



Series 28

Conventional & Bellows Type
Pressure Safety Valve



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THE
SPIRIT[®]
TO WALK AN EXTRA
MILE



Salient Features:

- ▶ Available in size and rating as per API 526 acceptable worldwide

▶ Comes with certified capacity by National Board

▶ Available in all air, water and steam services

▶ Replacable to existing valves manufactured as per B & C dimension as per API 526

▶ In code compliance to ASME Section VIII Div-I

▶ Use for negative to elevated service temperature with wide range of materials

▶ In-setu testing is feasible with longer stem
- ▶ Wide range of accessories – Limit switch, Lever, Test gag, Bellow, Steam jacketing etc

▶ Adjustable blowdown for compressible fluids

▶ Superior and straight Nozzle design for better performace and flow

▶ Long services life

▶ Exposed Spring design Option

▶ Used for dirty service as well

▶ Convertible design, Conventional to Bellows & vice-versa

▶ Lowest maintenance and cost of ownership

Conventional & Bellows Type Valves

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Definitions

Safety valve: A valve which, with the sole assistance of the energy generated by the process fluid, opens automatically when a predetermined pressure is reached. It discharges a quantity of the fluid in order to prevent the safe pressure level from being exceeded and recloses after normal operating conditions have been restored.

Direct Spring loaded safety valve: A safety valve in which the loading due to the fluid pressure underneath the valve disc is opposed only by a direct mechanical loading device such as a weight, lever and weight, or a spring.

Safety Relief Valve: An automatic pressure actuated relieving device suitable for use as either a safety or relief valve, depending on the application

Set pressure: The predetermined pressure at which the safety valve begins to open, i.e. the gauge pressure measured at the valve inlet at which the pressure forces that tend to open the valve for the specific service conditions are in equilibrium with the forces that retain the valve disc on its seat.

Overpressure: A pressure increase over the set pressure at which the safety valve attains the lift specified by the manufacturer, usually expressed as a percentage of the set pressure.

Cold differential test pressure: The inlet gauge pressure at which a safety valve is set to begin to open on the test bench at atmospheric backpressure and ambient temperature. It includes corrections for service conditions, for example backpressure and temperature.

Re-seating pressure: The inlet gauge pressure at which the disc re-establishes contact with the seat.

Blowdown: The difference between set and re-seating pressures, normally stated as a percentage of set pressure.

Relieving Pressure Pt. The total pressure at valve inlet at which the capacity is calculated. This cannot be lower than set pressure plus overpressure plus atmospheric pressure.

Built-up backpressure: The static pressure present at the valve outlet caused by flow through the valve and the discharge system.

Superimposed backpressure: The static pressure present at the valve outlet at the time when the device is required to operate. It is the result of pressure in the discharge system from other sources.

Percentage backpressure: The ratio between backpressure and relieving pressure (both expressed in absolute units) multiplied by 100.

Lift: The actual travel of the valve disc away from the closed position.

Full lift: The minimum travel needed to obtain the maximum discharge coefficient.

Restricted lift: The lift restricted by a mechanical stop to less than the full lift.

Flow area: The area which is used to calculate the theoretical flow capacity of the valve.

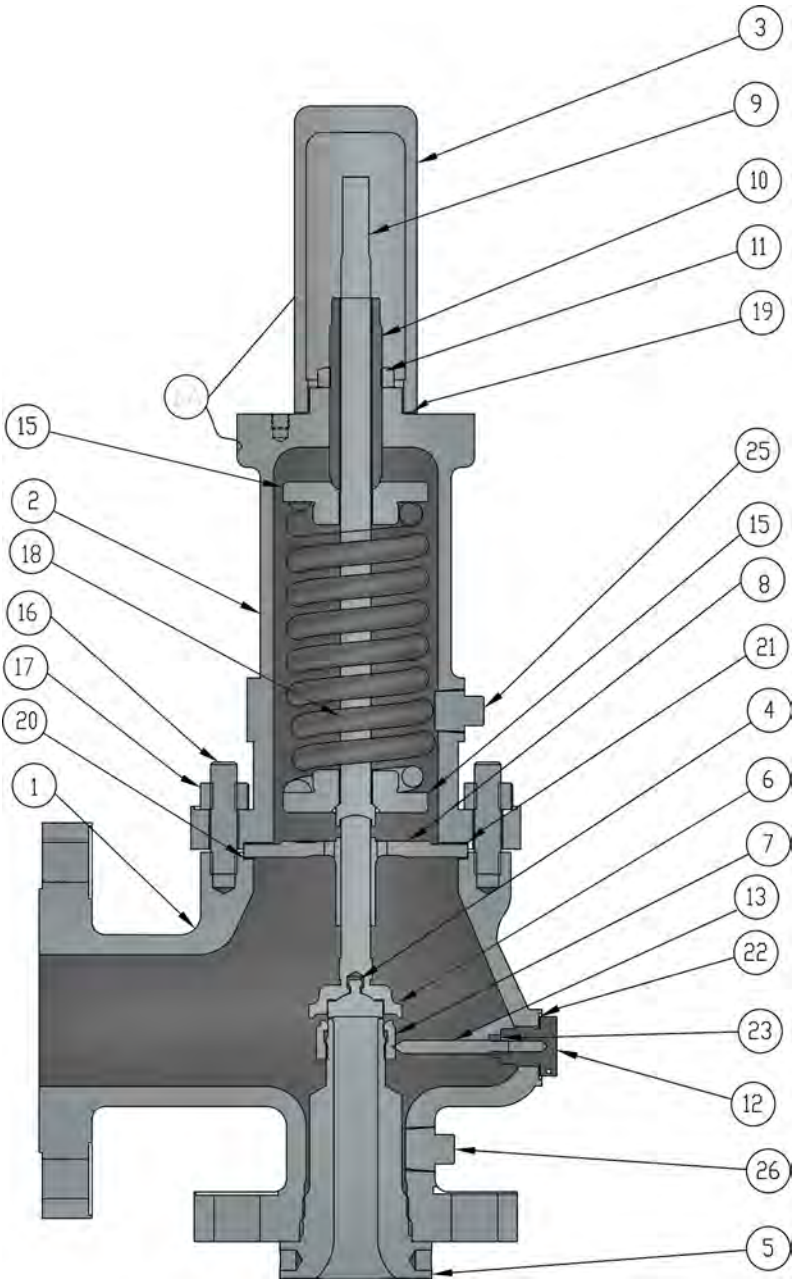
Flow diameter: The diameter corresponding to the flow area.

Discharge coefficient Kd: The ratio between the flow rate of the fluid actually discharged by the valve as resulting from tests of samples and the theoretical capacity, i.e. the flow rate of a convergent nozzle without friction having a cross sectional throat area equal to the flow area of the safety valve calculated in the same conditions.

Certified coefficient of discharge Kgas or Kliq: That fraction (usually 90%) of Kd to be used for the valve sizing.

Valve Trim: Trim is a term that generally refers to internal parts of a pressure relief valve. Unless noted, valve trim in a Bliss pressure relief valve specifically includes the nozzle and disc only.

28V Series Conventional



Bill of Materials - Conventional		
Item	Part Name	Material
1	Body	SA-216 Gr. WCB Carbon Steel ¹
		SA-217 Gr. WC6 Alloy St. (1-1/4 Cr – 1/2 Moly) ²
2	Bonnet	SA-216 Gr. WCB Carbon Steel ¹
		SA-217 Gr. WC6 Alloy St. (1-1/4 Cr – 1/2 Moly) ²
3	Cap. Plain Screwed	Carbon Steel
4	Disc	316 St. St.
5	Nozzle	316 St. St.
6	Disc Holder	316 St. St.
7	Blowdown 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 ²	17-4 Ph. St. St.
15	Spring Button	316 St. St.
16	Body Stud	SA-193 Gr. B7 Alloy St.
17	Hex Nut (Body)	SA-194 Gr. 2H Alloy St.
18	Spring	Chrome Alloy Rust Proofed ¹
		High Temperature Alloy Rust Proofed ²
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

*Applicable From Size 3J4



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



Type Numbering System

Our type numbering system simplifies the selection and specifying of Bliss 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.

Prefix (if applicable)	28 Series Number	D Orifice Areas				A Construction		1 Temperatures & Materials				
H Designates high pressure versions. Used for "Q", "R", "T", & "U" orifices only.	28	Orifice Letter	Area, Sq. In.		Area, Sq. mm*		A Conventional construction	Designation	Inlet Temperature Range °F	Material		
			API	Actual	API	Actual				Body & Bonnet	Spring	
		D	0.110	0.115	71	74.19	B Balanced Bellow construction	1	-20 to 800	Carbon Steel	Chrome Alloy	
		E	0.196	0.208	126	134.19						
		F	0.307	0.328	198	211.61						
		G	0.503	0.545	325	351.61	C Conventional with O-ring seat pressure seal	2**	451 to 800	Carbon Steel	Chrome Alloy	
		H	0.785	0.855	506	551.61						
		J	1.287	1.408	830	908.38						
		K	1.838	2.013	1186	1298.70	D Balanced Bellow with O-ring seat pressure seal	3	801 to 1000	Chrome Moly Steel	High Temp. Alloy	
		L	2.853	3.136	1841	2023.22						
		M	3.60	3.959	2323	2554.18						
		N	4.34	4.777	2800	3081.92	E Balanced Bellow with auxiliary balancing piston	4*	1001 to 1200	Consult Factory		
		P	6.38	7.037	4116	4539.99						
		Q	11.05	12.2	7129	7870.95						
		R	16.0	17.686	10323	11410.29	F Balanced Bellow with auxiliary balancing piston O-ring seal and pressure seal	5*	1201 to 1500	Consult Factory		
		T	26.0	28.761	16774	18555.44						
		U	—	30.78	—	198.5*						
		V	—	48.945	—	315.7*	T Teflon seat, conventional	1	-76 to -450	Use "S4" Trim Options ^A		
		W	—	63.848	—	411.9*						
		W2	—	104.524	—	674.3*						
		X	—	114.004	—	735.5*	U Teflon seat, Balanced Bellow	* 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.	^A Temperature range illustrated to designate low temperature use. The "S3" & "S4" trim can be used at high temperatures. See Page 18.		
		Y	—	144.077	—	929.5*						
		Z	—	177.666	—	1146.2*						
		* The "U" through "Z" orifices are not API Standard Sizes; metric areas are in square centimeters.										

Ordering Information

To process your order properly and promptly, please specify the following:

- Quantity*
- Inlet and outlet size
- Bliss type number*
- Inlet and outlet flange class and facing
- Materials of construction, if other than standard
- O-ring seat pressure seal material, if required
- Set pressure*
- Maximum inlet temperature*
- Allowable overpressure*
- Fluid and fluid state*
- Back pressure, superimposed constant and/or variable and built-up*
- Required capacity*
- Accessories
 - Bolted cap, open or packed lever
 - Test gag
 - Remoter

14. Code requirements, if any

15. Physical properties of fluid (molecular weight, specific gravity, etc.)

*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 Bliss 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.



