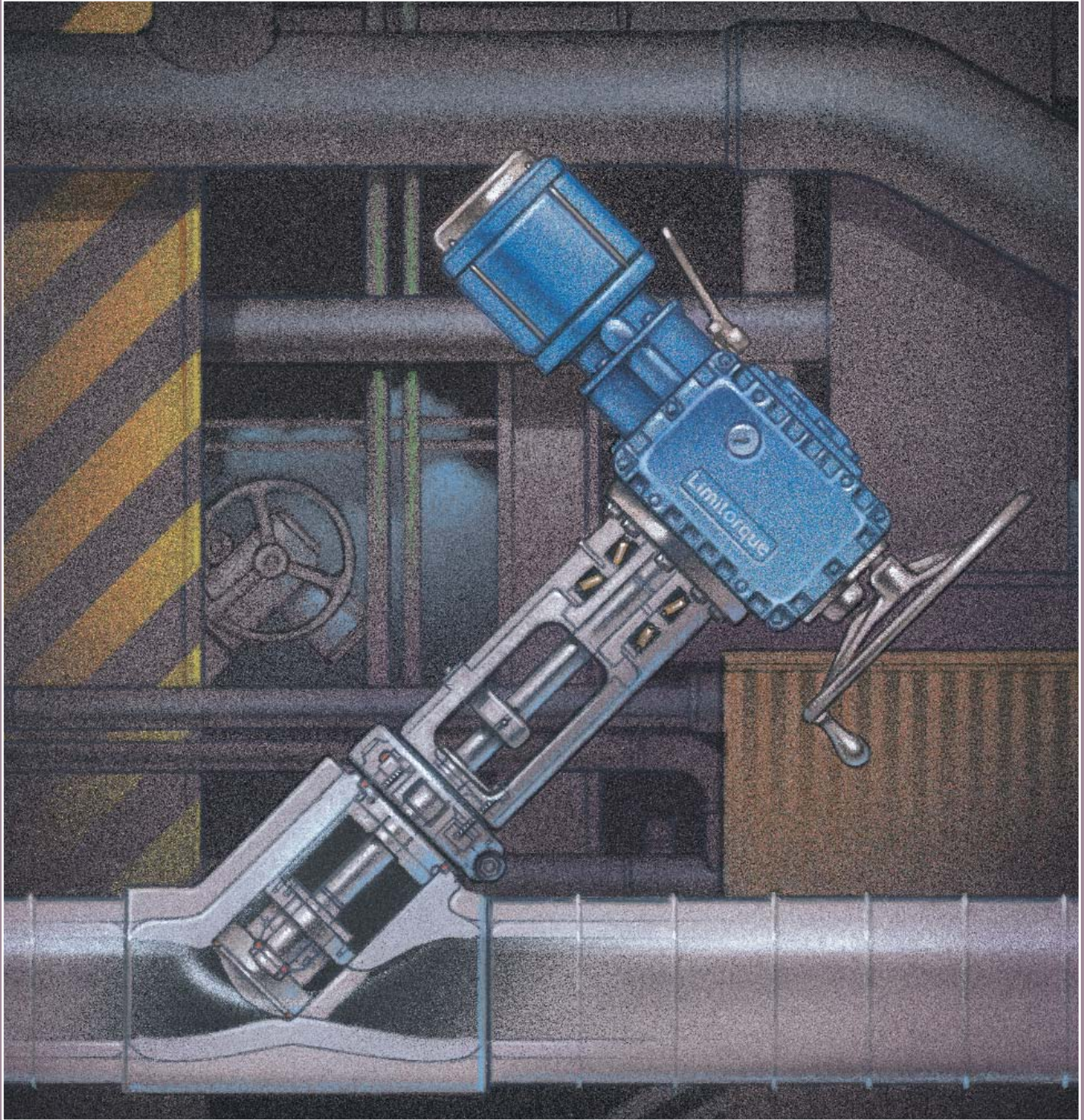




Edward Valves

EV100
5th Edition



Edward Valves *Catalog & Application Manual*



Edward Valves

EV100
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* These valves can be constructed for nuclear service.

Edward Availability Chart

EDWARD FORGED STEEL VALVES

DESCRIPTION	PRESSURE RATING*(1)	SIZE(1)	ENDS	PAGE NO.
Globe Stop Valves	ANSI 600(110)	1/2(15) thru 2(50)	Flanged	B-8
	ANSI 800(130)	1/4(6) thru 2(50)	Threaded, Socket	B-11
	Series 1500	1/2(15) thru 2(50)	Threaded, Socket, Flanged	D-12 & 13
Univalve Globe Stop Valves	ANSI 1690(290), 2680(460) & 4500(760)	1/2(15) thru 4(100)	Threaded, Socket, Buttwelding	B-15 B-18 B-21
Hermavalue Globe Stop Valves	ANSI to 1690(290)	1/2(15) thru 2-1/2(65)	Socket, Buttwelding	D-27 E-6
Blow Off Stop Valves	ANSI 300(50), 400(68) & 600(110)	1-1/2(40) thru 2-1/2(65)	Socket, Flanged, Buttwelding	D-4 thru D-7 D-8
	ANSI 1500(250) & 2500(420)		Socket, Buttwelding	
Hydraulic Stop Valves	5,000 PSI CWP	1/4(6) thru 2(50)	Threaded, Socket, Flanged	D-10
	10,000 PSI CWP			D-11
Globe Stop-Check Valves	ANSI 600(110)	1/2(15) thru 2(50)	Flanged	B-9
	ANSI 800(130)	1/4(6) thru 2(50)	Threaded, Socket	B-12
	Series 1500	1/2(15) thru 2(50)	Threaded, Socket, Flanged	D-14 & 15
Univalve Globe Stop-Check Valves	ANSI 1690(290), 2680(460) & 4500(760)	1/2(15) thru 4(100)	Threaded, Socket, Buttwelding	B-16 B-19 B-22
Piston Check Valves	ANSI 600(110)	1/2(15) thru 2(50)	Flanged	B-10
	ANSI 800(130)	1/4(6) thru 2(50)	Threaded, Socket	B-13
	Series 1500	1/4(6) thru 2(50)	Threaded, Socket, Flanged	B-22
Univalve Piston Check Valves	ANSI 1690(290), 2680(460) & 4500(760)	1/2(15) thru 4(100)	Threaded, Socket, Buttwelding	B-17 B-20 B-23
Hydraulic Check Valves	5,000 PSI CWP	1/4(6) thru 2(50)	Threaded, Socket, Flanged	D-11
	10,000 PSI CWP			
Ball Check Valves	ANSI 800(130)	1/4(6) thru 2(50)	Threaded, Socket	B-14
	Series 1500			D-17
Strainers	ANSI 800(130)	1/4(6) thru 2(50)	Threaded, Socket	D-18
	Series 1500			
Flanged Univalve	Class 1500	1/2(15) thru 2(50)	Flanged	D-19
Univalve Angle Stop, Stop-Check & Check Valves	ANSI 1690 ANSI 2680	1/2(15) thru 4(50)	Socket, Buttwelding	B-24 thru B29

* See paragraph 3.2, page G-59 or definition of various pressure ratings available.

(1) Metric equivalent values for ratings and sizes are in parentheses.

Edward Availability Chart

EDWARD CAST STEEL GATE, GLOBE, ANGLE AND CHECK VALVES

DESCRIPTION	PRESSURE RATING*(1)	SIZE(1)	ENDS	PAGE NO.
Bolted Bonnet Globe and Angle Valves, Stop and Stop-Check (Non-Return) and Bolted Cover Piston Check	ANSI 300(50)	2-1/2(65) thru 12(300)	Buttwelding or Flanged	C-11, 13 & 15
	ANSI 600(110)	2-1/2(65) thru 69(150)		C-20, 24, 26
Pressure Seal Bonnet Globe and Angle Valves Stop and Stop-Check (Non-Return)	ANSI 600(110)	8(200) thru 14(350)	Buttwelding or Flanged	C-20, 24
	ANSI 900(150)	3(80) thru 24(600)		C-31, 32, 35, 36
	ANSI 1500(250) & 2500(420)	2-1/2(65) thru 24(600)		C-43, 44, 47, 48, 56, 57, 60, 61
Pressure Seal Cover, Piston Check Valves	ANSI 600(110)	8(200) thru 14(350)	Buttwelding or Flanged	C-26
	ANSI 900(150)	8(200) thru 24(600)		C-37
	ANSI 1500(250) & 2500(420)	2-1/2(65) thru 24(600)		C-49, 50, 62, 63
Equiwedge® Gate Valves	ANSI 600(110) & 900(150)	2-1/2(65) thru 32(800)	Buttwelding or Flanged	C-22, 23, 33, 34
	ANSI 1500(260) & 2500(420)	2-1/2(65) thru 24(600)		C-45, 46, 58, 59
Flite-Flow® Globe Valves, Stop and Stop-Check (Non-Return)	ANSI 300(50)	3(80) thru 16(400)	Buttwelding or Flanged	C-12 & 14
	ANSI 400(68)	3(80) thru 4(100)		C-17 & 18
	ANSI 600(110)	3(80) thru 32(800)		C-21, 25
	ANSI 700(120)	6(150) thru 32(800)		C-28, 29
	ANSI 900(150)	6(150) thru 16(400)		C-32, 35, 36
	ANSI 1100(190)	3(80) thru 4(100)		C-40, 41
	ANSI 1500(260) & 2500(420)	3(80) thru 24(600)		C-43, 44, 47, 48, 56, 57, 60, 61
	ANSI 1800(310) & 2900 (490)	3(80) thru 4(100)		C-53, 54, 65, 66
	Series 4500	4(100) thru 10(250)		C-68, 69
Flite-Flow® Piston Check Valves	ANSI 300(50)	3(80) thru 16(400)	Buttwelding or Flanged	C-16
	ANSI 400(68)	3(80) thru 4(100)		C-19
	ANSI 600(110)	3(80) thru 32(800)		C-27
	ANSI 700(120)	6(150) thru 32(800)		C-30
	ANSI 900(150)	6(150) thru 16(400)		C-37, 39
	ANSI 1100(190)	3(80) thru 4(100)		C-42
	ANSI 1500(260) & 2500(420)	3(80) thru 24(600)		C-49, 51, 62, 63
	ANSI 1800(310) & 2900 (490)	3(80) thru 4(100)		C-55, 67
	Series 4500	4(100) thru 10(250)		C-70
Tilting Disk Check Valves	ANSI 600(110)	6(150) thru 20(500)	Buttwelding	C-27
	900(150), 1500(260) & 2500(420)	2-1/2(65) thru 24(600)		C-38, 52, 64
	Class 4500(760)	6(150) & 8(200)		C-71
Nuclear Valves	Thru ANSI 2500(420)	to Size 32(800)	Buttwelding	E-2 thru 14
Special Application Valves	Thru ANSI 2500(420)	to Size 18(450)	As Required	D-3 & 9

* See paragraph 3.2, page G-59 for definition of various pressure ratings available.

(1) Metric equivalent values for ratings and sizes are in parentheses.

