

*Safety is our
greatest concern.*

We work at it.



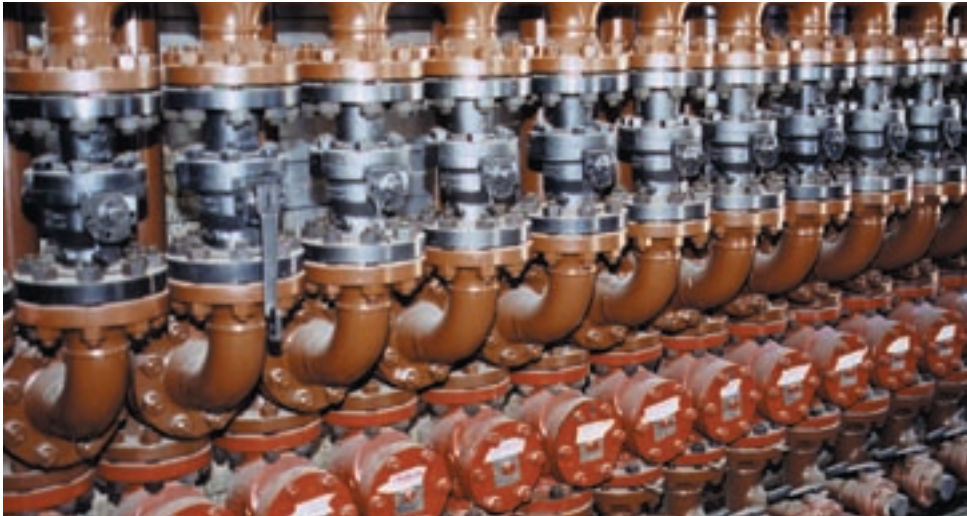
BALL VALVES

BALON[®]

Raising the Threshold of Quality
Lowering the Cost of Ownership

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The Balon Mission

To assure growth for the Company and opportunity for all employees, it shall be our dedicated aim to:

- Produce valves with the safety of those who use them as our uppermost and defining goal.
- Provide our customers with valves which perform as promised, at a price which reflects their true value to the user.
- Meet the service needs of our customers by maintaining a trained full-time staff of field technicians located in all geographical areas.
- Respond promptly and courteously to all customer and distributor inquiries, questions, and problems.
- Make certain that all Balon employees understand and implement our commitment to customer attention and customer satisfaction.
- Treat our vendors, customers, distributors, and employees with equanimity and honesty.



BALON

**Raising the Threshold of Quality
Lowering the Cost of Ownership**

Manufacturing



Balon: The Company



Situated on ten acres in Oklahoma City, this facility typifies the Balon concept and approach to producing a superior valve.

Because growth has been rapid, it has been a policy to gear ahead of the actual demand so that good deliveries can be sustained and so that surges in demand do not restrict our capability to pursue an ongoing program of product improvement and expansion.

Moreover, it has been our policy over the years to control the manufacture of our valves in every possible way, and this has meant basic manufacture of all components, including molding of seats, and close-tolerance machining of balls.

The people who manufacture the Balon ball valve take pride in their work. And it is this pride of craftsmanship that sets Balon apart from its competition.

By utilizing the most modern equipment and facility available today, Balon is able to do many things more quickly than those manufacturers whose equipment and facilities have become outdated and costly. We will continue to recognize that the Balon name must be synonymous with raising the threshold of quality and lowering the cost of ownership.

Balon: The Ball Valve

Unblemished Safety Record:

After almost four decades of producing valves and having no injuries nor property damage result from the failure of a Balon valve, we are proud to claim that we make the safest ball valves available on the market today.

This safety record did not come from shying away from the tough high pressure applications in the field. It did not arise from cutting corners to lower the cost of making valves to the ultimate peril of those who operate them. It was not borne of cosmetic contrivance nor gimmickry and gadgetry.

It has been the calculated result of a rational, intentional and concerted effort to address every possible hazard and to design and manufacture valves with an inherent margin of safety far surpassing that of others on the market.

Total Commitment: More than innovative design goes into producing a superior valve. More than controlled and precision manufacturing methods. More than overall engineering expertise. More than effective marketing and distribution. To produce a valve noted for its superiority in performance, safety, dependability and for its consistent quality implies a total commitment in all of these phases.

Combined Effort: Balon Corporation, since its beginning in 1965, has coupled improved design features, advanced manufacturing methods and practical common sense engineering approaches with a well planned, highly supportive and field channeled marketing and distribution program. The natural result of this effort has been that the Balon ball valve has attained a reputation for excellence unequalled by any other ball valve on the market.

Individual Pride: Many manufacturers have adopted the philosophy that valves are best made by turning them out on sophisticated machines incapable of exercising judgment as to the quality of the final product. At Balon, we believe that people — not machines — produce valves. Our valves are produced by perfection-minded craftsmen who use specialized machines as tools to help them make a better valve.

Continued Support: It is with this philosophy in mind that we will continue to provide a better valve, an advanced valve. And we will support this product with a concerted program of design, manufacturing, engineering and marketing.



Balon Corporation's 260,000 square feet of modern office and manufacturing capability is shown in this aerial view.