Type Numbering System

2		X -		1		2		0		/S4	
Inlet Class		Special Construction (If applicable)		Inlet Facing		Cap Construction		Test Gag		Special Material	
Designation	ASME Inlet Flange Class	A Expanded API sizes: air, steam and gas service*		0 Special Facings ²		2 Screwed Cap		0 Without Gag		See "Materials for Corrosive Service" Table below.	
		B Expanded API sizes: ASME liquid valve*		1 Raised Face, ASME Std. (125 to 160 AARH)		3 Bolted Cap		1 With Gag			
0	150	C Expanded API sizes: ASME Code Section VIII exposed spring design*		2 Large Female, ASME Std.		4 Packed Lever				/SP Special Construction ¹	
1	300 lightweight valve			3 Small Male, ASME Std.		7 Open Lever					
2	300 heavyweight valve	D Valve suitable for heat transfer service-vapor		4 Small Female, ASME Std.		8 Remoter (with Packed Lever)					
3	600	E Valve suitable for heat transfer service-liquid		5 Large Tongue, ASME Std.							
4	900	F Expanded API size valves suitable for heat transfer service-vapor*		6 Large Groove, ASME Std.							
5	1500			7 Small Tongue, ASME Std.							
6	2500	G Expanded API size valves suitable for heat transfer service-liquid*		8 Small Groove, ASME Std.							
		L ASME Code certified for liquid, air, steam and gas service.**		9 Ring Joint (octagonal), ASME Std.							
		S ASME Code Section VIII exposed spring design		H 63-83 AARH Smooth Finish RF							
		* Letter suffixes for expanded API sizes where 2-1/2" inlet or outlet has been replaced by 3" size.		Although not applicable to the Inlet facing only, the following first digit letters are also used:							
		** Certified as non-adjustable blowdown		J 63 to 83 AARH (outlet only)							
				K 63 to 83 AARH (inlet & outlet)							
				X Special Welded Connections ³							

Materials for Corrosive Service				
Designation	Body Bonnet, Cap	Special Material Description		
		Nozzle & Disc	Other	Springs & Buttons
/S1	Standard	316	316 ⁴	Chrome Alloy Spring, 316 Buttons
/S3	316	316	316	Chrome Alloy Nickel Plated Spring, 316 Buttons
/S4	316	316	316	316
/H1	Standard	Hastelloy C	Standard	Standard
/H2	Standard	Hastelloy C	Hastelloy C & Monel	Chrome Alloy Nickel Plated Spring, 316 Buttons
/H3	Hastelloy C®	Hastelloy C	Hastelloy C	Chrome Alloy Nickel Plated Spring, 316 Buttons
/H4	Hastelloy C	Hastelloy C	Hastelloy C	Hastelloy C
/M1	Standard	Monel	Standard	Standard
/M2	Standard	Monel	Monel	Chrome Alloy Nickel Plated Spring, 316 Buttons
/M3	Monel	Monel	Monel	Chrome Alloy Nickel Plated Spring, 316 Buttons
/M4	Monel	Monel	Monel	Inconel Spring, Monel Buttons
/N1	Carbon Steel (NACE)	316 (NACE)	316 ⁴	Inconel Spring, 316 Buttons
/LB	SA-352 Gr. LCB (Cap - 316)	316	316	Standard
/LC	SA-352 Gr. LCC (Cap - 316)	316	316	Standard
/N4	316 (NACE)	316 (NACE)	316	Inconel Spring, 316 Buttons

General Notes:

- Specials trim or connection types not covered by other type number designations require "SP" added to the type number. Example: 28HA10-120/SP.
- Special inlet facings not covered by other inlet facing designations such as lens joint inlet or non-standard nozzle finishes.
- Designates welded inlet connections including butt-weld, socket weld and high pressure Grayloc (hub style) connections. Grayloc is a registered trademark of Oceaneering International Inc.
- Spring adjusting screw is supplied in standard precipitation hardened (17-4 Ph) stainless steel. Note: S1 Stem Retainer changes from 17-4 Ph to 316 stainless steel.
- For special non stainless trim in compliance with NACE Standards add "N" to the material suffix. Example: 28HB12-120/M4N.
- Duplex stainless trim options available on application in standard and super duplex alloys. Consult the factory.



28V/28L Balanced Bellow Design



28L Series

The 28L Series liquid relief valves are for use on ASME Section VIII & XIII Code applications and offer a superior valve with greater capacity at 10% overpressure than the traditional 28 Series.

The 28L Series complements a full line of pressure relief valves in orifices “D” through “U” 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.

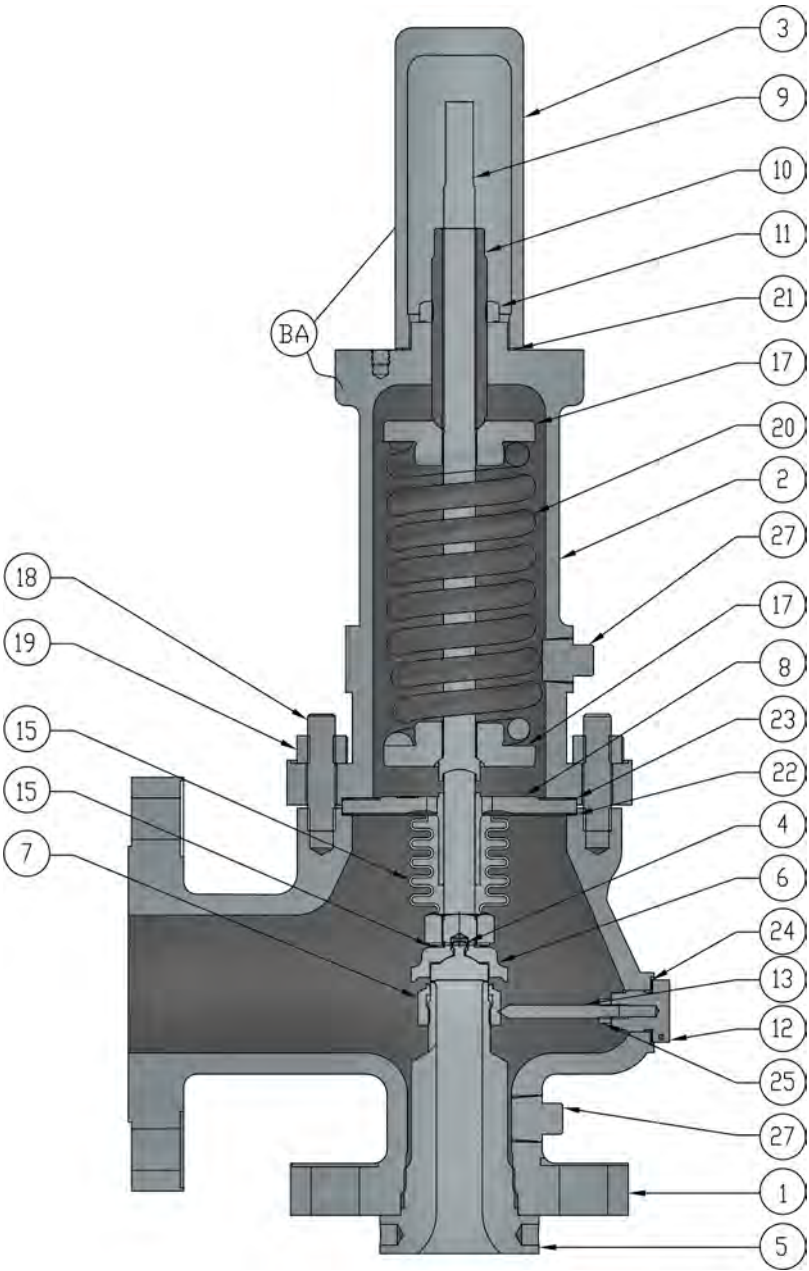
For compressible fluid services, the standard 28 Series should be used. Liquid service applications that do not require the use of Code stamped liquid relief valves can still be satisfied with the standard 28 series line. In most cases the standard 28 should only be used in liquid service where an existing installation pipe size / orifice combination does not match the 28L design.

The 28L Series is also certified under ASME Code Section VIII for use in air, gas, steam, and vapor services. It may be used in those applications or where two phase or flashing fluid service is anticipated. The 28L is certified as a fixed blowdown design whether used in compressible or non-compressible services.

The type number is differentiated from the existing 28 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: 28GA10L-120.

Optional trim material classes and other accessories are available, as with the 28 Series, with the exceptions of the H28. All types within the 28L Series follow the size, pressure-temperature ratings, and center-to-face dimensions of the 28 Series (API Std. 526).

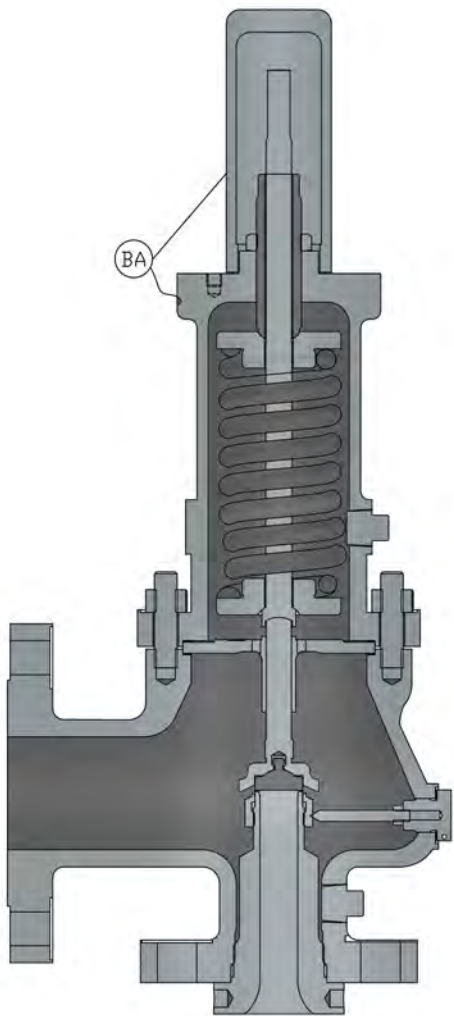
Traditional Bliss convertibility between conventional and bellows is maintained, as is the interchange-ability of parts.



Bill of Materials - Balanced Bellow

Item	Part Name	Material
1	Body	SA-216 Gr. WCB Carbon Steel ¹
		SA-217 Gr. WC6 Alloy St. (1-1/4 Cr-1/2 Moly) ²
2	Bonnet	SA-216 Gr. WCB Carbon Steel ¹
		SA-217 Gr. WC6 Alloy St. (1-1/4 Cr-1/2 Moly) ²
3	Cap. Plain Screwed	Carbon Steel
4	Disc	316 St. St.
5	Nozzle	316 St. St.
6	Disc Holder	316 St. St.
7	Blowdown 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 ¹	17-4 Ph. St. St.
15	Bellows	Inconel Composite
16	Bellows Gasket	Non-Asbestos
17	Spring Button	316 St. St.
18	Body Stud	SA-193 Gr. B7 Alloy St.
19	Hex Nut (Body)	SA-194 Gr. 2H Alloy St.
		Chrome Alloy Rust Proofed ¹
		High Temperature Alloy Rust Proofed ²
20	Spring	
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

