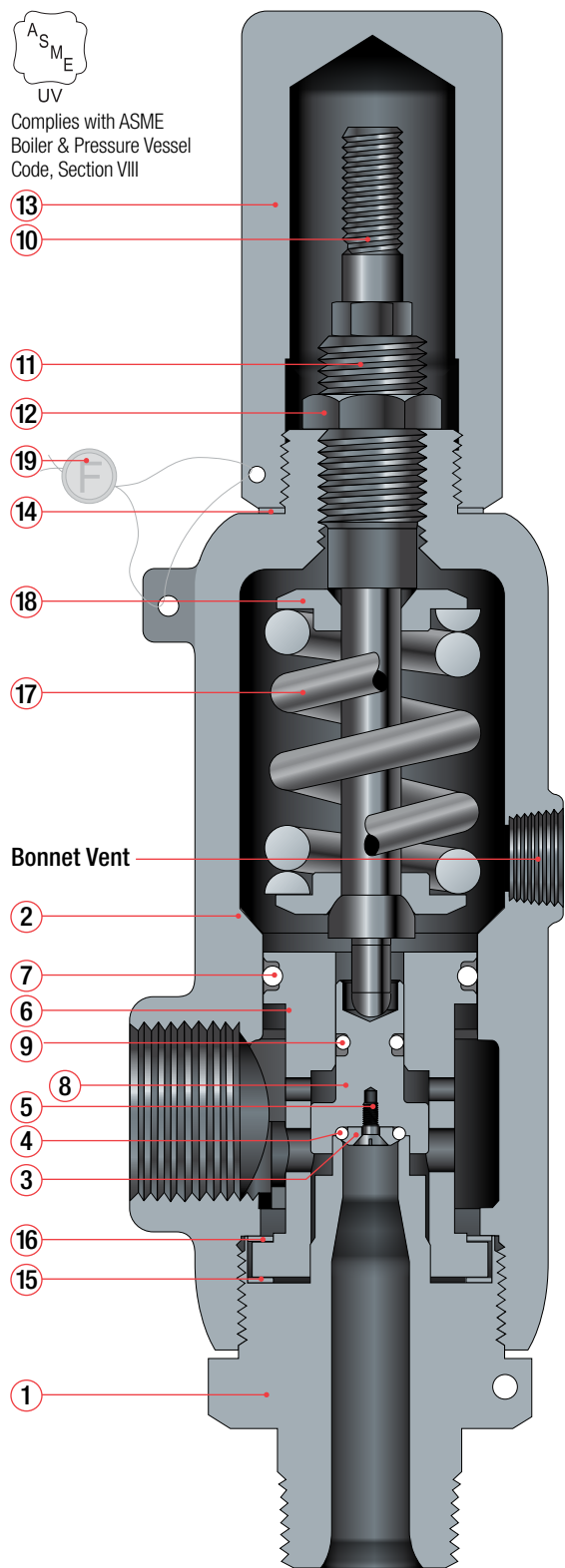


Welded End Design (Optional)



Flanged Design (Optional)

# 2700 Series – Balanced Design



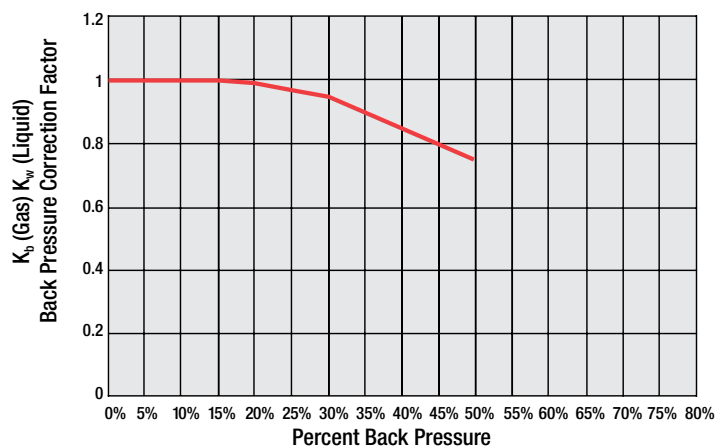
- General Notes:
1. Other O-ring materials available. Consult the factory.
  2. Flanged, socket weld, welding nipple and female inlet threaded designs available.
  3. Temperature for balanced or O-ring seat design is limited by the elastomer selected. See page 4.
- Viton is a registered trademark of DuPont Elastomers.

Do you have variable back pressure? Can't use a balanced bellows design? Farris has the solution with the Series 2700 Balanced Design pressure relief valve. The balanced effect is achieved by isolating the upper valve chamber and eliminating any back pressure build-up in the bonnet affecting valve set pressure.

These valves are available in 1/2", 3/4" and 1" inlet sizes with a 1" outlet and two orifice areas. Pressure ranges from 15 to 1480 psig, standard soft seat design. Flanged and welded inlet and outlet connections are available with the same material options as the standard design.

Bill of Materials – Balanced Design		
Item	Part Name	Standard Material
1	Body	SA-351 Gr. CF8M St. St. or SA-479 Type 316 St. St.
2	Bonnet	SA-216 Gr. WCB, Carb. St.
3	O-ring Retainer	316 St. St.
4	O-ring Seat Seal	Viton®
5	Retainer Lock Screw	304 St. St.
6	Guide	316 St. St.
7	Guide Seal	Viton
8	Disc Holder	316 St. St.
9	Disc Holder Seal	Viton
10	Stem	316 St. St.
11	Spring Adj. Screw	316 St. St.
12	Jam Nut	316 St. St.
13	Cap, Plain Screwed	Carbon Steel
14	Cap Gasket	316 St. St.
15	Body Gasket	316 St. St.
16	Guide Gasket	316 St. St.
17	Spring	Stainless Steel
18	Spring Buttons	316 St. St.
19	Wire Seal	St. St. Wire/Lead Seal
20	Nameplate (Not Shown)	Stainless Steel

Series 2700 Back Pressure Correction Factor, Balanced Design





## O-Ring Selection

The 2700 Series is available with an optional O-ring seat which minimizes fugitive emissions and costly product loss. This optional seat construction provides zero bubbles per minute leakage at 90% of set pressure per API Standard 527. The tables below list the set pressure and temperature range for both the elastomer and PTFE seat options.

O-Ring Seat Valve Pressure & Temperature Limits				
Orifice	Pressure Range, psig <sup>1</sup>		Pressure Range, barg <sup>1</sup>	
	Elastomer Seat	PTFE Seat	Elastomer Seat	PTFE Seat
C High Pressure	15 to 1480 —	800 to 2500 2501 to 6500	1.0 to 102 —	55.1 to 172 172.1 to 345
D High Pressure	15 to 1480 —	800 to 1600 1601 to 6500	1.0 to 102 —	55.1 to 110 110.1 to 345
E	15 to 1480	600 to 2500	1.0 to 102	41.3 to 172
F	15 to 1480	600 to 1600	1.0 to 102	41.3 to 110
G	15 to 1000	200 to 1000	1.0 to 69	14 to 69

Material Availability		
Material	Temperature Range <sup>2</sup>	
	°F	°C
Viton <sup>®5</sup>	-20° to +450°	-29° to +232°
Nitrile	-20° to +250°	-29° to +121°
EPDM	0° to +350°	-18° to +177°
Silicone	-150° to +450°	-101° to +232°
Kalrez <sup>®</sup>	-20° to +550°	-29° to +289°
PTFE	-300° to +500°	-184° to +260°

General Notes:

1. Maximum O-ring set pressure limit cannot exceed the pressure limit for a given type number and size as indicated in the metal seat selection tables.
2. Temperature range may vary depending on service fluid.
3. Ethylene propylene is suitable for steam service up to 350°F, PTFE up to 500°F.
4. Consult the Farris Factory for other materials.
5. We reserve the right to substitute comparable fluorocarbon materials from other manufacturers.

