Series 2600

Pressure Relief Valves

Other Farris Engineering Products

Process Pressure Relief Valves

Series 3800	ASME NB Certified for Air and Water
Series 2700	ASME NB Certified for Air, Steam and Water
Series 1890/1896M	ASME NB Certified for Air, Steam and Water
Series 2850/2856	ASME NB Certified for Air and Steam

Steam Safety Valves

Series 6400/6600	ASME NB Certified for Steam – Section I

Universal Test Stand
Tests Valves on Air and Water

SizeMaster™ Mark IV
Pressure Relief Valve Engineering Software for Sizing and Selection

The following is a list of Farris approvals currently on record:

- ISO 9001-2000
- PED 97/23/EC (European Pressure Equipment Directive)
- Russian GOST-R and GGNT (Russian Certification and Permits)
- First Point Assesment Limited
- China Safety Quality License
- ASME "V", "NV" and "UV" approvals
- National Board "NB" approval

Farris Engineering
Division of Curtiss-Wright Flow Control Corporation

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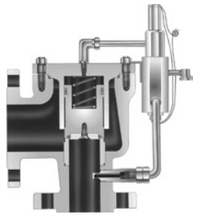
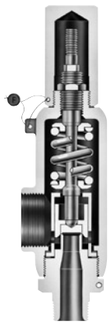
Other Farris Engineering Products

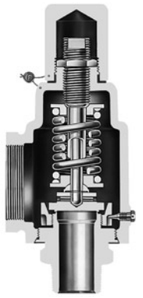
Process Pressure Relief Valves



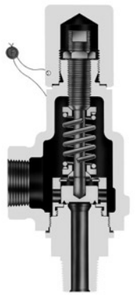
Series 3800 Pilot Operated
- ASME NB Certified: Air & Water
- Sizes: 1" x 2" to 12" x 16"
- Pressure Range: 15 psig to 6170 psig
- Temperature Range: -450°F to +500°F
- Materials: Carbon Steel Body & Cover, Stainless Steel Trim
- Options: Modulating Pilot Control, Complete 316 Stainless Steel Construction



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 +800°F
- Materials: Stainless Steel Body & Trim, Carbon Steel Bonnet
- Options: Stainless Steel, Monel & Hastelloy Materials, O-Ring Seats, Flanged, Socket Weld, Welding Nipple, & Sanitary Connections

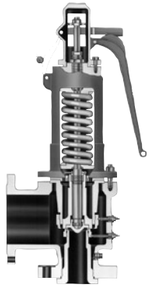


Series 2850
- ASME NB Certified: Air & Steam
- Sizes: 3/4" x 1" to 1-1/2" x 2"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -20°F to +750°F
- Materials: Stainless Steel Body & Trim with Carbon Steel Bonnet



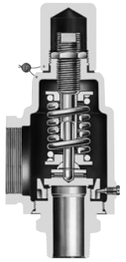
Series 1890
- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 1" & 3/4" x 1"
- Pressure Range: 15 psig to 800 psig
- Temperature Range: -20°F to +750°F
- Materials: Stainless Steel Body & Trim with Carbon Steel Bonnet

Steam Safety Valves

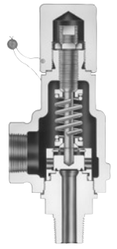


Series 6400/6600
- ASME Section I NB Certified: Steam
- Sizes: 1" x 2" to 4" x 6"
- Pressure Range: 15 psig to 1500 psig
- Temperature Range: -20°F to +1000°F
- Materials: Carbon and Stainless Steel
- Options: Exposed Spring & Closed Bonnet

Special Purpose Pressure Relief Valves



Series 2856
- ASME NB Certified: Air & Steam
- Sizes: 3/4" x 1-1/4" to 2" x 3"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -400°F to +400°F
- Materials: Brass Body & Trim, Bronze Bonnet



Series 1896M
- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 3/4" & 3/4" x 3/4"
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -400°F to +400°F
- Materials: Brass Body & Trim, Bronze Bonnet

Test Stands

Models T1500 & T6000
- Air & Water Testing
- Maximum Pressures of 1500 psig and 6000 psig
- Test Valves from 1/2" to 8" Inlet Size
- Stainless Steel Test Drum & Test Table
- Digital Test Gauge

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Introduction

This catalog covers Series 2600, 2600S and 2600L Pressure Relief Valves including the latest information available to assist you in the sizing and selection of the proper valves for your application.

Farris pressure relief valves have over a half century of proven performance providing automatic and positive protection against overpressure in thousands of industrial plants and facilities worldwide. Our earned reputation as "the First Line of Safety" is the result of countless Farris innovations combined with progressive engineering, sound design and high quality production.

Our headquarters and manufacturing facility located in Brecksville, Ohio, oversees the production of these superior valves at plants in the United States, Canada and the United Kingdom. Our associated facility in Australia is also equipped with precision machinery and controlled by rigid inspection and standards to produce quality pressure relief valves to meet your needs. The Brecksville facility is also responsible for research and development, engineering, manufacturing technology, and sales and marketing. We offer the services of our engineering sales representatives throughout the world as well as our authorized assemblers and headquarters staff to extend you every possible customer service.

Guarantee

All products manufactured by Farris Engineering, a division of Curtiss-Wright Flow Control Corporation, are guaranteed free of defects in material and workmanship for a period of one year when used within the recommended range. When authorized, any defective product may be returned to the Factory, and if found defective, will be repaired or replaced free of charge, F.O.B. 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.

Table of Contents

Farris pressure relief valves are designed to automatically protect your equipment against excessive overpressure. Every care is taken in the development, design and production of these valves to ensure complete dependability in performance. Our constant objective is to provide a superior valve that will assure ultimate protection at the lowest cost, both initially and throughout its service life.

What is the Farris Advantage?

- Easy sizing and selection of valves using Farris catalogs and/or SizeMaster™ Sizing and Selection software.
- A method of specification and ordering that is simple, accurate and complete.
- Accurate and timely shipments in accordance with our computerized inventories.
- Factory-trained engineering/sales staff to assist you in solving your pressure relief valve problems.
- Streamlined design to allow you maximum flexibility in the use and repair of your Farris pressure relief valves.
- Assurance of the utmost safety of your equipment when protected by a Farris valve.
- Maximum seat tightness in accordance with stringent inspection and testing.
- Complete repair and maintenance information that affords you repairs in your own maintenance shop.
- Maximum interchangeability of parts.
- Continuous availability of replacement parts at our plants and authorized service centers for immediate shipment to meet your emergency requirements.
- Long service life of a soundly-designed pressure relief valve made from materials suited to your service.
- Twenty-four hour/seven-day customer support is via our Web based Farris Plus Program accessible to all Farris Representatives.

Valve Selection

This catalog simplifies the sizing and selection of Series 2600 process pressure relief valves. The pressure relief valves are presented here in an easy-to-understand format. Unless otherwise stated, references made to the Code refer specifically to ASME Section VIII, Division 1.

Certified Capacity Code Compliance

The Series 2600 pressure relief valves have been carefully constructed and tested in accordance with the requirements of the ASME Pressure Vessel Code, Section VIII. Their capacity rating for the applicable fluids is certified by the National Board of Boiler and Pressure Vessel Inspectors.

Range of Service Application

Series 2600 pressure relief valves are designed to function equally well on air, gases and steam or in liquid service. For specific Code applications in liquid service, Farris 2600L relief valves offer superior performance. This catalog covers orifice ranges “D” through “Z”.

Nozzle Design

The Farris full nozzle pressure relief valve design (Fig 1) incorporates a nozzle shape to provide:

1. A high stable flow coefficient.
2. Greater strength to resist possible discharge piping strains.
3. Wrenching provisions on raised face nozzles where they will not interfere with the flow path.

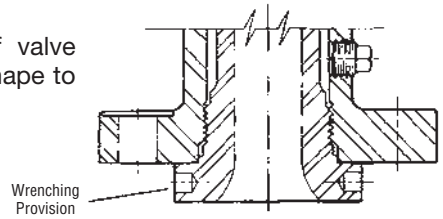


Figure No. 1

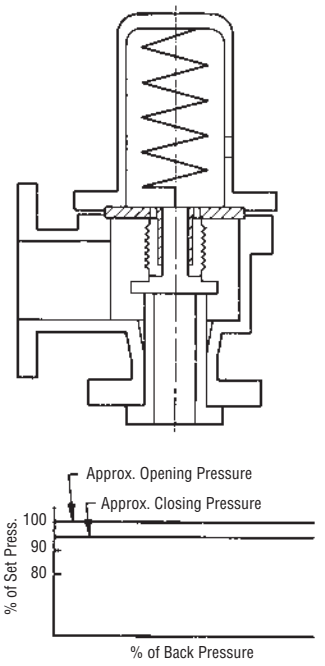
The superior design allows easy maintenance by simplifying nozzle removal and assembly.

Balanced Bellows Design

Both the Farris BalanSeal balanced bellows (Fig 2A) and the BalanSeal/Piston pressure relief valve provide consistent capacity, set pressure and blow down at elevated backpressure encountered when valves discharge into headers or where other devices produce variable backpressure in the relief manifold system. Nozzle can be removed from Body with the Blowdown Ring attached.

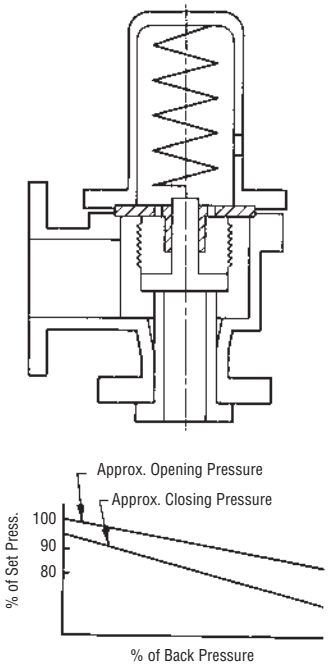
The Farris BalanSeal design permits simple conversion of conventional construction valves to BalanSeal balanced bellows construction by adding a bellows and bellows gasket for orifice sizes “F” through “T”.

The “D” and “E” orifices are available with balanced bellows through the class 600 inlet, with higher class valves available in an unbalanced bellows design (Fig 2B). The unbalanced bellows is used for corrosion isolation applications, and can also be used where constant backpressure is encountered. Spring setting compensation is made for constant backpressure applications.



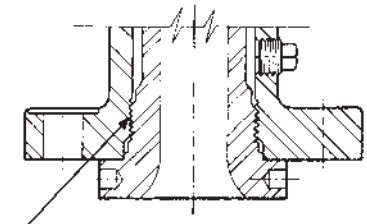
Balanced Farris Bellows

Figure No. 2A



Unbalanced Bellows

Figure No. 2B



Threaded connection of nozzle located in inlet flange to avoid distortion on the nozzle seating surface.

Figure No. 3

If connected to a closed system, specific care should be taken to keep piping strains away from the pressure relief valve under all conditions of process operation.

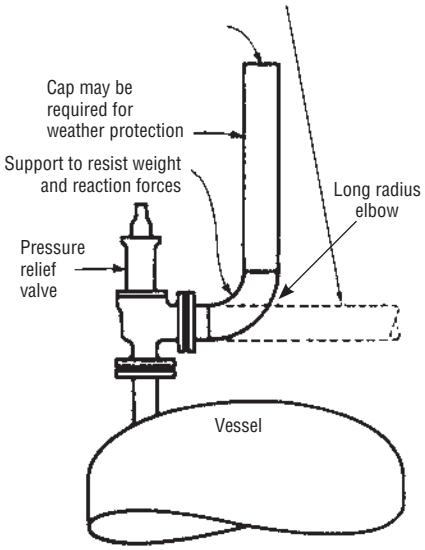


Figure No. 4

Resistance to Discharge Piping Strains

For most pressure relief valves, and particularly for those from which the discharge must be piped away to a remote location, it is almost impossible to keep piping strains away from the valve. The superior Farris pressure relief valve design incorporates several features which allow this valve to take a maximum amount of piping strain without hampering the functional characteristics of the valve or contributing to serious leakage.

1. The threaded connection between the valve nozzle and the valve inlet flange is located low in the flange so that any distortion which may take place at the inlet neck of the body is not transmitted to the valve nozzle. This eliminates the effect of the distortion on the nozzle seating surface and the subsequent serious leakage through the valve (Fig 3).

2. The accurate guiding in the Farris design, using the double universal ball joint construction above and below the sleeve guide, will allow the disc seat to align itself positively with the nozzle seat in cases where the discharge piping strains cannot be avoided and have forced the upper portion of the valve out of exact alignment (Fig 4 & 5).

3. The superior strength built into the body of the Farris pressure relief valve to resist these discharge piping strains materially reduces the deflection and distortion in the valve and reduces the leakage encountered, when at times discharge piping strains become excessive.

In spite of these features, however, it is advisable to minimize the discharge piping strain on any pressure relief valve. It is our recommendation that piping engineers eliminate these discharge piping strains as much as possible under all operating conditions. Additional information on allowable external loads is provided in the Farris Technical Recommendations publication.

Isolation of Bonnet Spring Chamber

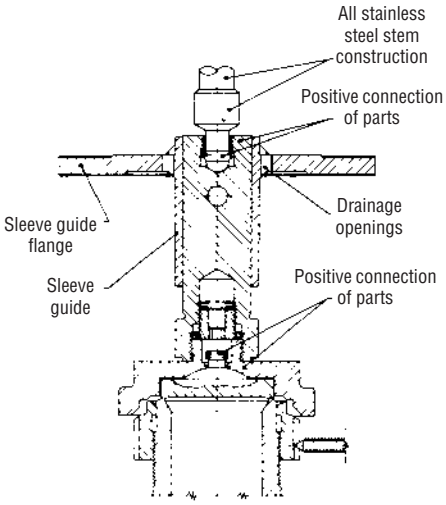
The Farris pressure relief valve huddling chamber is engineered to extract the flow forces required to overcome the force of the spring as well as the forces resulting from the body and bonnet pressure when the valve is open. In other designs, the use of eductor tubes, venting the guide directly into the valve body, or other techniques are used in an attempt to keep the huddling chamber or body pressure away from the topside of the disc to obtain full lift and capacity. These designs may have undesirable effects on valve performance, life and maintenance. Special attention should be given in the following cases:

1. **High Temperature.** In Farris pressure relief valves on high temperature service, there is no induced or forced flow of the hot lading fluid into the bonnet spring chamber, so relaxation of the spring due to high temperature does not occur as rapidly as it does in other valve designs. As a result, blow down in the Farris valve is stabilized for longer flowing periods than in competitive designs.
2. **Corrosive Service.** In Farris pressure relief valves on corrosive service, there is no induced or forced flow of the corrosive lading fluid past the guiding surfaces during valve operation. This reduces the corrosive effect of the lading fluid on the guiding surfaces and valve spring, so lowering the frequency of galling and spring failure with the accompanying reduction of maintenance costs and unscheduled downtime.
3. **Dirty Service.** Where small foreign particles can be carried in the gas or vapor stream, there is no induced or forced flow in the Farris design carrying these small particles between the guiding surfaces. Galling of the guide surfaces, which frequently causes the valve to “hang” or “freeze” in either an open or closed position, is eliminated.

The Farris design avoids all these difficulties by discharging directly from the huddling chamber into the valve body without inducing flow past the guiding surfaces into the spring chamber or forcing flow past the guiding surfaces because of the large pressure drop between the huddling chamber and the valve body.

Integral Sleeve Guide

The Farris pressure relief valve design incorporates an integral sleeve guide (Fig 5), assuring continual positive alignment after the part has been manufactured, and including the same high corrosion resistant properties in the guide flange that are present in the sleeve portion of the guide. The sleeve guide is extended above the top of the guide flange, minimizing the possibility of corrosive or other foreign particles washing onto the guiding surfaces when the valve is relieving or when it is "breathing" as a result of atmospheric temperature changes. Openings are provided in the guide flange to allow these solid particles to leave the bonnet, preventing them from passing between the guiding surfaces and causing galling.



Integral Sleeve Guide

Figure No. 5

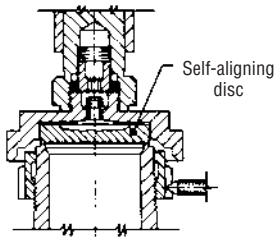
Tightness

In a spring loaded pressure relief valve, the force exerted by the system pressure under the valve disc approaches the opposing spring force on top of the valve disc as the system operating pressure nears the set pressure of the valve. Since the operating pressure of the system is often 90% of the valve set pressure, the differential force holding the seats together is quite small.

There are several factors which affect the tightness of the spring loaded pressure relief valve, including alignment, disc strength, thermal distortion, and preparation of seating surfaces. The Farris valve is engineered for exceptional tightness because of positive alignment, a high strength disc design, the elimination of thermal distortion and optimum seating surface finish.

Positive Alignment. Using the double universal joint, 2½ to 1 guiding ratio, and self-aligning disc, positive alignment of internal parts is achieved. Mis-alignment is avoided, improving tightness and eliminating other undesirable effects such as long blow down.

High Strength Disc Design. In the Farris valve, the thickness of the self-aligning disc (Fig 6) is no greater than necessary; however, the same thickness is maintained for all catalog materials. For purposes of strength, the disc is strong enough in bending moment for all materials shown in the catalog. Valves constructed with hardened discs are exceptional in withstanding the effects of impact, an advantage where installation or process conditions may cause chatter.



High Strength Disc

Figure No. 6

Elimination of Thermal Distortion. In a pressure relief valve, especially on high or low temperature service, a single large disc, with its top surface exposed to atmospheric temperature when the valve is closed, has a temperature gradient between the surface contacted by the lading fluid and the surface contacted by the ambient temperature in the valve body or bonnet. This temperature gradient induces thermal stresses in a heavy disc that can cause deformation of the seating surfaces and consequent leakage of the valve.

The Farris self-aligning disc is essentially encased in a disc holder with contact at only one central point, so that the conduction or convection of heat around the disc is quite low. As a result, the thermal stresses at the seating surface practically disappear. This gives further assurance of tightness over the range of temperatures used in various operations.

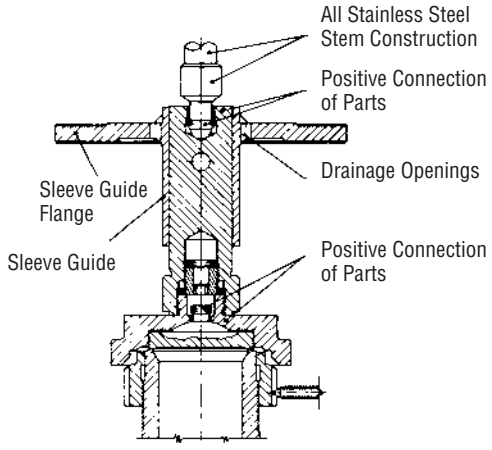
Optimum Seating Surface Finish. Seat surfaces are machine lapped and polished to produce flatness (as measured with optical flats) that deviates less than eleven millionths of an inch from a true plane, with a surface finish of five micro inches or less. Regardless of the seating surfaces, maximum tightness will not be achieved unless positive alignment and elimination of thermal distortion are integral design features of the valve.

All Stainless Steel Stem Construction

The Farris pressure relief valve design features an all stainless steel stem. This construction cost-effectively eliminates dangerous sticking due to galvanic corrosion at the upper guiding point in the spring adjusting screw. The careful design of this upper bearing also ensures proper alignment and optimum freedom from galling and erratic popping.

Positive Connection of Parts

The Farris design incorporates a positive connection between the valve stem and the stem retainer as well as between the disc and disc holder (Fig 7). These connections are made with a male threaded head which threads into a portion of a female socket through which it drops free into an undercut chamber to make bearing contact on a spherical surface. This allows complete freedom of action for alignment purposes while retaining the positive connection of the threads. It also eliminates the need to use snap ring connections which, in some cases, are not sufficiently positive during valve operations and may be inadvertently left out during maintenance.



Positive Connection of Parts

Figure No. 7

The Farris two-piece design of disc holder and stem retainer features a positive locking device called the disc holder lock screw. Any attempt to disassemble these parts causes the lock screw to lock tighter, unless first disengaged. The lock screw provides a positive lock between these two parts that makes them equivalent to a single part but without the associated disadvantages. The two-piece assembly allows conversion to bellows construction at a minimal investment. The two-piece design also allows the stem retainer to be constructed of less corrosion-resistant material than the disc holder, when a bellows is installed to isolate the moving parts. When maintenance requires parts replacement, the entire assembly will not need replacement if only one piece is damaged.

Convertibility of Design

The Farris pressure relief valve is available as a conventional valve and as a BalanSeal (balanced bellows) valve. The conversion of this valve from conventional to BalanSeal, or vice versa, requires only the addition or removal of the balanced bellows and bellows gasket in the valve, and the coincidental removal or replacement of a pipe plug in the valve bonnet vent. No other parts are required and all other parts are completely interchangeable. This unique feature is offered in orifices “F” through “T”.

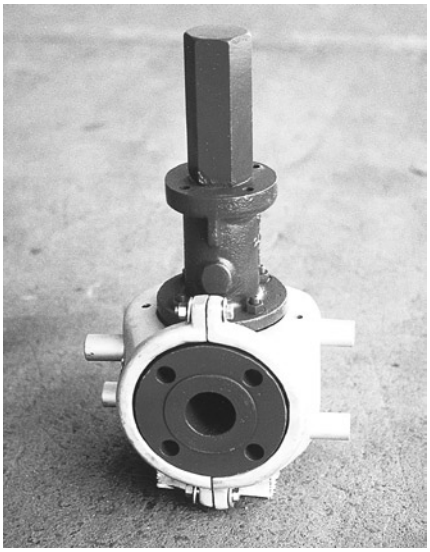
In addition, the bonnet of the valve is constructed so that all valves can be equipped with a plain screwed cap, bolted cap, an open lever or packed lifting lever without changing any other valve parts or fully disassembling the valve.

Body and Bonnet of Equal Materials

Although the Farris pressure relief valve does not induce circulation of the lading fluid through the bonnet, the bonnet and the valve body are made of the same high quality steel. It is important that both the body and bonnet be made of materials suitable for the service in which the valve will be used, especially in the case of high temperature services.

Steam Jacketing for Better Heat Transfer

In modern process plants, it is necessary to keep some valves and lines warm at all times to avoid solidification of the lading fluid and to guarantee the safety of equipment. Farris offers a steam jacket (Fig 8) to substantially increase the rate of heat transfer into the valve and, at the same time, simplify the problem of removing or dismantling the valve for maintenance. This design offers a separate two-piece jacket that installs on a standard valve body. See details on page 71.



Steam Jacketed Body

Figure No. 8

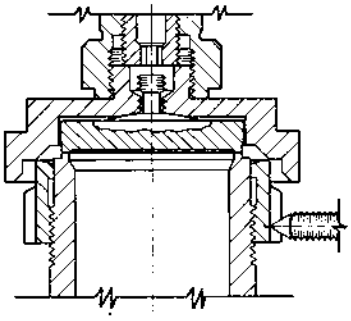
Simple, Accurate Adjustments

The single Blow Down Ring construction of the Farris pressure relief valve allows simple shop or field setting, something not possible with multiple ring valve types.

In most process plants, it is not possible or economical to test the pressure relief valve in place on the process equipment, so the valve is tested while mounted on a maintenance shop test stand where the pressure and volume for testing are often limited. With the Farris design, the single Blow Down Ring is adjusted in the maintenance shop so that the set pressure point can be observed. After the set pressure is established, the Blow Down Ring is adjusted to a lower empirically predetermined or field established position depending on set pressure, size and lading fluid (Figs 9A, 9B). Blow Down Ring settings and test equipment recommendations are detailed in maintenance manuals published by Farris Engineering.

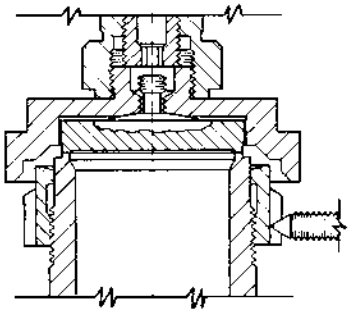
Interchangeability of Parts

In the Farris pressure relief valve design, maximum interchangeability of parts is maintained in order to reduce the number of spare parts needed and keep spare parts inventories to a minimum.



Blow Down Ring Adjustment
For Set Pressure Test

Figure No. 9A



Blow Down Ring Adjustment
For Service Operation – Vapors

Figure No. 9B

Standard Flanged Connections

1. All steel raised face flanges are supplied with a serrated spiral finish with 30 to 55 grooves per inch and a finish between 125 and 160 AARH.
2. All ring joint flanged facings are supplied for octagonal or oval gaskets.
3. Facings other than raised face or large male can be supplied at additional cost.
4. Flange ratings that conform to ANSI B16.5 are indicated on each Orifice Selection Table. Heavier outlet flanges can be supplied at additional cost. For flange dimensions, see ANSI Dimension Table, page 77.
5. Drilling of all flanges always straddles the valve center line.

Valve Trim

Trim is a term that generally refers to internal parts of a pressure relief valve. Unless noted, valve trim in a Farris pressure relief valve specifically includes the nozzle and disc only. Standard bills of materials for all 2600 Series valves are located on pages 12 and 13. For low temperature and corrosive service materials, see pages 17 through 21. If other than standard trim or metallurgy is required, this must be specified.

Differential Between Operating and Set Pressure

For best performance in process applications, we recommend pressure relief valves be set to open at a minimum of 10% or 25 psig above the operating pressure. A suitable margin above the operating pressure should be provided in order to prevent any unintended operation of the pressure relief valve. Refer to ASME Section VIII Pressure Vessel Code, Appendix M, Paragraph M-11, Pressure Differentials for Pressure Relief Valves as well as to Farris Technical Recommendations for complete information.

In the case of pump and compressor discharge lines, a greater differential is recommended if possible, since pulsations within the system can result in faulty valve operation. Consequently, the pressure relief valve should be set as high above the discharge line pressure as possible.

Set Pressure Compensation for Temperature

An increase in temperature causes a reduction of valve set pressure as a result of the direct effect of temperature on the spring and expansion of body and bonnet which reduces spring loading. Since pressure relief valves are invariably tested at atmospheric temperature, it is customary to adjust the set pressure at ambient conditions to compensate for higher operating temperatures as indicated in the following table.

All Service Fluids

Operating Temperature	% Increase in Set Pressure At Atmospheric Temperature
-450° F to 300° F	None
301° F to 600° F	1%
601° F to 900° F	2%
901° F to 1200° F	3%

Steam service valves are tested on steam by the manufacturer and require no additional temperature compensation. Where the set pressure is above the production steam test facility limits, Section VIII steam valves may be tested on air. When steam valves are tested on air, compensation shown in the All Service Fluids Table should be used.

Low Pressure Settings

Low set pressure limits are indicated in the following table. These limits apply to both metal-to-metal and O-ring seat construction. Low pressure settings may be governed by valve design and performance and/or Code application limits. Pressure vessels having operating pressures not exceeding 15 psig are not considered within the scope of the ASME Code, Section VIII. Accordingly, pressure relief valve requirements for such applications are governed by other Codes and Standards that should be consulted.

The sizing equations for compressible fluids provided herein are valid for sonic flow conditions and should not be used to size pressure relief valves for applications in which subsonic (below 15 psig) flow conditions may exist. Low pressure applications can be reviewed by the Factory and special valves provided to meet those requirements.

Valve Series	Construction	Low Set Pressure Limit (psig)
2600 2600S 2600L	Conventional	15
2600 2600S 2600L 2600 Bal/Piston	BalanSeal BalanSeal/Piston	15*

**Low set pressure limit for "D" and "E" orifice BalanSeal (balanced bellows) valves are 50 psig and 25 psig respectively.*

SAFETY VALVE – an automatic pressure relieving device actuated by the static pressure upstream of the valve, and characterized by rapid full opening or pop action. Used for steam, gas or vapor service.

RELIEF VALVE – an automatic pressure relieving device actuated by the static pressure upstream of the valve, which opens in proportion to the increase in pressure over the opening pressure.

SAFETY RELIEF VALVE – an automatic pressure actuated relieving device suitable for use as either a safety or relief valve, depending on the application.

PRESSURE RELIEF VALVE – a pressure relief device designed to re-close and prevent the further flow of fluid after normal conditions have been restored.

SET PRESSURE – in pounds per square inch gage, the inlet pressure at which the pressure relief valve is adjusted to open under service conditions. In a safety or safety relief valve in gas, vapor or steam service, the set pressure is the inlet pressure at which the valve pops under service conditions. In a relief or safety relief valve in liquid service, the set pressure is the inlet pressure at which the first steady steam flows from the valve perpendicular to the outlet.

DIFFERENTIAL SET PRESSURE – the pressure differential, in pounds per square inch between the set pressure and the constant superimposed back pressure. It is applicable only when a conventional type safety relief valve is being used in service against a constant superimposed back pressure.

COLD DIFFERENTIAL TEST PRESSURE – in pounds per square inch gage is the inlet static pressure at which the pressure relief valve is adjusted to open on the test stand. This pressure includes the corrections for service conditions of back pressure or temperature, or both.

OPERATING PRESSURE – the pressure, in pounds per square inch gage to which the vessel is usually subjected in service. A vessel is usually designed for a maximum allowable working pressure, in pounds per square inch gage, which will provide a suitable margin above the operating pressure in order to prevent any undesirable operation of the relief device. It is suggested that this margin be as great as possible consistent with economical vessel and other equipment design, system operation and the performance characteristics of the pressure relieving device.

MAXIMUM ALLOWABLE WORKING PRESSURE– the maximum gage pressure permissible in the top of a completed vessel in its operating position for a designated temperature. This pressure is based on calculations for each element in a vessel using nominal thicknesses, exclusive of allowances for corrosion and thicknesses required for loadings other than pressure. It is the basis for the pressure setting of the pressure relieving devices protecting the vessel. The design pressure may be used in place of maximum allowable working pressure in cases where calculations are not made to determine the value of the latter.

OVERPRESSURE – a pressure increase over the set pressure of a pressure relief valve, usually expressed as a percentage of the set pressure.

ACCUMULATION – the pressure increase over the maximum allowable working pressure of the vessel during discharge through the pressure relief valve, expressed as a percent of that pressure or in pounds per square inch.

BLOW DOWN – the difference between actual popping pressure of a pressure relief valve and actual reseating pressure, expressed as a percentage of set pressure or in pressure units.

LIFT – the actual travel of the disc away from closed position when a valve is relieving.

BACK PRESSURE – the static pressure existing at the outlet of a pressure relief device due to pressure in the discharge system.

CONSTANT BACK PRESSURE – back pressure that does not change appreciably under any condition of operation whether the pressure relief valve is closed or open.

VARIABLE BACK PRESSURE – refer to the discussion on BalanSeal valves on page 85.

BUILT-UP BACK PRESSURE – pressure existing at the outlet of a pressure relief device occasioned by the flow through that particular device into a discharge system.

SUPERIMPOSED BACK PRESSURE – the static pressure existing at the outlet of a pressure relief device at the time the device is required to operate. It is the result of pressure in the discharge system from other sources.

Numbering System

Prefix
(if applicable)

H
Set pressures beyond the scope of ANSI/API Std. 526 (Q, R & T orifices only)

26
Series Number

Designates Series 2600 cast steel flanged pressure relief valves

D
Orifice Areas

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
U	—	31.5	—	203.2
W	—	63.62	—	410.2
W2	—	104.0	—	670.8
X	—	113.1	—	729.5
Y	—	143.1	—	923.0
Z	—	176.7	—	1139.7

Note: The "U" through "Z" orifices are not API Standard Sizes.
* "U" through "Z" metric areas in square centimeters.

A
Construction

A
Conventional construction

B
BalanSeal construction

C
Conventional with O-ring seat pressure seal

D
BalanSeal with O-ring seat pressure seal

E
BalanSeal with auxiliary balancing piston

F
BalanSeal with auxiliary balancing piston and O-ring seat pressure seal

T
Teflon seat, conventional

U
Teflon seat, BalanSeal

1
Temperatures & Materials

Designation	Inlet Temperature Range °F	Material	
		Body & Bonnet	Spring
1	-20 to 800	Carbon Steel	Chrome Alloy
2**	451 to 800	Carbon Steel	Chrome Alloy
3	801 to 1000	Chrome Moly Steel	High Temp. Alloy
4*	1001 to 1200	—	—
5*	1201 to 1500	—	—
1	-21 to -75	Use "S3" Trim Options	
1	-76 to -450	Use "S4" Trim Options	

* Temperature ranges 4 and 5 are beyond the scope of this catalog. Consult the Factory.

** Temperature range 2 is no longer used as the standard range valve handles temperatures to 800°F.

Our type numbering system simplifies the selection and specifying of Farris pressure relief valves because the digits that 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, bonnet and spring material, inlet flange class and Code liquid design.

Ordering Information

To process your order properly and promptly, 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 seat pressure seal material, if required
7. Set pressure*
8. Maximum inlet temperature*
9. Allowable overpressure*
10. Fluid and fluid state*
11. Back pressure, superimposed constant and/or variable and built-up*
12. Required capacity*
13. Accessories
    (a) Bolted cap, open or packed lever
    (b) Test gag
    (c) Remoter
14. Code requirements, if any

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

Parts Replacement

Valves – If an exact replacement valve is required, then the valve type, size and serial number must be specified to ensure proper dimensions and material being supplied. If a specific valve is obsolete, a recommendation of the current equivalent will be made if possible.

Spare Parts – When ordering parts, use part names as listed in the bills of materials. Specify valve type, size and serial number. If the serial number is not available, the original Farris factory order number will help us supply 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 backpressure, if any.

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

2	L	-	1	2	0	/S4
Inlet Class	Special Construction* (if applicable)		Inlet Facing	Cap Construction	Test Gag	Special Material

Designation	ANSI Nominal Inlet Flange Class
0	150
1	300 lightweight valve
2	300 heavyweight valve
3	600
4	900
5	1500
6	2500

A– Expanded API sizes: air, steam and gas service
B– Expanded API sizes: ASME liquid valve
C– Expanded API sizes: ASME Code Section VIII exposed spring design
D– Valve suitable for heat transfer service-vapor
E– Valve suitable for heat transfer service-liquid
F– Expanded API size valves suitable for heat transfer service-vapor
G– Expanded API size valves suitable for heat transfer service-liquid
L– ASME Code certified for liquid service only
S– ASME Code Section VIII exposed spring design

*Letter suffixes for expanded API sizes where 2 1/2" inlet or outlet has been replaced.

Special (Note 2) 0
Raised Face, ANSI Std. (125 to 160 AARH) 1
Large Female, ANSI Std. 2
Small Male, ANSI Std.....3
Small Female, ANSI Std. 4
Large Tongue, ANSI Std.....5
Large Groove, ANSI Std. 6
Small Tongue, ANSI Std.....7
Small Groove, ANSI Std. 8
Ring Joint (octagonal), ANSI Std. 9
63-83 AARH Smooth Finish RF..... H

Although not applicable to the Inlet facing only, the following first digit letters are also used:
63 to 83 AARH (outlet only) .....J
63 to 83 AARH (inlet & outlet).....K

Screwed Cap 2
Bolted Cap.....3
Packed Lever.....4
L Type Packed Lever 5
R Type Packed Lever.....6
Open Lever.....7
Remoter (with Packed Lever).....8

Without Gag 0
With Gag 1

See Materials for Corrosive Service Table below.

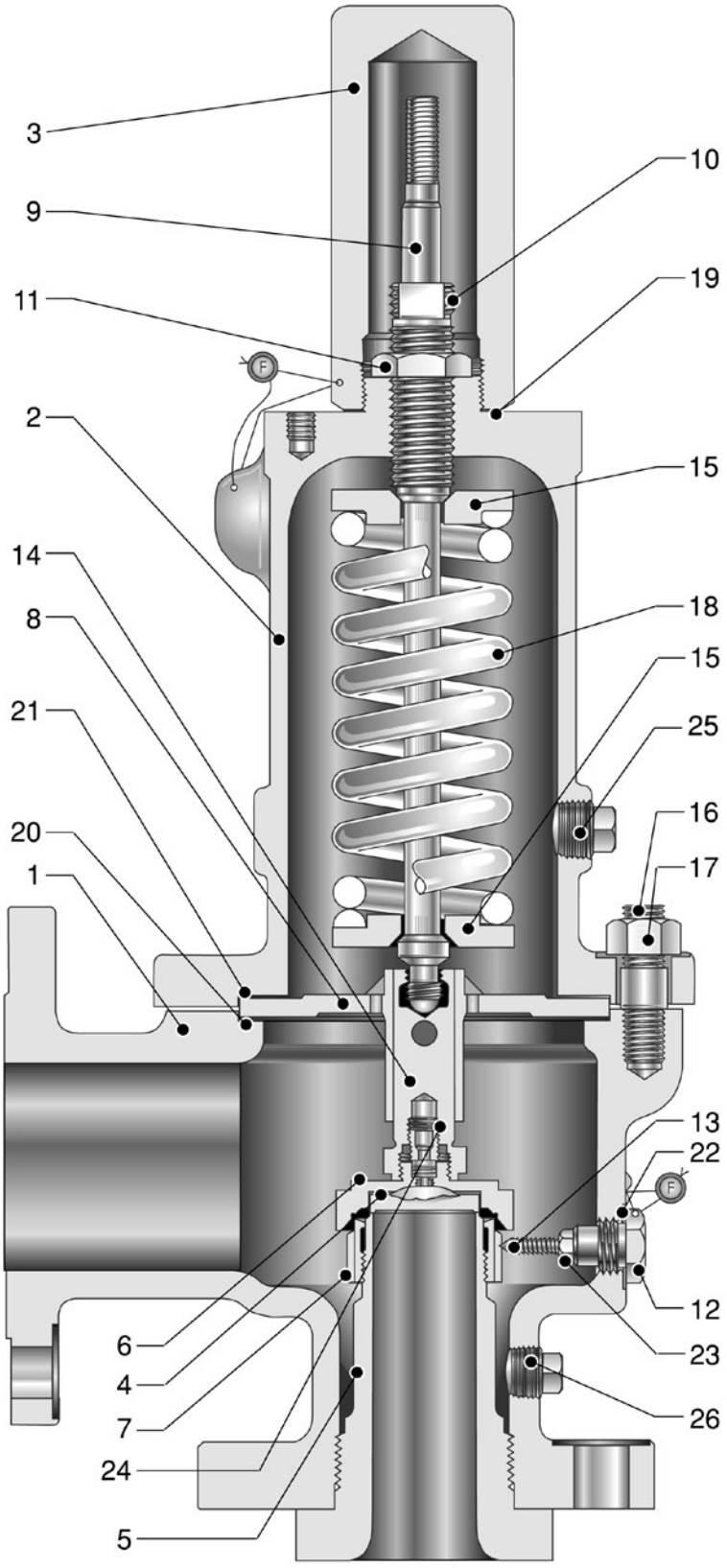
Materials for Corrosive Service

Designation	Special Material Description			
	Body Bonnet, Cap	Internal Parts		
		Nozzle & Disc	Other	Springs & Buttons
/S1	Standard	316	316*	Standard
/S3	316	316	316	316 buttons, Chrome Alloy or High Temperature Alloy Nickel Plated spring
/S4	316	316	316	316
/S5	Standard	316	316 & Monel with Inconel 625 bellows	Standard
/S7	Standard	316	316 & Monel with Inconel Composite bellows	Standard
/H1	Standard	Hastelloy C	Standard	Standard
/H2	Standard	Hastelloy C	Hastelloy C & Monel	316 buttons, Chrome Alloy or High Temperature Alloy Nickel Plated spring
/H3	Hastelloy C	Hastelloy C	Hastelloy C	316 buttons, Chrome Alloy Nickel Plated spring
/H4	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
/M1	Standard	Monel	Standard	Standard
/M2	Standard	Monel	Monel	316 buttons, Chrome Alloy Nickel Plated spring
/M3	Monel	Monel	Monel	316 buttons, Chrome Alloy Nickel Plated spring
/M4	Monel	Monel	Monel	Monel buttons, Inconel spring

* Spring adjusting screw in standard material

General Notes:
1. Other special materials, such as 316L stainless steel and Alloy 20, as well as non-standard outlet flange classes are available upon request. In these instances, suffix code "/SP" is used with a brief description of the special requirements.
2. Special inlet facings include, but are not limited to, socket or butt weld ends, lens joint and Grayloc® fittings.

Grayloc is a registered trademark of Grayloc Products, a division of ABB Vetco Gray Inc.



Built in conformance to ASME Code Section VIII, capacity certified by National Board (air, gas, steam[6])

UV

Bill of Materials–Conventional

Item	Part Name		Material
1	Body	26( )A10 thru 26( )A16	SA-216 GR. WCB Carbon Steel
		26( )A32 thru 26( )A36	SA-217 GR. WC6, Alloy St. (1¼ CR–½ Moly)
2	Bonnet	26( )A10 thru 26( )A16	SA-216 GR. WCB Carbon Steel
		26( )A32 thru 26( )A36	SA-217 GR. WC6, Alloy St. (1¼ CR–½ Moly)
3	Cap. Plain Screwed		Carbon Steel
4	Disc		316 St. St.
5	Nozzle		316 St. St.
6	Disc Holder		316 St. St.
7	Blow Down Ring		316 St. St.
8	Sleeve Guide		316 St. St.
9	Stem		316 St. St.
10	Spring Adjusting Screw		Stainless Steel
11	Jam Nut (Spr. Adj. Screw)		316 St. St.
12	Lock Screw (B.D.R.)		316 St. St.
13	Lock Screw Stud		316 St. St.
14	Stem Retainer*		17-4-PH St. St.
15	Spring Button		316 St. St.
16	Body Stud		ASTM A193 GR. B7 Alloy St.
17	Hex Nut (Body)		ASTM A194 GR. 2H Alloy St.
18	Spring	26( )A10 thru 26( )A16	Chrome Alloy Rust Proofed
		26( )A32 thru 26( )A36	High Temperature Alloy Rust Proofed
19	Cap Gasket		316 St. St.
20	Body Gasket		316 St. St.
21	Bonnet Gasket		316 St. St.
22	Lock Screw Gasket		316 St. St.
23	Hex Nut (B.D.R.L.S.)		Stainless Steel
24	Lock Screw (D.H.)		Stainless Steel
25	Pipe Plug (Bonnet)		Steel
26	Pipe Plug (Body)		Steel

General Notes:

1. Parentheses in type number indicate orifice designation, as in 26FA10.
2. For corrosive and low temperature materials, see pages 17 through 21.
3. For open and packed lever materials and test gags, see accessories on pages 68 & 69.
4. For capacities, see pages 39-42 U.S. Units, 57-60 Metric Units.
5. For dimensions and weights, see pages 72-75.
6. Also suitable for liquid service where ASME Code Certification is not required. For ASME Code Certified liquid service, use the 2600L Series as illustrated on page 14.

*For 316 Stem Retainer add S1 suffix to Type #.

Built in conformance to ASME Code Section VIII, capacity certified by National Board (air, gas, steam[6])

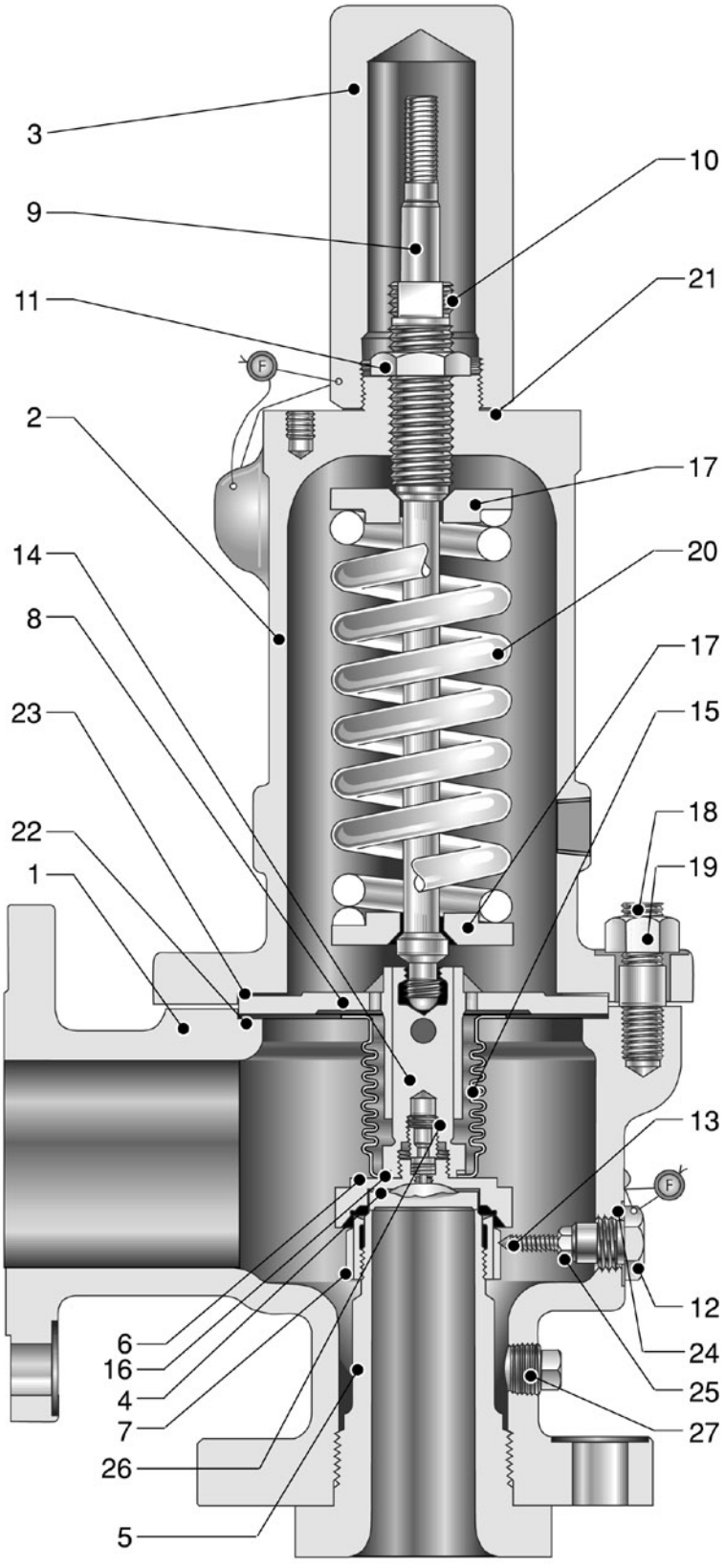
UV

Bill of Materials–BalanSeal

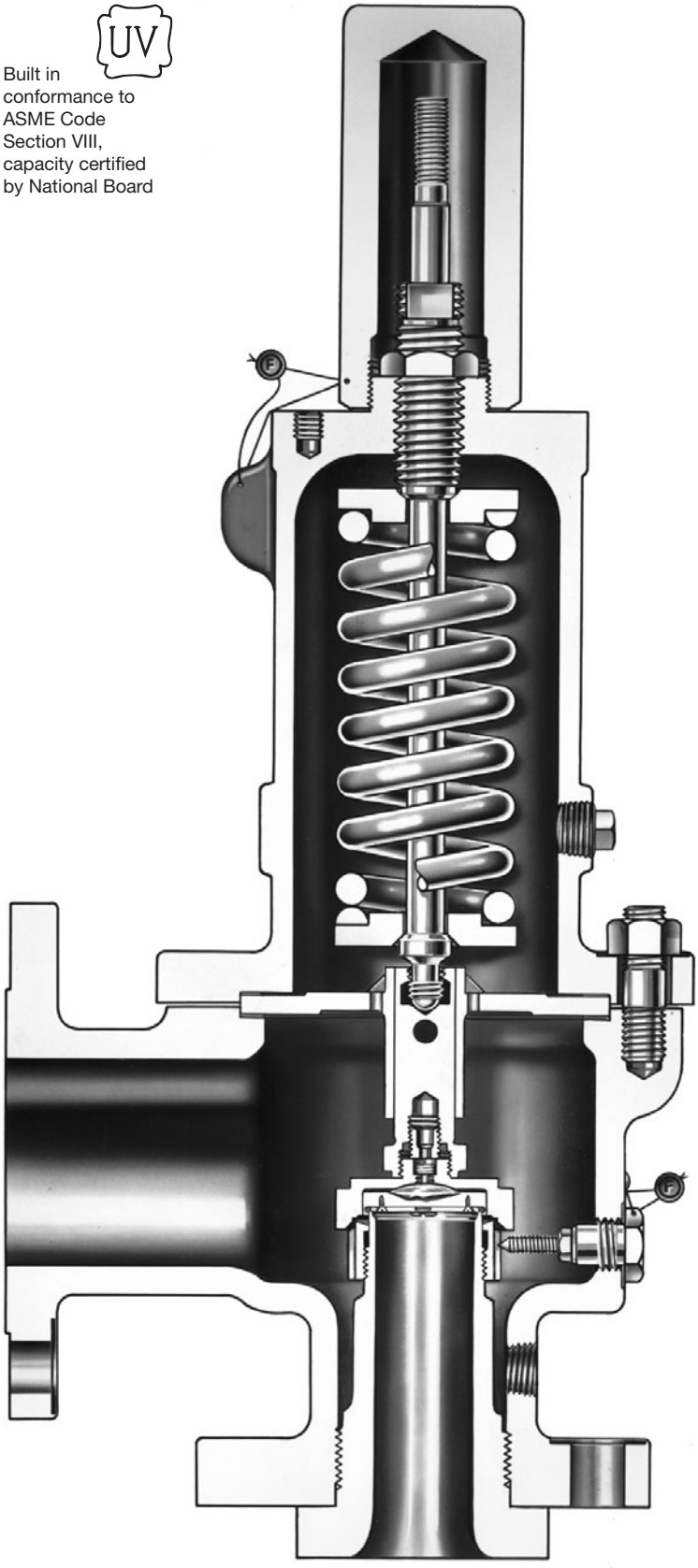
Item	Part Name		Material
1	Body	26( )B10 thru 26( )B16	SA-216 GR. WCB Carbon Steel
		26( )B32 thru 26( )B36	SA-217 GR. WC6, Alloy St. (1¼ CR–½ Moly)
2	Bonnet	26( )B10 thru 26( )B16	SA-216 GR. WCB Carbon Steel
		26( )B32 thru 26( )B36	SA-217 GR. WC6, Alloy St. (1¼ CR–½ Moly)
3	Cap. Plain Screwed		Carbon Steel
4	Disc		316 St. St.
5	Nozzle		316 St. St.
6	Disc Holder		316 St. St.
7	Blow Down Ring		316 St. St.
8	Sleeve Guide		316 St. St.
9	Stem		316 St. St.
10	Spring Adjusting Screw		Stainless Steel
11	Jam Nut (Spr. Adj. Screw)		316 St. St.
12	Lock Screw (B.D.R.)		316 St. St.
13	Lock Screw Stud		316 St. St.
14	Stem Retainer		17-4-PH St. St.
15	Bellows		Inconel Composite
16	Bellows Gasket		Non-Asbestos
17	Spring Button		316 St. St.
18	Body Stud		ASTM A193 GR. B7 Alloy St.
19	Hex Nut (Body)		ASTM A194 GR. 2H Alloy St.
20	Spring	26( )B16 thru 26( )B26	Chrome Alloy Rust Proofed
		26( )B32 thru 26( )B36	High Temperature Alloy Rust Proofed
21	Cap Gasket		316 St. St.
22	Body Gasket		316 St. St.
23	Bonnet Gasket		316 St. St.
24	Lock Screw Gasket		316 St. St.
25	Hex Nut (B.D.R.L.S.)		Stainless Steel
26	Lock Screw (D.H.)		Stainless Steel
27	Pipe Plug (Body)		Steel

General Notes:

1. Parentheses in type number indicate orifice designation, as in 26FB10.
2. For corrosive and low temperature materials, see pages 17 through 21.
3. For open and packed lever materials and test gags, see accessories on pages 68 & 69.
4. For capacities, see pages 39-42 U.S. Units, 57-60 Metric Units.
5. For dimensions and weights, see pages 72-75.
6. Also suitable for liquid service where ASME Code Certification is not required. For ASME Code Certified liquid service, use the 2600L Series as illustrated on page 14.



Built in conformance to ASME Code Section VIII, capacity certified by National Board



The 2600L Series liquid relief valves are for use on ASME Section VIII Code applications and offer a superior valve with greater capacity at 10% overpressure than the traditional 2600 Series.

The 2600L Series complements a full line of pressure relief valves in orifices “D” through “T” to meet the ASME Code requirements for incompressible fluid services. The Code stamped construction requires liquid relief valves that have been capacity certified on water at 10% overpressure to carry the ASME UV and National Board NB symbols.

For compressible services, the 2600 Series should be utilized. Liquid services that do not require the use of Code stamped liquid relief valves can still be satisfied with the standard 2600 Series line.

The 2600L Series is supplied with a plain screwed cap as standard. Optional lever constructions are available to meet specific application requirements. The minimum set pressure is 15 psig for conventional construction and 15 psig for “F” through “T” orifice balanced bellows (BalanSeal) design. The minimum set pressure limit for the “D” and “E” orifice balanced bellows design is 50 psig and 25 psig respectively.

The type number is differentiated from the existing 2600 Series design by adding the letter “L” as a suffix. The letter “L” is used to specify all liquid trim type numbers and always appears in the seventh position of the type number, just before the three-digit option code for inlet facing/cap construction/test gag. Example: 26GA10L-120. Optional trim material classes and other accessories are available, as with the 2600 Series, with the exceptions of H2600 and SJ2600 (integral steam jacket type). All types within the 2600L Series follow the size pressure-temperature ratings and center-to-face dimensions of the 2600 Series (API Std. 526).

Traditional Farris convertibility between conventional and bellows is maintained, as is the interchange-ability of parts.

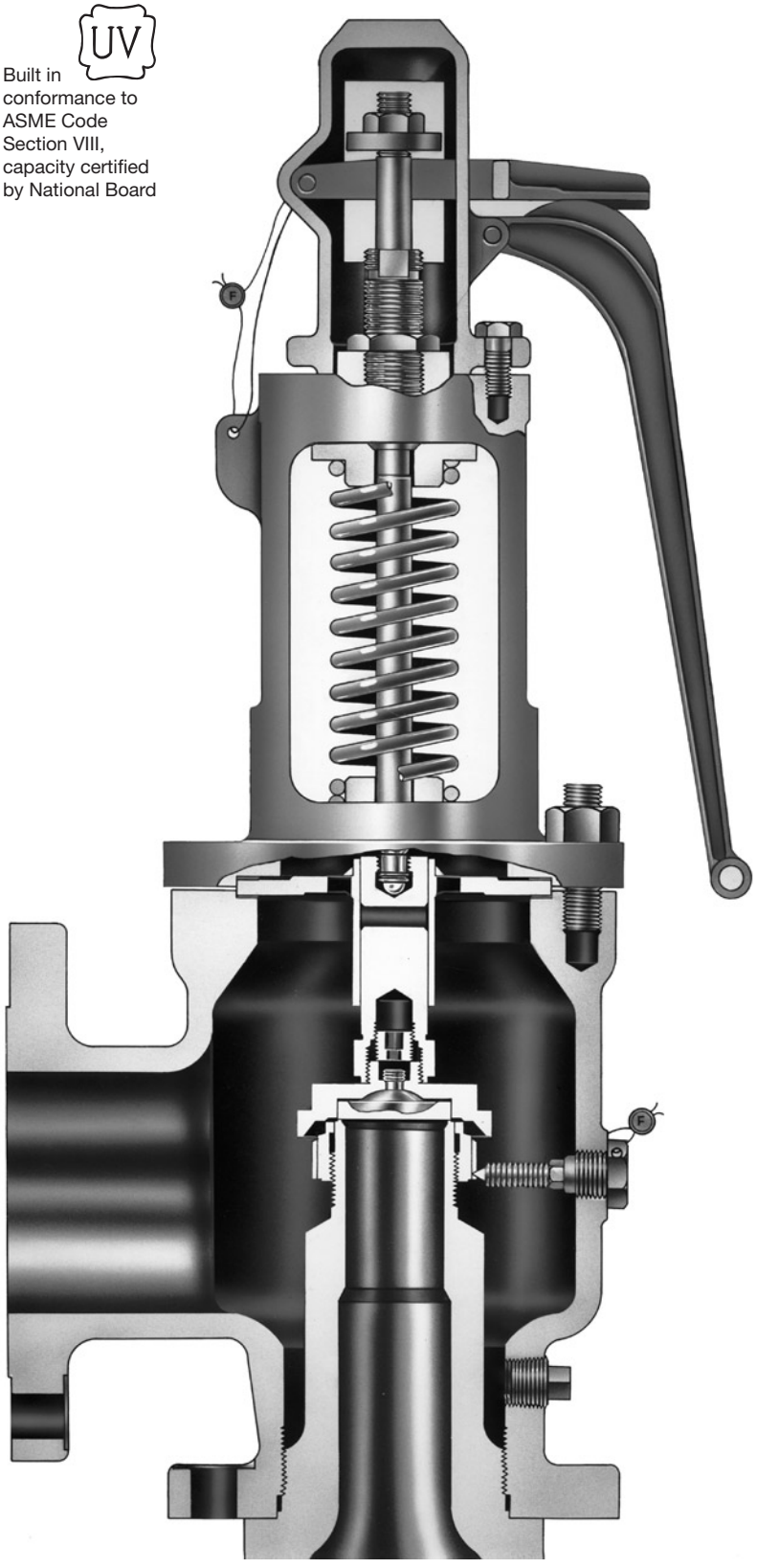
The 2600S Series safety valves with exposed springs represent an enhancement of the standard 2600 Series and are designed to offer improved performance in steam service. They are built in conformance to Section VIII of the ASME Code and have capacities certified at 10% overpressure by the National Board of Boiler and Pressure Vessel Inspectors. Series 2600S is available in the same “D” through “Z” orifices and flange classes as the standard 2600 Series, and have the same center-to-face dimensions (API Std. 526).