*Applicable From Size 3J4



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



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



D Orifice

U.S. Customary Units, API Area: 0.110 sq. in., Actual Area: 0.115 sq. in.																	
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range		
Conven- tional	Balanced Bellow	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	Conven- tional Type	Balanced Bellow- Type	Body & Bonnet	Spring			
28DA10	28DB10	1 x 2	150#	150#			285	185	80		285	230	Carbon Steel	Chrome Alloy	-20°F to 800°F		
28DA11	28DB11	1 x 2	300#	150#			285	285	285		285	230					
28DA12	28DB12	1 x 2	300#	150#			740	620	410		285	230					
28DA13	28DB13	1 x 2	600#	150#			1480	1235	825		285	230					
28DA14		1 1/2 x 2	900#	300#			2220	1855	1235		600	500					
28DA15		1 1/2 x 2	1500#	300#			3705	3090	2055		600	500					
28A16A		1 1/2 x 3	2500#	300#	6170	5150	3430		740	500							
28DA32	28DB32	1 x 2	300#	150#				510	215		285	230	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F		
28DA33	28DB33	1 x 2	600#	150#							1015	430				285	230
28DA34		1 1/2 x 2	900#	300#							1525	650				600	500
28DA35		1 1/2 x 2	1500#	300#							2540	1080				600	500
28DA36A		1 1/2 x 3	2500#	300#							4230	1800				740	500
28DA10/S3	28DB10/S3	1 x 2	150#	150#							275	230	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F		
28DA11/S3	28DB11/S3	1 x 2	300#	150#							275	230					
28DA12/S3	28DB12/S3	1 x 2	300#	150#							720	230					
28DA13/S3	28DB13/S3	1 x 2	600#	150#							1440	230					
28DA14/S3		1 1/2 x 2	900#	300#							2160	500					
28DA15/S3		1 1/2 x 2	1500#	300#							3600	500					
28DA16A/S3		1 1/2 x 3	2500#	300#							6000	500					
28DA10/S4	28DB10/S4	1 x 2	150#	150#							275	230	316 St. St.	316 St. St.	-76°F to -450°F		
28DA11/S4	28DB11/S4	1 x 2	300#	150#							275	230					
28DA12/S4	28DB12/S4	1 x 2	300#	150#							720	230					
28DA13/S4	28DB13/S4	1 x 2	600#	150#							1440	230					
28DA14/S4		1 1/2 x 2	900#	300#							2160	500					
28DA15/S4		1 1/2 x 2	1500#	300#							3600	500					
28DA16A/S4		1 1/2 x 3	2500#	300#							4000	500					

E Orifice

U.S. Customary Units, API Area: 0.196 sq. in., Actual Area: 0.208 sq. in.																		
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range			
Conven- tional	Balanced Bellow	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	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring				
28EA10	28EB10	1 x 2	150#	150#			285	185	80		285	230	Carbon Steel	Chrome Alloy	-20°F to 800°F			
28EA11	28EB11	1 x 2	300#	150#			285	285	285		285	230						
28EA12	28EB12	1 x 2	300#	150#			740	620	410		285	230						
28EA13	28EB13	1 x 2	600#	150#			1480	1235	825		285	230						
28EA14		1 1/2 x 2	900#	300#			2220	1855	1235		600	500						
28EA15		1 1/2 x 2	1500#	300#			3705	3090	2055		600	500						
28EA16A		1 1/2 x 3	2500#	300#			6170	5150	3430		740	500						
28EA32	28EB32	1 x 2	300#	150#						510	215	285	230	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F		
28EA33	28EB33	1 x 2	600#	150#						1015	430	285	230					
28EA34		1 1/2 x 2	900#	300#						1525	650	600	500					
28EA35		1 1/2 x 2	1500#	300#						2540	1080	600	500					
28EA36A		1 1/2 x 3	2500#	300#						4230	1800	740	500					
28EA10/S3	28EB10/S3	1 x 2	150#	150#			275				275	230	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F			
28EA11/S3	28EB11/S3	1 x 2	300#	150#			275				275	230						
28EA12/S3	28EB12/S3	1 x 2	300#	150#			720				275	230						
28EA13/S3	28EB13/S3	1 x 2	600#	150#			1440				275	230						
28EA14/S3		1 1/2 x 2	900#	300#			2160				600	500						
28EA15/S3		1 1/2 x 2	1500#	300#			3600				600	500						
28EA16A/S3		1 1/2 x 3	2500#	300#			6000				720	500						
28EA10/S4	28EB10/S4	1 x 2	150#	150#	275						275	230	316 St. St.	316 St. St.	-76°F to -450°F			
28EA11/S4	28EB11/S4	1 x 2	300#	150#	275												275	230
28EA12/S4	28EB12/S4	1 x 2	300#	150#	720												275	230
28EA13/S4	28EB13/S4	1 x 2	600#	150#	1440												275	230
28EA14/S4		1 1/2 x 2	900#	300#	2160												600	500
28EA15/S4		1 1/2 x 2	1500#	300#	3600												600	500
28EA16A/S4		1 1/2 x 3	2500#	300#	4000												720	500



F Orifice

U.S. Customary Units, API Area: 0.307 sq. in., Actual Area: 0.328 sq. in.																
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range	
Conven- tional	Balanced Bellow	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	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring		
28FA10	28FB10	1 1/2 x 2	150#	150#			285	185	80		285	230	Carbon Steel	Chrome Alloy	-20°F to 800°F	
28FA11	28FB11	1 1/2 x 2	300#	150#			285	285	285		285	230				
28FA12	28FB12	1 1/2 x 2	300#	150#			740	620	410		285	230				
28FA13	28FB13	1 1/2 x 2	600#	150#			1480	1235	825		285	230				
28FA14A	28FB14A	1 1/2 x 3	900#	300#			2220	1855	1235		740	500				
28FA15A	28FB15A	1 1/2 x 3	1500#	300#			3705	3090	2055		740	500				
28FA16A	28FB16A	1 1/2 x 3	2500#	300#			5000	5000	3430		740	500				
28FA32	28FB32	1 1/2 x 2	300#	150#				510	215		285	230	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F	
28FA33	28FB33	1 1/2 x 2	600#	150#				1015	430		285	230				
28FA34A	28FB34A	1 1/2 x 3	900#	300#				1525	650		740	500				
28FA35A	28FB35A	1 1/2 x 3	1500#	300#				2540	1080		740	500				
28FA36A	28FB36A	1 1/2 x 3	2500#	300#				4230	1800		740	500				
28FA10/S3	28FB10/S3	1 1/2 x 2	150#	150#							275	230	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F	
28FA11/S3	28FB11/S3	1 1/2 x 2	300#	150#							275	230				
28FA12/S3	28FB12/S3	1 1/2 x 2	300#	150#							720	230				
28FA13/S3	28FB13/S3	1 1/2 x 2	600#	150#							1440	275				230
28FA14A/S3	28FB14A/S3	1 1/2 x 3	900#	300#							2160	720				500
28FA15A/S3	28FB15A/S3	1 1/2 x 3	1500#	300#							3600	720				500
28FA16A/S3	28FB16A/S3	1 1/2 x 3	2500#	300#							5000	720				500
28FA10/S4	28FB10/S4	1 1/2 x 2	150#	150#							275	230	316 St. St.	316 St. St.	-76°F to -450°F	
28FA11/S4	28FB11/S4	1 1/2 x 2	300#	150#							275	230				
28FA12/S4	28FB12/S4	1 1/2 x 2	300#	150#							720	275				230
28FA13/S4	28FB13/S4	1 1/2 x 2	600#	150#							1440	275				230
28FA14A/S4	28FB14A/S4	1 1/2 x 3	900#	300#							2160	720				500
28FA15A/S4	28FB15A/S4	1 1/2 x 3	1500#	300#							2200	720				500
28FA16A/S4	28FB16A/S4	1 1/2 x 3	2500#	300#							3400	720				500



U.S. Customary Units, API Area: 1.838 sq. in., Actual Area: 2.013 sq. in.															
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven- tional	Balanced Bellow	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	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring	
28KA10	28KB10	3 x 4	150#	150#			285	185	80		285	150	Carbon Steel	Chrome Alloy	-20°F to 800°F
28KA11	28KB11	3 x 4	300#	150#			285	285	285		285	150			
28KA12	28KB12	3 x 4	300#	150#			740	620	410		285	150			
28KA13	28KB13	3 x 4	600#	150#			1480	1235	825		285	200			
28KA14	28KB14	3 x 6	900#	150#			2220	1855	1235		285	200			
28KA15	28KB15	3 x 6	1500#	300#			2220	2220	2055		600	200			
28KA32	28KB32	3 x 4	300#	150#				510	215		285	150	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F
28KA33	28KB33	3 x 4	600#	150#				1015	430		285	200			
28KA34A	28KB34A	3 x 6	900#	150#				1525	650		285	200			
28KA35	28KB35	3 x 6	1500#	300#				2220	1080		600	200			
28KA10/S3	28KB10/S3	3 x 4	150#	150#		275					275	150	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F
28KA11/S3	28KB11/S3	3 x 4	300#	150#		275					275	150			
28KA12/S3	28KB12/S3	3 x 4	300#	150#		720					275	150			
28KA13/S3	28KB13/S3	3 x 4	600#	150#		1440					275	200			
28KA14/S3	28KB14/S3	3 x 6	900#	150#		2160					275	200			
28KA15/S3	28KB15/S3	3 x 6	1500#	300#		2220					600	200			
28KA10/S4	28KB10/S4	3 x 4	150#	150#	275						275	150	316 St. St.	316 St. St.	-76°F to -450°F
28KA11/S4	28KB11/S4	3 x 4	300#	150#	275						275	150			
28KA12/S4	28KB12/S4	3 x 4	300#	150#	525						275	150			
28KA13/S4	28KB13/S4	3 x 4	600#	150#	600						275	200			
28KA14/S4	28KB14/S4	3 x 6	900#	150#	600						275	200			
28KA15/S4	28KB15/S4	3 x 6	1500#	300#	750						600	200			

L Orifice

U.S. Customary Units, API Area: 2.853 sq. in., Actual Area: 3.136 sq. in.															
Type Number		Valve Size	ASME Flange Class		-450°F -76°F Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven- tional	Balanced Bellow	Inlet Outlet	Inlet RF or RJ	Outlet RF		-75°F -21°F	-20°F +100°F	450°F	800°F	1000°F	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring	
28LA10	28LB10	3 x 4	150#	150#			285	185	80		285	100	Carbon Steel	Chrome Alloy	-20°F to 80 0°F
28LA11	28LB11	3 x 4	300#	150#			285	285	285		285	100			
28LA12	28LB12	4 x 6	300#	150#			740	620	410		285	170			
28LA13	28LB13	4 x 6	600#	150#			1000	1000	825		285	170			
28LA14	28LB14	4 x 6	900#	150#			1500	1500	1100		285	170			
28LA15	28LB15	4 x 6	1500#	150#			1500	1500	1500		285	170			
28LA32	28LB32	4 x 6	300#	150#				510	215		285	170	Chrome Moly Steel	High Temp. Alloy	801°F -20°F 1000°F -75°F
28LA33	28LB33	4 x 6	600#	150#				1000	430		285	170			
28LA34	28LB34	4 x 6	900#	150#				1500	650		285	170			
28LA35	28LB35	4 x 6	1500#	150#				1500	1080		285	170			
28LA10/S3	28LB10/S3	3 x 4	150#	150#		275					275	100	316 St. St.	Chrome Alloy Nickel Plated	
28LA11/S3	28LB11/S3	3 x 4	300#	150#		275					275	100			
28LA12/S3	28LB12/S3	4 x 6	300#	150#		720					275	170			
28LA13/S3	28LB13/S3	4 x 6	600#	150#		1000					275	170			
28LA14/S3	28LB14/S3	4 x 6	900#	150#		1500					275	170			
28LA10/S4	28LB10/S4	3 x 4	150#	150#		275					275	170	316 St. St.	316 St. St.	-76°F to -450°F
28LA11/S4	28LB11/S4	3 x 4	300#	150#		275					275	170			
28LA12/S4	28LB12/S4	4 x 6	300#	150#		535					275	170			
28LA13/S4	28LB13/S4	4 x 6	600#	150#		535					275	170			
28LA14/S4	28LB14/S4	4 x 6	900#	150#		700					275	170			