Multi-Seal: The Heart of the Valve

Notice the grooves. These grooves loosely receive any grit that might be present when the valve is closed. When the valve is opened, the foreign matter washes harmlessly away, where an ordinary valve seal could have been scored across its entire surface. Balon's seal is good as new.

Notice the seal rings. Not just one ring... a series. That's where Multi-Seal gets another big sealing edge over plain seals. The rings assure a concentrated seal, providing a bubble tight seal at high and low pressures, the tighter the seal... the better the shut-off.

Notice the tapered outer walls. These tapered walls on the Multi-Seal provide automatic seal-to-ball tensioning and self-adjustment to wear. Much longer life and complete trouble-free performance is what you get. That's why you don't need a repair kit.

How long will the Balon Multi-Seal last? Our sales records of replacement seats indicate that most Balon valves sold have provided many years of trouble-free performance.

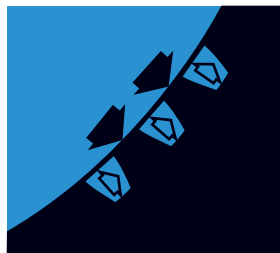
It has been tested on water pumped at 1,000 psi operating pressure with shock loading on shutoff up to 1,800 psi. After a million shutoffs, it still sealed bubble tight.



ORDINARY SEALS are damaged during shutoff. As flow is squeezed through fine-line opening, foreign particles are trapped. Complete shutoff grinds them into seal. Results: premature damage, leakage, valve failure.



MULTI-SEAL receives particles loosely in grooves, to be washed harmlessly away during next opening. Valve seals bubble tight again, through repeated shutoffs.



MULTI-SEAL'S series groove design features blunt-edge seal members for superior sealing efficiency. And the grooves form super-tight "fluid seal rings." Each seal member, working with the next one, creates exclusive "staged differential pressure sealing," for tightest shutoff possible at all pressures.



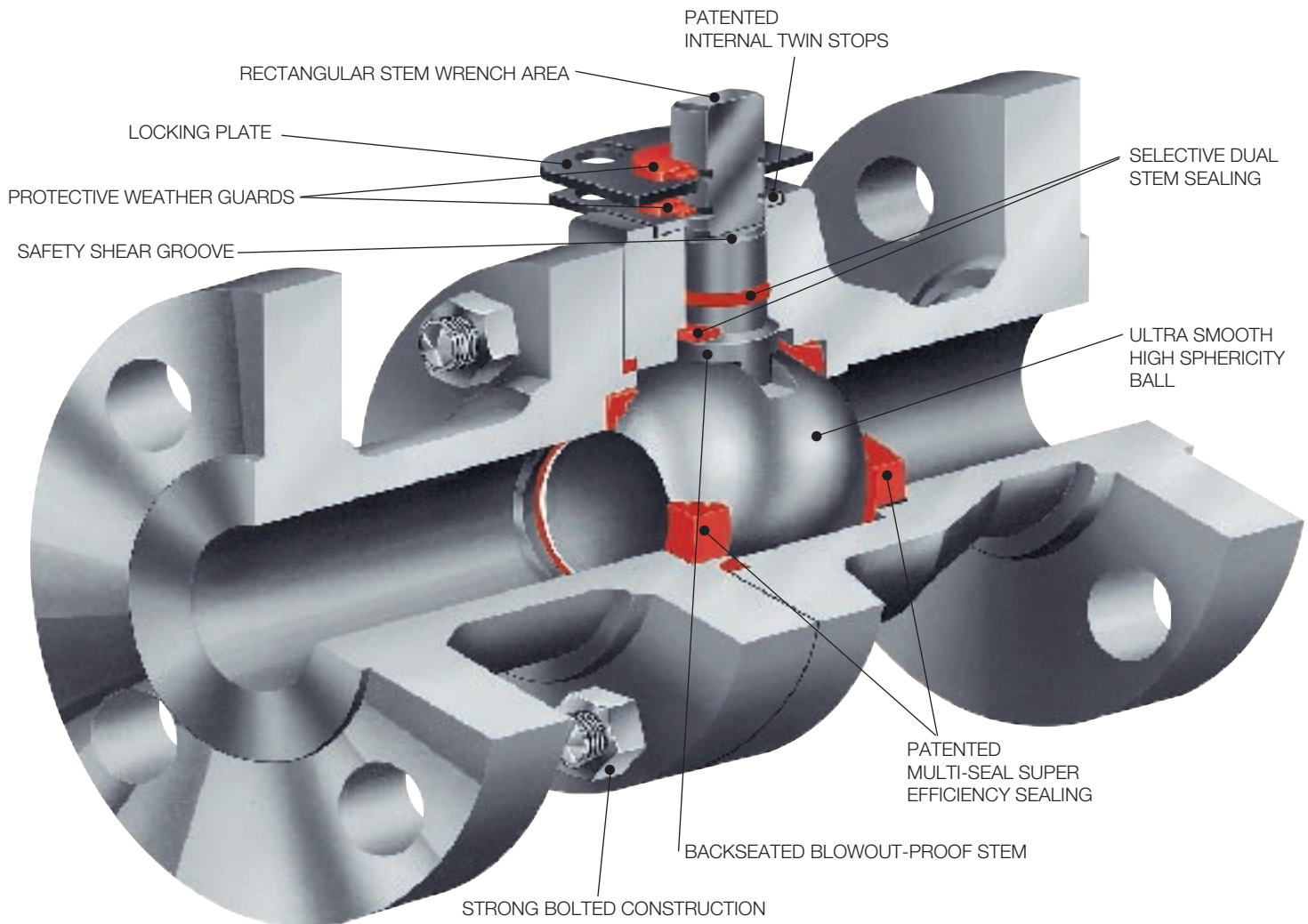
MULTI-SEAL adjusts itself to wear! Outer walls are tapered to permit self-compensation to valve load and seal engagement demand. The design permits thrust loading to realign seat toward optimum sealing engagement.