Edward Description of Figure Number System

Special Material Suffixes

- CF8C** - Cast 18-8 stainless steel (type 347) body and bonnet. Parts in contact with line fluid either cast or forged 18-8 stainless steel or equivalent.
- CF3M** - Cast 18-8 stainless steel (type 316L) body and bonnet. Parts in contact with line fluid either cast or forged 18-8 stainless steel or equivalent.
- CF8M** - Cast 18-8 stainless steel (type 316) body and bonnet. Parts in contact with line fluid either cast or forged 18-8 stainless steel or equivalent.
- C5** - Cast chromium molybdenum (5 chromium 1/2 molybdenum) Grade C5 alloy steel body and bonnet. Trim of equal or higher grad alloy steel.
- F11** - Body and bonnet of forged chromium molybdenum (1-1/4 chromium, 1/2 molybdenum) Grade F11 alloy steel.
- F22** - Body and bonnet of forged chromium molybdenum (2-1/4 chromium, 1 molybdenum) Grade F22 alloy steel.
- F91** - Body and bonnet of forged chromium molybdenum (9 chromium, 1 molybdenum) Grade F91 alloy steel.
- F316** - Body and bonnet of forged Type 316 stainless steel.
- F316L** - Body and bonnet of forged Type 316L stainless steel.
- F347** - Body and bonnet of forged Type 347 stainless steel.
- F347H** - Body and bonnet of forged Type 347H stainless steel.
- LF2** - Forged carbon steel material on which Charpy impact tests have been performed on forging heat to determine low temperature properties.
- WC1** - Cast carbon molybdenum Grade WC1 body and bonnet.
- WC6** - Cast chromium molybdenum (1-1/4 chromium, 1/2 molybdenum) Grade WC6 alloy steel body and bonnet.
- WC9** - Cast chromium molybdenum (2-1/4 chromium, 1 molybdenum) Grade WC9 alloy steel body and bonnet.
- WCC** - Cast carbon steel Grade WCC body and bonnet.
- C12A** - Cast chromium molybdenum (9 chromium, 1 molybdenum) alloy steel body and bonnet.

Special Feature Suffixes

- A** - Special body only - body pattern alterations not required. Flanges on forged valves not normally supplied with flanges. On socket end forged steel valves the inlet and outlet ends are different.
- B** - Venturi pattern body.
- C** - Locking devices consisting of padlock and chain.
- CD** - Locking devices, indicator type.
- DD** - Equalizer external.
- DDI** - Equalizer internal.
- E** - Permanent drain, hole in disk or groove in disk face.
- F** - Special trim material: used to designate special disk material, special stem material, or inconel spring in check valves.
- FF** - Special yoke bushing material, such as Austenitic Nodular Iron.
- G** - By passes on all types of cast steel valves
- H** - Spur gear operation.
- HH** - Bevel gear operation.
- HHL** - Valve less bevel gear actuator but with actuator mounting equipment.
- J** - Any unclassified special.
- K** - Throttle disk or skirted disk.
- L** - Impactor operated. Used now only to indicate impactor handwheel or handle on valves not regularly furnished with impactor.
- LD** - Impactorgear or Impactodrive.
- M** - Motor actuated.
- ML** - Valve less actuator but with motor actuator mounting equipment.
- MM** - Cylinder/diaphragm actuated. Either hydraulic or pneumatic.
- MML** - Valve less cylinder/diaphragm actuator but with actuator mounting equipment.
- N** - Body drilled and tapped or socketed for drains, with or without nipple, with or without drain valves.
- P** - Non-standard packing of all types.
- PL** - Plastic lined.
- Q** - Non-standard bonnet gaskets or gasket plating.
- R** - Special lapping and honing and gas testing (recommended for valves on high pressure gas service).
- S** - Smooth finish on contact faces of end flanges
- T** - Critical service requiring special testing and/or NDE.
- W** - Stellite seat and disk. Suffix not used for valves that are cataloged as having stellite seat and disk as standard.
- X** - Ring joint facing on body end flanges.
- Y** - All welding ends either socket or butt. Suffix not used for valves where figure number designates welding ends as standard, such as Fig. 36224 and 66228 for example.
- T1** - ASME Section III Class 1 compliance.
- T2** - ASME Section III Class 2 compliance.
- T3** - ASME Section III Class 3 compliance.
- T4** - ASME Section III compliance without "N" stamp.
- T5** - Nuclear safety related-10CFR21 invoked.

XX

1 Alpha Digit Indicates Design Revision if Applicable.
2 Alpha Digits Indicates Style of Pressure Combo Valve
(See Page D20).

XXXXX

3-5 Digits Figure Number

(XXX)

3-4 Digits Body Material Designation

XXXXXXXX

1 or more Digits As Required Suffixes (See List)

Unless otherwise specified when ordering Edward valves, the standard material of construction for Forged products is A105 Carbon Steel, and for Cast products is A216 Grade WCB Carbon Steel.

Listed below are the letter suffixes used to indicate variations from standard construction, or special features (Ex. 618K, 7506 [WC6]Y, and 847 AH.)

When two or more suffixes follow a figure number a definite suffix sequence is to be used.

The sequence is:

- 1) Special material (if applicable)
- 2) All other applicable feature suffixes in alphabetical order.
Except T1-T5 which are listed last.



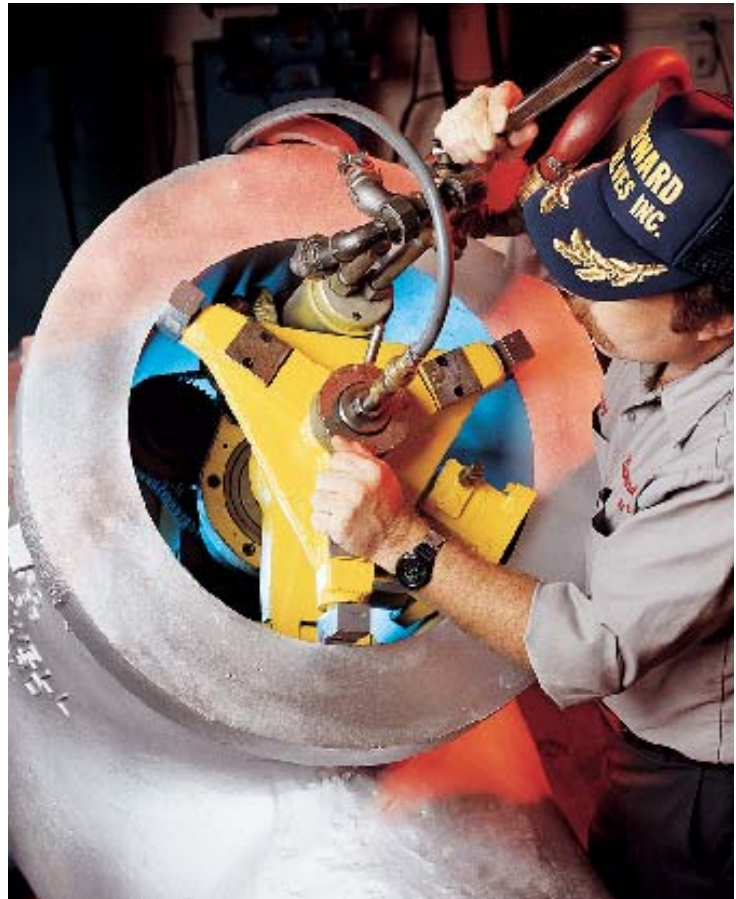
Edward Valves

EV100
5th Edition

Introduction **A**

High Performance For Critical Service

Temperatures that can exceed 1000° F. Pressures surpassing 10,000 psi. In critical service conditions, you can't take chances. You don't just meet standards, you exceed them. That's how Edward forged and cast steel valves have become the specified choice for power plants, process facilities, and other high-temperature, high-pressure services.



Conservative Design

Edward Valves takes a conservative approach to valve design. We meet all applicable codes and standards, but we go beyond that...with finite element stress analysis of critical areas and rigorous proof testing. Edward valves are built to take punishment!

And our extensive testing has also allowed us to develop extremely high flow efficiencies in all our valves.

You'll find other unique design advantages on our various product lines, such as our Equiwedge gate valves, with a two-piece wedge gate assembly which adjusts automatically to any angular distortion of the body seats. And many other design features, now considered industry "standards," started on the drawing boards at Edward Valves.

Precision Manufacturing

Edward Valves also exceeds industry standards on the factory floor. Our forged valves are produced on a fully automated line, with CNC machining centers providing precise process control. And we maximize cast steel quality by producing our valve body castings using a directional solidification process from patterns designed by our own technicians. This process assures high strength void free castings for uncompromised quality.

Even with the most advanced equipment, we feel our people make the real difference at Edward Valves. Our production personnel have an average 20 years in the industry, and 15 years with Edward Valves! This exceptional experience level allows us to achieve an extra degree of precision that can make a very real difference in the field.

Finally, it's our people, along with our procedures for quality assurance and lot-traceability, that have earned Edward Valves the ASME N stamp, certifying our Raleigh, North Carolina, manufacturing facility for nuclear-service valve production.

Lower Total Costs

Those tough standards have carried over into every valve we manufacture. Whether it is for nuclear service or not, we design and build our valves to last at least 40 years. That means not only are they tough, but they are designed with easy maintenance in mind.

Considering the cost of valve failure, Edward Valves quality is clearly worth specifying. That's been true since 1904, when the first Edward valve was made.

Today, as industrial companies become increasingly aware that operating expenses are part of total cost, the choice becomes both more clear and more critical than ever.



Designed With An Eye On Your Bottom Line

In-house computer-aided design and finite-element method capabilities give our engineering staff powerful tools to develop reliable valves for critical service applications. CAD generated graphic models undergo FEM analysis to determine that stresses are within acceptable limits. Dynamic simulation of valve operation also helps assure reliability of Edward valve performance.

Prototyping is just as important, and rigorous proof testing is a mainstay of Edward valve design. Before we approve a valve for production, we put it through hundreds, even thousands, of cycles to demonstrate that performance and sealing integrity will be maintained in service. Transducers relay data from test assemblies to computers for further analysis.

Laboratory simulation of critical services includes a steam generator and superheater, designed for 2700 psi and 1050° F. This flexible system allows testing of prototype valves under both low pressure and high pressure conditions. In addition to prototype testing, this system has been used for applications such as: friction and wear tests of valve trim materials in hot water and steam environments; qualification tests of new or redesigned valves; and proof testing of new valve gaskets and valve stem packings.

Before we make the first production unit, that valve has already been through a rigorous program to assure long life, simple maintenance, and dependable performance, for the lowest cost over the life of the valve. Again, people play important roles in design. The Edward product engineering department pools well over 200 years of valve experience.

Testing Beyond Code Requirements

At Edward Valves, quality assurance starts with meeting code requirements. Valves are manufactured to ANSI B16.34 (Standard, Limited and Special Classes), including standards for:

- Minimum wall thickness of valve body.
- Body, bonnet and body-bonnet bolting to specified ASTM material standards.
- Hydrostatic shell testing at 1.5 times the 100° F rating of the valve.

From there, Edward Valves goes on to exceed the code, with higher test standards and an additional battery of tests performed on every type of valve we make, using in-house test facilities and personnel to assure expert quality control. Edward Valves' quality assurance program includes:

Non-Destructive Examination

- All NDE personnel are qualified in accordance with ASNT-TC-1A guide lines.
- All castings are visually examined per MSS SP-55.
- The first five body castings from every pattern are 100% radiographed to verify casting quality.

Hydrostatic Testing

- The seat-leakage criteria—no visible leakage for forged steel and 2ml/hour/ inch of nominal valve size for cast steel—are stricter than the allowed leakage rate of MSS SP-61, which is 10ml/hour/inch of nominal valve size.
- Seat-leakage test is performed at 110% of 100° F rating.

Statistical Process Control

Requirements are clearly stated and measurements are taken to determine conformance to those requirements. "Quality" equals conformance to requirements.

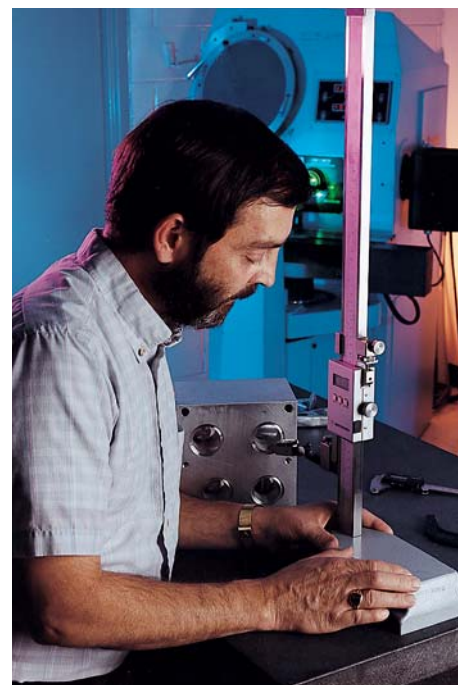
Welding

All personnel and procedures are qualified in accordance with ASME Boiler and Pressure Vessel Code, Section IX.