U.S. Customary Units, API Area: 6.38 sq. in., Actual Area: 7.037 sq. in.															
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven- tional	Balanced Bellow	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	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring	
28PA10	28PB10	4 x 6	150#	150#			285	185	80		285	80	Carbon Steel	Chrome Alloy	-20°F to 800°F
28PA11	28PB11	4 x 6	300#	150#			285	285	285		285	80			
28PA12	28PB12	4 x 6	300#	150#			525	525	410		285	150			
28PA13	28PB13	4 x 6	600#	150#			1000	1000	825		285	150			
28PA14	28PB14	4 x 6	900#	150#			1000	1000	1000		285	150			
28PA32	28PB32	4 x 6	300#	150#				510	215		285	150	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F
28PA33	28PB33	4 x 6	600#	150#				1000	430		285	150			
28PA34	28PB34	4 x 6	900#	150#				1000	650		285	150			
28PA10/S3	28PB10/S3	4 x 6	150#	150#		275					275	80	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F
28PA11/S3	28PB11/S3	4 x 6	300#	150#		275					275	80			
28PA12/S3	28PB12/S3	4 x 6	300#	150#		525					275	150			
28PA13/S3	28PB13/S3	4 x 6	600#	150#		1000					275	150			
28PA10/S4	28PB10/S4	4 x 6	150#	150#	175						175	80	316 St. St.	316 St. St.	-76°F to -450°F
28PA11/S4	28PB11/S4	4 x 6	300#	150#	175						175	80			
28PA12/S4	28PB12/S4	4 x 6	300#	150#	300						275	150			
28PA13/S4	28PB13/S4	4 x 6	600#	150#	480						275	150			

Q Orifice

Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven- tional	Balanced Bellow	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	Balanced Bellow Type	Body & Bonnet	Spring	
28QA10	28QB10	6 x 8	150#	150#			165	165	80		115	70	Carbon Steel	Chrome Alloy	-20°F ¹ to 800°F
28QA11	28QB11	6 x 8	300#	150#			165	165	165		115	70			
28QA12	28QB12	6 x 8	300#	150#			300	300	300		115	115			
28QA13	28QB13	6 x 8	600#	150#			600	600	600		115	115			
H28QA13	H28QB13	6 x 8	600#	150#			900	900	825		285	200			
28QA32	28QB32	6 x 8	300#	150#				165	165		115	70	Chrome Moly Steel	High Temp. Alloy	801°F ¹ to 1000°F
28QA33	28QB33	6 x 8	600#	150#					430		115	70			
H28QA33	H28QB33	6 x 8	600#	150#				900	430		285	200			
28QA10/S3	28QB10/S3	6 x 8	150#	150#		165					115	70	316 St. St.	Chrome Alloy Nickel Plated	-21°F ¹ to -75°F
28QA11/S3	28QB11/S3	6 x 8	300#	150#		165					115	70			
28QA12/S3	28QB12/S3	6 x 8	300#	150#		300					115	115			
28QA13/S3	28QB13/S3	6 x 8	600#	150#		600					115	115			
28QA10/S4	28QB10/S4	6 x 8	150#	150#	165						115	70	316 St. St.	316 St. St.	-76°F ¹ to -450°F
28QA11/S4	28QB11/S4	6 x 8	300#	150#	165						115	70			
28QA12/S4	28QB12/S4	6 x 8	300#	150#	250						115	115			
28QA13/S4	28QB13/S4	6 x 8	600#	150#	300						115	115			



R Orifice



Former API Standard Sizes

API Standard 526, Flanged Steel Pressure Relief Valves, has been modified in the past to replace the use of 2 1/2" pipe with 3" pipe size connections. In addition, on certain types, the standard outlet size offering has been changed to a larger size. The following table is a summary of the old type numbers previously offered. The original type numbers with the original connection sizes are still available for replacement of existing valves.

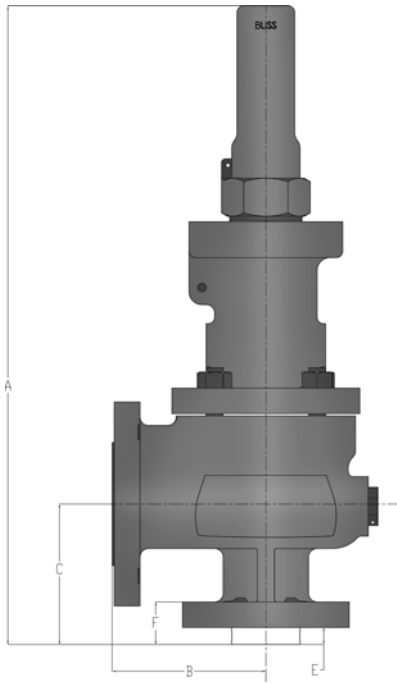
U.S. Customary Units, API Area: 16.00 sq. in., Actual Area: 17.686 sq. in.															
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven- tional	Balanced Bellow	Inlet Outlet	Inlet RF or RJ	Outlet RF	-450°F -76°F	-75°F -21°F	-20°F +100°F	450°F	800°F	1000°F	Conven- tional Type	Balanced Bellow Type	Body & Bonnet	Spring	
28RA10	28RB10	6 x 8	150#	150#	100			100	80		60	60	Carbon Steel	Chrome Alloy	-20°F to 800°F
28RA11	28RB11	6 x 8	300#	150#	100			100	100		60	60			
28RA12	28RB12	6 x 10	300#	150#	230			230	230		100	100			
28RA13	28RB13	6 x 10	600#	150#	300			300	300		100	100			
H28RA13	H28RB13	6 x 10	600#	150#	600			600	600		285	200			
28RA32	28RB32	6 x 8	300#	150#				100	100		60	60	Chrome Moly Steel	High Temp. Alloy	801°F to 1000°F
28RA33	28RB33	6 x 10	600#	150#				300	300		100	100			
H28RA33	H28RB33	6 x 10	600#	150#				600	430		285	200			
28RA10/S3	28RB10/S3	6 x 8	150#	150#	100						60	60	316 St. St.	Chrome Alloy Nickel Plated	-21°F to -75°F
28RA11/S3	28RB11/S3	6 x 8	300#	150#	100						60	60			
28RA12/S3	28RB12/S3	6 x 10	300#	150#	230						100	100			
28RA13/S3	28RB13/S3	6 x 10	600#	150#	300						100	100			
28RA10/S4	28RB10/S4	6 x 8	150#	150#	55						55	55	316 St. St.	316 St. St.	-76°F to -450°F
28RA11/S4	28RB11/S4	6 x 8	300#	150#	55						55	55			
28RA12/S4	28RB12/S4	6 x 10	300#	150#	150						100	100			
28RA13/S4	28RB13/S4	6 x 10	600#	150#	200						100	100			

Orifice	Type Number		Valve Size Inlet x Outlet	ASME Flange Class		Dimensions, Inches					Approx. Weight
	Air, Steam, & Vapor	Liquid		Inlet	Outlet	A	B	C	E	F	
D	28DA16	28DA16L	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	28EA16	28EA16L	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	28FA14	28FA14L	1 1/2 x 2 1/2	900#	300#	22 3/4	6	4 7/8	11/16	1 15/16	70
	28FA15	28FA15L	1 1/2 x 2 1/2	1500#	300#	22 3/4	6	4 7/8	11/16	1 15/16	70
	28FA16	28FA16L	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	28GA10	28GA10L	1 1/2 x 2 1/2	150#	150#	18 5/8	4 3/4	4 7/8	11/16	1 1/4	50
	28GA11	28GA11L	1 1/2 x 2 1/2	300#	150#	18 5/8	4 3/4	4 7/8	11/16	1 9/16	50
	28GA12	28GA12L	1 1/2 x 2 1/2	300#	150#	22 1/4	6	4 7/8	11/16	1 9/16	60
	28GA13	28GA13L	1 1/2 x 2 1/2	600#	150#	22 1/4	6	4 7/8	11/16	1 9/16	60
	28GA14	28GA14L	1 1/2 x 2 1/2	900#	300#	23 3/4	6	4 7/8	11/16	1 15/16	70
J	28JA12	28JA12L	2 1/2 x 4	300#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	28JA13	28JA13L	2 1/2 x 4	600#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	28JA32	28JA32L	2 1/2 x 4	300#	150#	24 3/8	5 5/8	5 3/8	11/16	1 13/16	150
	28JA33	28JA33L	2 1/2 x 4	600#	150#	24 3/8	6 3/4	6 1/8	11/16	1 13/16	150
	28JA34	28JA34L	2 1/2 x 4	900#	150#	33 1/8	7 1/8	7 1/4	11/16	2 5/16	170
K	28KA34	28KA34L	3 x 4	900#	150#	32 3/8	7 1/8	7 1/4	11/16	2 3/16	175

T Orifice

U.S. Customary Units, API Area: 26.00 sq. in., Actual Area: 28.761 sq. in.															
Type Number		Valve Size	ASME Flange Class		Maximum Set Pressure, psig						Back Pressure Limit psig @ 100°F		Material		Inlet Temp. Range
Conven-tional	Balanced Bellow	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	Balanced Bellow Type	Body & Bonnet	Spring	
28TA10	28TB10	8 x 10	150#	150#			65	65	65		30	30	Carbon Steel	Chrome Alloy	-20°F to 800°F
28TA11	28TB11	8 x 10	300#	150#			65	65	65		30	30			
28TA12	28TB12	8 x 10	300#	150#			120	120	120		60	60			
H28TA12	H28TB12	8 x 10	300#	150#			300	300	300		100	100			
28TA32	28TB32	8 x 10	300#	150#					120	120	60	60	Chrome Moly St.	High Temp. Alloy	801°F to 1000°F
H28TA32	H28TB32	8 x 10	300#	150#					300	215	100	100			
28TA10/S3	28TB10/S3	8 x 10	150#	150#		65					30	30	316 St. St.	Chrome Alloy Nickel Ptt'd.	-21°F to -75°F
28TA11/S3	28TB11/S3	8 x 10	300#	150#		65					30	30			
28TA12/S3	28TB12/S3	8 x 10	300#	150#		120					60	60			
28TA10/S4	28TB10/S4	8 x 10	150#	150#	50						30	30	316 St. St.	316 St. St.	-76°F to -450°F
28TA11/S4	28TB11/S4	8 x 10	300#	150#	50						30	30			
28TA12/S4	28TB12/S4	8 x 10	300#	150#	65						60	60			

Optional Construction	7th Digit Designation	
	Air, Steam & Vapor	Liquids
Heat Transfer Fluid Service	F	G
Exposed Spring	C	N/A*
*Not applicable		



- General 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: 28DA36-120.
 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 table above.