THE MULTI-SEAL DESIGN permits selection of seal material best suited to abrasive, high and low pressure applications in toughest services. And the relief pockets formed by the tapered walls, with the series grooving, provide self-compensation for swell to permit easy-turning, long-life operation. It takes a better seal to make a better valve... and the best ball valve is a Balon.

The Balon Valve: Totally Advanced

Balon has eliminated the need for grease fittings, lube channels, and regular lubrication, versus other designs.



Unique Sealing Approach

The Balon ball valve is the culmination of many years of arduous design and development effort which has been focused on providing a clearly better choice in ball valves. It is a refinement of features proven superior during usage of Balon ball valves in thousands of installations since 1965.

As described on the facing page, the multi-seal seat design has given impetus to the development of an overall valve which embodies several design improvements.

Backseated Stem

Stems are backseated and therefore blowout proof. And they provide metal-to-metal backup sealing in the event of

a fire. This secondary metal-to-metal sealing is also provided internally behind the seat area.

Simplified Top Works

Bolts and glands and complicated stem assemblies are totally absent in the Balon valve to assure a simpler, more trouble-free valve. Hazards associated with bolted stem retainers and packing adjustment screws or bolts have been eliminated. Even the stops are internal and give dual precise topping support during opening or closing. The stem area is grease-packed and protected by dual plastic weather guards to shield this vital area from external elements.

Precise Manufacturing Control

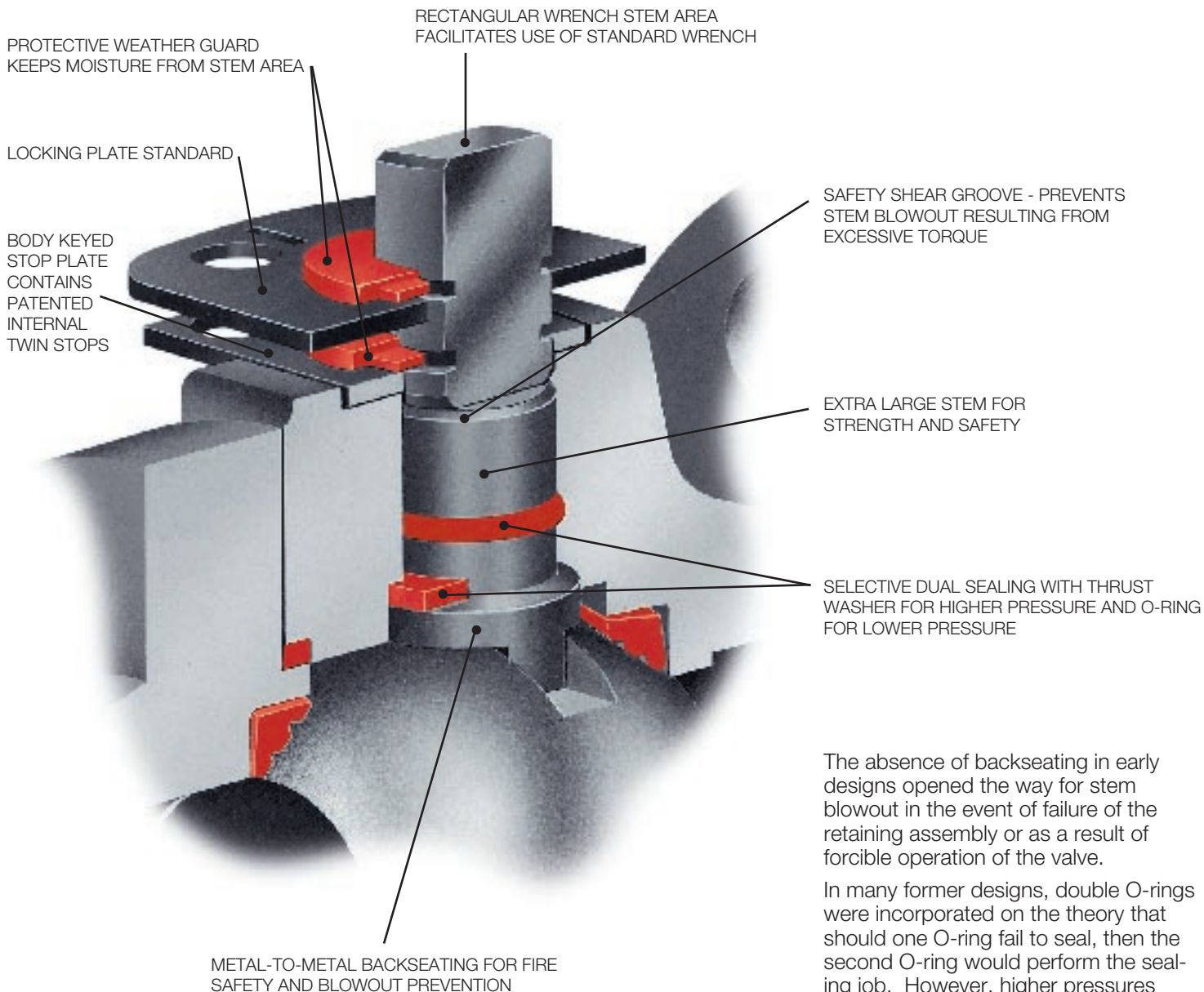
Balon uses only the highest quality materials to assure the strength and uniformity necessary for applications where they are used. To further enhance the overall operational superiority of the valve, all balls are machined in-house by Balon's spherical machining process which assures a consistently accurate spherical contour. They are superbly finished and polished. This high integrity finish, along with multi-seal's advanced sealing capability, provides highest sealing efficiency and substantially reduced operating torque.