Additional Standard Tests for Specific Valves

Includes heavy-wall examination on large body castings.

We have only listed a few of Edward Valves' standard tests that exceed industry requirements. Also, Edward Valves has the facilities and the expertise to meet additional quality-assurance standards, as required for the application.



A History of Firsts



Feature	Benefit
<i>Body-guided disks on globe and angle valves</i>	<i>Minimize wear and ensure alignment for tight sealing.</i>
<i>Integral Stellite hardfaced seats in globe and angle valves</i>	<i>Permit compact design and resist erosion.</i>
<i>Hermetically sealed globe valves with seal-welded diaphragms</i>	<i>Prevent stem leakage in critical nuclear plant applications.</i>
<i>Equalizers for large check and stop-check valves</i>	<i>Ensure full lift at moderate flow rates, and prevent damage due to instability.</i>
<i>Compact pressure-seal bonnet joints</i>	<i>Eliminate massive bolted flanges on large, high-pressure valves.</i>
<i>Qualified stored-energy actuators</i>	<i>Allow quick-closing valves in safety-related nuclear plant applications.</i>
<i>Qualified valve-actuator combinations</i>	<i>Used in main steam and feed-water service throughout the world.</i>
<i>Stainless steel spacer rings on gate valves, fitted between wedge halves</i>	<i>Simplify service. Damaged valve seats can be restored to factory fit by in-line replacement with slightly thicker ring.</i>
<i>Unique two-piece, flexible wedges on gate valves</i>	<i>Automatically adjust to any angular distortion of body seats. Shape provides greater flexibility. Assure dependable sealing and prevent sticking.</i>
<i>Impactor handwheels and handles</i>	<i>Allow workers to generate several thousand foot-pounds of torque, thus ensuring tight shutoff of manually operated globe and angle valves.</i>
<i>Inclined-bonnet globe valves with streamlined flow passages</i>	<i>Minimize pressure drop due to flow.</i>
<i>Globe valves available with both vertical and inclined stems</i>	<i>Provide stem designs suited to any installation.</i>
<i>Live-loaded pressure energized PressurSeat™ for globe valves</i>	<i>Globe valve design for high pressure drain and vent service.</i>

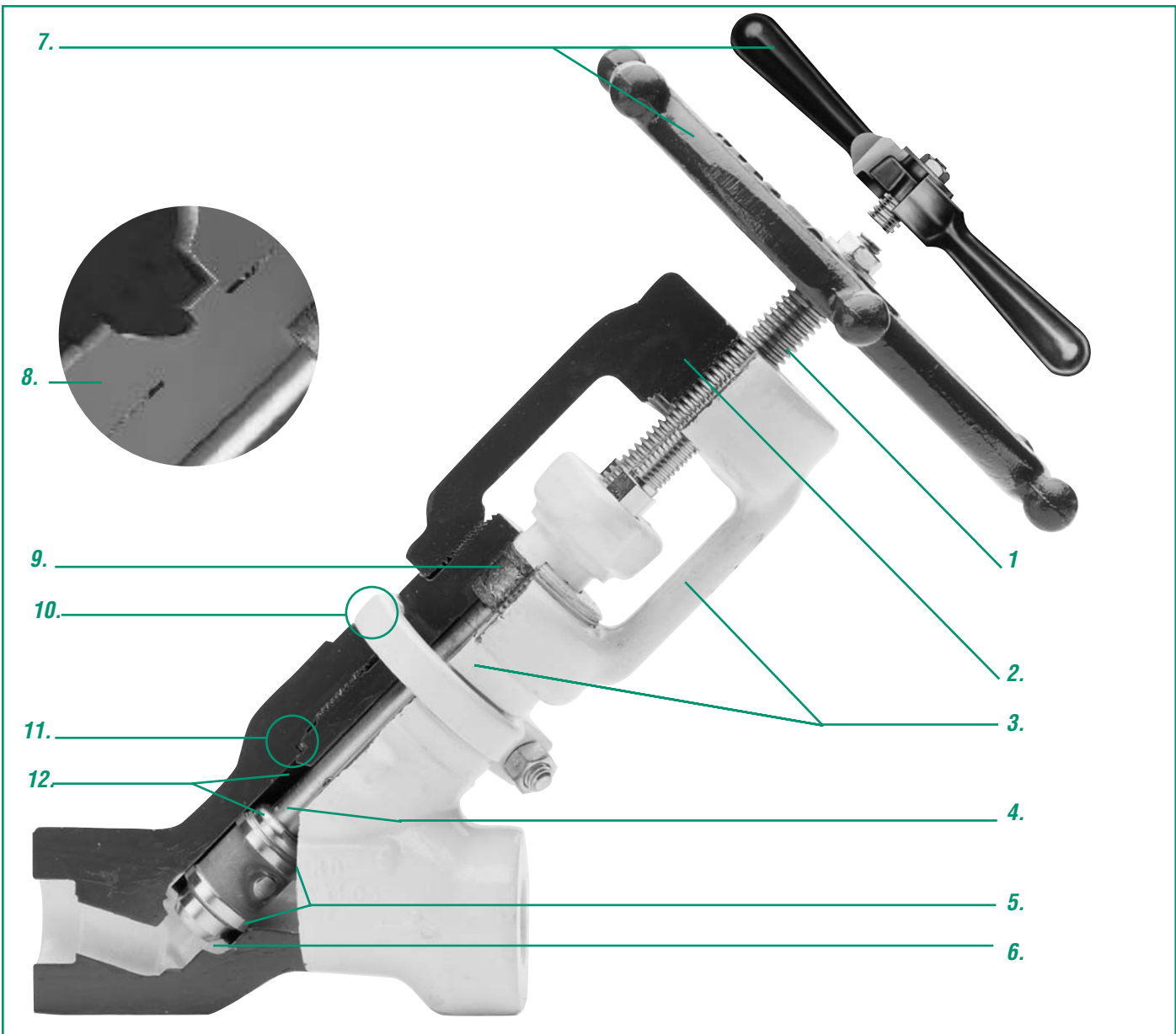


Edward Valves

EV100
5th Edition

Forged Steel Valves B

Features and Description of Edward Univalve® Globe Valves



1. Stem has ACME threads, is ground to a fine finish and is hardened to resist wear.

2. Yoke bushing material has low coefficient of friction which substantially reduces torque and stem wear and eliminates galling. Mechanical upset locks yoke bushing to yoke.

3. Yoke-bonnet assembly is two piece to facilitate disassembly for faster in-line internal repairs.

4. Inclined stem construction and optimum flow shape minimizes flow direction changes and reduces pressure drop.

5. Body-guided disk utilizes anti-thrust rings to eliminate misalignment, galling and stem bending.

6. Integral hardsurfaced seat provides positive shutoff and long seat life.

7. Handwheel on smaller size valves is rugged and knobbed to provide sure grip even when wearing gloves. Impactor handle or handwheel on larger, higher pressure valves provides many times the closing force of an ordinary handwheel for positive seating.

8. Threaded bonnet has ACME threads for resistance to galling and ease of disassembly. Unwelded models utilize a graphitic gasket for dependable sealing. Welded models employ a fillet weld (canopy weld on stainless steel valves) for absolute protection from body-bonnet leakage.

9. Stem packing system utilizes flexible graphite packing material with carbon fiber anti-extrusion rings for optimum sealability and life.

10. Bonnet locking collar. (unwelded valves only)

11. Bonnet seal ring is die formed flexible graphite gasket seated to a prescribed bonnet torque to provide reliable bonnet seal.

12. Integral backseat provides a secondary stem seal back up for positive shutoff and leak protection.

Part Specification List for Edward Univalve®

This is not a complete list. Construction and materials will vary between sizes and pressure classes and may be changed without notice. For a complete, accurate, and itemized description of a particular valve, contact your Edward Valves sales representative.

DESCRIPTION	ASTM NO.	ASTM NO.	ASTM NO.	ASTM NO.
Body	A-105 —	A-182 Grade F-22	A-182 Grade F-316/F-347*	A-182 Grade F91
Bonnet	A-696 Grade C	A-739 Grade B-22	A-479 T-316/347	A-182 Grade F91
Stem	A-479 T-410CL3	A-479 T-410CL3	A-638 Grade 660	A-638 Grade 660
Disk	A-732 Grade 21	A-732 Grade 21	A-732 Grade 21	A-732 Grade 21
Body Seat	Stellite 21	Stellite 21	Stellite 21	Stellite 21
Junk Ring	— —	— —	A-732 Grade 21	— —
Packing Rings	Flexible Graphite System	Flexible Graphite System	Flexible Graphite System	Flexible Graphite System
Gland	A-668 Grade 4140	A-668 Grade 4140	A-182 Grade F6a	A-668 Grade 4140
Gland Adjusting Screw	A-582 T-416	A-582 T-416	A-582 T-416	A-582 T-416
Yoke	A-181 Class 70	A-181 Class 70	A-181 Class 70	A-181 Class 70
Yoke Bushing	B150 Alloy C61900 or C62300	B150 Alloy C61900 or C62300	B150 Alloy C61900 or C62300	B150 Alloy C61900 or C62300
Yoke Bolt	A-307 Grade A	A-307 Grade A	A-307 Grade A	A-307 Grade A
Yoke Nut	A-563 Grade A	A-563 Grade A	A-563 Grade A	A-563 Grade A
Handwheel/Impactor Handle Adapter	Malleable or Ductile Iron	Malleable or Ductile Iron	Malleable or Ductile Iron	Malleable or Ductile Iron
Stem Nut/Washer	Mild Steel Plated	Mild Steel Plated	Mild Steel Plated	Mild Steel Plated
Bonnet Seal Ring**	Flexible Graphite	Flexible Graphite	Flexible Graphite	Flexible Graphite
Bonnet Insert†	A-582 T-416	A-582 T-416	A-479 T-316	A-582 T-416
Locking Collar†††	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
Spring††	A-313 T-302	A-313 T-302	A-313 T-302	INCONEL X-750

B

Parts shown above are not applicable to all Univalve® valves.

* Other Stainless grades available on application.

** Used in unwelded and Class 4500 welded design only.

† Class 4500 welded design only.

†† Check valves only.

††† Unwelded valves only.

Edward Forged Steel Valves Feature Body-Guided Disks To Prevent Side-Thrust and Eliminate –

1. Stem galling & binding
2. Disk-seat misalignment and damage
3. High operating torque

Valve disks are guided by rings that fit snugly within the body bore and assure perfect disk-and-seat alignment despite the side thrust of modern high velocities and high pressure-differentials. This protects the stem and its contact points; eliminates galling, scoring, bending and the high operating torque resulting from these abuses. Because they eliminate disk wobble and assure alignment of disk with seat, they also assure more dependable closing and longer disk, seat and body life.

Double Duty for Lower Bearing - The lower ring not only serves as a highly efficient anti-side thrust bearing but serves too, as a "flow director." Its snug fit within the bonnet bore reduces by 90% the amount of flow that can get into the bonnet cavity and exert thrust forces against the side of the disk. In short, the anti-thrust ring design diverts 90% of the line forces into controllable channels.

Machining Important, Too - To assure concentric alignment essential to tight seating, the body bore and the stellite seat are both machined in a single operation. The disk's anti-thrust rings and conical stellite seat face are also faced in a single operation.