In steam service, you can encounter galling of the guiding surfaces. To minimize this problem, the guide and stem retainer are made from different materials: 316 stainless steel for the guide and hardened stainless steel for the stem retainer. Since the open yoke is made from a standard 2600 Series bonnet, all other parts are identical to the 2600 Series to provide maximum interchangeability of parts and to reduce inventory costs.

An open lifting lever, required by ASME Code for steam and air service, is standard with the 2600S Series. Chrome alloy springs are used to 1000° F. They can also be used on air service or on other clean gases. Most other 2600 Series options can be supplied, including O-ring seats and bellows. For weather protection of the spring, use the stardard 2600 vapor service valve with open lever.

The type number is differentiated from the 2600 Series by the addition of the suffix letter “S” in the seventh digit of the type number. Example: 26JA10S-170.

Built in conformance to ASME Code Section VIII, capacity certified by National Board



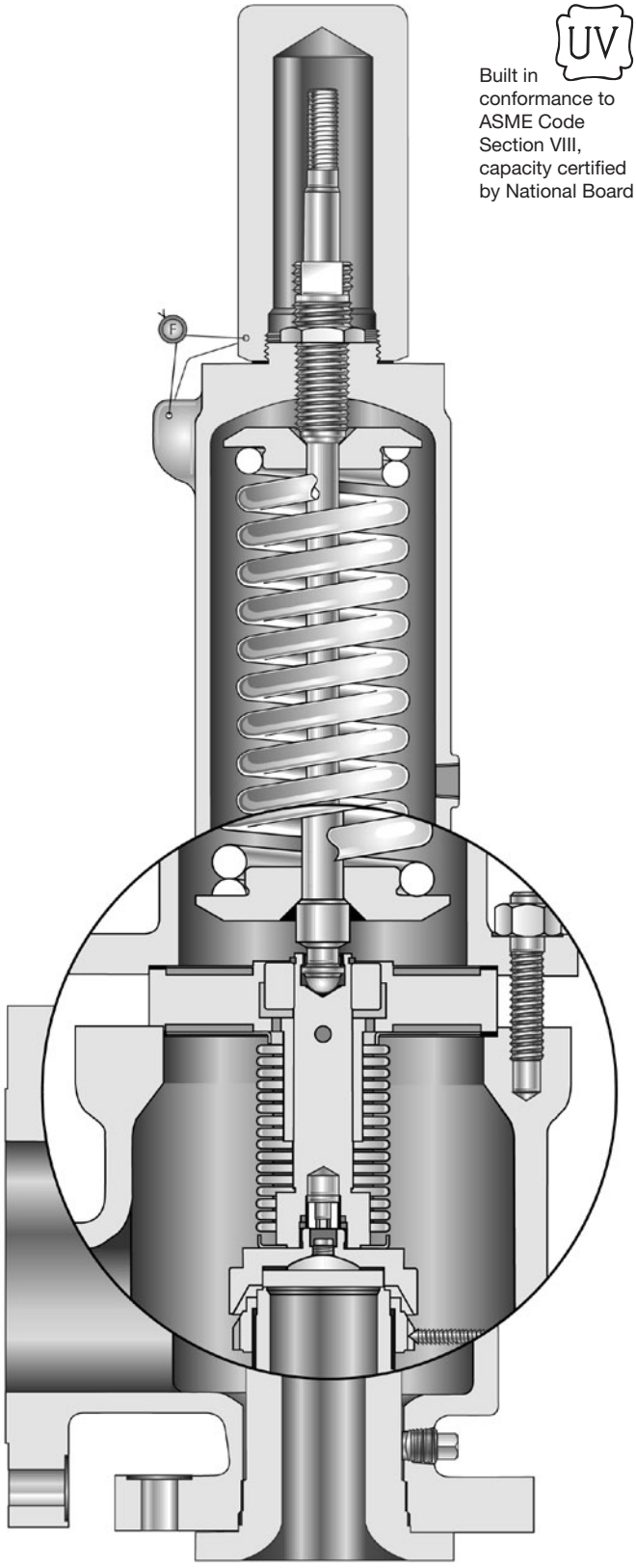
Balanced Bellows with Auxiliary Balancing Piston

Under back pressure conditions, rupture of the bellows can cause an increase in set pressure of the pressure relief valve. Consistent with safety, Farris Engineering offers a BalanSeal/piston design to compensate for a broken or ruptured bellows. The valve features a piston guide that has an inside diameter equal to the average diameter of the bellows convolutions.

If the bellows fails, the effect of the back pressure is nullified by the use of the piston. Since there is a slight diametrical clearance between the piston and the guide, a small amount of lading fluid is permitted to pass through the bonnet vent, indicating a bellows rupture. Although the valve will continue to function as a Farris bellows pressure relief valve, the damaged bellows should be replaced to avoid further product loss.

When the proper orifice and corresponding letter designation have been determined, refer to the selection charts and choose the conventional pressure and temperature required. Sizes, set pressure, back pressure, temperature ratings and capacity data are the same as the BalanSeal construction.

To convert the conventional valve type number to the catalog number for balanced bellows valve with auxiliary balancing piston, insert the letter “E” in place of “A”. Example: 26FA12-120 conventional valve becomes 26FE12-120.



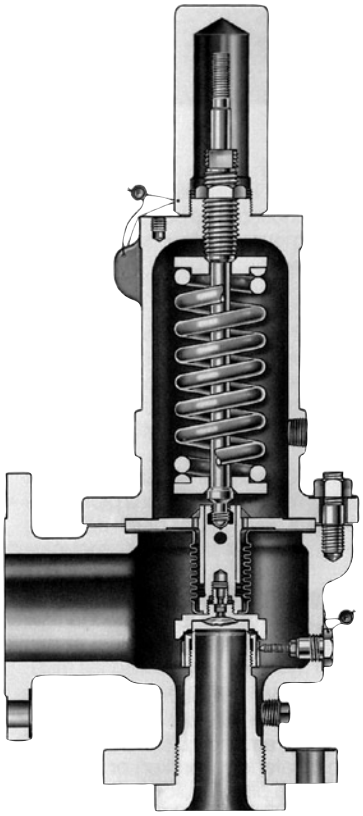
Built in conformance to ASME Code Section VIII, capacity certified by National Board

The inherent features of engineering design in the Farris nozzle pressure relief valve make it ideal for heat transfer fluid service. Heat transfer fluids form solid on relief to atmosphere and exhibit non-lubricating qualities. Consequently the valve requires the ultimate in tightness and perfect guiding beyond that of a valve used in other services.

The Farris design includes a 2½-to-1 guiding ratio, self-aligning, flat, easily replaceable disc and double universal joint for exact alignment. These valves have been proven in thousands of installations and are accepted as the industry standard for heat transfer fluid service.

For additional protection against deposit build-up on the guiding surfaces, a BalanSeal bellows can be provided to isolate internal working parts.

All heat transfer fluid service valves receive particular attention in the Farris assembly and testing departments. Special lapping, gasketing and sealing compounds are used to assure maximum tightness for this hard-to-hold service.



UV

Built in conformance to ASME Code Section VIII, capacity certified by National Board

Materials for Corrosive and Low Temperature Service

Standard materials of construction for corrosive service and low temperature service are listed on pages 18-21. Our selection of these materials is a result of many years of research in metallurgy and, while not all-inclusive, covers the most frequently used construction materials. In the case of a special application that requires materials not listed in this catalog, consult the Farris Factory.

Note that Farris Engineering cannot guarantee valve service life, as there are many factors that can affect the life of any material and that are beyond our control.

Corrosive Service. A pressure relief valve is not expected to operate frequently; therefore, standard materials should prove satisfactory. Where severe corrosive conditions exist, the nozzle and disc, which are always exposed to the lading fluid, are available in more corrosive-resistant materials such as Monel (/M1) and Hastelloy C (/H1).

Where specific applications require complete internals to be more corrosion resistant due to frequent valve operation and where parts beyond the nozzle and disc are exposed to corrosive lading fluid, complete internals and the complete valve are available in 316, Monel and Hastelloy (/S3, /S4, /S5, /S7, /M2, /M3, /M4, /H2, /H3, /H4).

Low Temperature Service. For low temperature applications, Farris offers S3 and S4 trim categories, depending on the degree of sub-zero temperatures involved. Materials cover special metallurgy to maintain adequate impact resistance on all stressed parts at sub-zero temperatures.

Standard Material for Corrosive Service
316 St. St. [6]

Part Name	S3 COMPLETE VALVE EXCEPT SPRING ASSEMBLY		S4 COMPLETE VALVE	
	-75°F TO 800°F		-450°F TO 450°F (Note 5)	
	Conventional	BalanSeal	Conventional	BalanSeal
Body	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)
Bonnet	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)	SA-351 Gr. CF8M St. St. (316 St. St.)
Cap, Plain Screwed	316 St. St.	316 St. St.	316 St. St.	316 St. St.
Disc	—	—	—	—
Nozzle	—	—	—	—
Disc Holder	—	—	—	—
Blow Down Ring	—	—	—	—
Sleeve Guide	—	—	—	—
Stem	—	—	—	—
Spring Adj. Screw	316 St. St.	316 St. St.	316 St. St.	316 St. St.
Jam Nut (Spr. Adj. Scr.)	—	—	—	—
Blow Down Ring Lock Screw	—	—	—	—
Lock Screw Stud	—	—	—	—
Stem Retainer	316 St. St.	316 St. St.	316 St. St.	316 St. St.
Bellows	None	—	None	—
Bellows Gasket	None	Teflon Composite	None	Teflon Composite
Spring Button	316 St. St.	316 St. St.	316 St. St.	316 St. St.
Body Stud	ASTM A193 Gr. B8M St. St.	ASTM A193 Gr. B8M St. St.	ASTM A193 Gr. B8M St. St.	ASTM A193 Gr. B8M St. St.
Body Hex Nut	ASTM A194 Gr. 8M St. St.	ASTM A194 Gr. 8M St. St.	ASTM A194 Gr. 8M St. St.	ASTM A194 Gr. 8M St. St.
Spring	Chrome Alloy, Nickel Plated	Chrome Alloy, Nickel Plated	316 St. St.	316 St. St.
Cap Gasket	—	—	—	—
Bonnet Gasket	—	—	—	—
Body Gasket	—	—	—	—
Lock Screw Gasket	—	—	—	—
Hex. Nut (Lock Screw)	—	—	—	—
Disc Holder Lock Screw	—	—	—	—
Pipe Plug (Bonnet)	316 St. St.	None	316 St. St.	None
Pipe Plug (Body)	316 St. St.	316 St. St.	316 St. St.	316 St. St.

General Notes:

1. Any part denoted with a dash is standard material.
2. Maximum set pressures for S1 trim are equal to the carbon steel valves in the selection tables.
3. Maximum set and back pressures for the S3 and S4 trim are equal to the 316 stainless valve limits shown on pages 24-37, 43-56, 79 and 80.
4. To designate valves with 316 stainless construction, add the appropriate suffix to the type number. Example: 26FA10-120 becomes 26FA10-120/S4.
5. For open and packed lever materials, see page 68.
6. Specify S1 trim to select a valve with a 316 St. St. stem retainer and standard carbon steel body and bonnet.

Standard Material for Corrosive Service
Monel

PART NAME	M1 NOZZLE & DISC		M2 INTERNAL PARTS EXCEPT SPRING ASSEMBLY		M3 COMPLETE VALVE EXCEPT SPRING ASSEMBLY		M4 COMPLETE VALVE	
	-20°F TO 600°F (Note 2)		-20°F TO 600°F (Note 2)		-75°F TO 600°F (Note 3)		-450°F TO 600°F (Note 3)	
	Convent'l	BalanSeal	Convent'l	BalanSeal	Convent'l	BalanSeal	Convent'l	BalanSeal
Body	—	—	—	—	Monel	Monel	Monel	Monel
Bonnet	—	—	—	—	Monel	Monel	Monel	Monel
Cap, Plain Screwed	—	—	—	—	Monel	Monel	Monel	Monel
Disc	Monel	Monel	Monel	Monel	Monel	Monel	Monel	Monel
Nozzle	Monel	Monel	Monel	Monel	Monel	Monel	Monel	Monel
Disc Holder	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Blow Down Ring	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Sleeve Guide	—	—	Monel	—	Monel	Monel	Monel	Monel
Stem	—	—	Monel	—	Monel	Monel	Monel	Monel
Spring Adj. Screw	—	—	Monel	—	Monel	Monel	Monel	Monel
Jam Nut (Spring Adj. Screw)	—	—	Monel	—	Monel	Monel	Monel	Monel
Blow Down Ring Lock Screw	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Lock Screw Stud	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Stem Retainer	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Bellows	None	—	None	Monel	None	Monel	None	Monel
Bellows Gasket	None	—	None	Teflon Composite	None	Teflon Composite	None	Teflon Composite
Spring Button	—	—	316 St. St.	—	316 St. St.	316 St. St.	Monel	Monel
Body Stud	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Body Hex Nut	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Spring	—	—	Chrome Alloy Nickel Plated	—	Chrome Alloy Nickel Plated	Chrome Alloy Nickel Plated	Inconel X	Inconel X
Cap Gasket	—	—	Monel	—	Monel	Monel	Monel	Monel
Bonnet Gasket	—	—	Monel	—	Monel	Monel	Monel	Monel
Body Gasket	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Lock Screw Gasket	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Hex Nut (Lock Screw)	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Disc Holder Lock Screw	—	—	Monel	Monel	Monel	Monel	Monel	Monel
Pipe Plug (Bonnet)	—	None	—	None	Monel	None	Monel	None
Pipe Plug (Body)	—	—	—	—	Monel	Monel	Monel	Monel

General Notes:

1. Any part denoted with a dash is standard material.
2. Maximum set pressures for M1 and M2 trim are equal to the Monel flange limits as shown on page 83. Consult the factory for higher pressures.
3. Maximum set and back pressures for the M3 and M4 trim are equal to the Monel valve limits as shown on page 83.
4. To designate valves with Monel construction, add the appropriate suffix to the type number. Example: 26FA10-120 becomes 26FA10-120/M1.
5. For open and packed lever materials, see page 68.
6. Monel, Inconel and Inconel X are registered trademarks of Inco Alloys International. We reserve the right to substitute comparable materials from other manufacturers.

Standard Material for Corrosive Service
Hastelloy C

PART NAME	H1 NOZZLE & DISC		H2 INTERNAL PARTS EXCEPT SPRING ASSEMBLY		H3 COMPLETE VALVE EXCEPT SPRING ASSEMBLY		H4 COMPLETE VALVE	
	-20°F TO 800°F		-20°F TO 800°F		-20°F TO 800°F		-20°F TO 450°F	
	Convent'l	BalanSeal	Convent'l	BalanSeal	Convent'l	BalanSeal	Convent'l	BalanSeal
Body	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Bonnet	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Cap, Plain Screwed	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Disc	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Nozzle	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Disc Holder	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Blow Down Ring	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Sleeve Guide	—	—	Hastelloy C	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Stem	—	—	Monel	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Spring Adj. Screw	—	—	Monel	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Jam Nut (Spring Adj. Screw)	—	—	Monel	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Blowdown Ring Lock Screw	—	—	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Lock Screw Stud	—	—	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Stem Retainer	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Bellows (See Note 5)	None	—	None	Inconel Composite Teflon Coated	None	Inconel Composite Teflon Coasted	None	Inconel Composite Teflon Coated
Bellows Gasket	None	—	None	Teflon Composite	None	Teflon Composite	None	Teflon Composite
Spring Button	—	—	316 St. St.	—	316 St. St.	316 St. St.	Hastelloy C	Hastelloy C
Body Stud	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Body Hex Nut	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Spring	—	—	Chrome Alloy Nickel Plated	—	Chrome Alloy Nickel Plated	Chrome Alloy Nickel Plated	Hastelloy C	Hastelloy C
Cap Gasket	—	—	Monel	—	Teflon Composite	Teflon Composite	Teflon Composite	Teflon Composite
Bonnet Gasket	—	—	Monel	—	Teflon Composite	Teflon Composite	Teflon Composite	Teflon Composite
Body Gasket	—	—	Monel	Monel	Teflon Composite	Teflon Composite	Teflon Composite	Teflon Composite
Lock Screw Gasket	—	—	Monel	Monel	Teflon Composite	Teflon Composite	Teflon Composite	Teflon Composite
Hex Nut (Lock Screw)	—	—	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Disc Holder Lock Screw	—	—	Monel	Monel	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
Pipe Plug (Bonnet)	—	None	—	None	Hastelloy C	None	Hastelloy C	None
Pipe Plug (Body)	—	—	—	—	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C

General Notes:

1. Any part denoted with a dash is standard material.
2. Maximum set pressures for H1 and H2 trim are equal to the carbon steel valves in the Selection Tables.
3. Maximum set and back pressures for the H3 and H4 trim are equal to the Hastelloy C valve limits shown on pages 81 and 82.
4. To designate valves with Hastelloy C construction, add the appropriate suffix to the type number. Example: 26FA10-120 becomes 26FA10-120/H1.
5. For open and packed lever materials, see page 68.
6. Hastelloy and Hastelloy C are registered trademarks of Haynes International. We reserve the right to substitute comparable materials from other manufacturers.

The material requirements of NACE Standard MR0175 applied to pressure relief valves on sour gas or fluid services have resulted in various constructions. For the Standard to be applicable, both conditions of pressure (greater than 65 psia) and concentration (H_2S partial pressure greater than 0.05 psia) must be present.

For pressure relief valves exposed to sour environments in excess of these minimums, the primary and secondary zones of the valve must be considered in order to determine the applicability of the NACE Standard.

The 2600 conventional construction with a 316 stainless steel nozzle and disc complies with NACE requirements for the primary pressure zone only, i.e., within the nozzle and disc envelope. To specify a valve with this construction for use on sour gas service, use the standard 2600 Series.

In order to determine the applicability of the NACE Standard to the pressure relief valve materials in the secondary pressure zone—the body bowl in a BalanSeal (balanced bellows) design, and the body bowl and bonnet in a conventional design—the user must determine the absolute pressure and the H_2S partial pressure.

Farris Engineering recommends that the discharge system pressure and the anticipated partial pressure of H_2S in the discharge system be used as guidelines for specifying NACE compliance in the secondary zone.

The use of the 2600 BalanSeal design, incorporating complete 316 stainless steel trim, provides a pressure relief valve with all the wetted parts in compliance with NACE. To specify a valve with this construction, add the suffix /S7 to the standard type number. Example: 26LB12-120/S7.

Part Name	Pressure Zone	Primary	Secondary	
	Valve Class & Construction	Standard 2600	S7, Conventional	S7, BalanSeal
Body		Use standard 2600 Series. See Bills of Materials on pages 12 and 13.	—	—
Bonnet			—	—
Cap, Plain Screwed			—	—
Disc			—	—
Nozzle			—	—
Disc Holder			—	—
Blow Down Ring			—	—
Sleeve Guide			—	—
Stem			—	—
Spring Adj. Screw			—	—
Jam Nut (Spr. Adj. Screw)			—	—
Blowdown Ring Lock Screw			—	—
Lock Screw Stud			—	—
Stem Retainer			316 Stainless Steel	316 Stainless Steel
Bellows			—	—
Bellows Gasket			—	—
Spring Button			—	—
Body Stud			ASTM A193 Gr. B7M Alloy Steel	ASTM A193 Gr. B7M Alloy Steel
Body Hex Nut			ASTM A194 Gr. 2HM Alloy Steel	ASTM A194 Gr. 2HM Alloy Steel
Spring	26( )( )10 Thru 26( )( )16		Inconel	—
	26( )( )20 Thru 26( )( )26		Inconel	—
Cap Gasket			Stainless Steel	Stainless Steel
Bonnet Gasket			Stainless Steel	Stainless Steel
Body Gasket			Stainless Steel	Stainless Steel
Lock Screw Gasket			Stainless Steel	Stainless Steel
Hex. Nut (Lock Screw)			316 Stainless Steel	316 Stainless Steel
Disc Holder Lock Screw			316 Stainless Steel	316 Stainless Steel
Pipe Plug (Bonnet)			None	None
Pipe Plug (Body)			—	—

Notes:
1. Any part denoted with a dash is standard material.
2. For open and packed lever material, see page 68.
3. For valve with complete Inconel bellows, use /S5 type number suffix. Example: 26JB10-120/S5.

Farris O-Ring Seat Pressure Seal for Conventional or BalanSeal

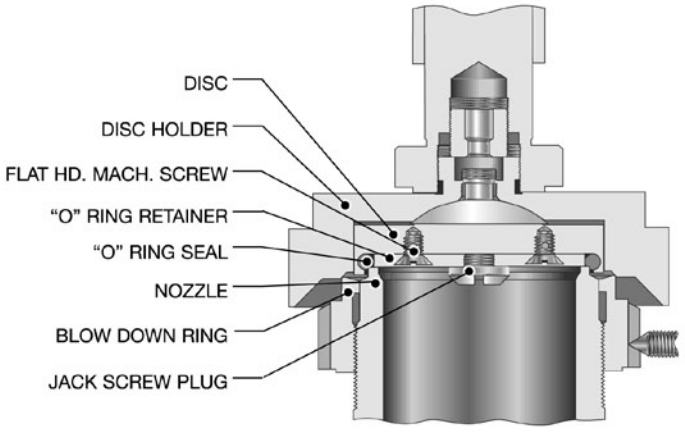
The O-ring seat pressure seal minimizes leakage and costly product loss as well as reduces downtime and maintenance on troublesome applications such as:

- Operation too close to set pressure
- Light, hard-to-hold fluids
- Entrained foreign particles and solids
- Vibratory applications
- Corrosive fluids
- Nozzle icing conditions
- Discharge piping strains

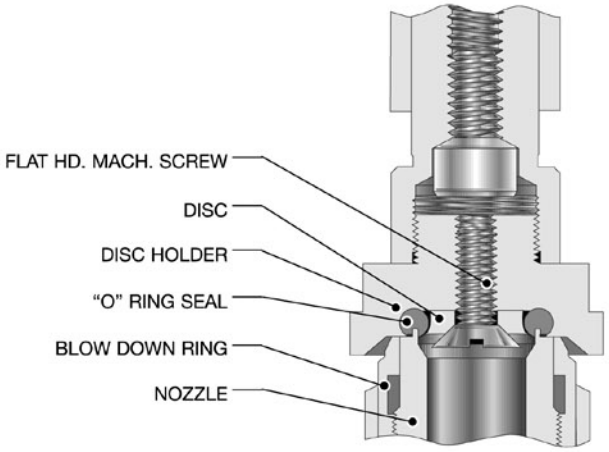
Recognizing the need for a resilient seat in a pressure relief valve for extreme tightness, Farris Engineering first produced an O-ring seat in early 1950. The O-ring design received and continues to receive phenomenal acceptance and use because it makes possible complete tightness at pressures much closer to valve set pressure. This tightness is not possible with the standard metal-to-metal seat.

The present Farris O-ring seat seal permits set pressure as high as 1500 psig. Equally important, the spring load is carried solely by the metal-to-metal portion of the seat with the O-ring becoming a pressure seal within its recessed chamber, assuring maximum tightness.

The O-ring seat seal option is available for the 2600/2600L/2600S Series of flanged pressure relief valves in the conventional, BalanSeal, and BalanSeal/piston constructions. Refer to the Selection Tables on pages 24 through 37. Substitute a “C” for the fourth digit “A” in the type number for the conventional valve, a “D” for the fourth digit “B” in the type number for a BalanSeal valve, and an “F” for the fourth digit in the type number for the BalanSeal/piston construction when an O-ring seat seal is required.



2600 L Through T Orifice O-Ring Details



2600 D Through K Orifice O-Ring Details

The same type number changes apply to the 2600L Series. Examples:

26FA10 becomes 26FC10 (conventional).
26FB10 becomes 26FD10 (BalanSeal).
26FA10L becomes 26FC10L (conventional–liquid service).
26FE10L becomes 26FF10L (BalanSeal/piston–liquid service).

The set pressure limits of the conventional, BalanSeal, and BalanSeal/piston valves covered in the Selection Tables are the same for the O-ring design in all type numbers and orifices with the class 150, 300, and 600 inlet flanges. Above class 600 inlet flanges, 1500 psig is the limit for the O-ring design, not the conventional limit shown in the Selection Charts and Tables. Refer to the O-Ring Material Selection Chart on page 23 for temperature and pressure ratings of the various elastomeric O-ring materials available.

Why use an O-ring seat pressure seal?

In the normal operation of a pressure relief valve, the disc must lift off the nozzle very slightly to simmer, allowing pressure build-up within the secondary orifice (huddling chamber), causing the valve to pop fully open. Simmering occurs many times in the process industries where, as a result of process changes, minor upsets, etc., operating pressure fluctuates higher than normal, causing pressure relief valves to simmer but not fully open. This can cause serious misalignment in the valve, and after the pressure drops, the valve will very often continue to leak below the normal operating pressure. The leaking can be overcome by actually popping the valve, but sometimes this is not possible. Use of a Farris O-ring seat pressure seal will always correct this problem.

Frequently operating pressures are too close to valve set pressures. As the operating pressure nears the set pressure, seat loading is diminished, reducing the force that affects tightness. The Farris O-ring seat pressure seal ensures that tightness is achieved at relatively higher operating pressures, much more so than with metal-to-metal or other soft seat pressure relief valves.

On light, hard-to-hold fluids such as hydrogen, helium, light hydrocarbon, anhydrous ammonia, and others, metal-to-metal seats are often penetrated, causing leakage problems. The Farris O-ring seat pressure seal overcomes leakage on these hard-to-hold fluids.

In applications where heavy vibrations occur such as barges, tankers, pumps, and compressors, leakage of metal-to-metal seats develops. This occurs because, as the set pressure nears, the spring force is equalized and the vibration reduces the effect of seat loading, causing leakage. The Farris O-ring seat pressure seal maintains tightness because the spring force is not a factor in the tightness of the O-ring design.

Where occasional minute foreign particles are carried in the flowing medium, metal-to-metal seats are usually marred or scratched when the valve is blowing. This creates leakage problems after the valve closes. The Farris O-ring seat pressure seal absorbs the impact of these particles without damage, and eliminates disc separation from the mating metal seating surface on the nozzle as the valve closes. This reduces the incidence of leakage on most process units. When necessary, simply replace the Farris O-ring to maintain tightness.

Due to corrosion, metal-to-metal seats can eventually leak. With the proper selection of the Farris O-ring seat pressure seal, tightness can be improved and maintained.

Nozzle icing results from the refrigerant effect of the flowing media when a valve relieves. Ice actually forms on the seat, causing leakage. The Farris O-ring seat pressure seal reduces this type of leakage.

"O" RING MATERIAL SELECTION TABLE

Material	Temperature Range °F	D to K Orifice		L to T Orifice	
		Set Pressure (psig)	Durometer (Shore A)	Set Pressure (psig)	Durometer (Shore A)
Viton[4]	-20 to 450	15 to 100	50	15 to 150	50
	-20 to 450	101 to 650	75	150 to 450	75
	-20 to 125	650 to 950	75	450 to 750	75
	125 to 450		90		90
	-20 to 450	950 to 1500	90	750 to 1500	90
Ethylene Propylene	0 to 350	15 to 100	50	15 to 150	50
	0 to 350	101 to 650	70	150 to 450	70
	0 to 125	650 to 950	70	450 to 750	70
	125 to 350		80		80
	0 to 350	950 to 1500	80	750 to 1500	80
Buna N	0 to 200	15 to 100	50	15 to 100	50
	0 to 200	101 to 650	70	100 to 450	70
	0 to 125	650 to 950	70	150 to 750	70
	125 to 200		90		90
	0 to 200	950 to 1500	90	750 to 1500	90
Silicone	-150 to 450	15 to 100	50	15 to 100	50
	-150 to 0	101 to 600	50	100 to 200	50
	0 to 450		70		70
	-150 to 450	600 to 850	70	200 to 450	70
	-150 to 125	850 to 1100	70	450 to 750	70
	125 to 450		80		80
	-150 to 450	1100 to 1500	80	750 to 1500	80
Kalrez[4]	-20 to 550	15 to 200	65	15 to 150	65
	-20 to 550	201 to 650	80	150 to 450	80
	-20 to 200	650 to 950	80	450 to 750	80
	200 to 550		90		90
	-20 to 550	950 to 1500	90	750 to 1500	90
Neoprene	-45 to 300	50 to 750	70	50 to 750	70
	-45 to 300	751 to 1500	80	751 to 1500	80

General Notes:

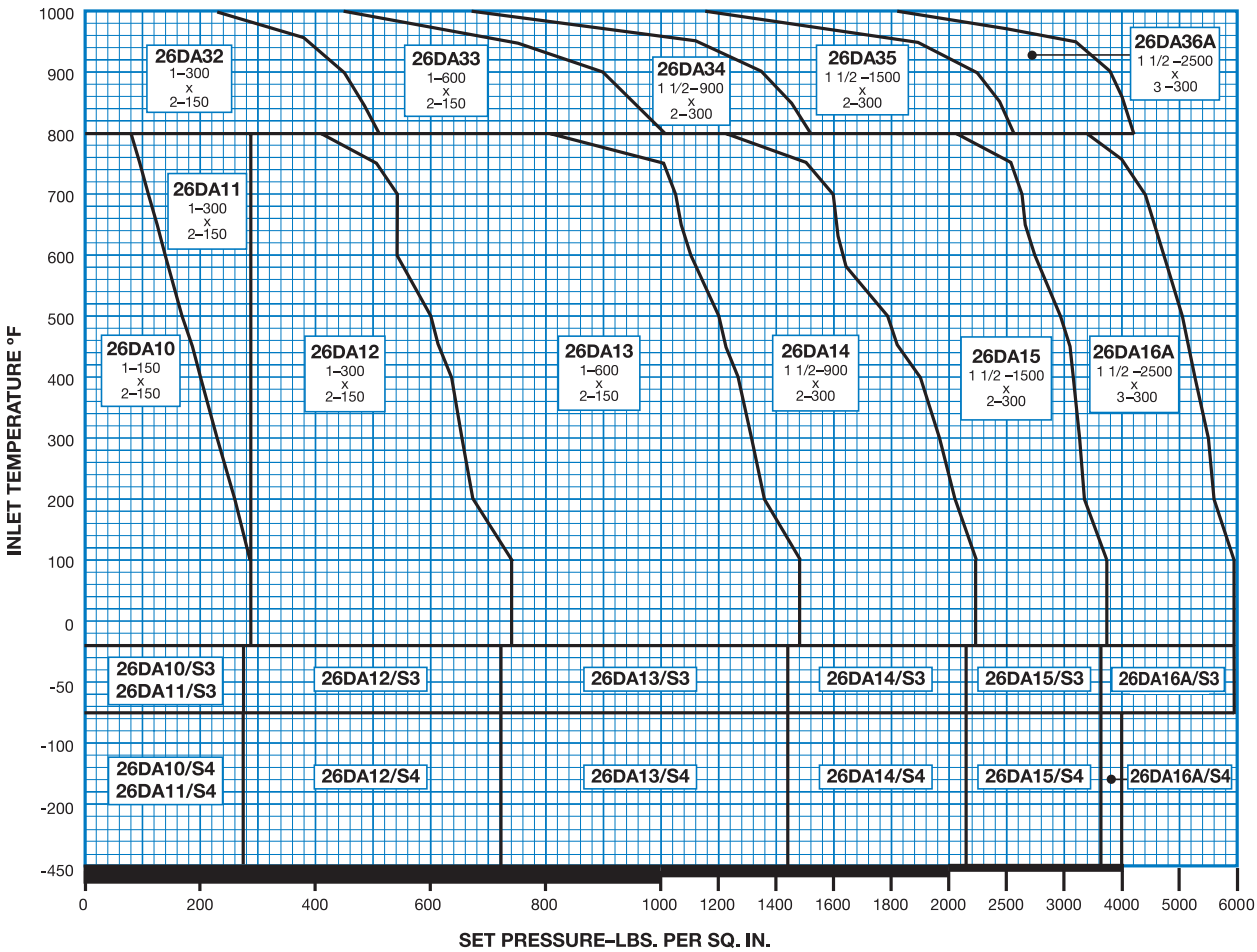
1. Standard seat tightness for "O" ring valves is no bubbles at 90% of set pressure for both conventional and bellows valves. At set pressures of 50 psig and below, leakage test shall be made at 5 psig below set pressure.
2. Ethylene Propylene is acceptable for steam service up to 350°F.
3. Teflon seat seats available on an application basis. Consult the factory.
4. Viton and Kalrez are registered trademarks of E. I. Dupont. We reserve the right to substitute comparable materials from other manufacturers.

D Orifice

API Area: 0.110 sq. in.
Actual Area: 0.150 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26DA10	26DB10	1 x 2	150#	150#	—	—	285	185	80	—	285	230	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26DA11	26DB11	1 x 2	300#	150#	—	—	285	285	285	—	285	230			
26DA12	26DB12	1 x 2	300#	150#	—	—	740	615	410	—	285	230			
26DA13	26DB13	1 x 2	600#	150#	—	—	1480	1235	825	—	285	230			
26DA14	—	1 1/2 x 2	900#	300#	—	—	2220	1845	1235	—	600	500			
26DA15	—	1 1/2 x 2	1500#	300#	—	—	3705	3080	2060	—	600	500			
26DA16A	—	1 1/2 x 3	2500#	300#	—	—	6000	5135	3430	—	740	500			
26DA32	26DB32	1 x 2	300#	150#	—	—	—	—	510	225	285	230	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26DA33	26DB33	1 x 2	600#	150#	—	—	—	—	1015	445	285	230			
26DA34	—	1 1/2 x 2	900#	300#	—	—	—	—	1525	670	600	500			
26DA35	—	1 1/2 x 2	1500#	300#	—	—	—	—	2540	1115	600	500			
26DA36A	—	1 1/2 x 3	2500#	300#	—	—	—	—	4230	1860	740	500			
26DA10/S3	26DB10/S3	1 x 2	150#	150#	—	275	—	—	—	—	275	230	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26DA11/S3	26DB11/S3	1 x 2	300#	150#	—	275	—	—	—	—	275	230			
26DA12/S3	26DB12/S3	1 x 2	300#	150#	—	720	—	—	—	—	275	230			
26DA13/S3	26DB13/S3	1 x 2	600#	150#	—	1440	—	—	—	—	275	230			
26DA14/S3	—	1 1/2 x 2	900#	300#	—	2160	—	—	—	—	600	500			
26DA15/S3	—	1 1/2 x 2	1500#	300#	—	3600	—	—	—	—	600	500			
26DA16A/S3	—	1 1/2 x 3	2500#	300#	—	6000	—	—	—	—	720	500			
26DA10/S4	26DB10/S4	1 x 2	150#	150#	275	—	—	—	—	—	275	230	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26DA11/S4	26DB11/S4	1 x 2	300#	150#	275	—	—	—	—	—	275	230			
26DA12/S4	26DB12/S4	1 x 2	300#	150#	720	—	—	—	—	—	275	230			
26DA13/S4	26DB13/S4	1 x 2	600#	150#	1440	—	—	—	—	—	275	230			
26DA14/S4	—	1 1/2 x 2	900#	300#	2160	—	—	—	—	—	600	500			
26DA15/S4	—	1 1/2 x 2	1500#	300#	3600	—	—	—	—	—	600	500			
26DA16A/S4	—	1 1/2 x 3	2500#	300#	4000	—	—	—	—	—	720	500			

Selection Chart



General Notes:

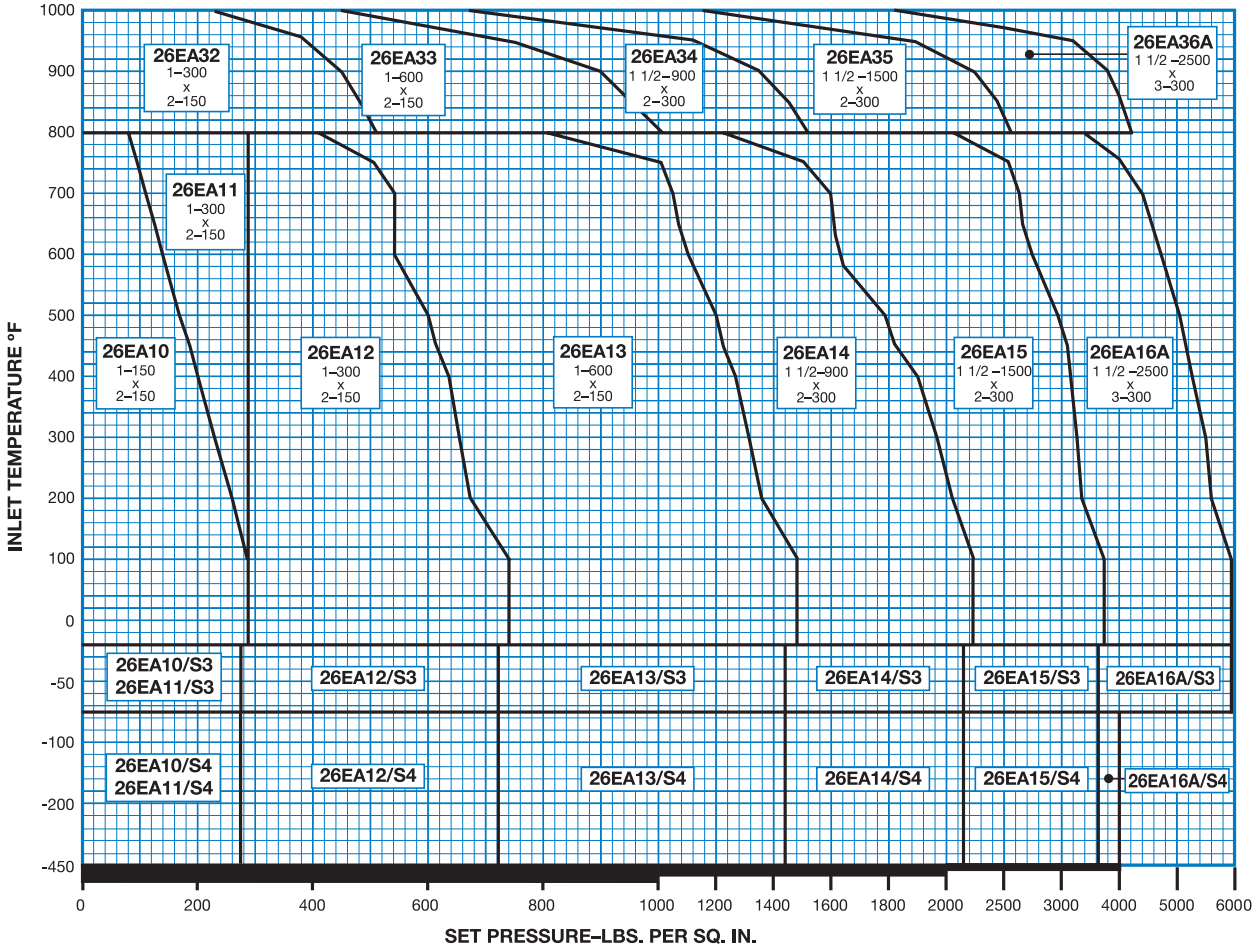
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

E Orifice

API Area: 0.196 sq. in.
Actual Area: 0.225 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26EA10	26EB10	1 x 2	150#	150#	—	—	285	185	80	—	285	230			
26EA11	26EB11	1 x 2	300#	150#	—	—	285	285	285	—	285	230			
26EA12	26EB12	1 x 2	300#	150#	—	—	740	615	410	—	285	230	CARBON	CHROME	- 20°F
26EA13	26EB13	1 x 2	600#	150#	—	—	1480	1235	825	—	285	230	STEEL	ALLOY	to
26EA14	—	1 1/2 x 2	900#	300#	—	—	2220	1845	1235	—	600	500			800°F
26EA15	—	1 1/2 x 2	1500#	300#	—	—	3705	3080	2060	—	600	500			
26EA16A	—	1 1/2 x 3	2500#	300#	—	—	6000	5135	3430	—	740	500			
26EA32	26EB32	1 x 2	300#	150#	—	—	—	—	510	225	285	230			
26EA33	26EB33	1 x 2	600#	150#	—	—	—	—	1015	445	285	230	CHROME	HIGH TEMP.	801°F
26EA34	—	1 1/2 x 2	900#	300#	—	—	—	—	1525	670	600	500	MOLY	ALLOY	to
26EA35	—	1 1/2 x 2	1500#	300#	—	—	—	—	2540	1115	600	500	STEEL		1000°F
26EA36A	—	1 1/2 x 3	2500#	300#	—	—	—	—	4230	1860	740	500			
26EA10/S3	26EB10/S3	1 x 2	150#	150#	—	275	—	—	—	—	275	230			
26EA11/S3	26EB11/S3	1 x 2	300#	150#	—	275	—	—	—	—	275	230		CHROME	
26EA12/S3	26EB12/S3	1 x 2	300#	150#	—	720	—	—	—	—	275	230	316	ALLOY	-21°F
26EA13/S3	26EB13/S3	1 x 2	600#	150#	—	1440	—	—	—	—	275	230	ST. ST.	NICKEL	to
26EA14/S3	—	1 1/2 x 2	900#	300#	—	2160	—	—	—	—	600	500		PLATED	-75°F
26EA15/S3	—	1 1/2 x 2	1500#	300#	—	3600	—	—	—	—	600	500			
26EA16A/S3	—	1 1/2 x 3	2500#	300#	—	6000	—	—	—	—	720	500			
26EA10/S4	26EB10/S4	1 x 2	150#	150#	275	—	—	—	—	—	275	230			
26EA11/S4	26EB11/S4	1 x 2	300#	150#	275	—	—	—	—	—	275	230			
26EA12/S4	26EB12/S4	1 x 2	300#	150#	720	—	—	—	—	—	275	230	316	316	-76°F
26EA13/S4	26EB13/S4	1 x 2	600#	150#	1440	—	—	—	—	—	275	230	ST. ST.	ST. ST.	to
26EA14/S4	—	1 1/2 x 2	900#	300#	2160	—	—	—	—	—	600	500			-450°F
26EA15/S4	—	1 1/2 x 2	1500#	300#	3600	—	—	—	—	—	600	500			
26EA16A/S4	—	1 1/2 x 3	2500#	300#	4000	—	—	—	—	—	720	500			

Selection Chart



General Notes:

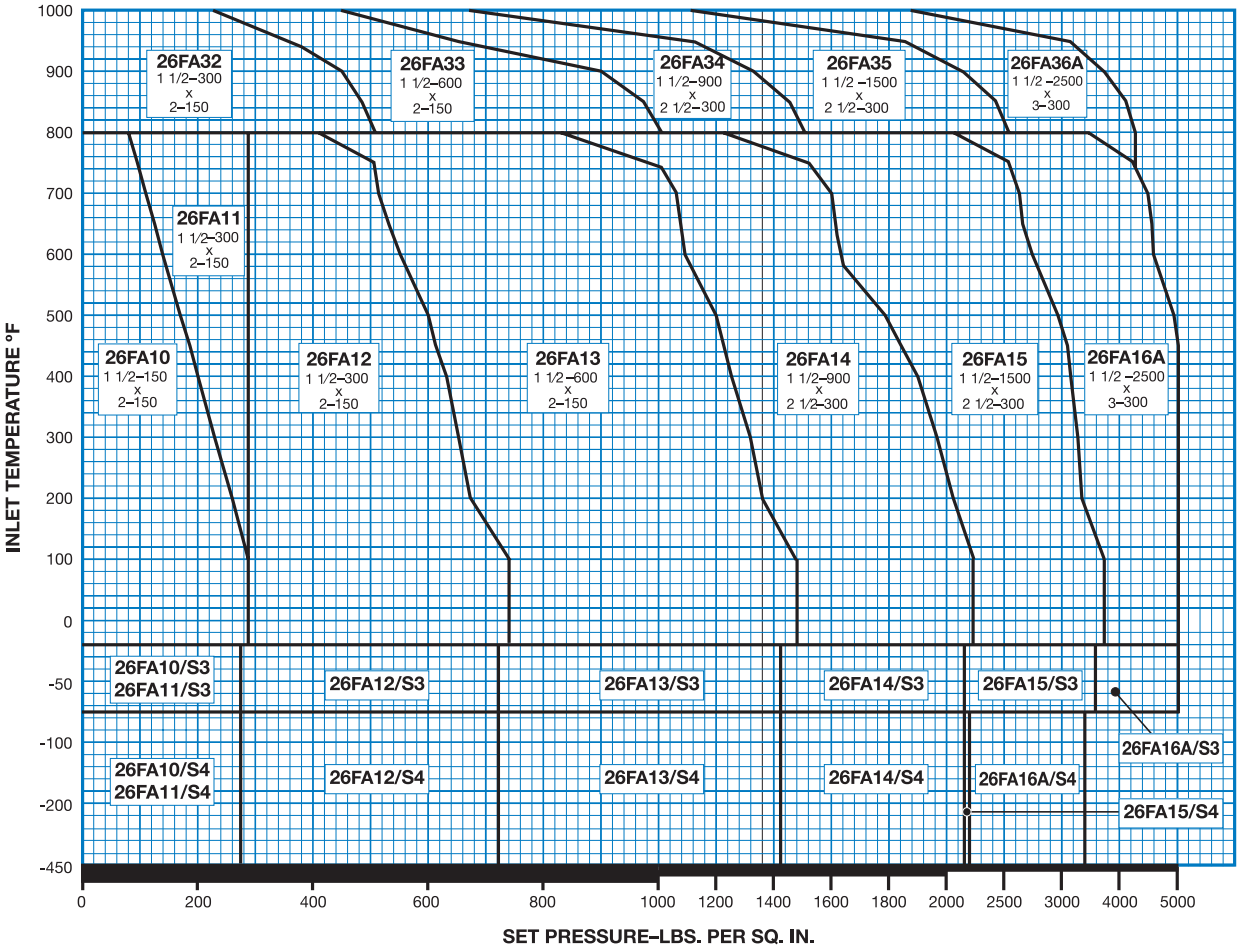
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

F Orifice

API Area: 0.307 sq. in.
Actual Area: 0.371 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26FA10	26FB10	1 1/2 x 2	150#	150#	—	—	285	185	80	—	285	230			
26FA11	26FB11	1 1/2 x 2	300#	150#	—	—	285	285	285	—	285	230			
26FA12	26FB12	1 1/2 x 2	300#	150#	—	—	740	615	410	—	285	230	CARBON	CHROME	- 20°F
26FA13	26FB13	1 1/2 x 2	600#	150#	—	—	1480	1235	825	—	285	230	STEEL	ALLOY	to
26FA14A	26FB14A	1 1/2 x 3	900#	300#	—	—	2220	1845	1235	—	740	500			800°F
26FA15A	26FB15A	1 1/2 x 3	1500#	300#	—	—	3705	3080	2060	—	740	500			
26FA16A	26FB16A	1 1/2 x 3	2500#	300#	—	—	5000	5000	3430	—	740	500			
26FA32	26FB32	1 1/2 x 2	300#	150#	—	—	—	—	510	225	285	230			
26FA33	26FB33	1 1/2 x 2	600#	150#	—	—	—	—	1015	445	285	230	CHROME	HIGH	801°F
26FA34A	26FB34A	1 1/2 x 3	900#	300#	—	—	—	—	1525	670	740	500	MOLY	TEMP.	to
26FA35A	26FB35A	1 1/2 x 3	1500#	300#	—	—	—	—	2540	1115	740	500	STEEL	ALLOY	1000°F
26FA36A	26FB36A	1 1/2 x 3	2500#	300#	—	—	—	—	4230	1860	740	500			
26FA10/S3	26FB10/S3	1 1/2 x 2	150#	150#	—	275	—	—	—	—	275	230			
26FA11/S3	26FB11/S3	1 1/2 x 2	300#	150#	—	275	—	—	—	—	275	230		CHROME	
26FA12/S3	26FB12/S3	1 1/2 x 2	300#	150#	—	720	—	—	—	—	275	230	316	ALLOY	-21°F
26FA13/S3	26FB13/S3	1 1/2 x 2	600#	150#	—	1440	—	—	—	—	275	230	ST. ST.	NICKEL	to
26FA14A/S3	26FB14A/S3	1 1/2 x 3	900#	300#	—	2160	—	—	—	—	720	500		PLATED	-75°F
26FA15A/S3	26FB15A/S3	1 1/2 x 3	1500#	300#	—	3600	—	—	—	—	720	500			
26FA16A/S3	26FB16A/S3	1 1/2 x 3	2500#	300#	—	5000	—	—	—	—	720	500			
26FA10/S4	26FB10/S4	1 1/2 x 2	150#	150#	275	—	—	—	—	—	275	230			
26FA11/S4	26FB11/S4	1 1/2 x 2	300#	150#	275	—	—	—	—	—	275	230			
26FA12/S4	26FB12/S4	1 1/2 x 2	300#	150#	720	—	—	—	—	—	275	230	316	316	-76°F
26FA13/S4	26FB13/S4	1 1/2 x 2	600#	150#	1440	—	—	—	—	—	275	230	ST. ST.	ST. ST.	to
26FA14A/S4	26FB14A/S4	1 1/2 x 3	900#	300#	2160	—	—	—	—	—	720	500			-450°F
26FA15A/S4	26FB15A/S4	1 1/2 x 3	1500#	300#	2200	—	—	—	—	—	720	500			
26FA16A/S4	26FB16A/S4	1 1/2 x 3	2500#	300#	3400	—	—	—	—	—	720	500			

Selection Chart



General Notes:

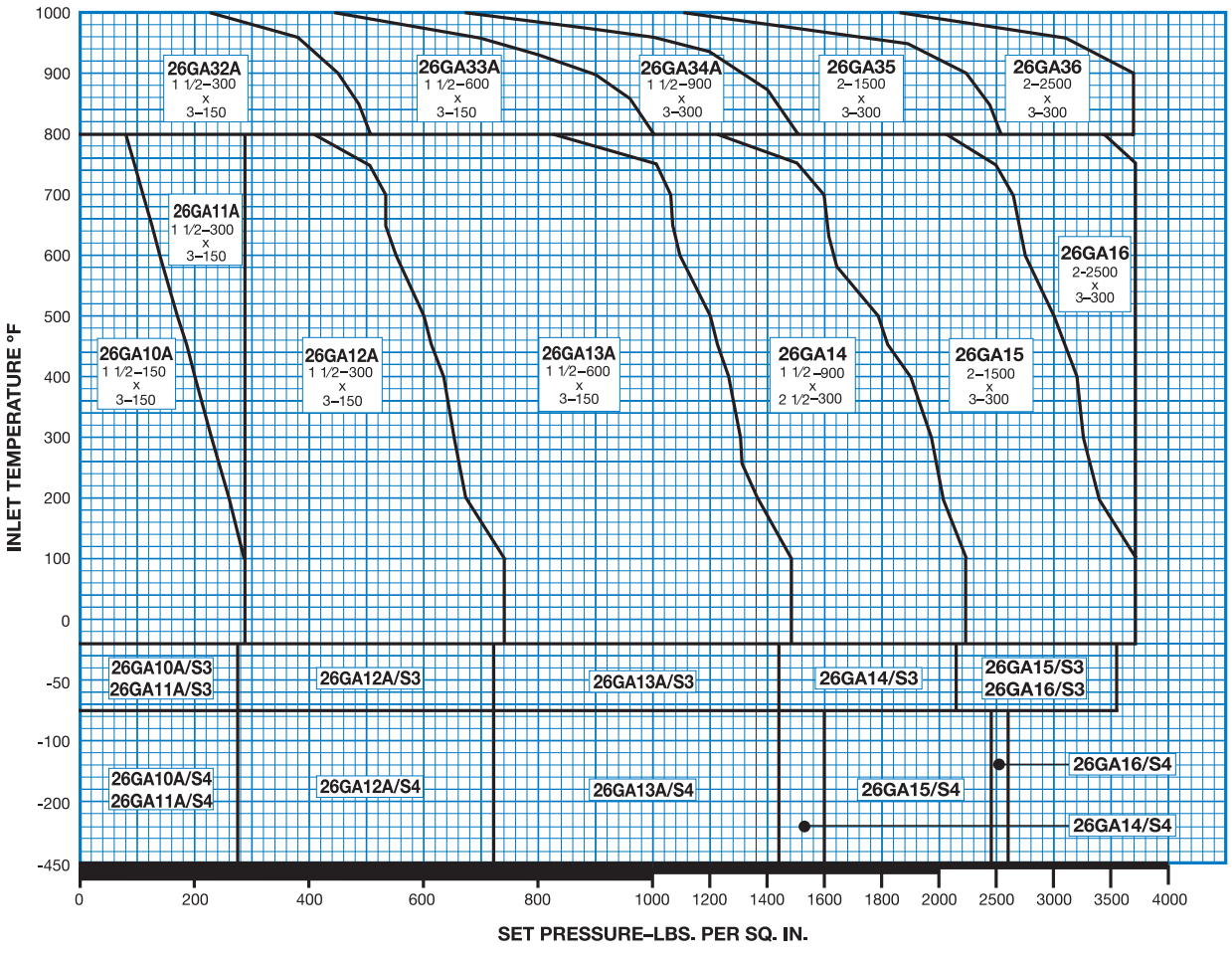
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

G Orifice

API Area: 0.503 sq. in.
Actual Area: 0.559 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26GA10A	26GB10A	1 1/2 x 3	150#	150#	—	—	285	185	80	—	285	230	CARBON STEEL	CHROME ALLOY	- 20°F to 800°F
26GA11A	26GB11A	1 1/2 x 3	300#	150#	—	—	285	285	285	—	285	230			
26GA12A	26GB12A	1 1/2 x 3	300#	150#	—	—	740	615	410	—	285	230			
26GA13A	26GB13A	1 1/2 x 3	600#	150#	—	—	1480	1235	825	—	285	230			
26GA14A	26GB14A	1 1/2 x 3	900#	300#	—	—	2220	1845	1235	—	740	470			
26GA15	26GB15	2 x 3	1500#	300#	—	—	3705	3080	2060	—	740	470			
26GA16	26GB16	2 x 3	2500#	300#	—	—	3705	3705	3430	—	740	470			
26GA32A	26GB32A	1 1/2 x 3	300#	150#	—	—	—	—	510	225	285	230	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26GA33A	26GB33A	1 1/2 x 3	600#	150#	—	—	—	—	1015	445	285	230			
26GA34A	26GB34A	1 1/2 x 3	900#	300#	—	—	—	—	1525	670	740	470			
26GA35	26GB35	2 x 3	1500#	300#	—	—	—	—	2540	1115	740	470			
26GA36	26GB36	2 x 3	2500#	300#	—	—	—	—	3705	1860	740	470			
26GA10A/S3	26GB10A/S3	1 1/2 x 3	150#	150#	—	275	—	—	—	—	275	230	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26GA11A/S3	26GB11A/S3	1 1/2 x 3	300#	150#	—	275	—	—	—	—	275	230			
26GA12A/S3	26GB12A/S3	1 1/2 x 3	300#	150#	—	720	—	—	—	—	275	230			
26GA13A/S3	26GB13A/S3	1 1/2 x 3	600#	150#	—	1440	—	—	—	—	275	230			
26GA14A/S3	26GB14A/S3	1 1/2 x 3	900#	300#	—	2160	—	—	—	—	720	470			
26GA15/S3	26GB15/S3	2 x 3	1500#	300#	—	3600	—	—	—	—	720	470			
26GA16/S3	26GB16/S3	2 x 3	2500#	300#	—	3600	—	—	—	—	720	470			
26GA10A/S4	26GB10A/S4	1 1/2 x 3	150#	150#	275	—	—	—	—	—	275	230	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26GA11A/S4	26GB11A/S4	1 1/2 x 3	300#	150#	275	—	—	—	—	—	275	230			
26GA12A/S4	26GB12A/S4	1 1/2 x 3	300#	150#	720	—	—	—	—	—	275	230			
26GA13A/S4	26GB13A/S4	1 1/2 x 3	600#	150#	1440	—	—	—	—	—	275	230			
26GA14A/S4	26GB14A/S4	1 1/2 x 3	900#	300#	1600	—	—	—	—	—	600	470			
26GA15/S4	26GB15/S4	2 x 3	1500#	300#	2450	—	—	—	—	—	600	470			
26GA16/S4	26GB16/S4	2 x 3	2500#	300#	2600	—	—	—	—	—	720	470			