Valve safety is no accident. We do it by design.

BALON®

A Totally New Concept in Stem Design

Balon has eliminated the need for grease fittings, lube channels, and regular lubrication, versus other designs.



Simple Design

In keeping with Balon's philosophy of design which envisions simplification and improvement instead of improvement by complication, the Balon stem design solves many problems associated with the common stem design. The overall utility of the ball valve is related in no small way to the basic stem design. Certain standard designs originated early and were followed through by ball valve manufacturers in the years following the advent of the ball valve itself during World War II.

The Balon Stem: New Solutions For Old Problems

The Balon design represents the result of a total attack on specific problems associated with the outdated design. In the past, it has been a frequent practice to retain stems by use of external retainers secured by use of external bolts or screws. Often these bolted arrangements also provided stem packing adjustment. The problem of leaking stems was amplified because of the complexity of the assembly itself.

The absence of backseating in early designs opened the way for stem blowout in the event of failure of the retaining assembly or as a result of forcible operation of the valve.

In many former designs, double O-rings were incorporated on the theory that should one O-ring fail to seal, then the second O-ring would perform the sealing job. However, higher pressures trapped between the O-rings often caused high operating torque and other operating problems.

A Combination of Improvements

As shown here, the Balon design is simple, yet solves these problems. The clean, functional design of the stem assembly represents dramatic improvement in many ways over conventional designs. As is true of the overall Balon approach, the Balon stem does not present just one special modification or design innovation. Rather, it represents the bringing together of interrelated improvements, resulting in total improvement and total superiority.

Safer...Simpler...Better Sealing

NO SPECIAL HANDLE NEEDED

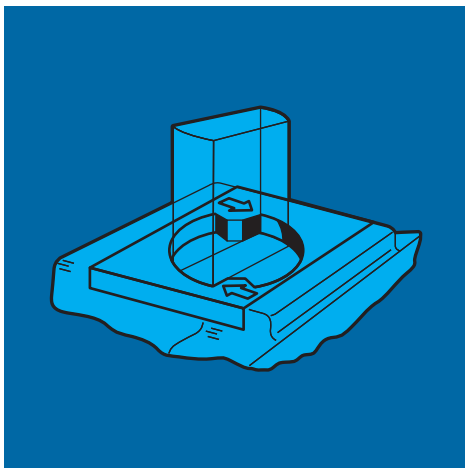
While handles can be provided for operation of the Series F and Series S, the heavy-duty rectangular stem design allows for usage of standard wrenches where it is necessary to conserve space, and to prevent accidental operation of the valve, or simply where standard wrenches are more convenient.

To further enhance the service life and ease of operation, the stem area is fully grease-packed and then sheltered by dual nylon weather guards. External elements such as dirt, sand, and salt air atmosphere are kept out.

NO BOLTS, SCREWS, PACKING GLANDS

The Balon design eliminates troublesome bolting, adjustment screws, and packing glands. Problems of adjustment, blowout resulting from failure of retaining assembly, and external attack by corrosion and foreign abrasives are all solved. By simplifying the stem assembly, fewer parts are involved and therefore the possibilities for trouble are significantly reduced.

Because there are no grease channels or lubricating ports there are no leak paths which can result in stem leakage.