Streamlined Flow Passages for Highest C_V Values - The inclined bonnet globe stopvalves (and check and stop-check valves) continue the Edward reputation for the ultimate in flow passage streamlining. Inclined bonnet construction minimizes flow directional changes and minimizes wear caused by excessive turbulence.

Whether it's pounds per hour of steam or gallons per minute of liquid, the inclined bonnet valves give you better flow capacity.

Flow Under or Over Disk - Normal practice is to install globe valves with flow entering from below the disk. However, piping designers may confidently install Edward globe stop valves with flow entering over the disk when space problems or other considerations suggest this procedure. Our valves operate equally well with flow in either direction; however, with flow over the disk, packing is under pressure when the valve is closed and there is a slight penalty in C_V value.

Figure 1 - Ordinary Vertical Stem Globe Valves are subject to side-thrust under high pressure drop conditions. Illustration shows how upstream pressure can slip past stem-guided disk and impart a thrust toward the downstream side of the valve. Tests have proven that this thrust causes disk-seat misalignment plus galling and scoring.

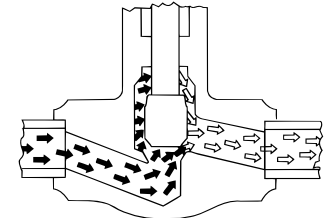


Figure 2 - Inclined Stem Globe Valves of the stem-guided type are also subject to side-thrust under the same conditions. Illustration above shows path pressure through the valve.

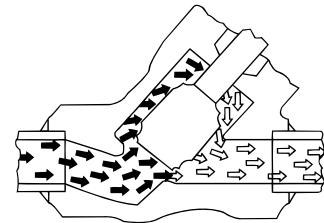


Figure 3 - This illustration shows the Edward body-guided disk with anti-thrust rings. Lower guide eliminates 90% of the flow upward and behind the disk. Both guide rings maintain perfect alignment. This effectively eliminates all side-thrust problems.

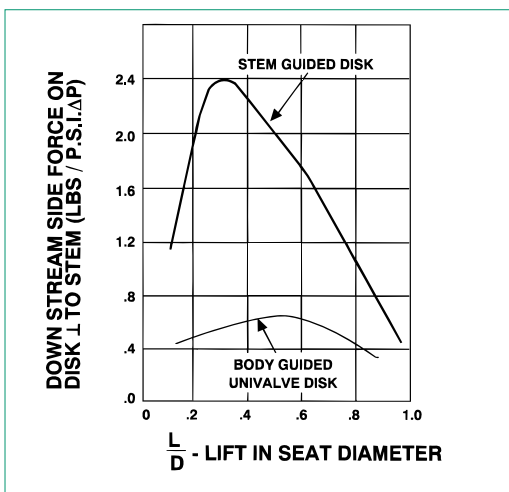
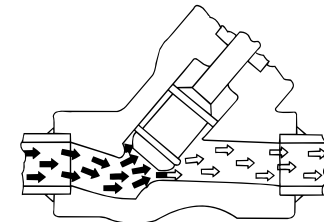


Figure 4 - Graph illustrates relationship of side-thrust in conventional stem-guided Globe Valve and in Edward Univalve with body-guided disk.

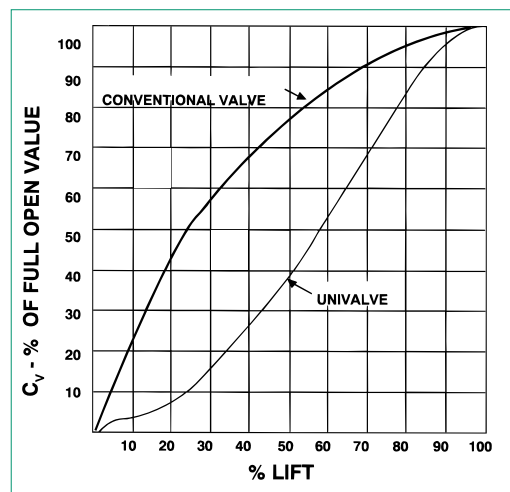


Figure 5 - Graph illustrates typical throttling curves for conventional stem-guided Globe Valve and Univalve. Note, the Univalve Curve illustrates that finest control is obtained at low lifts, when it is needed. Contrast this with conventional valve curve which shows rapid flow increase as disk lifts off seat.

Here's How The Unique Stem-Disk Assembly is Made...

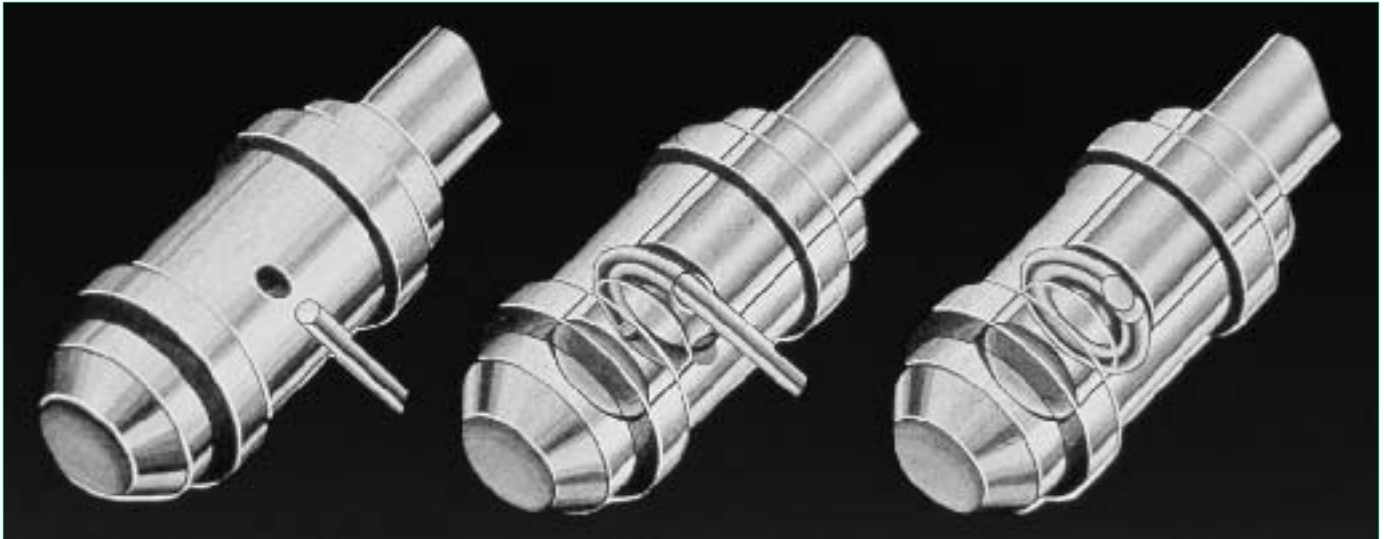


Figure 1

First, a Stellite wire is inserted into a hole in a Univalve body guided disk.

Figure 2

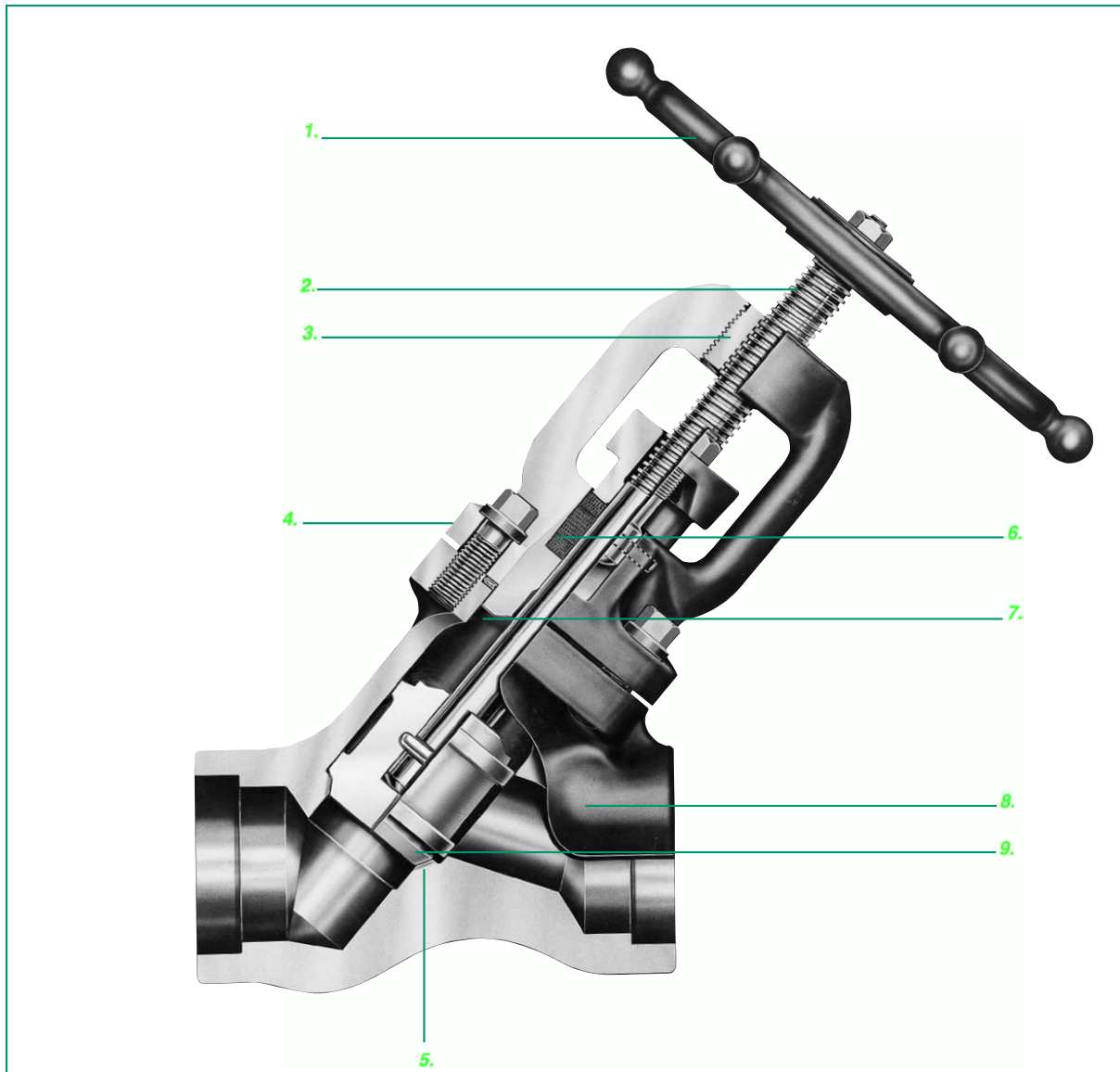
Next, the Stellite wire is fed around circular grooves, adjacent to one another, on the inside bore of the disk and outside diameter of the stem.

Figure 3

Finally the hole through which the wire was fed is welded closed.

B

Features and Description of Edward Bolted Bonnet Globe Valves



1. Handwheel is rugged and knobbed to provide sure grip even when wearing gloves.

2. Stem has ACME threads, is ground to a fine finish and is hardened to resist wear.

3. Yoke bushing material has low coefficient of friction which substantially reduces torque and stem wear and eliminates galling. Mechanical upset locks yoke bushing to yoke.

4. Bolted Bonnet joint utilizes a spiral wound gasket for positive sealing and four-bolt design for ease of assembly. Bonnet has pilot extension to insure proper alignment and positive metal to metal stop to prevent over-compression of gasket.

5. Integral hardsurfaced seat provides positive shutoff and long seat life.

6. Stem packing system utilizes flexible graphite packing material with anti-extrusion rings for optimum sealability and life.