Selection Chart



General Notes:

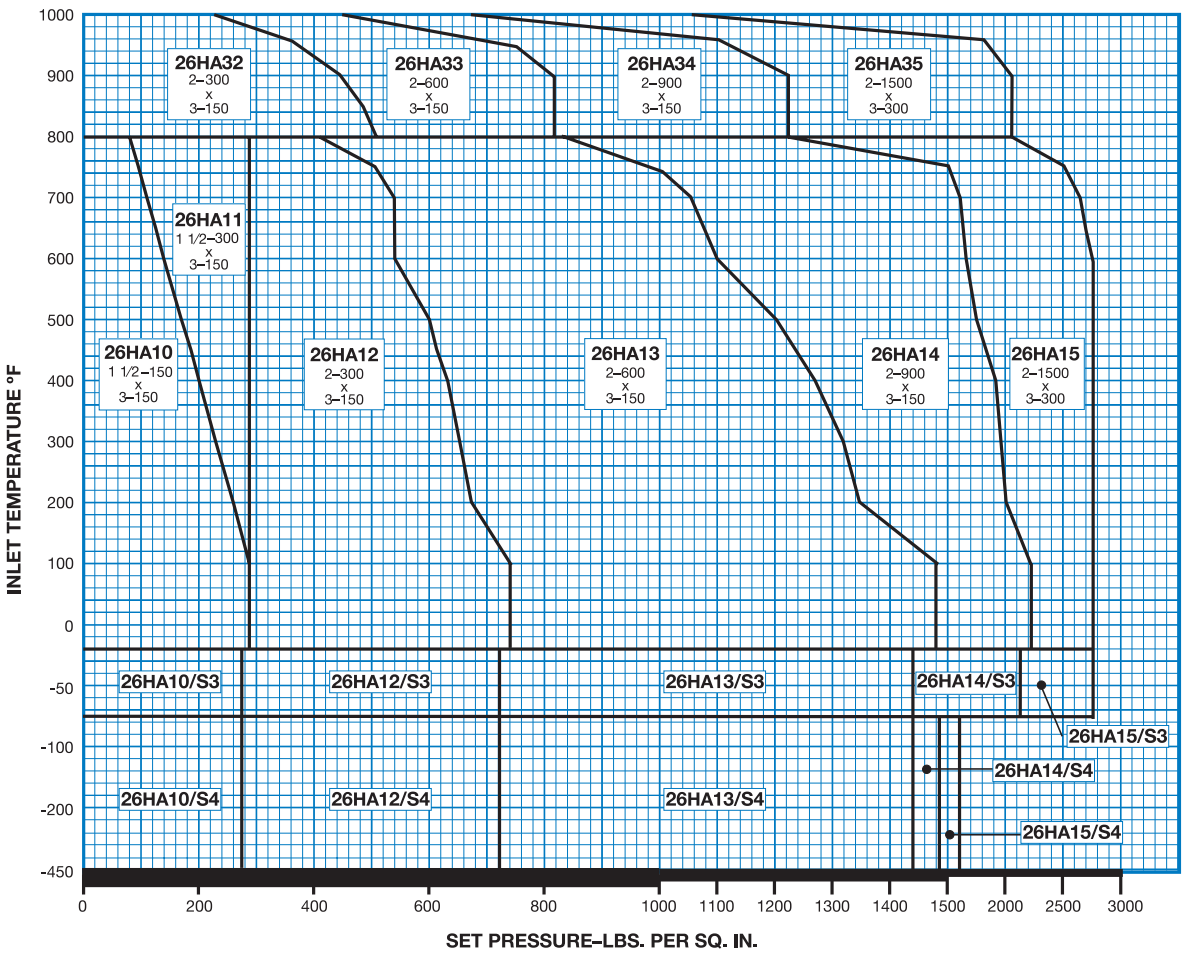
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

H Orifice

API Area: 0.785 sq. in.
Actual Area: 0.873 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26HA10	26HB10	1 1/2 x 3	150#	150#	—	—	285	185	80	—	285	230	CARBON STEEL	CHROME ALLOY	- 20°F to 800°F
26HA11	26HB11	1 1/2 x 3	300#	150#	—	—	285	285	285	—	285	230			
26HA12	26HB12	2 x 3	300#	150#	—	—	740	615	410	—	285	230			
26HA13	26HB13	2 x 3	600#	150#	—	—	1480	1235	825	—	285	230			
26HA14	26HB14	2 x 3	900#	150#	—	—	2220	1845	1235	—	285	230			
26HA15	26HB15	2 x 3	1500#	300#	—	—	2750	2750	2060	—	740	215			
26HA32	26HB32	2 x 3	300#	150#	—	—	—	—	510	225	285	230	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26HA33	26HB33	2 x 3	600#	150#	—	—	—	—	815	445	285	230			
26HA34	26HB34	2 x 3	900#	150#	—	—	—	—	1225	670	285	230			
26HA35	26HB35	2 x 3	1500#	300#	—	—	—	—	2040	1115	740	414			
26HA10/S3	26HB10/S3	1 1/2 x 3	150#	150#	—	275	—	—	—	—	275	230	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26HA11/S3	26HB11/S3	1 1/2 x 3	300#	150#	—	275	—	—	—	—	275	230			
26HA12/S3	26HB12/S3	2 x 3	300#	150#	—	720	—	—	—	—	275	230			
26HA13/S3	26HB13/S3	2 x 3	600#	150#	—	1440	—	—	—	—	275	230			
26HA14/S3	26HB14/S3	2 x 3	900#	150#	—	2160	—	—	—	—	275	230			
26HA15/S3	26HB15/S3	2 x 3	1500#	300#	—	2750	—	—	—	—	720	415			
26HA10/S4	26HB10/S4	1 1/2 x 3	150#	150#	275	—	—	—	—	—	275	230	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26HA11/S4	26HB11/S4	1 1/2 x 3	300#	150#	275	—	—	—	—	—	275	230			
26HA12/S4	26HB12/S4	2 x 3	300#	150#	720	—	—	—	—	—	275	230			
26HA13/S4	26HB13/S4	2 x 3	600#	150#	1440	—	—	—	—	—	275	230			
26HA14/S4	26HB14/S4	2 x 3	900#	150#	1485	—	—	—	—	—	275	230			
26HA15/S4	26HB15/S4	2 x 3	1500#	300#	1600	—	—	—	—	—	720	415			

Selection Chart



General Notes:

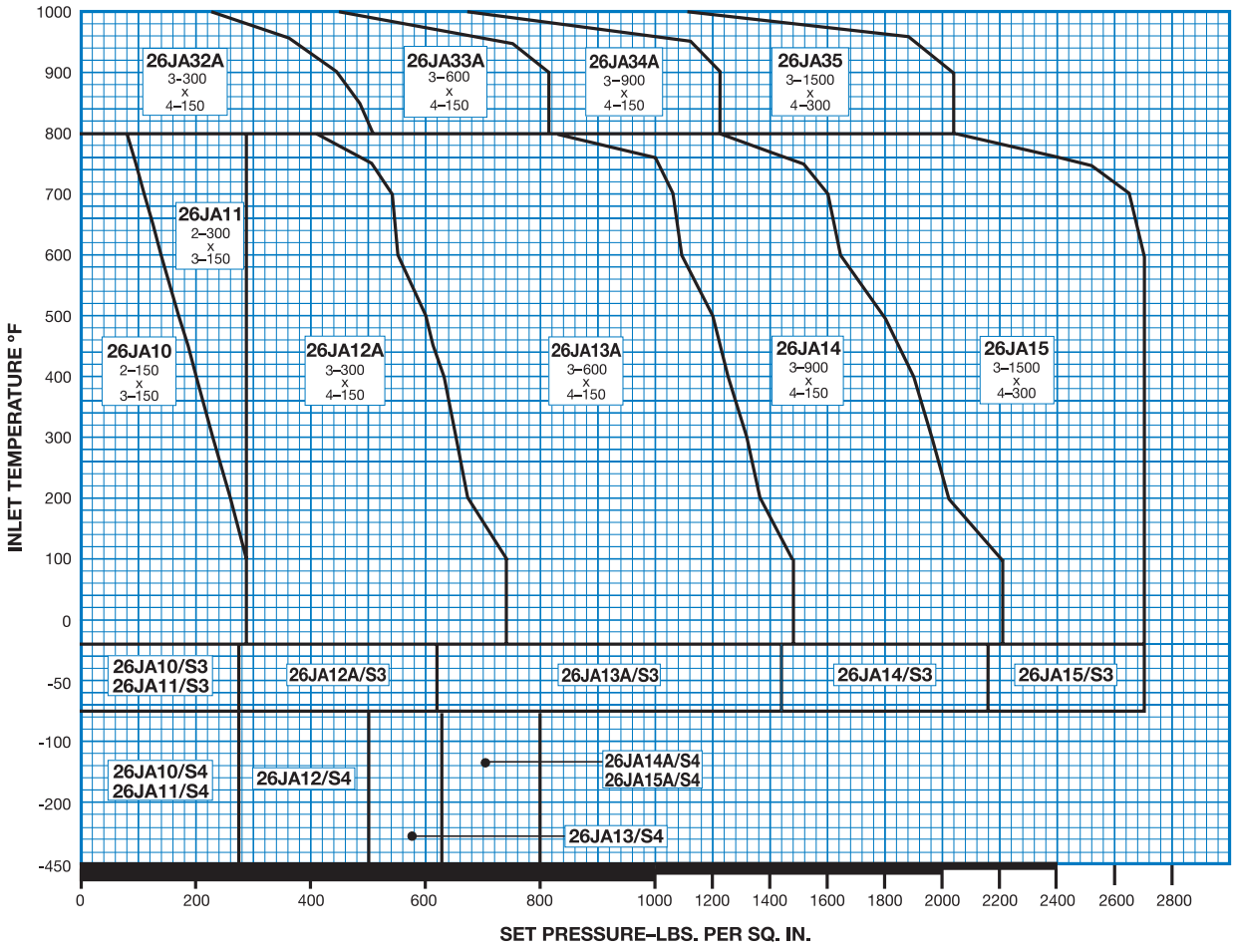
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

J Orifice

API Area: 1.287 sq. in.
Actual Area: 1.430 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26JA10	26JB10	2 x 3	150#	150#	—	—	285	185	80	—	285	230	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26JA11	26JB11	2 x 3	300#	150#	—	—	285	285	285	—	285	230			
26JA12A	26JB12A	3 x 4	300#	150#	—	—	740	615	410	—	285	230			
26JA13A	26JB13A	3 x 4	600#	150#	—	—	1480	1235	825	—	285	230			
26JA14	26JB14	3 x 4	900#	150#	—	—	2220	1845	1235	—	285	230			
26JA15	26JB15	3 x 4	1500#	300#	—	—	2700	2700	2060	—	600	230			
26JA32A	26JB32A	3 x 4	300#	150#	—	—	—	—	510	225	285	230	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26JA33A	26JB33A	3 x 4	600#	150#	—	—	—	—	815	445	285	230			
26JA34A	26JB34A	3 x 4	900#	150#	—	—	—	—	1225	670	285	230			
26JA35	26JB35	3 x 4	1500#	300#	—	—	—	—	2040	1115	600	230			
26JA10/S3	26JB10/S3	2 x 3	150#	150#	—	275	—	—	—	—	275	230	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26JA11/S3	26JB11/S3	2 x 3	300#	150#	—	275	—	—	—	—	275	230			
26JA12A/S3	26JB12A/S3	3 x 4	300#	150#	—	720	—	—	—	—	275	230			
26JA13A/S3	26JB13A/S3	3 x 4	600#	150#	—	1440	—	—	—	—	275	230			
26JA14/S3	26JB14/S3	3 x 4	900#	150#	—	2160	—	—	—	—	275	230			
26JA15/S3	26JB15/S3	3 x 4	1500#	300#	—	2700	—	—	—	—	600	230			
26JA10/S4	26JB10/S4	2 x 3	150#	150#	275	—	—	—	—	—	275	230	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26JA11/S4	26JB11/S4	2 x 3	300#	150#	275	—	—	—	—	—	275	230			
26JA12A/S4	26JB12A/S4	3 x 4	300#	150#	500	—	—	—	—	—	275	230			
26JA13A/S4	26JB13A/S4	3 x 4	600#	150#	625	—	—	—	—	—	275	230			
26JA14/S4	26JB14/S4	3 x 4	900#	150#	800	—	—	—	—	—	275	230			
26JA15/S4	26JB15/S4	3 x 4	1500#	300#	800	—	—	—	—	—	600	230			

Selection Chart



General Notes:

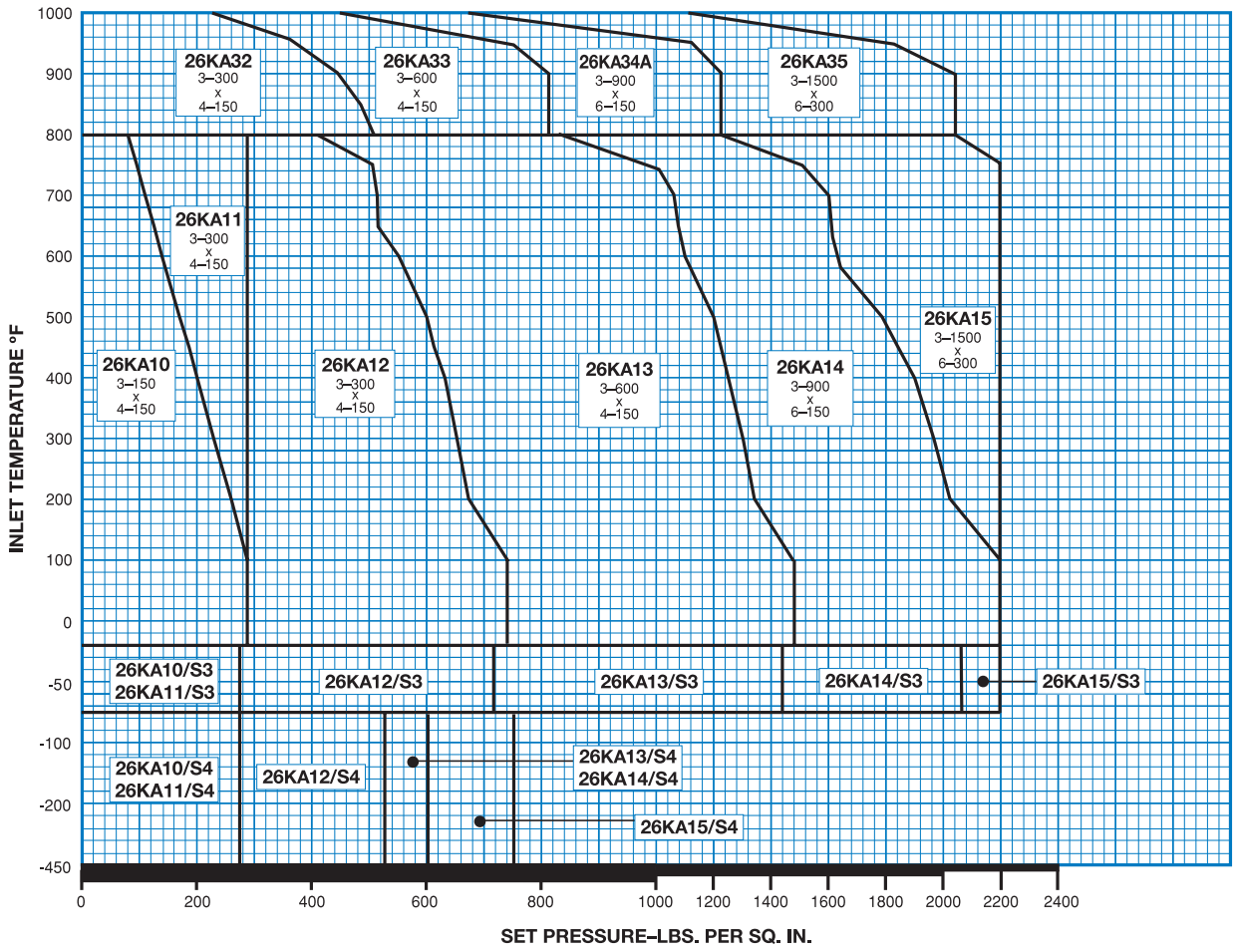
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

K Orifice

API Area: 1.838 sq. in.
Actual Area: 2.042 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26KA10	26KB10	3 x 4	150#	150#	—	—	285	185	80	—	285	150	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26KA11	26KB11	3 x 4	300#	150#	—	—	285	285	285	—	285	150			
26KA12	26KB12	3 x 4	300#	150#	—	—	740	615	410	—	285	150			
26KA13	26KB13	3 x 4	600#	150#	—	—	1480	1235	825	—	285	200			
26KA14	26KB14	3 x 6	900#	150#	—	—	2220	1845	1235	—	285	200			
26KA15	26KB15	3 x 6	1500#	300#	—	—	2220	2220	2060	—	600	200			
26KA32	26KB32	3 x 4	300#	150#	—	—	—	—	510	225	285	150	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26KA33	26KB33	3 x 4	600#	150#	—	—	—	—	815	445	285	200			
26KA34A	26KB34A	3 x 6	900#	150#	—	—	—	—	1225	670	285	200			
26KA35	26KB35	3 x 6	1500#	300#	—	—	—	—	2040	1115	600	200			
26KA10/S3	26KB10/S3	3 x 4	150#	150#	—	275	—	—	—	—	275	150	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26KA11/S3	26KB11/S3	3 x 4	300#	150#	—	275	—	—	—	—	275	150			
26KA12/S3	26KB12/S3	3 x 4	300#	150#	—	720	—	—	—	—	275	150			
26KA13/S3	26KB13/S3	3 x 4	600#	150#	—	1440	—	—	—	—	275	200			
26KA14/S3	26KB14/S3	3 x 6	900#	150#	—	2160	—	—	—	—	275	200			
26KA15/S3	26KB15/S3	3 x 6	1500#	300#	—	2220	—	—	—	—	600	200			
26KA10/S4	26KB10/S4	3 x 4	150#	150#	275	—	—	—	—	—	275	150	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26KA11/S4	26KB11/S4	3 x 4	300#	150#	275	—	—	—	—	—	275	150			
26KA12/S4	26KB12/S4	3 x 4	300#	150#	525	—	—	—	—	—	275	150			
26KA13/S4	26KB13/S4	3 x 4	600#	150#	600	—	—	—	—	—	275	200			
26KA14/S4	26KB14/S4	3 x 6	900#	150#	600	—	—	—	—	—	275	200			
26KA15/S4	26KB15/S4	3 x 6	1500#	300#	750	—	—	—	—	—	600	200			

Selection Chart



General Notes:

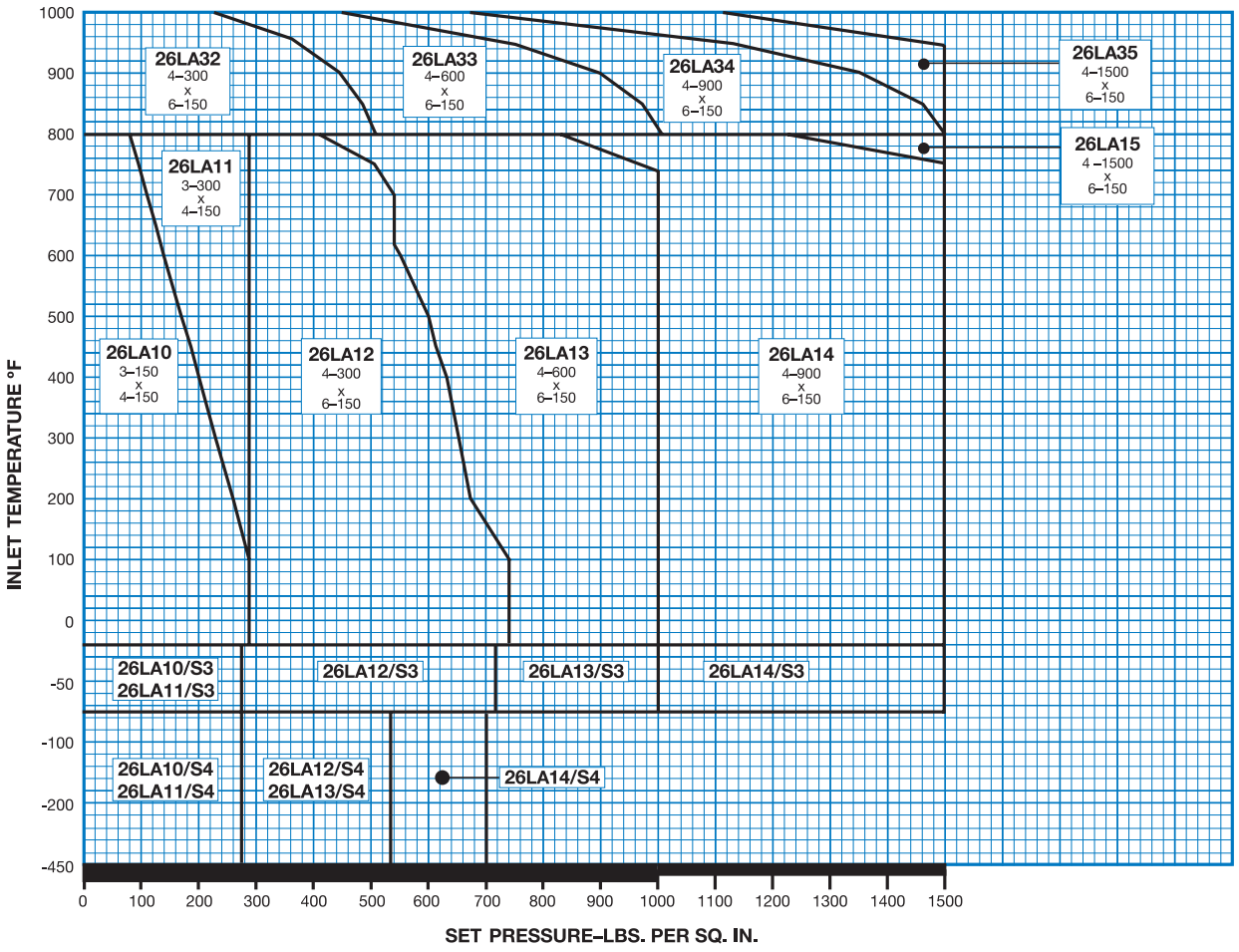
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

L Orifice

API Area: 2.853 sq. in.
Actual Area: 3.170 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26LA10	26LB10	3 x 4	150#	150#	—	—	285	185	80	—	285	100			
26LA11	26LB11	3 x 4	300#	150#	—	—	285	285	285	—	285	100			
26LA12	26LB12	4 x 6	300#	150#	—	—	740	615	410	—	285	170	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26LA13	26LB13	4 x 6	600#	150#	—	—	1000	1000	825	—	285	170			
26LA14	26LB14	4 x 6	900#	150#	—	—	1500	1500	1235	—	285	170			
26LA15	26LB15	4 x 6	1500#	150#	—	—	1500	1500	1500	—	285	170			
26LA32	26LB32	4 x 6	300#	150#	—	—	—	—	510	225	285	170	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26LA33	26LB33	4 x 6	600#	150#	—	—	—	—	1000	445	285	170			
26LA34	26LB34	4 x 6	900#	150#	—	—	—	—	1500	670	285	170			
26LA35	26LB35	4 x 6	1500#	150#	—	—	—	—	1500	1115	285	170			
26LA10/S3	26LB10/S3	3 x 4	150#	150#	—	275	—	—	—	—	275	100			
26LA11/S3	26LB11/S3	3 x 4	300#	150#	—	275	—	—	—	—	275	100	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26LA12/S3	26LB12/S3	4 x 6	300#	150#	—	720	—	—	—	—	275	170			
26LA13/S3	26LB13/S3	4 x 6	600#	150#	—	1000	—	—	—	—	275	170			
26LA14/S3	26LB14/S3	4 x 6	900#	150#	—	1500	—	—	—	—	275	170			
26LA10/S4	26LB10/S4	3 x 4	150#	150#	275	—	—	—	—	—	275	170			
26LA11/S4	26LB11/S4	3 x 4	300#	150#	275	—	—	—	—	—	275	170	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26LA12/S4	26LB12/S4	4 x 6	300#	150#	535	—	—	—	—	—	275	170			
26LA13/S4	26LB13/S4	4 x 6	600#	150#	535	—	—	—	—	—	275	170			
26LA14/S4	26LB14/S4	4 x 6	900#	150#	700	—	—	—	—	—	275	170			

Selection Chart



General Notes:

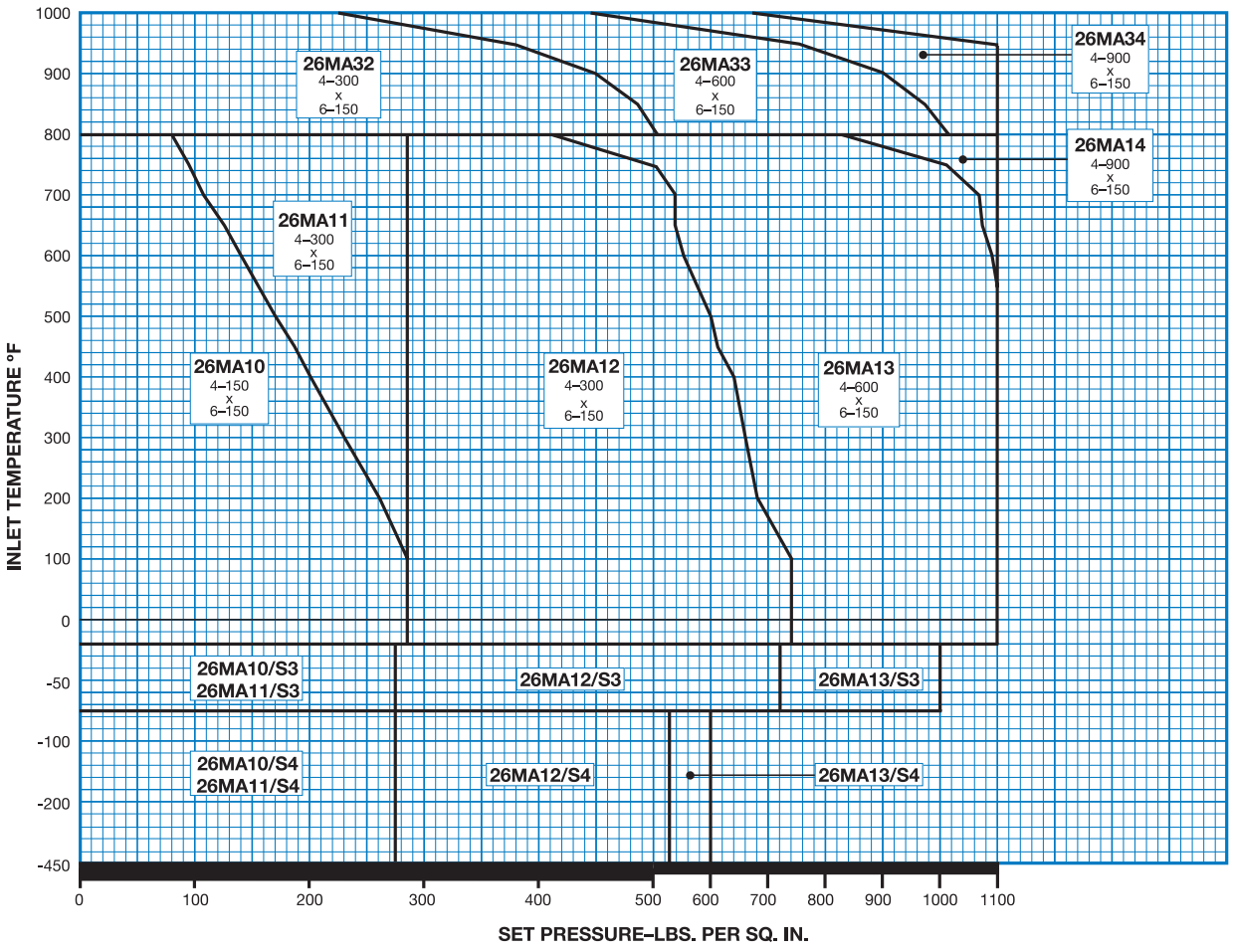
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

M Orifice

API Area: 3.60 sq. in.
Actual Area: 4.000 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26MA10	26MB10	4 x 6	150#	150#	—	—	285	185	80	—	285	80	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26MA11	26MB11	4 x 6	300#	150#	—	—	285	285	285	—	285	80			
26MA12	26MB12	4 x 6	300#	150#	—	—	740	615	410	—	285	160			
26MA13	26MB13	4 x 6	600#	150#	—	—	1100	1100	825	—	285	160			
26MA14	26MB14	4 x 6	900#	150#	—	—	1100	1100	1100	—	285	160			
26MA32	26MB32	4 x 6	300#	150#	—	—	—	—	510	225	285	160	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26MA33	26MB33	4 x 6	600#	150#	—	—	—	—	1015	445	285	160			
26MA34	26MB34	4 x 6	900#	150#	—	—	—	—	1100	670	285	160			
26MA10/S3	26MB10/S3	4 x 6	150#	150#	—	275	—	—	—	—	275	80	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26MA11/S3	26MB11/S3	4 x 6	300#	150#	—	275	—	—	—	—	275	80			
26MA12/S3	26MB12/S3	4 x 6	300#	150#	—	720	—	—	—	—	275	160			
26MA13/S3	26MB13/S3	4 x 6	600#	150#	—	1000	—	—	—	—	275	160			
26MA10/S4	26MB10/S4	4 x 6	150#	150#	275	—	—	—	—	—	275	80	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26MA11/S4	26MB11/S4	4 x 6	300#	150#	275	—	—	—	—	—	275	80			
26MA12/S4	26MB12/S4	4 x 6	300#	150#	525	—	—	—	—	—	275	160			
26MA13/S4	26MB13/S4	4 x 6	600#	150#	600	—	—	—	—	—	275	160			

Selection Chart



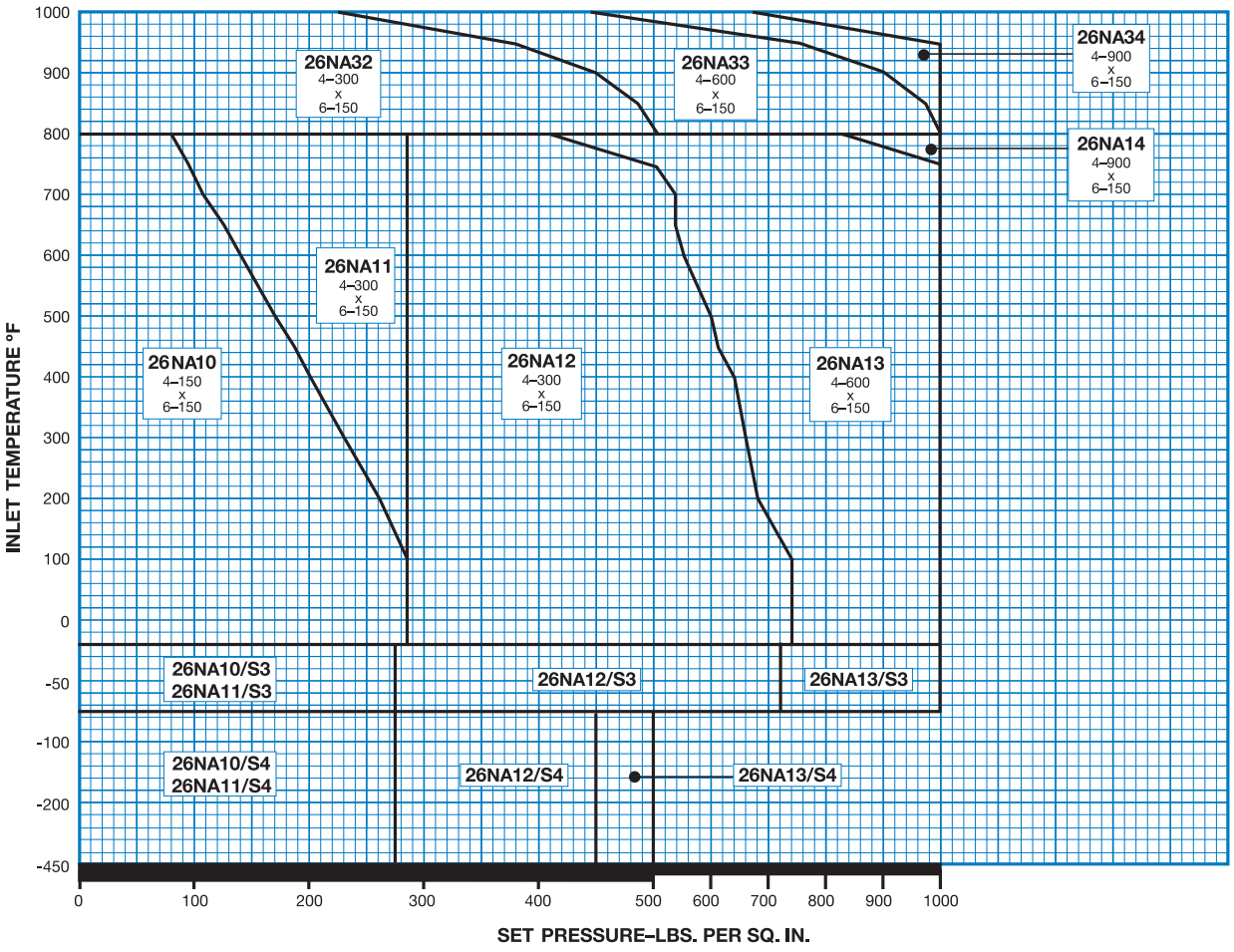
General Notes:

1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

N Orifice

API Area: 4.34 sq. in.
Actual Area: 4.822 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26NA10	26NB10	4 x 6	150#	150#	—	—	285	185	80	—	285	80	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26NA11	26NB11	4 x 6	300#	150#	—	—	285	285	285	—	285	80			
26NA12	26NB12	4 x 6	300#	150#	—	—	740	615	410	—	285	160			
26NA13	26NB13	4 x 6	600#	150#	—	—	1000	1000	825	—	285	160			
26NA14	26NB14	4 x 6	900#	150#	—	—	1000	1000	1000	—	285	160			
26NA32	26NB32	4 x 6	300#	150#	—	—	—	—	510	225	285	160	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26NA33	26NB33	4 x 6	600#	150#	—	—	—	—	1000	445	285	160			
26NA34	26NB34	4 x 6	900#	150#	—	—	—	—	1000	670	285	160			
26NA10/S3	26NB10/S3	4 x 6	150#	150#	—	275	—	—	—	—	275	80	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26NA11/S3	26NB11/S3	4 x 6	300#	150#	—	275	—	—	—	—	275	80			
26NA12/S3	26NB12/S3	4 x 6	300#	150#	—	720	—	—	—	—	275	160			
26NA13/S3	26NB13/S3	4 x 6	600#	150#	—	1000	—	—	—	—	275	160			
26NA10/S4	26NB10/S4	4 x 6	150#	150#	275	—	—	—	—	—	275	80	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26NA11/S4	26NB11/S4	4 x 6	300#	150#	275	—	—	—	—	—	275	80			
26NA12/S4	26NB12/S4	4 x 6	300#	150#	450	—	—	—	—	—	275	160			
26NA13/S4	26NB13/S4	4 x 6	600#	150#	500	—	—	—	—	—	275	160			



Selection Chart

General Notes:

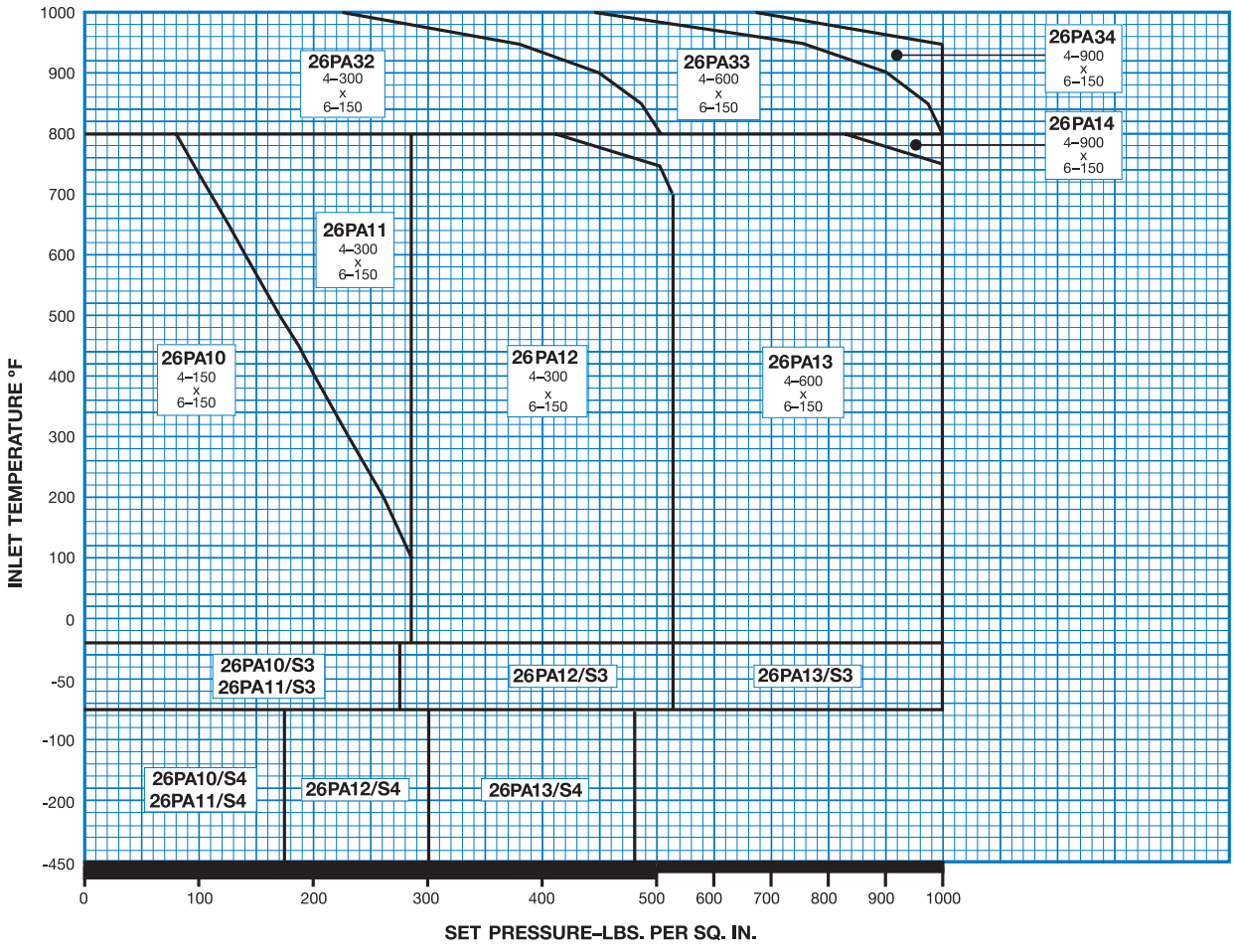
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

P Orifice

API Area: 6.38 sq. in.
Actual Area: 7.087 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26PA10	26PB10	4 x 6	150#	150#	—	—	285	185	80	—	285	80	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26PA11	26PB11	4 x 6	300#	150#	—	—	285	285	285	—	285	80			
26PA12	26PB12	4 x 6	300#	150#	—	—	525	525	410	—	285	160			
26PA13	26PB13	4 x 6	600#	150#	—	—	1000	1000	825	—	285	160			
26PA14	26PB14	4 x 6	900#	150#	—	—	1000	1000	1000	—	285	160			
26PA32	26PB32	4 x 6	300#	150#	—	—	—	—	510	225	285	160	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26PA33	26PB33	4 x 6	600#	150#	—	—	—	—	1000	445	285	160			
26PA34	26PB34	4 x 6	900#	150#	—	—	—	—	1000	670	285	160			
26PA10/S3	26PB10/S3	4 x 6	150#	150#	—	275	—	—	—	—	275	80	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26PA11/S3	26PB11/S3	4 x 6	300#	150#	—	275	—	—	—	—	275	80			
26PA12/S3	26PB12/S3	4 x 6	300#	150#	—	720	—	—	—	—	275	160			
26PA13/S3	26PB13/S3	4 x 6	600#	150#	—	1000	—	—	—	—	275	160			
26PA10/S4	26PB10/S4	4 x 6	150#	150#	175	—	—	—	—	—	175	80	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26PA11/S4	26PB11/S4	4 x 6	300#	150#	175	—	—	—	—	—	175	80			
26PA12/S4	26PB12/S4	4 x 6	300#	150#	300	—	—	—	—	—	275	160			
26PA13/S4	26PB13/S4	4 x 6	600#	150#	480	—	—	—	—	—	275	160			

Selection Chart



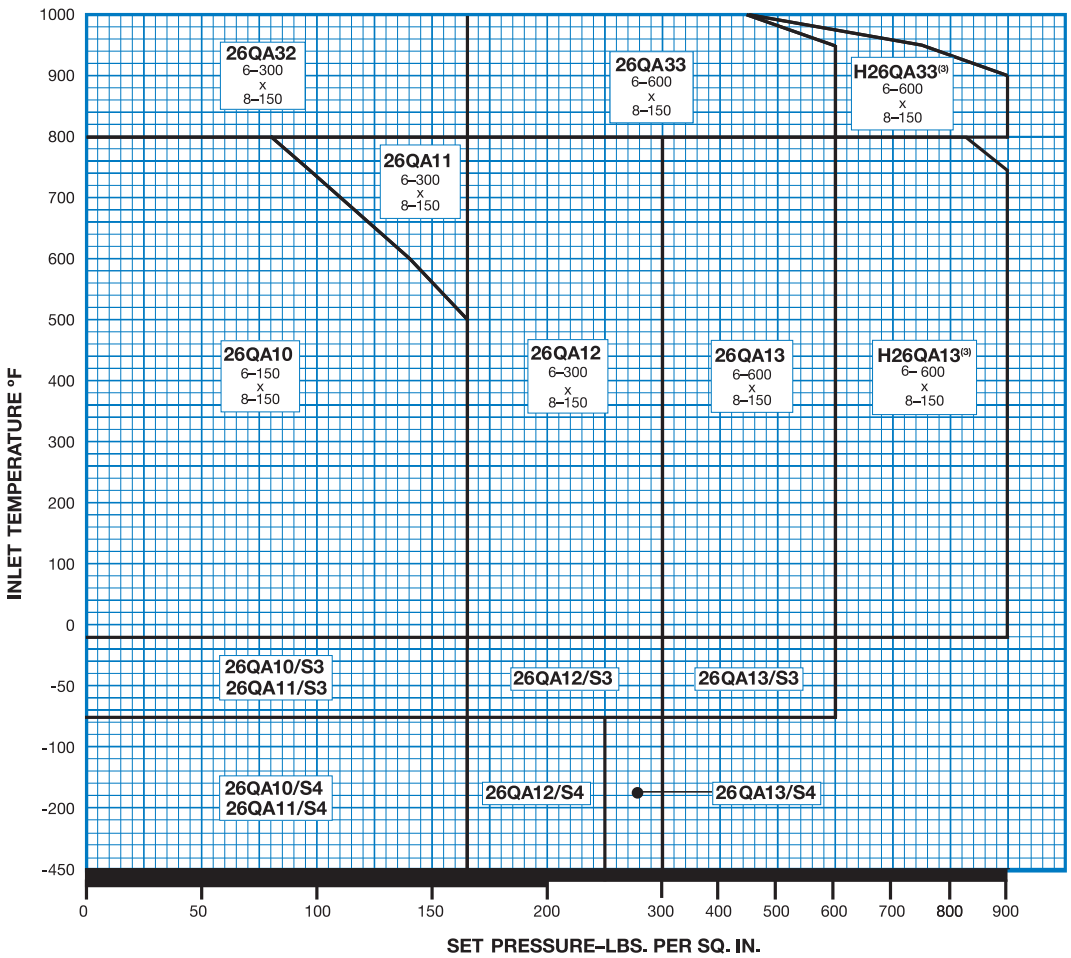
General Notes:

1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

Q Orifice

API Area: 11.05 sq. in.
Actual Area: 12.27 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26QA10	26QB10	6 x 8	150#	150#	—	—	165	165	80	—	115	70			
26QA11	26QB11	6 x 8	300#	150#	—	—	165	165	165	—	115	70	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26QA12	26QB12	6 x 8	300#	150#	—	—	300	300	300	—	115	115			
26QA13	26QB13	6 x 8	600#	150#	—	—	600	600	600	—	115	115			
H26QA13	H26QB13	6 x 8	600#	150#	—	—	900	900	825	—	285	200			
26QA32	26QB32	6 x 8	300#	150#	—	—	—	—	165	165	115	70	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26QA33	26QB33	6 x 8	600#	150#	—	—	—	—	600	445	115	70			
H26QA33	H26QB33	6 x 8	600#	150#	—	—	—	—	900	445	285	200			
26QA10/S3	26QB10/S3	6 x 8	150#	150#	—	165	—	—	—	—	115	70			
26QA11/S3	26QB11/S3	6 x 8	300#	150#	—	165	—	—	—	—	115	70	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26QA12/S3	26QB12/S3	6 x 8	300#	150#	—	300	—	—	—	—	115	115			
26QA13/S3	26QB13/S3	6 x 8	600#	150#	—	600	—	—	—	—	115	115			
26QA10/S4	26QB10/S4	6 x 8	150#	150#	165	—	—	—	—	—	115	70			
26QA11/S4	26QB11/S4	6 x 8	300#	150#	165	—	—	—	—	—	115	70	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26QA12/S4	26QB12/S4	6 x 8	300#	150#	250	—	—	—	—	—	115	115			
26QA13/S4	26QB13/S4	6 x 8	600#	150#	300	—	—	—	—	—	115	115			



Selection Chart

General Notes:

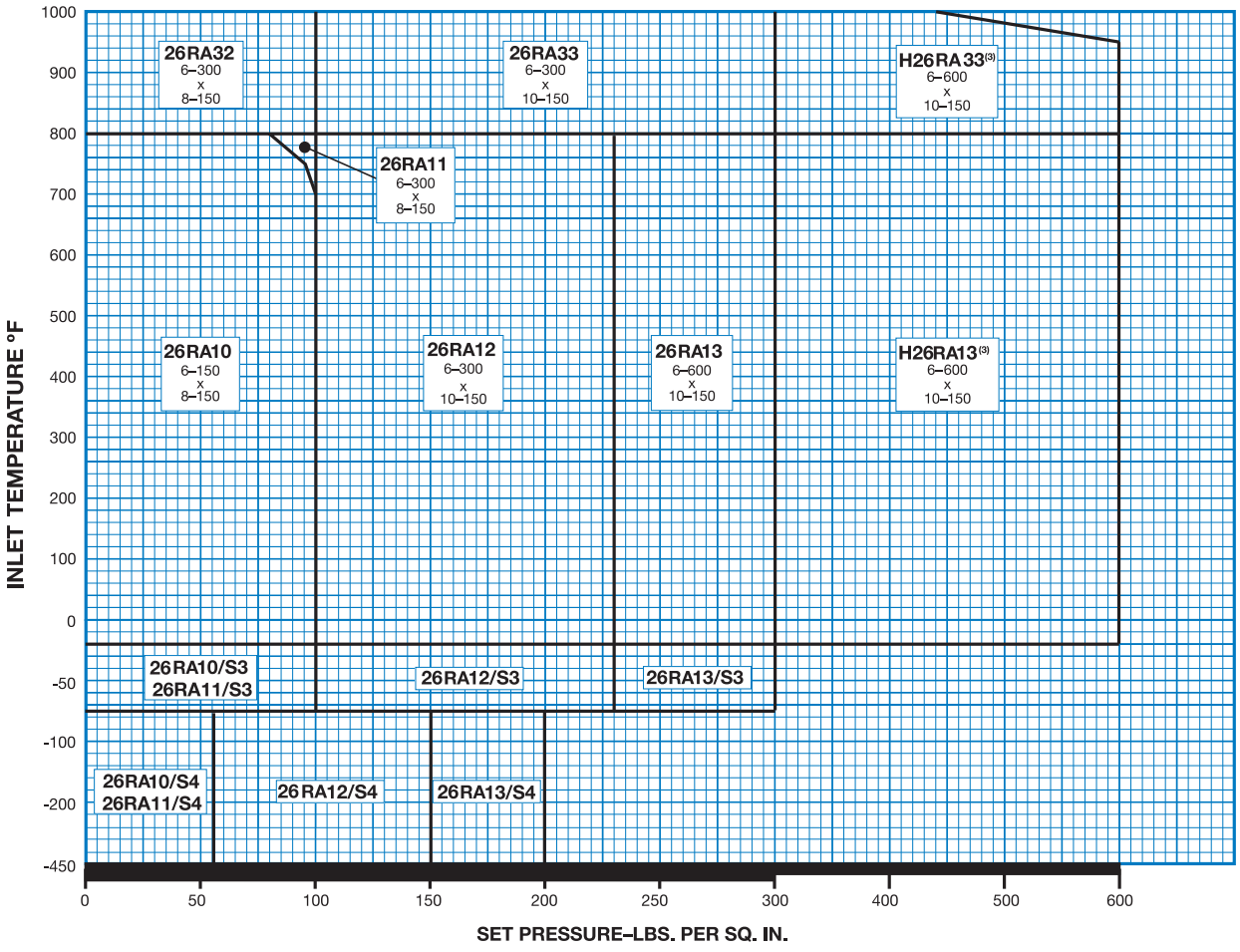
1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

R Orifice

API Area: 16.00 sq. in.
Actual Area: 17.78 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26RA10	26RB10	6 x 8	150#	150#	—	—	100	100	80	—	60	60	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26RA11	26RB11	6 x 8	300#	150#	—	—	100	100	100	—	60	60			
26RA12	26RB12	6 x 10	300#	150#	—	—	230	230	230	—	100	100			
26RA13	26RB13	6 x 10	600#	150#	—	—	300	300	300	—	100	100			
H26RA13	H26RB13	6 x 10	600#	150#	—	—	600	600	600	—	285	200			
26RA32	26RB32	6 x 8	300#	150#	—	—	—	—	100	100	60	60	CHROME MOLY STEEL	HIGH TEMP. ALLOY	801°F to 1000°F
26RA33	26RB33	6 x 10	600#	150#	—	—	—	—	300	300	100	100			
H26RA33	H26RB33	6 x 10	600#	150#	—	—	—	—	600	445	285	200			
26RA10/S3	26RB10/S3	6 x 8	150#	150#	—	100	—	—	—	—	115	70	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-21°F to -75°F
26RA11/S3	26RB11/S3	6 x 8	300#	150#	—	100	—	—	—	—	115	70			
26RA12/S3	26RB12/S3	6 x 10	300#	150#	—	230	—	—	—	—	115	115			
26RA13/S3	26RB13/S3	6 x 10	600#	150#	—	300	—	—	—	—	115	115			
26RA10/S4	26RB10/S4	6 x 8	150#	150#	55	—	—	—	—	—	115	70	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26RA11/S4	26RB11/S4	6 x 8	300#	150#	55	—	—	—	—	—	115	70			
26RA12/S4	26RB12/S4	6 x 10	300#	150#	150	—	—	—	—	—	115	115			
26RA13/S4	26RB13/S4	6 x 10	600#	150#	200	—	—	—	—	—	115	115			

Selection Chart



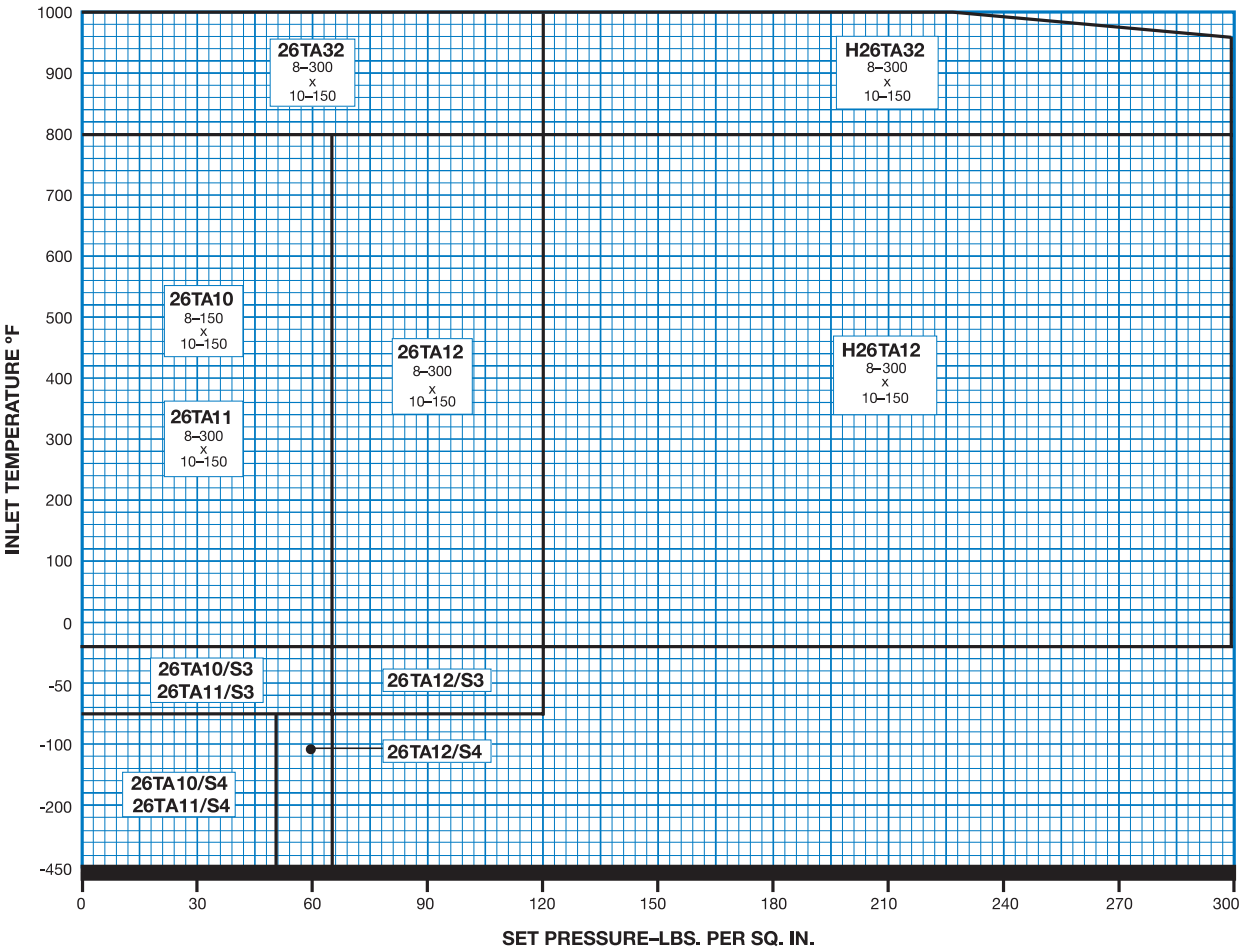
General Notes:

1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

T Orifice

API Area: 26.00 sq. in.
Actual Area: 28.94 sq. in.