Air Capacities – 28 Series: 10% Overpressure, API

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	0.115	0.208	0.238	0.545	0.855	1.408	2.013	3.136	3.959	4.777	7.037	12.20	17.686	28.761
15	58	105	121	277	435	717	1025	1597	2017	2433	3585	6216	9011	14654
20	67	122	139	320	502	826	1182	1842	2325	2806	4133	7166	10388	16894
30	85	154	177	405	635	1046	1495	2331	2942	3550	5229	9067	13145	21376
40	105	190	217	498	781	1288	1841	2868	3620	4368	6435	11158	16176	26305
50	125	225	258	591	929	1529	2186	3406	4299	5188	7642	13249	19207	31235
60	144	261	299	685	1075	1770	2530	3943	4977	6006	8848	15340	22238	36164
70	164	297	340	778	1222	2011	2876	4480	5657	6825	10054	17431	25270	41093
80	184	332	381	871	1368	2252	3221	5018	6335	7643	11260	19522	28301	46023
90	204	368	421	965	1515	2494	3566	5555	7014	8463	12466	21613	31332	50952
100	223	404	462	1059	1661	2735	3910	6093	7692	9281	13672	23704	34363	55882
150	321	582	666	1525	2394	3942	5636	8780	11085	13375	19703	34159	49519	80529
200	420	760	870	1993	3126	5148	7361	11468	14477	17468	25733	44615	64676	105176
250	519	939	1074	2460	3859	6355	9086	14155	17870	21562	31764	55070	79832	129825
300	617	1116	1278	2927	4591	7562	10811	16842	21263	25657	37794	65525	94989	154472
350	715	1295	1482	3394	5325	8768	12536	19530	24655	29750	43825	75980	110145	
400	814	1474	1686	3861	6057	9975	14261	22218	28049	33844	49855	86435	125302	
450	913	1651	1890	4328	6790	11181	15986	24905	31441	37937	55886	96890	140458	
500	1012	1830	2094	4795	7522	12388	17712	27592	34834	42032	61916	107345	155615	
550	1110	2007	2298	5262	8255	13595	19436	30280	38227	46125	67947	117800	170772	
600	1208	2186	2501	5729	8987	14801	21162	32968	41619	50219	73977	128255	185928	
650	1307	2365	2705	6196	9721	16008	22887	35655	45012	54312	80008	138710		
700	1406	2542	2909	6664	10453	17214	24611	38343	48405	58406	86039	149165		
750	1505	2721	3113	7130	11186	18421	26337	41030	51798	62500	92069	159620		
800	1603	2900	3317	7597	11919	19628	28062	43717	55191	66594	98100	170075		
850	1701	3077	3521	8064	12651	20834	29787	46404	58583	70688	104130	180530		
900	1800	3256	3725	8531	13385	22041	31512	49093	61976	74781	110161	190985		
950	1899	3434	3929	8998	14117	23248	33237	51780	65368	78876	116191			
1000	1997	3612	4133	9465	14850	24454	34963	54467	68761	82969	122222			
1050	2096	3791	4337	9932	15582	25661	36687	57155	72155					
1100	2194	3968	4541	10399	16315	26867	38413	59842	75547					
1150	2293	4147	4745	10867	17047	28074	40138	62529						
1200	2391	4325	4949	11333	17781	29281	41862	65217						
1250	2490	4503	5153	11801	18513	30487	43588	67905						
1300	2588	4682	5357	12267	19246	31694	45313	70592						
1350	2687	4860	5561	12735	19978	32900	47038	73279						
1400	2785	5038	5765	13201	20711	34107	48763	75967						
1450	2884	5217	5969	13669	21444	35314	50489	78655						
1500	2983	5395	6173	14135	22177	36520	52213	81342						
1550	3081	5573	6377	14603	22910	37727	53938							
1600	3179	5751	6581	15070	23642	38934	55664							
1650	3278	5929	6785	15537	24375	40140	57388							
1700	3377	6108	6989	16004	25107	41347	59114							
1750	3476	6286	7193	16471	25841	42553	60839							
1800	3574	6464	7397	16938	26573	43760	62563							
1850	3672	6642	7601	17405	27306	44967	64289							
1900	3771	6821	7805	17872	28038	46173	66014							
2000	3968	7177	8212	18806	29504	48586	69464							
2100	4165	7534	8620	19740	30969	51000	72914							
2200	4362	7890	9028	20674	32434	53413	76365							
2300	4559	8247	9436	21608	33901	55826								
2400	4756	8603	9844	22542	35366	58239								
2500	4954	8960	10252	23477	36831	60653								
2600	5150	9316	10660	24411	38297	63066								
2700	5348	9673	11068	25345	39762	65479								
2800	5545	10029	11476	26279										
2900	5742	10385	11884	27213										
3000	5939	10743	12292	28147										
3500	6925	12525	14331	32818										
3700	7319	13237	15147	34686										
4000	7910	14307	16371											
4500	8895	16090	18411											
5000	9881	17872	20450											
5500	10866	19655												
6000	11852	21438												

General Notes:
1. Above capacities should also be used for 28L series when used in air service.
2. Capacities at 30 psig and below are based on 3 PSI overpressure.

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 0.850.

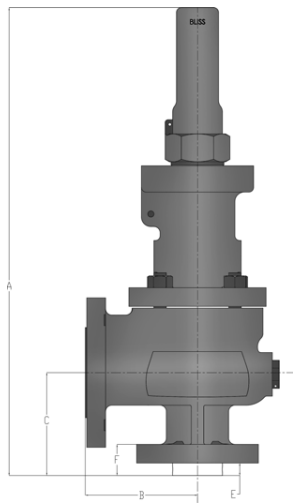


Water Capacities – 28L Series: 10% Overpressure, API

ASME Pressure Vessel Code (UV), Capacities in Gallons Per Minute at 70°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	3.600	4.34	6.38	11.05	16.0	26.0
Actual	0.115	0.208	0.238	0.545	0.855	1.408	2.013	3.136	3.959	4.777	7.037	12.200	17.686	28.761
15	15	27	31	71	111	181	259	405	511	617	909	1575	2283	3713
20	17	31	35	79	125	206	293	457	578	697	1027	1780	2581	4198
30	20	36	42	96	149	247	351	548	692	835	1230	2133	3092	5028
40	24	42	48	110	172	284	406	633	799	964	1420	2463	3570	5807
50	26	47	54	123	193	318	454	707	892	1078	1588	2753	3991	6492
60	28	51	59	134	212	348	498	775	979	1181	1740	3016	4372	7112
70	31	56	64	146	227	376	537	837	1057	1275	1879	3258	4723	7682
80	33	59	68	156	244	402	574	894	1130	1363	2009	3483	5049	8212
90	35	62	72	164	259	426	609	949	1199	1446	2131	3694	5355	8710
100	37	66	76	174	273	450	642	1000	1263	1524	2246	3894	5646	9181
150	45	82	93	212	334	550	786	1225	1547	1867	2751	4769	6914	11245
200	52	94	107	246	385	635	908	1415	1786	2155	3177	5507	7984	12985
250	58	104	120	274	431	710	1015	1582	1998	2411	3551	6158	8926	14517
300	63	115	132	302	472	779	1113	1733	2189	2641	3890	6745	9779	15903
350	69	124	142	325	510	841	1201	1873	2364	2853	4202	7285	10562	
400	73	133	152	347	545	899	1285	2002	2527	3049	4493	7788	11292	
450	78	141	161	369	579	953	1362	2123	2680	3234	4765	8261	11976	
500	82	149	169	389	610	1005	1436	2237	2826	3409	5022	8708	12624	
550	86	156	178	408	639	1054	1507	2347	2963	3576	5267	9133	13240	
600	89	162	186	426	668	1101	1573	2451	3095	3735	5502	9539	13829	
650	93	169	193	443	695	1146	1637	2552	3221	3887	5726	9929		
700	97	175	201	460	722	1189	1699	2648	3343	4035	5943	10304		
750	101	182	208	477	747	1231	1760	2741	3461	4176	6152	10665		
800	104	187	214	492	771	1271	1817	2831	3574	4312	6353	11014		
850	107	193	221	507	795	1310	1872	2918	3684	4446	6548	11354		
900	110	199	228	522	818	1349	1927	3003	3791	4574	6739	11683		
950	113	204	234	537	841	1385	1980	3085	3895	4699	6923			
1000	116	210	240	550	863	1421	2031	3165	3996	4822	7103			
1050	119	215	246	563	884	1456	2082	3244	4094					
1100	122	220	251	577	905	1490	2130	3319	4191					
1150	124	225	257	589	925	1524	2179	3394						
1200	127	229	262	602	945	1557	2226	3467						
1250	129	234	268	614	965	1588	2271	3539						
1300	132	238	273	628	983	1621	2317	3608						
1350	135	243	279	638	1002	1651	2360	3678						
1400	138	248	284	650	1020	1681	2404	3746						
1450	139	252	289	662	1038	1710	2446	3811						
1500	142	257	294	673	1056	1741	2489	3877						
1550	144	261	299	684	1074	1768	2529							
1600	146	265	303	696	1091	1798	2570							
1650	149	269	308	707	1108	1825	2610							
1700	151	274	313	716	1125	1853	2649							
1750	154	277	318	727	1141	1880	2687							
1800	155	282	322	738	1157	1906	2726							
1850	157	285	326	747	1173	1933	2764							
1900	159	288	331	758	1189	1958	2800							
2000	164	296	340	777	1220	2009	2873							
2100	168	303	348	797	1250	2059	2944							
2200	171	311	356	816	1279	2107	3013							
2300	175	318	364	834	1308	2156								
2400	179	325	372	852	1337	2202								
2500	183	332	380	870	1364	2246								
2600	186	338	387	886	1391	2291								
2700	190	344	394	903	1417	2335								
2800	194	351	402	920										
2900	197	357	409	937										
3000	201	363	416	952										
3500	217	392	449	1029										
3700	223	403	462	1058										
4000	232	419	480											
4500	246	445	509											
5000	259	469	537											
5500	272	492												
6000	284	513												



Dimensions & Weights



Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg
Inlet x Outlet	Conventional	A (Max.)		B	C	E	F		A (Max.)		B	C	E	F	
		Vapor	Liquid						Vapor	Liquid					
1 x 2	28DA10	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA11	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA12	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA13	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28DA14	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28DA15	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28DA16	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28DA16A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37
1 x 2	28DA20	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA21	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA22	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA23	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28DA24	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28DA25	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28DA26	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28DA26A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37
1 x 2	28DA32	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28DA33	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28DA34	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28DA35	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28DA36	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28DA36A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37
1 x 2	28EA10	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA11	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA12	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA13	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28EA14	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28EA15	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28EA16	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28EA16A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37
1 x 2	28EA20	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA21	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA22	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA23	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28EA24	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28EA25	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28EA26	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28EA26A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37
1 x 2	28EA32	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 x 2	28EA33	19.4	19.4	4 1/2	4 1/8	1/2	1 3/16	42	493	493	115	105	13	31	20
1 1/2 x 2	28EA34	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2	28EA35	23.9	23.9	5 1/2	4 1/8	11/16	1 15/16	50	607	607	140	105	18	50	23
1 1/2 x 2 1/2	28EA36	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37
1 1/2 x 3	28EA36A	23.9	23.9	7	5 1/2	11/16	2 5/8	80	607	607	178	140	18	67	37

Note: The center to face dimension tolerances "B" and "C" are per API Standard 526: + 1/6" for valves up to and including 4" inlet size and + 1/8" over 4" inlet size.