7. Integral backseat provides a secondary stem seal backup for positive shutoff and leak protection.

8. Body utilizes optimized flow passages to minimize flow direction changes and reduce pressure drop.

9. Body-guided disk utilizes anti-thrust rings to eliminate misalignment, galling and stem bending.

Part Specification List for Edward Bolted Bonnet Globe Valves

This is not a complete list. Construction and materials will vary between sizes and pressure classes and may be changed without notice. For a complete, accurate, and itemized description of a particular valve, contact your Edward Valves sales representative.

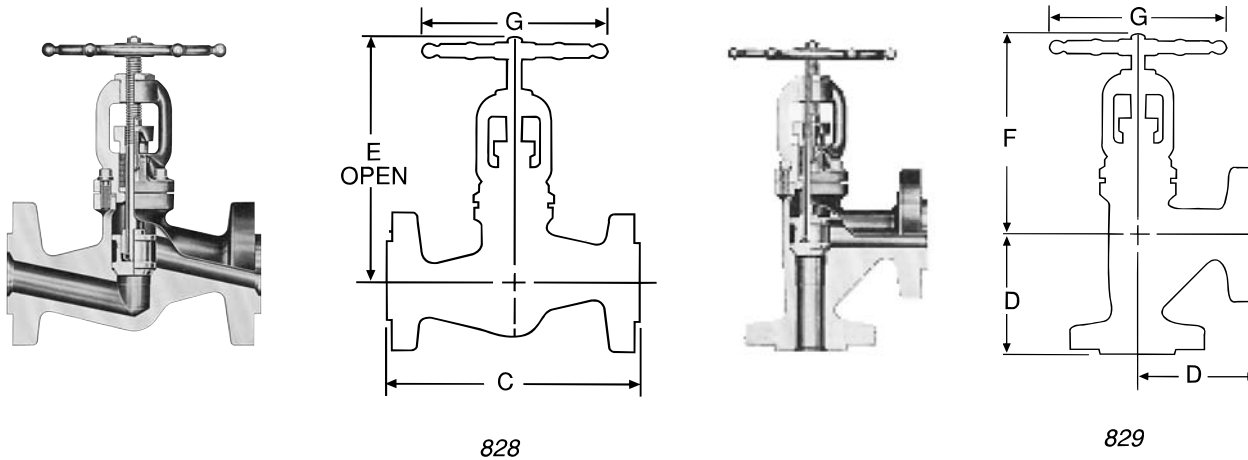
DESCRIPTION	BOLTED BONNET	
	ASTM NO.	ASTM NO.
Body/Bonnet	A-105 —	A-182 Grade F11
Disk	AISI 615 Stainless Steel	AISI 615 Stainless Steel
Body Seat	Stellite 21	Stellite 21
Stem	A-582 T-416	A-582 T-416
Cap Screws	A-193 Grade B-7	A-193 Grade B-7
Gasket	Spiral Wound Non Asbestos	Spiral Wound Non-Asbestos
Packing	Flexible Graphite System	Flexible Graphite System
Gland	A-536 GR. 80-55-06	A-536 GR. 80-55-06
Yoke Bushing	B-150 C61900 or C62300	B-150 C61900 or C62300
Handwheel/Handle	Malleable or Ductile Iron	Malleable or Ductile Iron
Stem Nut	Mild Steel-Plated	Mild Steel-Plated
Eye Bolt	A-582 T-416	A-582 T-416
Eye Bolt Nut	A-563 Grade A	A-563 Grade A
Eye Bolt Pin	AISI Grade 4140	AISI Grade 4140
Spring**	A-313 T302	A-313 T302
Ball**	A-276 T440 C	A-276 T440 C

B

**Check valves only

NOTES: Parts shown above are not applicable to all Bolted Bonnet valves.
Consult your Edward Valves sales representative for special applications.

Stop Valves Class 600 1480 PSI @ 100°F (102.1 BAR @ 38°C)



Standard Features

- Bodies and bonnets are of forged steel (A105).
- Bolted bonnet, OS&Y.
- Globe & angle design.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Integral backseat.
- 13% chromium stainless steel stem.
- Asbestos free graphitic packing.
- Asbestos free spiral wound bonnet gasket.
- Knobbed handwheel.

Pressure Class 600 (PN 110)

FIG. NO.	TYPE	ENDS	NPS (DN)
828	Globe	Flanged	1/2 (15) thru 2 (50)
829	Angle	Flanged	

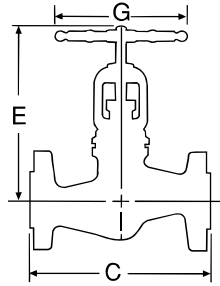
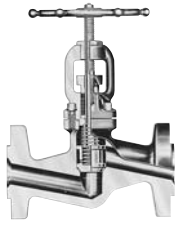
Dimensions - Globe & Angle

Bold face numerals are in inches and pounds.

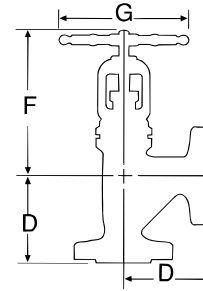
Green numerals are in millimeters and kilograms.

Figure No. 828, 829	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50
C - Face to Face, Globe (Flanged)		6.5 165	7.5 191	8.5 216	9.5 241	9.5 241	11.5 292
D - Center to Face, Angle (Flanged)		3.3 84	3.8 97	4.3 109	4.8 122	4.8 122	5.8 147
E - Center to Top, Globe (Open)		6.1 155	6.9 175	7.7 196	11.1 282	11.1 282	12.1 307
F - Center to Top, Angle (Open)		5.7 145	6.4 163	7.1 180	10.2 259	10.2 259	11.0 279
G - Handwheel Diameter		3.8 97	4.3 109	4.8 122	7.1 180	7.1 180	8.5 216
Weight, Globe		7.5 3.4	12 5.4	16 7.2	27 12.2	32 14.4	38 17.1
Weight, Angle		7 3.2	11 5	15 6.8	26 11.7	31 14	36 16.2

Stop-Check Valves Class 600 1480 PSI @ 100°F (102.1 BAR @ 38°C)



846



847

Standard Features

- Bodies and bonnets are of forged steel (A105).
- Bolted bonnet, OS & Y.
- Globe & angle design.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Integral backseat.
- 13% chromium stainless steel stem.
- Asbestos free graphitic packing.
- Asbestos free spiral wound bonnet gasket.
- Knobbed handwheel.
- Stainless steel spring.

Pressure Class 600 (PN 110)

FIG. NO.	TYPE	ENDS	NPS (DN)
846	Globe	Flanged	1/2 (15) thru 2 (50)
847	Angle	Flanged	

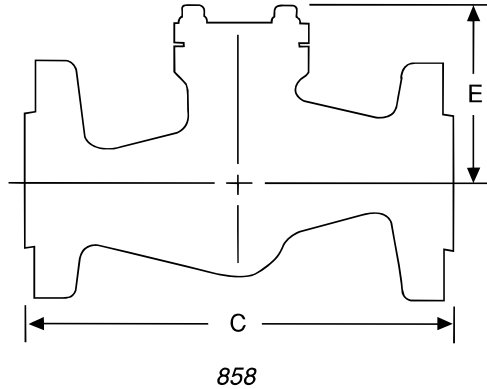
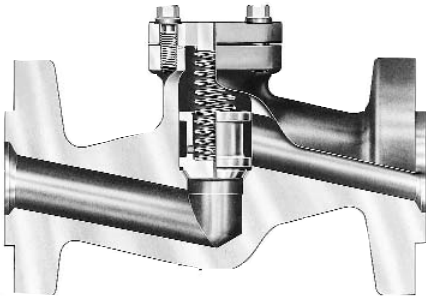
Dimensions - Globe & Angle

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 846, 847	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50
C - Face to Face, Globe (Flanged)		6.5 165	7.5 191	8.5 216	9.5 241	9.5 241	11.5 292
D - Center to Face, Angle (Flanged)		3.3 84	3.8 97	4.3 109	4.8 122	4.8 122	5.8 147
E - Center to Top, Globe (Open)		6.1 155	6.9 175	7.7 196	11.1 282	11.1 282	12.1 307
F - Center to Top, Angle (Open)		5.7 145	6.4 163	7.1 180	10.2 259	10.2 259	11.0 279
G - Handwheel Diameter		3.8 97	4.3 109	4.8 122	7.1 180	7.1 180	8.5 216
Weight, Globe		7.5 3.4	12 5.4	16 7.2	27 12.2	32 14.4	38 17.1
Weight, Angle		7 3.2	11 5	15 6.8	26 11.7	31 14	36 16.2

Piston Check Valves Class 600 1480 PSI @ 100°F (102.1 BAR @ 38°C)



Standard Features

- Bodies and covers are of forged steel (A105).
- Bolted cover.
- Globe design.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Asbestos free spiral wound cover gasket.
- Stainless steel spring.

Pressure Class 600 (PN 110)

FIG. NO.	TYPE	ENDS	NPS (DN)
858	Globe	Flanged	1/2 (15) thru 2 (50)

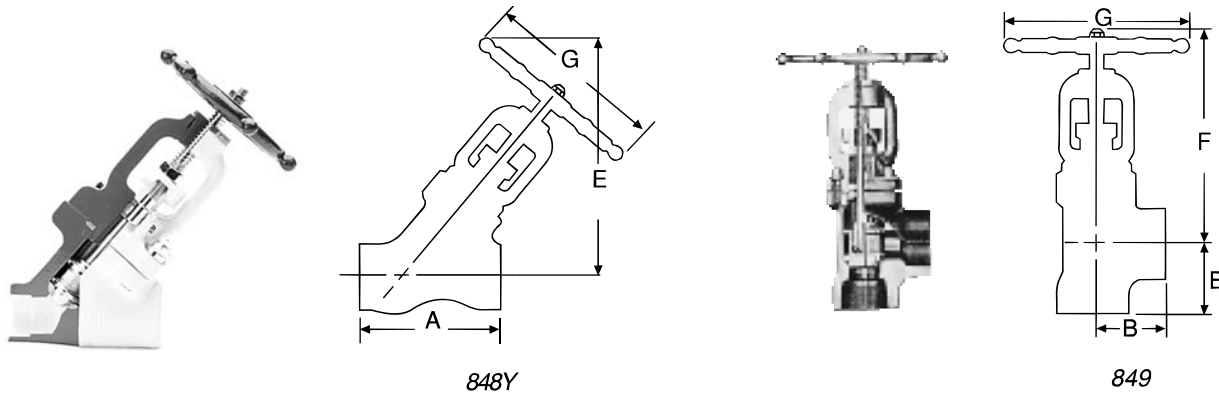
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 858	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50
C - Face to Face (Flanged)		6.5 165	7.5 191	8.5 216	9.5 241	9.5 241	11.5 292
E - Center to Top		2.3 58	2.7 69	3.1 79	4.2 107	4.2 107	4.7 119
Weight		6.5 2.9	11 5	13 5.9	21 9.5	26 11.7	29 13.1

Stop Valves Class 800 2000 PSI @ 100°F (137.9 BAR @ 38°C)



Standard Features

- Bodies and bonnets are of forged steel (A105 or F11).
- Bolted bonnet, OS & Y.
- Y-Pattern or angle design.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Integral backseat.
- 13% chromium stainless steel stem.
- Asbestos free graphitic packing.
- Asbestos free spiral wound bonnet gasket.
- Knobbed handwheel.