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, PSIG						BACK PRESSURE LIMIT PSIG @ 100°F		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-450°F -76°F	-75°F -21°F	-20°F 100°F	450°F	800°F	1000°F	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26TA10	26TB10	8 x 10	150#	150#	—	—	65	65	65	—	30	30	CARBON STEEL	CHROME ALLOY	-20°F to 800°F
26TA11	26TB11	8 x 10	300#	150#	—	—	65	65	65	—	30	30			
26TA12	26TB12	8 x 10	300#	150#	—	—	120	120	120	—	60	60			
H26TA12	H26TB12	8 x 10	300#	150#	—	—	300	300	300	—	100	100			
26TA32	26TB32	8 x 10	300#	150#	—	—	—	—	120	120	60	60	CHROME MOLY ST.	HIGH TEMP. ALLOY	801°F to 1000°F
H26TA32	H26TB32	8 x 10	300#	150#	—	—	—	—	300	225	100	100			
26TA10/S3	26TB10/S3	8 x 10	150#	150#	—	65	—	—	—	—	30	30	316 ST. ST.	CHROME ALLOY NICKEL PLTD.	-21°F to -75°F
26TA11/S3	26TB11/S3	8 x 10	300#	150#	—	65	—	—	—	—	30	30			
26TA12/S3	26TB12/S3	8 x 10	300#	150#	—	120	—	—	—	—	60	60			
26TA10/S4	26TB10/S4	8 x 10	150#	150#	50	—	—	—	—	—	30	30	316 ST. ST.	316 ST. ST.	-76°F to -450°F
26TA11/S4	26TB11/S4	8 x 10	300#	150#	50	—	—	—	—	—	30	30			
26TA12/S4	26TB12/S4	8 x 10	300#	150#	65	—	—	—	—	—	60	60			



Selection Chart

General Notes:

1. The type numbers shown on the Selection Chart indicate conventional valves. For BalanSeal, O-ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperatures above 100° F should not exceed the rating in ANSI B16.5.
3. For applications above 1000° F, consult the Farris Factory.

Former API Standard Sizes

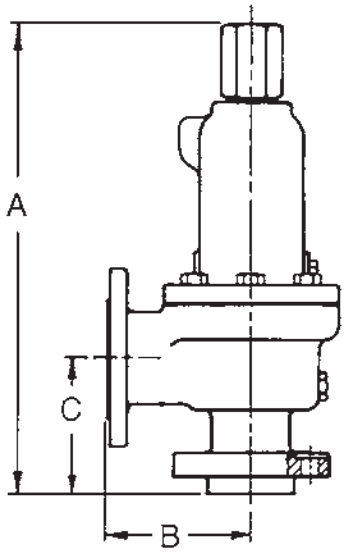
API Standard 526, Flanged Steel Pressure Relief Valves, was revised to eliminate the use of 2½" size connections and to use 3" connections instead. The following is a summary of the old type numbers previously offered. The original type numbers with 2½" connections are still available for replacement of existing valves.

Orifice	Type Number		Valve Size	ANSI Flange Class		Dimensions, Inches					Approx.
	Air, Steam, & Vapor	Liquid	Inlet x Outlet	Inlet	Outlet	A	B	C	E	F	Weight
D	26DA16	26DA16L	1 1/2 x 2 1/2	2500#	300#	22 3/4	6 1/2	5 1/2	11/16	2 7/16	80
E	26EA16	26EA16L	1 1/2 x 2 1/2	2500#	300#	22 3/4	6 1/2	5 1/2	11/16	2 7/16	80
F	26FA14	26FA14L	1 1/2 x 2 1/2	900#	300#	22 3/4	6	4 7/8	11/16	1 15/16	70
	26FA15	26FA15L	1 1/2 x 2 1/2	1500#	300#	22 3/4	6	4 7/8	11/16	1 15/16	70
	26FA16	26FA16L	1 1/2 x 2 1/2	2500#	300#	22 3/4	6 1/2	5 1/2	11/16	2 7/16	80
G	26GA10	26GA10L	1 1/2 x 2 1/2	150#	150#	18 5/8	4 3/4	4 7/8	11/16	1 1/4	50
	26GA11	26GA11L	1 1/2 x 2 1/2	300#	150#	18 5/8	4 3/4	4 7/8	11/16	1 9/16	50
	26GA12	26GA12L	1 1/2 x 2 1/2	300#	150#	22 1/4	6	4 7/8	11/16	1 9/16	60
	26GA13	26GA13L	1 1/2 x 2 1/2	600#	150#	22 1/4	6	4 7/8	11/16	1 9/16	60
	26GA14	26GA14L	1 1/2 x 2 1/2	900#	300#	23 3/4	6	4 7/8	11/16	1 15/16	70
J	26JA12	26JA12L	2 1/2 x 4	300#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	26JA13	26JA13L	2 1/2 x 4	600#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	26JA32	26JA32L	2 1/2 x 4	300#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	26JA33	26JA33L	2 1/2 x 4	600#	150#	24 3/8	6 3/4	6 1/8	11/16	1 13/16	150
	26JA34	26JA34L	2 1/2 x 4	900#	150#	33 1/8	7 1/8	7 1/4	11/16	2 5/16	170
K	26KA34	26KA34L	3 x 4	900#	150#	32 3/8	7 1/8	7 1/4	11/16	2 3/16	175

Notes:
1. Pressure and temperature limitations are the same as the comparable orifice and flange classes shown in main Selection Tables.
2. The sizes and flange connections are also available in their respective high temperature type numbers. Example: 26DA36-120.
3. All standard constructions and accessories are available including balanced bellows, O-ring seats, test levers, etc.
4. Additional optional constructions may be specified by changing the seventh digit of the type number. See following table.

Optional Construction	7th Digit Designation	
	Air, Steam & Vapor	Liquids
Heat Transfer Fluid Service	D	E
Exposed Spring	S	N/A*

*Not applicable



ASME PRESSURE VESSEL CODE (UV)

CAPACITIES IN STANDARD CUBIC FEET PER MINUTE AT 60° F

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	0.110	0.196	0.307	0.503	0.785	1.287	1.838	2.853	3.60	4.34	6.38	11.05	16.0	26.0
Actual	0.150	0.225	0.371	0.559	0.873	1.430	2.042	3.170	4.000	4.822	7.087	12.27	17.78	28.94
15	77	115	190	287	448	735	1050	1630	2057	2479	3644	6310	9144	14884
20	88	133	219	331	517	847	1210	1879	2371	2859	4202	7275	10542	17159
30	112	168	278	419	654	1072	1531	2378	3000	3617	5316	9205	13339	21711
40	138	207	342	516	805	1320	1885	2926	3692	4451	6542	11328	16415	26718
50	164	246	406	612	957	1567	2238	3475	4384	5286	7769	13450	19491	31725
60	190	285	470	709	1108	1815	2591	4023	5076	6120	8995	15573	22567	36732
70	216	324	535	806	1259	2062	2945	4571	5769	6954	10221	17696	25643	41738
80	242	363	599	902	1410	2309	3298	5120	6461	7788	11447	19819	28719	46745
90	268	402	663	999	1561	2557	3651	5668	7153	8623	12673	21942	31795	51752
100	294	441	727	1096	1712	2804	4004	6217	7845	9457	13899	24064	34871	56759
150	423	635	1048	1579	2467	4041	5771	8959	11305	13628	20030	34678	50251	81793
200	553	830	1369	2063	3222	5278	7537	11701	14765	17799	26160	45293	65632	106827
250	683	1025	1690	2547	3977	6515	9304	14443	18225	21970	32291	55907	81012	131862
300	813	1219	2011	3030	4732	7752	11070	17185	21685	26142	38421	66521	96393	156896
350	942	1414	2332	3514	5488	8989	12836	19928	25145	30313	44552	77135	111773	—
400	1072	1609	2653	3997	6243	10226	14603	22670	28606	34484	50682	87749	127154	—
450	1202	1803	2974	4481	6998	11463	16369	25412	32066	38655	56813	98363	142534	—
500	1332	1998	3295	4964	7753	12700	18136	28154	35526	42827	62943	108977	157914	—
550	1461	2192	3616	5448	8508	13937	19902	30896	38986	46998	69074	119591	173295	—
600	1591	2387	3936	5931	9263	15174	21669	33639	42446	51169	75204	130205	188675	—
650	1721	2582	4257	6415	10019	16411	23435	36381	45906	55340	81335	140819	—	—
700	1851	2776	4578	6899	10774	17648	25201	39123	49367	59511	87466	151433	—	—
750	1981	2971	4899	7382	11529	18885	26968	41865	52827	63683	93596	162047	—	—
800	2110	3166	5220	7866	12284	20122	28734	44607	56287	67854	99727	172661	—	—
850	2240	3360	5541	8349	13039	21359	30501	47349	59747	72025	105857	183275	—	—
900	2370	3555	5862	8833	13795	22596	32267	50092	63207	76196	111988	193889	—	—
950	2500	3750	6183	9316	14550	23833	34033	52834	66667	80368	118118	—	—	—
1000	2629	3944	6504	9800	15305	25070	35800	55576	70127	84539	124249	—	—	—
1050	2759	4139	6825	10283	16060	26307	37566	58318	73588	—	—	—	—	—
1100	2889	4333	7146	10767	16815	27544	39333	61060	77048	—	—	—	—	—
1150	3019	4528	7467	11251	17570	28781	41099	63802	—	—	—	—	—	—
1200	3148	4723	7788	11734	18326	30018	42865	66545	—	—	—	—	—	—
1250	3278	4917	8109	12218	19081	31255	44632	69287	—	—	—	—	—	—
1300	3408	5112	8429	12701	19836	32492	46398	72029	—	—	—	—	—	—
1350	3538	5307	8750	13185	20591	33729	48165	74771	—	—	—	—	—	—
1400	3667	5501	9071	13668	21346	34966	49931	77513	—	—	—	—	—	—
1450	3797	5696	9392	14152	22102	36203	51698	80256	—	—	—	—	—	—
1500	3927	5891	9713	14635	22857	37440	53464	82998	—	—	—	—	—	—
1550	4057	6085	10034	15119	23612	38677	55230	—	—	—	—	—	—	—
1600	4186	6280	10355	15603	24367	39914	56997	—	—	—	—	—	—	—
1650	4316	6474	10676	16086	25122	41151	58763	—	—	—	—	—	—	—
1700	4446	6669	10997	16570	25877	42388	60530	—	—	—	—	—	—	—
1750	4576	6864	11318	17053	26633	43625	62296	—	—	—	—	—	—	—
1800	4705	7058	11639	17537	27388	44862	64062	—	—	—	—	—	—	—
1850	4835	7253	11960	18020	28143	46099	65829	—	—	—	—	—	—	—
1900	4965	7448	12281	18504	28898	47336	67595	—	—	—	—	—	—	—
2000	5224	7837	12922	19471	30409	49810	71128	—	—	—	—	—	—	—
2100	5484	8226	13564	20438	31919	52284	74661	—	—	—	—	—	—	—
2200	5743	8615	14206	21405	33429	54758	78194	—	—	—	—	—	—	—
2300	6003	9005	14848	22372	34940	57232	—	—	—	—	—	—	—	—
2400	6262	9394	15490	23339	36450	59706	—	—	—	—	—	—	—	—
2500	6522	9783	16132	24307	37960	62180	—	—	—	—	—	—	—	—
2600	6781	10172	16774	25274	39471	64654	—	—	—	—	—	—	—	—
2700	7041	10562	17415	26241	40981	67128	—	—	—	—	—	—	—	—
2800	7301	10951	18057	27208	—	—	—	—	—	—	—	—	—	—
2900	7560	11340	18699	28175	—	—	—	—	—	—	—	—	—	—
3000	7820	11730	19341	29142	—	—	—	—	—	—	—	—	—	—
3500	9117	13676	22550	33978	—	—	—	—	—	—	—	—	—	—
3700	9636	14454	23834	35912	—	—	—	—	—	—	—	—	—	—
4000	10415	15622	25760	—	—	—	—	—	—	—	—	—	—	—
4500	11712	17569	28969	—	—	—	—	—	—	—	—	—	—	—
5000	13010	19515	32178	—	—	—	—	—	—	—	—	—	—	—
5500	14307	21461	—	—	—	—	—	—	—	—	—	—	—	—
6000	15605	23408	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 30 PSIG and below are based on 3 PSI overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for air, gas, and steam is 0.953 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.

Steam Capacities, 10% Overpressure

ASME PRESSURE VESSEL CODE (UV) CAPACITIES IN POUNDS PER HOUR AT SATURATION TEMPERATURE

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	0.110	0.196	0.307	0.503	0.785	1.287	1.838	2.853	3.60	4.34	6.38	11.05	16.0	26.0
Actual	0.150	0.225	0.371	0.559	0.873	1.430	2.042	3.170	4.000	4.822	7.087	12.27	17.78	28.94
15	216	325	536	807	1261	2066	2950	4580	5779	6967	10240	17729	25690	41815
20	249	374	618	931	1454	2382	3401	5280	6663	8032	11805	20439	29618	48209
30	316	474	781	1178	1840	3014	4303	6681	8430	10163	14937	25861	37475	60997
40	389	583	962	1449	2264	3709	5296	8222	10375	12507	18382	31825	46117	75063
50	461	692	1142	1721	2688	4404	6289	9763	12319	14850	21826	37789	54759	89130
60	534	802	1322	1993	3113	5099	7281	11303	14263	17194	25271	43753	63401	103196
70	607	911	1503	2265	3537	5794	8274	12844	16207	19538	28716	49717	72043	117263
80	680	1021	1683	2536	3961	6489	9266	14385	18152	21882	32160	55681	80685	131329
90	753	1130	1863	2808	4386	7184	10259	15926	20096	24226	35605	61645	89327	145396
100	826	1239	2044	3080	4810	7879	11251	17467	22040	26569	39050	67609	97969	159462
150	1191	1786	2945	4438	6931	11354	16214	25171	31761	38288	56273	97428	141180	229795
200	1555	2333	3847	5797	9053	14830	21176	32875	41482	50007	73497	127248	184390	300127
250	1920	2880	4749	7155	11175	18305	26139	40579	51203	61726	90720	157067	227601	370460
300	2284	3427	5650	8514	13296	21780	31102	48283	60925	73445	107943	186887	270811	440792
350	2649	3973	6552	9872	15418	25256	36064	55987	70646	85163	125167	216707	314022	—
400	3013	4520	7454	11231	17540	28731	41027	63691	80367	96882	142390	246526	357232	—
450	3378	5067	8355	12589	19661	32206	45990	71395	90088	108601	159614	276346	400443	—
500	3742	5614	9257	13948	21783	35681	50952	79099	99809	120320	176837	306165	443653	—
550	4107	6161	10158	15306	23905	39157	55915	86803	109530	132039	194061	335985	486864	—
600	4471	6707	11060	16665	26026	42632	60878	94507	119251	143758	211284	365805	530074	—
650	4836	7254	11962	18023	28148	46107	65840	102211	128973	155476	228507	395624	—	—
700	5201	7801	12863	19382	30269	49583	70803	109915	138694	167195	245731	425444	—	—
750	5565	8348	13765	20741	32391	53058	75766	117619	148415	178914	262954	455263	—	—
800	5930	8895	14667	22099	34513	56533	80728	125323	158136	190633	280178	485083	—	—
850	6294	9441	15568	23458	36634	60009	85691	133027	167857	202352	297401	514903	—	—
900	6659	9988	16470	24816	38756	63484	90653	140731	177578	214071	314625	544722	—	—
950	7023	10535	17372	26175	40878	66959	95616	148435	187299	225789	331848	—	—	—
1000	7388	11082	18273	27533	42999	70435	100579	156139	197020	237508	349071	—	—	—
1050	7752	11629	19175	28892	45121	73910	105541	163843	206742	—	—	—	—	—
1100	8117	12176	20076	30250	47243	77385	110504	171547	216463	—	—	—	—	—
1150	8481	12722	20978	31609	49364	80860	115467	179251	—	—	—	—	—	—
1200	8846	13269	21880	32967	51486	84336	120429	186955	—	—	—	—	—	—
1250	9211	13816	22781	34326	53608	87811	125392	194659	—	—	—	—	—	—
1300	9575	14363	23683	35684	55729	91286	130355	202363	—	—	—	—	—	—
1350	9940	14910	24585	37043	57851	94762	135317	210067	—	—	—	—	—	—
1400	10304	15456	25486	38401	59972	98237	140280	217771	—	—	—	—	—	—
1450	10669	16003	26388	39760	62094	101712	145242	225475	—	—	—	—	—	—
1500	11088	16633	27426	41324	64537	105714	150956	234345	—	—	—	—	—	—
1550	11489	17234	28417	42817	66868	109532	156409	—	—	—	—	—	—	—
1600	11891	17838	29413	44318	69212	113372	161891	—	—	—	—	—	—	—
1650	12309	18464	30444	45872	71640	117348	167569	—	—	—	—	—	—	—
1700	12728	19093	31483	47438	74083	121352	173287	—	—	—	—	—	—	—
1750	13152	19728	32529	49013	76545	125383	179043	—	—	—	—	—	—	—
1800	13564	20347	33549	50551	78947	129316	184661	—	—	—	—	—	—	—
1850	14006	21010	34643	52197	81518	133530	190677	—	—	—	—	—	—	—
1900	14438	21657	35711	53807	84031	137645	196553	—	—	—	—	—	—	—
2000	15325	22987	37903	57111	89191	146098	208625	—	—	—	—	—	—	—
2100	16240	24360	40167	60522	94517	154823	221084	—	—	—	—	—	—	—
2200	17202	25803	42546	64107	100118	163996	234181	—	—	—	—	—	—	—
2300	18182	27272	44970	67758	105819	173335	—	—	—	—	—	—	—	—
2400	19214	28821	47523	71605	111826	183175	—	—	—	—	—	—	—	—
2500	20285	30427	50171	75596	118059	193386	—	—	—	—	—	—	—	—
2600	21416	32124	52970	79811	124643	204168	—	—	—	—	—	—	—	—
2700	22631	33947	55975	84339	131714	215753	—	—	—	—	—	—	—	—
2800	23916	35874	59154	89129	—	—	—	—	—	—	—	—	—	—
2900	25318	37978	62622	94355	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 30 PSIG and below are based on 3 PSI overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for air, gas, and steam is 0.953 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.

Water Capacities, 10% Overpressure

ASME PRESSURE VESSEL CODE (UV)

CAPACITIES IN GALLONS PER MINUTE AT 60° F

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches													
AREAS	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**T**
API	**0.110**	**0.196**	**0.307**	**0.503**	**0.785**	**1.287**	**1.838**	**2.853**	**3.60**	**4.34**	**6.38**	**11.05**	**16.0**	**26.0**
Actual	**0.150**	**0.225**	**0.371**	**0.559**	**0.873**	**1.430**	**2.042**	**3.170**	**4.000**	**4.822**	**7.087**	**12.27**	**17.78**	**28.94**
15	16	24	39	59	92	150	214	333	420	507	745	1289	1868	3041
20	18	27	44	66	104	170	242	376	475	573	842	1457	2112	3438
30	21	32	53	80	124	204	290	451	569	686	1008	1746	2530	4118
40	25	37	61	92	143	235	335	521	657	792	1164	2016	2921	4756
50	28	41	68	103	160	263	375	582	734	886	1302	2254	3266	5317
60	30	45	75	112	176	288	411	638	805	970	1426	2469	3578	5825
70	33	49	81	122	189	311	443	689	869	1048	1540	2667	3865	6292
80	35	52	86	130	203	332	474	736	929	1120	1647	2851	4132	6726
90	37	55	91	137	215	352	503	781	986	1188	1747	3024	4382	7134
100	39	58	96	145	227	372	530	823	1039	1252	1841	3188	4620	7520
150	48	72	118	177	278	455	649	1008	1272	1534	2255	3904	5658	9210
200	55	83	136	205	320	525	750	1164	1469	1771	2604	4508	6533	10635
250	62	92	152	229	358	587	838	1302	1643	1981	2911	5041	7304	11890
300	67	101	167	252	392	644	919	1426	1800	2170	3189	5522	8002	13025
350	73	109	180	271	424	695	992	1541	1944	2344	3445	5964	8643	—
400	78	117	193	290	453	743	1061	1647	2078	2505	3683	6376	9240	—
450	83	124	204	308	481	788	1125	1747	2204	2657	3906	6763	9800	—
500	87	131	215	325	507	831	1186	1841	2324	2801	4117	7129	10330	—
550	91	137	226	341	531	871	1244	1931	2437	2938	4318	7477	10834	—
600	95	143	236	356	555	910	1299	2017	2545	3069	4510	7809	11316	—
650	99	149	245	370	578	947	1352	2100	2649	3194	4694	8128	—	—
700	103	154	255	384	600	983	1403	2179	2749	3315	4872	8435	—	—
750	107	160	264	398	621	1018	1453	2255	2846	3431	5043	8731	—	—
800	110	165	272	411	641	1051	1500	2329	2939	3543	5208	9017	—	—
850	114	170	281	423	661	1083	1546	2401	3030	3653	5368	9295	—	—
900	117	175	289	436	680	1115	1591	2471	3118	3758	5524	9564	—	—
950	120	180	297	448	699	1145	1635	2538	3203	3861	5675	—	—	—
1000	123	185	304	459	717	1175	1677	2604	3286	3962	5823	—	—	—
1050	126	189	312	470	735	1204	1719	2669	3367	—	—	—	—	—
1100	129	194	319	482	752	1232	1759	2731	3447	—	—	—	—	—
1150	132	198	326	492	769	1260	1799	2793	—	—	—	—	—	—
1200	135	202	333	503	785	1287	1838	2853	—	—	—	—	—	—
1250	137	206	340	513	802	1313	1875	2912	—	—	—	—	—	—
1300	140	210	347	524	817	1340	1913	2969	—	—	—	—	—	—
1350	143	214	354	533	833	1365	1949	3026	—	—	—	—	—	—
1400	146	218	360	543	848	1390	1985	3082	—	—	—	—	—	—
1450	148	222	367	553	863	1414	2020	3136	—	—	—	—	—	—
1500	151	226	373	562	878	1439	2055	3190	—	—	—	—	—	—
1550	153	230	379	571	893	1462	2088	—	—	—	—	—	—	—
1600	155	233	385	581	907	1486	2122	—	—	—	—	—	—	—
1650	158	237	391	590	921	1509	2155	—	—	—	—	—	—	—
1700	160	241	397	598	935	1532	2187	—	—	—	—	—	—	—
1750	163	244	403	607	948	1554	2219	—	—	—	—	—	—	—
1800	165	248	409	616	962	1576	2251	—	—	—	—	—	—	—
1850	167	251	414	624	975	1598	2282	—	—	—	—	—	—	—
1900	169	254	420	633	988	1619	2312	—	—	—	—	—	—	—
2000	174	261	431	649	1014	1661	2372	—	—	—	—	—	—	—
2100	178	267	441	665	1039	1702	2431	—	—	—	—	—	—	—
2200	182	274	452	681	1063	1742	2488	—	—	—	—	—	—	—
2300	186	280	462	696	1087	1782	—	—	—	—	—	—	—	—
2400	190	286	472	711	1111	1820	—	—	—	—	—	—	—	—
2500	194	292	482	726	1134	1857	—	—	—	—	—	—	—	—
2600	198	298	491	740	1156	1894	—	—	—	—	—	—	—	—
2700	202	303	500	754	1178	1930	—	—	—					
2800	206	309	510	768	—	—	—	—	—					
2900	209	314	519	782	—	—	—	—	—					
3000	213	320	528	795	—	—	—	—	—					
3500	230	345	570	859	—	—	—	—	—					
3700	237	355	586	883	—	—	—	—	—					
4000	246	369	609	—	—	—	—	—	—					
4500	261	392	646	—	—	—	—	—	—					
5000	275	413	681	—	—	—	—	—	—					
5500	289	433	—	—	—	—	—	—	—					
6000	301	452	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 30 PSIG and below are based on 3 PSI overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for liquids is 0.724 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for water is 0.652.

Water Capacities, 25% Overpressure

ASME PRESSURE VESSEL CODE

CAPACITIES IN GALLONS PER MINUTE AT 60° F

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	0.110	0.196	0.307	0.503	0.785	1.287	1.838	2.853	3.60	4.34	6.38	11.05	16.0	26.0
Actual	0.150	0.225	0.371	0.559	0.873	1.430	2.042	3.170	4.000	4.822	7.087	12.27	17.78	28.94
15	14	21	35	53	82	136	193	300	379	457	672	1163	1685	2743
20	16	24	40	61	95	156	223	347	438	528	776	1342	1946	3167
30	20	30	49	75	117	192	274	425	536	646	950	1644	2383	3879
40	23	35	57	86	135	221	316	491	619	746	1097	1899	2752	4479
50	26	39	64	97	151	247	353	548	692	834	1226	2123	3076	5007
60	28	42	70	106	165	271	387	601	758	914	1343	2325	3370	5485
70	30	46	76	114	179	293	418	649	819	987	1451	2512	3640	5925
80	33	49	81	122	191	313	447	694	875	1055	1551	2685	3892	6334
90	35	52	86	130	203	332	474	736	929	1119	1645	2848	4128	6718
100	37	55	91	137	214	350	499	776	979	1180	1734	3002	4351	7082
150	45	71	111	168	261	428	611	950	1198	1445	2124	3677	5328	8673
200	52	77	128	193	302	495	706	1097	1384	1669	2452	4246	6153	10015
250	58	92	143	216	337	553	790	1226	1547	1866	2742	4747	6879	11197
300	64	95	157	237	370	606	865	1344	1695	2044	3004	5200	7536	12266
350	69	103	169	256	399	655	934	1451	1831	2208	3244	5617	8139	—
400	73	110	181	274	427	700	999	1551	1958	2360	3468	6005	8702	—
450	78	116	192	290	453	742	1060	1645	2076	2503	3678	6369	9229	—
500	82	123	203	306	477	782	1117	1734	2189	2638	3878	6713	9729	—
550	86	129	213	321	501	821	1171	1819	2295	2767	4067	7041	10204	—
600	90	135	222	335	523	857	1223	1900	2398	2890	4248	7354	10657	—
650	94	140	231	349	544	892	1273	1978	2495	3008	4421	7655	—	—
700	97	146	240	362	565	926	1322	2052	2590	3122	4588	7944	—	—
750	100	151	248	375	585	958	1368	2124	2681	3232	4749	8222	—	—
800	104	156	257	387	604	990	1413	2194	2768	3337	4905	8492	—	—
850	107	160	264	399	623	1020	1456	2262	2854	3440	5056	8753	—	—
900	110	165	272	410	641	1050	1499	2327	2936	3540	5203	9007	—	—
950	113	170	280	422	658	1078	1540	2391	3016	3637	5345	—	—	—
1000	116	174	287	432	675	1106	1580	2453	3095	3731	5484	—	—	—
1050	118	178	294	443	692	1133	1619	2513	3171	—	—	—	—	—
1100	122	182	301	454	708	1160	1657	2573	3246	—	—	—	—	—
1150	124	186	307	463	724	1186	1694	2630	—	—	—	—	—	—
1200	127	191	314	474	740	1212	1730	2687	—	—	—	—	—	—
1250	129	194	320	483	755	1237	1766	2742	—	—	—	—	—	—
1300	132	198	327	493	770	1262	1801	2797	—	—	—	—	—	—
1350	134	202	333	502	784	1285	1835	2850	—	—	—	—	—	—
1400	137	206	339	512	799	1309	1869	2902	—	—	—	—	—	—
1450	139	209	345	520	813	1332	1902	2953	—	—	—	—	—	—
1500	142	213	351	530	827	1355	1935	3004	—	—	—	—	—	—
1550	144	216	357	538	841	1377	1967	—	—	—	—	—	—	—
1600	147	220	363	547	854	1400	1998	—	—	—	—	—	—	—
1650	149	223	368	555	867	1421	2029	—	—	—	—	—	—	—
1700	151	227	374	564	880	1443	2060	—	—	—	—	—	—	—
1750	153	230	379	572	893	1463	2090	—	—	—	—	—	—	—
1800	156	233	385	580	906	1484	2120	—	—	—	—	—	—	—
1850	157	236	390	588	918	1505	2149	—	—	—	—	—	—	—
1900	160	239	395	596	931	1525	2178	—	—	—	—	—	—	—
2000	164	246	406	612	955	1564	2234	—	—	—	—	—	—	—
2100	168	252	416	627	978	1603	2289	—	—	—	—	—	—	—
2200	172	258	425	642	1002	1641	2343	—	—	—	—	—	—	—
2300	176	264	435	656	1024	1678	—	—	—	—	—	—	—	—
2400	180	270	444	670	1046	1714	—	—	—	—	—	—	—	—
2500	184	275	454	684	1068	1749	—	—	—	—	—	—	—	—
2600	187	281	463	698	1089	1784	—	—	—	—	—	—	—	—
2700	191	286	471	711	1110	1818	—	—	—	—	—	—	—	—
2800	194	291	480	724	—	—	—	—	—	—	—	—	—	—
2900	198	296	488	737	—	—	—	—	—	—	—	—	—	—
3000	201	301	497	749	—	—	—	—	—	—	—	—	—	—
3500	217	325	537	809	—	—	—	—	—	—	—	—	—	—
3700	223	334	552	832	—	—	—	—	—	—	—	—	—	—
4000	232	348	574	—	—	—	—	—	—	—	—	—	—	—
4500	246	369	609	—	—	—	—	—	—	—	—	—	—	—
5000	260	389	641	—	—	—	—	—	—	—	—	—	—	—
5500	272	408	—	—	—	—	—	—	—	—	—	—	—	—
6000	284	426	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

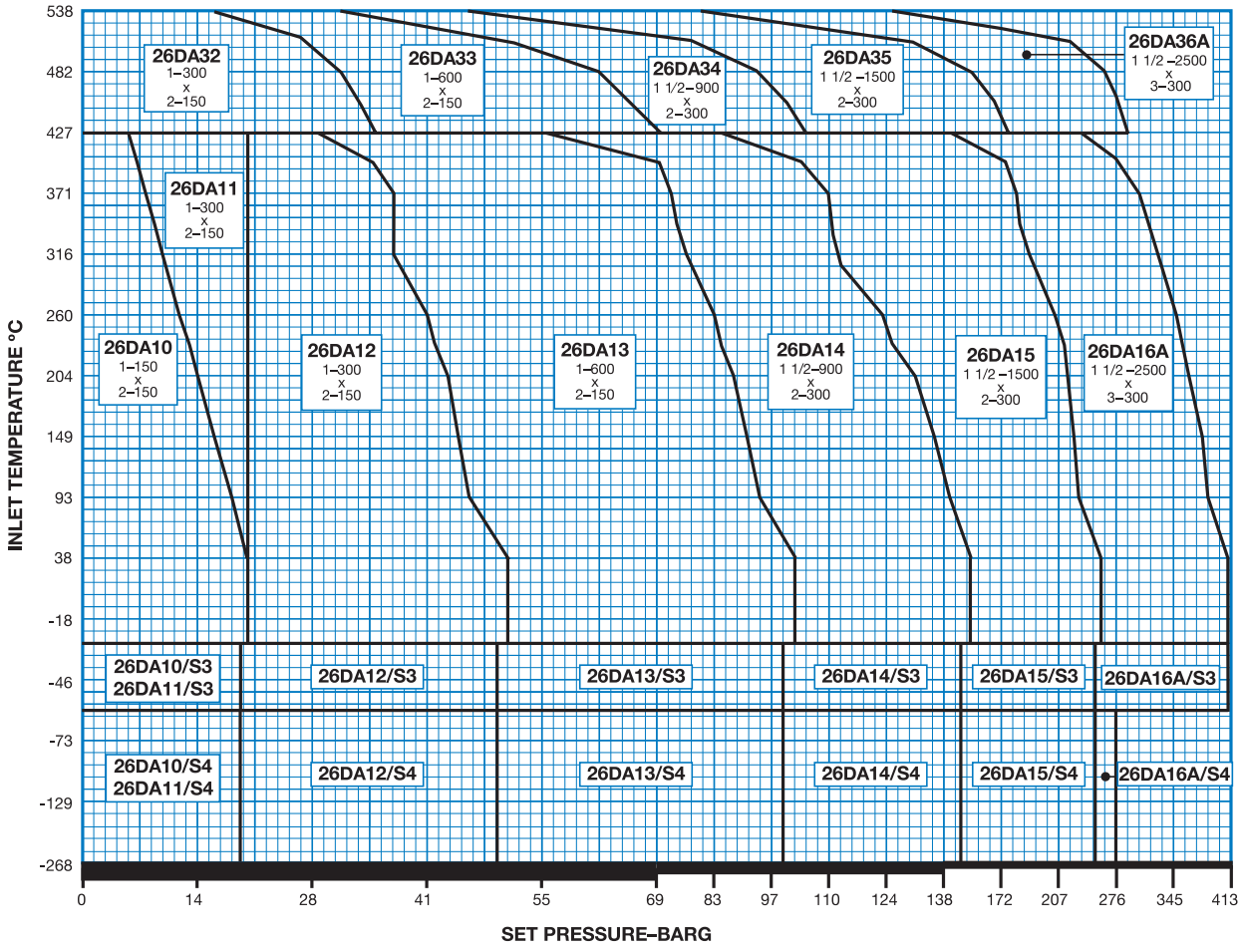
1. Capacities at 30 PSIG and below are based on 3 PSI overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for liquids is 0.64 when sizing using the API effective areas. When sizing using the actual areas, the coefficient of discharge K for water is 0.576.

1.Capacities for use when specifying standard 2600 vapor design on liquid service. (Non-ASME Code)

D Orifice

API Area: 71 sq. mm
Actual Area: 97 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26DA10	26DB10	1 x 2	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26DA11	26DB11	1 x 2	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26DA12	26DB12	1 x 2	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8			
26DA13	26DB13	1 x 2	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8			
26DA14	—	1 1/2 x 2	900#	300#	—	—	153	127	85.1	—	41.3	34.5			
26DA15	—	1 1/2 x 2	1500#	300#	—	—	255	212	142	—	41.3	34.5			
26DA16A	—	1 1/2 x 3	2500#	300#	—	—	413	354	236	—	51	34.5			
26DA32	26DB32	1 x 2	300#	150#	—	—	—	—	35.1	15.5	285	15.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26DA33	26DB33	1 x 2	600#	150#	—	—	—	—	69.9	30.6	285	15.8			
26DA34	—	1 1/2 x 2	900#	300#	—	—	—	—	105	46.2	600	34.5			
26DA35	—	1 1/2 x 2	1500#	300#	—	—	—	—	175	76.8	600	34.5			
26DA36A	—	1 1/2 x 3	2500#	300#	—	—	—	—	291	128	740	34.5			
26DA10/S3	26DB10/S3	1 x 2	150#	150#	—	18.9	—	—	—	—	18.9	15.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26DA11/S3	26DB11/S3	1 x 2	300#	150#	—	18.9	—	—	—	—	18.9	15.8			
26DA12/S3	26DB12/S3	1 x 2	300#	150#	—	49.6	—	—	—	—	18.9	15.8			
26DA13/S3	26DB13/S3	1 x 2	600#	150#	—	99.2	—	—	—	—	18.9	15.8			
26DA14/S3	—	1 1/2 x 2	900#	300#	—	149	—	—	—	—	41.3	34.5			
26DA15/S3	—	1 1/2 x 2	1500#	300#	—	248	—	—	—	—	41.3	34.5			
26DA16A/S3	—	1 1/2 x 3	2500#	300#	—	413	—	—	—	—	49.6	34.5			
26DA10/S4	26DB10/S4	1 x 2	150#	150#	18.9	—	—	—	—	—	18.9	15.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26DA11/S4	26DB11/S4	1 x 2	300#	150#	18.9	—	—	—	—	—	18.9	15.8			
26DA12/S4	26DB12/S4	1 x 2	300#	150#	49.6	—	—	—	—	—	18.9	15.8			
26DA13/S4	26DB13/S4	1 x 2	600#	150#	99.2	—	—	—	—	—	18.9	15.8			
26DA14/S4	—	1 1/2 x 2	900#	300#	149	—	—	—	—	—	41.3	34.5			
26DA15/S4	—	1 1/2 x 2	1500#	300#	248	—	—	—	—	—	41.3	34.5			
26DA16A/S4	—	1 1/2 x 3	2500#	300#	276	—	—	—	—	—	49.6	34.5			



Selection Chart

Notes:

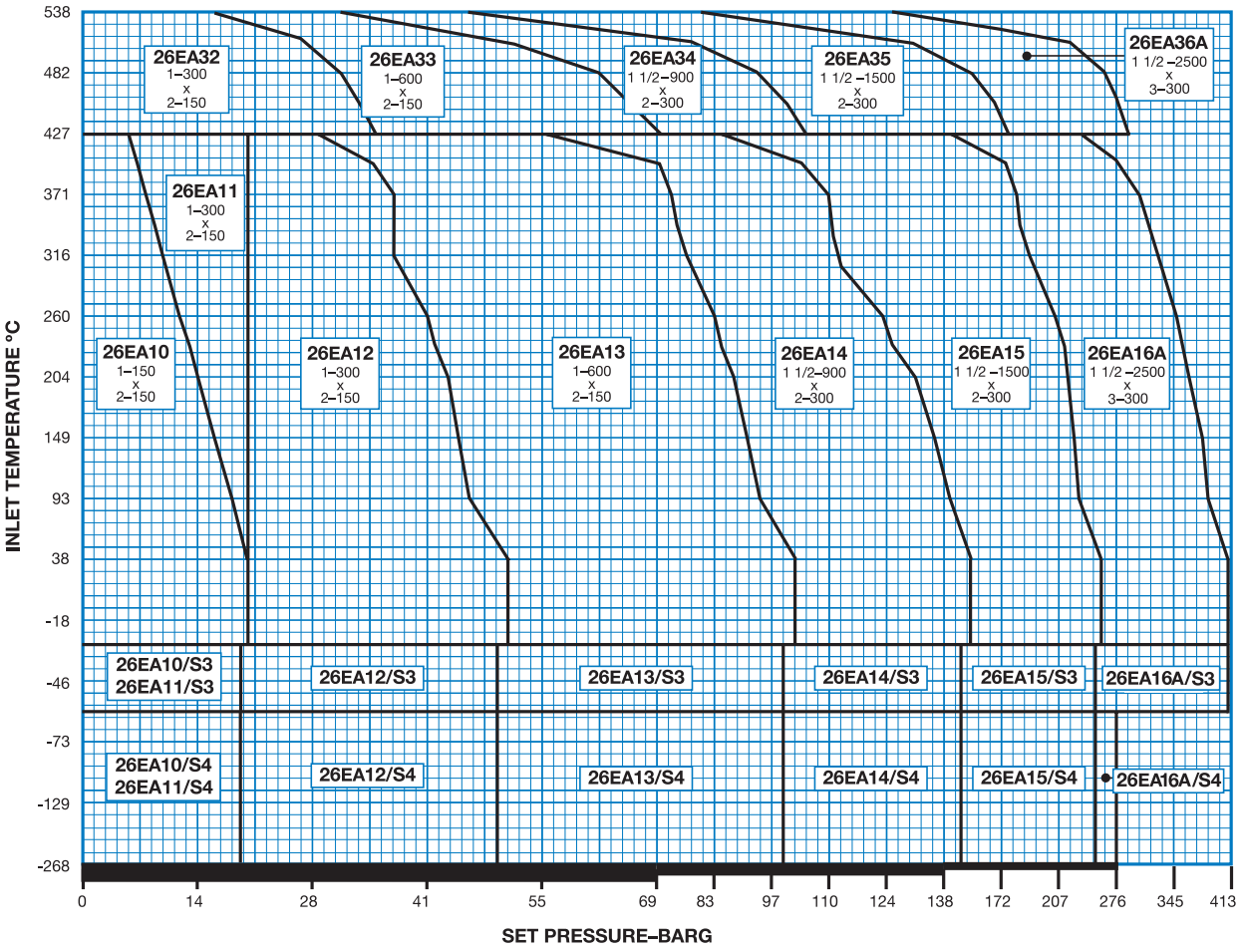
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

E Orifice

API Area: 126 sq. mm
Actual Area: 145 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26EA10	26EB10	1 x 2	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26EA11	26EB11	1 x 2	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26EA12	26EB12	1 x 2	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8			
26EA13	26EB13	1 x 2	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8			
26EA14	—	1 1/2 x 2	900#	300#	—	—	153	127	85.1	—	41.3	34.5			
26EA15	—	1 1/2 x 2	1500#	300#	—	—	255	212	142	—	41.3	34.5			
26EA16A	—	1 1/2 x 3	2500#	300#	—	—	413	354	236	—	51	34.5			
26EA32	26EB32	1 x 2	300#	150#	—	—	—	—	35.1	15.5	285	15.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26EA33	26EB33	1 x 2	600#	150#	—	—	—	—	69.9	30.6	285	15.8			
26EA34	26EB34*	1 1/2 x 2	900#	300#	—	—	—	—	105	46.2	600	34.5			
26EA35	26EB35*	1 1/2 x 2	1500#	300#	—	—	—	—	175	76.8	600	34.5			
26EA36A	26EB36A*	1 1/2 x 3	2500#	300#	—	—	—	—	291	128	740	34.5			
26EA10/S3	26EB10/S3	1 x 2	150#	150#	—	18.9	—	—	—	—	18.9	15.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26EA11/S3	26EB11/S3	1 x 2	300#	150#	—	18.9	—	—	—	—	18.9	15.8			
26EA12/S3	26EB12/S3	1 x 2	300#	150#	—	49.6	—	—	—	—	18.9	15.8			
26EA13/S3	26EB13/S3	1 x 2	600#	150#	—	99.2	—	—	—	—	18.9	15.8			
26EA14/S3	—	1 1/2 x 2	900#	300#	—	149	—	—	—	—	41.3	34.5			
26EA15/S3	—	1 1/2 x 2	1500#	300#	—	248	—	—	—	—	41.3	34.5			
26EA16A/S3	—	1 1/2 x 3	2500#	300#	—	413	—	—	—	—	49.6	34.5			
26EA10/S4	26EB10/S4	1 x 2	150#	150#	18.9	—	—	—	—	—	18.9	15.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26EA11/S4	26EB11/S4	1 x 2	300#	150#	18.9	—	—	—	—	—	18.9	15.8			
26EA12/S4	26EB12/S4	1 x 2	300#	150#	49.6	—	—	—	—	—	18.9	15.8			
26EA13/S4	26EB13/S4	1 x 2	600#	150#	99.2	—	—	—	—	—	18.9	15.8			
26EA14/S4	—	1 1/2 x 2	900#	300#	149	—	—	—	—	—	41.3	34.5			
26EA15/S4	—	1 1/2 x 2	1500#	300#	248	—	—	—	—	—	41.3	34.5			
26EA16A/S4	—	1 1/2 x 3	2500#	300#	276	—	—	—	—	—	49.6	34.5			

Selection Chart



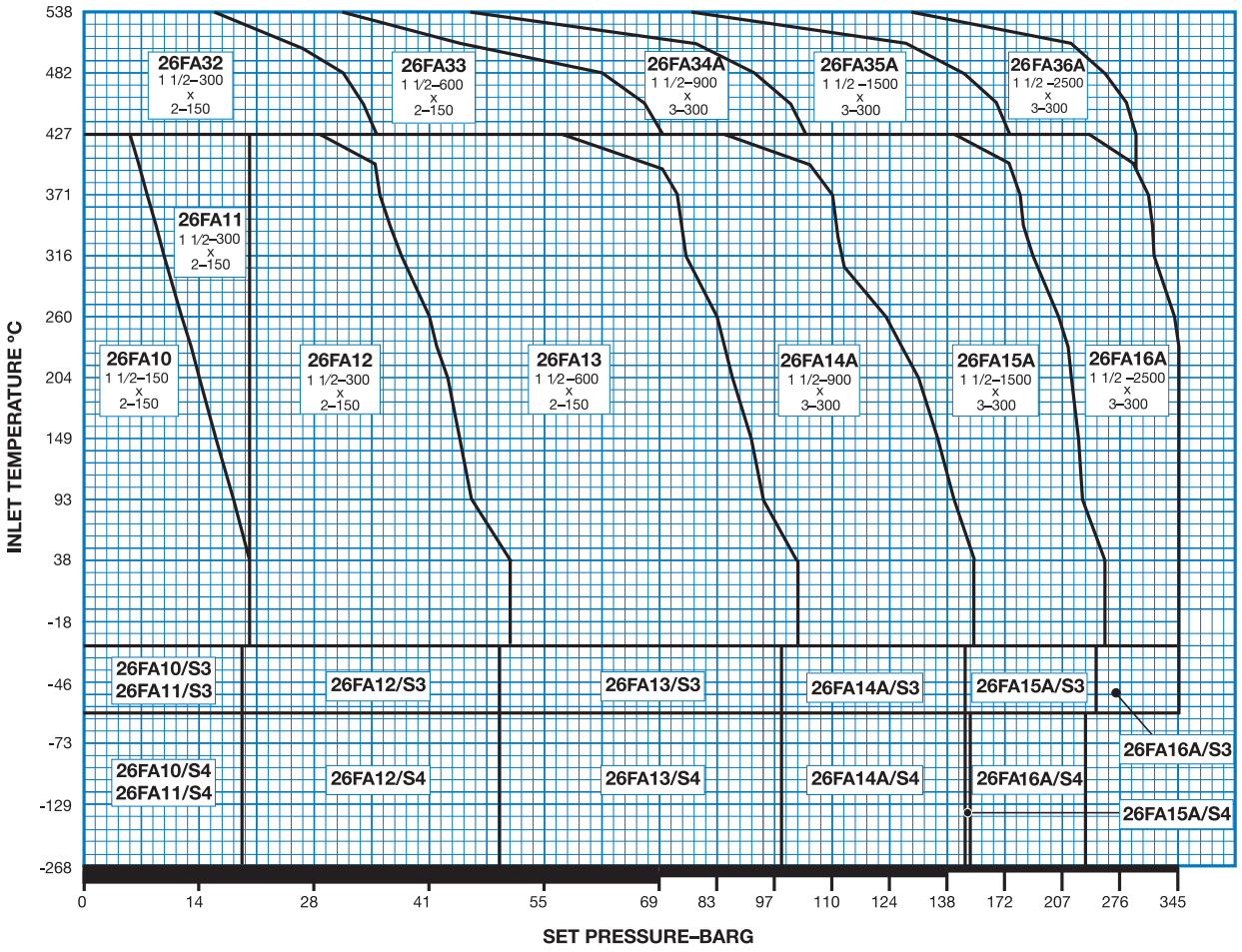
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

F Orifice

API Area: 198 sq. mm
Actual Area: 239 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26FA10	26FB10	1 1/2 x 2	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26FA11	26FB11	1 1/2 x 2	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26FA12	26FB12	1 1/2 x 2	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8			
26FA13	26FB13	1 1/2 x 2	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8			
26FA14A	26FB14A	1 1/2 x 3	900#	300#	—	—	153	127	85.1	—	51.0	34.5			
26FA15A	26FB15A	1 1/2 x 3	1500#	300#	—	—	255	212	142	—	51.0	34.5			
26FA16A	26FB16A	1 1/2 x 3	2500#	300#	—	—	345	345	236	—	51.0	34.5			
26FA32	26FB32	1 1/2 x 2	300#	150#	—	—	—	—	35.1	15.5	19.6	15.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26FA33	26FB33	1 1/2 x 2	600#	150#	—	—	—	—	69.9	30.6	19.6	15.8			
26FA34A	26FB34A	1 1/2 x 3	900#	300#	—	—	—	—	105	46.2	51.0	34.5			
26FA35A	26FB35A	1 1/2 x 3	1500#	300#	—	—	—	—	175	76.8	51.0	34.5			
26FA36A	26FB36A	1 1/2 x 3	2500#	300#	—	—	—	—	291	128	51.0	34.5			
26FA10/S3	26FB10/S3	1 1/2 x 2	150#	150#	—	18.9	—	—	—	—	18.9	15.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26FA11/S3	26FB11/S3	1 1/2 x 2	300#	150#	—	18.9	—	—	—	—	18.9	15.8			
26FA12/S3	26FB12/S3	1 1/2 x 2	300#	150#	—	49.6	—	—	—	—	18.9	15.8			
26FA13/S3	26FB13/S3	1 1/2 x 2	600#	150#	—	99.2	—	—	—	—	18.9	15.8			
26FA14A/S3	26FB14A/S3	1 1/2 x 3	900#	300#	—	149	—	—	—	—	49.6	34.5			
26FA15A/S3	26FB15A/S3	1 1/2 x 3	1500#	300#	—	248	—	—	—	—	49.6	34.5			
26FA16A/S3	26FB16A/S3	1 1/2 x 3	2500#	300#	—	345	—	—	—	—	49.6	34.5			
26FA10/S4	26FB10/S4	1 1/2 x 2	150#	150#	18.9	—	—	—	—	—	18.9	15.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26FA11/S4	26FB11/S4	1 1/2 x 2	300#	150#	18.9	—	—	—	—	—	18.9	15.8			
26FA12/S4	26FB12/S4	1 1/2 x 2	300#	150#	49.6	—	—	—	—	—	18.9	15.8			
26FA13/S4	26FB13/S4	1 1/2 x 2	600#	150#	99.2	—	—	—	—	—	18.9	15.8			
26FA14A/S4	26FB14A/S4	1 1/2 x 3	900#	300#	149	—	—	—	—	—	49.6	34.5			
26FA15A/S4	26FB15A/S4	1 1/2 x 3	1500#	300#	152	—	—	—	—	—	49.6	34.5			
26FA16A/S4	26FB16A/S4	1 1/2 x 3	2500#	300#	234	—	—	—	—	—	49.6	34.5			



Selection Chart

Notes:

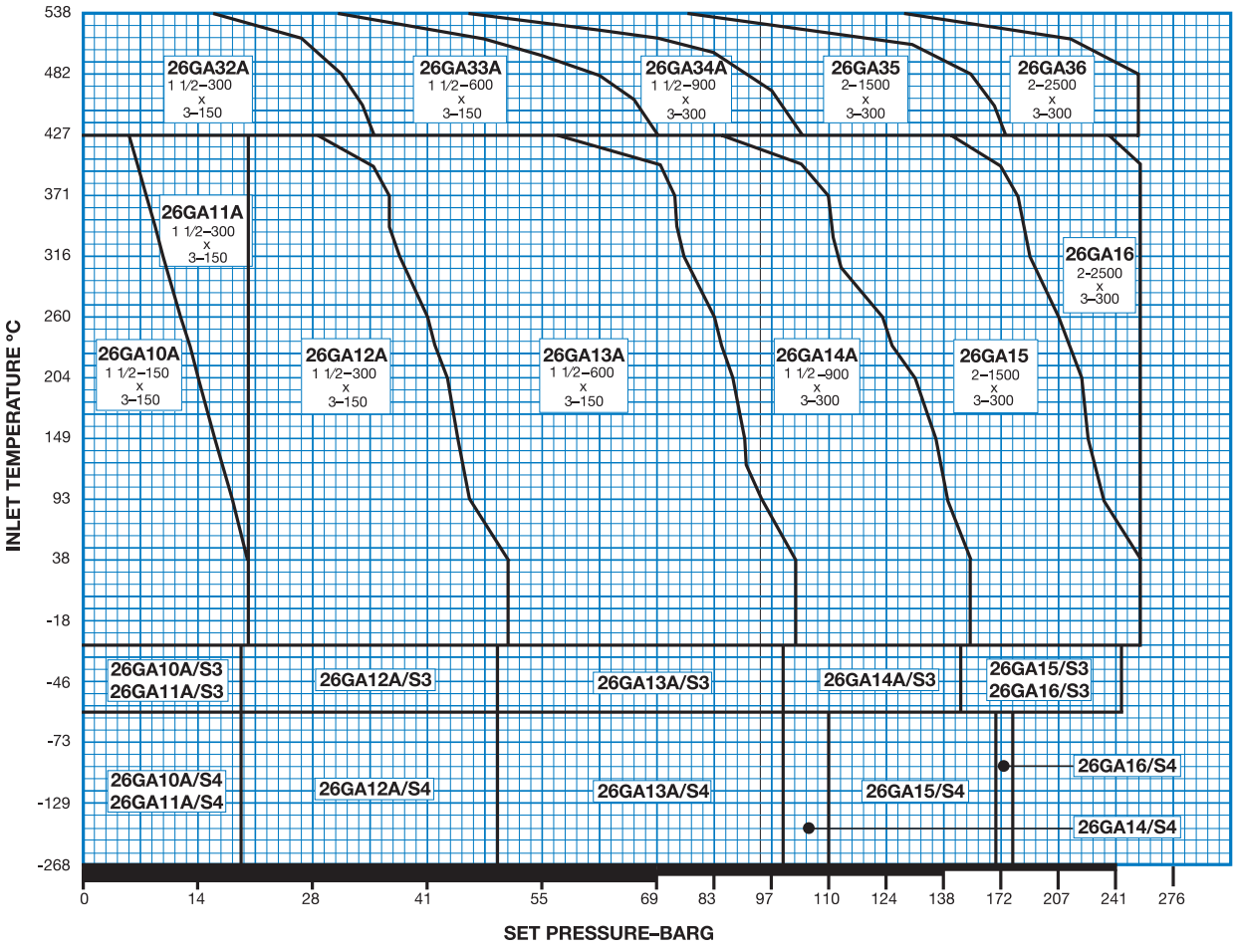
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

G Orifice

API Area: 325 sq. mm
Actual Area: 361 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26GA10A	26GB10A	1 1/2 x 3	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8			
26GA11A	26GB11A	1 1/2 x 3	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26GA12A	26GB12A	1 1/2 x 3	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8	CARBON	CHROME	-29°C
26GA13A	26GB13A	1 1/2 x 3	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8	STEEL	ALLOY	to
26GA14A	26GB14A	1 1/2 x 3	900#	300#	—	—	153	127	85.1	—	51.0	32.4			427°C
26GA15	26GB15	2 x 3	1500#	300#	—	—	255	212	142	—	51.0	32.4			
26GA16	26GB16	2 x 3	2500#	300#	—	—	255	255	236	—	51.0	32.4			
26GA32A	26GB32A	1 1/2 x 3	300#	150#	—	—	—	—	35.1	15.5	19.6	15.8			
26GA33A	26GB33A	1 1/2 x 3	600#	150#	—	—	—	—	69.9	30.6	19.6	15.8	CHROME	HIGH	428°C
26GA34A	26GB34A	1 1/2 x 3	900#	300#	—	—	—	—	105	46.2	51.0	32.4	MOLY	TEMP.	to
26GA35	26GB35	2 x 3	1500#	300#	—	—	—	—	175	76.8	51.0	32.4	STEEL	ALLOY	538°C
26GA36	26GB36	2 x 3	2500#	300#	—	—	—	—	255	128	51.0	32.4			
26GA10A/S3	26GB10A/S3	1 1/2 x 3	150#	150#	—	18.9	—	—	—	—	18.9	15.8			
26GA11A/S3	26GB11A/S3	1 1/2 x 3	300#	150#	—	18.9	—	—	—	—	18.9	15.8			
26GA12A/S3	26GB12A/S3	1 1/2 x 3	300#	150#	—	49.6	—	—	—	—	18.9	15.8	316	CHROME ALLOY NICKEL PLATED	-30°C
26GA13A/S3	26GB13A/S3	1 1/2 x 3	600#	150#	—	99.2	—	—	—	—	18.9	15.8	ST. ST.		to
26GA14A/S3	26GB14A/S3	1 1/2 x 3	900#	300#	—	149	—	—	—	—	49.6	32.4			-59°C
26GA15/S3	26GB15/S3	2 x 3	1500#	300#	—	248	—	—	—	—	49.6	32.4			
26GA16/S3	26GB16/S3	2 x 3	2500#	300#	—	248	—	—	—	—	49.6	32.4			
26GA10A/S4	26GB10A/S4	1 1/2 x 3	150#	150#	18.9	—	—	—	—	—	18.9	15.8			
26GA11A/S4	26GB11A/S4	1 1/2 x 3	300#	150#	18.9	—	—	—	—	—	18.9	15.8			
26GA12A/S4	26GB12A/S4	1 1/2 x 3	300#	150#	49.6	—	—	—	—	—	18.9	15.8	316	316	-60°C
26GA13A/S4	26GB13A/S4	1 1/2 x 3	600#	150#	99.2	—	—	—	—	—	18.9	15.8	ST. ST.	ST. ST.	to
26GA14A/S4	26GB14A/S4	1 1/2 x 3	900#	300#	110	—	—	—	—	—	49.6	32.4			-268°C
26GA15/S4	26GB15/S4	2 x 3	1500#	300#	169	—	—	—	—	—	49.6	32.4			
26GA16/S4	26GB16/S4	2 x 3	2500#	300#	179	—	—	—	—	—	49.6	32.4			