Dimensions & Weights

Balanced Bellow	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg	
		A (Max.)		B	C	E	F		A (Max.)		B	C	E	F		
		Vapor	Liquid						Vapor	Liquid						
1 1/2 x 2	28FA10	19.9	19.9	4 3/4	4 7/8	11/16	1 1/4	44	506	506	121	124	18	32	20	
1 1/2 x 2	28FA11	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	44	506	506	121	124	18	40	20	
1 1/2 x 2	28FA12	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2	28FA13	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2 1/2	28FA14	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA14A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA15	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA15A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA16	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37	
1 1/2 x 3	28FA16A	23.9	23.9	7	5 1/2	11/16	2 7/16	80	607	607	178	140	18	62	37	
1 1/2 x 2	28FA20	19.9	19.9	4 3/4	4 7/8	11/16	1 1/4	44	516	516	121	124	18	32	20	
1 1/2 x 2	28FA21	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	44	516	516	121	124	18	40	20	
1 1/2 x 2	28FA22	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2	28FA23	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2 1/2	28FA24	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA24A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA25	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA25A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA26	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37	
1 1/2 x 3	28FA26A	23.9	23.9	7	5 1/2	11/16	2 7/16	80	607	607	178	140	18	62	37	
1 1/2 x 2	28FA32	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2	28FA33	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2 1/2	28FA34	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA34A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA35	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28FA35A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
1 1/2 x 2 1/2	28FA36	23.9	23.9	6 1/2	5 1/2	11/16	2 7/16	80	607	607	166	140	18	62	37	
1 1/2 x 3	28FA36A	23.9	23.9	7	5 1/2	11/16	2 7/16	80	607	607	178	140	18	62	37	
1 1/2 x 2 1/2	28GA10	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 3	28GA10A	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 2 1/2	28GA11	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 3	28GA11A	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 2 1/2	28GA12	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 3	28GA12A	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2 1/2	28GA13	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
1 1/2 x 3	28GA13A	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
1 1/2 x 2 1/2	28GA14	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28GA14A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
2 x 3	28GA15	24.4	24.4	6 3/4	6 1/8	11/16	2 3/16	85	620	620	172	156	18	56	39	
2 x 3	28GA16	24.4	24.4	6 3/4	6 1/8	11/16	2 11/16	95	620	620	172	156	18	69	44	
1 1/2 x 2 1/2	28GA20	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 3	28GA20A	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 2 1/2	28GA21	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 3	28GA21A	19.9	19.9	4 3/4	4 7/8	11/16	1 9/16	50	506	506	121	124	18	40	23	
1 1/2 x 2 1/2	28GA22	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 3	28GA22A	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 2 1/2	28GA23	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
1 1/2 x 3	28GA23A	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
1 1/2 x 2 1/2	28GA24	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
1 1/2 x 3	28GA24A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
2 x 3	28GA25	24.4	24.4	6 3/4	6 1/8	11/16	2 3/16	85	620	620	172	156	18	56	39	
2 x 3	28GA26	24.4	24.4	6 3/4	6 1/8	11/16	2 11/16	95	620	620	172	156	18	69	44	
1 1/2 x 2 1/2	28GA32	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
1 1/2 x 3	28GA32A	23.4	23.4	6	4 7/8	11/16	1 9/16	50	595	595	153	124	18	40	23	
Bellow, "0" ri	28GA33	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
	28GA33A	23.9	23.9	6	4 7/8	11/16	1 9/16	50	607	607	153	124	18	40	23	
	28GA34	23.9	23.9	6	4 7/8	11/16	1 15/16	70	607	607	153	124	18	50	32	
	28GA34A	23.9	23.9	6 1/2	4 7/8	11/16	1 15/16	70	607	607	166	124	18	50	32	
	2 x 3	28GA35	24.4	24.4	6 3/4	6 1/8	11/16	2 3/16	85	620	620	172	156	18	56	39
	2 x 3	28GA36	24.4	24.4	6 3/4	6 1/8	11/16	2 11/16	95	620	620	172	156	18	69	44
	1 1/2 x 3	28HA10	20.4	20.4	4 7/8	5 1/8	11/16	1 1/4	54	518	518	124	131	18	32	25
	1 1/2 x 3	28HA11	20.4	20.4	4 7/8	5 1/8	11/16	1 1/2	54	518	518	124	131	18	39	25
	2 x 3	28HA12	23.4	23.4	4 7/8	5 1/8	11/16	1 11/16	70	595	595	124	131	18	43	32
	2 x 3	28HA13	24.4	24.4	6 3/8	6 1/16	11/16	1 11/16	70	620	620	162	154	18	43	32
2 x 3	28HA14	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39	
2 x 3	28HA15	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39	



Dimensions & Weights

Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg
Inlet x Outlet	Conventional	A (Max.)		B	C	E	F		A (Max.)		B	C	E	F	
		Vapor	Liquid						Vapor	Liquid					
1 1/2 x 3	28HA20	20.4	20.4	4 7/8	5 1/8	11/16	1 1/4	54	518	518	124	131	18	32	25
1 1/2 x 3	28HA21	20.4	20.4	4 7/8	5 1/8	11/16	1 1/2	54	518	518	124	131	18	39	25
2 x 3	28HA22	23.4	23.4	4 7/8	5 1/8	11/16	1 11/16	70	595	595	124	131	18	43	32
2 x 3	28HA23	24.4	24.4	6 3/8	6 1/16	11/16	1 11/16	70	620	620	162	154	18	43	32
2 x 3	28HA24	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39
2 x 3	28HA25	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39
2 x 3	28HA32	23.4	23.4	4 7/8	5 1/8	11/16	1 11/16	70	595	595	124	131	18	43	32
2 x 3	28HA33	23.4	23.4	4 7/8	5 1/8	11/16	1 11/16	70	595	595	124	131	18	43	32
2 x 3	28HA34	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39
2 x 3	28HA35	24.4	24.4	6 3/8	6 1/16	11/16	2 3/16	85	620	620	162	154	18	56	39
2 x 3	28JA10	23.4	23.4	4 7/8	5 3/8	11/16	1 5/16	58	595	595	124	137	18	34	27
2 x 3	28JA11	23.4	23.4	4 7/8	5 3/8	11/16	1 11/16	58	595	595	124	137	18	43	27
2 1/2 x 4	28JA12	25.4	27.4	5 5/8	5 3/8	11/16	1 13/16	150	645	696	143	137	18	47	69
3 x 4	28JA12A	26.4	28.9	7 1/8	7 1/4	11/16	2 1/8	150	671	734	181	185	18	54	69
2 1/2 x 4	28JA13	27.9	34.9	6 3/4	6 1/8	11/16	1 13/16	150	709	887	172	156	18	47	69
3 x 4	28JA13A	28.9	34.9	7 1/8	7 1/4	11/16	2 1/8	150	734	912	181	185	18	54	69
3 x 4	28JA14	36.4	36.4	7 1/8	7 1/4	11/16	2 3/16	175	925	925	181	185	18	56	80
3 x 4	28JA15	36.4	36.4	7 1/8	7 1/4	11/16	2 9/16	175	925	925	181	185	18	66	80
2 x 3	28JA20	23.4	23.4	4 7/8	5 3/8	11/16	1 5/16	58	595	595	124	137	18	34	27
2 x 3	28JA21	23.4	23.4	4 7/8	5 3/8	11/16	1 11/16	58	595	595	124	137	18	43	27
2 1/2 x 4	28JA22	25.4	27.4	5 5/8	5 3/8	11/16	1 13/16	150	645	696	143	137	18	47	69
3 x 4	28JA22A	26.4	28.9	7 1/8	7 1/4	11/16	2 1/8	150	671	734	181	185	18	54	69
2 1/2 x 4	28JA23	27.9	34.9	6 3/4	6 1/8	11/16	1 13/16	150	709	887	172	156	18	47	69
3 x 4	28JA23A	28.9	35.9	7 1/8	7 1/4	11/16	2 1/8	150	734	912	181	185	18	54	69
3 x 4	28JA24	36.4	36.4	7 1/8	7 1/4	11/16	2 3/16	175	925	925	181	185	18	56	80
3 x 4	28JA25	36.4	36.4	7 1/8	7 1/4	11/16	2 3/16	175	925	925	181	185	18	56	80
2 1/2 x 4	28JA32	25.4	27.4	5 5/8	5 3/8	11/16	1 13/16	150	645	696	143	137	18	47	69
3 x 4	28JA32A	26.4	28.9	7 1/8	7 1/4	11/16	2 1/8	150	671	734	181	185	18	54	69
2 1/2 x 4	28JA33	27.9	34.9	5 5/8	5 3/8	11/16	1 13/16	150	709	887	143	137	18	47	69
3 x 4	28JA33A	28.9	35.9	7 1/8	7 1/4	11/16	2 1/8	150	734	912	181	185	18	54	69
2 1/2 x 4	28JA34	25.4	25.4	6 3/4	6 1/8	11/16	2 5/16	175	645	645	172	156	18	59	80
3 x 4	28JA34A	26.4	26.4	7 1/8	7 1/4	11/16	2 3/8	175	671	671	181	185	18	61	80
3 x 4	28JA35	36.4	36.4	7 1/4	7 1/8	11/16	2 9/16	175	925	925	185	181	18	66	80
3 x 4	28KA10	26.9	28.9	6 3/8	6 1/8	11/16	1 1/2	145	684	734	162	156	18	39	66
3 x 4	28KA11	26.9	28.9	6 3/8	6 1/8	11/16	1 15/16	145	684	734	162	156	18	50	66
3 x 4	28KA12	28.9	28.9	6 3/8	6 1/8	11/16	1 15/16	160	734	734	162	156	18	50	73
3 x 4	28KA13	35.9	35.9	7 1/8	7 1/4	11/16	1 15/16	160	912	912	181	185	18	50	73
3 x 6	28KA14	37.9	37.9	8 1/2	7 13/16	11/16	2 3/16	230	963	963	216	199	18	56	105
3 x 6	28KA15	37.9	37.9	8 1/2	7 3/4	11/16	2 9/16	230	963	963	216	197	18	66	105
3 x 4	28KA20	26.9	28.9	6 3/8	6 1/8	11/16	1 1/2	145	684	734	162	156	18	39	66
3 x 4	28KA21	26.9	28.9	6 3/8	6 1/8	11/16	1 15/16	145	684	734	162	156	18	50	66
3 x 4	28KA22	28.9	28.9	6 3/8	6 1/8	11/16	1 15/16	160	734	734	162	156	18	50	73
3 x 4	28KA23	35.9	35.9	7 1/8	7 1/4	11/16	1 15/16	160	912	912	181	185	18	50	73
3 x 6	28KA24	37.9	37.9	8 1/2	7 13/16	11/16	2 3/16	230	963	963	216	199	18	56	105
3 x 6	28KA25	37.9	37.9	8 1/2	7 3/4	11/16	2 9/16	230	963	963	216	197	18	66	105
3 x 4	28KA32	28.9	32.4	6 3/8	6 1/8	11/16	1 15/16	160	734	823	162	156	18	50	73
3 x 4	28KA33	28.9	28.9	6 3/8	6 1/8	11/16	1 15/16	160	734	734	162	156	18	50	73
3 x 4	28KA34	35.9	35.9	7 1/8	7 1/4	11/16	2 3/16	230	912	912	181	185	18	56	105
3 x 6	28KA34A	35.9	35.9	8 1/2	7 13/16	11/16	2 3/8	175	912	912	216	199	18	61	80
3 x 6	28KA35	37.9	37.9	8 1/2	7 3/4	11/16	2 9/16	230	963	963	216	197	18	66	105
3 x 4	28LA10	26.9	28.9	6 1/2	6 1/8	11/16	1 1/2	145	684	734	166	156	18	39	66
3 x 4	28LA11	26.9	28.9	6 1/2	6 1/8	11/16	1 15/16	145	684	734	166	156	18	50	66
4 x 6	28LA12	38.9	38.9	7 1/8	7 1/16	11/16	1 15/16	230	988	988	181	180	18	50	105
4 x 6	28LA13	38.9	38.9	8	7 1/16	11/16	2 3/16	230	988	988	204	180	18	56	105
4 x 6	28LA14	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
3 x 4	28LA20	26.9	28.9	6 1/2	6 1/8	11/16	1 1/2	145	684	734	166	156	18	39	66
3 x 4	28LA21	26.9	28.9	6 1/2	6 1/8	11/16	1 15/16	145	684	734	166	156	18	50	66
4 x 6	28LA22	38.9	38.9	7 1/8	7 1/16	11/16	1 15/16	230	988	988	181	180	18	50	105
4 x 6	28LA23	38.9	38.9	8	7 1/16	11/16	2 3/16	230	988	988	204	180	18	56	105
4 x 6	28LA24	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28LA25	43.4	43.4	8 3/4	7 3/4	11/16	2 13/16	250	1103	1103	223	197	18	72	114
4 x 6	28LA32	38.9	38.9	7 1/8	7 1/16	11/16	1 15/16	230	988	988	181	180	18	50	105
4 x 6	28LA33	38.9	38.9	8	7 1/16	11/16	2 3/16	230	988	988	204	180	18	56	105
4 x 6	28LA34	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28LA35	43.4	43.4	8 3/4	7 3/4	11/16	2 13/16	250	1103	1103	223	197	18	72	114