Pressure Class 800 (PN 130)

FIG. NO.	TYPE	ENDS	NPS (DN)
848	Y-Pattern	Threaded	1/4 (8) thru 2 (50)
848Y	Y-Pattern	Socket Welding	
849	Angle	Threaded	
849Y	Angle	Socket Welding	

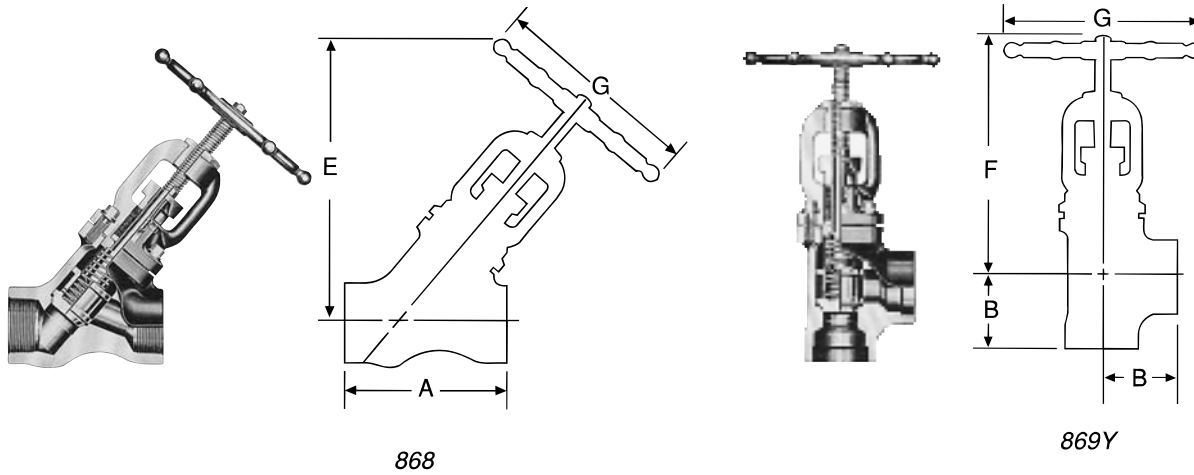
Dimensions - Globe & Angle

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 848/848Y, 849/849Y	NPS DN	1/4 8	3/8 10	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50
A - End to End, Globe		3 76	3 76	3 76	3.6 91	4.3 109	5.8 147	5.8 147	6.5 165
B - Center to End, Angle		1.5 38	1.5 38	1.5 38	1.8 46	2 51	2.9 74	2.9 74	3.3 84
E - Center to Top, Globe (Open)		6 152	6 152	6 152	6.8 173	7.6 193	10.9 277	10.9 277	12.1 307
F - Center to Top, Angle (Open)		5.7 145	5.7 145	5.7 145	6.4 163	7.1 180	10.2 259	10.2 259	11 279
G - Handwheel Diameter		3.8 97	3.8 97	3.8 97	4.3 109	4.8 122	7.1 180	7.1 180	8.5 216
Weight, Globe		4 1.8	4 1.8	4 1.8	5.5 2.5	7.5 3.4	16 7.2	16 7.2	23 10.4
Weight, Angle		4 1.8	4 1.8	4 1.8	5.5 2.5	7 3.2	17 7.7	17 7.7	24 10.8

Stop-Check Valves Class 800 2000 PSI @ 100°F (137.9 BAR @ 38°C)



Standard Features

- Bodies and bonnets are of forged steel (A105 or F11).
- Bolted bonnet, OS & Y.
- Y-Pattern or angle design.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Integral backseat.
- 13% chromium stainless steel stem.
- Asbestos free graphitic packing.
- Asbestos free spiral wound bonnet gasket.
- Knobbed handwheel.
- Stainless steel spring.

Pressure Class 800 (PN 130)

FIG. NO.	TYPE	ENDS	NPS (DN)
868	Y-Pattern	Threaded	1/4 (8) thru 2 (50)
868Y	Y-Pattern	Socket Welding	
869	Angle	Threaded	
869Y	Angle	Socket Welding	

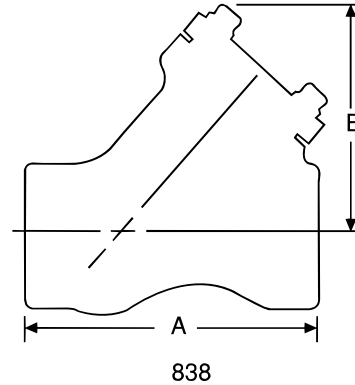
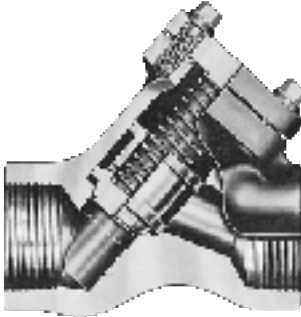
Dimensions - Globe & Angle

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 868/868Y, 869/869Y	NPS DN	1/4 8	3/8 10	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50
A - End to End, Globe		3 76	3 76	3 76	3.6 91	4.3 109	5.8 147	5.8 147	6.5 165
B - Center to End, Angle		1.5 38	1.5 38	1.5 38	1.8 46	2 51	2.9 74	2.9 74	3.3 84
E - Center to Top, Globe (Open)		6 152	6 152	6 152	6.8 173	7.6 193	10.9 277	10.9 277	12.1 307
F - Center to Top, Angle (Open)		5.7 145	5.7 145	5.7 145	6.4 163	7.1 180	10.2 259	10.2 259	11 279
G - Handwheel Diameter		3.8 97	3.8 97	3.8 97	4.3 109	4.8 122	7.1 180	7.1 180	8.5 216
Weight, Globe		4 1.8	4 1.8	4 1.8	5.5 2.5	7.5 3.4	16 7.2	16 7.2	23 10.4
Weight, Angle		4 1.8	4 1.8	4 1.8	5.5 2.5	7 3.2	17 7.7	17 7.7	24 10.8

Piston Check Valves Class 800 2000 PSI @ 100°F (137.9 BAR @ 38°C)



B

Standard Features

- Bodies and covers are of forged steel (A105 or F11).
- Bolted cover.
- Y-Pattern.
- Body-guided hardened stainless steel disk.
- Integral Stellite seat.
- Asbestos free spiral wound cover gasket.
- Stainless steel spring.
(Optional without springs, see page G14.)

Pressure Class 800 (PN 130)

FIG. NO.	TYPE	ENDS	NPS (DN)
838	Y-Pattern	Threaded	1/4 (8) thru
838Y	Y-Pattern	Socket Welding	2 (50)

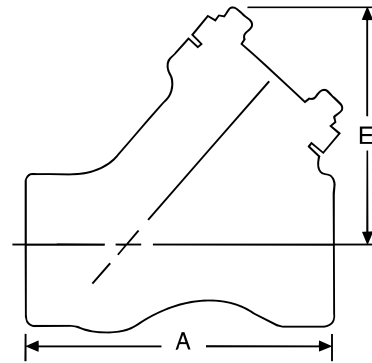
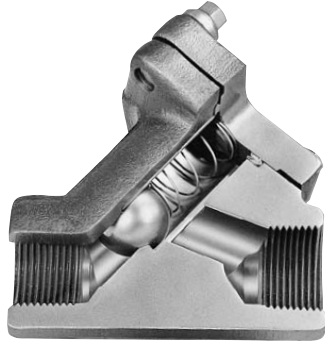
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 838/838Y	NPS DN	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
		8	10	15	20	25	32	40	50
A - End to End		3 76	3 76	3 76	3.6 91	4.3 109	5.8 147	5.8 147	6.5 165
E - Center to Top		2.8 71	2.8 71	2.8 71	3.3 84	3.8 97	4.6 117	4.6 117	5.1 130
Weight		2 .9	2 .9	2 .9	3.5 1.6	5 2.3	11 5	10 4.5	14 6.3

Ball Check Valves Class 800 2000 PSI @ 100°F (137.9 BAR @ 38°C)



832

Standard Features

- Bodies and covers are of forged steel (A105 or F11).
- Bolted cover.
- Y-Pattern.
- Integral Stellite seat.
- Asbestos free spiral wound cover gasket.
- Stainless steel spring.
- Stainless steel ball.

Pressure Class 800 (PN 130)

FIG. NO.	TYPE	ENDS	NPS (DN)
832	Y-Pattern	Threaded	1/4 (8) thru 2 (50)
832Y	Y-Pattern	Socket Welding	

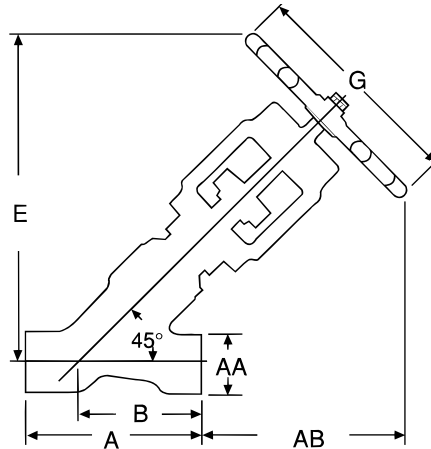
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 832/832Y	NPS DN	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
A - End to End		3 76	3 76	3 76	3.6 91	4.3 109	5.8 147	5.8 147	6.5 165
E - Center to Top		2.8 71	2.8 71	2.8 71	3.3 84	3.8 97	4.6 117	4.6 117	5.1 130
Weight		2 .9	2 .9	2 .9	3.5 1.6	5 2.3	11 5	10 4.5	14 6.4

Univalve® Stop Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



36124

Standard Features

- Available Body Materials
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36120	36220	Y-Pattern	Threaded	1/2 (15) thru 1 (25)
36124	36224	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
36128	36228	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Globe

Bold face numerals are in inches and pounds.

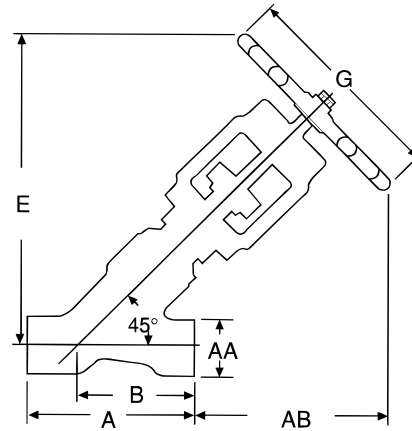
Green numerals are in millimeters and kilograms.

Figure No. 36120, 36124, 36128 36220, 36224, 36228	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
A - End to End		6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	8.2 208	10.7 272	10.7 272	12.8 325
AA - End Hub Diameter		2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	3.64 92	4.00 102	4.00 102	4.80 122
AB - Handwheel Clearance, (Open)		7.5 191	7.5 191	7.5 191	11.0 279	11.0 279	11.6 295	12.5 318	12.5 318	11.2 284
B - Center to End		4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	6.1 155	7.1 180	7.1 180	8.8 224
E - Center to Top, (Open)		11.5 292	11.5 292	11.5 292	15.9 404	15.9 404	17.7 450	19.6 498	19.6 498	20.0 508
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	14.3* 363*	14.3* 363*	14.3* 363*	16.0** 406**	16.0** 406**	16.0** 406**
Weight, Welded		19 9	19 9	19 9	36 16	36 16	57 26	100 46	100 46	138 63
Weight, Unwelded		20 9	20 9	20 9	38 17	38 17	59 27	104 47	104 47	142 64

* Impactor Handle

** Impactor Handwheel

Univalve® Stop-Check Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



36164

Standard Features

- Available Body Materials
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36160	36260	Y-Pattern	Threaded	1/2 (15) thru 1 (25)
36164	36264	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
36168	36268	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

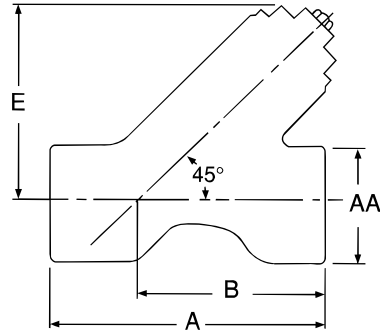
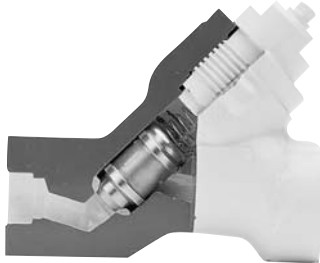
Dimensions - Globe

Figure No. 36160, 36164, 36168, 36260, 36264, 36268	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
A - End to End		6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	8.2 208	10.7 272	10.7 272	12.8 325
AA - End Hub Diameter		2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	3.64 92	4.00 102	4.00 102	4.80 122
AB - Handwheel Clearance, (Open)		7.5 191	7.5 191	7.5 191	11.0 279	11.0 279	11.6 295	12.5 318	12.5 318	11.2 284
B - Center to End		4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	6.1 155	7.1 180	7.1 180	8.8 224
E - Center to Top, (Open)		11.5 292	11.5 292	11.5 292	15.9 404	15.9 404	17.7 450	19.6 498	19.6 498	20.0 508
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	14.3* 363*	14.3* 363*	14.3* 363*	16.0** 406**	16.0** 406**	16.0** 406**
Weight, Welded		19 9	19 9	19 9	36 16	36 16	57 26	100 46	100 46	138 63
Weight, Unwelded		20 9	20 9	20 9	38 17	38 17	59 27	104 47	104 47	142 64

* Impactor Handle

** Impactor Handwheel

Univalve® Piston Check Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



36174

Standard Features

- Available Body Materials
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded cover.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Stainless steel spring. (Optional without springs, see page G-14.)