Selection Chart



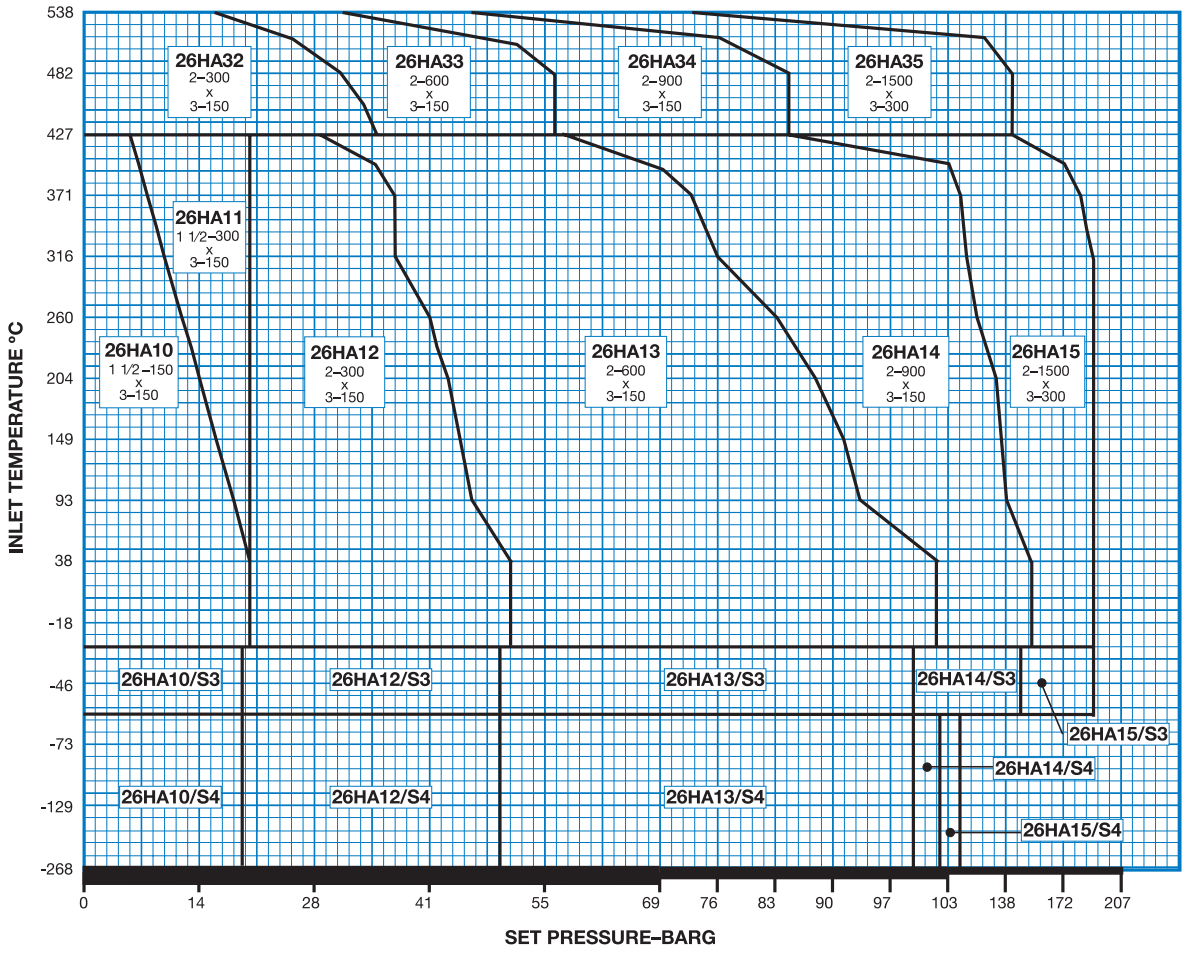
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

H Orifice

API Area: 506 sq. mm
Actual Area: 563 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26HA10	26HB10	1 1/2 x 3	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8			
26HA11	26HB11	1 1/2 x 3	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26HA12	26HB12	2 x 3	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8	CARBON	CHROME	-29°C
26HA13	26HB13	2 x 3	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8	STEEL	ALLOY	to
26HA14	26HB14	2 x 3	900#	150#	—	—	153	127	85.1	—	19.6	15.8			427°C
26HA15	26HB15	2 x 3	1500#	300#	—	—	189	189	142	—	51.0	28.6			
26HA32	26HB32	2 x 3	300#	150#	—	—	—	—	35.1	15.5	19.6	15.8			
26HA33	26HB33	2 x 3	600#	150#	—	—	—	—	56.2	30.6	19.6	15.8	CHROME	HIGH	428°C
26HA34	26HB34	2 x 3	900#	150#	—	—	—	—	84.4	46.2	19.6	15.8	MOLY	TEMP.	to
26HA35	26HB35	2 x 3	1500#	300#	—	—	—	—	141	76.8	51.0	28.6	STEEL	ALLOY	538°C
26HA10/S3	26HB10/S3	1 1/2 x 3	150#	150#	—	18.9	—	—	—	—	18.9	15.8			
26HA11/S3	26HB11/S3	1 1/2 x 3	300#	150#	—	18.9	—	—	—	—	18.9	15.8		CHROME	
26HA12/S3	26HB12/S3	2 x 3	300#	150#	—	49.6	—	—	—	—	18.9	15.8	316	ALLOY	-30°C
26HA13/S3	26HB13/S3	2 x 3	600#	150#	—	99.2	—	—	—	—	18.9	15.8	ST. ST.	NICKEL	to
26HA14/S3	26HB14/S3	2 x 3	900#	150#	—	149	—	—	—	—	18.9	15.8		PLATED	-59°C
26HA15/S3	26HB15/S3	2 x 3	1500#	300#	—	189	—	—	—	—	49.6	28.6			
26HA10/S4	26HB10/S4	1 1/2 x 3	150#	150#	18.9	—	—	—	—	—	18.9	15.8			
26HA11/S4	26HB11/S4	1 1/2 x 3	300#	150#	18.9	—	—	—	—	—	18.9	15.8			-60°C
26HA12/S4	26HB12/S4	2 x 3	300#	150#	49.6	—	—	—	—	—	18.9	15.8	316	316	to
26HA13/S4	26HB13/S4	2 x 3	600#	150#	99.2	—	—	—	—	—	18.9	15.8	ST. ST.	ST. ST.	-268°C
26HA14/S4	26HB14/S4	2 x 3	900#	150#	102	—	—	—	—	—	18.9	15.8			
26HA15/S4	26HB15/S4	2 x 3	1500#	300#	110	—	—	—	—	—	49.6	28.6			



Selection Chart

Notes:

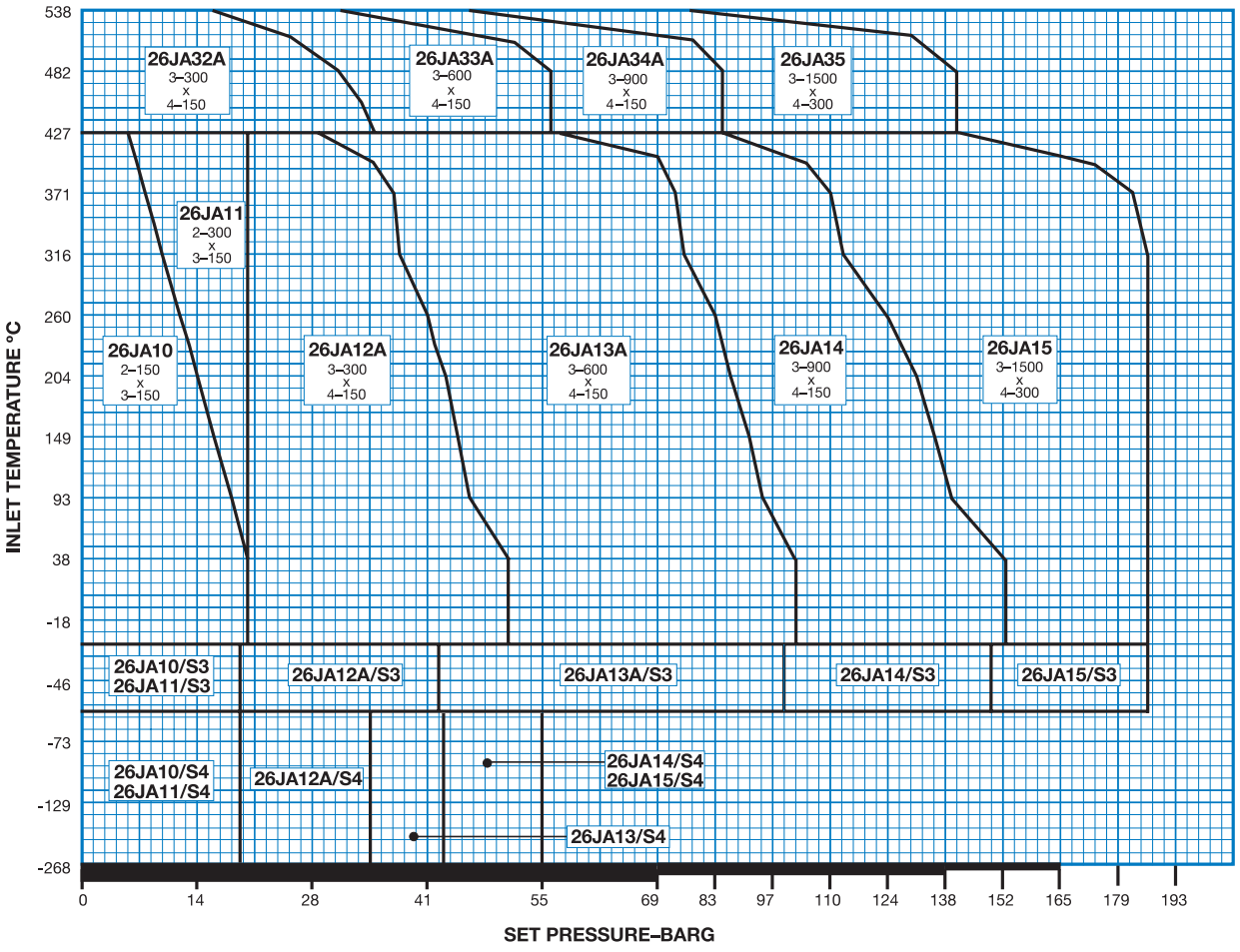
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

J Orifice

API Area: 830 sq. mm
Actual Area: 923 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26JA10	26JB10	2 x 3	150#	150#	—	—	19.6	12.7	5.5	—	19.6	15.8	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26JA11	26JB11	2 x 3	300#	150#	—	—	19.6	19.6	19.6	—	19.6	15.8			
26JA12A	26JB12A	3 x 4	300#	150#	—	—	51.0	42.4	28.2	—	19.6	15.8			
26JA13A	26JB13A	3 x 4	600#	150#	—	—	102	85.1	56.8	—	19.6	15.8			
26JA14	26JB14	3 x 4	900#	150#	—	—	153	127	85.1	—	19.6	15.8			
26JA15	26JB15	3 x 4	1500#	300#	—	—	186	186	142	—	41.3	15.8			
26JA32A	26JB32A	3 x 4	300#	150#	—	—	—	—	35.1	15.5	19.6	15.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26JA33A	26JB33A	3 x 4	600#	150#	—	—	—	—	56.2	30.6	19.6	15.8			
26JA34A	26JB34A	3 x 4	900#	150#	—	—	—	—	84.4	46.2	19.6	15.8			
26JA35	26JB35	3 x 4	1500#	300#	—	—	—	—	141	76.8	41.3	15.8			
26JA10/S3	26JB10/S3	2 x 3	150#	150#	—	18.9	—	—	—	—	18.9	15.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26JA11/S3	26JB11/S3	2 x 3	300#	150#	—	18.9	—	—	—	—	18.9	15.8			
26JA12A/S3	26JB12A/S3	3 x 4	300#	150#	—	49.6	—	—	—	—	18.9	15.8			
26JA13A/S3	26JB13A/S3	3 x 4	600#	150#	—	99.2	—	—	—	—	18.9	15.8			
26JA14/S3	26JB14/S3	3 x 4	900#	150#	—	149	—	—	—	—	18.9	15.8			
26JA15/S3	26JB15/S3	3 x 4	1500#	300#	—	186	—	—	—	—	41.3	15.8			
26JA10/S4	26JB10/S4	2 x 3	150#	150#	18.9	—	—	—	—	—	18.9	15.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26JA11/S4	26JB11/S4	2 x 3	300#	150#	18.9	—	—	—	—	—	18.9	15.8			
26JA12A/S4	26JB12A/S4	3 x 4	300#	150#	34.5	—	—	—	—	—	18.9	15.8			
26JA13A/S4	26JB13A/S4	3 x 4	600#	150#	43.1	—	—	—	—	—	18.9	15.8			
26JA14/S4	26JB14/S4	3 x 4	900#	150#	55	—	—	—	—	—	18.9	15.8			
26JA15/S4	26JB15/S4	3 x 4	1500#	300#	55	—	—	—	—	—	41.3	15.8			

Selection Chart



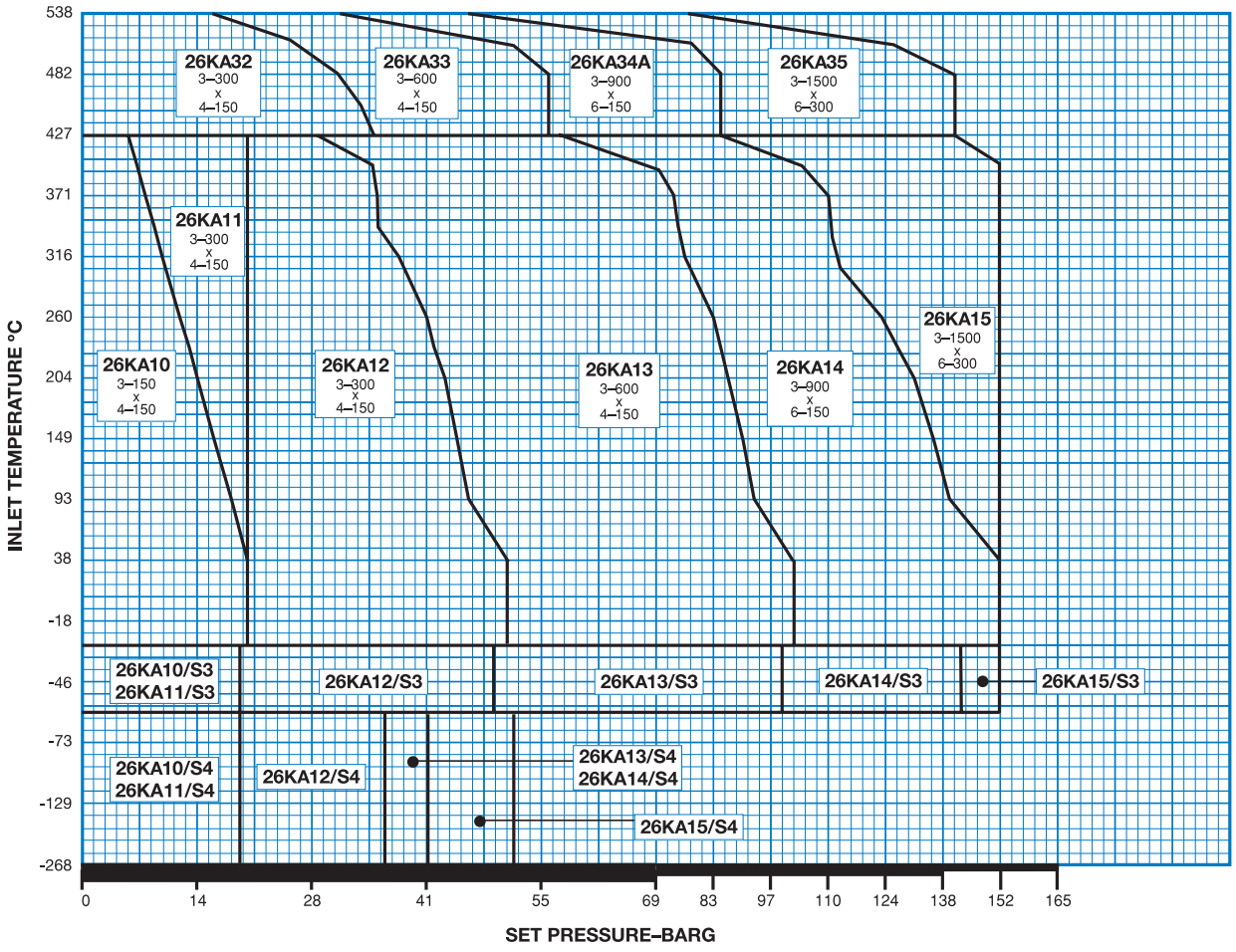
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

K Orifice

API Area: 1186 sq. mm
Actual Area: 1317 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26KA10	26KB10	3 x 4	150#	150#	—	—	19.6	12.7	5.5	—	19.6	10.3			
26KA11	26KB11	3 x 4	300#	150#	—	—	19.6	19.6	19.6	—	19.6	10.3			
26KA12	26KB12	3 x 4	300#	150#	—	—	51.0	42.4	28.2	—	19.6	10.3	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26KA13	26KB13	3 x 4	600#	150#	—	—	102	85.1	56.8	—	19.6	13.8			
26KA14	26KB14	3 x 6	900#	150#	—	—	153	127	85.1	—	19.6	13.8			
26KA15	26KB15	3 x 6	1500#	300#	—	—	153	153	142	—	41.3	13.8			
26KA32	26KB32	3 x 4	300#	150#	—	—	—	—	35.1	15.5	19.6	10.3			
26KA33	26KB33	3 x 4	600#	150#	—	—	—	—	56.2	30.6	19.6	13.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26KA34A	26KB34A	3 x 6	900#	150#	—	—	—	—	84.4	46.2	19.6	13.8			
26KA35	26KB35	3 x 6	1500#	300#	—	—	—	—	141	76.8	41.3	13.8			
26KA10/S3	26KB10/S3	3 x 4	150#	150#	—	18.9	—	—	—	—	18.9	10.3			
26KA11/S3	26KB11/S3	3 x 4	300#	150#	—	18.9	—	—	—	—	18.9	10.3		CHROME ALLOY NICKEL PLATED	
26KA12/S3	26KB12/S3	3 x 4	300#	150#	—	49.6	—	—	—	—	18.9	10.3	316 ST. ST.		-30°C to -59°C
26KA13/S3	26KB13/S3	3 x 4	600#	150#	—	99.2	—	—	—	—	18.9	13.8			
26KA14/S3	26KB14/S3	3 x 6	900#	150#	—	149	—	—	—	—	18.9	13.8			
26KA15/S3	26KB15/S3	3 x 6	1500#	300#	—	153	—	—	—	—	41.3	13.8			
26KA10/S4	26KB10/S4	3 x 4	150#	150#	18.9	—	—	—	—	—	18.9	10.3			
26KA11/S4	26KB11/S4	3 x 4	300#	150#	18.9	—	—	—	—	—	18.9	10.3			
26KA12/S4	26KB12/S4	3 x 4	300#	150#	36.2	—	—	—	—	—	18.9	10.3	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26KA13/S4	26KB13/S4	3 x 4	600#	150#	41.3	—	—	—	—	—	18.9	13.8			
26KA14/S4	26KB14/S4	3 x 6	900#	150#	41.3	—	—	—	—	—	18.9	13.8			
26KA15/S4	26KB15/S4	3 x 6	1500#	300#	51.7	—	—	—	—	—	41.3	13.8			



Selection Chart

Notes:

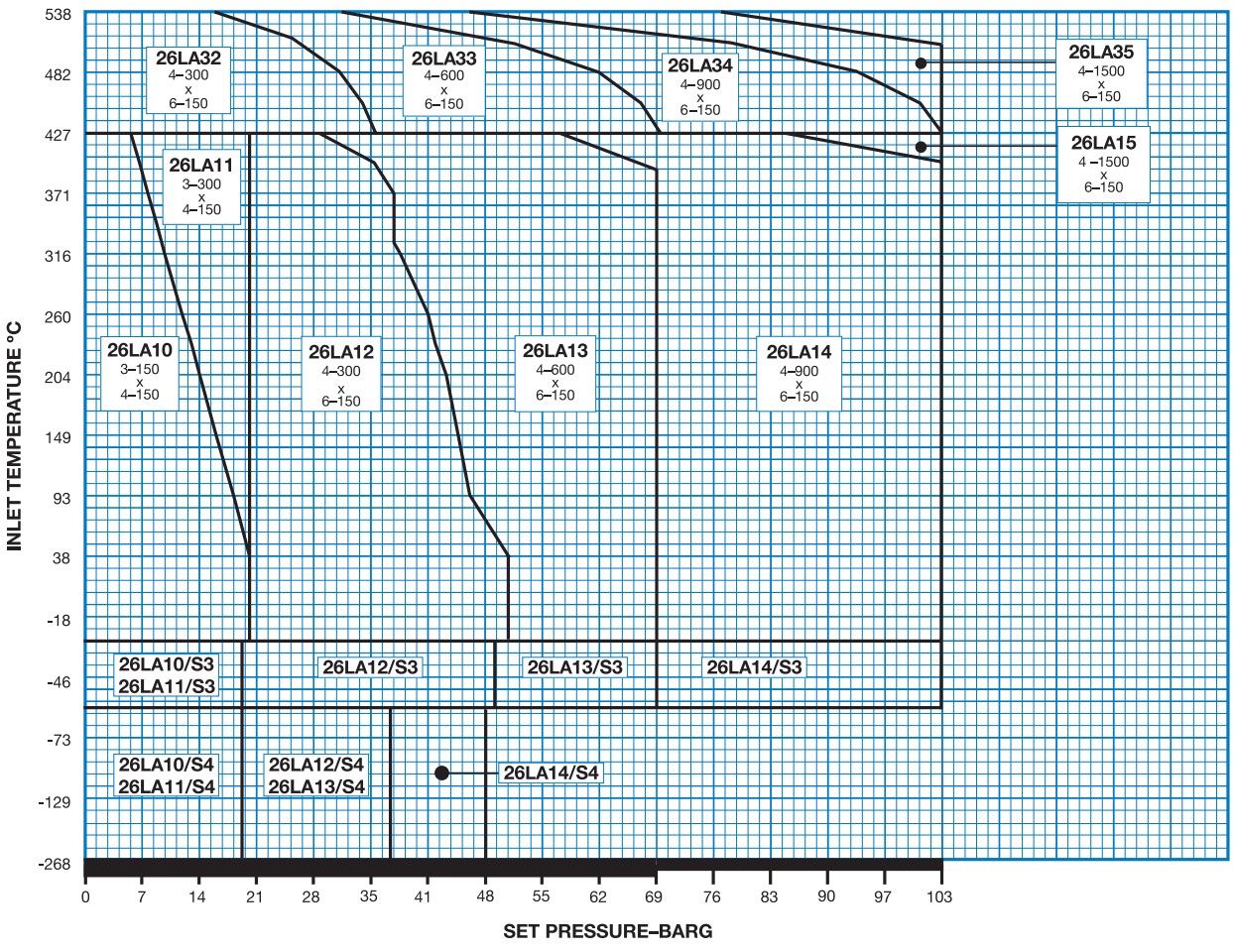
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

L Orifice

API Area: 1841 sq. mm
Actual Area: 2045 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26LA10	26LB10	3 x 4	150#	150#	—	—	19.6	12.7	5.5	—	19.6	6.9	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26LA11	26LB11	3 x 4	300#	150#	—	—	19.6	19.6	19.6	—	19.6	6.9			
26LA12	26LB12	4 x 6	300#	150#	—	—	51.0	42.4	28.2	—	19.6	11.7			
26LA13	26LB13	4 x 6	600#	150#	—	—	68.9	68.9	56.8	—	19.6	11.7			
26LA14	26LB14	4 x 6	900#	150#	—	—	103	103	85.1	—	19.6	11.7			
26LA15	26LB15	4 x 6	1500#	150#	—	—	103	103	103	—	19.6	11.7			
26LA32	26LB32	4 x 6	300#	150#	—	—	—	—	35.1	15.5	19.6	11.7	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26LA33	26LB33	4 x 6	600#	150#	—	—	—	—	68.9	30.6	19.6	11.7			
26LA34	26LB34	4 x 6	900#	150#	—	—	—	—	103	46.2	19.6	11.7			
26LA35	26LB35	4 x 6	1500#	150#	—	—	—	—	103	76.8	19.6	11.7			
26LA10/S3	26LB10/S3	3 x 4	150#	150#	—	18.9	—	—	—	—	18.9	6.9	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26LA11/S3	26LB11/S3	3 x 4	300#	150#	—	18.9	—	—	—	—	18.9	6.9			
26LA12/S3	26LB12/S3	4 x 6	300#	150#	—	49.6	—	—	—	—	18.9	11.7			
26LA13/S3	26LB13/S3	4 x 6	600#	150#	—	68.9	—	—	—	—	18.9	11.7			
26LA14/S3	26LB14/S3	4 x 6	900#	150#	—	103	—	—	—	—	18.9	11.7			
26LA10/S4	26LB10/S4	3 x 4	150#	150#	18.9	—	—	—	—	—	18.9	6.9	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26LA11/S4	26LB11/S4	3 x 4	300#	150#	18.9	—	—	—	—	—	18.9	6.9			
26LA12/S4	26LB12/S4	4 x 6	300#	150#	36.9	—	—	—	—	—	18.9	11.7			
26LA13/S4	26LB13/S4	4 x 6	600#	150#	36.9	—	—	—	—	—	18.9	11.7			
26LA14/S4	26LB14/S4	4 x 6	900#	150#	48.2	—	—	—	—	—	18.9	11.7			

Selection Chart



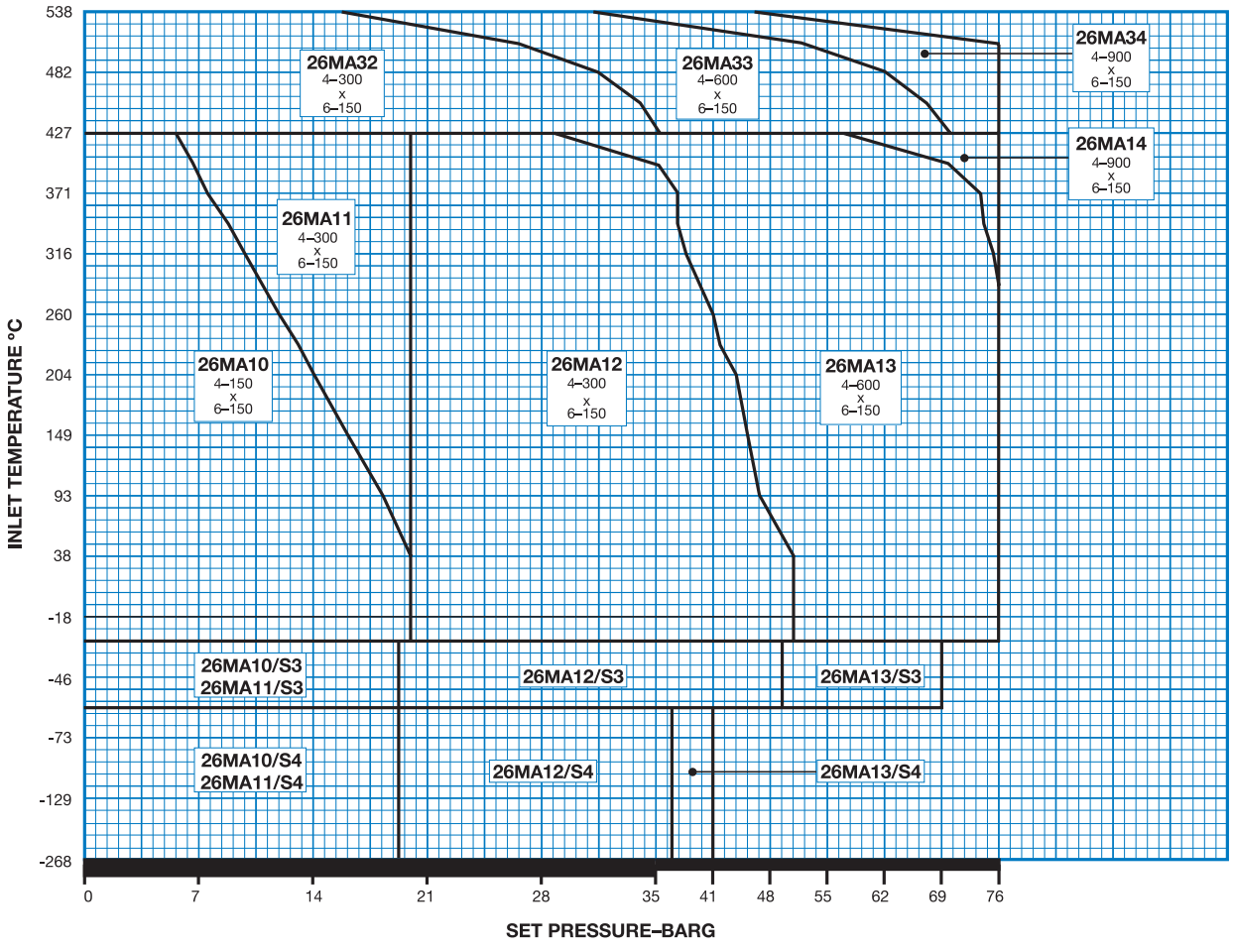
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

M Orifice

API Area: 2323 sq. mm
Actual Area: 2581 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26MA10	26MB10	4 x 6	150#	150#	—	—	19.6	12.7	5.5	—	19.6	5.5	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26MA11	26MB11	4 x 6	300#	150#	—	—	19.6	19.6	19.6	—	19.6	5.5			
26MA12	26MB12	4 x 6	300#	150#	—	—	51.0	42.4	28.2	—	19.6	11.0			
26MA13	26MB13	4 x 6	600#	150#	—	—	75.8	75.8	56.8	—	19.6	11.0			
26MA14	26MB14	4 x 6	900#	150#	—	—	75.8	75.8	75.8	—	19.6	11.0			
26MA32	26MB32	4 x 6	300#	150#	—	—	—	—	35.1	15.5	19.6	11.0	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26MA33	26MB33	4 x 6	600#	150#	—	—	—	—	69.9	30.6	19.6	11.0			
26MA34	26MB34	4 x 6	900#	150#	—	—	—	—	75.8	46.2	19.6	11.0			
26MA10/S3	26MB10/S3	4 x 6	150#	150#	—	18.9	—	—	—	—	18.9	5.5	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26MA11/S3	26MB11/S3	4 x 6	300#	150#	—	18.9	—	—	—	—	18.9	5.5			
26MA12/S3	26MB12/S3	4 x 6	300#	150#	—	49.6	—	—	—	—	18.9	11.0			
26MA13/S3	26MB13/S3	4 x 6	600#	150#	—	68.9	—	—	—	—	18.9	11.0			
26MA10/S4	26MB10/S4	4 x 6	150#	150#	18.9	—	—	—	—	—	18.9	5.5	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26MA11/S4	26MB11/S4	4 x 6	300#	150#	18.9	—	—	—	—	—	18.9	5.5			
26MA12/S4	26MB12/S4	4 x 6	300#	150#	36.2	—	—	—	—	—	18.9	11.0			
26MA13/S4	26MB13/S4	4 x 6	600#	150#	41.3	—	—	—	—	—	18.9	11.0			



Selection Chart

Notes:

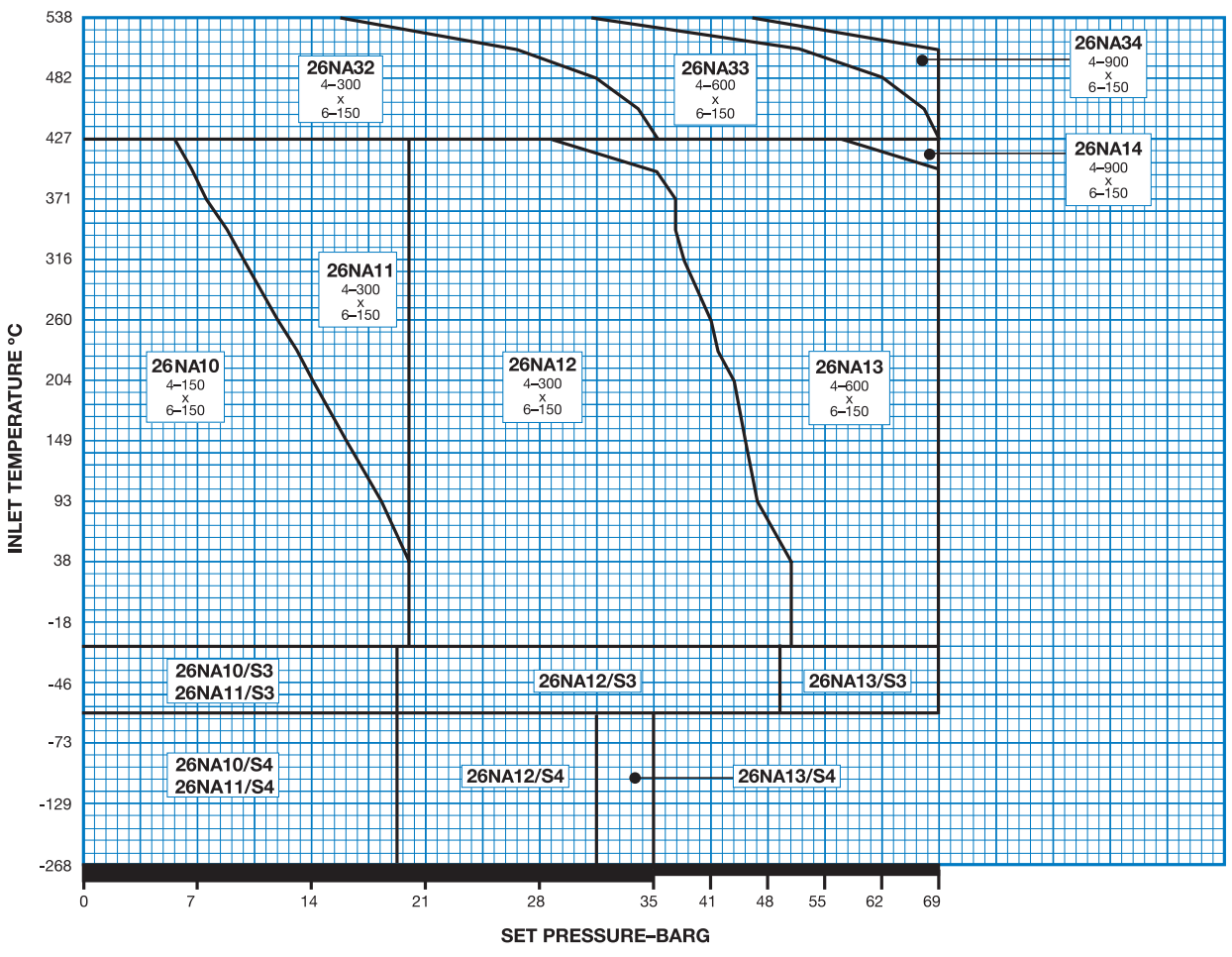
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

N Orifice

API Area: 2800 sq. mm
Actual Area: 3111 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26NA10	26NB10	4 x 6	150#	150#	—	—	19.6	12.7	5.5	—	19.6	5.5	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26NA11	26NB11	4 x 6	300#	150#	—	—	19.6	19.6	19.6	—	19.6	5.5			
26NA12	26NB12	4 x 6	300#	150#	—	—	51.0	42.4	28.2	—	19.6	11.0			
26NA13	26NB13	4 x 6	600#	150#	—	—	68.9	68.9	56.8	—	19.6	11.0			
26NA14	26NB14	4 x 6	900#	150#	—	—	68.9	68.9	68.9	—	19.6	11.0			
26NA32	26NB32	4 x 6	300#	150#	—	—	—	—	35.1	15.5	19.6	11.0	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26NA33	26NB33	4 x 6	600#	150#	—	—	—	—	68.9	30.6	19.6	11.0			
26NA34	26NB34	4 x 6	900#	150#	—	—	—	—	68.9	46.2	19.6	11.0			
26NA10/S3	26NB10/S3	4 x 6	150#	150#	—	18.9	—	—	—	—	18.9	5.5	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26NA11/S3	26NB11/S3	4 x 6	300#	150#	—	18.9	—	—	—	—	18.9	5.5			
26NA12/S3	26NB12/S3	4 x 6	300#	150#	—	49.6	—	—	—	—	18.9	11.0			
26NA13/S3	26NB13/S3	4 x 6	600#	150#	—	68.9	—	—	—	—	18.9	11.0			
26NA10/S4	26NB10/S4	4 x 6	150#	150#	18.9	—	—	—	—	—	18.9	5.5	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26NA11/S4	26NB11/S4	4 x 6	300#	150#	18.9	—	—	—	—	—	18.9	5.5			
26NA12/S4	26NB12/S4	4 x 6	300#	150#	31.0	—	—	—	—	—	18.9	11.0			
26NA13/S4	26NB13/S4	4 x 6	600#	150#	34.5	—	—	—	—	—	18.9	11.0			

Selection Chart



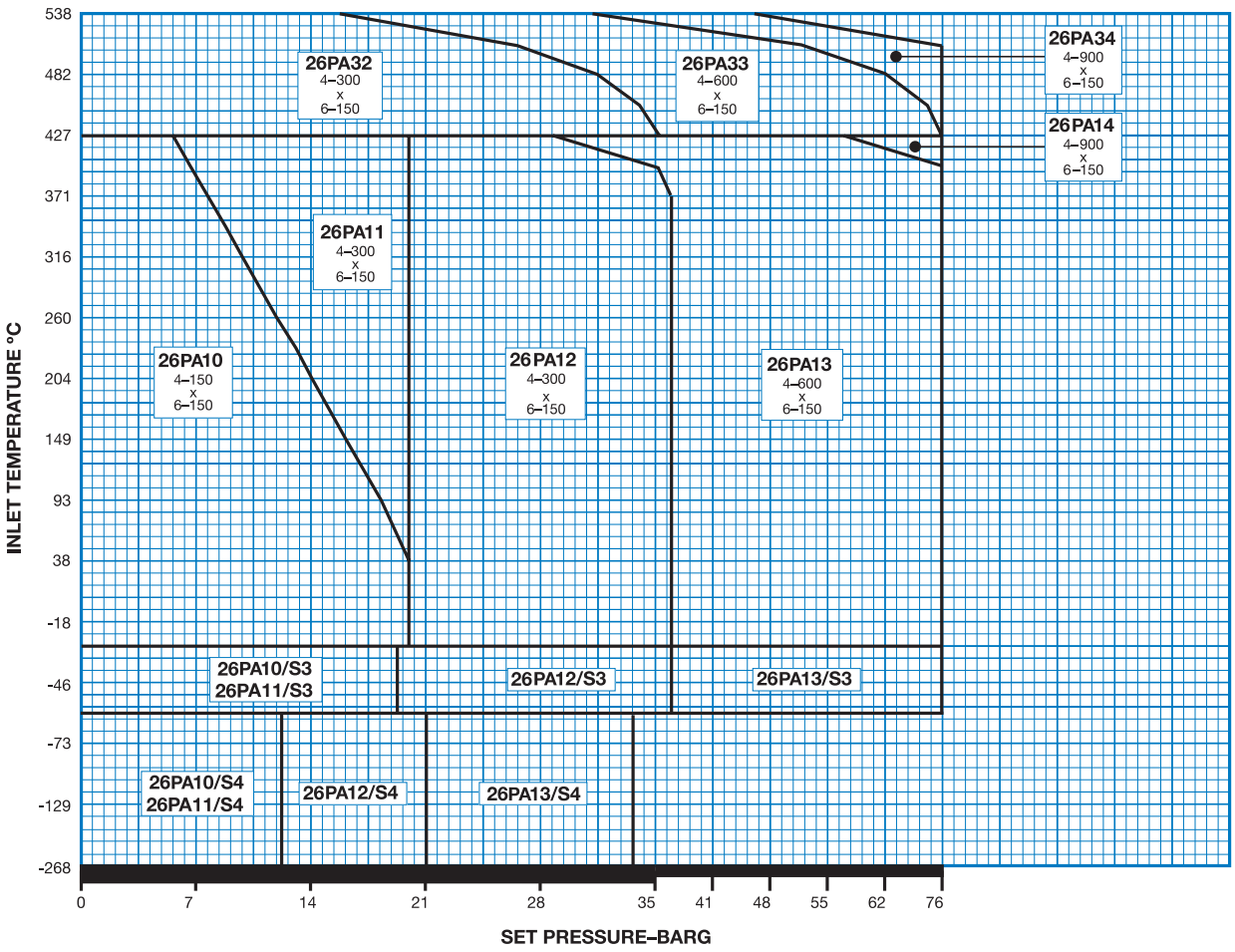
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

P Orifice

API Area: 4116 sq. mm
Actual Area: 4572 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26PA10	26PB10	4 x 6	150#	150#	—	—	19.6	12.7	5.5	—	19.6	5.5	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26PA11	26PB11	4 x 6	300#	150#	—	—	19.6	19.6	19.6	—	19.6	5.5			
26PA12	26PB12	4 x 6	300#	150#	—	—	36.2	36.2	28.2	—	19.6	11.0			
26PA13	26PB13	4 x 6	600#	150#	—	—	68.9	68.9	56.8	—	19.6	11.0			
26PA14	26PB14	4 x 6	900#	150#	—	—	68.9	68.9	68.9	—	19.6	11.0			
26PA32	26PB32	4 x 6	300#	150#	—	—	—	—	35.1	15.5	19.6	11.0	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26PA33	26PB33	4 x 6	600#	150#	—	—	—	—	68.9	30.6	19.6	11.0			
26PA34	26PB34	4 x 6	900#	150#	—	—	—	—	68.9	46.2	19.6	11.0			
26PA10/S3	26PB10/S3	4 x 6	150#	150#	—	18.9	—	—	—	—	18.9	5.5	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26PA11/S3	26PB11/S3	4 x 6	300#	150#	—	18.9	—	—	—	—	18.9	5.5			
26PA12/S3	26PB12/S3	4 x 6	300#	150#	—	49.6	—	—	—	—	18.9	11.0			
26PA13/S3	26PB13/S3	4 x 6	600#	150#	—	68.9	—	—	—	—	18.9	11.0			
26PA10/S4	26PB10/S4	4 x 6	150#	150#	12.1	—	—	—	—	—	12.0	5.5	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26PA11/S4	26PB11/S4	4 x 6	300#	150#	12.1	—	—	—	—	—	12.0	5.5			
26PA12/S4	26PB12/S4	4 x 6	300#	150#	20.7	—	—	—	—	—	18.9	11.0			
26PA13/S4	26PB13/S4	4 x 6	600#	150#	33.1	—	—	—	—	—	18.9	11.0			



Selection Chart

Notes:

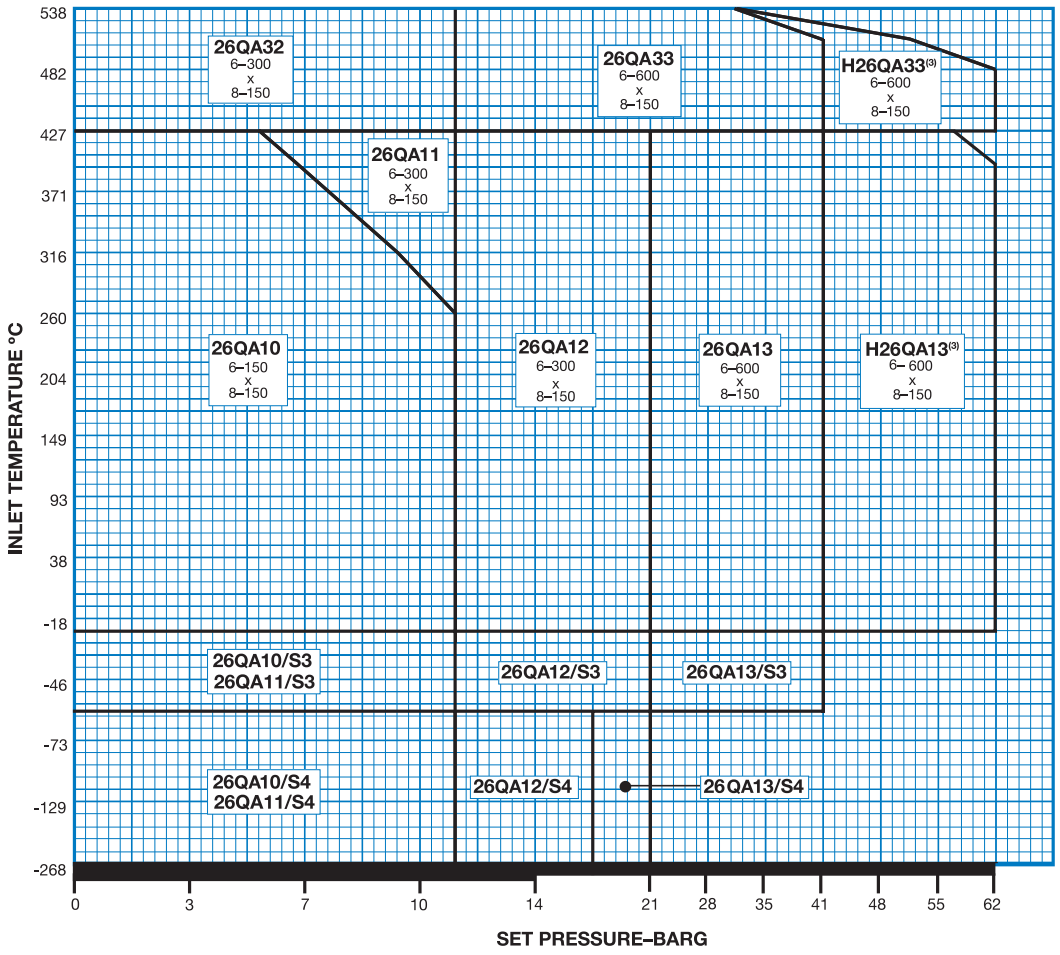
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

Q Orifice

API Area: 7129 sq. mm
Actual Area: 7916 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26QA10	26QB10	6 x 8	150#	150#	—	—	11.4	11.4	5.5	—	7.9	4.8	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26QA11	26QB11	6 x 8	300#	150#	—	—	11.4	11.4	11.4	—	7.9	4.8			
26QA12	26QB12	6 x 8	300#	150#	—	—	20.7	20.7	20.7	—	7.9	7.9			
26QA13	26QB13	6 x 8	600#	150#	—	—	41.3	41.3	41.3	—	7.9	7.9			
H26QA13	H26QB13	6 x 8	600#	150#	—	—	62.0	62.0	56.8	—	19.6	13.8			
26QA32	26QB32	6 x 8	300#	150#	—	—	—	—	11.4	11.4	7.9	4.8	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26QA33	26QB33	6 x 8	600#	150#	—	—	—	—	41.3	30.6	7.9	4.8			
H26QA33	H26QB33	6 x 8	600#	150#	—	—	—	—	62.0	30.7	19.6	13.8			
26QA10/S3	26QB10/S3	6 x 8	150#	150#	—	11.4	—	—	—	—	7.9	4.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26QA11/S3	26QB11/S3	6 x 8	300#	150#	—	11.4	—	—	—	—	7.9	4.8			
26QA12/S3	26QB12/S3	6 x 8	300#	150#	—	20.7	—	—	—	—	7.9	7.9			
26QA13/S3	26QB13/S3	6 x 8	600#	150#	—	41.3	—	—	—	—	7.9	7.9			
26QA10/S4	26QB10/S4	6 x 8	150#	150#	11.4	—	—	—	—	—	7.9	4.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26QA11/S4	26QB11/S4	6 x 8	300#	150#	11.4	—	—	—	—	—	7.9	4.8			
26QA12/S4	26QB12/S4	6 x 8	300#	150#	17.2	—	—	—	—	—	7.9	7.9			
26QA13/S4	26QB13/S4	6 x 8	600#	150#	20.7	—	—	—	—	—	7.9	7.9			

Selection Chart



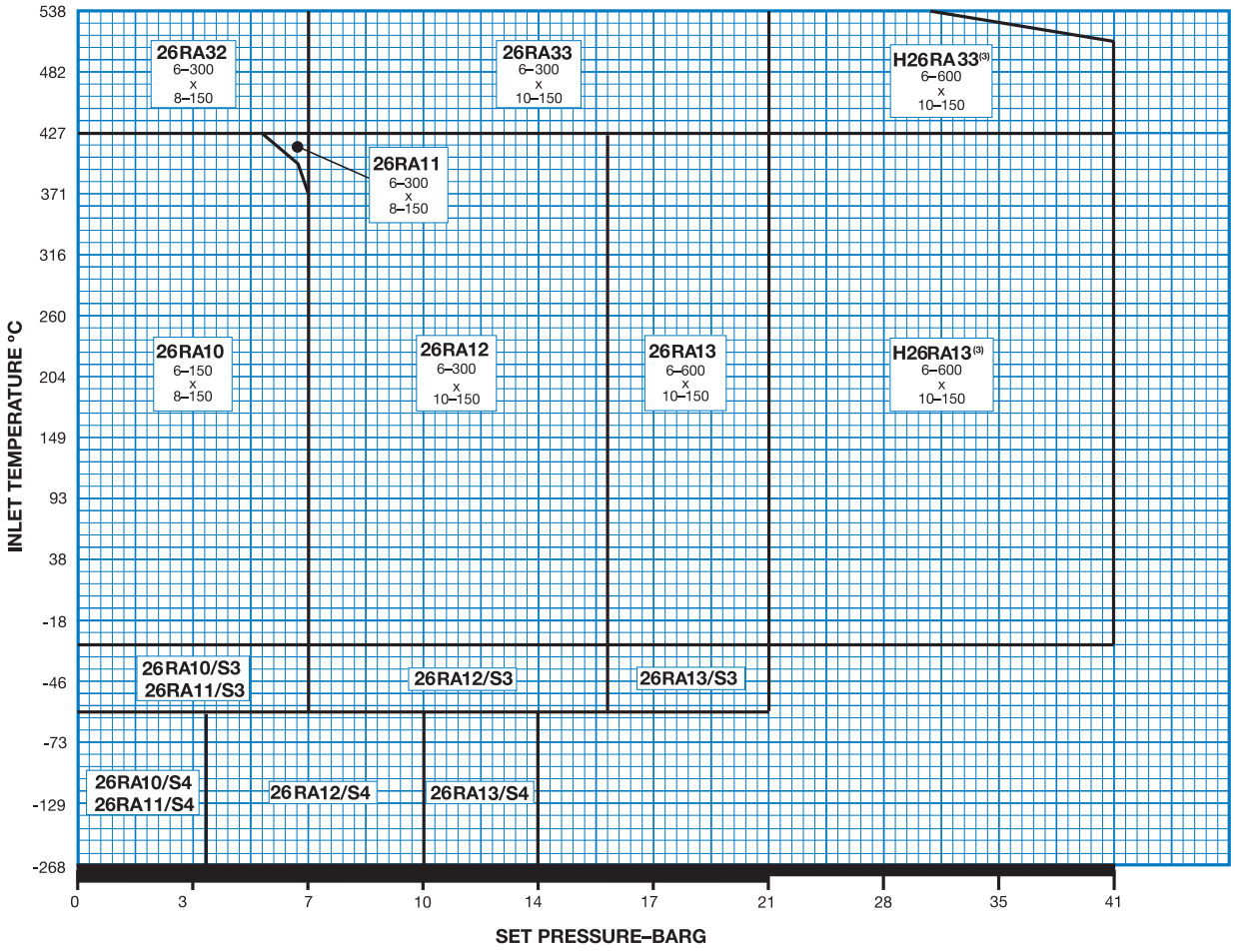
Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

R Orifice

API Area: 10323 sq. mm
Actual Area: 11471 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26RA10	26RB10	6 x 8	150#	150#	—	—	6.9	6.9	5.5	—	4.1	4.1	CARBON STEEL	CHROME ALLOY	-29°C to 427°C
26RA11	26RB11	6 x 8	300#	150#	—	—	6.9	6.9	6.9	—	4.1	4.1			
26RA12	26RB12	6 x 10	300#	150#	—	—	15.8	15.8	15.8	—	6.9	6.9			
26RA13	26RB13	6 x 10	600#	150#	—	—	20.7	20.7	20.7	—	6.9	6.9			
H26RA13	H26RB13	6 x 10	600#	150#	—	—	41.3	41.3	41.3	—	19.6	13.8			
26RA32	26RB32	6 x 8	300#	150#	—	—	—	—	6.9	6.8	4.1	4.1	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
26RA33	26RB33	6 x 10	600#	150#	—	—	—	—	20.7	20.7	6.9	6.9			
H26RA33	H26RB33	6 x 10	600#	150#	—	—	—	—	41.3	30.7	19.6	13.8			
26RA10/S3	26RB10/S3	6 x 8	150#	150#	—	6.9	—	—	—	—	7.9	4.8	316 ST. ST.	CHROME ALLOY NICKEL PLATED	-30°C to -59°C
26RA11/S3	26RB11/S3	6 x 8	300#	150#	—	6.9	—	—	—	—	7.9	4.8			
26RA12/S3	26RB12/S3	6 x 10	300#	150#	—	15.8	—	—	—	—	7.9	7.9			
26RA13/S3	26RB13/S3	6 x 10	600#	150#	—	20.7	—	—	—	—	7.9	7.9			
26RA10/S4	26RB10/S4	6 x 8	150#	150#	3.8	—	—	—	—	—	7.9	4.8	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26RA11/S4	26RB11/S4	6 x 8	300#	150#	3.8	—	—	—	—	—	7.9	4.8			
26RA12/S4	26RB12/S4	6 x 10	300#	150#	10.3	—	—	—	—	—	7.9	7.9			
26RA13/S4	26RB13/S4	6 x 10	600#	150#	13.8	—	—	—	—	—	7.9	7.9			



Selection Chart

Notes:

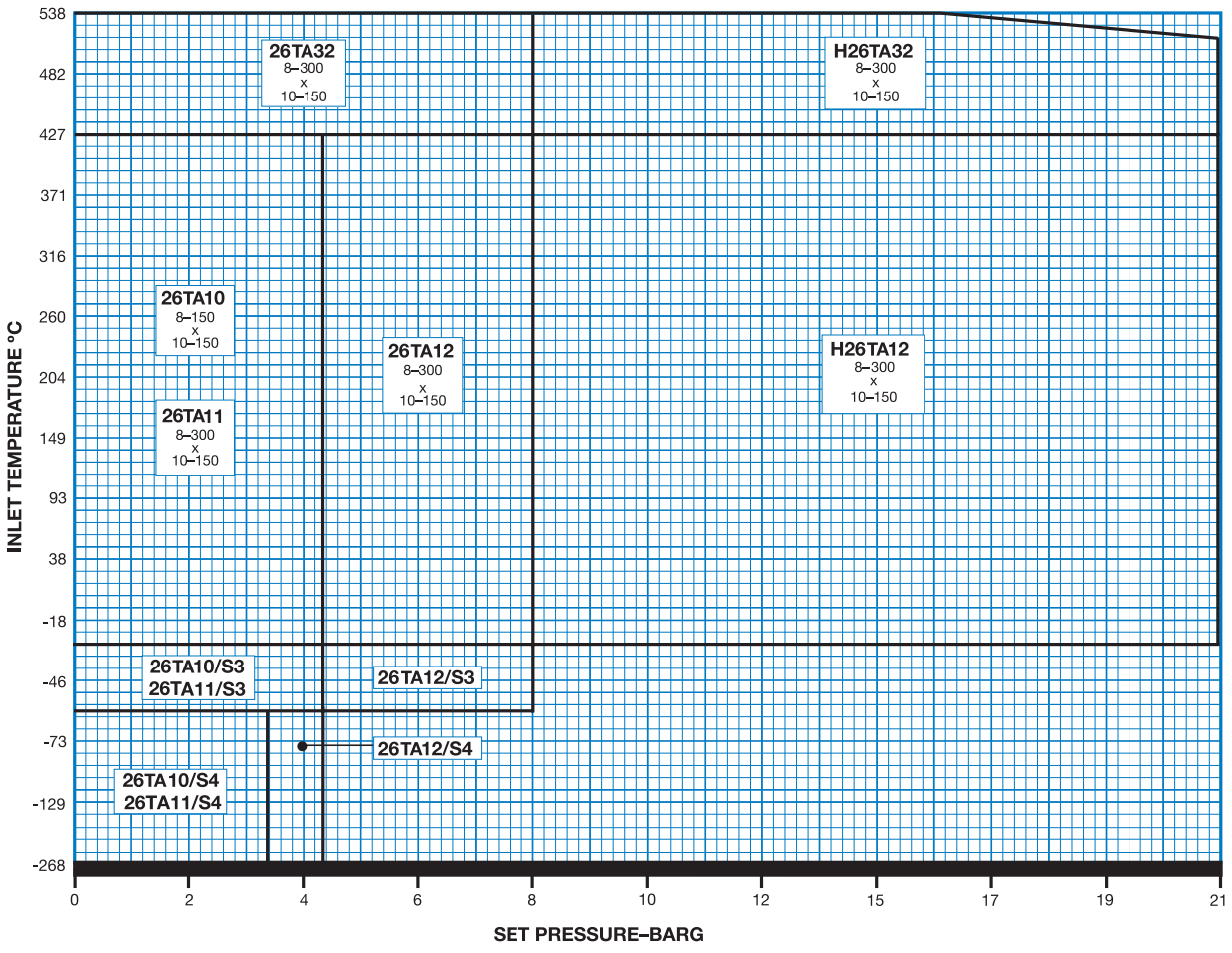
1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

T Orifice

API Area: 16774 sq. mm
Actual Area: 18671 sq. mm

TYPE NUMBER		VALVE SIZE	ANSI FLANGE CLASS		MAXIMUM SET PRESSURE, BARG						BACK PRESSURE LIMIT BARG @ 38°C		MATERIAL		INLET TEMP. RANGE
CONVENTIONAL	BALANSEAL	INLET OUTLET	INLET RF OR RJ	OUTLET RF	-268°C -60°C	-59°C -30°C	-29°C +38°C	+232°C	+427°C	+538°C	CONVENTIONAL TYPE	BALANSEAL TYPE	BODY & BONNET	SPRING	
26TA10	26TB10	8 x 10	150#	150#	—	—	4.5	4.5	4.5	—	2.1	2.1	CARBON STEEL	CHROME ALLOY	-29°C to 232°C
26TA11	26TB11	8 x 10	300#	150#	—	—	4.5	4.5	4.5	—	2.1	2.1			
26TA12	26TB12	8 x 10	300#	150#	—	—	8.3	8.3	8.3	—	4.1	4.1			
H26TA12	H26TB12	8 x 10	300#	150#	—	—	20.7	20.7	20.7	—	6.9	6.9			
26TA32	26TB32	8 x 10	300#	150#	—	—	—	—	8.3	8.2	4.1	4.1	CHROME MOLY STEEL	HIGH TEMP. ALLOY	428°C to 538°C
H26TA32	H26TB32	8 x 10	300#	150#	—	—	—	—	20.7	15.5	6.9	6.9			
26TA10/S3	26TB10/S3	8 x 10	150#	150#	—	4.5	—	—	—	—	2.1	2.1	316 ST. ST.	CHROME ALLOY NICKEL PLTD.	-30°C to -59°C
26TA11/S3	26TB11/S3	8 x 10	300#	150#	—	4.5	—	—	—	—	2.1	2.1			
26TA12/S3	26TB12/S3	8 x 10	300#	150#	—	8.3	—	—	—	—	4.1	4.1			
26TA10/S4	26TB10/S4	8 x 10	150#	150#	3.4	—	—	—	—	—	2.1	2.1	316 ST. ST.	316 ST. ST.	-60°C to -268°C
26TA11/S4	26TB11/S4	8 x 10	300#	150#	3.4	—	—	—	—	—	2.1	2.1			
26TA12/S4	26TB12/S4	8 x 10	300#	150#	4.5	—	—	—	—	—	4.1	4.1			

Selection Chart



Notes:

1. The type numbers shown on the selection chart indicate conventional valves. For BalanSeal, "O" ring construction, balanced piston design and other valve options, see the type numbering system on pages 10 and 11.
2. Outlet pressure for temperature above 38°C should not exceed the rating in ANSI B16.5.
3. For applications above 538°C, consult the Farris Factory.