## Selection Table – Conventional Design (see notes on page 5)

Threaded Connections – MNPT x FNPT, U.S. Customary Units						
Orifice Area Sq. In.	Valve Size Inlet x Outlet	Type Number	Maximum Set Pressure, psig	Max. Back Pressure psig at 100°F	Materials	
			-50°F to 750°F		Body / Bonnet	Spring
0.068	1/2 x 1	27CA13-M20	1600	400	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27CA23-M20	2500			
	3/4 x 1	27CA23H-M20	5000			
	1 x 1	27CA33-M20	2500			
	1 x 1	27CA33H-M20	6500			
0.125	1/2 x 1	27DA13-M20	1600	400	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27DA23-M20	1600			
	3/4 x 1	27DA23H-M20	5000			
	1 x 1	27DA33-M20	1600			
	1 x 1	27DA33H-M20	5000			
0.223	1 x 1-1/2	27EA34-M20	2500	400	316 St. St./ Carb. St.	Stainless Steel
0.350	1-1/2 x 2	27FA45-M20	1600	400	316 St. St./ Carb. St.	Stainless Steel
0.573	1-1/2 x 2-1/2	27GA46-M20	1000	400	316 St. St./ Carb. St.	Stainless Steel

Kalrez is a registered trademark of DuPont Elastomers.

## Selection Table – Conventional Design

Flanged Connections, U.S. Customary Units											
Orifice Area Sq. In.	Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, psig			Max. Back Pressure psig at 100°F	Materials		
		Inlet RF	Outlet RF		-50°F to 100°F	400°F	750°F		Body / Bonnet	Spring	
0.068	1/2 x 1	150#	150#	27CA13-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA13-220	740	635	505	285			
		600#	150#	27CA13-320	1480	1270	1010	285			
		900#	300#	27CA13-420	2220	1900	1510	400			
		1500#	300#	27CA13H-520	3705	3170	2520	400			
		2500#	300#	27CA13H-620	5000	5000	4200	400			
	3/4 x 1	150#	150#	27CA23-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA23-220	740	635	505	285			
		600#	150#	27CA23-320	1480	1270	1010	285			
		900#	300#	27CA23-420	2220	1900	1510	400			
		1500#	300#	27CA23H-520	3705	3170	2520	400			
		2500#	300#	27CA23H-620	5000	5000	4200	400			
	1 x 1	150#	150#	27CA33-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA33-220	740	635	505	285			
		600#	150#	27CA33-320	1480	1270	1010	285			
		900#	300#	27CA33-420	2220	1900	1510	400			
		1500#	300#	27CA33H-520	3705	3170	2520	400			
		2500#	300#	27CA33H-620	6170	5280	4200	400			
0.125	1/2 x 1	150#	150#	27DA13-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA13-220	740	635	505	285			
		600#	150#	27DA13-320	1480	1270	1010	285			
		900#	300#	27DA13H-420	2220	1900	1510	400			
	3/4 x 1	150#	150#	27DA23-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA23-220	740	635	505	285			
		600#	150#	27DA23-320	1480	1270	1010	285			
		900#	300#	27DA23H-420	2220	1900	1510	400			
		1500#	300#	27DA23H-520	3705	3170	2520	400			
		2500#	300#	27DA23H-620	5000	5000	4200	400			
	1 x 1	150#	150#	27DA33-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA33-220	740	635	505	285			
		600#	150#	27DA33-320	1480	1270	1010	285			
		900#	300#	27DA33H-420	2220	1900	1510	400			
		1500#	300#	27DA33H-520	3705	3170	2520	400			
		2500#	300#	27DA33H-620	6170	5280	4200	400			
	0.223	1 x 1-1/2	150#	150#	27EA34-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel
			300#	150#	27EA34-220	740	635	505	285		
600#			150#	27EA34-320	1480	1270	1010	285			
900#			300#	27EA34-420	2220	1900	1510	400			
0.350	1-1/2 x 2	150#	150#	27FA45-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27FA45-220	740	635	505	285			
		600#	150#	27FA45-320	1480	1270	1010	285			
0.573	1-1/2 x 2-1/2	150#	150#	27GA46-120	285	200	95	285	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27GA46-220	740	635	505	285			
		600#	150#	27GA46-320	1000	1000	1000	285			

**General Notes:**

- Available with optional elastomer or Teflon seat design as illustrated. Change the fourth digit of the type number from "A" to "C" for soft seat, "A" to "T" for Teflon. Example: 27DC23-M20 for soft seat, 27DT23-M20 for Teflon. See Selection Table for pressure and temperature limits.
- Above type numbers indicate standard materials of construction. To select corrosive or low temperature materials, add type number suffix as indicated on pages 1 and 7.
- Available in materials suitable for sour gas (H<sub>2</sub>S) service to NACE Standards MR0103 and MR0175 / ISO 15156. Add "N1" (standard materials) or "N4" (all stainless construction) to the type number. Example 27DA23-M20/N1 & 27DA23-M20/N4.
- For open or packed levers, change the second digit of the type number suffix. Examples: 27FA45-M70 for open lever, 27GA46-M40 for packed lever.
- For socket weld or welding nipple connections, change the first digit of the type number suffix to "S" for socket weld or "W" for welding nipple inlet and outlet. Examples: 27DC33-S20 for socket weld, 27DA33-W20 for welding nipple. Maximum set pressures are identical to the MNPT inlet up to 500°F. For Temperatures above 500°F, consult the factory.
- Female threaded inlet available. Change first digit of the type number suffix to "F". Example: 27EA34-F20. Maximum set pressure for female inlet is identical to male inlet except for 1/2 x 1" C orifice which may be set to max set pressure of 2500 psig.
- For set pressures below 15 psig, consult the Farris Factory.