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36170	36270	Y-Pattern	Threaded	1/2 (15) thru 1 (25)
36174	36274	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
36178	36278	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

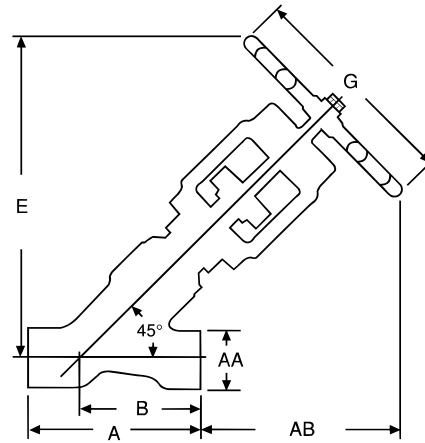
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 36170, 36174, 36178, 36270, 36274, 36278	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
		15	20	25	32	40	50	65	80	100
A - End to End		6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	8.2 208	10.7 272	10.7 272	12.8 325
AA - End Hub Diameter		2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	3.64 92	4.00 102	4.00 102	4.80 122
B - Center to End		4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	6.1 155	7.1 180	7.1 180	8.8 224
E - Center to Top		3.9 99	3.9 99	3.9 99	5.0 127	5.0 127	5.8 147	7.2 183	7.2 183	7.8 198
Weight		14 6	14 6	14 6	22 10	22 10	31 14	44 20	44 20	86 39

Univalve® Stop Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



66124

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
66120	66220	Y-Pattern	Threaded*	1/2 (15) thru 1 (25)
66124	66224	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
66128	66228	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

* Threaded end valves are limited to Pressure Class 2500.

Dimensions - Globe

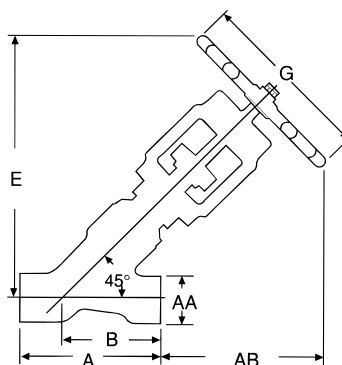
Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 66120, 66124, 66128, 66220, 66224, 66228	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
A - End to End	6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	10.7 272	12.8 325	12.8 325	12.8 325	
AA - End Hub Diameter	2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	4.00 102	4.80 122	4.80 122	4.80 122	
AB - Handwheel Clearance, (Open)	7.5 191	7.5 191	7.5 191	9.8 249	9.8 249	11.6 296	11.2 284	11.2 284	11.2 284	
B - Center to End	4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	7.1 180	8.8 224	8.8 224	8.8 224	
E - Center to Top, (Open)	11.5 292	11.5 292	11.5 292	14.6 371	14.6 371	18.6 472	20.0 508	20.0 508	20.0 508	
G - Handwheel/Handle Diameter	8.5 216	8.5 216	8.5 216	11.0* 279*	11.0* 279*	14.3* 363*	16.0** 406**	16.0** 406**	16.0** 406**	
Weight, Welded	19 9	19 9	19 9	34 16	34 16	79 36	142 65	142 65	142 65	
Weight, Unwelded	20 9	20 9	20 9	36 17	36 17	83 38	146 66	146 66	146 66	

* Impactor Handle ** Impactor Handwheel

Univalve® Stop-Check Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



66164

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
66160	66260	Y-Pattern	Threaded*	1/2 (15) thru 1 (25)
66164	66264	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
66168	66268	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

*Threaded end valves are limited to Pressure Class 2500

Dimensions - Globe

Bold face numerals are in inches and pounds.

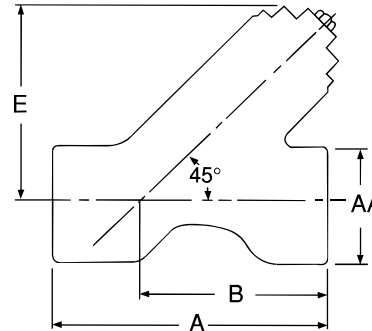
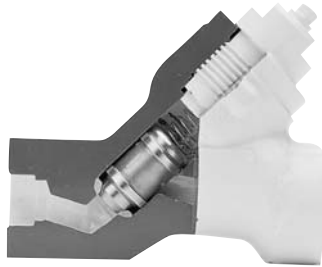
Green numerals are in millimeters and kilograms.

Figure No. 66160, 66164, 66168, 66260, 66264, 66268	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
A - End to End		6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	10.7 272	12.8 325	12.8 325	12.8 325
AA - End Hub Diameter		2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	4.00 102	4.80 122	4.80 122	4.80 122
AB - Handwheel Clearance, (Open)		7.5 191	7.5 191	7.5 191	9.8 249	9.8 249	11.6 295	11.2 284	11.2 284	11.2 284
B - Center to End		4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	7.1 180	8.8 224	8.8 224	8.8 224
E - Center to Top, (Open)		11.5 292	11.5 292	11.5 292	14.6 371	14.6 371	18.6 472	20.0 508	20.0 508	20.0 508
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	11.0* 279*	11.0* 279*	14.3* 363*	16.0** 406**	16.0** 406**	16.0** 406**
Weight, Welded		19 9	19 9	19 9	34 16	34 16	79 36	142 65	142 65	142 65
Weight, Unwelded		20 9	20 9	20 9	36 17	36 17	83 38	146 66	146 66	146 66

* Impactor Handle

** Impactor Handwheel

Univalve® Piston Check Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



66174

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded cover.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Stainless steel spring.
(Optional without springs, see page G14.)

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
66170	66270	Y-Pattern	Threaded*	1/2 (15) thru 1 (25)
66174	66274	Y-Pattern	Socket Welding	1/2 (15) thru 2-1/2 (65)
66178	66278	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

* Threaded end valves are limited to Pressure Class 2500.

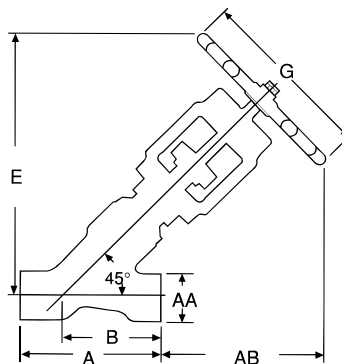
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 66170, 66174, 66178, 66270, 66274, 66278	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
A - End to End		6.0 152	6.0 152	6.0 152	6.7 170	6.7 170	10.7 272	12.8 325	12.8 325	12.8 325
AA - End Hub Diameter		2.30 58	2.30 58	2.30 58	3.20 81	3.20 81	4.00 102	4.80 122	4.80 122	4.80 122
B - Center to End		4.0 102	4.0 102	4.0 102	4.8 122	4.8 122	7.1 180	8.8 224	8.8 224	8.8 224
E - Center to Top, (Open)		3.9 99	3.9 99	3.9 99	5.0 127	5.0 127	7.0 178	7.8 198	7.8 198	7.8 198
Weight		14 6	14 6	14 6	22 10	22 10	52 24	86 39	86 39	86 39

Univalve® Stop Valves Class 4500 11,250 PSI @ 100°F (775.9 BAR @ 38°C)



96124

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 4500 (PN 760)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
96124	96224	Y-Pattern	Socket Welding	1/2 (15) thru 2 (50)
96128	96228	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Globe

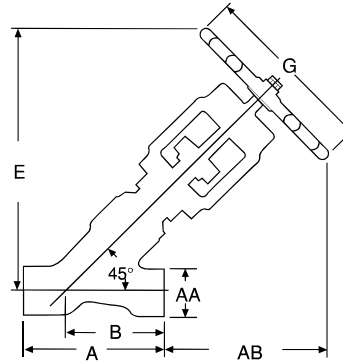
Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 96124, 96128 96224, 96228	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
A - End to End		8.2 208	8.2 208	8.2 208	8.2 208	8.2 208	12.8 325	12.8 325	12.8 325	12.8 325
AA - End Hub Diameter		3.64 92	3.64 92	3.64 92	3.64 92	3.64 92	4.80 122	4.80 122	4.80 122	4.80 122
AB - Handwheel Clearance, (Open)		7.3 185	7.3 185	7.3 185	7.3 185	7.3 185	11.2 284	11.2 284	11.2 284	11.2 284
B - Center to End		6.1 155	6.1 155	6.1 155	6.1 155	6.1 155	8.8 224	8.8 224	8.8 224	8.8 224
E - Center to Top, (Open)		13.4 340	13.4 340	13.4 340	13.4 340	13.4 340	20.0 508	20.0 508	20.0 508	20.0 508
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	8.5 216	8.5 216	16.0** 406**	16.0** 406**	16.0** 406**	16.0** 406**
Weight, Welded		43 20	43 20	43 20	43 20	43 20	158 72	158 72	158 72	158 72
Weight, Unwelded		45 21	45 21	45 21	45 21	45 21	162 74	162 74	162 74	162 74

** Impactor Handwheel

Univalve® Stop-Check Valves Class 4500 11,250 PSI @ 100°F (775.9 BAR @ 38°C)



96164

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded bonnet.
- OS & Y.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral backseat.
- Asbestos free graphitic packing.

Pressure Class 4500 (PN 760)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
96164	96264	Y-Pattern	Socket Welding	1/2 (15) thru 2 (50)
96168	96268	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Globe

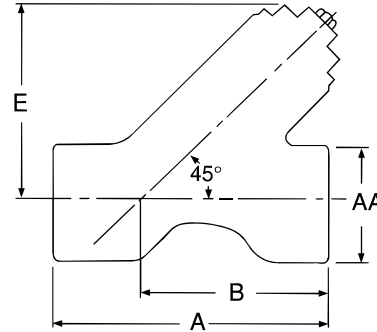
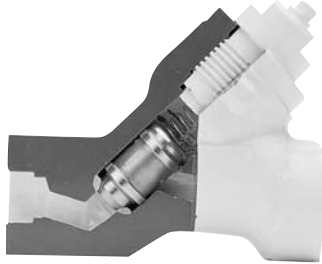
Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 96164, 96168, 96264, 96268	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
A - End to End		8.2 208	8.2 208	8.2 208	8.2 208	8.2 208	12.8 325	12.8 325	12.8 325	12.8 325
AA - End Hub Diameter		3.64 92	3.64 92	3.64 92	3.64 92	3.64 92	4.80 122	4.80 122	4.80 122	4.80 122
AB - Handwheel Clearance, (Open)		7.3 185	7.3 185	7.3 185	7.3 185	7.3 185	11.2 284	11.2 284	11.2 284	11.2 284
B - Center to End		6.1 155	6.1 155	6.1 155	6.1 155	6.1 155	8.8 224	8.8 224	8.8 224	8.8 224
E - Center to Top, (Open)		13.4 340	13.4 340	13.4 340	13.4 340	13.4 340	20.0 508	20.0 508	20.0 508	20.0 508
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	8.5 216	8.5 216	16.0** 406**	16.0** 406**	16.0** 406**	16.0** 406**
Weight, Welded		43 20	43 20	43 20	43 20	43 20	158 72	158 72	158 72	158 72
Weight, Unwelded		45 21	45 21	45 21	45 21	45 21	162 74	162 74	162 74	162 74

** Impactor Handwheel

Univalve® Piston Check Valves Class 4500 11,250 PSI @ 100°F (775.9 BAR @ 38°C)



96174

Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or welded cover.
- Y-Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Stainless steel spring.
(Optional without springs, see page G14.)