Dimensions & Weights



Size	Type	U.S. Standard Dimensions (inches)						Approx. Weight Lbs.	Metric Dimensions (millimeters)						Approx. Weight kg
Inlet x Outlet	Conventional	A (Max.)		B	C	E	F		A (Max.)		B	C	E	F	
		Vapor	Liquid						Vapor	Liquid					
4 x 6	28MA10	31.9	38.9	7 1/4	7	11/16	1 15/16	190	811	988	185	178	18	50	87
4 x 6	28MA11	31.9	38.9	7 1/4	7	11/16	1 15/16	190	811	988	185	178	18	50	87
4 x 6	28MA12	38.9	38.9	7 1/4	7	11/16	1 15/16	230	988	988	185	178	18	50	105
4 x 6	28MA13	43.4	43.4	8	7	11/16	2 3/16	250	1103	1103	204	178	18	56	114
4 x 6	28MA14	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28MA20	31.9	38.9	7 1/4	7	11/16	1 15/16	190	811	988	185	178	18	50	87
4 x 6	28MA21	31.9	38.9	7 1/4	7	11/16	1 15/16	190	811	988	185	178	18	50	87
4 x 6	28MA22	38.9	38.9	7 1/4	7	11/16	1 15/16	230	988	988	185	178	18	50	105
4 x 6	28MA23	43.4	43.4	8	7	11/16	2 3/16	250	1103	1103	204	178	18	56	114
4 x 6	28MA24	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28MA32	38.9	38.9	7 1/4	7	11/16	1 15/16	230	988	988	185	178	18	50	105
4 x 6	28MA33	38.9	38.9	8	7	11/16	2 3/16	250	988	988	204	178	18	56	114
4 x 6	28MA34	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28NA10	31.9	38.9	8 1/4	7 3/4	11/16	1 15/16	190	811	988	210	197	18	50	87
4 x 6	28NA11	31.9	38.9	8 1/4	7 3/4	11/16	1 15/16	190	811	988	210	197	18	50	87
4 x 6	28NA12	38.9	38.9	8 1/4	7 3/4	11/16	1 15/16	230	988	988	210	197	18	50	105
4 x 6	28NA13	43.4	43.4	8 3/4	7 3/4	11/16	2 3/16	250	1103	1103	223	197	18	56	114
4 x 6	28NA14	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28NA20	31.9	38.9	8 1/4	7 3/4	11/16	1 15/16	190	811	988	210	197	18	50	87
4 x 6	28NA21	31.9	38.9	8 1/4	7 3/4	11/16	1 15/16	190	811	988	210	197	18	50	87
4 x 6	28NA22	38.9	38.9	8 1/4	7 3/4	11/16	1 15/16	230	988	988	210	197	18	50	105
4 x 6	28NA23	43.4	43.4	8 3/4	7 3/4	11/16	2 15/16	250	1103	1103	223	197	18	75	114
4 x 6	28NA24	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28NA32	38.9	38.9	8 1/4	7 3/4	11/16	1 15/16	230	988	988	210	197	18	50	105
4 x 6	28NA33	38.9	43.4	8 3/4	7 3/4	11/16	2 3/16	250	988	1103	223	197	18	56	114
4 x 6	28NA34	43.4	43.4	8 3/4	7 3/4	11/16	2 7/16	250	1103	1103	223	197	18	62	114
4 x 6	28PA10	31.9	38.9	9	7 1/8	11/16	1 5/8	190	811	988	229	181	18	42	87
4 x 6	28PA11	31.9	38.9	9	7 1/8	11/16	1 15/16	190	811	988	229	181	18	50	87
4 x 6	28PA12	38.9	38.9	10	8 7/8	11/16	2 3/16	230	988	988	254	226	18	56	105
4 x 6	28PA13	43.4	43.4	10	8 7/8	11/16	2 3/16	250	1103	1103	254	226	18	56	114
4 x 6	28PA14	43.4	43.4	10	8 7/8	11/16	2 7/16	250	1103	1103	254	226	18	62	114
4 x 6	28PA20	31.9	38.9	9	7 1/8	11/16	1 5/8	190	811	988	229	181	18	42	87
4 x 6	28PA21	31.9	38.9	9	7 1/8	11/16	1 15/16	190	811	988	229	181	18	50	87
4 x 6	28PA22	38.9	38.9	10	8 7/8	11/16	2 3/16	230	988	988	254	226	18	56	105
4 x 6	28PA23	43.4	43.4	10	8 7/8	11/16	2 3/16	250	1103	1103	254	226	18	56	114
4 x 6	28PA24	43.4	43.4	10	8 7/8	11/16	2 7/16	250	1103	1103	254	226	18	62	114
4 x 6	28PA32	38.9	38.9	10	8 7/8	11/16	2 3/16	230	988	988	254	226	18	56	105
4 x 6	28PA33	43.4	43.4	10	8 7/8	11/16	2 3/16	250	1103	1103	254	226	18	56	114
4 x 6	28PA34	43.4	43.4	10	8 7/8	11/16	2 7/16	250	1103	1103	254	226	18	62	114
6 x 8	28QA10	40.9	51.4	9 1/2	9 7/16	13/16	1 7/8	345	1039	1316	242	240	21	48	157
6 x 8	28QA11	40.9	51.4	9 1/2	9 7/16	13/16	2 1/4	345	1039	1316	242	240	21	58	157
6 x 8	28QA12	45.4	51.4	9 1/2	9 7/16	13/16	2 1/4	430	1153	1316	242	240	21	58	196
6 x 8	28QA13	51.4	51.4	9 1/2	9 7/16	13/16	2 11/16	430	1316	1316	242	240	21	69	196
6 x 8	28QA20	40.9	51.4	9 1/2	9 7/16	13/16	1 7/8	345	1039	1316	242	240	21	48	157
6 x 8	28QA21	40.9	51.4	9 1/2	9 7/16	13/16	2 1/4	345	1039	1316	242	240	21	58	157
6 x 8	28QA22	45.4	51.4	9 1/2	9 7/16	13/16	2 1/4	430	1153	1316	242	240	21	58	196
6 x 8	28QA23	51.4	51.4	9 1/2	9 7/16	13/16	2 11/16	430	1316	1316	242	240	21	69	196
6 x 8	28QA32	45.4	51.4	9 1/2	9 7/16	13/16	2 1/4	430	1153	1316	242	240	21	58	196
6 x 8	28QA33	51.4	51.4	9 1/2	9 7/16	13/16	2 11/16	430	1306	1316	242	240	21	69	196
6 x 8	H28QA13, 23, 33	51.4	51.4	9 1/2	9 7/16	13/16	2 11/16	530	1306	1316	242	240	21	69	241
6 x 8	28RA10	40.9	51.4	9 1/2	9 7/16	13/16	1 7/8	345	1039	1316	242	240	21	48	157
6 x 8	28RA11	40.9	51.4	9 1/2	9 7/16	13/16	2 1/4	345	1039	1316	242	240	21	58	157
6 x 10	28RA12	45.4	51.4	10 1/2	9 7/16	13/16	2 1/4	500	1153	1316	267	240	21	58	227
6 x 10	28RA13	51.4	51.4	10 1/2	9 7/16	13/16	2 11/16	500	1316	1316	267	240	21	69	227
6 x 8	28RA20	40.9	51.4	9 1/2	9 7/16	13/16	1 7/8	345	1039	1316	242	240	21	48	157
6 x 8	28RA21	40.9	51.4	9 1/2	9 7/16	13/16	2 1/4	345	1039	1316	242	240	21	58	157
6 x 10	28RA22	45.4	51.4	10 1/2	9 7/16	13/16	2 1/4	500	1153	1316	267	240	21	58	227
6 x 10	28RA23	51.4	51.4	10 1/2	9 7/16	13/16	2 11/16	500	1316	1316	267	240	21	69	227
6 x 8	28RA32	45.4	51.4	9 1/2	9 7/16	13/16	2 1/4	430	1153	1316	242	240	21	58	196
6 x 10	28RA33	51.4	51.4	10 1/2	9 7/16	13/16	2 11/16	500	1316	1316	267	240	21	69	227
6 x 10	H28RA13, 23, 33	51.4	51.4	10 1/2	9 7/16	13/16	2 11/16	600	1316	1316	267	240	21	69	273
8 x 10	28TA10	49.4	54.9	11	10 7/8	13/16	2 7/16	600	1255	1395	280	277	21	62	273
8 x 10	28TA11	49.4	54.9	11	10 7/8	13/16	2 7/16	650	1255	1395	280	277	21	62	295
8 x 10	28TA12	49.4	54.9	11	10 7/8	13/16	2 7/16	650	1255	1395	280	277	21	62	295
8 x 10	28TA20	49.4	54.9	11	10 7/8	13/16	2 7/16	600	1255	1395	280	277	21	62	273
8 x 10	28TA21	49.4	54.9	11	10 7/8	13/16	2 7/16	650	1255	1395	280	277	21	62	295
8 x 10	28TA22	49.4	54.9	11	10 7/8	13/16	2 7/16	650	1255	1395	280	277	21	62	295
8 x 10	28TA32	49.4	54.9	11	10 7/8	13/16	2 7/16	650	1255	1395	280	277	21	62	295
8 x 10	H28TA12, 22, 32	54.9	54.9	11	10 7/8	13/16	2 7/16	750	1395	1395	280	277	21	62	341

28 Series Super Capacity Pressure Relief Valves

Bliss Anand super capacity valve provides flow larger than standard API nozzles. These large orifice valves offer the same superior design, construction, metallurgy, and options as the standard 28 Series. These super capacity valves are available from 8" to 20" with details given in below table.

The 28 Series large orifice valves are offered in both conventional and Bellow construction with ASME Class 300 RF flanged inlet by ASME 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	Bellow		-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	30.78	198.5	28UA10	28UB10	8 x 10	65	65	4.5	4.5	30	2.1
			28UA11	28UB11		65	65	4.5	4.5	30	2.1
			28UA12	28UB12		120	120	8.3	8.3	60	4.1
			H28UA12	H28UB12		300	300	20.7	20.7	100	6.9
V	48.945	315.7	28VA12	28VB12	10 x 14	300	300	20.7	20.7	100	6.9
W	63.848	411.9	28WA12	28WB12	12 x 16	300	300	20.7	20.7	100	6.9
W2	104.524	674.3	28W2A12	28W2B12	16 x 18	300	300	20.7	20.7	100	6.9
X	114.004	735.5	28XA12	28XB12	16 x 20	300	300	20.7	20.7	100	6.9
Y	144.077	929.5	28YA12	28YB12	18 x 24	300	300	20.7	20.7	100	6.9
Z	177.666	1146.2	28ZA12	28ZB12	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: ASME Class 300#RF inlet x 150#RF. Other connection types available on application. Consult the factory.