## Selection Tables – Balanced Design (see notes on page 5)

Threaded Connections – MNPT x FNPT, U.S. Customary Units							
Orifice Area Sq. In.	Valve Size Inlet x Outlet	Type Number	Maximum Set Pressure, psig		Max. Back Pressure psig at 100°F	Materials	
			-20°F to 450°F			Body / Bonnet	Spring
0.068	1/2 x 1	27CC13B-M20	1480	400	400	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27CC23B-M20					
	1 x 1	27CC33B-M20					
0.125	1/2 x 1	27DC13B-M20	1480	400	400	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27DC23B-M20					
	1 x 1	27DC33B-M20					

Flanged Connections, U.S. Customary Units									
Orifice Area Sq. In.	Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, psig		Max. Back Pressure psig at 100°F	Materials	
		Inlet RF	Outlet RF		-20°F to 100°F	400°F		Body / Bonnet	Spring
0.068	1/2 x 1	150#	150#	27CC13B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC13B-220	740	635	285		
		600#	150#	27CC13B-320	1480	1270	285		
		900#	300#	27CC13B-420	1480	1270	400		
	3/4 x 1	150#	150#	27CC23B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC23B-220	740	635	285		
		600#	150#	27CC23B-320	1480	1270	285		
		900#	300#	27CC23B-420	1480	1270	400		
	1 x 1	150#	150#	27CC33B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC33B-220	740	635	285		
		600#	150#	27CC33B-320	1480	1270	285		
		900#	300#	27CC33B-420	1480	1270	400		
0.125	1/2 x 1	150#	150#	27DC13B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC13B-220	740	635	285		
		600#	150#	27DC13B-320	1480	1270	285		
	3/4 x 1	150#	150#	27DC23B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC23B-220	740	635	285		
		600#	150#	27DC23B-320	1480	1270	285		
	1 x 1	150#	150#	27DC33B-120	285	200	285	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC33B-220	740	635	285		
		600#	150#	27DC33B-320	1480	1270	285		



## Special Materials

Corrosive & Low Temperature Service								
Part Name	316 St. St.		Monel			Hastelloy C		
	N1 (NACE)	S4 & N4 (NACE)	M1	M2	M4	H1	H2	H4
	-50°F to 750°F	-450°F to 750°F <sup>2</sup>	-50°F to 600°F		-325°F to 600°F	-50°F to 500°F		-325°F to 500°F
Body			Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
Bonnet		SA-351 Gr. CF8M St. St.			Monel			Hastelloy C
Disc			Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
Guide				Monel	Monel		Hastelloy C	Hastelloy C
Disc Holder				Monel	Monel		Hastelloy C	Hastelloy C
Stem					Monel			Hastelloy C
Spring Adj. Screw					Monel			Hastelloy C
Jam Nut					Monel			Hastelloy C
Cap, Plain Screwed		316 St. St.			Monel			Hastelloy C
Cap Gasket					Monel			Hastelloy C
Body Gasket				Monel	Monel		Hastelloy C	Hastelloy C
Guide Gasket				Monel	Monel		Hastelloy C	Hastelloy C
Spring <sup>6</sup>	Inconel <sup>®</sup> X-750	316 St. St./ Inconel X-750		Inconel X-750	Inconel X-750		Inconel X-750	Hastelloy C
Spring Buttons					Monel			Hastelloy C
O-Ring Retainer <sup>5</sup>		316 St. St.	Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
Retainer Lock Screw <sup>5</sup>		316 St. St.	Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
O-Ring Seat Seal <sup>5</sup>								
Guide Seal <sup>5</sup>								
Disc Holder Seal <sup>5</sup>								
Wire Seal								
Nameplate (Not Shown)								
Welding Nipple (Inlet)			Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
Welding Nipple (Outlet)		316 St. St.			Monel			Hastelloy C
Lap Joint Stub End (Inlet)			Monel	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C
Lap Joint Stub End (Outlet)		316 St. St.			Monel			Hastelloy C
Lap Joint Flange (Inlet) <sup>4</sup>		316 St. St.			Monel			Hastelloy C
Lap Joint Flange (Outlet) <sup>4</sup>		316 St. St.			Monel			Hastelloy C

General Notes:

1. Any part where material field is blank is standard material.
2. For S4 trim, a 17-4 Ph. or 17-7 Ph. spring may be necessary for some pressures and temperatures.
3. For open and packed lever materials, see page 14.
4. Maximum set pressures for S4, M4, and H4 trim are the same as the carbon steel valves or the 316 St. St., Monel and Hastelloy C flange limits respectively, whichever is lower.
5. Temperature for balanced or O-ring seat design is limited by the elastomer selected. Consult chart on page 4.
6. Balanced design uses the same spring selection as the standard design. Where NACE compliant trim is specified, all trim classes for both conventional and balanced designs use springs made from Inconel X-750.

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# Capacity Tables – 2700 Series

U.S. Customary Units: ASME Pressure Vessel Code, Section VIII (UV) Stamp

<b>AIR – 10% Overpressure Capacities in Standard Cubic Feet Per Minute at 60°F</b>					
Set Pressure (psig)	Orifice Area, Sq. In.				
	C	D	E	F	G
	0.068	0.125	0.223	0.350	0.573
15	35	65	117	183	301
20	41	75	135	212	347
30	52	95	171	268	439
40	64	117	210	330	540
50	76	140	249	392	642
60	88	162	288	454	743
70	100	184	328	515	844
80	112	206	368	577	946
90	124	228	407	639	1047
100	136	250	447	701	1148
150	196	361	644	1011	1655
200	256	471	841	1320	2161
250	316	582	1038	1630	2668
300	376	692	1235	1939	3175
350	436	803	1432	2248	3681
400	497	913	1630	2558	4188
450	557	1024	1827	2867	4695
500	617	1134	2024	3177	5201
550	677	1245	2221	3486	5708
600	737	1355	2418	3796	6215
650	797	1466	2615	4105	6721
700	857	1576	2813	4415	7228
750	917	1687	3010	4724	7735
800	978	1797	3207	5034	8241
850	1038	1908	3404	5343	8748
900	1098	2018	3601	5653	9255
950	1158	2129	3799	5962	9761
1000	1218	2240	3996	6272	10268
1050	1278	2350	4193	6581	
1100	1338	2461	4390	6891	
1150	1398	2571	4587	7200	
1200	1459	2682	4784	7509	
1250	1519	2792	4982	7819	
1300	1579	2903	5179	8128	
1350	1639	3013	5376	8438	
1400	1699	3124	5573	8747	
1450	1759	3234	5770	9057	
1500	1819	3345	5967	9366	
1550	1879	3455	6165	9676	
1600	1940	3566	6362	9985	
1650	2000	3676	6559		
1700	2060	3787	6756		
1750	2120	3897	6953		
1800	2180	4008	7151		
1850	2240	4118	7348		
1900	2300	4229	7545		
2000	2421	4450	7939		
2100	2541	4671	8334		
2200	2661	4892	8728		
2300	2781	5113	9122		
2400	2902	5334	9577		
2500	3022	5555	9911		
2600	3142	5776			
2700	3262	5997			
2800	3383	6218			
2900	3503	6439			
3000	3623	6661			
3500	4224	7766			
4000	4826	8871			
4500	5427	9976			
5000	6028	11081			
5500	6629				
6000	7231				
6500	7832				

<b>STEAM – 10% Overpressure Capacities in Pounds Per Hour at Saturation Temperature</b>					
Set Pressure (psig)	Orifice Area, Sq. In.				
	C	D	E	F	G
	0.068	0.125	0.223	0.350	0.573
15	100	184	329	516	846
20	115	212	379	595	975
30	146	269	480	754	1234
40	180	331	591	927	1519
50	214	393	702	1101	1803
60	247	455	812	1275	2088
70	281	517	923	1449	2373
80	315	579	1034	1623	2657
90	349	641	1145	1797	2942
100	382	704	1255	1971	3227
150	551	1014	1809	2840	4650
200	720	1325	2363	3710	6073
250	889	1635	2917	4579	7497
300	1058	1946	3471	5448	8920
350	1227	2256	4025	6318	10344
400	1396	2567	4579	7187	11767
450	1565	2877	5133	8057	13190
500	1734	3188	5687	8926	14614
550	1903	3498	6241	9796	16037
600	2072	3809	6795	10665	17461
650	2241	4119	7349	11535	18884
700	2410	4430	7903	12404	20307
750	2578	4740	8457	13273	21731
800	2747	5051	9011	14143	23154
850	2916	5361	9565	15012	24578
900	3085	5672	10119	15882	26001
950	3254	5982	10673	16751	27424
1000	3423	6293	11227	17621	28848
1050	3592	6603	11781	18490	
1100	3761	6914	12335	19359	

**General Notes:**

1. Capacities at 30 psig and below are based on 3 psi overpressure.
2. For sizing purposes, the coefficients of discharge K are 0.878 for air, gas & steam; 0.676 for water.