PATENTED INTERNAL DUAL STOPS

Instead of external stops and exposed bolting, the stem is supported laterally by a stop plate keyed into the body head. This plate has integral broached stops contralaterally positioned so that the stem is stopped simultaneously on both sides whether being opened or closed. This dual stopping action eliminates deflection and stress on the stem. Perfect alignment is assured in

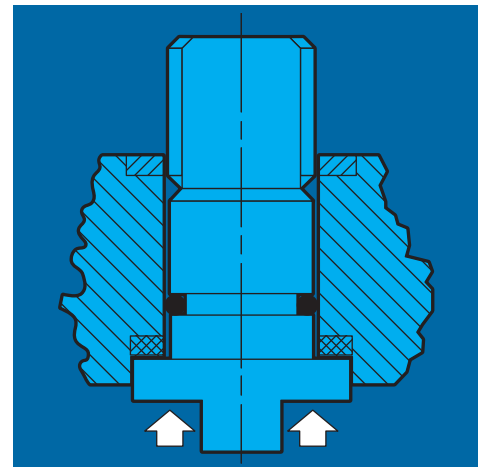
the stem bore, and therefore more trouble free and longer life stem and stem seal service. Dual stops keep ball in precise position against the seat, and in the open position this prevents exposure of the seat to damage and wear from the flow. Sealing effectiveness is sustained and extended.

SELECTIVE DOUBLE SEALING

Balon utilizes a TFE thrust washer for primary sealing at higher pressures. For lower pressures and vacuum, the O-ring provides the sealing. The stem region between the two seals cannot remain pressurized - as can happen in conventional double O-ring arrangements - since at lower line pressures, the TFE seal will permit bleed back into body region. Two seals, but only one acting at any given time.

BLOWOUT PROOF

Notice that the stem is backseated against an inner shoulder, and not retained by external bolts or screws or retaining plates. Blowout is inherently denied by this positive method of stem retention. Balon has machined a safety shear groove on each side of the stem at the base of the wrench flats, but safety above the stem seals, and above the inner shoulder. Should excessive torque be applied to the stem, it would shear above the shoulder and above the sealing area. No blowout. No release of hazardous material.



Safety is our greatest concern. We work at it.

BALON®

A More Complete Solution to Fire Safety

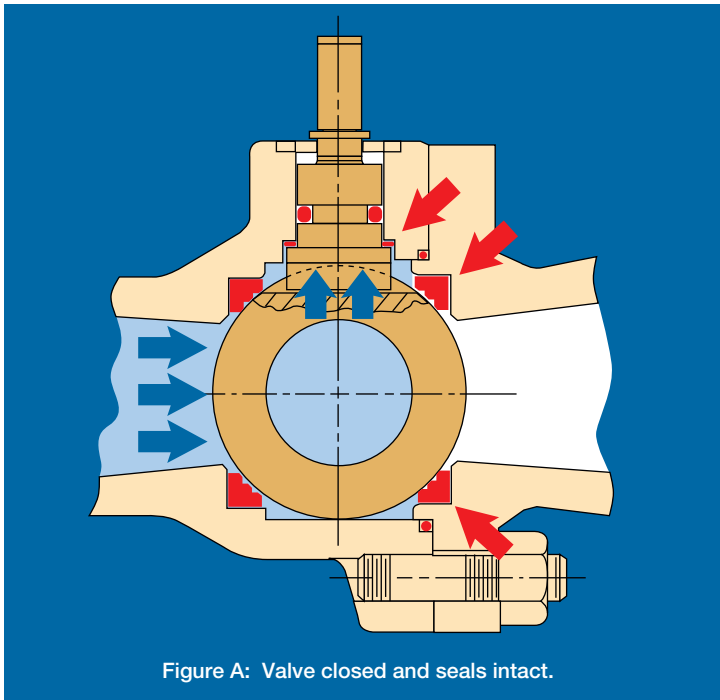


Figure A: Valve closed and seals intact.

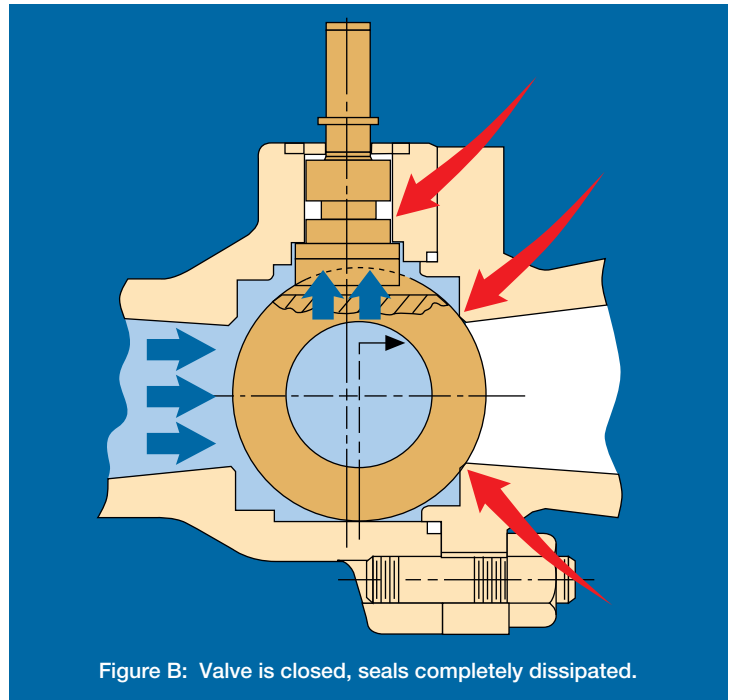


Figure B: Valve is closed, seals completely dissipated.