ASME PRESSURE VESSEL CODE (UV)

CAPACITIES IN STANDARD CUBIC METERS PER MINUTE AT 15.6° C

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. mm													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	71	126	198	325	506	830	1186	1841	2323	2800	4116	7129	10323	16774
Actual	97	145	239	361	563	923	1317	2045	2581	3111	4572	7916	11471	18671
1	2.1	3.2	5.3	8.0	12.5	20.5	29.2	45.4	57.3	69.1	101	176	255	415
2	3.1	4.6	7.7	11.6	18.1	29.7	42.5	65.9	83.2	100	147	255	370	602
3	4.1	6.2	10.3	15.5	24.3	39.8	56.9	88.3	111	134	197	342	495	806
4	5.2	7.8	12.9	19.5	30.5	50.0	71.4	110	139	168	247	429	622	1012
5	6.3	9.4	15.6	23.5	36.7	60.2	85.9	133	168	203	298	516	748	1218
6	7.3	11.0	18.2	27.5	42.9	70.3	100	156	196	237	348	603	875	1424
7	8.4	12.6	20.8	31.4	49.1	80.5	115	178	225	271	399	691	1001	1630
8	9.0	14.2	23.5	35.4	55.3	90.7	129	201	253	305	449	778	1127	1835
9	10.5	15.8	26.1	39.4	61.5	100	144	223	282	340	499	865	1254	2041
10	11.6	17.4	28.8	43.4	67.7	111	158	246	310	374	550	952	1380	2247
12	13.7	20.6	34.0	51.3	80.2	131	187	291	367	443	651	1127	1633	2659
14	15.9	23.8	39.3	59.3	92.6	151	216	336	424	511	751	1301	1886	3070
16	18.0	27.0	44.6	67.2	105	172	245	381	481	580	852	1476	2139	3482
18	20.1	30.2	49.9	75.2	117	192	274	426	538	648	953	1650	2392	3893
20	22.3	33.4	55.1	83.1	129	212	303	471	595	717	1054	1825	2645	4305
22	24.4	36.6	60.4	91.1	142	233	332	516	651	785	1155	1999	2898	—
24	26.5	39.8	65.7	99.0	154	253	361	561	708	854	1255	2174	3150	—
26	28.7	43.0	71.0	107	167	273	390	606	765	923	1356	2348	3403	—
28	30.8	46.2	76.2	114	179	294	419	651	822	991	1457	2523	3656	—
30	32.9	49.4	81.5	122	191	314	448	697	879	1060	1558	2697	3909	—
32	35.1	52.6	86.8	130	204	334	478	742	936	1128	1659	2872	4162	—
34	37.2	55.8	92.1	138	216	355	507	787	993	1197	1759	3046	4415	—
36	39.3	59.0	97.4	146	229	375	536	832	1050	1266	1860	3221	4668	—
38	41.5	62.2	102	154	241	395	565	877	1107	1334	1961	3395	4920	—
40	43.6	65.4	107	162	254	416	594	922	1163	1403	2062	3570	5173	—
42	45.7	68.6	113	170	266	436	623	967	1220	1471	2163	3745	—	—
44	47.9	71.8	118	178	278	456	652	1012	1277	1540	2263	3919	—	—
46	50.0	75.0	123	186	291	477	681	1057	1334	1608	2364	4094	—	—
48	52.1	78.2	129	194	303	497	710	1102	1391	1677	2465	4268	—	—
50	54.3	81.4	134	202	316	517	739	1147	1448	1746	2566	4443	—	—
60	64.9	97.4	160	242	378	619	884	1373	1732	2088	3070	5315	—	—
70	75.6	113	187	281	440	721	1029	1598	2017	—	—	—	—	—
80	86.3	129	213	321	502	822	1175	1824	—	—	—	—	—	—
90	96.9	145	239	361	564	924	1320	2049	—	—	—	—	—	—
100	107	161	266	401	626	1026	1465	2274	—	—	—	—	—	—
110	118	177	292	440	688	1127	1610	—	—	—	—	—	—	—
120	128	193	319	480	750	1229	1755	—	—	—	—	—	—	—
130	139	209	345	520	812	1331	1901	—	—	—	—	—	—	—
140	150	225	371	560	874	1433	2046	—	—	—	—	—	—	—
150	160	241	398	599	936	1534	2191	—	—	—	—	—	—	—
160	171	257	424	639	999	1636	—	—	—	—	—	—	—	—
170	182	273	450	679	1061	1738	—	—	—	—	—	—	—	—
180	192	289	477	719	1123	1839	—	—	—	—	—	—	—	—
190	203	305	503	758	—	—	—	—	—	—	—	—	—	—
200	214	321	530	798	—	—	—	—	—	—	—	—	—	—
210	224	337	556	838	—	—	—	—	—	—	—	—	—	—
220	235	353	582	878	—	—	—	—	—	—	—	—	—	—
230	246	369	609	917	—	—	—	—	—	—	—	—	—	—
240	256	385	635	957	—	—	—	—	—	—	—	—	—	—
250	267	401	661	997	—	—	—	—	—	—	—	—	—	—
260	278	417	688	—	—	—	—	—	—	—	—	—	—	—
270	288	433	714	—	—	—	—	—	—	—	—	—	—	—
280	299	449	741	—	—	—	—	—	—	—	—	—	—	—
290	310	465	767	—	—	—	—	—	—					
300	320	481	793	—	—	—	—	—	—					
310	331	497	820	—	—	—	—	—	—					
320	342	513	846	—	—	—	—	—	—					
330	352	529	873	—	—	—	—	—	—					
340	363	545	899	—	—	—	—	—	—					
350	374	561	—	—	—	—	—	—	—					
360	384	577	—	—	—	—	—	—	—					
370	395	593	—	—	—	—	—	—	—					
380	406	609	—	—	—	—	—	—	—					
390	416	625	—	—	—	—	—	—	—					
400	427	641	—	—	—	—	—	—	—	—	—	—	—	—
410	438	657	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 2.0 Barg set pressure and below are based on 0.2 Bar overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for air, gas, and steam is 0.953 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.

Steam Capacities, 10% Overpressure

ASME PRESSURE VESSEL CODE (UV)

CAPACITIES IN KILOGRAMS PER HOUR AT SATURATION TEMPERATURE

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. mm													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	97	145	239	361	563	923	1317	2045	2581	3111	4572	7916	11471	18761
Actual	71	126	198	325	506	830	1186	1841	2323	2800	4116	7129	10323	16774
1	96	145	239	360	563	923	1318	2046	2582	3113	4575	7922	11479	18685
2	140	210	347	523	817	1339	1912	2968	3746	4516	6637	11491	16652	27104
3	188	282	465	701	1095	1794	2561	3977	5018	6049	8891	15394	22307	36308
4	236	354	584	880	1374	2251	3215	4991	6298	7592	11159	19320	27996	45569
5	284	426	702	1059	1653	2709	3868	6005	7578	9135	13427	23246	33686	54829
6	332	498	821	1237	1933	3166	4522	7020	8858	10678	15694	27173	39375	64090
7	380	570	940	1416	2212	3624	5175	8034	10138	12221	17962	31099	45064	73351
8	428	642	1059	1595	2492	4082	5829	9049	11418	13764	20230	35025	50754	82611
9	476	714	1177	1774	2771	4539	6482	10063	12698	15307	22498	38952	56443	91872
10	524	786	1296	1953	3050	4997	7135	11077	13978	16850	24766	42878	62133	101132
11	572	858	1415	2132	3330	5454	7789	12092	15258	18393	27033	46804	67822	110393
12	620	930	1533	2311	3609	5912	8442	13106	16538	19936	29301	50731	73512	119654
13	668	1002	1652	2490	3888	6370	9096	14120	17818	21479	31569	54657	79201	128914
14	716	1074	1771	2668	4168	6827	9749	15135	19098	23022	33837	58583	84891	138175
15	764	1146	1890	2847	4447	7285	10403	16149	20378	24565	36104	62509	90580	147435
16	812	1218	2008	3026	4726	7742	11056	17164	21658	26108	38372	66436	96270	156696
17	860	1290	2127	3205	5006	8200	11709	18178	22938	27651	40640	70362	101959	165957
18	908	1362	2246	3384	5285	8657	12363	19192	24218	29194	42908	74288	107649	175217
19	956	1434	2364	3563	5564	9115	13016	20207	25498	30737	45176	78215	113338	184478
20	1004	1506	2483	3742	5844	9573	13670	21221	26778	32280	47443	82141	119028	193738
22	1100	1650	2721	4099	6403	10488	14977	23250	29337	35366	51979	89994	130407	—
24	1196	1794	2958	4457	6961	11403	16283	25279	31897	38452	56515	97846	141786	—
26	1292	1938	3195	4815	7520	12318	17590	27307	34457	41538	61050	105699	153165	—
28	1388	2082	3433	5173	8079	13233	18897	29336	37017	44624	65586	113552	164544	—
30	1484	2226	3670	5530	8637	14149	20204	31365	39577	47710	70121	121404	175923	—
32	1580	2370	3908	5888	9196	15064	21511	33394	42137	50796	74657	129257	187302	—
34	1676	2514	4145	6246	9755	15979	22818	35422	44697	53883	79193	137110	198681	—
36	1772	2658	4383	6604	10313	16894	24125	37451	47257	56969	83728	144962	210059	—
38	1868	2802	4620	6962	10872	17809	25431	39480	49817	60055	88264	152815	221438	—
40	1964	2946	4858	7319	11431	18724	26738	41509	52377	63141	92799	160667	232817	—
42	2060	3090	5095	7677	11990	19640	28045	43537	54937	66227	97335	168520	—	—
44	2156	3234	5332	8035	12548	20555	29352	45566	57497	69313	101870	176373	—	—
46	2252	3378	5570	8393	13107	21470	30659	47595	60057	72399	106406	184225	—	—
48	2348	3522	5807	8750	13666	22385	31966	49624	62617	75485	110942	192078	—	—
50	2444	3666	6045	9108	14224	23300	33272	51652	65177	78571	115477	199931	—	—
52	2540	3810	6282	9466	14783	24216	34579	53681	67737	81657	120013	207783	—	—
54	2636	3954	6520	9824	15342	25131	35886	55710	70297	84743	124548	215636	—	—
56	2732	4098	6757	10181	15901	26046	37193	57739	72857	87829	129084	223489	—	—
58	2828	4242	6994	10539	16459	26961	38500	59767	75417	90915	133620	231341	—	—
60	2924	4386	7232	10897	17018	27876	39807	61796	77976	94001	138155	239194	—	—
62	3020	4530	7469	11255	17577	28791	41114	63825	80536	97087	142691	247046	—	—
64	3116	4674	7707	11612	18135	29707	42420	65854	83096	100173	147226	—	—	—
66	3212	4818	7944	11970	18694	30622	43727	67883	85656	103259	151762	—	—	—
68	3308	4962	8182	12328	19253	31537	45034	69911	88216	106345	156298	—	—	—
70	3404	5106	8419	12686	19812	32452	46341	71940	90776	—	—	—	—	—
72	3500	5250	8656	13043	20370	33367	47648	73969	93336	—	—	—	—	—
74	3596	5394	8894	13401	20929	34283	48955	75998	95896	—	—	—	—	—
76	3692	5538	9131	13759	21488	35198	50262	78026	—	—	—	—	—	—
78	3788	5682	9369	14117	22046	36113	51568	80055	—	—	—	—	—	—
80	3884	5826	9606	14474	22605	37028	52875	82084	—	—	—	—	—	—
82	3980	5970	9844	14832	23164	37943	54182	84113	—	—	—	—	—	—
84	4076	6114	10081	15190	23722	38858	55489	86141	—	—	—	—	—	—
86	4172	6258	10319	15548	24281	39774	56796	88170	—	—	—	—	—	—
88	4268	6402	10556	15905	24840	40689	58103	90199	—	—	—	—	—	—
90	4364	6546	10793	16263	25399	41604	59410	92228	—	—	—	—	—	—
92	4460	6690	11031	16621	25957	42519	60716	94256	—	—	—	—	—	—
94	4556	6834	11268	16979	26516	43434	62023	96285	—	—	—	—	—	—
96	4652	6978	11506	17336	27075	44350	63330	98314	—	—	—	—	—	—
98	4748	7122	11743	17694	27633	45265	64637	100343	—	—	—	—	—	—
100	4844	7266	11981	18052	28192	46180	65944	102371	—	—	—	—	—	—
110	5324	7986	13168	19841	30986	50756	72478	—	—	—	—	—	—	—
120	5804	8706	14355	21629	33779	55332	79012	—	—	—	—	—	—	—
130	6284	9426	15542	23418	36573	59908	85547	—	—	—	—	—	—	—
140	6764	10146	16729	25207	39366	64484	92081	—	—	—	—	—	—	—
150	7244	10866	17916	26996	42160	69059	98615	—	—	—	—	—	—	—
160	7724	11586	19104	28784	44953	73635	—	—	—	—	—	—	—	—
170	8204	12306	20291	30573	47747	78211	—	—	—	—	—	—	—	—
180	8684	13026	21478	32362	50540	82787	—	—	—	—	—	—	—	—
190	9164	13746	22665	34151	—	—	—	—	—	—	—	—	—	—
200	9643	14465	23852	35939	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 2.0 Barg set pressure and below are based on 0.2 Bar overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for air, gas, and steam is 0.953 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.

ASME PRESSURE VESSEL CODE (UV)

CAPACITIES IN LITERS PER MINUTE AT 21 C°

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. mm													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	97	145	239	361	563	923	1317	2045	2581	3111	4572	7916	11471	18761
Actual	71	126	198	325	506	830	1186	1841	2323	2800	4116	7129	10323	16774
1	58.8	88.2	145	219	342	561	801	1244	1569	1892	2781	4815	6977	11357
2	79.6	119	196	296	463	758	1083	1682	2122	2559	3761	6511	9435	15358
3	97.3	146	240	362	566	928	1325	2057	2595	3129	4599	7962	11538	18781
4	112	168	278	418	654	1071	1530	2375	2997	3613	5310	9194	13323	21686
5	125	188	310	468	731	1198	1710	2655	3351	4040	5937	10280	14896	24246
6	137	206	340	513	801	1312	1874	2909	3671	4425	6504	11261	16318	26561
7	148	223	367	554	865	1417	2024	3142	3965	4780	7025	12163	17625	28689
8	158	238	393	592	925	1515	2164	3359	4239	5110	7510	13003	18842	30670
9	158	238	393	592	925	1515	2164	3359	4239	5110	7510	13003	18842	30670
10	177	266	439	662	1034	1694	2419	3756	4739	5713	8397	14538	21066	34290
12	194	292	481	725	1133	1856	2650	4114	5191	6258	9198	15925	23077	37562
14	210	315	520	783	1223	2004	2862	4444	5607	6760	9935	17202	24926	40572
16	224	337	556	837	1308	2143	3060	4751	5995	7226	10621	18389	26647	43373
18	238	357	589	888	1387	2273	3246	5039	6358	7665	11265	19505	28264	46005
20	251	377	621	936	1462	2396	3421	5311	6702	8080	11875	20560	29793	—
22	263	395	652	982	1534	2513	3588	5571	7029	8474	12455	21563	31247	—
24	275	413	681	1026	1602	2624	3748	5818	7342	8851	13008	22522	32636	—
26	286	429	708	1067	1667	2732	3901	6056	7642	9212	13540	23442	33969	—
28	286	429	708	1067	1667	2732	3901	6056	7642	9212	13540	23442	33969	—
30	307	461	761	1147	1791	2934	4190	6505	8209	9895	14544	25181	36489	—
32	317	476	786	1184	1850	3030	4328	6719	8478	10220	15021	26006	—	—
34	327	491	810	1221	1907	3124	4461	6925	8739	10535	15483	26807	—	—
36	337	505	834	1256	1962	3214	4590	7126	8992	10840	15932	27584	—	—
38	346	519	856	1291	2016	3302	4716	7321	9238	11137	16369	28340	—	—
40	355	533	879	1324	2068	3388	4839	7512	9478	11426	16794	29076	—	—
42	364	546	900	1357	2119	3472	4958	7697	9713	11709	17209	29794	—	—
44	372	559	922	1389	2169	3554	5075	7878	9941	11984	17614	—	—	—
46	381	571	942	1420	2218	3634	5189	8055	10165	12253	18009	—	—	—
48	389	584	963	1451	2266	3712	5300	8229	10383	—	—	—	—	—
50	397	596	982	1481	2312	3788	5410	8398	10597	—	—	—	—	—
60	435	653	1076	1622	2533	4150	5926	9200	—	—	—	—	—	—
70	470	705	1163	1752	2736	4482	6401	9937	—	—	—	—	—	—
80	502	754	1243	1873	2925	4792	6843	10623	—	—	—	—	—	—
90	533	799	1318	1987	3103	5083	7258	11268	—	—	—	—	—	—
100	562	843	1390	2094	3271	5358	7651	11877	—	—	—	—	—	—
110	589	884	1457	2196	3430	5619	8024	12457	—	—	—	—	—	—
120	615	923	1522	2294	3583	5869	8381	13011	—	—	—	—	—	—
130	640	961	1584	2388	3729	6109	8723	13542	—	—	—	—	—	—
140	665	997	1644	2478	3870	6339	9052	—	—	—	—	—	—	—
150	688	1032	1702	2565	4006	6562	9370	—	—	—	—	—	—	—
160	710	1066	1758	2649	4137	6777	9678	—	—	—	—	—	—	—
170	732	1099	1812	2730	4264	6986	9975	—	—	—	—	—	—	—
180	754	1131	1865	2810	4388	7188	10265	—	—	—	—	—	—	—
190	774	1162	1916	2887	4508	7385	10546	—	—	—	—	—	—	—
200	794	1192	1965	2962	4625	7577	10820	—	—	—	—	—	—	—
210	814	1221	2014	3035	4740	7764	11087	—	—	—	—	—	—	—
220	833	1250	2061	3106	4851	7947	11348	—	—	—	—	—	—	—
230	852	1278	2108	3176	4960	8125	11603	—	—	—	—	—	—	—
240	870	1306	2153	3244	5067	8300	11853	—	—	—	—	—	—	—
250	888	1332	2197	3311	5171	8471	—	—	—	—	—	—	—	—
260	906	1359	2241	3377	5274	8639	—	—	—	—	—	—	—	—
270	923	1385	2284	3441	5374	8804	—	—	—	—	—	—	—	—
280	940	1410	2326	3504	5473	8965	—	—	—					
290	957	1435	2367	3566	5570	9124	—	—	—					
300	973	1460	2407	3627	—	—	—	—	—					
310	989	1484	2447	3687	—	—	—	—	—					
320	1005	1508	2486	3746	—	—	—	—	—					
330	1020	1531	2525	3804	—	—	—	—	—					
340	1036	1554	2563	3862	—	—	—	—	—					
350	1051	1577	2600	—	—	—	—	—	—					
360	1066	1599	2637	—	—	—	—	—	—					
370	1081	1621	2673	—	—	—	—	—	—					
380	1095	1643	—	—	—	—	—	—	—					
390	1109	1664	—	—	—	—	—	—	—					
400	1124	1686	—	—	—	—	—	—	—	—	—	—	—	—
410	1138	1707	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 2.0 Barg set pressure and below are based on 0.2 Bar overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for liquids is 0.724 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for water is 0.652.

Water Capacities, 25% Overpressure

ASME PRESSURE VESSEL CODE

CAPACITIES IN LITERS PER MINUTE AT 21 C°

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. mm													
AREAS	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
API	97	145	239	361	563	923	1317	2045	2581	3111	4572	7916	11471	18761
Actual	71	126	198	325	506	830	1186	1841	2323	2800	4116	7129	10323	16774
1	52.9	79.3	130	197	308	504	720	1118	1411	1701	2500	4329	6273	10211
2	74.8	112	185	278	435	713	1019	1581	1996	2406	3536	6122	8872	14441
3	91.6	137	226	341	533	873	1248	1937	2444	2947	4331	7499	10866	17687
4	105	158	261	394	616	1009	1441	2237	2822	3402	5001	8659	12547	20423
5	118	177	292	441	688	1128	1611	2501	3156	3804	5591	9681	14028	22834
6	129	194	320	483	754	1235	1764	2739	3457	4167	6125	10605	15367	25013
7	140	210	346	521	815	1335	1906	2959	3734	4501	6616	11455	16599	27017
8	149	224	370	557	871	1427	2038	3163	3992	4812	7073	12245	17745	28883
9	149	224	370	557	871	1427	2038	3163	3992	4812	7073	12245	17745	28883
10	167	251	413	623	974	1595	2278	3537	4463	5380	7907	13691	19839	32292
12	183	275	453	683	1067	1747	2496	3874	4889	5894	8662	14998	21733	35374
14	198	297	489	738	1152	1888	2696	4185	5281	6366	9356	16199	23474	38209
16	211	317	523	788	1232	2018	2882	4474	5645	6805	10002	17318	25095	40847
18	224	336	555	836	1306	2140	3057	4745	5988	7218	10609	18368	26617	43325
20	236	355	585	882	1377	2256	3222	5002	6312	7609	11183	19362	28057	—
22	248	372	614	925	1444	2366	3379	5246	6620	7980	11729	20307	29427	—
24	259	388	641	966	1509	2471	3529	5479	6914	8335	12251	21210	30735	—
26	269	404	667	1005	1570	2572	3674	5703	7196	8675	12751	22076	31990	—
28	269	404	667	1005	1570	2572	3674	5703	7196	8675	12751	22076	31990	—
30	289	434	717	1080	1687	2763	3946	6126	7730	9319	13697	23714	34363	—
32	299	449	740	1115	1742	2854	4076	6327	7984	9625	14146	24491	—	—
34	308	462	763	1150	1796	2942	4201	6522	8230	9921	14581	25245	—	—
36	317	476	785	1183	1848	3027	4323	6711	8468	10208	15004	25977	—	—
38	326	489	806	1215	1898	3110	4441	6895	8700	10488	15415	26689	—	—
40	334	502	827	1247	1948	3191	4557	7074	8926	10761	15815	27382	—	—
42	343	514	848	1278	1996	3270	4669	7249	9147	11026	16206	28059	—	—
44	351	526	868	1308	2043	3347	4779	7419	9362	11286	16587	—	—	—
46	358	538	887	1337	2089	3422	4886	7586	9572	11540	16960	—	—	—
48	366	550	906	1366	2134	3495	4992	7749	9778	—	—	—	—	—
50	374	561	925	1394	2178	3568	5095	7909	9980	—	—	—	—	—
60	409	614	1014	1527	2386	3908	5581	8664	—	—	—	—	—	—
70	442	664	1095	1650	2577	4221	6028	9358	—	—	—	—	—	—
80	473	710	1170	1764	2755	4513	6444	10004	—	—	—	—	—	—
90	502	753	1241	1871	2922	4786	6835	10611	—	—	—	—	—	—
100	529	793	1309	1972	3080	5045	7205	11185	—	—	—	—	—	—
110	555	832	1373	2068	3230	5292	7557	11731	—	—	—	—	—	—
120	579	869	1434	2160	3374	5527	7893	12253	—	—	—	—	—	—
130	603	905	1492	2248	3512	5753	8215	12753	—	—	—	—	—	—
140	626	939	1548	2333	3644	5970	8525	—	—	—	—	—	—	—
150	648	972	1603	2415	3772	6179	8824	—	—	—	—	—	—	—
160	669	1004	1655	2495	3896	6382	9114	—	—	—	—	—	—	—
170	690	1035	1706	2571	4016	6579	9394	—	—	—	—	—	—	—
180	710	1065	1756	2646	4132	6769	9667	—	—	—	—	—	—	—
190	729	1094	1804	2718	4246	6955	9931	—	—	—	—	—	—	—
200	748	1122	1851	2789	4356	7136	10190	—	—	—	—	—	—	—
210	767	1150	1897	2858	4464	7312	10441	—	—	—	—	—	—	—
220	785	1177	1941	2925	4569	7484	10687	—	—	—	—	—	—	—
230	802	1204	1985	2991	4671	7652	10927	—	—	—	—	—	—	—
240	819	1229	2028	3055	4772	7817	11162	—	—	—	—	—	—	—
250	836	1255	2069	3118	4870	7978	—	—	—	—	—	—	—	—
260	853	1280	2110	3180	4967	8136	—	—	—	—	—	—	—	—
270	869	1304	2151	3241	5061	8291	—	—	—	—	—	—	—	—
280	885	1328	2190	3300	5154	8443	—	—	—	—	—	—	—	—
290	901	1352	2229	3359	5245	8592	—	—	—	—	—	—	—	—
300	916	1375	2267	3416	—	—	—	—	—	—	—	—	—	—
310	931	1397	2304	3472	—	—	—	—	—	—	—	—	—	—
320	946	1420	2341	3528	—	—	—	—	—	—	—	—	—	—
330	961	1442	2378	3583	—	—	—	—	—	—	—	—	—	—
340	975	1463	2413	3637	—	—	—	—	—	—	—	—	—	—
350	990	1485	2449	—	—	—	—	—	—	—	—	—	—	—
360	1004	1506	2483	—	—	—	—	—	—	—	—	—	—	—
370	1018	1527	2518	—	—	—	—	—	—	—	—	—	—	—
380	1031	1547	—	—	—	—	—	—	—	—	—	—	—	—
390	1045	1567	—	—	—	—	—	—	—	—	—	—	—	—
400	1058	1587	—	—	—	—	—	—	—	—	—	—	—	—
410	1071	1607	—	—	—	—	—	—	—	—	—	—	—	—

General Notes:

1. Capacities at 2.0 Barg set pressure and below are based on 0.2 Bar overpressure.
2. For sizing purposes the effective coefficient of discharge K_d for liquids is 0.64 when sizing using the API effective areas. When sizing using the ASME actual areas, the certified coefficient of discharge K for water is 0.576.

1. Capacities for use when specifying standard 2600 vapor design on liquid service. (Non-ASME Code)

2600 Series Super Capacity Pressure Relief Valves

Farris Engineering offers a complete line of large orifice, spring-loaded safety relief valves for applications requiring flows larger than the standard API "T" orifice. These large orifice valves offer the same superior design, construction, metallurgy, and options as the standard 2600 Series. Features include full nozzle, balanced bellows, isolation of bonnet spring chamber, integral one-piece sleeve guide, temperature equalizing disc, and positive connection of internal parts. Six sizes with inlets ranging from 8" to 20" and actual orifice areas from 31.5 to 176.7 square inches are available.

The 2600 Series large orifice valves are offered in both conventional and BalanSeal construction with ANSI Class 300 RF flanged inlet by ANSI Class 150 RF flanged outlet, and temperature range from -20° to 800° F. They are designed and built in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII. Capacity ratings are certified by the National Board of Boiler and Pressure Vessel Inspectors.

Orifice	Actual Orifice Area		Type Number		Valve Size Inlet X Outlet (inches)	Maximum Set Pressure, PSIG		Maximum Set Pressure, BARG		Maximum Back Pressure All Designs	
	Square Inches	Square Centimeters	Conventional	BalanSeal		-20°F to +450°F	+451°F to +800°F	-29°C to +232°C	+233°C to +427°C	PSIG @ 100°F	BARG @ 38°C
U	31.5	203.2	26UA10	26UB10	8 x 10	65	65	4.5	4.5	30	2.1
			26UA11	26UB11		65	65	4.5	4.5	30	2.1
			26UA12	26UB12		120	120	8.3	8.3	60	4.1
			H26UA12	H26UB12		300	300	20.7	20.7	100	6.9
W	63.6	410.2	26WA12	26WB12	12 x 16	300	300	20.7	20.7	100	6.9
W2	104.0	670.8	26W2A12	26W2B12	16 x 18	300	300	20.7	20.7	100	6.9
X	113.1	729.5	26XA12	26XB12	16 x 20	300	300	20.7	20.7	100	6.9
Y	143.1	923.0	26YA12	26YB12	18 x 24	300	300	20.7	20.7	100	6.9
Z	176.7	1139.7	26ZA12	26ZB12	20 x 24	300	200	20.7	13.8	100	6.9

Materials of Construction: Carbon steel body and bonnet, stainless steel trim and chrome alloy spring. Other materials available on application. Consult the factory.

Connections: ANSI Class 300#RF inlet x 150#RF. Other connection types available on application. Consult the factory.

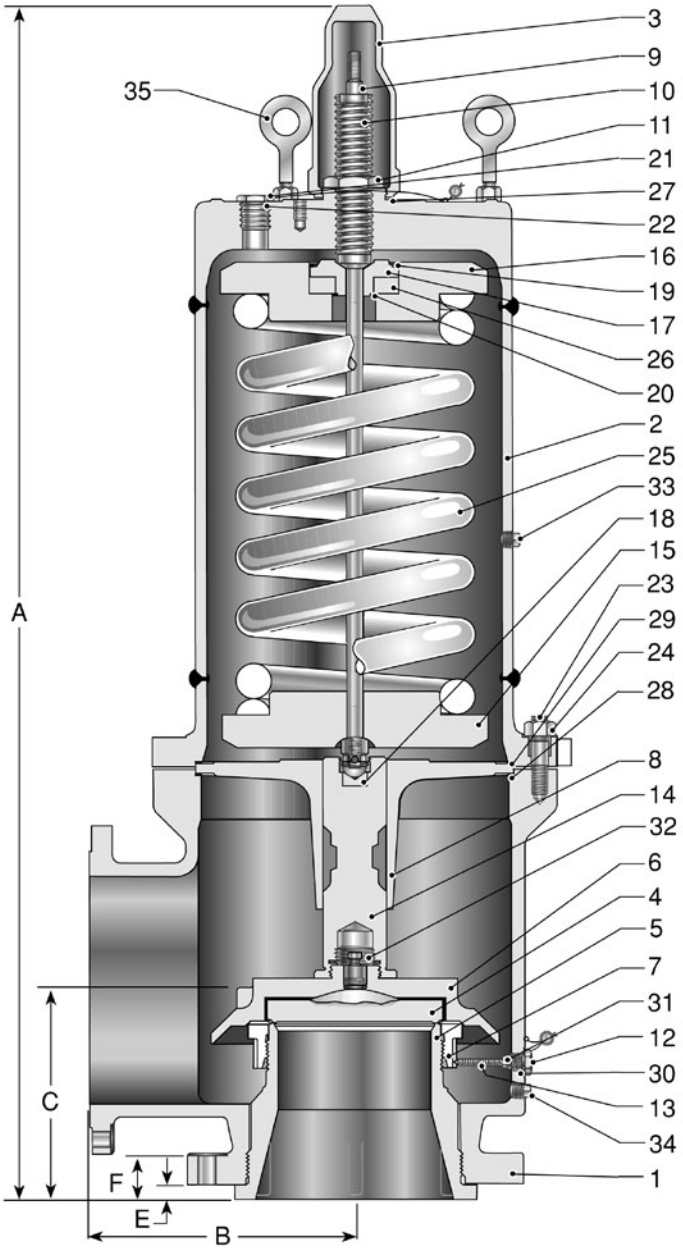
General Notes:

1. All valves supplied with plain caps unless otherwise specified. Standard suffix for type number is "-120". For other cap construction, refer to page 69.
2. For set pressures under 20 psig (1.4 barg) consult the factory.
3. ASME Boiler and Pressure Vessel Code Section VIII requires all valves have a lifting lever when used for air, steam and hot water (over 140°F).
4. For corrosive, low and high temperature materials, ANSI Class 150 inlet flange and open yoke designs, consult the Factory.
5. Standard flange finish is serrated unless otherwise specified.
6. Optional equipment includes: air set device for set pressure testing, extra large lapping glass for valve seat maintenance, spring compression device for set pressure adjustment, and special disassembly and reassembly equipment.
7. The "U" orifice with 300# inlet flange is available up to 1000°F. Set pressures are the same as the comparable "T" orifice.

Bill of Materials–Conventional

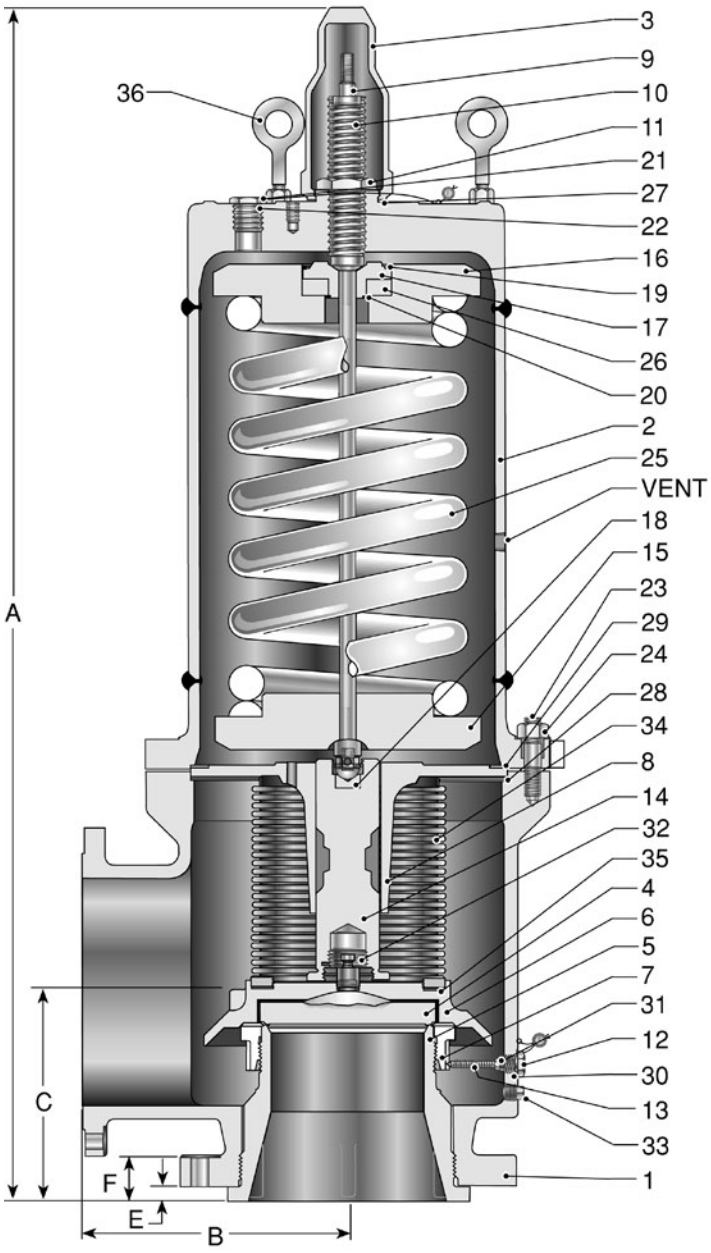
ITEM	PART NAME	MATERIAL
1	Body 26( )A12	ASTM A216 Gr. WCB. Carb. St.
2	Bonnet 26( )A12	ASTM A216 Gr. WCB. Carb. St.
3	Cap, Plain Screwed	ASTM A216 Gr. WCB. Carb. St.
4	Disc	Stainless Steel
5	Nozzle	316 St. St.
6	Disc Holder	Stainless Steel
7	Blowdown Ring	Stainless Steel
8	Sleeve Guide 26( )A12	Stainless Steel
9	Stem	Stainless Steel
10	Spring Adjusting Screw	Stainless Steel
11	Jam Nut (Spr. Adj. Screw)	Stainless Steel
12	Lock Screw (B.D.R.)	Stainless Steel
13	Lock Screw Stud	Stainless Steel
14	Stem Retainer	Stainless Steel
15	Spring Button, Lower	Carbon St. Rust Proofed
16	Spring Button, Upper	Carbon St. Rust Proofed
17*	Insert, Spring Button Upper	Stainless Steel
18	Stem Insert	Stainless Steel
19*	Retaining Ring	Stainless Steel
20*	Back-Up Ring	Teflon
21*	Cylinder Plug	Stainless Steel
22*	O-Ring, Cylinder Plug	Ethylene Propylene
23	Body Stud	ASTM A193 Gr. B7, Alloy St.
24	Hex Nut (Body)	ASTM A194 Gr. 2H, Alloy St.
25	Spring 26( )A12	Chrome Alloy, Rust Proofed
26*	Roller Thrust Bearing	Hardened Alloy Steel
27	Cap Gasket	Soft Iron or Steel
28	Body Gasket	Soft Iron or Steel
29	Bonnet Gasket	Soft Iron or Steel
30	Lock Screw Gasket	Soft Iron or Steel
31	Hex Nut (B.D.R.L.S.)	Stainless Steel
32	Lock Screw (D.H.)	Stainless Steel
33	Pipe Plug (Bonnet)	Steel
34	Pipe Plug (Body)	Steel
35*	Forged Eye Bolt	Steel, Galvanized

*Not supplied on U & W orifice



VALVE SIZE INLET X OUTLET	ANSI FLANGE CLASS		TYPE NUMBER CONV.	DIMENSIONS, IN./*MM.*					APPROX. WEIGHT Lbs./Kg
	INLET RF	OUTLET RF		A (max.)	B	C	E	F	
8 U 10	300	150	26UA12	54½ *1385*	11 *279*	10⅞ *276*	13/16 *21*	2 7/16 *62*	650 *295*
12 W 16	300	150	26WA12	70½ *1791*	16 *406*	14⅛ *359*	13/16 *21*	2 13/16 *71*	2800 *1270*
16 W2 18	300	150	26W2A12	90¾ *2305*	20 *508*	16 *406*	1¼ *32*	3½ *89*	4200 *1905*
16 X 20	300	150	26XA12	93½ *2375*	21 *533*	17 *432*	1¼ *32*	3½ *89*	5500 *2495*
18 Y 24	300	150	26YA12	97½ *2477*	25 *635*	20 *508*	1¼ *32*	3⅝ *92*	7000 *3175*
20 Z 24	300	150	26ZA12	109 *2769*	25 *635*	20 *508*	1¼ *32*	3¾ *95*	7500 *3402*

Note: The "U" orifice weights and dimensions are identical to the "T" orifice on page 75.



Bill of Materials–BalanSeal

ITEM	PART NAME	MATERIAL
1	Body 26( )B12	ASTM A216 Gr. WCB. Carb. St.
2	Bonnet 26( )B12	ASTM A216 Gr. WCB. Carb. St.
3	Cap, Plain Screwed	ASTM A216 Gr. WCB. Carb. St.
4	Disc	Stainless Steel
5	Nozzle	316 St. St.
6	Disc Holder	Stainless Steel
7	Blowdown Ring	Stainless Steel
8	Sleeve Guide 26( )B12	Stainless Steel
9	Stem	Stainless Steel
10	Spring Adjusting Screw	Stainless Steel
11	Jam Nut (Spr. Adj. Screw)	Stainless Steel
12	Lock Screw (B.D.R.)	Stainless Steel
13	Lock Screw Stud	Stainless Steel
14	Stem Retainer	Stainless Steel
15	Spring Button, Lower	Carbon St. Rust Proofed
16	Spring Button, Upper	Carbon St. Rust Proofed
17*	Insert, Spring Button Upper	Stainless Steel
18	Stem Insert	Stainless Steel
19*	Retaining Ring	Stainless Steel
20*	Back-Up Ring	Teflon
21*	Cylinder Plug	Stainless Steel
22*	O-Ring, Cylinder Plug	Ethylene Propylene
23	Body Stud	ASTM A193 Gr. B7, Alloy St.
24	Hex Nut (Body)	ASTM A194 Gr. 2H, Alloy St.
25	Spring 26( )B12	Chrome Alloy, Rust Proofed
26*	Roller Thrust Bearing	Hardened Alloy Steel
27	Cap Gasket	Soft Iron or Steel
28	Body Gasket	Soft Iron or Steel
29	Bonnet Gasket	Soft Iron or Steel
30	Lock Screw Gasket	Soft Iron or Steel
31	Hex Nut (B.D.R.L.S.)	Stainless Steel
32	Lock Screw (D.H.)	Stainless Steel
33	Pipe Plug (Body)	Steel
34	Bellows	Inconel Composite
35*	Bellows Gasket	Flexible Graphite
36*	Forged Eye Bolt	Steel, Galvanized

*Not supplied on U & W orifice

VALVE SIZE INLET X OUTLET	ANSI FLANGE CLASS		TYPE NUMBER CONV.	DIMENSIONS, IN./MM.					APPROX. WEIGHT Lbs./Kg
	INLET RF	OUTLET RF		A (max.)	B	C	E	F	
8 U 10	300	150	26UB12	54½ *1385*	11 *279*	10⅞ *276*	13/16 *21*	2 7/16 *62*	700 *317*
12 W 16	300	150	26WB12	70½ *1791*	16 *406*	14⅛ *359*	13/16 *21*	2 13/16 *71*	2850 *1293*
16 W2 18	300	150	26W2B12	90¾ *2305*	20 *508*	16 *406*	1¼ *32*	3½ *89*	4250 *1927*
16 X 20	300	150	26XB12	93½ *2375*	21 *533*	17 *432*	1¼ *32*	3½ *89*	5550 *2517*
18 Y 24	300	150	26YB12	97½ *2477*	25 *635*	20 *508*	1¼ *32*	3⅝ *92*	7050 *3197*
20 Z 24	300	150	26ZB12	109 *2769*	25 *635*	20 *508*	1¼ *32*	3¾ *95*	7550 *3424*

Note: The “U” orifice weights and dimensions are identical to the “T” orifice on page 75.

AIR CAPACITIES

10% OVERPRESSURE
ASME PRESSURE VESSEL CODE (UV) CAPACITIES IN STANDARD CUBIC FEET PER MINUTE AT 60° F

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches					
	U	W	W2	X	Y	Z
	31.5	63.62	104.0	113.1	143.1	176.7
20	18677	37723	61666	67062	84850	104773
30	23632	47729	78023	84850	107357	132564
40	29081	58736	96016	104417	132114	163135
50	34531	69742	114009	123984	156872	193705
60	39981	80749	132001	143552	181629	224276
70	45431	91756	149994	163119	206387	254846
80	50880	102763	167987	182686	231144	285417
90	56330	113769	185980	202253	255901	315987
100	61780	124776	203973	221820	280659	346558
125	75404	152293	248955	270738	342552	422984
150	89029	179810	293937	319656	404446	499410
175	102653	207327	338919	368574	466340	575837
200	116277	234844	383901	417492	528233	652263
250	143526	289878	473865	515328	652020	805116
300	170775	344912	563829	613164	775808	957968

STEAM CAPACITIES

10% OVERPRESSURE
ASME PRESSURE VESSEL CODE (UV) CAPACITIES IN POUNDS PER HOUR AT SATURATION TEMPERATURE

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches					
	U	W	W2	X	Y	Z
	31.5	63.62	104.0	113.1	143.1	176.7
20	52474	105981	173248	188407	238383	294355
30	66393	134093	219202	238383	238383	372434
40	81703	165016	269752	293356	371169	458320
50	97014	195939	320302	348329	440724	544206
60	112325	226861	370852	403302	510278	630092
70	127636	257784	421402	458275	579833	715979
80	142947	288707	471952	513248	649388	801865
90	158257	319630	522502	568221	718943	887751
100	173568	350553	573052	623194	788498	973638
125	211845	427861	699427	760627	962384	1188353
150	250122	505168	825802	898059	1136271	1403069
175	288399	582475	952176	1035492	1310158	1617785
200	326676	659783	1078551	1172924	1484045	1832500
250	403230	814397	1331301	1447790	1831819	2261932
300	479784	969012	1584050	1722655	2179593	2691363

WATER CAPACITIES

25% OVERPRESSURE [4]
CAPACITIES IN GALLONS PER MINUTE AT 70° F NON CODE

Set Pressure (psig)	Orifice Letter Designation & Areas, Sq. Inches					
	U	W	W2	X	Y	Z
	31.5	63.62	104.0	113.1	143.1	176.7
20	3742	6962	11381	12377	15660	19337
30	4483	8527	13939	15159	19179	23683
40	5176	9846	16095	17504	22147	27347
50	5787	11008	17995	19570	24761	30575
60	6340	12059	19713	21438	27124	33493
70	6848	13025	21292	23155	29297	36177
80	7320	13924	22762	24754	31320	38674
90	7765	14769	24143	26256	33220	41020
100	8185	15568	25449	27676	35017	43239
125	9151	17405	28453	30943	39150	48343
150	—	19067	31169	33896	42887	52957
175	—	20594	33666	36612	46324	57200
200	—	22016	35991	39140	49522	61150
250	—	24615	40239	43760	55367	68368
300	—	26965	44080	47937	60652	74893

General Notes:

1. Capacities at 30 PSIG and below are based on 3 PSI overpressure.
2. For sizing purposes using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.
3. For sizing purposes using the actual areas, the coefficient of discharge K for water is 0.652 for the “U” orifice and 0.576 for the “W” through “Z” orifices.
4. The “U” orifice meets the requirements of ASME Code Section VIII. Capacities listed in the table for the “U” orifice are based on 10% overpressure.

AIR CAPACITIES

10% OVERPRESSURE
ASME PRESSURE VESSEL CODE (UV) CAPACITIES IN STANDARD CUBIC METERS PER MINUTE AT 15.6° C

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. cm					
	U	W	W2	X	Y	Z
	203.2	410.2	670.8	729.5	923.0	1139.7
1.4	533	1077	1761	1915	2423	2992
2	655	1324	2164	2353	2978	3677
3	878	1773	2899	3153	3989	4926
4	1102	2226	3639	3957	5007	6183
5	1326	2678	4378	4761	6024	7439
6	1550	3131	5118	5566	7042	8696
7	1774	3583	5857	6370	8060	9952
8	1998	4035	6597	7174	9077	11209
9	2222	4488	7336	7978	10095	12465
10	2446	4940	8076	8783	11113	13722
12	2894	5845	9555	10391	13148	16235
14	3342	6750	11034	12000	15183	18748
16	3790	7655	12513	13608	17218	21261
18	4238	8559	13993	15217	19253	23774
20.7	4843	9781	15989	17388	22001	27167

STEAM CAPACITIES

10% OVERPRESSURE
ASME PRESSURE VESSEL CODE (UV) CAPACITIES IN KILOGRAMS PER HOUR AT SATURATION TEMPERATURE

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. cm					
	U	W	W2	X	Y	Z
	203.2	410.2	670.8	729.5	923.0	1139.7
1.4	24003	48480	79251	86185	109046	134650
2	29501	59584	97403	105926	134023	165492
3	39520	79818	130480	141897	179535	221690
4	49600	100176	163759	178088	225326	278233
5	59679	120534	197038	214279	271117	334776
6	69759	140892	230317	250470	316908	391319
7	79839	161250	263597	286662	362699	447861
8	89919	181608	296876	322853	408490	504404
9	99999	201966	330155	359044	454281	560947
10	110078	222324	363435	395235	500072	617490
12	130238	263040	429993	467618	591654	730576
14	150398	303756	496552	540000	683237	843661
16	170557	344472	563111	612383	774819	956747
18	190717	385188	629669	684765	866401	1069833
20.7	217932	440154	719523	782482	990037	1222498

WATER CAPACITIES

25% OVERPRESSURE [4]
CAPACITIES IN LITERS PER MINUTE AT 21° C NON CODE

Set Pressure (barg)	Orifice Letter Designation & Areas, Sq. cm					
	U	W	W2	X	Y	Z
	203.2	410.2	670.8	729.5	923.0	1139.7
20	14166	25276	41319	44935	56854	70203
30	16968	30276	49493	53824	68101	84091
40	19593	9236	15099	16420	20775	25654
50	21906	39087	63895	69486	87918	108561
60	23997	42817	69994	76119	96309	118923
70	25920	46248	75602	82217	104026	128451
80	27709	49441	80822	87894	111208	137320
90	29390	52440	85725	93226	117954	145650
100	30980	55277	90362	98269	124335	153529
125	34637	61802	101028	109868	139011	171651
150	37943	67700	110671	120354	152279	188034
175	40983	73125	119538	129997	164480	203100
200	43813	78174	127791	138973	175836	217123
250	48984	87401	142875	155377	196591	242751
300	53660	95743	156512	170207	215355	265920

General Notes:

1. Capacities at 2.0 barg and below are based on 0.2 barg overpressure.
2. For sizing purposes using the ASME actual areas, the certified coefficient of discharge K for air, gas, and steam service is 0.858.
3. For sizing purposes using the actual areas, the coefficient of discharge K for water is 0.652 for the “U” orifice and .576 for the “W” through “Z” orifices.
4. The “U” orifice meets the requirements of ASME Code Section VIII. Capacities listed in the table for the “U” orifice are based on 10% overpressure.

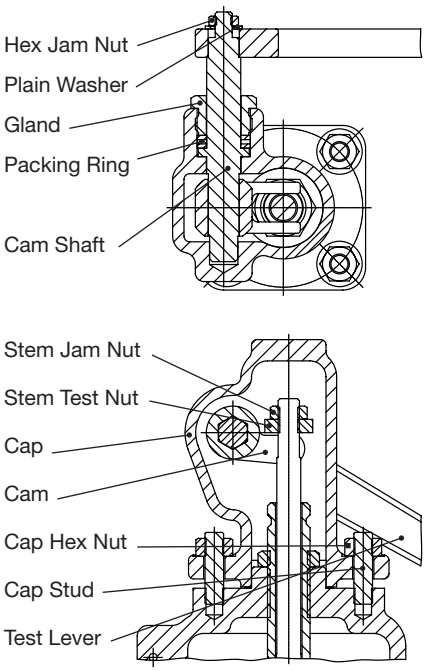
Cap Constructions
Standard Material & Material for Corrosive/Low Temperature Service - Stainless Steel

Cap Description	Part Name	Std. Materials S1, S5 & S7 -20°F to 800°F	316 St. St.	
			S3 -75°F to 800°F	S4 -400°F to 800°F
Packed Lever	Cap	Carbon Steel	316 St.	316 St.
	Test Lever	Carbon Steel	—	—
	Cam	316 St. St.	—	—
	Cam Shaft	316 St. St.	—	—
	Gland	316 St. St.	—	—
	Stem Jam Nut	316 St. St.	—	—
	Stem Test Nut	316 St. St.	—	—
	Packing Ring	Graphite	—	—
	Plain Washer	Steel	—	—
	Lever Hex. Jam Nut	Steel	—	—
	Cap Stud	Alloy Steel	Stainless Steel	Stainless Steel
	Cap Hex. Nut	Alloy Steel	Stainless Steel	Stainless Steel
Open Lever (Single or Double Acting)	Cap	Iron	—	—
	Test Lever	Iron	—	—
	Test Lever Fork	Iron	—	—
	Stem Jam Nut	316 St. St.	—	—
	Stem Test Nut	316 St. St.	—	—
	Cap Screw	Steel, Plated	—	—
	Fork Rd. Hd. Rivet	Steel	—	—
	Lever Rd. Hd. Rivet	Steel	—	—
	Cotter Pin	Steel, Plated	—	—

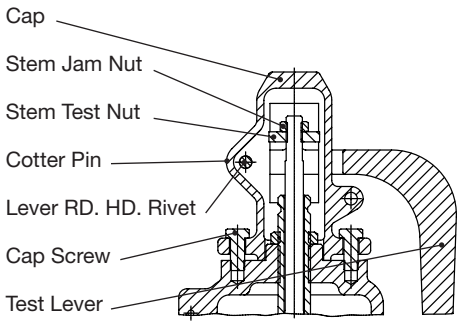
Cap Constructions
Standard Material for Corrosive Service - Monel & Hastelloy C

Cap Description	Part Name	Monel			Hastelloy C		
		M2 -20°F to 800°F		M3 & M4 -20°F to 600°F	H2 -20°F to 800°F		H3 & H4 -20°F to 800°F
		Conventional	BalanSeal	Conventional & BalanSeal	Conventional	BalanSeal	Conventional & BalanSeal
Packed Lever	Cap	—	—	Monel	—	—	Hastelloy C
	Test Lever	—	—	—	—	—	—
	Cam	Monel	—	Monel	Monel	—	Hastelloy C
	Cam Shaft	Monel	—	Monel	Monel	—	Hastelloy C
	Gland	Monel	—	Monel	Monel	—	Hastelloy C
	Stem Jam Nut	Monel	—	Monel	Monel	—	Hastelloy C
	Stem Test Nut	Monel	—	Monel	Monel	—	Graphite
	Packing Ring	Graphite	—	Graphite	Graphite	—	Not Used
	Plain Washer	—	—	—	—	—	—
	Lever Hex. Jam Nut	—	—	—	—	—	—
	Cap Stud	—	—	Hastelloy C	—	—	Hastelloy C
	Cap Hex. Nut	—	—	Hastelloy C	—	—	Hastelloy C
Open Lever (Single or Double Acting)	Cap	—	—	—	—	—	—
	Test Lever	—	—	—	—	—	—
	Test Lever Fork	—	—	—	—	—	—
	Stem Jam Nut	Monel	—	Monel	Monel	—	Hastelloy C
	Stem Test Nut	Monel	—	Monel	Monel	—	Hastelloy C
	Cap Screw	—	—	—	—	—	—
	Fork Rd. Hd. Rivet	—	—	—	—	—	—
	Lever Rd. Hd. Rivet	—	—	—	—	—	—
	Cotter Pin	—	—	—	—	—	—

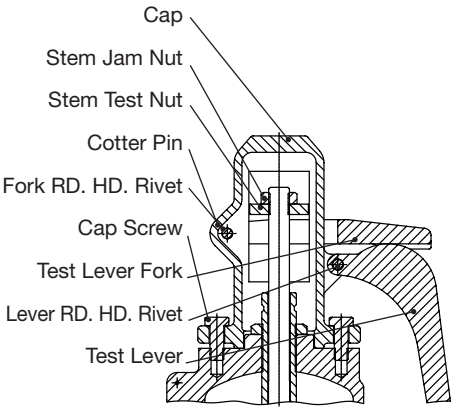
Notes:
1. Any part denoted with a dash is standard. Cap assembly materials are standard in M1 & H1 trim.
2. Cap assembly materials for S5 & S7 are the same as standard BalanSeal, except the cap studs and hex nuts are B7M and H2M respectively.