# Capacity Tables – 2700 Series

U.S. Customary Units: ASME Pressure Vessel Code, Section VIII (UV) Stamp

<b>WATER – 10% Overpressure Capacities<sup>3</sup> in U.S. Gallons Per Minute at 70°F</b>					
Set Pressure (psig)	Orifice Area, Sq. In.				
	C	D	E	F	G
	0.068	0.125	0.223	0.350	0.573
15	7.4	13.6	24.3	38.1	62.4
20	8.3	15.3	27.4	43.1	70.5
30	10.0	18.4	32.9	51.6	84.5
40	11.5	21.2	37.9	59.6	97.6
50	12.9	23.8	42.4	66.6	109
60	14.1	26.0	46.5	73.0	119
70	15.3	28.1	50.2	78.8	129
80	16.3	30.1	53.7	84.3	138
90	17.3	31.9	56.9	89.4	146
100	18.3	33.6	60.0	94.2	154
150	22.4	41.2	73.5	115	189
200	25.9	47.6	84.9	133	218
250	28.9	53.2	94.9	149	244
300	31.7	58.3	104	163	267
350	34.2	63.0	112	176	288
400	36.6	67.3	120	188	308
450	38.8	71.4	127	200	327
500	40.9	75.3	134	210	345
550	42.9	78.9	140	221	362
600	44.8	82.4	147	230	378
650	46.7	85.8	153	240	393
700	48.4	89.0	158	249	408
750	50.1	92.2	164	258	422
800	51.8	95.2	169	266	436
850	53.4	98.1	175	274	450
900	54.9	101	180	282	463
950	56.4	103	185	290	475
1000	57.9	106	189	298	488
1050	59.3	109	194	305	
1100	60.7	111	199	312	
1150	62.1	114	203	319	
1200	63.4	116	208	326	
1250	64.7	119	212	333	
1300	66.0	121	216	339	
1350	67.3	123	220	346	
1400	68.5	126	224	352	
1450	69.7	128	228	359	
1500	70.9	130	232	365	
1550	72.1	132	236	371	
1600	73.2	134	240	377	
1650	74.4	136	244		
1700	75.5	138	247		
1750	76.6	140	251		
1800	77.7	142	254		
1850	78.7	144	258		
1900	79.8	146	261		
2000	81.9	150	268		
2100	83.9	154	275		
2200	85.9	157	281		
2300	87.8	161	288		
2400	89.7	164	294		
2500	91.5	168	300		
2600	93.4	171			
2700	95.1	174			
2800	96.9	178			
2900	98.6	181			
3000	100	184			
3500	108	199			
4000	115	212			
4500	122	225			
5000	129	238			
5500	135				
6000	141				
6500	147				

General Notes:

1. Capacities at 30 psig and below are based on 3 psi overpressure.
2. For sizing purposes, the coefficients of discharge K are 0.878 for air, gas & steam; 0.676 for water.
3. To determine capacity at 25% overpressure, multiply the capacity at 10% by 1.066.



## Selection Tables – Conventional Design

Threaded Connections – MNPT x FNPT, Metric Units						
Orifice Area mm <sup>2</sup>	Valve Size Inlet x Outlet	Type Number	Maximum Set Pressure, barg	Max. Back Pressure barg at 37.8°C	Materials	
			-45.6°C to 399°C		Body / Bonnet	Spring
43.87	1/2 x 1	27CA13-M20	110	28	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27CA23-M20	172			
	3/4 x 1	27CA23H-M20	345			
	1 x 1	27CA33-M20	172			
	1 x 1	27CA33H-M20	448			
80.65	1/2 x 1	27DA13-M20	110	28	316 St. St./ Carb. St.	Stainless Steel
	3/4 x 1	27DA23-M20	110			
	3/4 x 1	27DA23H-M20	345			
	1 x 1	27DA33-M20	110			
	1 x 1	27DA33H-M20	345			
143.87	1 x 1-1/2	27EA34-M20	172	28	316 St. St./ Carb. St.	Stainless Steel
225.81	1-1/2 x 2	27FA45-M20	110	28	316 St. St./ Carb. St.	Stainless Steel
369.68	1-1/2 x 2-1/2	27GA46-M20	69	28	316 St. St./ Carb. St.	Stainless Steel

### General Notes:

- Available with optional elastomer or Teflon seat design as illustrated. Change the fourth digit of the type number from "A" to "C" for soft seat, "A" to "T" for Teflon.  
Examples: 27DC23-M20 for soft seat, 27DT23-M20 for Teflon. For O-ring pressure and temperature limits, see selection table on page 4.
- Above type numbers indicate the standard materials of construction. To select corrosive or low temperature materials, add type number suffix as indicated on pages 1 and 7.
- Available in materials suitable for sour gas (H<sub>2</sub>S) service to NACE Standards MR0103 and MR0175 / ISO 15156. Add "N1" (standard materials) or "N4" (all stainless construction) to the type number. Example 27DA23-M20/N1 & 27DA23-M20/N4.
- For open or packed levers, change the second digit of the type number suffix. Examples: 27FA45-M70 for open lever, 27GA46-M40 for packed lever.
- For socket weld or welding nipple connections, change the first digit of the type number suffix to "S" for socket weld or "W" for welding nipple inlet and outlet.  
Examples: 27DA33-S20 for socket weld, 27DA33-W20 for welding nipple.
- Female threaded inlet available. Change first digit of the type number suffix to "F". Example: 27EA34-F20. Maximum set pressure for female inlet is identical to male inlet except for 1/2 x 1" C orifice which may be set to 172 barg max set pressure.
- For set pressures below 1 barg (15 psig), consult the Farris Factory.