Application: These valves are suitable for main steam line, low pressure gas service, deaerators, coke drum, nuclear power plant etc.

General Notes:

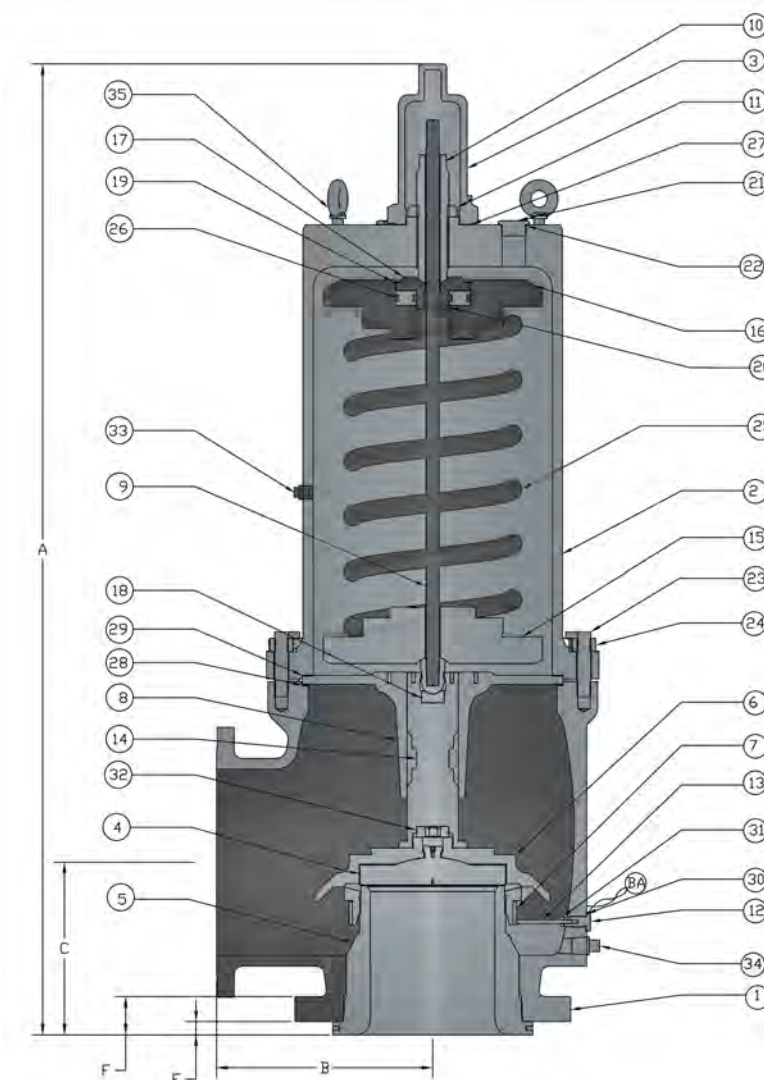
- All valves supplied with plain caps unless otherwise specified. Standard suffix for type number is "-120".
- For set pressures under 20 psig (1.4 barg), consult the factory.
- ASME Boiler and Pressure Vessel Code Section VIII requires all valves have a lifting lever when used for air, steam and hot water (over 140°F).
- For corrosive, low and high temperature materials, ASME Class 150 inlet flange and open bonnet designs, consult the factory.
- Standard flange finish is serrated unless otherwise specified.
- 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.
- The "U" orifice with 300# inlet flange is available up to 1000°F. Set pressures are the same as the comparable "T" orifice.

28 Series Super Capacity Conventional

Bill of Material- Conventional

Item	Part Name	Material
1	Body ()A12	SA-216 Gr. WCB Carbon Steel
2	Bonnet ()A12	SA-216 Gr. WCB Carbon Steel
3	Cap, Plain Screwed	SA-216 Gr. WCB Carbon Steel
4	Disc	Stainless Steel
5	Nozzle	316 St. St.
6	Disc Holder	Stainless Steel
7	Blowdown Ring	Stainless Steel
8	Sleeve Guide 28()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	SA-193 Gr. B7 Alloy St.
24	Hex Nut (Body)	SA-194 Gr. 2H Alloy St.
25	Spring 28()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	ASME 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	28UA12	54-1/2 1385	11 279	10-7/8 276	13/16 21	2-7/16 62	650 295
10 V 14	300	150	28VA12	69 1753	16 406	12 305	13/16 21	2 11/16 68	1485 674
12 W 16	300	150	28WA12	70-1/2 1791	16 406	14-1/8 359	13/16 21	2-13/16 71	2800 1270
16 W2 18	300	150	28W2A12	90-3/4 2305	20 508	16 406	1 1/4 32	3-1/2 89	4200 1905
16 X 20	300	150	28XA12	93-1/2 2375	21 533	17 432	1 1/4 32	3-1/2 89	5500 2495
18 Y 24	300	150	28YA12	97-1/2 2477	25 635	20 508	1 1/4 32	3-5/8 92	7000 3175
20 Z 24	300	150	28ZA12	109 2769	25 635	20 508	1 1/4 32	3-3/4 95	7500 3402



Built in conformance to ASME Section VIII, capacity certified by National Board for Air, Gas and Steam only.

Note: The "U" orifice is available with 150RF inlet flange and 300RF LW inlet design. Dimensions and weights are identical to the "T" orifice.

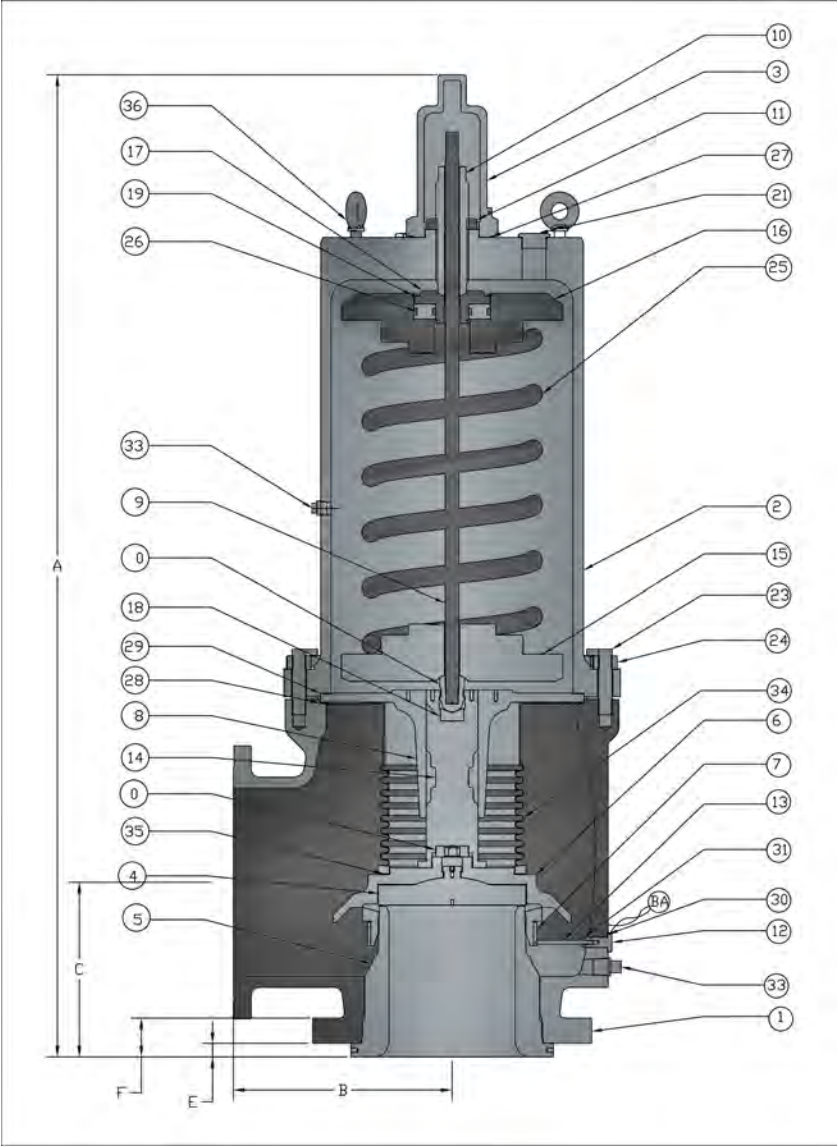


28 Series Super Capacity Bellow

Bill of Material- Conventional		
Item	Part Name	Material
1	Body 28()B12	SA-216 Gr. WCB Carbon Steel
2	Bonnet 28()B12	SA-216 Gr. WCB Carbon Steel
3	Cap, Plain Screwed	SA-216 Gr. WCB Carbon Steel
4	Disc	Stainless Steel
5	Nozzle	316 St. St.
6	Disc Holder	Stainless Steel
7	Blowdown Ring	Stainless Steel
8	Sleeve Guide 28()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	SA-193 Gr. B7 Alloy St.
24	Hex Nut (Body)	SA-194 Gr. 2H Alloy St.
25	Spring 28()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	ASME 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	28UB12	54-1/2 1385	11 279	10-7/8 276	13/16 21	2-7/16 62	700 317
10 V 14	300	150	28VB12	69 1753	16 406	12 305	13/16 21	2 11/16 68	1485 674
12 W 16	300	150	28WB12	70-1/2 1791	16 406	14-1/8 359	13/16 21	2-13/16 71	2850 1293
16 W2 18	300	150	28W2B12	90-3/4 2305	20 508	16 406	1-1/4 32	3-1/2 89	4250 1927
16 X 20	300	150	28XB12	93-1/2 2375	21 533	17 432	1-1/4 32	3-1/2 89	5550 2517
18 Y 24	300	150	28YB12	97-1/2 2477	25 635	20 508	1-1/4 32	3-5/8 92	7050 3197
20 Z 24	300	150	28ZB12	109 2769	25 635	20 508	1-1/4 32	3-3/4 95	7550 3424



Built in conformance to ASME Section VIII, capacity certified by National Board for Air, Gas and Steam only.

Note: The "U" orifice is available with 150RF inlet flange and 300RF LW inlet design. Dimensions and weights are identical to the "T" orifice .

Air Capacities – 28 Series Super Capacity: 10% Overpressure, API – Metric Units

ASME Pressure Vessel Code (UV), Capacities In Standard Cubic Meters Per Minute At 15.6°C							
Set Pressure (barg)	Orifice Letter Designation & Areas, cm²						
	U 203.2	V 318.7	W 410.2	W2 670.8	X 729.5	Y 923.0	Z 1139.7
1.4	533	836	1076	1760	1914	2422	2991
2	655	1027	1323	2163	2352	2977	3676
3	877	1376	1772	2898	3151	3987	4924
4	1101	1727	2224	3637	3955	5004	6179
5	1325	2078	2677	4376	4759	6021	7435
6	1549	2429	3129	5115	5562	7038	8691
7	1773	2780	3581	5854	6366	8055	9946
8	1997	3131	4033	6593	7170	9072	11202
9	2220	3482	4485	7332	7974	10089	12458
10	2444	3833	4937	8071	8777	11106	13713
12	2892	4536	5841	9549	10385	13140	16225
14	3340	5238	6746	11027	11992	15173	18736
16	3787	5940	7650	12505	13600	17207	21248
18	4235	6642	8554	13984	15207	19241	23759
20.7	4839	7590	9775	15979	17377	21987	27149