Packed Lever
2600 Series, All Sizes

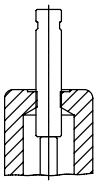


Open Lever
(Single Acting Lever)
2600 Series, Types 26( )A10, A11, A20, A21,
All Sizes Except 8x10

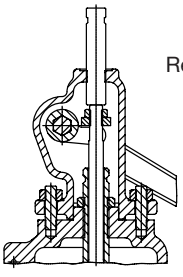


Open Lever
(Double Acting Lever)
2600 Series, Sizes 1x2 Thru 6x10
Except
Types 26( )A10, A11, A20, A21,
Sizes 8x10, All Types

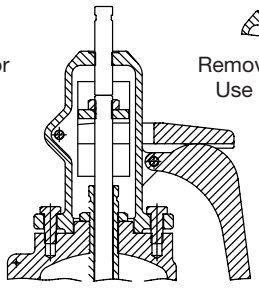
Test Gag Installations



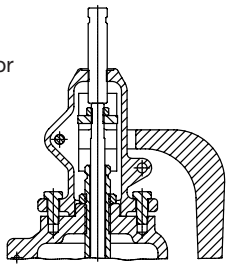
Plain Screwed Cap
2600 Series, All Sizes



Packed Lever
2600 Series, All Sizes



Open Lever
(Double Acting Lever)
2600 Series, Sizes 1x2 Thru 6x10 Except
Types 26( )A10, A11
Sizes 8x10, All Types

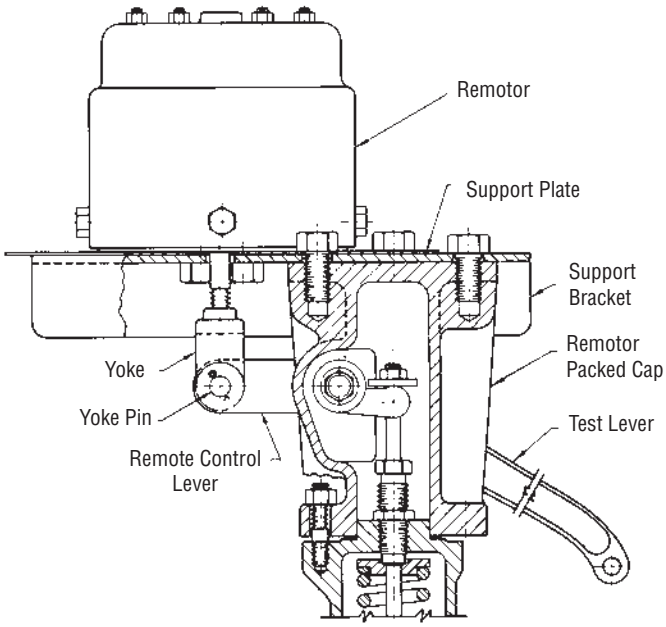


Open Lever
(Single Acting Lever)
2600 Series, Types 26( )A10, A11, A20, A21,
All Sizes Except 8x10

Remotor

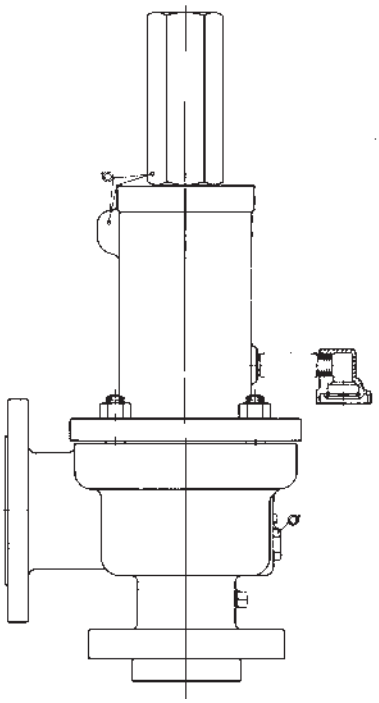
The Farris Remotor air operated depressuring unit is an economical way to rapidly depressurize vessels in the event of an emergency, combining pressure relief and drop out service in one installation.

- Operates by air pressure from remote point.
- Rapidly depressurizes vessels in service to predetermined limit or to zero psig.
- Extra power motor affords one regulated power supply for series of valve installations.
- Rolling diaphragm withstands greater pressures at constant effective area.
- Weatherproof and maintenance free.
- Compact design for easy installation.
- Allows normal use of test lever.



Valve Position Indicators (not shown)

Limit or proximity switch accessories are available. These devices mount on any cap construction and provide a signal locally or to remote locations to indicate the valve has operated. Consult Factory for details.



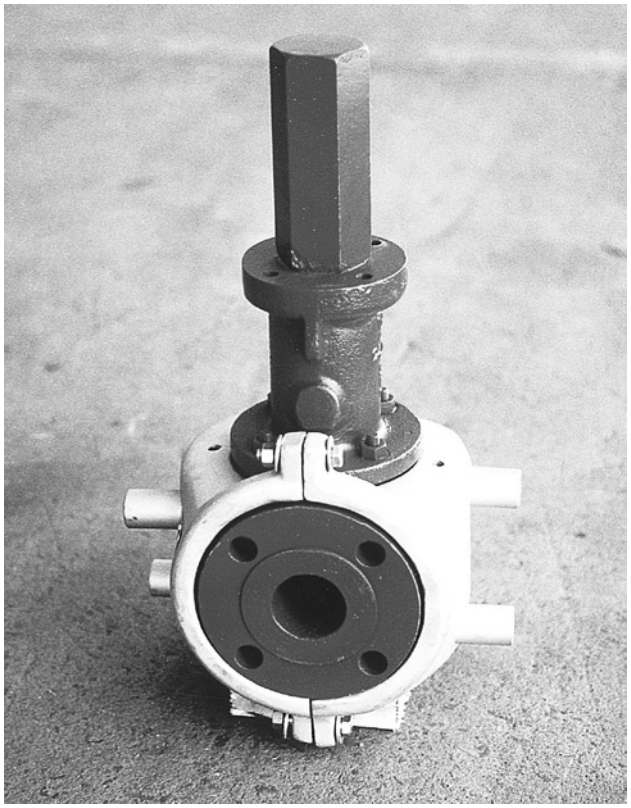
Bugproof Vent

This option is available for use on all BalanSeal bellows designs.

Steam Jacketing

Viscous or heavy residual processes that tend to freeze in relief valve nozzles can create hazardous operating conditions. Jacketing or tracing of adjacent inlet piping and the pipe-away may not be enough to prevent product solidification under the valve seat or even in the valve inlet nozzle. If a pressure surge causes the valve to relieve, some of the solidified material can stick to the seat, preventing the valve from completely re-seating. This usually results in continuous process weepage around the valve seating surface.

The solution is to keep the valve warm enough to prevent build-ups of these high-melting processes.



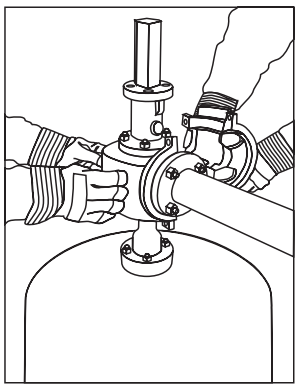
ControHeat Bolt-On Jacket

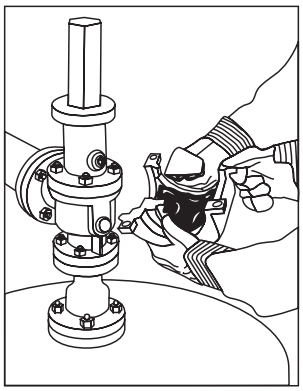
This valve jacket is easy to install and maintain. It covers the valve flange to flange, providing uniform heat to all process wetted surfaces. The jacket consists of two aluminum castings with steel pressure chambers cast into the aluminum. The steel pressure chambers receive the heating fluid (steam, hot water or hot oil) and rapidly transfer the heat through the aluminum to the valve body. The pressure chambers are designed and tested in accordance with ASME BPV Code, Section XIII.

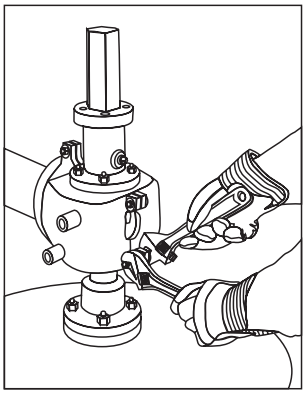
Standard service ratings for the jacket are 150 psig (10 barg) and 500ºF (260ºC). Higher ratings are available for service to 600 psig (40 barg) and 750ºF (400ºC). The jacket may be ordered with adjacent flange coverage.

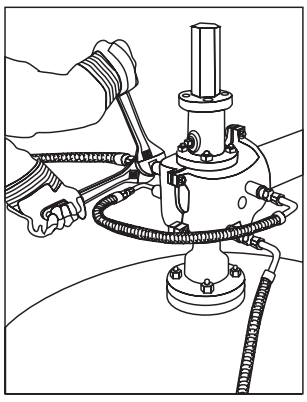
Installation

1. Install the Farris safety relief valve in the line.
2. Verify the fit of the jacket on the valve.
3. Spread heat transfer mastic (HTM) on valve body and surfaces of jacket.
4. Bolt jacket halves onto valve. Clean excess HTM from jacket.
5. Make heating medium connections to jacket.

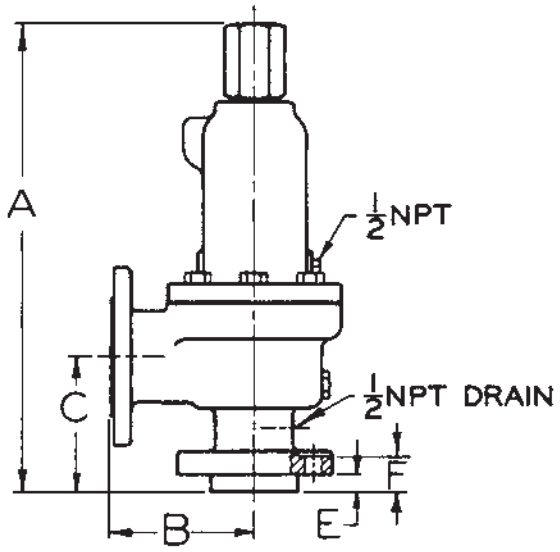








Dimensions & Weights



Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg
Inlet x Outlet	Conventional	A		B	C	E	F		A		B	C	E	F	
		Vapor	Liquid						Vapor	Liquid					
1 x 2	26DA10	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA11	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA12	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA13	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26DA14	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26DA15	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26DA16	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26DA16A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37
1 x 2	26DA20	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA21	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA22	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA23	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26DA24	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26DA25	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26DA26	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26DA26A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37
1 x 2	26DA32	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26DA33	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26DA34	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26DA35	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26DA36	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26DA36A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37
1 x 2	26EA10	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA11	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA12	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA13	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26EA14	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26EA15	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26EA16	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26EA16A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37
1 x 2	26EA20	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA21	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA22	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA23	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26EA24	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26EA25	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26EA26	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26EA26A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37
1 x 2	26EA32	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 x 2	26EA33	19	19	4 1/2	4 1/8	1/2	1 3/16	42	483	483	115	105	13	31	20
1 1/2 x 2	26EA34	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2	26EA35	23 1/2	23 1/2	5 1/2	4 1/8	11/16	1 15/16	50	597	597	140	105	18	50	23
1 1/2 x 2 1/2	26EA36	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26EA36A	23 1/2	23 1/2	7	5 1/2	11/16	2 5/8	80	597	597	178	140	18	67	37

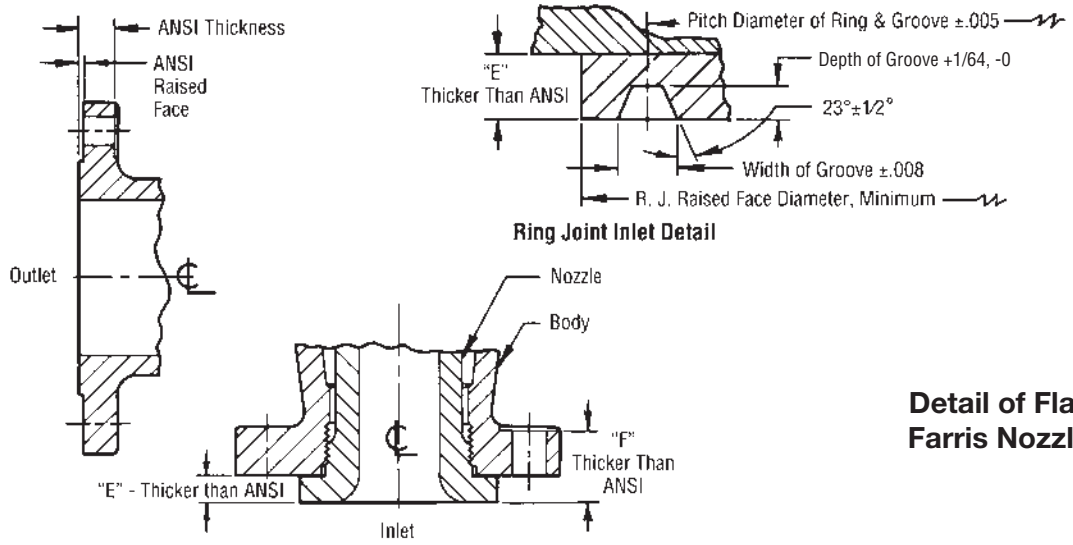
Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg
Inlet x Outlet	Conventional	A		B	C	E	F		A		B	C	E	F	
		Vapor	Liquid						Vapor	Liquid					
1 1/2 x 2	26FA10	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	44	496	496	121	124	18	32	20
1 1/2 x 2	26FA11	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	44	496	496	121	124	18	40	20
1 1/2 x 2	26FA12	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2	26FA13	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26FA14	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA14A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA15	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA15A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA16	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26FA16A	23 1/2	23 1/2	7	5 1/2	11/16	2 7/16	80	597	597	178	140	18	62	37
1 1/2 x 2	26FA20	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	44	496	496	121	124	18	32	20
1 1/2 x 2	26FA21	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	44	496	496	121	124	18	40	20
1 1/2 x 2	26FA22	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2	26FA23	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26FA24	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA24A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA25	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA25A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA26	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26FA26A	23 1/2	23 1/2	7	5 1/2	11/16	2 7/16	80	597	597	178	140	18	62	37
1 1/2 x 2	26FA32	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2	26FA33	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26FA34	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA34A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA35	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26FA35A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
1 1/2 x 2 1/2	26FA36	23 1/2	23 1/2	6 1/2	5 1/2	11/16	2 7/16	80	597	597	166	140	18	62	37
1 1/2 x 3	26FA36A	23 1/2	23 1/2	7	5 1/2	11/16	2 7/16	80	597	597	178	140	18	62	37
1 1/2 x 2 1/2	26GA10	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	50	496	496	121	124	18	32	23
1 1/2 x 3	26GA10A	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	50	496	496	121	124	18	32	23
1 1/2 x 2 1/2	26GA11	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	50	496	496	121	124	18	40	23
1 1/2 x 3	26GA11A	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	50	496	496	121	124	18	40	23
1 1/2 x 2 1/2	26GA12	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 3	26GA12A	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26GA13	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 3	26GA13A	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 2 1/2	26GA14	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26GA14A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
2 x 3	26GA15	24	24	6 3/4	6 1/8	11/16	2 3/16	85	610	610	172	156	18	56	39
2 x 3	26GA16	24	24	6 3/4	6 1/8	11/16	2 11/16	95	610	610	172	156	18	69	44
1 1/2 x 2 1/2	26GA20	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	50	496	496	121	124	18	32	23
1 1/2 x 3	26GA20A	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 1/4	50	496	496	121	124	18	32	23
1 1/2 x 2 1/2	26GA21	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	50	496	496	121	124	18	40	23
1 1/2 x 3	26GA21A	19 1/2	19 1/2	4 3/4	4 7/8	11/16	1 9/16	50	496	496	121	124	18	40	23
1 1/2 x 2 1/2	26GA22	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 3	26GA22A	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26GA23	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 3	26GA23A	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 2 1/2	26GA24	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26GA24A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
2 x 3	26GA25	24	24	6 3/4	6 1/8	11/16	2 3/16	85	610	610	172	156	18	56	39
2 x 3	26GA26	24	24	6 3/4	6 1/8	11/16	2 11/16	95	610	610	172	156	18	69	44
1 1/2 x 2 1/2	26GA32	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 3	26GA32A	23	23	6	4 7/8	11/16	1 9/16	50	585	585	153	124	18	40	23
1 1/2 x 2 1/2	26GA33	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 3	26GA33A	23 1/2	23 1/2	6	4 7/8	11/16	1 9/16	50	597	597	153	124	18	40	23
1 1/2 x 2 1/2	26GA34	23 1/2	23 1/2	6	4 7/8	11/16	1 15/16	70	597	597	153	124	18	50	32
1 1/2 x 3	26GA34A	23 1/2	23 1/2	6 1/2	4 7/8	11/16	1 15/16	70	597	597	166	124	18	50	32
2 x 3	26GA35	24	24	6 3/4	6 1/8	11/16	2 3/16	85	610	610	172	156	18	56	39
2 x 3	26GA36	24	24	6 3/4	6 1/8	11/16	2 11/16	95	610	610	172	156	18	69	44
1 1/2 x 3	26HA10	20	20	4 7/8	5 1/8	11/16	1 1/4	54	508	508	124	131	18	32	25
1 1/2 x 3	26HA11	20	20	4 7/8	5 1/8	11/16	1 1/2	54	508	508	124	131	18	39	25
2 x 3	26HA12	23	23	4 7/8	5 1/8	11/16	1 11/16	70	585	585	124	131	18	43	32
2 x 3	26HA13	24	24	6 3/8	6 1/16	11/16	1 11/16	70	610	610	162	154	18	43	32
2 x 3	26HA14	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39
2 x 3	26HA15	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39

Dimensions & Weights

Size Inlet x Outlet	Type Conventional	U.S. Standard Dimensions (inches) A Vapor	A Liquid	B	C	E	F	Approx. Weight Lbs.	Metric Dimensions (millimeters) A Vapor	A Liquid	B	C	E	F	Approx. Weight kg
1 1/2 x 3	26HA20	20	20	4 7/8	5 1/8	11/16	1 1/4	54	508	508	124	131	18	32	25
1 1/2 x 3	26HA21	20	20	4 7/8	5 1/8	11/16	1 1/2	54	508	508	124	131	18	39	25
2 x 3	26HA22	23	23	4 7/8	5 1/8	11/16	1 11/16	70	585	585	124	131	18	43	32
2 x 3	26HA23	24	24	6 3/8	6 1/16	11/16	1 11/16	70	610	610	162	154	18	43	32
2 x 3	26HA24	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39
2 x 3	26HA25	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39
2 x 3	26HA32	23	23	4 7/8	5 1/8	11/16	1 11/16	70	585	585	124	131	18	43	32
2 x 3	26HA33	23	23	6 3/8	6 1/16	11/16	1 11/16	70	585	585	162	154	18	43	32
2 x 3	26HA34	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39
2 x 3	26HA35	24	24	6 3/8	6 1/16	11/16	2 3/16	85	610	610	162	154	18	56	39
2 x 3	26JA10	23	23	4 7/8	5 3/8	11/16	1 5/16	58	585	585	124	137	18	34	27
2 x 3	26JA11	23	23	4 7/8	5 3/8	11/16	1 11/16	58	585	585	124	137	18	43	27
2 1/2 x 4	26JA12	25	27	5 5/8	5 3/8	11/16	1 13/16	150	635	686	143	137	18	47	69
3 x 4	26JA12A	26	28 1/2	7 1/8	7 1/4	11/16	2 1/8	150	661	724	181	185	18	54	69
2 1/2 x 4	26JA13	27 1/2	34 1/2	6 3/4	6 1/8	11/16	1 13/16	150	699	877	172	156	18	47	69
3 x 4	26JA13A	28 1/2	35 1/2	7 1/8	7 1/4	11/16	2 1/8	150	724	902	181	185	18	54	69
3 x 4	26JA14	36	36	7 1/8	7 1/4	11/16	2 3/16	175	915	915	181	185	18	56	80
3 x 4	26JA15	36	36	7 1/8	7 1/4	11/16	2 9/16	175	915	915	181	185	18	66	80
2 x 3	26JA20	23	23	4 7/8	5 3/8	11/16	1 5/16	58	585	585	124	137	18	34	27
2 x 3	26JA21	23	23	4 7/8	5 3/8	11/16	1 11/16	58	585	585	124	137	18	43	27
2 1/2 x 4	26JA22	25	27	5 5/8	5 3/8	11/16	1 13/16	150	635	686	143	137	18	47	69
3 x 4	26JA22A	26	28 1/2	7 1/8	7 1/4	11/16	2 1/8	150	661	724	181	185	18	54	69
2 1/2 x 4	26JA23	27 1/2	34 1/2	6 3/4	6 1/8	11/16	1 13/16	150	699	877	172	156	18	47	69
3 x 4	26JA23A	28 1/2	35 1/2	7 1/8	7 1/4	11/16	2 1/8	150	724	902	181	185	18	54	69
3 x 4	26JA24	36	36	7 1/8	7 1/4	11/16	2 3/16	175	915	915	181	185	18	56	80
3 x 4	26JA25	36	36	7 1/8	7 1/4	11/16	2 3/16	175	915	915	181	185	18	56	80
2 1/2 x 4	26JA32	25	27	5 5/8	5 3/8	11/16	1 13/16	150	635	686	143	137	18	47	69
3 x 4	26JA32A	26	28 1/2	7 1/8	7 1/4	11/16	2 1/8	150	661	724	181	185	18	54	69
2 1/2 x 4	26JA33	27 1/2	34 1/2	5 5/8	5 3/8	11/16	1 13/16	150	699	877	143	137	18	47	69
3 x 4	26JA33A	28 1/2	35 1/2	7 1/8	7 1/4	11/16	2 1/8	150	724	902	181	185	18	54	69
2 1/2 x 4	26JA34	25	25	6 3/4	6 1/8	11/16	2 5/16	175	635	635	172	156	18	59	80
3 x 4	26JA34A	26	26	7 1/8	7 1/4	11/16	2 3/8	175	661	661	181	185	18	61	80
3 x 4	26JA35	36	36	7 1/4	7 1/8	11/16	2 9/16	175	915	915	185	181	18	66	80
3 x 4	26KA10	26 1/2	28 1/2	6 3/8	6 1/8	11/16	1 1/2	145	674	724	162	156	18	39	66
3 x 4	26KA11	26 1/2	28 1/2	6 3/8	6 1/8	11/16	1 15/16	145	674	724	162	156	18	50	66
3 x 4	26KA12	28 1/2	32	6 3/8	6 1/8	11/16	1 15/16	160	724	813	162	156	18	50	73
3 x 4	26KA13	34	34	7 1/8	7 1/4	11/16	1 15/16	160	864	864	181	185	18	50	73
3 x 6	26KA14	37 1/2	37 1/2	8 1/2	7 13/16	11/16	2 3/16	230	953	953	216	199	18	56	105
3 x 6	26KA15	37 1/2	37 1/2	8 1/2	7 3/4	11/16	2 9/16	230	953	953	216	197	18	66	105
3 x 4	26KA20	26 1/2	28 1/2	6 3/8	6 1/8	11/16	1 1/2	145	674	724	162	156	18	39	66
3 x 4	26KA21	26 1/2	28 1/2	6 3/8	6 1/8	11/16	1 15/16	145	674	724	162	156	18	50	66
3 x 4	26KA22	28 1/2	32	6 3/8	6 1/8	11/16	1 15/16	160	724	813	162	156	18	50	73
3 x 4	26KA23	34	34	7 1/8	7 1/4	11/16	1 15/16	160	864	864	181	185	18	50	73
3 x 6	26KA24	37 1/2	37 1/2	8 1/2	7 13/16	11/16	2 3/16	230	953	953	216	199	18	56	105
3 x 6	26KA25	37 1/2	37 1/2	8 1/2	7 3/4	11/16	2 9/16	230	953	953	216	197	18	66	105
3 x 4	26KA32	28 1/2	32	6 3/8	6 1/8	11/16	1 15/16	160	724	813	162	156	18	50	73
3 x 4	26KA33	28 1/2	28 1/2	6 3/8	6 1/8	11/16	1 15/16	160	724	724	162	156	18	50	73
3 x 4	26KA34	34	34	7 1/8	7 1/4	11/16	2 3/16	230	864	864	181	185	18	56	105
3 x 6	26KA34A	34	34	8 1/2	7 13/16	11/16	2 3/8	175	864	864	216	199	18	61	80
3 x 6	26KA35	37 1/2	37 1/2	8 1/2	7 3/4	11/16	2 9/16	230	953	953	216	197	18	66	105
3 x 4	26LA10	26 1/2	28 1/2	6 1/2	6 1/8	11/16	1 1/2	145	674	724	166	156	18	39	66
3 x 4	26LA11	26 1/2	28 1/2	6 1/2	6 1/8	11/16	1 15/16	145	674	724	166	156	18	50	66
4 x 6	26LA12	37 1/2	37 1/2	7 1/8	7 1/16	11/16	1 15/16	230	953	953	181	180	18	50	105
4 x 6	26LA13	37 1/2	37 1/2	8	7 1/16	11/16	2 3/16	230	953	953	204	180	18	56	105
4 x 6	26LA14	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
3 x 4	26LA20	26 1/2	28 1/2	6 1/2	6 1/8	11/16	1 1/2	145	674	724	166	156	18	39	66
3 x 4	26LA21	26 1/2	28 1/2	6 1/2	6 1/8	11/16	1 15/16	145	674	724	166	156	18	50	66
4 x 6	26LA22	37 1/2	37 1/2	7 1/8	7 1/16	11/16	1 15/16	230	953	953	181	180	18	50	105
4 x 6	26LA23	37 1/2	37 1/2	8	7 1/16	11/16	2 3/16	230	953	953	204	180	18	56	105
4 x 6	26LA24	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26LA25	43	43	8 3/4	7 3/4	11/16	2 13/16	250	1093	1093	223	197	18	72	114
4 x 6	26LA32	37 1/2	37 1/2	7 1/8	7 1/16	11/16	1 15/16	230	953	953	181	180	18	50	105
4 x 6	26LA33	37 1/2	37 1/2	8	7 1/16	11/16	2 3/16	230	953	953	204	180	18	56	105
4 x 6	26LA34	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26LA35	43	43	8 3/4	7 3/4	11/16	2 13/16	250	1093	1093	223	197	18	72	114

Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight	Metric Dimensions (millimeters)						Approx. Weight
Inlet x Outlet	Conventional	A		B	C	E	F	Lbs.	A		B	C	E	F	kg
		Vapor	Liquid						Vapor	Liquid					
4 x 6	26MA10	31 1/2	37 1/2	7 1/4	7	11/16	1 5/8	190	801	953	185	178	18	42	87
4 x 6	26MA11	31 1/2	37 1/2	7 1/4	7	11/16	1 15/16	190	801	953	185	178	18	50	87
4 x 6	26MA12	37 1/2	37 1/2	7 1/4	7	11/16	1 15/16	230	953	953	185	178	18	50	105
4 x 6	26MA13	43	43	8	7	11/16	2 3/16	250	1093	1093	204	178	18	56	114
4 x 6	26MA20	31 1/2	37 1/2	7 1/4	7	11/16	1 5/8	190	801	953	185	178	18	42	87
4 x 6	26MA21	31 1/2	37 1/2	7 1/4	7	11/16	1 15/16	190	801	953	185	178	18	50	87
4 x 6	26MA22	37 1/2	37 1/2	7 1/4	7	11/16	1 15/16	230	953	953	185	178	18	50	105
4 x 6	26MA23	43	43	8	7	11/16	2 3/16	250	1093	1093	204	178	18	56	114
4 x 6	26MA24	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26MA32	37 1/2	37 1/2	7 1/4	7	11/16	1 15/16	230	953	953	185	178	18	50	105
4 x 6	26MA33	37 1/2	37 1/2	8	7	11/16	2 3/16	250	953	953	204	178	18	56	114
4 x 6	26MA34	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26NA10	31 1/2	37 1/2	8 1/4	7 3/4	11/16	1 5/8	190	801	953	210	197	18	42	87
4 x 6	26NA11	31 1/2	37 1/2	8 1/4	7 3/4	11/16	1 15/16	190	801	953	210	197	18	50	87
4 x 6	26NA12	37 1/2	37 1/2	8 1/4	7 3/4	11/16	1 15/16	230	953	953	210	197	18	50	105
4 x 6	26NA13	43	43	8 3/4	7 3/4	11/16	2 3/16	250	1093	1093	223	197	18	56	114
4 x 6	26NA14	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26NA20	31 1/2	37 1/2	8 1/4	7 3/4	11/16	1 5/8	190	801	953	210	197	18	42	87
4 x 6	26NA21	31 1/2	37 1/2	8 1/4	7 3/4	11/16	1 15/16	190	801	953	210	197	18	50	87
4 x 6	26NA22	37 1/2	37 1/2	8 1/4	7 3/4	11/16	1 15/16	230	953	953	210	197	18	50	105
4 x 6	26NA23	43	43	8 3/4	7 3/4	11/16	2 15/16	250	1093	1093	223	197	18	75	114
4 x 6	26NA24	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26NA32	37 1/2	37 1/2	8 1/4	7 3/4	11/16	1 15/16	230	953	953	210	197	18	50	105
4 x 6	26NA33	37 1/2	43	8 3/4	7 3/4	11/16	2 3/16	250	953	1093	223	197	18	56	114
4 x 6	26NA34	43	43	8 3/4	7 3/4	11/16	2 7/16	250	1093	1093	223	197	18	62	114
4 x 6	26PA10	31 1/2	37 1/2	9	7 1/8	11/16	1 5/8	190	801	953	229	181	18	42	87
4 x 6	26PA11	31 1/2	37 1/2	9	7 1/8	11/16	1 15/16	190	801	953	229	181	18	50	87
4 x 6	26PA12	37 1/2	37 1/2	10	8 7/8	11/16	2 3/16	230	953	953	254	226	18	56	105
4 x 6	26PA13	43	43	10	8 7/8	11/16	2 3/16	250	1093	1093	254	226	18	56	114
4 x 6	26PA14	43	43	10	8 7/8	11/16	2 7/16	250	1093	1093	254	226	18	62	114
4 x 6	26PA20	31 1/2	37 1/2	9	7 1/8	11/16	1 5/8	190	801	953	229	181	18	42	87
4 x 6	26PA21	31 1/2	37 1/2	9	7 1/8	11/16	1 15/16	190	801	953	229	181	18	50	87
4 x 6	26PA22	37 1/2	37 1/2	10	8 7/8	11/16	2 3/16	230	953	953	254	226	18	56	105
4 x 6	26PA23	43	43	10	8 7/8	11/16	2 3/16	250	1093	1093	254	226	18	56	114
4 x 6	26PA24	43	43	10	8 7/8	11/16	2 7/16	250	1093	1093	254	226	18	62	114
4 x 6	26PA32	37 1/2	37 1/2	10	8 7/8	11/16	2 3/16	230	953	953	254	226	18	56	105
4 x 6	26PA33	43	43	10	8 7/8	11/16	2 3/16	250	1093	1093	254	226	18	56	114
4 x 6	26PA34	43	43	10	8 7/8	11/16	2 7/16	250	1093	1093	254	226	18	62	114
6 x 8	26QA10	40 1/2	51	9 1/2	9 7/16	13/16	1 7/8	345	1029	1296	242	240	21	48	157
6 x 8	26QA11	40 1/2	51	9 1/2	9 7/16	13/16	2 1/4	345	1029	1296	242	240	21	58	157
6 x 8	26QA12	45	51	9 1/2	9 7/16	13/16	2 1/4	430	1143	1296	242	240	21	58	196
6 x 8	26QA13	51	51	9 1/2	9 7/16	13/16	2 11/16	430	1296	1296	242	240	21	69	196
6 x 8	26QA20	40 1/2	51	9 1/2	9 7/16	13/16	1 7/8	345	1029	1296	242	240	21	48	157
6 x 8	26QA21	40 1/2	51	9 1/2	9 7/16	13/16	2 1/4	345	1029	1296	242	240	21	58	157
6 x 8	26QA22	45	51	9 1/2	9 7/16	13/16	2 1/4	430	1143	1296	242	240	21	58	196
6 x 8	26QA23	51	51	9 1/2	9 7/16	13/16	2 11/16	430	1296	1296	242	240	21	69	196
6 x 8	26QA32	45	51	9 1/2	9 7/16	13/16	2 1/4	430	1143	1296	242	240	21	58	196
6 x 8	26QA33	51	51	9 1/2	9 7/16	13/16	2 11/16	430	1296	1296	242	240	21	69	196
6 x 8	H26QA13, 23, 33	51	51	9 1/2	9 7/16	13/16	2 11/16	530	1296	1296	242	240	21	69	241
6 x 8	26RA10	40 1/2	51	9 1/2	9 7/16	13/16	1 7/8	345	1029	1296	242	240	21	48	157
6 x 8	26RA11	40 1/2	51	9 1/2	9 7/16	13/16	2 1/4	345	1029	1296	242	240	21	58	157
6 x 10	26RA12	45	51	10 1/2	9 7/16	13/16	2 1/4	500	1143	1296	267	240	21	58	227
6 x 10	26RA13	51	51	10 1/2	9 7/16	13/16	2 11/16	500	1296	1296	267	240	21	69	227
6 x 8	26RA20	40 1/2	51	9 1/2	9 7/16	13/16	1 7/8	345	1029	1296	242	240	21	48	157
6 x 8	26RA21	40 1/2	51	9 1/2	9 7/16	13/16	2 1/4	345	1029	1296	242	240	21	58	157
6 x 10	26RA22	45	51	10 1/2	9 7/16	13/16	2 1/4	500	1143	1296	267	240	21	58	227
6 x 10	26RA23	51	51	10 1/2	9 7/16	13/16	2 11/16	500	1296	1296	267	240	21	69	227
6 x 8	26RA32	45	51	9 1/2	9 7/16	13/16	2 1/4	430	1143	1296	242	240	21	58	196
6 x 10	26RA33	51	51	10 1/2	9 7/16	13/16	2 11/16	500	1296	1296	267	240	21	69	227
6 x 10	H26RA13, 23, 33	51	51	10 1/2	9 7/16	13/16	2 11/16	600	1296	1296	267	240	21	69	273
8 x 10	26TA10	49	54 1/2	11	10 7/8	13/16	2 7/16	600	1245	1385	280	277	21	62	273
8 x 10	26TA11	49	54 1/2	11	10 7/8	13/16	2 7/16	650	1245	1385	280	277	21	62	295
8 x 10	26TA12	49	54 1/2	11	10 7/8	13/16	2 7/16	650	1245	1385	280	277	21	62	295
8 x 10	26TA20	49	54 1/2	11	10 7/8	13/16	2 7/16	600	1245	1385	280	277	21	62	273
8 x 10	26TA21	49	54 1/2	11	10 7/8	13/16	2 7/16	650	1245	1385	280	277	21	62	295
8 x 10	26TA22	49	54 1/2	11	10 7/8	13/16	2 7/16	650	1245	1385	280	277	21	62	295
8 x 10	26TA32	49	54 1/2	11	10 7/8	13/16	2 7/16	650	1245	1385	280	277	21	62	295
8 x 10	H26TA12, 22, 32	54 1/2	54 1/2	11	10 7/8	13/16	2 7/16	750	1385	1385	280	277	21	62	341

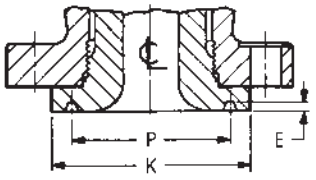
ANSI Flange Details



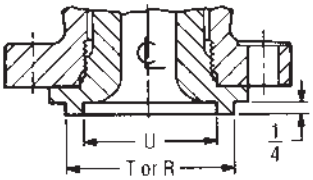
Ring Joint Inlet Detail

Detail of Flanges on Farris Nozzle Valves

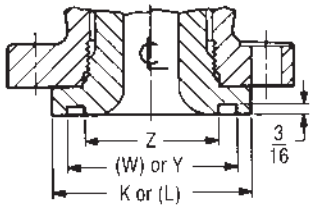
Full Nozzle Inlet Facings (Reference ANSI B16.5)



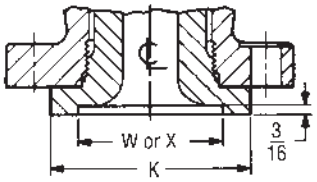
Ring Joint - 9 ( ) ( )



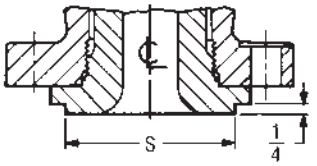
Large Tongue - 5 ( ) ( )
Small Tongue - 7 ( ) ( )



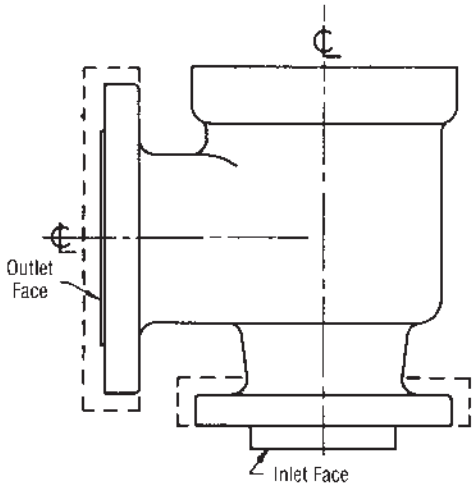
Large Groove - 6 ( ) ( )
Small Groove - 8 ( ) ( )



Large Female - 2 ( ) ( )
Small Female - 4 ( ) ( )



Small Male - 3 ( ) ( )



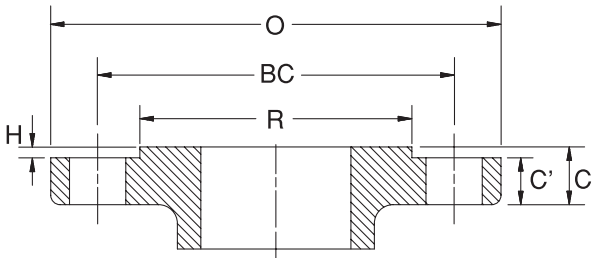
Steel flanges conform to ANSI Standard B16.5.

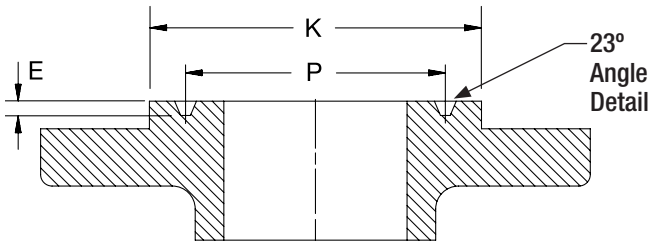
Full Nozzle Valve Flange Changes Altering Center-to-Face Dimensions

1. **Ring Joint Inlet** face and other facings have the same dimension from center line of outlet to face of inlet flange as the raised face inlet flange.
2. **Ring Joint Outlet** face and other facings increase the dimensions from center line of inlet to face of outlet flange by the difference in ANSI total flange thickness.
3. **Heavier Than Standard Outlet** flanges increase the dimension from center line of inlet to face of outlet flange by the difference in ANSI total flange thickness.
4. **Heavier Than Standard Inlet** flanges have the same dimension from center line of outlet to face of inlet flange as the standard inlet flanges.

Note: Optional connections shown may not be available in all sizes. Consult the Factory.

ANSI Flange Dimensions



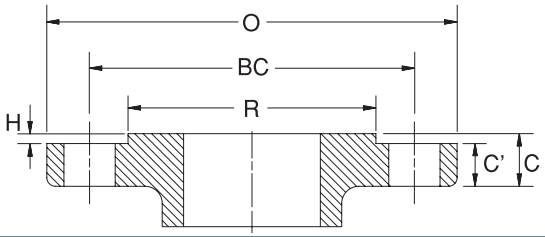


Class	Dimensions of ANSI Flange Facings (inches)								Dimensions of Ring Joint Facings (inches)				
	Size	OD of Flange O	Min. Thickness of Flange C or C[9]	Dia. of Bolt Circle BC	Dia. of Bolt Holes	Number of Bolts	Dia. of Bolts	Dia. of Raised Face R	Dia. of Raised Face K	Pitch Dia. P	Depth of Groove E	Width of Groove	Ring Number
CLASS 150 FLANGES	1	4.25	0.56	3.12	0.62	4	1/2	2.00	2.50	1.875	0.250	0.344	R15
	1½	5.00	0.69	3.88				2.88	3.25	2.562			R19
	2	6.00	0.75	4.75	0.75		5/8	3.62	4.00	3.250			R22
	2½	7.00	0.88	5.50				4.12	4.75	4.000			R25
	3	7.50	0.94	6.00				5.00	5.25	4.500			R29
	4	9.00		7.50		8		6.19	6.75	5.875			R36
	6	11.00	1.00	9.50	0.88		3/4	8.50	8.62	7.625			R43
	8	13.50	1.12	11.75				10.62	10.75	9.750			R48
	10	16.00	1.19	14.25	1.00	12	7/8	12.75	13.00	12.000			R52
CLASS 300 FLANGES	1	4.88	0.69	3.50	0.75	4	5/8	2.00	Use Class 600 dimensions in these sizes				
	1½	6.12	0.81	4.50	0.88		3/4	2.88					
	2	6.50	0.88	5.00	0.75	8	5/8	3.62					
	2½	7.50	1.00	5.88	0.88		3/4	4.12					
	3	8.25	1.12	6.62				5.00					
	4	10.00	1.25	7.88				6.19					
	6	12.50	1.44	10.62		12		8.50					
	8	15.00	1.62	13.00	1.00		7/8	10.62					
	10	17.50	1.88	15.25	1.12	16	1	12.75					
CLASS 600 FLANGES	1	4.88	0.69	3.50	0.75	4	5/8	2.00	2.75	2.000	0.250	0.344	R16
	1½	6.12	0.88	4.50	0.88		3/4	2.88	3.56	2.688			R20
	2	6.50	1.00	5.00	0.75	8	5/8	3.62	4.25	3.250	0.312	0.469	R23
	2½	7.50	1.12	5.88	0.88		3/4	4.12	5.00	4.000			R26
	3	8.25	1.25	6.62				5.00	5.75	4.875			R31
	4	10.75	1.50	8.50	1.00		7/8	6.19	6.88	5.875			R37
	6	14.00	1.88	11.50	1.12	12	1	8.50	9.50	8.312			R45
	8	16.50	2.19	13.75	1.25		1-1/8	10.62	11.88	10.625			R49
	10	20.00	2.50	17.00	1.38	16	1-1/4	12.75	14.00	12.750			R53
CLASS 900 FLANGES	1	Use Class 1500 dimensions in these sizes											
	1½												
	2												
	2½												
	3	9.50	1.50	7.50	1.00	8	7/8	5.00	6.12	4.875	0.312	0.469	R31
	4	11.50	1.75	9.25	1.25		1-1/8	6.19	7.12	5.875			R37
	6	15.00	2.19	12.50		12		8.50	9.50	8.312			R45
CLASS 1500 FLANGES	1	5.88	1.12	4.00	1.00	4	7/8	2.00	2.81	2.000	0.250	0.344	R16
	1½	7.00	1.25	4.88	1.12		1	2.88	3.62	2.688			R20
	2	8.50	1.50	6.50	1.00	8	7/8	3.62	4.88	3.750	0.312	0.469	R24
	2½	9.62	1.62	7.50	1.12		1	4.12	5.38	4.250			R27
	3	10.50	1.88	8.00	1.25		1-1/8	5.00	6.62	5.375			R35
	4	12.25	2.12	9.50	1.38		1-1/4	6.19	7.62	6.375			R39
	6	15.50	3.25	12.50	1.50	12	1-3/8	8.50	9.75	8.312	0.375	0.531	R46
CLASS 2500 FLANGES	1	6.25	1.38	4.25	1.00	4	7/8	2.00	3.25	2.375	0.250	0.344	R18
	1½	8.00	1.75	5.75	1.25		1-1/8	2.88	4.50	3.250	0.312	0.469	R23
	2	9.25	2.00	6.75	1.12	8	1	3.62	5.25	4.000			R26
	2½	10.50	2.25	7.75	1.25		1-1/8	4.12	5.88	4.375	0.375	0.531	R28
	3	12.00	2.62	9.00	1.38		1-1/4	5.00	6.62	5.000			R32

General Notes:

1. Feature C' applies to flange class 600 and above, class 150 and 300 use C.
2. Feature H equals 0.06 inches for class 150 and 300 flanges; 0.25 inches for class 600 and above.
3. Dimensions taken from ASME/ANSI B16.5.

DIN Flange Dimensions



Class	Size (DN)	Dimensions of DIN Flange Facings (millimeters)							
		Flange			Raised Face		Bolts		
		OD of Flange D	Min. Thickness of Flange b	Dia. of Bolt Circle k	Dia. of Raised Face d_4	Raised Face Height f	Number of Bolts	Thread	Dia. of Bolt Holes d_2
NOMINAL PRESSURE 10	25	Use nominal pressure 16 dimensions for these sizes							
	40								
	50								
	65								
	80								
	100								
	150								
	200	340	24	295	268	3	8	M 20	22
	250	395	26	350	320		12		
NOMINAL PRESSURE 16	25	Use nominal pressure 40 dimensions for these sizes							
	40								
	50								
	65	185	18	145	122	3	4	M 16	18
	80	200	20	160	138		8		
	100	220	20	180	158				
	150	285	22	240	212			M 20	22
	200	340	24	295	268		12		
	250	405	26	355	320			M 24	26
NOMINAL PRESSURE 25	25	Use nominal pressure 40 dimensions for these sizes							
	40								
	50								
	65								
	80								
	100								
	150								
	200	350	30	310	278	3	12	M 24	26
	250	425	32	370	335			M 27	30
NOMINAL PRESSURE 40	25	115	18	85	68	2	4	M 12	14
	40	150	18	110	88	3		M 16	18
	50	165	20	125	102				
	65	185	22	145	122		8		
	80	200	24	160	138				
	100	235	24	190	162			M 20	22
	150	300	28	250	218			M 24	26
	200	375	34	320	285		12	M 27	30
	250	450	38	385	345			M 30	33
NOMINAL PRESSURE 64	25	Use nominal pressure 160 dimensions for these sizes							
	40								
	50	180	26	135	102	3	4	M 20	22
	65	205	26	160	122		8		
	80	215	28	170	138				
	100	250	30	200	162			M 24	26
	150	345	36	280	218			M 30	33
NOMINAL PRESSURE 100	25	Use nominal pressure 160 dimensions for these sizes							
	40								
	50								
	65								
	80								
	100								
	150	355	44	290	218	3	12	M 30	33
NOMINAL PRESSURE 160	25	140	24	100	68	2	4	M 16	18
	40	170	28	125	88	3		M 20	22
	50	195	30	145	102			M 24	26
	65	220	34	170	122		8		
	80	230	36	180	138				
	100	265	40	210	162			M 27	30
	150	355	50	290	218		12	M 30	33

Austenitic Stainless Steel: ASME SA-351 Grade CF8M[1]

Orifice Letter	Valve Size	ANSI Flange Class		Maximum Pressure (psig)						
				Temperature Range					Outlet Pressure Limit[6]	
	Inlet by Orifice by Outlet	Inlet	Outlet	-450°F to -76°F	-75°F to 100°F	450°F	800°F	1000°F	Conventional Valves	Bellows Valves
D	1D2	150	150	275	275	180	80	20	275	230
	1D2 [2]	300	150	275	275	275	275	275	275	230
	1D2	300	150	720	720	495	420	350	275	230
	1D2	600	150	1440	1440	990	845	700	275	230
	1½D2	900	300	2160	2160	1485	1265	1050	600	500
	1½D2	1500	300	3600	3600	2480	2110	1750	600	500
	1½D3	2500	300	4000	6000	4130	3520	2915	720	500
E	1E2	150	150	275	275	180	80	20	275	230
	1E2 [2]	300	150	275	275	275	275	275	275	230
	1E2	300	150	720	720	495	420	350	275	230
	1E2	600	150	1440	1440	975	845	700	275	230
	1½E2	900	300	2160	2160	1485	1265	1050	600	500
	1½E2	1500	300	3600	3600	2480	2110	1750	600	500
	1½E3	2500	300	4000	6000	4130	3520	2915	720	500
F	1½F2	150	150	275	275	180	80	20	275	230
	1½F2 [2]	300	150	275	275	275	275	275	275	230
	1½F2	300	150	720	720	495	420	350	275	230
	1½F2	600	150	1440	1440	975	845	700	275	230
	1½F3	900	300	2160	2160	1485	1265	1050	600	500
	1½F3	1500	300	2200	3600	2480	2110	1750	600	500
	1½F3	2500	300	3400	5000	4130	3520	2915	720	500
G	1½G3	150	150	275	275	180	80	20	275	230
	1½G3 [2]	300	150	275	275	275	275	275	275	230
	1½G3	300	150	720	720	495	420	350	275	230
	1½G3	600	150	1440	1440	975	845	700	275	230
	1½G3	900	300	2160	2160	1485	1265	1050	600	470
	2G3	1500	300	2450	3600	2480	2110	1750	600	470
	2G3	2500	300	2600	3600	3600	3520	2915	720	470
H	1½H3	150	150	275	275	180	80	20	275	230
	1½H3 [2]	300	150	275	275	275	275	275	275	230
	2H3	300	150	720	720	495	420	350	275	230
	2H3	600	150	1440	1440	975	845	700	275	230
	2H3	900	150	1485	2160	1485	1265	1050	275	230
	2H3	1500	300	1600	2750	2480	2110	1750	600	415
J	2J3	150	150	275	275	180	80	20	275	230
	2J3 [2]	300	150	275	275	275	275	275	275	230
	3J4	300	150	500	720	495	420	350	275	230
	3J4	600	150	625	1440	975	845	700	275	230
	3J4	900	150	800	2160	1485	1265	1050	275	230
	3J4	1500	300	800	2700	2480	2110	1750	600	230

General Notes:

1. Material limited to 1500°F.
2. Pressure less than rating for 300# class flange to designate maximum pressure limit when used on Farris 300# lightweight design valves.
3. High pressure version
4. Material commonly designated as 316 Stainless Steel.
5. Pressures shown represent values shown in API Standard 526 and/or ASME B16.34.
6. Outlet pressure limits based on temperature of 100°F.

Austenitic Stainless Steel: ASME SA-351 Grade CF8M[1] (continued)

Orifice Letter	Valve Size	ANSI Flange Class		Maximum Pressure (psig)						
				Temperature Range					Outlet Pressure Limit[6]	
	Inlet by Orifice by Outlet	Inlet	Outlet	-450°F to -76°F	-75°F to 100°F	450°F	800°F	1000°F	Conventional Valves	Bellows Valves
K	3K4	150	150	275	275	180	80	20	275	150
	3K4 [2]	300	150	275	275	275	275	275	275	150
	3K4	300	150	525	720	495	420	350	275	150
	3K4	600	150	600	1440	975	845	700	275	200
	3K6	900	150	600	2160	1485	1265	1050	275	200
	3K6	1500	300	750	2220	2220	2110	1750	600	200
L	3L4	150	150	275	275	180	80	20	275	100
	3L4 [2]	300	150	275	275	275	275	275	275	100
	4L6	300	150	535	720	495	420	350	275	170
	4L6	600	150	535	1000	975	845	700	275	170
	4L6	900	150	700	1500	1485	1265	1050	275	170
	4L6	1500	150	700	1500	1500	1500	1500	275	170
M	4M6	150	150	275	275	180	80	20	275	80
	4M6 [2]	300	150	275	275	275	275	275	275	80
	4M6	300	150	525	720	495	420	350	275	160
	4M6	600	150	600	1000	975	845	700	275	160
	4M6	900	150	600	1100	1100	1100	1050	275	160
N	4N6	150	150	275	275	180	80	20	275	80
	4N6 [2]	300	150	275	275	275	275	275	275	80
	4N6	300	150	450	720	495	420	350	275	160
	4N6	600	150	500	1000	975	845	700	275	160
	4N6	900	150	500	1000	1000	1000	1000	275	160
P	4P6	150	150	175	275	180	80	20	275	80
	4P6 [2]	300	150	175	275	275	275	275	275	80
	4P6	300	150	300	525	495	420	350	275	150
	4P6	600	150	480	1000	975	845	700	275	150
	4P6	900	150	480	1000	1000	1000	1000	275	150
Q	6Q8	150	150	165	165	165	80	20	115	70
	6Q8 [2]	300	150	165	165	165	165	165	115	70
	6Q8	300	150	250	300	300	300	300	115	115
	6Q8	600	150	300	600	600	600	600	115	115
	6Q8 [3]	600	150	300	900	900	845	700	275	200
R	6R8	150	150	55	100	100	80	20	60	60
	6R8 [2]	300	150	55	100	100	100	100	60	60
	6R10	300	150	150	230	230	230	230	100	100
	6R10	600	150	200	300	300	300	300	100	100
	6R10 [3]	600	150	200	600	600	600	600	275	200
T	8T10	150	150	50	65	65	65	20	30	30
	8T10 [2]	300	150	50	65	65	65	65	30	30
	8T10	300	150	65	120	120	120	120	60	60
	8T10 [3]	300	150	65	300	300	300	300	100	100

General Notes:

1. Material limited to 1500°F.
2. Pressure less than rating for 300# class flange to designate maximum pressure limit when used on Farris 300# lightweight design valves.
3. High pressure version
4. Material commonly designated as 316 Stainless Steel.
5. Pressures shown represent values shown in API Standard 526 and/or ASME B16.34.
6. Outlet pressure limits based on temperature of 100°F.

Nickel/Copper Alloy: ASME SA-494 Grade CW-12MW[1]

Orifice Letter	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				
				Temperature Range			Outlet Pressure Limit[6]	
	Inlet by Orifice by Outlet	Inlet	Outlet	-20°F to 100°F	450°F	800°F	Conventional Valves	Bellows Valves
D	1D2	150	150	230	177	80	230	230
	1D2[2]	300	150	230	230	230	230	230
	1D2	300	150	600	467	410	230	230
	1D2	600	150	1200	935	815	230	230
	1½D2	900	300	1800	1405	1225	600	500
	1½D2	1500	300	3000	2340	2040	600	500
	1½D3	2500	300	5000	3900	3400	600	500
E	1E2	150	150	230	177	80	230	230
	1E2[2]	300	150	230	230	230	230	230
	1E2	300	150	600	467	410	230	230
	1E2	600	150	1200	935	815	230	230
	1½E2	900	300	1800	1405	1225	600	500
	1½E2	1500	300	3000	2340	2040	600	500
	1½E3	2500	300	5000	3900	3400	600	500
F	1½F2	150	150	230	177	80	230	230
	1½F2[2]	300	150	230	230	230	230	230
	1½F2	300	150	600	467	410	230	230
	1½F2	600	150	1200	935	815	230	230
	1½F3	900	300	1800	1405	1225	600	500
	1½F3	1500	300	3000	2340	2040	600	500
	1½F3	2500	300	5000	3900	3400	600	500
G	1½G3	150	150	230	177	80	230	230
	1½G3[2]	300	150	230	230	230	230	230
	1½G3	300	150	600	467	410	230	230
	1½G3	600	150	1200	935	815	230	230
	1½G3	900	300	1800	1405	1225	600	470
	2G3	1500	300	3000	2340	2040	600	470
	2G3	2500	300	3705	3705	3400	600	470
H	1½H3	150	150	230	177	80	230	230
	1½H3[2]	300	150	230	230	230	230	230
	2H3	300	150	600	467	410	230	230
	2H3	600	150	1200	935	815	230	230
	2H3	900	150	1800	1405	1225	230	230
	2H3	1500	300	2750	2750	2040	600	415
J	2J3	150	150	230	177	80	230	230
	2J3[2]	300	150	230	230	230	230	230
	3J4	300	150	600	467	410	230	230
	3J4	600	150	1200	935	815	230	230
	3J4	900	150	1800	1405	1225	230	230
	3J4	1500	300	2700	2700	2040	600	230

General Notes:

1. Valve limited to 800°F.
2. Pressure less than rating for 300# class flange to designate maximum pressure limit when used on Farris 300# lightweight design valves.
3. High pressure version.
4. Material commonly sold under the trade name of Hastelloy C ™.
5. Pressures shown represent the carbon steel valve limits or Hasterlloy C flange limit (per ASME B16.34), whichever is lower.
6. Outlet pressure limits based on temperature of 100°F.