## Selection Tables – Conventional Design

Flanged Connections, Metric Units											
Orifice Area mm <sup>2</sup>	Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, barg			Max. Back Pressure barg at 37.8°C	Materials		
		Inlet RF	Outlet RF		-45.6°C to 37.8°C	204°C	399°C		Body / Bonnet	Spring	
43.87	1/2 x 1	150#	150#	27CA13-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA13-220	51	44	35	20			
		600#	150#	27CA13-320	102	88	69	20			
		900#	300#	27CA13-420	153	131	104	28			
		1500#	300#	27CA13H-520	255	218	174	28			
		2500#	300#	27CA13H-620	345	345	290	28			
	3/4 x 1	150#	150#	27CA23-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA23-220	51	44	35	20			
		600#	150#	27CA23-320	102	88	69	20			
		900#	300#	27CA23-420	153	131	104	28			
		1500#	300#	27CA23H-520	255	218	174	28			
		2500#	300#	27CA23H-620	345	345	290	28			
	1 x 1	150#	150#	27CA33-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27CA33-220	51	44	35	20			
		600#	150#	27CA33-320	102	88	69	20			
		900#	300#	27CA33-420	153	131	104	28			
		1500#	300#	27CA33H-520	255	218	174	28			
		2500#	300#	27CA33H-620	425	364	290	28			
80.65	1/2 x 1	150#	150#	27DA13-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA13-220	51	44	35	20			
		600#	150#	27DA13-320	102	88	69	20			
		900#	300#	27DA13H-420	153	131	104	28			
	3/4 x 1	150#	150#	27DA23-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA23-220	51	44	35	20			
		600#	150#	27DA23-320	102	88	69	20			
		900#	300#	27DA23H-420	153	131	104	28			
		1500#	300#	27DA23H-520	255	218	174	28			
		2500#	300#	27DA23H-620	345	345	290	28			
	1 x 1	150#	150#	27DA33-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27DA33-220	51	44	35	20			
		600#	150#	27DA33-320	102	88	69	20			
		900#	300#	27DA33H-420	153	131	104	28			
		1500#	300#	27DA33H-520	255	218	174	28			
		2500#	300#	27DA33H-620	425	364	290	28			
	143.87	1 x 1-1/2	150#	150#	27EA34-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel
			300#	150#	27EA34-220	51	44	35	20		
600#			150#	27EA34-320	102	88	69	20			
900#			300#	27EA34-420	153	131	104	28			
225.81	1-1/2 x 2	150#	150#	27FA45-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27FA45-220	51	44	35	20			
		600#	150#	27FA45-320	102	88	69	20			
369.68	1-1/2 x 2-1/2	150#	150#	27GA46-120	20	14	6	20	316 St. St./ Carb. St.	Stainless Steel	
		300#	150#	27GA46-220	51	44	35	20			
		600#	150#	27GA46-320	69	69	69	20			



## Selection Tables – Balanced Design

Threaded Connections – MNPT x FNPT, Metric Units							
Orifice Area mm <sup>2</sup>	Valve Size Inlet x Outlet	Type Number	Maximum Set Pressure, barg		Max. Back Pressure barg at 37.8°C	Materials	
			-28.9°C to 232°C			Body / Bonnet	Spring
43.87	1/2 x 1 3/4 x 1 1 x 1	27CC13B-M20	102	102	28	316 St. St./ Carb. St.	Stainless Steel
		27CC23B-M20					
		27CC33B-M20					
80.65	1/2 x 1 3/4 x 1 1 x 1	27DC13B-M20	102	102	28	316 St. St./ Carb. St.	Stainless Steel
		27DC23B-M20					
		27DC33B-M20					

Flanged Connections, Metric Units									
Orifice Area mm <sup>2</sup>	Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, barg		Max. Back Pressure barg at 37.8°C	Materials	
		Inlet RF	Outlet RF		-28.9°C to 37.8°C	204°C		Body / Bonnet	Spring
43.87	1/2 x 1	150#	150#	27CC13B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC13B-220	51	44	20		
		600#	150#	27CC13B-320	102	88	20		
		900#	300#	27CC13B-420	102	88	28		
	3/4 x 1	150#	150#	27CC23B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC23B-220	51	44	20		
		600#	150#	27CC23B-320	102	88	20		
		900#	300#	27CC23B-420	102	88	28		
	1 x 1	150#	150#	27CC33B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27CC33B-220	51	44	20		
		600#	150#	27CC33B-320	102	88	20		
		900#	300#	27CC33B-420	102	88	28		
80.65	1/2 x 1	150#	150#	27DC13B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC13B-220	51	44	20		
		600#	150#	27DC13B-320	102	88	20		
	3/4 x 1	150#	150#	27DC23B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC23B-220	51	44	20		
		600#	150#	27DC23B-320	102	88	20		
	1 x 1	150#	150#	27DC33B-120	20	14	20	316 St. St./ Carb. St.	Stainless Steel
		300#	150#	27DC33B-220	51	44	20		
		600#	150#	27DC33B-320	102	88	20		

# Capacity Tables – 2700 Series

Metric Units: ASME Pressure Vessel Code, Section VIII (UV) Stamp

AIR – 10% Overpressure Capacities in Standard Cubic Meters Per Minute at 15.6°C					
Set Pressure (barg)	Orifice Area mm <sup>2</sup>				
	C	D	E	F	G
	43.87	80.65	143.87	225.81	369.68
1	0.9	1.8	3.2	5.1	8.4
2	1.4	2.6	4.7	7.4	12.1
3	1.9	3.5	6.3	9.9	16.3
4	2.4	4.4	7.9	12.5	20.5
5	2.9	5.3	9.6	15.0	24.6
6	3.4	6.2	11.2	17.6	28.8
7	3.9	7.2	12.8	20.1	33.0
8	4.4	8.1	14.4	22.7	37.1
9	4.9	9.0	16.0	25.2	41.3
10	5.4	9.9	17.7	27.7	45.5
12	6.3	11.7	20.9	32.8	53.8
14	7.3	13.5	24.1	37.9	62.1
16	8.3	15.3	27.4	43.0	70.5
18	9.3	17.1	30.6	48.1	78.8
20	10.3	19.0	33.9	53.2	87.1
25	12.8	23.5	42.0	65.9	108
30	15.2	28.1	50.1	78.7	128
35	17.7	32.6	58.2	91.4	149
40	20.2	37.1	66.3	104	170
45	22.7	41.7	74.4	116	191
50	25.1	46.2	82.5	129	212
55	27.6	50.8	90.6	142	233
60	30.1	55.3	98.7	155	253
65	32.5	59.9	106	167	274
70	35.0	64.4	115	180	295
75	37.5	69.0	123	193	
80	40.0	73.5	131	205	
85	42.4	78.1	139	218	
90	44.9	82.6	147	231	
95	47.4	87.1	155	244	
100	49.9	91.7	163	256	
105	52.3	96.2	171	269	
110	54.8	100	179	282	
115	57.3	105	187		
120	59.7	109	196		
125	62.2	114	204		
130	64.7	119	212		
135	67.2	123	220		
140	69.6	128	228		
145	72.1	132	236		
150	74.6	137	244		
155	77.1	141	252		
160	79.5	146	260		
165	82.0	150	269		
170	84.5	155	277		
175	86.9	159			
180	89.4	164			
185	91.9	169			
190	94.4	173			
195	96.8	178			
200	99.3	182			
220	109	200			
240	119	218			
260	129	237			
280	138	255			
300	148	273			
320	158	291			
340	168	309			
360	178				
380	188				
400	198				
420	208				
440	218				
448	221				

General Notes:  
 1. Capacities at 2.0 barg set pressure and below are based on 0.2 bar overpressure.  
 2. For sizing purposes the coefficients of discharge Kd are 0.975 for Air, Gas, & Steam, 0.751 for liquids.