Pressure Class 4500 (PN 760)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
96174	96274	Y-Pattern	Socket Welding	1/2 (15) thru 2 (50)
96178	96278	Y-Pattern	Buttwelding	1/2 (15) thru 4 (100)

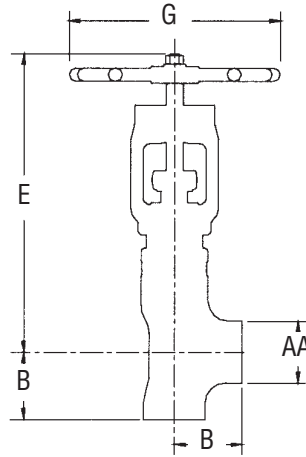
Dimensions - Globe

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 96174, 96178, 96274, 96278	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
A - End to End		8.2 208	8.2 208	8.2 208	8.2 208	8.2 208	12.8 325	12.8 325	12.8 325	12.8 325
AA - End Hub Diameter		3.64 92	3.64 92	3.64 92	3.64 92	3.64 92	4.80 122	4.80 122	4.80 122	4.80 122
B - Center to End		6.1 155	6.1 155	6.1 155	6.1 155	6.1 155	8.8 224	8.8 224	8.8 224	8.8 224
E - Center to Top		5.4 137	5.4 137	5.4 137	5.4 137	5.4 137	7.9 201	7.9 201	7.9 201	7.9 201
Weight		35 16	35 16	35 16	35 16	35 16	92 42	92 42	92 42	92 42

Univalve® Angle Stop Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Bonnet.
- OS&Y.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral Backseat.
- Asbestos free graphitic packing.

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36125	36225	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
36129	36229	Angle	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Angle

Bold face numerals are in inches and pounds.

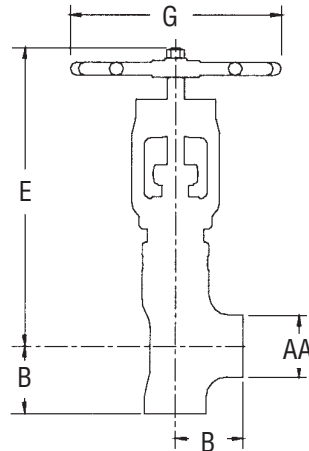
Green numerals are in millimeters and kilograms.

Figure No. 36125, 36129, 36225, 36229	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	3.6 91	4.0 102	4.0 102	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.1 104	4.5 114	4.5 114	5.3 135
E - Center to Top (Open)		11.7 297	11.7 297	11.7 297	14.9 378	14.9 378	17.3 439	19.1 485	19.1 485	19.7 500
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	14.3* 363	14.3* 363	14.3* 363	16.0** 406	16.0** 406	16.0** 406
Weight, Welded		18 8.2	18 8.2	18 8.2	40 18.1	40 18.1	60 27.2	103 46.7	103 46.7	139 63.0
Weight, Unwelded		19 8.6	19 8.6	19 8.6	42 19.1	42 19.1	62 28.1	107 48.5	107 48.5	143 64.9

* Impactor Handle

** Impactor Handwheel

Univalve® Angle Stop-Check Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Bonnet.
- OS&Y.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral Backseat.
- Asbestos free graphitic packing.

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36165	36265	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
36169	36269	Angle	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Angle

Bold face numerals are in inches and pounds.

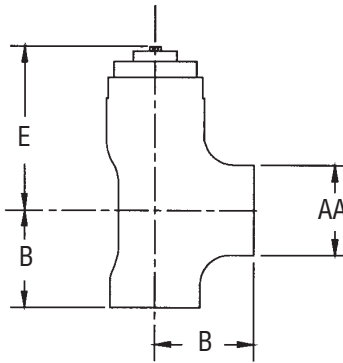
Green numerals are in millimeters and kilograms.

Figure No. 36165, 36169, 36265, 36269	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
		15	20	25	32	40	50	65	80	100
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	3.6 91	4.0 102	4.0 102	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.1 104	4.5 114	4.5 114	5.3 135
E - Center to Top (Open)		11.7 297	11.7 297	11.7 297	14.9 378	14.9 378	17.3 439	19.1 485	19.1 485	19.7 500
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	14.3* 363	14.3* 363	14.3* 363	16.0** 406	16.0** 406	16.0** 406
Weight, Welded		18 8.2	18 8.2	18 8.2	40 18.1	40 18.1	60 27.2	103 46.7	103 46.7	139 63.0
Weight, Unwelded		19 8.6	19 8.6	19 8.6	42 19.1	42 19.1	62 28.1	107 48.5	107 48.5	143 64.9

* Impactor Handle

** Impactor Handwheel

Univalve® Angle Check Valves Class 1690 4225 PSI @ 100°F (291.4 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Cover.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Stainless steel spring.
(Optional without spring, see page G14.)

Pressure Class 1690 (PN 290)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
36175	36275	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
36179	36279	Angle	Buttwelding	1/2 (15) thru 4 (100)

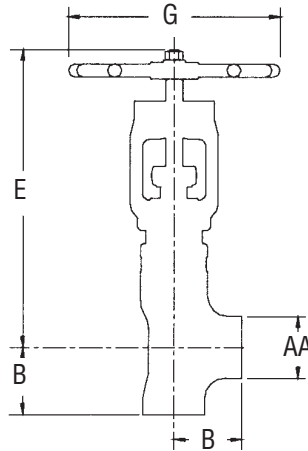
Dimensions - Angle

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 36175, 36179, 36275, 36279	NPS DN	1/2 15	3/4 20	1 25	1-1/4 32	1-1/2 40	2 50	2-1/2 65	3 80	4 100
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	3.6 91	4.0 102	4.0 102	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.1 104	4.5 114	4.5 114	5.3 135
E - Center to Top		4.6 117	4.6 117	4.6 117	5.7 145	5.7 145	6.2 157	7.2 183	7.2 183	7.8 198
Weight		8 3.6	8 3.6	8 3.6	21 9.5	21 9.5	30 13.6	41 18.6	41 18.6	76 34.5

Univalve® Angle Stop Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Bonnet.
- OS&Y.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral Backseat.
- Asbestos free graphitic packing.

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
66125	66225	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
66129	66229	Angle	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Angle

Bold face numerals are in inches and pounds.

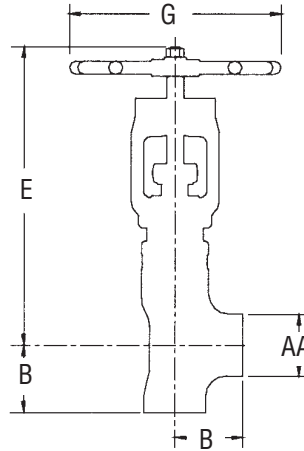
Green numerals are in millimeters and kilograms.

Figure No. 66125, 66129, 66225, 66229	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	4.0 102	4.8 122	4.8 122	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.5 114	5.3 135	5.3 135	5.3 135
E - Center to Top (Open)		11.7 297	11.7 297	11.7 297	14.9 378	14.9 378	18.2 462	19.7 500	19.7 500	19.7 500
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	11.0* 279	11.0* 279	14.3* 363	16.0** 406	16.0** 406	16.0** 406
Weight, Welded		18 8.2	18 8.2	18 8.2	38 17.2	38 17.2	76 34.5	139 63.0	139 63.0	139 63.0
Weight, Unwelded		19 8.6	19 8.6	19 8.6	40 18.1	40 18.1	80 36.3	143 64.9	143 64.9	143 64.9

* Impactor Handle

**Impactor Handwheel

Univalve® Angle Stop-Check Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Bonnet.
- OS&Y.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Integral Backseat.
- Asbestos free graphitic packing.

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELDED			
66165	66265	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
66169	66269	Angle	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Angle

Bold face numerals are in inches and pounds.

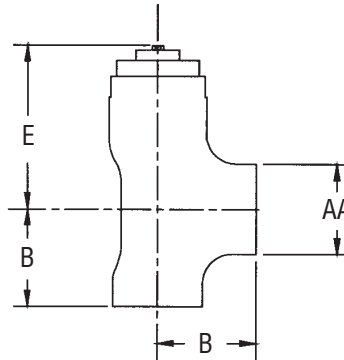
Green numerals are in millimeters and kilograms.

Figure No. 66165, 66169, 66265, 66269	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	4.0 102	4.8 122	4.8 122	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.5 114	5.3 135	5.3 135	5.3 135
E - Center to Top (Open)		11.7 297	11.7 297	11.7 297	14.9 378	14.9 378	18.2 462	19.7 500	19.7 500	19.7 500
G - Handwheel/Handle Diameter		8.5 216	8.5 216	8.5 216	11.0* 279	11.0* 279	14.3* 363	16.0** 406	16.0** 406	16.0** 406
Weight, Welded		18 8.2	18 8.2	18 8.2	38 17.2	38 17.2	76 34.5	139 63.0	139 63.0	139 63.0
Weight, Unwelded		19 8.6	19 8.6	19 8.6	40 18.1	40 18.1	80 36.3	143 64.9	143 64.9	143 64.9

* Impactor Handle

** Impactor Handwheel

Univalve® Angle Check Valves Class 2680 6700 PSI @ 100°F (462.1 BAR @ 38°C)



Standard Features

- Available Body Material
 - A105 carbon steel.
 - F22 alloy steel.
 - F91 alloy steel.
 - F316, F347 stainless steel.
 - Other material on application.
- Unwelded (graphitic seal) or Welded Cover.
- Angle Pattern.
- Body-guided investment cast Stellite disk.
- Integral Stellite seat.
- Stainless steel spring.
(Optional without spring, see page G14.)

Pressure Class 2680 (PN 460)

FIG. NO.		TYPE	ENDS	NPS (DN)
WELDED	UNWELD.			
66175	66275	Angle	Socket Welding	1/2 (15) thru 2-1/2 (65)
66179	66279	Angle	Buttwelding	1/2 (15) thru 4 (100)

Dimensions - Angle

Bold face numerals are in inches and pounds.

Green numerals are in millimeters and kilograms.

Figure No. 66175, 66179, 66275, 66279	NPS DN	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
AA - Hub Diameter		2.3 58	2.3 58	2.3 58	3.8 97	3.8 97	4.0 102	4.8 122	4.8 122	4.8 122
B - Center to End		2.5 64	2.5 64	2.5 64	3.6 91	3.6 91	4.5 114	5.3 135	5.3 135	5.3 135
E - Center to Top		4.6 117	4.6 117	4.6 117	5.7 145	5.7 145	7.2 183	7.8 198	7.8 198	7.8 198
Weight		8 3.6	8 3.6	8 3.6	23 10.4	23 10.4	46 20.9	76 34.5	76 34.5	76 34.5