Nickel/Copper Alloy: ASME SA-494 Grade CW-12MW[1] (continued)

Orifice Letter	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				
				Temperature Range			Outlet Pressure Limit[6]	
	Inlet by Orifice by Outlet	Inlet	Outlet	-20°F to 100°F	450°F	800°F	Conventional Valves	Bellows Valves
K	3K4	150	150	230	177	80	230	150
	3K4[2]	300	150	230	230	230	230	150
	3K4	300	150	600	467	410	230	150
	3K4	600	150	1200	935	815	230	200
	3K6	900	150	1800	1405	1225	230	200
	3K6	1500	300	2220	2220	2040	600	200
L	3L4	150	150	230	177	80	230	100
	3L4[2]	300	150	230	230	230	230	100
	4L6	300	150	600	467	410	230	170
	4L6	600	150	1000	935	815	230	170
	4L6	900	150	1500	1405	1225	230	170
	4L6	1500	150	1500	1500	1500	230	170
M	4M6	150	150	230	177	80	230	80
	4M6[2]	300	150	230	230	230	230	80
	4M6	300	150	600	467	410	230	160
	4M6	600	150	1100	935	815	230	160
	4M6	900	150	1100	1100	1100	230	160
N	4N6	150	150	230	177	80	230	80
	4N6[2]	300	150	230	230	230	230	80
	4N6	300	150	600	467	410	230	160
	4N6	600	150	1000	935	815	230	160
	4N6	900	150	1000	1000	1000	230	160
P	4P6	150	150	230	177	80	230	80
	4P6[2]	300	150	230	230	230	230	80
	4P6	300	150	525	467	410	230	150
	4P6	600	150	1000	935	815	230	150
	4P6	900	150	1000	1000	1000	230	150
Q	6Q8	150	150	165	165	80	115	70
	6Q8[2]	300	150	165	165	165	115	70
	6Q8	300	150	300	300	300	115	115
	6Q8	600	150	600	600	600	115	115
	6Q8[3]	600	150	900	900	815	230	200
R	6R8	150	150	100	100	80	60	60
	6R8[2]	300	150	100	100	100	60	60
	6R10	300	150	230	230	230	100	100
	6R10	600	150	300	300	300	100	100
	6R10[3]	600	150	600	600	600	230	200
T	8T10	150	150	65	65	65	30	30
	8T10[2]	300	150	65	65	65	30	30
	8T10	300	150	120	120	120	60	60
	8T10[3]	300	150	300	300	300	100	100

General Notes:

1. Valve limited to 800°F.
2. Pressure less than rating for 300# class flange to designate maximum pressure limit when used on Farris 300# lightweight design valves.
3. High pressure version.
4. Material commonly sold under the trade name of Hastelloy C ™.
5. Pressures shown represent the carbon steel valve limits or Hasterlloy C flange limit (per ASME B16.34), whichever is lower.
6. Outlet pressure limits based on temperature of 100°F.

Nickel / Copper Alloy: ASME SA-494 Grade M35 [1]

Orifice Letter	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				
				Temperature Range			Outlet Pressure Limit [5]	
	Inlet by Orifice by Outlet	Inlet	Outlet	-20°F to 100°F	101°F to 450°F	451°F to 600°F	Conventional Valves	Bellows Valves
D	1D2	150	150	140	140	140	140	140
	1D2 [2]	300	150	140	140	140	140	140
	1D2	300	150	360	360	360	140	140
	1D2	600	150	720	720	720	140	140
E	1E2	150	150	140	140	140	140	140
	1E2 [2]	300	150	140	140	140	140	140
	1E2	300	150	360	360	360	140	140
	1E2	600	150	720	720	720	140	140
F	1½F2	150	150	140	140	140	140	140
	1½F2 [2]	300	150	140	140	140	140	140
	1½F2	300	150	360	360	360	140	140
	1½F2	600	150	720	720	720	140	140
G	1½G3	150	150	140	140	140	140	140
	1½G3 [2]	300	150	140	140	140	140	140
	1½G3	300	150	360	360	360	140	140
	1½G3	600	150	720	720	720	140	140
H	1½H3	150	150	140	140	140	140	140
	1½H3 [2]	300	150	140	140	140	140	140
	2H3	300	150	360	360	360	140	140
	2H3	600	150	720	720	720	140	140
J	2J3	150	150	140	140	140	140	140
	2J3 [2]	300	150	140	140	140	140	140
	3J4	300	150	360	360	360	140	140
	3J4	600	150	720	720	720	140	140
K	3K4	150	150	140	140	140	140	140
	3K4 [2]	300	150	140	140	140	140	140
	3K4	300	150	360	360	360	140	140
	3K4	600	150	720	720	720	140	140
L	3L4	150	150	140	140	140	140	100
	3L4 [2]	300	150	140	140	140	140	100
	4L6	300	150	360	360	360	140	120
	4L6	600	150	720	720	720	140	120
M	4M6	150	150	140	140	140	140	80
	4M6 [2]	300	150	140	140	140	140	80
	4M6	300	150	360	360	360	140	140
	4M6	600	150	720	720	720	140	140
N	4N6	150	150	140	140	140	140	80
	4N6 [2]	300	150	140	140	140	140	80
	4N6	300	150	360	360	360	140	140
	4N6	600	150	720	720	720	140	140
P	4P6	150	150	140	140	140	140	80
	4P6 [2]	300	150	140	140	140	140	80
	4P6	300	150	360	360	360	140	140
	4P6	600	150	720	720	720	140	140
Q	6Q8	150	150	140	140	140	115	70
	6Q8 [2]	300	150	140	140	140	115	70
	6Q8	300	150	300	300	300	115	115
	6Q8	600	150	600	600	600	115	115
R	6R8	150	150	100	100	100	60	60
	6R8 [2]	300	150	100	100	100	60	60
	6R10	300	150	230	230	230	100	100
	6R10	600	150	300	300	300	100	100
T	8T10	150	150	65	65	65	30	30
	8T10 [2]	300	150	65	65	65	30	30
	8T10	300	150	120	120	120	60	60

General Notes:

1. Valve material limited to 600°F.
2. Pressure less than rating for 300# class flange to designate maximum pressure limit when used on Farris 300# lightweight design valves.
3. Material commonly sold under the trade name of Monel™.
4. Pressure and temperature limits per API Standard 526.
5. Outlet pressure limits based on temperature of 100°F.

General Equations

Before beginning any calculations, it is necessary to establish the general category of the pressure relief valve to be used. This section covers conventional spring-loaded types and BalanSeal spring-loaded types. Pilot-operated valves are covered in a separate catalog.

Given the rate of fluid flow to be relieved, the usual procedure is to first calculate the minimum area required in the valve orifice for the conditions contained in one of the following equations. In the case of steam, air or water, the selection of an orifice may be made directly from the capacity tables.

The second step is to select the specific type of valve that meets the pressure and temperature requirements.

General equations are given first, to identify the basic terms that correlate with ASME Pressure Vessel Code, Section VIII.

Since these equations are conservative, it is recommended that computations of relieving loads avoid cascading of safety factors or multiple contingencies beyond the reasonable flow needed to protect the pressure vessel.

Conventional Valves Constant Back Pressure Only

The conventional valve may be used when the variation in back pressure does not exceed 10% of the set pressure, provided the corresponding variation in set pressure is acceptable.

Orifice Area Calculations

VAPORS or GASES – Lbs./hr. –

$$A = \frac{W\sqrt{T}\sqrt{Z}}{CK_dP\sqrt{M}\,K_b}$$

CONSTANT BACK PRESSURE

K_b = 1 when back pressure is below 55% of abs. relieving pressure.

VAPORS or GASES – S.C.F.M. –

$$A = \frac{V\sqrt{G}\sqrt{T}\sqrt{Z}}{1.175\,CK_dP\,K_b}$$

CONSTANT BACK PRESSURE

K_b = 1 when back pressure is below 55% of abs. relieving pressure.

STEAM – Lbs./hr. –

$$A = \frac{W_s}{51.5\,K_dP\,K_b\,K_{sh}\,K_n}$$

CONSTANT BACK PRESSURE

K_b = 1 when back pressure is below 55% of abs. relieving pressure.

K_{sh} = 1 for Sat. Steam

AIR – S.C.F.M. –

$$A = \frac{V_a\sqrt{T}}{418\,K_dPK_b}$$

CONSTANT BACK PRESSURE

K_b = 1 when back pressure is below 55% of abs. relieving pressure.

LIQUIDS – G.P.M –
ASME Code (2600L Series)

$$A = \frac{V_L\sqrt{G}}{38.0\,K_d\sqrt{\Delta P}\,K_u}$$

CONSTANT BACK PRESSURE

K_p = 1 at 25% overpressure
K_u = 1 at normal viscosities

Non-ASME Code (2600 Series)

$$A = \frac{V_L\sqrt{G}}{38.0\,K_d\sqrt{1.25\,P_1\text{-}P_2}\,K_p\,K_u}$$

Nomenclature

A = Required orifice area in square inches. This value may be compared with the effective discharge areas included in this catalog and defined in ANSI/API Standard 526 or the actual area.

W = Required vapor capacity in pounds per hour.

W_s = Required steam capacity in pounds per hour.

V = Required gas capacity in S.C.F.M.

V_a = Required air capacity in S.C.F.M.

V_L = Required liquid capacity in U.S. gallons per minute.

G = Specific gravity of gas (air=1) or specific gravity of liquid (water=1) at actual discharge temperature will obtain a safe valve size.

M = Average molecular weight of vapor.

P = Relieving pressure in pounds per square inch absolute=set pressure+overpressure+14.7. Minimum overpressure is 3 psi.

P_1 = Set pressure at inlet, psig.

P_2 = Back pressure at outlet, psig.

ΔP = Set pressure + overpressure, psig – back pressure, psig. At 10% overpressure $\Delta P=1.1P_1 - P_2$. Below 30 psig set, $\Delta P=P_1 + 3 - P_2$.

T = Inlet temperature absolute (°F+460).

Z = Compressibility factor corresponding to T and P (if this factor is not available, compressibility correction can be safely ignored by using a value of Z=1.0).

C = Gas or vapor flow constant. Select from table on page 86 or use the curve and table on page 85.

k = Ratio of specific heats, C_p/C_v. This value is constant for an ideal gas. If this ratio is unknown, the value k=1.001, C=315 will result in a safe valve size. Isentropic coefficient n may be used instead of k. See curve and table on page 85.

K_p = Liquid capacity correction factor for overpressures lower than 25%. See curve on page 89. Non-Code equations only.

K_b = Vapor or gas flow correction factor for constant back pressures above critical pressure. See curve on page 87.

K_v = Vapor or gas flow factor for variable back pressures. See curve on page 87. BalanSeal valves only.

K_w = Liquid flow factor for variable and constant back pressures. See curve on page 89. BalanSeal valves only.

K_u = Liquid viscosity correction factor. See chart on page 90 or curve on page 91.

K_{sh} = Steam superheat correction factor. See table on page 88.

K_n = Napier steam correction factor for set pressures between 1500 and 2900 psig. See table on page 88.

K_d = Coefficient of discharge when sizing for areas listed below.

Service Fluid	API Effective Areas	ASME Actual Areas
Air, Steam, Vapor & Gas	0.953	0.858
Liquid (2600L, ASME Code)	0.724	0.652
Liquid (2600 Non Code)	0.640	0.576

BalanSeal Valves
Variable or Constant Back Pressure

The BalanSeal (balanced bellows) valve is used to prevent corrosion of the guiding surfaces of a pressure relief valve, to confine the lading fluid and prevent contamination, or to make the valve suitable for variable back pressure service. When the BalanSeal valve is under constant or variable back pressure conditions, the valve capacity is affected. Depending on the percentage of maximum back pressure to the flowing pressure of the valve, a factor for the correction of valve capacity is necessary. The effect on valve capacity is different in liquid service than in vapor and gas service, so correction factors vary. In the calculations that follow, use K_v for vapors and gases as shown on page 87 and K_w for liquids as shown on page 89.

When sizing and selecting a BalanSeal valve, follow the same procedures as for conventional valves, but use the following equations that incorporate the correction factors K_v and K_w.

The BalanSeal valve must be used when the variation in back pressure exceeds 10% of set pressure.

Orifice Area Calculations

VAPORS or GASES – Lbs./hr. –

$$A = \frac{W\sqrt{T}\sqrt{Z}}{CK_dP\sqrt{M}\,K_v}$$

VAPORS or GASES – S.C.F.M. –

$$A = \frac{V\sqrt{G}\sqrt{T}\sqrt{Z}}{1.175\,CK_dP\,K_v}$$

STEAM – Lbs./hr. –

$$A = \frac{W_s}{51.5\,K_dP\,K_v\,K_{sh}\,K_n}$$

AIR – S.C.F.M. –

$$A = \frac{V_a\sqrt{T}}{418\,K_dPK_v}$$

LIQUIDS – G.P.M –
ASME Code (2600L Series)

$$A = \frac{V_L\sqrt{G}}{38.0\,K_d\sqrt{\Delta P}\,K_w\,K_u}$$

Non-ASME Code (2600 Series)

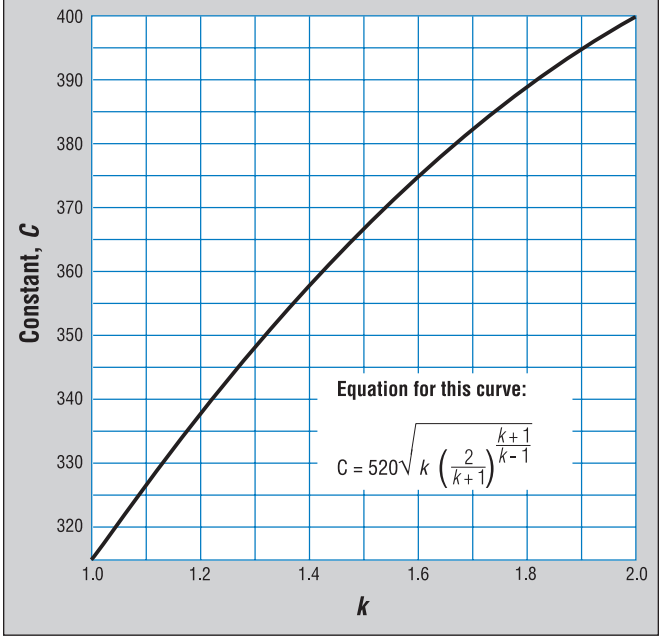
$$A = \frac{V_L\sqrt{G}}{38.0\,K_d\sqrt{1.25\,P_1\text{-}P_2}\,K_p\,K_w\,K_u}$$

Note: When back pressure P_2 is variable, use the maximum value.

Gas or Vapor Flow Constant C for Gas or Vapor Related to Ratio of Specific Heats ($k = C_p/C_v$)

k	Constant C	k	Constant C	k	Constant C
1.00	315	1.26	343	1.52	366
1.02	318	1.28	345	1.54	368
1.04	320	1.30	347	1.56	369
1.06	322	1.32	349	1.58	371
1.08	324	1.34	351	1.60	372
1.10	327	1.36	352	1.62	374
1.12	329	1.38	354	1.64	376
1.14	331	1.40	356	1.66	377
1.16	333	1.42	358	1.68	379
1.18	335	1.44	359	1.70	380
1.20	337	1.46	361	2.00	400
1.22	339	1.48	363	2.20	412
1.24	341	1.50	364	—	—

Constant C for Gas or Vapor Related to Ratio of Specific Heats ($k = C_p/C_v$)



Capacity Correction Factor Tables

Temperature Sizing Factor K_t Vapors and Gases (60°F = 1)

°F	K_t	°F	K_t	°F	K_t
-450	7.359	-40	1.113	240	.8619
-440	5.150	-30	1.110	260	.8498
-420	3.623	-20	1.087	280	.8383
-400	2.953	-10	1.075	300	.8272
-380	2.555	0	1.063	320	.8165
-360	2.280	10	1.052	340	.8062
-340	2.080	20	1.041	360	.7963
-320	1.927	30	1.030	380	.7868
-300	1.803	40	1.020	400	.7776
-280	1.700	50	1.010	420	.7687
-260	1.612	60	1.000	440	.7592
-240	1.537	70	.9905	460	.7518
-220	1.472	80	.9813	480	.7438
-200	1.414	90	.9723	500	.7360
-180	1.363	100	.9636	550	.7175
-160	1.317	110	.9552	600	.7005
-140	1.275	120	.9469	650	.6844
-120	1.237	130	.9388	700	.6695
-100	1.202	140	.9310	750	.6556
-90	1.186	150	.9233	800	.6425
-80	1.170	160	.9158	850	.6300
-70	1.155	180	.9014	900	.6183
-60	1.140	200	.8876	950	.6073
-50	1.126	220	.8746	1000	.5968

Specific Gravity Sizing Factor K_g Vapors or Gases (Air = 1) Liquids (Water = 1) at discharge temperature*

Sp. Gr.	K_g	Sp. Gr.	K_g	Sp. Gr.	K_g
.0692	3.801 (H_2)	1.02	0.990	2.70	0.609
.070	3.779	1.04	0.981	2.80	0.598
.080	3.535	1.06	0.971	2.90	0.587
.090	3.333	1.08	0.962	3.00	0.577
.100	3.126	1.10	0.953	3.10	0.568
.138	2.691 (Helium)	1.12	0.945	3.20	0.559
.150	2.581	1.14	0.937	3.30	0.550
.200	2.240	1.16	0.928	3.40	0.542
.250	2.000	1.18	0.921	3.50	0.535
.300	1.825	1.20	0.913	3.60	0.527
.350	1.688	1.25	0.895	3.70	0.520
.400	1.580	1.30	0.877	3.80	0.513
.45	1.489	1.35	0.861	3.90	0.506
.50	1.414	1.40	0.845	4.00	0.500
.55	1.350	1.45	0.830	4.10	0.494
.60	1.290	1.50	0.817	4.20	0.488
.65	1.240	1.55	0.803	4.30	0.482
.70	1.195	1.60	0.791	4.40	0.477
.75	1.155	1.65	0.779	4.50	0.472
.80	1.117	1.70	0.768	4.60	0.466
.82	1.104	1.75	0.756	4.70	0.461
.84	1.091	1.80	0.745	4.80	0.456
.86	1.078	1.90	0.725	4.90	0.452
.88	1.066	2.00	0.707	5.00	0.447
.90	1.055	2.10	0.690		
.92	1.043	2.20	0.674		
.94	1.031	2.30	0.659		
.96	1.021	2.40	0.645		
.98	1.010	2.50	0.633		
1.00	1.000	2.60	0.620		

*The use of a Sp. Gr. of any temperature lower than that of the actual discharge will result in a safe valve size.

Specific Heat Sizing Factor K_c Vapors and Gases (k of 1.001 = 1)

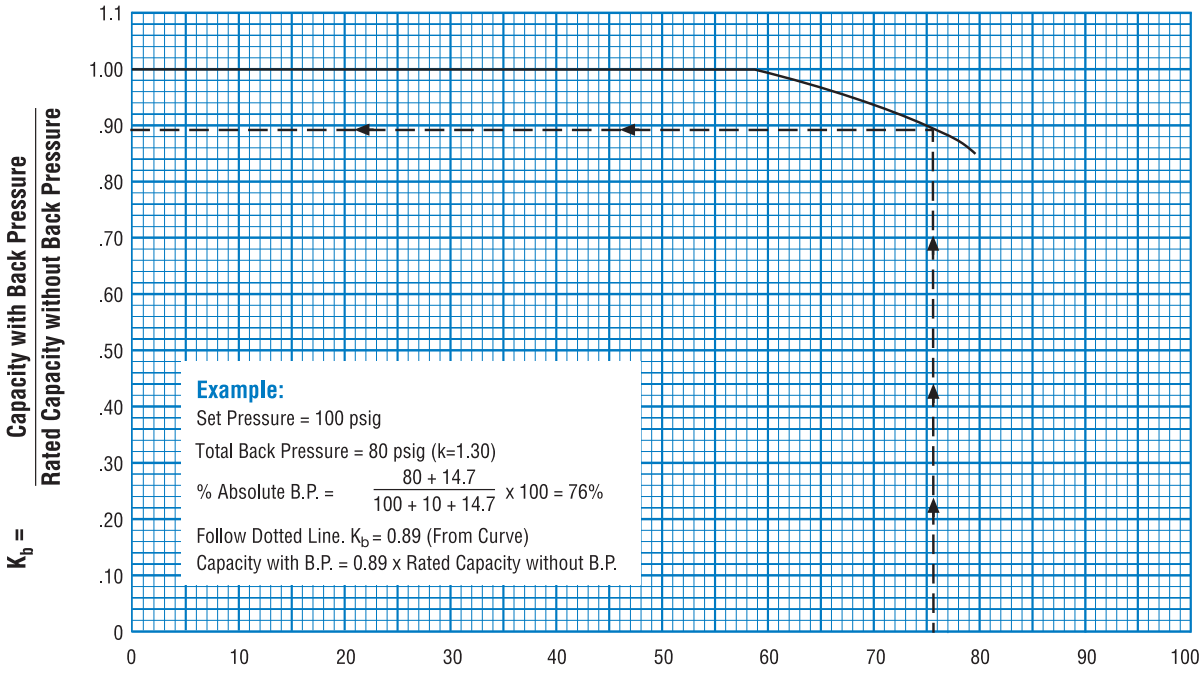
k	K_c	k	K_c
1.001	1.000	1.38	1.124
1.02	1.010	1.40	1.130
1.04	1.016	1.42	1.136
1.06	1.022	1.44	1.141
1.08	1.029	1.46	1.146
1.10	1.038	1.48	1.152
1.12	1.044	1.50	1.157
1.14	1.051	1.52	1.162
1.16	1.057	1.54	1.168
1.18	1.063	1.56	1.172
1.20	1.070	1.58	1.177
1.22	1.076	1.60	1.182
1.24	1.083	1.62	1.187
1.26	1.089	1.64	1.193
1.28	1.095	1.66	1.197
1.30	1.102	1.68	1.202
1.32	1.108	1.70	1.207
1.34	1.113	2.00	1.270
1.36	1.118	2.20	1.308

Molecular Weight Sizing Factor K_m ($K_m = \sqrt{M}$)

Mol. Wt. M	K_m	Mol. Wt. M	K_m
2	1.414	100	10.000
3	1.732	110	10.488
4	2.000	120	10.954
5	2.236	130	11.401
6	2.449	140	11.832
7	2.645	150	12.247
8	2.828	160	12.649
9	3.000	170	13.038
10	3.162	180	13.416
20	4.472	190	13.784
30	5.477	200	14.142
40	6.324	220	14.832
50	7.071	240	15.491
60	7.745	260	16.124
70	8.366	280	16.733
80	8.944	300	17.320
90	9.486		

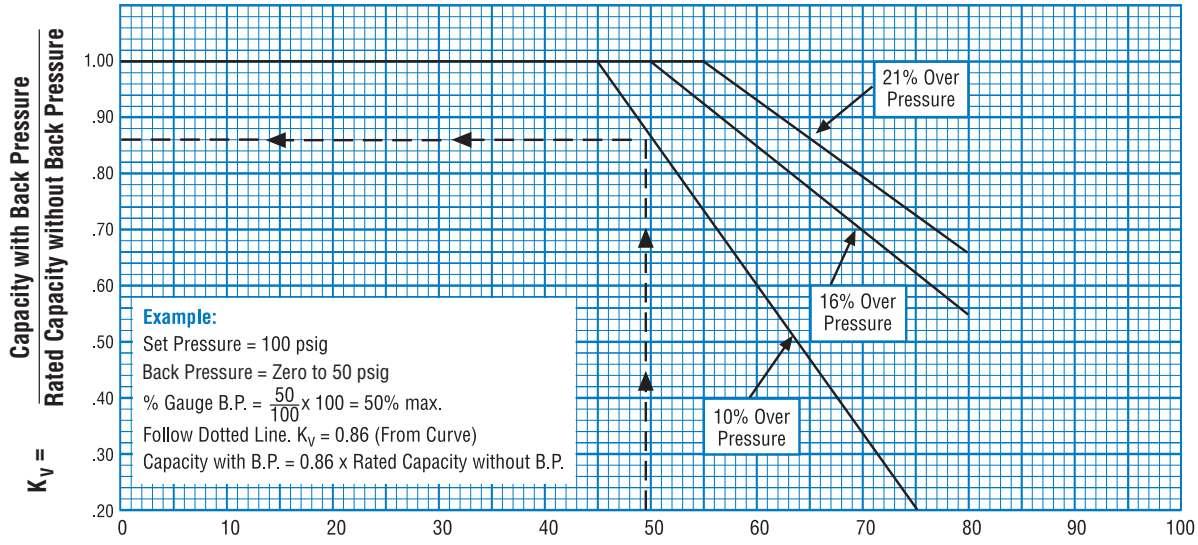
Gas or Vapor	Molecular Weight	K_m ($\sqrt{M}$) Factor	k (C_p/C_v) at 60°F	C (Constant)	K_c (C/315) Factor
Air	28.970	5.382	1.410	356.	1.130
Acetylene	26.040	5.103	1.260	343.	1.089
Ammonia	17.030	4.126	1.310	348.	1.105
Argon	39.944	6.320	1.668	377.8	1.200
Benzene	78.110	8.838	1.118	328.8	1.044
N-Butane	58.120	7.630	1.094	326.4	1.036
Iso-Butane	58.120	7.630	1.097	326.7	1.037
Carbon Disulphide	76.130	8.726	1.210	338.	1.073
Carbon Dioxide	44.010	6.634	1.300	347.	1.102
Carbon Monoxide	28.010	5.292	1.404	356.4	1.131
Chlorine	70.910	8.421	1.355	351.6	1.117
Cyclohexane	84.156	9.174	1.089	324.9	1.031
Dowtherm "A"	165.000	12.845	—	—	—
Dowtherm "J"	134.000	11.575	—	—	—
N-Ethane	30.068	5.484	1.193	336.6	1.067
Ethylene	28.052	5.296	1.243	341.3	1.083
Freon 11	137.371	11.720	1.136	330.6	1.050
Freon 12	120.920	10.995	1.137	330.7	1.051
Freon 22	86.480	9.299	1.184	336.4	1.067
Freon 114	170.930	13.073	1.088	326.2	1.036
Helium	4.003	2.000	1.660	377.	1.197
N-Heptane	100.198	10.010	1.052	321.2	1.021
Hexane	86.172	9.283	1.062	322.2	1.022
Hydrochloric Acid	36.470	6.042	1.410	357.	1.133
Hydrogen	2.016	1.420	1.410	357.	1.133
Hydrogen Sulfide	34.076	5.829	1.320	349.	1.108
Methane	16.042	4.005	1.308	347.8	1.105
Ethyl Alcohol	46.069	6.787	1.130	330.	1.048
Methyl Alcohol	32.000	5.657	1.203	337.3	1.071
Methyl Chloride	50.480	7.105	1.200	337.	1.070
Natural Gas (Typical)	19.000	4.360	1.27	344.0	1.090
Nitrogen	28.016	5.293	1.404	356.4	1.131
Nitrous Oxide	44.020	6.635	1.303	347.3	1.103
N-Octane	114.224	10.688	1.046	320.6	1.018
Oxygen	32.000	5.656	1.401	356.1	1.130
Paracymeme	134.21	11.6	—	—	—
N-Pentane	72.146	8.494	1.074	323.4	1.027
Iso-Pentane	72.146	8.494	1.076	323.6	1.028
Propane	44.094	6.632	1.133	330.3	1.049
Sulphur Dioxide	64.070	8.004	1.240	341.	1.083
Toluene	92.130	9.610	1.090	326.	1.035

Back Pressure Sizing Factor K_b



$$\% \text{ Absolute Back Pressure} = \frac{\text{Back Pressure, psia}}{\text{Set Pressure + Over Pressure, psia}} \text{ X } 100$$

Back Pressure Sizing Factor K_v
BalanSeal Valves Only - Vapors and Gases



$$\% \text{ Gauge Back Pressure} = \frac{\text{Back Pressure, psig}}{\text{Set Pressure, psig}} \text{ X } 100$$

K_n Napier Correction Factor for Set Pressures Between 1500 and 2900 psig at 10% Overpressure

Equation:

$$K_n = \frac{0.1906P - 1000}{0.2292P - 1061}$$

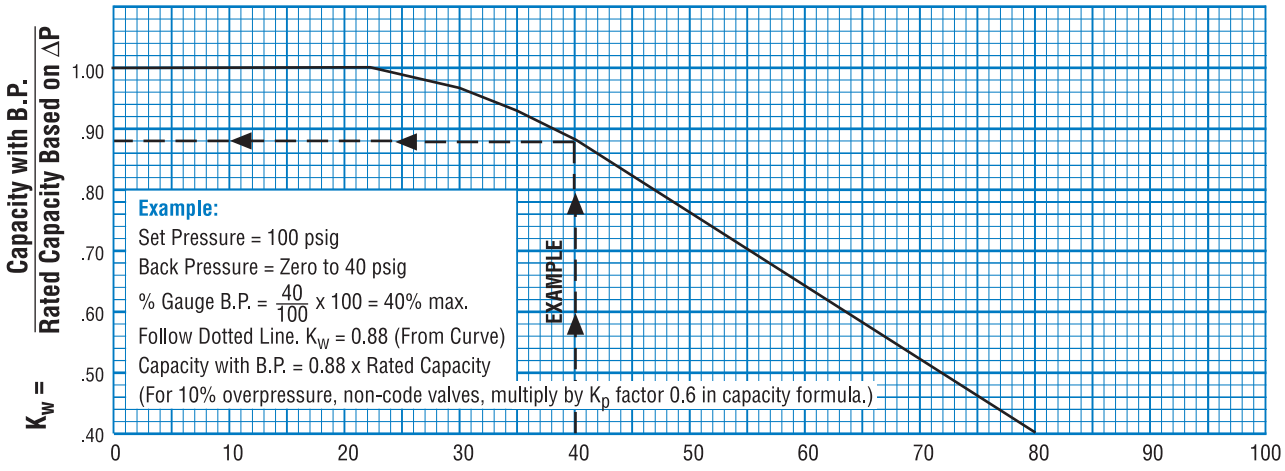
Where
P = relieving pressure, psia

Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n	Set Press. psig	K_n
1500	1.005	1640	1.014	1780	1.025	1920	1.037	2060	1.050	2200	1.066	2340	1.083	2480	1.104	2620	1.128	2760	1.157
1510	1.005	1650	1.015	1790	1.026	1930	1.038	2070	1.051	2210	1.067	2350	1.085	2490	1.105	2630	1.130	2770	1.159
1520	1.006	1660	1.016	1800	1.026	1940	1.039	2080	1.052	2220	1.068	2360	1.086	2500	1.107	2640	1.132	2780	1.161
1530	1.007	1670	1.016	1810	1.027	1950	1.040	2090	1.053	2230	1.069	2370	1.087	2510	1.109	2650	1.134	2790	1.164
1540	1.007	1680	1.017	1820	1.028	1960	1.040	2100	1.054	2240	1.070	2380	1.089	2520	1.110	2660	1.136	2800	1.166
1550	1.008	1690	1.018	1830	1.029	1970	1.041	2110	1.055	2250	1.072	2390	1.090	2530	1.112	2670	1.138	2810	1.169
1560	1.009	1700	1.019	1840	1.030	1980	1.042	2120	1.057	2260	1.073	2400	1.092	2540	1.114	2680	1.140	2820	1.171
1570	1.009	1710	1.019	1850	1.031	1990	1.043	2130	1.058	2270	1.074	2410	1.093	2550	1.115	2690	1.142	2830	1.174
1580	1.010	1720	1.020	1860	1.031	2000	1.044	2140	1.059	2280	1.075	2420	1.095	2560	1.117	2700	1.144	2840	1.176
1590	1.011	1730	1.021	1870	1.032	2010	1.045	2150	1.060	2290	1.077	2430	1.096	2570	1.119	2710	1.146	2850	1.179
1600	1.011	1740	1.022	1880	1.033	2020	1.046	2160	1.061	2300	1.078	2440	1.098	2580	1.121	2720	1.148	2860	1.181
1610	1.012	1750	1.023	1890	1.034	2030	1.047	2170	1.062	2310	1.079	2450	1.099	2590	1.122	2730	1.150	2870	1.184
1620	1.013	1760	1.023	1900	1.035	2040	1.048	2180	1.063	2320	1.081	2460	1.101	2600	1.124	2740	1.152	2880	1.187
1630	1.014	1770	1.024	1910	1.036	2050	1.049	2190	1.064	2330	1.082	2470	1.102	2610	1.126	2750	1.155	2890	1.189
																		2900	1.192

K_{sh} Superheat Correction Factor

Set. Press psig	Saturated Steam Temp. °F.	Total Temperature in Degrees Fahrenheit																																				
		280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000
15	250	1.00	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75	.75
20	259	1.00	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.77	.76	.75	.75
40	287	–	1.00	1.00	1.00	.99	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.79	.79	.78	.78	.77	.77	.76	.75	.75
60	308	–	–	1.00	1.00	.99	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.76	.75
80	324	–	–	–	1.00	1.00	.99	.99	.98	.97	.96	.94	.93	.92	.91	.90	.89	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.76	.75
100	338	–	–	–	–	1.00	1.00	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.76	.75
120	350	–	–	–	–	1.00	1.00	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.76	.75
140	361	–	–	–	–	–	1.00	1.00	.99	.98	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.76	.75
160	371	–	–	–	–	–	1.00	1.00	.99	.98	.97	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.79	.78	.77	.77	.76	.76	.75
180	380	–	–	–	–	–	–	1.00	.99	.98	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.79	.78	.77	.77	.76	.76	.75
200	388	–	–	–	–	–	–	1.00	.99	.99	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.77	.77	.76	.76	.75
220	395	–	–	–	–	–	–	1.00	1.00	.99	.98	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75
240	403	–	–	–	–	–	–	–	1.00	.99	.98	.97	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75
260	409	–	–	–	–	–	–	–	1.00	.99	.98	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75
280	416	–	–	–	–	–	–	–	1.00	1.00	.99	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.75
300	422	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.77	.76	.75
350	436	–	–	–	–	–	–	–	–	1.00	1.00	.99	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.78	.78	.77	.77	.76	.76
400	448	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.81	.80	.79	.79	.78	.77	.77	.76	.76
450	460	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.96	.94	.93	.92	.91	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.79	.79	.78	.78	.77	.76	.76
500	470	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.83	.82	.82	.81	.80	.79	.79	.78	.78	.77	.76	.76
550	480	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.88	.87	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76
600	489	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.93	.92	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76
650	497	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.87	.86	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78	.77	.77	.76
700	506	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.96	.94	.93	.91	.90	.89	.88	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.79	.78	.77	.77	.76
750	513	–	–	–	–	–	–	–	–	–	–	–	–	1.00	1.00	.98	.96	.95	.93	.92	.90	.89	.88	.87	.86	.85	.84	.83	.83	.82	.81	.80	.79	.79	.78	.77	.77	.76
800	520	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.94	.92	.91	.90	.88	.87	.86	.85	.84	.84	.83	.82	.81	.80	.80	.79	.78	.78	.77	.76
850	527	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.93	.92	.90	.89	.88	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78	.77	.76
900	533	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	1.00	.99	.97	.95	.93	.92	.90	.89	.88	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.79	.78	.77	.77
950	540	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.94	.92	.91	.89	.88	.87	.86	.85	.84	.83	.82	.82	.81	.80	.79	.79	.78	.77	.77
1000	546	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.93	.91	.90	.89	.87	.86	.85	.84	.83	.83	.82	.81	.80	.79	.79	.78	.77	.77
1050	552	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	1.00	.99	.97	.95	.93	.92	.90	.89	.88	.87	.86	.85	.84	.83	.82	.81	.80	.80	.79	.78	.77	.77
1100	558	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.95	.94	.92	.91	.89	.88	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78	.77
1150	563	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.92	.91	.90	.88	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78	.77
1200	569	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.97	.95	.93	.91	.90	.89	.87	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78	.77
1250	574	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.93	.92	.90	.89	.88	.87	.85	.85	.84	.83	.82	.81	.80	.79	.79	.78	.77
1300	579	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.92	.91	.89	.88	.87	.86	.85	.84	.83	.82	.81	.80	.79	.79	.78	.77
1350	584	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.98	.96	.94	.93	.91	.90	.88	.87	.86	.85	.84	.83	.82	.81	.80	.80	.79	.78	.78
1400	588	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	1.00	.99	.97	.95	.93	.92	.90	.89	.88	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78
1450	593	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.95	.94	.92	.90	.89	.88	.86	.85	.84	.83	.82	.81	.81	.80	.79	.78	.78
1500	597	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.96	.94	.92	.91	.89	.88	.87	.86	.84	.84	.83	.82	.81	.80	.79	.78	.78
1600	606	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.97	.96	.94	.93	.91	.89	.88	.86	.85	.84	.83	.82	.81	.80	.79	.78	.78	.77
1700	615	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.99	.97	.96	.95	.93	.91	.89	.88	.86	.85	.84	.83	.82	.81	.79	.79	.78	.77	.77
1800	622	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.99	.98	.97	.95	.93	.91	.89	.88	.86	.85	.84	.82	.81	.80	.79	.79	.78	.77	.76
1900	630	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.97	.96	.93	.91	.89	.88	.86	.85	.84	.82	.81	.80	.79	.78	.78	.77	.76
2000	636	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.96	.93	.91	.89	.87	.86	.84	.83	.82	.81	.80	.79	.78	.77	.76	.76
2100	644	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.95	.93	.91	.89	.87	.86	.84	.83	.82	.81	.79	.78	.77	.77	.76	.75
2200	650	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.95	.93	.91	.89	.87	.85	.84	.82	.81	.80	.79	.78	.77	.76	.75	.74
2300	658	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.98	.95	.93	.91	.89	.87	.85	.84	.82	.81	.79	.78	.77	.76	.75	.75	.74
2400	663	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.98	.95	.93	.91	.89	.87	.85	.83	.82	.80	.79	.78	.77	.76	.75	.74	.73
2500	669	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.98	.95	.93	.90	.88	.86	.84	.83	.81	.80	.78	.77	.76	.75	.74	.73	.72
2600	675	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.96	.93	.90	.88	.85	.84	.82	.80	.79	.77	.76	.75	.74	.73	.72	.71
2700	680	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.95	.90	.88	.85	.83	.81	.79	.78	.76	.75	.74	.73	.72	.71	.70
2800	686	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.95	.90	.88	.85	.82	.80	.78	.76	.75	.74	.73	.72	.71	.70	.69
2900	691	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.00	.90	.87	.84	.82	.80	.78	.76	.75	.73	.72	.71	.70	.69	.68

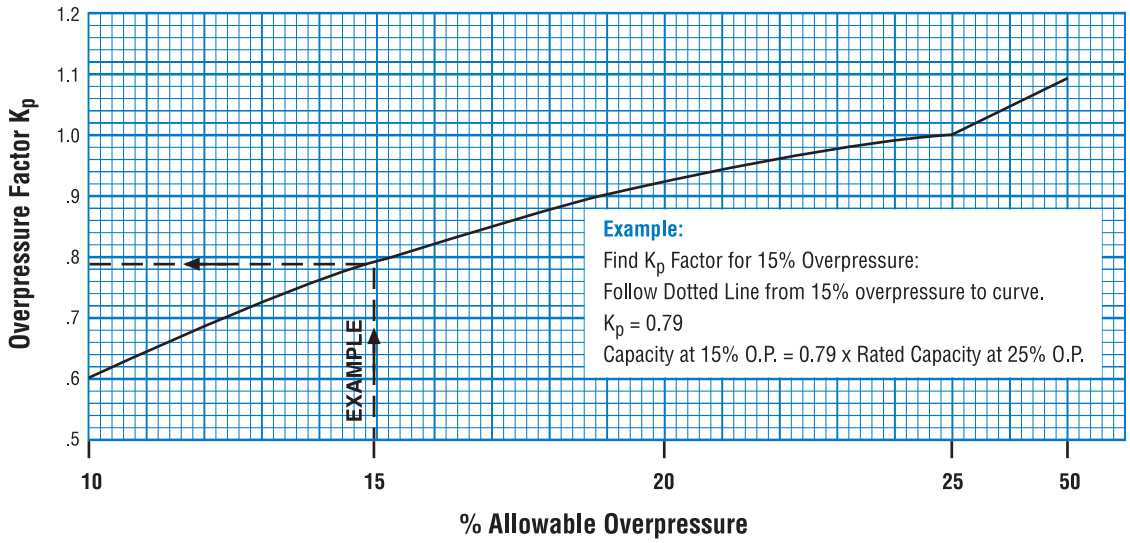
Variable or Constant Back Pressure Sizing Factor K_W
(BalanSeal Valves Only)



$$\% \text{ Gauge Back Pressure} = \frac{\text{Back Pressure, psig}}{\text{Set Pressure, psig}} \times 100$$

Overpressure Sizing Factor K_p
Other Than 25% Overpressure

Conventional and BalanSeal Valves: Non-Code Liquids Only



Note: Pressure relief valve liquid capacities cannot be predicted by a general curve for overpressures below 10%.

Viscosity Correction Using Chart Method

Sizing Method
Since the viscosity correction factor depends on the actual orifice area, direct solution is not possible and a trial orifice size must be found before the K_u can be determined accurately.

Example ASME Code liquid application. If non-ASME Code is required, substitute appropriate equation:

Viscosity-Saybolt Universal Secs.....1250 SSU@100°F
Capacity Required.....800 gpm
Set Pressure (P_1)..... 115 psig
Constant Back pressure..... 20 psig
Differential Pressure 1.25 (P_1-P_2)..... 106.5 psig
Allowable Overpressure 10%
Specific Gravity .....0.98@100°F
Relieving Temperature.....100°F

Step 1 Calculate Trial Orifice: Calculate the trial orifice area from the liquid equation on page 84:

$$A = \frac{V_L\sqrt{G}}{38.0\ K_d\sqrt{\Delta P}\ K_u} = \frac{800\ (0.99)}{38.0\ (0.652)\ \sqrt{126.5\text{-}20}\ (1)} = 3.10 \text{ sq. in. Actual Area}$$

If BalanSeal valve construction is used and variable back pressure conditions exist, use the maximum back pressure to determine P_2 in the equation, and correct K_w factor. See curve on page 89. Use the following equation:

$$A = \frac{V_L\sqrt{G}}{38.0\ K_d\sqrt{\Delta P}\ K_w\ K_u}$$

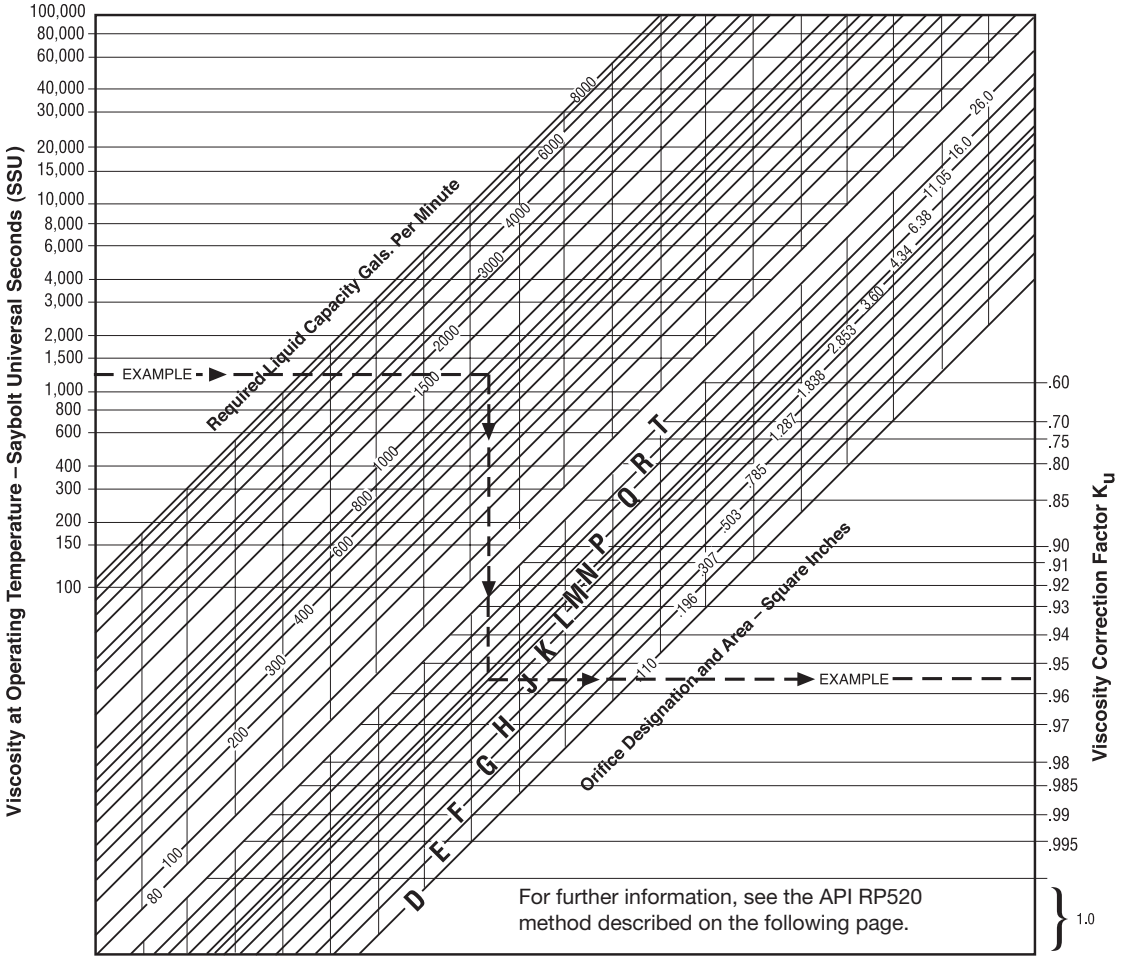
Select the next larger orifice size or an M orifice with 4.0 sq. in. orifice area (this should be about 20% greater than the calculated area to allow for reduction of capacity due to viscosity correction factor K_u).

Step 2 Use Chart to Find K_u: Enter the Viscosity Correction Chart from the left, reading 1250 SSU. Follow the example line horizontally to the required 800 gpm. Drop vertically to the selected trial orifice M, and proceed horizontally right to the K_u scale, reading K_u = 0.955.

Step 3 Verify Orifice Selection: This chart is designed to minimize the trial and error required for solution. Note that the exit from the chart is from the orifice line to the K_u scale. By looking vertically, the next larger or smaller orifice show alternate values of the A term and the corresponding K_u term without repeating all the steps.

The viscosity of the liquid may reduce the velocity and capacity enough to require a larger orifice size than the usual liquid service capacity equation would indicate. Use this simplified viscosity chart and the K_u viscosity correction factors obtainable from it to properly size relief valves intended for viscous liquid service. Equations and graphs used in preparing this chart reflect conservative engineering data on this subject.

For viscous liquid service, it is advisable to allow 25% over-pressure where permissible, to size conservatively, and to consider the use of the bellows and/or steam jacketed bodies for the purpose of isolating the moving parts and to prevent freezing of the lading fluid.



Viscosity Correction Using Reynold's Number Method of API RP520

As an alternative to the sizing method discussed on the previous page, you may use the method given in API RP520 for sizing viscous liquids.

When a relief valve is sized for viscous liquid services, it is suggested that it be sized first as a nonviscous type application in order to obtain a preliminary required discharge area, A. From manufacturer's standard orifice sizes, the next larger orifice size should be used to determine the Reynold's number R from either one of the following:

$$R = \frac{V_L\,(2{,}800G)}{\mu\sqrt{A}}$$

or

$$*R = \frac{12{,}700\,V_L}{U\sqrt{A}}$$

*Use of this equation is not recommended for viscosities less than 100 SSU.

After the value of R is determined, the factor K_V** is obtained from the graph. Factor K_V is applied to correct the preliminary required discharge area. If the corrected area exceeds the chosen standard orifice area, the calculations should be repeated using the next larger standard orifice size.

**K_v of API = K_u of Farris Engineering

Nomenclature

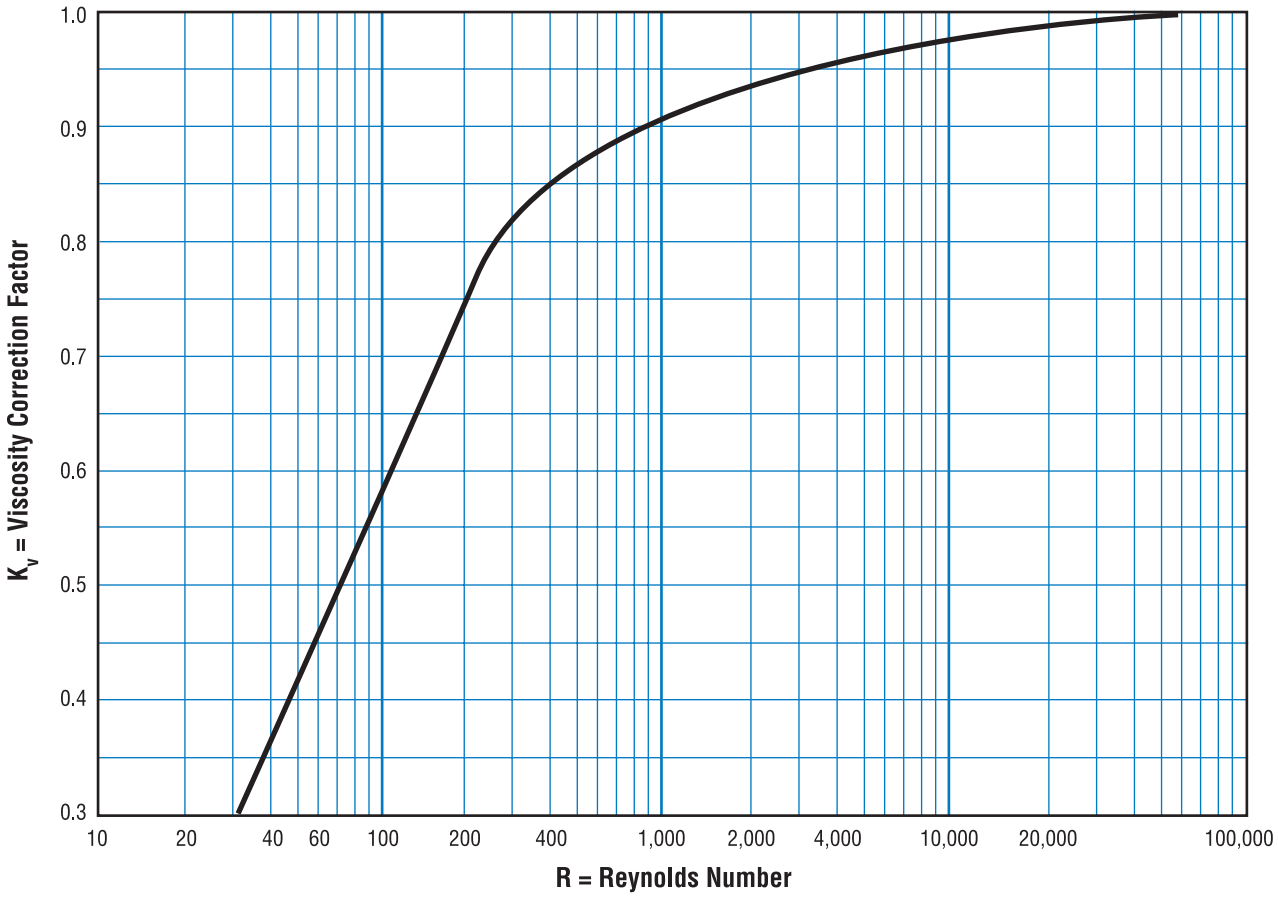
V_L = Flow rate at the flowing temperature in the U.S. gallon per minute.

G = Specific gravity of the liquid at the flowing temperature referred to water = 1.00 at 70ºF.

μ = Absolute viscosity at the flowing temperature in centipoises.

A = Discharge area in square inches from manufacturer's standard orifice areas[1].

U = Viscosity at the flowing temperature in Saybolt Universal Seconds.



General Notes:

1. Select using either API effective area or ASME actual area depending on the sizing method being used.

Conversion Factors

To Convert From	To	Multiply By
Area		
Square Inches	Square Centimeters	6.452
	Square Millimeters	645.2
	Square Feet	0.006944
Density		
Pounds/FT^3	Pounds/US Gallon	0.1337
	Pounds/Cubic Inch	0.0005787
	Grams/Cubic Centimeter	0.01602
	Kilograms/Cubic Meter	16.018
Flow Rate (Mass)		
Pounds Per Hour	Kilograms Per Hour	0.4536
	Tons Per Hour (Short)	0.0005
Flow Rate (Volume)		
Gallons Per Minute	Cubic Feet Per Second	0.02228
	Liters Per Minute	3.785
	Liters Per Second	0.06308
	Meters Cubed Per Hour	0.2271
Length		
Feet	Centimeters	30.48
	Inches	12
	Millimeters	304.8
	Meters	0.3048
	Miles	5280.00
	Yards	0.3333
Meters	Centimeters	100.0
	Feet	3.281
	Inches	39.37
	Millimeters	1000.0
	Yards	1.094
Mass (Weight)		
Pounds	FT^3 of Water	0.01602
	Gallons of Water	0.1198
	Grams	453.6
	Kilograms	0.4536
	Ounces	16
	Tons (Short)	0.0005
	Tons (Long)	0.0004464
	Tons (Metric)	0.0004536
Miscellaneous		
Specific Gravity-Gas Water (Ft^3 @ 60°F)	Molecular Weight-Gas	28.970
	Pounds	62.37
	Imperial Gallons	0.8327
	Liters	3.785

To Convert From	To	Multiply By
Pressure		
Atmospheres	Bars	1.013
	Feet of Water	33.96
	Inches of Mercury	29.92
	Inches of Water	407.50
	Kilograms per sq. cm	1.033
	Millimeters of Mercury	760.00
	Pounds per square inch	14.70
Pounds Per Sq. In.	Bars	0.06895
	Feet of Water	2.31
	Inches of Mercury	2.036
	Inches of Water	27.73
	Millimeters of Mercury	51.71
	Kilograms per sq. cm	0.07031
	Kilopascals	6.895
Temperature Conversion Equations		
Celsius (C) =	5/9 x (Fahrenheit - 32)	
Fahrenheit (F) =	(9/5 x Celsius) + 32	
Kelvin (K) =	Celsius + 273.15	
Rankin (R) =	Fahrenheit + 459.67	
Viscosity (Absolute or Dynamic)		
Centipoise	lbf-sec/sq. ft.	0.0000208854
Centipoise	kg-sec/sq. meter	0.000102
Lbf-sec/sq. ft.	Pascal-sec	47.8803
Pascal sec.	Centipoise	1000
Poise (gm/cm-sec)	Centipoise	100
Viscosity (Kinematic)		
Centistokes	Stokes	0.01
Centistokes	sq. meters/sec	0.000001
Square Feet/Sec.	Centistokes	92903.04
Square Feet/Sec.	Square meters/sec	0.092903
Centistokes	sq. meters/sec	0.000001
Square Feet/Sec.	Centistokes	92903.04
Square Feet/Sec.	Square meters/sec	0.092903
Viscosity (Absolute to Kinematic)		
Centipoise	Centistokes	1/density (g/cm^3)
Volume		
Gallons (US)	Barrels	0.02381
	Cubic Inches	231.0
	Cubic Feet	0.1337
	Cubic Centimeters (or ml)	3785
	Imperial Gallons	0.8327
	Liters	3.785