In 1965, after many years of development and testing, Balon patented and introduced a ball valve which represented a dramatic turning point in valve safety. It was the first ball valve with a backseated stem to prevent stem blowout; first with packless stem gland housing, eliminating stem adjustment mechanisms; first with a stem shear groove to assure controlled stem breakage above the backseat in the event of twist-off; first with full spectrum fire safety for metal-to-metal secondary sealing at all potential leak points. Balon then encased these safety improvements in a rugged bolted body assembly capable of better withstanding violent thrust loading and line stresses so common in high-pressure line applications.

Fire safety in ball valves has become a major consideration as more and more ball valves have been used in hazardous environments.

The Balon ball valve has been designed to provide maximum backup sealing in the event resilient seals are destroyed by heat or fire.

Controlled Spacing

The valve internals, with seals intact, can be seen in Figure "A." In the closed position the ball is held off of secondary metal seat provision.

The seat and seat pocket are made oversize in radial dimension, allowing close spacing of the ball and metal seat provision. In operation, with prime seals in place, this controlled spacing prevents damage to the surface finish of the ball.

It can also be seen that the stem is backseated, and with seals in place the primary stem seal holds the stem off of metal shoulder machined in the valve body.

Secondary Stem Seal

In Figure "B," the seals have been fully dissipated, ball has moved downstream onto the secondary metal seat, and the stem has been checked, metal-to-metal, against the inner shoulder.

As can be seen, the stem is free to move upward when subjected to a slight amount of pressure, onto the machined metal inner shoulder, thus substantially restricting any flow past the stem into the atmosphere.

Straight Ahead Ball Movement

The stem tongue is keyed into a linear milled slot, straight and perpendicular to the bore of the valve. In the closed position, the ball is free to move downstream onto the secondary metal seating, functioning at that moment as a simple ball check valve.

The ball itself is confined in the body with just enough vertical and horizontal clearance to assure free and easy operation. This keeps the ball in uniform alignment so that ball movement onto backseating - should it become necessary - is consistently on a straight course, without deflection up, down, or sideways.

The valve may be positioned in either vertical or horizontal installations, and retain its secondary metal-to-metal sealing capability.

These very simple provisions are intended to provide full operational safety, but of course positive assurance of total fire safety cannot be given due to the many variable conditions which can arise. Every attempt has been made in the design of the Balon valve to provide as safe a valve as is practicable within the scope of economic feasibility for the user.

Balon ball valves have been successfully tested by an independent laboratory in accordance with API Standard 6FA "Fire Test For Soft Seated Ball Valves." Results of this testing are available on request from Balon's headquarters office.

Balon Installations



Designed...

to give superior performance where superior performance is critical — in the field. Simple, yet effective. Safe, yet practical. Versatile, yet economical.

Built...

for the rugged and demanding oil and gas applications. Stronger. Tougher. Crafted for hard use and extra staying power.

Proven...

with millions of valves in the field — exceptionally dependable, more trouble-free, and capable of indefinite maintenance-free service life.

Series F Screwed End

The Balon Series F carbon steel screwed end ball valve is of bolted two-piece construction to assure positive protection against end adapter blow-out which can occur in most screwed construction valves.

The Series F is available to meet a wide range of pressure and applications, and when ordered with 316 stainless steel ball and stem it meets NACE requirements.

Firesafe design and built-in locking device are standard on the Series F.

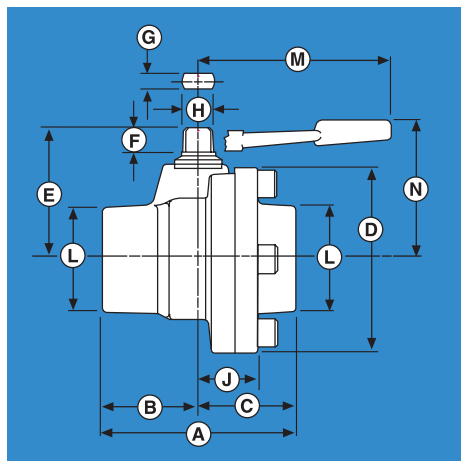


Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL STAINLESS STEEL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 WCB annealed carbon steel
17	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M
18	Body stud nuts	ASTM A-194 ASME SA 194 2H	ASTM A-194 2HM
19	Body stud bolts	ASTM A-193 ASME SA-193 B-7	ASTM A-193 B-7M

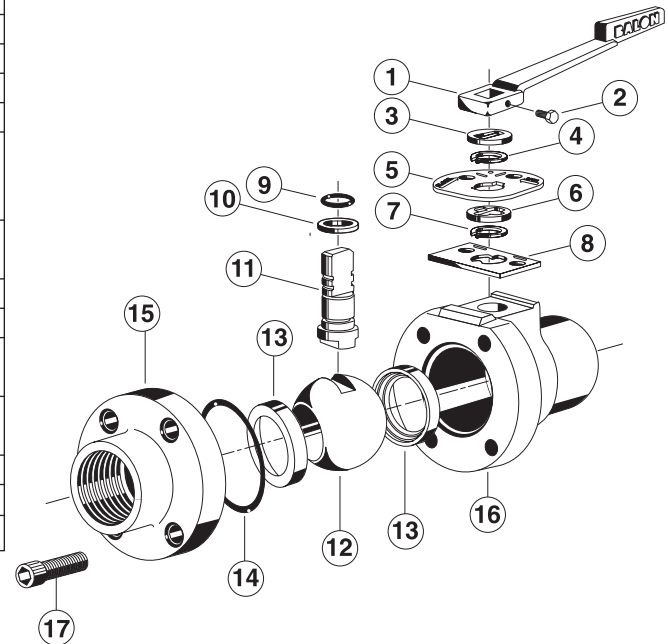
* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.