WATER – 10% Overpressure Capacities in Litres Per Minute at 21°C <sup>3</sup>					
Set Pressure (barg)	Orifice Area mm <sup>2</sup>				
	C	D	E	F	G
	43.87	80.65	143.87	225.81	369.68
1	27.6	50.8	90.7	142	233
2	37.4	68.7	122	192	315
3	45.7	84.0	150	235	385
4	52.8	97.0	173	271	445
5	59.0	108	193	303	497
6	64.6	118	212	332	545
7	69.8	128	229	359	588
8	74.6	137	244	384	629
9	79.2	145	259	407	667
10	83.5	153	273	429	703
12	91.4	168	300	470	770
14	98.8	181	324	508	832
16	105	194	346	543	890
18	112	205	367	576	944
20	118	217	387	607	995
25	132	242	433	679	1112
30	144	265	474	744	1218
35	156	287	512	804	1316
40	167	307	547	859	1407
45	177	325	580	911	1492
50	186	343	612	961	1573
55	195	360	642	1008	1650
60	204	376	670	1052	1723
65	212	391	698	1095	1794
70	220	406	724	1137	1861
75	228	420	750	1177	
80	236	434	774	1215	
85	243	447	798	1253	
90	250	460	821	1289	
95	257	473	844	1324	
100	264	485	866	1359	
105	270	497	887	1392	
110	276	509	908	1425	
115	283	520	928		
120	289	531	948		
125	295	542	968		
130	301	553	987		
135	306	564	1006		
140	312	574	1024		
145	318	584	1042		
150	323	594	1060		
155	328	604	1078		
160	334	614	1095		
165	339	623	1112		
170	344	632	1129		
175	349	642			
180	354	651			
185	359	660			
190	364	669			
195	368	677			
200	373	686			
220	391	720			
240	409	752			
260	425	782			
280	441	812			
300	457	840			
320	472	868			
340	486	895			
360	501				
380	514				
400	528				
420	541				
440	553				
448	558				

General Notes:  
 1. Capacities at 2.0 barg set pressure and below are based on 0.2 bar overpressure.  
 2. For sizing purposes the coefficients of discharge Kd are 0.975 for Air, Gas, & Steam, 0.751 for liquids  
 3. To determine capacity at 25 % overpressure multiply the capacity at 10 % by 1.066.



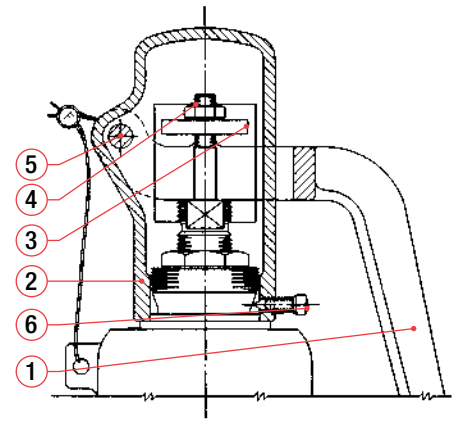
# Capacity Tables – 2700 Series

Metric Units: ASME Pressure Vessel Code, Section VIII (UV) Stamp

STEAM – 10% Overpressure Capacities in Kilograms Per Hour at Saturation Temperature					
Set Pressure (barg)	Orifice Area mm <sup>2</sup>				
	C	D	E	F	G
	43.87	80.65	143.87	225.81	369.68
1	44.9	82.5	147	231	378
2	65.1	119	213	335	548
3	87.2	160	286	449	735
4	109	201	359	563	922
5	131	242	432	678	1110
6	154	283	505	792	1297
7	176	324	578	907	1485
8	198	364	651	1021	1672
9	220	405	723	1136	1860
10	243	446	796	1250	2047
12	287	528	942	1479	2422
14	332	610	1088	1708	2797
16	376	692	1234	1938	3172
18	421	773	1380	2167	3547
20	465	855	1526	2396	3922
25	576	1060	1891	2968	4860
30	688	1264	2256	3541	5797
35	799	1469	2621	4114	6735
40	910	1673	2986	4686	7672
45	1021	1878	3351	5259	8610
50	1133	2082	3715	5832	9547
55	1244	2287	4080	6404	10485
60	1355	2491	4445	6977	11422
65	1466	2696	4810	7550	12360
70	1578	2900	5175	8122	13298
75	1689	3105	5540	8695	14235

General Notes:

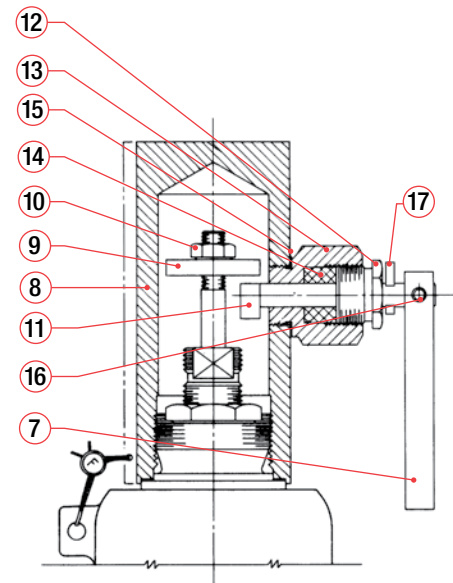
1. Capacities at 2.0 barg set pressure and below are based on 0.2 bar overpressure.
2. For sizing purposes the coefficients of discharge Kd are 0.975 for Air, Gas, & Steam, 0.751 for liquids.



Open Lever Construction  
Figure 1.5

## Cap Constructions

Cap Constructions									
Cap Construction	Item No.	Part Name	Standard Materials	316 St. St.		Monel		Hastelloy C	
				S4 <sup>2</sup> & N4	N1	M1 & M2	M4	H1 & H2	H4
M70 Open Lever	1	Test Lever	Iron						
	2	Cap, O.L.	Iron						
	3	Stem Test Washer	St. St.	316 St. St.		Monel		Hast. C	
	4	Stem Jam Nut	St. St.	316 St. St.		Monel		Hast. C	
	5	Button Head Rivet	Steel						
	6	Set Screw	Steel						
M40 Packed Lever	7	Test Lever	Steel						
	8	Cap, Packed	Steel	316 St. St.		Monel		Hast. C	
	9	Stem Test Washer	St. St.	316 St. St.		Monel		Hast. C	
	10	Stem Jam Nut	St. St.	316 St. St.		Monel		Hast. C	
	11	Cam	St. St.	316 St. St.		Monel		Hast. C	
	12	Gland	St. St.	316 St. St.		Monel		Hast. C	
	13	Gland Nut	St. St.	316 St. St.		Monel		Hast. C	
	14	Packing Ring	Graphite						
	15	Gland Nut Gasket	Flexible Graphite	PTFE, Filled	PTFE, Filled		PTFE, Filled		PTFE, Filled
	16	Groove Pin	Steel Plt'd						
	17	Retaining Ring	St. St.						

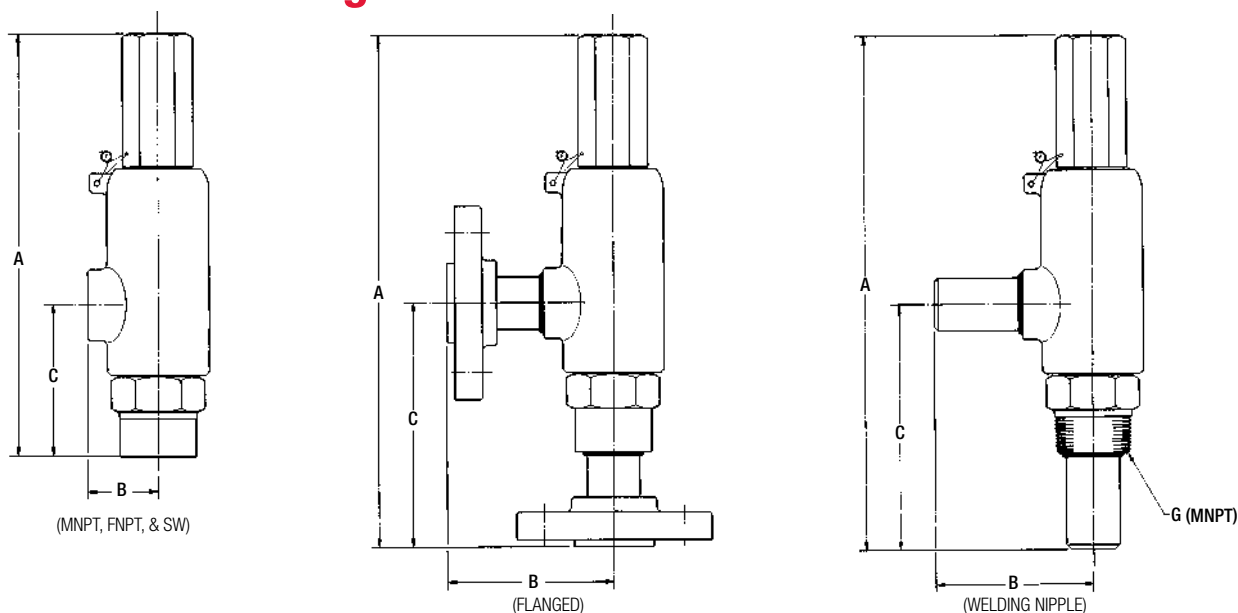


Packed Lever Construction  
Figure 1.6

General Notes:

1. Any part where material field is blank is standard material.
2. "S4" trim suitable for cryogenic service.

# Dimensions & Weights



Threaded Connections (MNPT x FNPT)								
Valve Size <sup>1</sup> Inlet x Outlet	US Customary Units (Inches)			Metric Units (millimeters)			Approx. Weight	
	A (Max.) All Cap Const.	B	C	A (Max.) All Cap Const.	B	C	lb	kg
C and D Orifice								
1/2 x 1	11-1/4	1-3/4	3-9/16	282	45	91	8	3.6
3/4 x 1	11-1/4	1-3/4	3-9/16	286	45	91	8	3.6
3/4 x 1 H.P.	13-5/8	2-1/2	3-3/4	346	64	95	14	6.3
1 x 1	11-1/2	1-3/4	3-3/4	292	45	95	8	3.6
1 x 1 H.P.	13-5/8	2-1/2	3-3/4	346	64	95	14	6.3
E Orifice								
1 x 1-1/2	13-5/8	2-1/2	3-1/2	346	64	89	16	7.2
F Orifice								
1-1/2 x 2	14-9/16	3	3-7/8	370	76	98	17	7.7
G Orifice								
1-1/2 x 2-1/2	14-9/16	3	4-1/8	370	76	105	18	8.1

Socket Weld & FNPT x FNPT Connections								
Valve Size <sup>1</sup> Inlet x Outlet	US Customary Units (Inches)			Metric Units (millimeters)			Approx. Weight	
	A (Max.) All Cap Const.	B	C	A (Max.) All Cap Const.	B	C	lb	kg
C and D Orifice								
1/2 x 1	11-7/16	1-3/4	3-11/16	291	45	94	8	3.6
1/2 x 1 H.P.	13-5/8	2-1/2	3-3/4	346	64	95	14	6.3
3/4 x 1	11-7/16	1-3/4	3-11/16	291	45	94	8	3.6
3/4 x 1 H.P.	13-5/8	2-1/2	3-3/4	346	64	95	14	6.3
1 x 1	11-7/16	1-3/4	3-11/16	291	45	94	8	3.6
1 x 1 H.P.	13-5/8	2-1/2	3-3/4	346	64	95	14	6.3
E Orifice								
1 x 1-1/2	13-3/8	2-1/2	3-1/2	340	64	89	16	7.2
F Orifice								
1-1/2 x 2	14-9/16	3	3-7/8	370	76	98	17	7.7
G Orifice								
1-1/2 x 2-1/2	14-9/16	3	4-1/8	370	76	105	18	8.1

**General Notes:**

1. H.P. designates the high pressure version of a given inlet size.
2. Same pipe thread connections also used on socket weld models with corresponding inlet sizes.
3. Tolerance for "B" and "C" dimensions is  $\pm 1/8"$ .



## Dimensions & Weights

Flanged Connections											
Orifice Area Sq. In.	Valve Size Inlet x Outlet	ANSI Flange Class		US Customary Units (Inches)			Metric Units (millimeters)			Weight	
		Inlet RF	Outlet RF	A (Max.)	B	C	A (Max.)	B	C	lb	kg
0.068 & 0.125	1/2 x 1	150#	150#	14	5-3/16	6-1/4	356	132	159	15	6.8
		300#	150#								
	600#	150#									
	900#	300#									
	3/4 x 1	1500#	300#	16-1/8	5-15/16	6-1/4	410	151	159	22	9.9
		2500#	300#								
150#		150#	13-15/16	5-3/16	6-3/16	354	132	157	15	6.8	
300#		150#									
600#	150#										
900#	300#										
1 x 1	150#	150#	14 7/8	5-3/16	7-1/8	378	132	181	15	6.8	
	300#	150#									
	600#	150#									
	900#	300#									
0.223	1 x 1-1/2	150#	150#	16-13/16	5-13/16	6-15/16	427	148	176	26	11.7
		300#	150#								
0.350	1-1/2 x 2	600#	150#	17-7/8	8-3/16	7-3/16	454	208	183	30	13.6
		900#	300#								
0.573	1-1/2 x 2-1/2	150#	150#	17-1/8	8-3/16	7-7/16	435	208	189	32	14.5
		300#	150#								
		600#	150#								