NACE CAPABILITY
Most Series F Carbon Steel and Ductile Iron Valves can be provided to meet NACE Standard MR-01-75, current revision, for Sulfide Stress Resistant Metallic Material for Oil Field Equipment.

Lever Operated
Bolted Construction
1" thru 4"
to 3000 PSI WP



Dimensions

BALON SERIES "F" - CARBON STEEL - SCREWED END - DIM. DATA																
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	H	J	L	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM														
1 x 1 x 1	1F-F93-SE	1F-F93N-SE	1	2500	3 ³ / ₈	1 ¹ / ₁₆	1 ¹ / ₁₆	3 ³ / ₈	2 ¹ / ₈	1/2	.340	.685	1 ¹ / ₈	1 ¹ / ₈	4 ³ / ₈	2
1 x 1 x 1	1F-F03-SE	1F-F03N-SE	1	3000	3 ³ / ₈	1 ¹ / ₁₆	1 ¹ / ₁₆	3 ³ / ₈	2 ¹ / ₈	1/2	.340	.685	1 ¹ / ₈	1 ¹ / ₈	4 ³ / ₈	2
1 1/2 x 1 1/2 x 1 1/2	1 1/2 F-F93-SE	1 1/2 F-F93N-SE	1 1/2	2500	5 1/4	2 1/8	2 1/8	5 1/8	3 3/8	3/4	.434	.873	1 1/8	2 1/2	7 1/4	5
2 x 1 1/2 x 2	2R-F93-SE	2R-F93N-SE	1 1/2	2500	5 1/2	2 1/4	2 1/4	5 1/8	3 3/8	3/4	.434	.873	1 1/8	3	7 1/4	5
2 x 1 1/2 x 2	2R-F03-SE	2R-F03N-SE	1 1/2	3000	5 1/2	2 1/4	2 1/4	5 1/8	3 3/8	3/4	.434	.873	1 1/8	3	7 1/4	5
2 x 2 x 2	2F-F93-SE	2F-F93N-SE	2	2000	5 3/4	2 1/8	2 1/8	6 1/8	4 1/8	7/8	.497	.998	2	3 1/2	10 1/4	5 1/2
3 x 2 x 3	3R-F93-SE	3R-F93N-SE	2	2000	7 3/8	3 1/16	3 1/16	6 1/8	4 1/8	7/8	.497	.998	2 1/16	4 1/4	10 1/4	5 1/2
3 x 3 x 3	3F-F63-SE	3F-F63N-SE	3	1500	8 1/2	4 1/16	4 1/16	8	5 1/4	1 1/16	.747	1.373	2 1/2	4 1/4	20	6 1/2
4 x 3 x 4	4R-F63-SE	4R-F63N-SE	3	1500	8 1/2	4 1/16	4 1/16	8	5 1/4	1 1/16	.747	1.375	2 1/16	5 1/4	20	6 1/2

WP is for valve equipped with standard nylon seats.
See Chart on Page 43 for TFE ratings.

Series F Screwed End

The Balon Series F ductile iron is an excellent lower cost alternative to carbon steel screwed end valves with no sacrifice in safety or performance life.

The ductile iron used to make the Series F is a higher grade of ductile whose physical properties are enhanced by special heat treating that provides a yield strength greater than that of carbon steel, and better overall corrosion resistance.

Built-in locking devices are standard, and all Balon ductile iron valves can be provided with 316 stainless steel balls and stems for corrosive media and to meet NACE requirements.