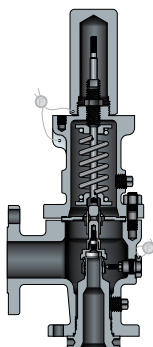
Welding Nipple Connections									
Valve Size <sup>1</sup>	US Customary Units (Inches)				Metric Units (millimeters)			Approx. Weight	
Inlet x Outlet	A (Max.) All Cap Const.	B	C	G <sup>4</sup> (MNPT)	A (Max.) All Cap Const.	B	C	lb	kg
C and D Orifice									
1/2 x 1	13	3-3/16	5-1/4	1	330	81	133	9	4
1/2 x 1 H.P.	15-3/16	3-15/16	5-5/16	1	386	100	135	15	6.8
3/4 x 1	12-15/16	3-3/16	5-3/16	1-1/4	329	81	132	9	4
3/4 x 1 H.P.	15-1/8	3-15/16	5-1/4	1-1/4	384	100	133	15	6.8
1 x 1	12-7/8	3-3/16	5-1/8	1-1/2	327	81	130	9	4
1 x 1 H.P.	15-1/16	3-15/16	5-3/16	1-1/2	383	100	132	15	6.8
E Orifice									
1 x 1-1/2	14-13/16	3-13/16	4-15/16	1-1/2	376	97	125	17	7.7
F Orifice									
1-1/2 x 2	15-7/8	5-3/16	5-3/16	2	403	132	132	18	8.1
G Orifice									
1-1/2 x 2-1/2	15-7/8	5-3/16	5-7/16	2	403	132	128	19	8.6

General Notes:

- H.P. designates the high pressure version of a given inlet size.
- Same pipe thread connections also used on socket weld models with corresponding inlet sizes.
- Tolerance for "B" and "C" dimensions is  $\pm 1/8$ ".
- Standard U.S. MNPT pipe thread.

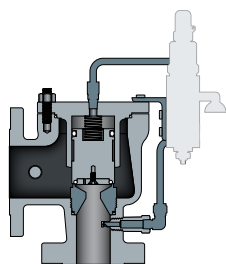
# Farris Engineering Products

## Process Pressure Relief Valves



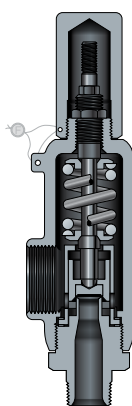
### SERIES 2600/2600L

- ASME NB Certified: Air, Steam & Water
- Sizes: 1" x 2" to 20" x 24"
- Pressure Range: 15 psig to 6000 psig
- Temperature Range: -450°F to +1500°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Options: Balanced Bellows, O-Ring Seat, Open Bonnet
- CE Approved



### SERIES 3800 Pilot Operated

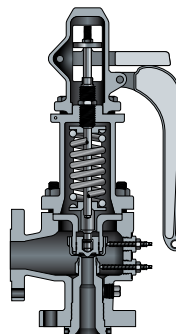
- ASME NB Certified: Air, Steam & Water
- Sizes: 1" x 2" to 12" x 16"
- Pressure Range: 15 psig to 6170 psig
- Temperature Range: -450°F to +500°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Actuation: Snap and Modulating Controls
- Options: Field Test Connections, Reverse Flow Preventer, Remote Depressurizing & Auxiliary Filters
- CE Approved



### SERIES 2700

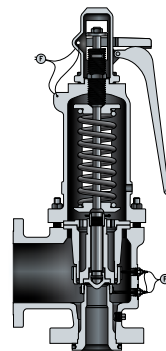
- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 1" to 1 1/2" x 2 1/2"
- Pressure Range: 15 psig to 6500 psig
- Temperature Range: -450°F to +750°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Options: Balanced Design, O-Ring Seats, Flanged, Socket Weld, Welding Nipple, & Sanitary Connections
- CE Approved

## Steam Safety Valves



### SERIES 4200

- ASME NB Section I & VIII Certified: Steam & Air
- Sizes 1/4" x 1 1/2" to 6" x 8"
- Pressure Range: 15 psig to 1000 psig
- Temperature Range: -20°F to +1000°F
- Materials: Carbon Steel, Stainless Steel, Chrome-Moly
- Options: Test Gag
- CE Approved



### SERIES 6400

- ASME NB Section I & VIII Certified: Steam & Air
- Sizes: 1" x 2" to 4" x 6"
- Pressure Range: 15 psig to 1500 psig
- Temperature Range: -20°F to +1000°F
- Materials: Carbon Steel, Stainless Steel, Chrome-Moly
- Options: Closed Bonnet (6600) & Test Gag

\*Other materials available upon request. Please consult the factory.

# Farris Engineering Products and Services

## Process Pressure Relief Valves – ASME Code Section VIII

Series 2600	ASME NB Certified for Air, Steam
Series 2600S	ASME NB Certified for Air and Steam
Series 2600L	ASME NB Certified for Air, Steam and Water
Series 3800	ASME NB Certified for Air, Steam and Water
Series 2700	ASME NB Certified for Air, Steam and Water
Series 1890 / 1896M	ASME NB Certified for Air, Steam, & Water

## Steam Safety Valves – ASME Code Section I & VIII

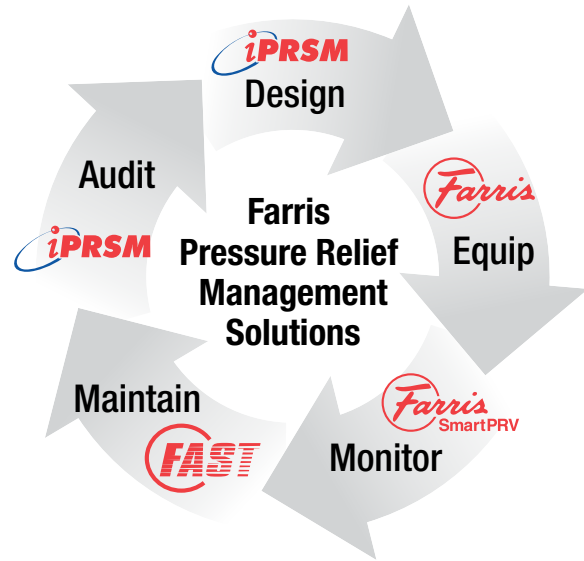
Series 4200	ASME NB Certified for Steam
Series 6400/6600	ASME NB Certified for Steam

## Nuclear Pressure Relief Valves

Series 4700/4700L	ASME NB Section III, Division 1 Class I, II & III
Series 2700/3700	ASME NB Section III, Division 1 Class I, II & III
Series 2600/2600L	ASME NB Section III, Division 1 Class I, II & III
Series 3800	ASME NB Section III, Division 1 Class I, II & III

## Certifications and Approvals:

- ASME V, UV, NV and NPT
- National Board Approval, NB
- ISO 9001-2008
- PED 97/23/EC (European Pressure Equipment Directive)
- ATEX 94/9/EC (European Potentially Explosive Atmospheres)
- CSA B51 (Canadian Registration)
- CSQL (China Safety Quality License)
- Russian GOST-R Certification and RTN Permit
- US Coast Guard
- Nuclear - 10 CFR 50 Appendix B, NCA-4000, NQA-1, N285.0
- First Point Assessment Limited



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Pressure Relief Valve Engineering Software for Sizing and Selection

## PSM Engineering Services

- Pressure Relief System Design Services
- Pressure Relief System Audit Services
- iPRSM Pressure Relief System Management Software



Representante Oficial  
Tel: +54 11 4932-2322  
Email: ventas@cvcontrol.com.ar  
www.cvcontrol.com.ar

# CURTISS - WRIGHT



10195 Brecksville Road, Brecksville, OH 44141 USA • Telephone: 440-838-7690 • Fax: 440-838-7699

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