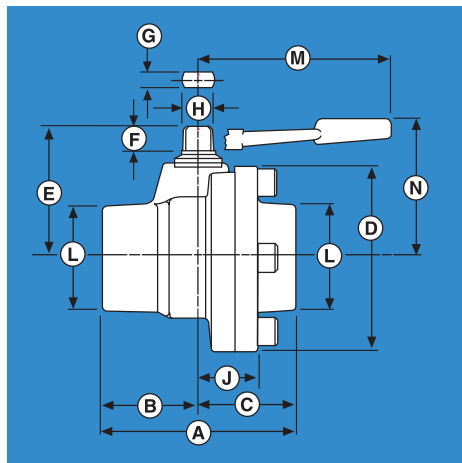
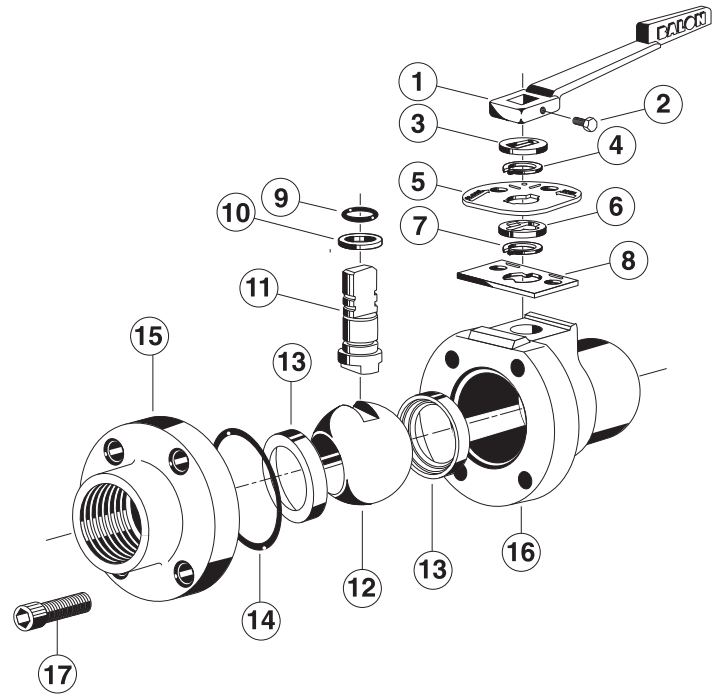
Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL STAINLESS STEEL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM-A395 class 60-40-18 fully annealed	ASTM-A395 class 60-40-18 fully annealed
16	Body	ASTM-A395 class 60-40-18 fully annealed	ASTM-A395 class 60-40-18 fully annealed
17	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M

* *Balon valves are designed to be operated with a standard open-end wrench.*

Handle and Handle Bolt are optional.

Lever Operated Bolted Construction 1" thru 4" to 2000 PSI WP



NACE CAPABILITY
Most Series F Carbon Steel and Ductile Iron Valves can be provided to meet NACE Standard MR-01-75, current revision, for Sulfide Stress Resistant Metallic Material for Oil Field Equipment.

Dimensions

BALON SERIES "F" - DUCTILE IRON - SCREWED END - DIM. DATA																
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	H	J	L	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM														
1 x 1 x 1	1F-F92-SE	1F-F92N-SE	1	2000	3/8	1 5/16	1 1/16	3/8	2 1/8	1/2	.340	.685	1 1/8	1 1/8	4 1/8	2
2 x 1 1/2 x 2	2R-F92-SE	2R-F92N-SE	1 1/2	2000	5/2	2 1/4	2 1/4	4 1/8	3 1/8	3/4	.434	.873	1 1/8	3	7 1/8	5
2 x 2 x 2	2F-F62-SE	2F-F62N-SE	2	1500	5 1/4	2 1/8	2 1/8	6 1/8	4 1/8	7/8	.497	.998	2	3 1/8	10 1/8	5 1/8
2 x 2 x 2	2F-F92-SE	2F-F92N-SE	2	2000	5 1/4	2 1/8	2 1/8	6 1/8	4 1/8	7/8	.497	.998	2	3 1/8	10 1/8	5 1/8
2 1/2 x 2 1/2 x 2 1/2	2 1/2 F-F62-SE	2 1/2 F-F62N-SE	2 1/2	1500	7	3 1/8	3 1/8	6 1/8	5 1/8	1 1/16	.622	1.248	2 1/8	3 1/8	16	5 1/8
3 x 2 x 3	3R-F62-SE	3R-F62N-SE	2	1500	7 1/4	3 1/8	3 1/8	6 1/8	4 1/8	7/8	.497	.998	2 1/8	4 1/8	10 1/8	5 1/8
3 x 2 x 3	3R-F92-SE	3R-F92N-SE	2	2000	7 1/4	3 1/8	3 1/8	6 1/8	4 1/8	7/8	.497	.998	2 1/8	4 1/8	10 1/8	5 1/8
3 x 3 x 3	3F-F42-SE	3F-F42N-SE	3	1000	8 1/8	4 1/16	4 1/16	7 1/8	5 1/8	1 1/16	.747	1.373	2 1/8	4 1/8	20	6 1/8
4 x 3 x 4	4R-F42-SE	4R-F42N-SE	3	1000	8 1/8	4 1/16	4 1/16	7 1/8	5 1/8	1 1/16	.747	1.375	2 1/8	5 1/8	20	6 1/8
4 x 4 x 4	4F-F32-SE	4F-F32N-SE	4	750	9 1/8	4 1/16	4 1/16	9 1/8	6 1/8	1 1/16	.747	1.375	3 1/8	5 1/8	20	7 1/8

WP is for valve equipped with standard nylon seats. See Chart on Page 43 for TFE ratings.

Series F Screwed End / Grooved End

The Balon Aluminum Bronze Series F ball valve provides a good alternative to higher priced stainless steel valves, particularly in CO₂ secondary recovery applications.

Balon utilizes a 9D aluminum bronze which has a higher nickel content than other aluminum bronze alloys such as 9A, 9B, and 9C, thus providing much better corrosion resistance.

A firesafe design, the Balon aluminum bronze includes a built-in locking device, bolted construction, and 316 stainless steel ball and stem, all as standard features, and meets NACE requirements.



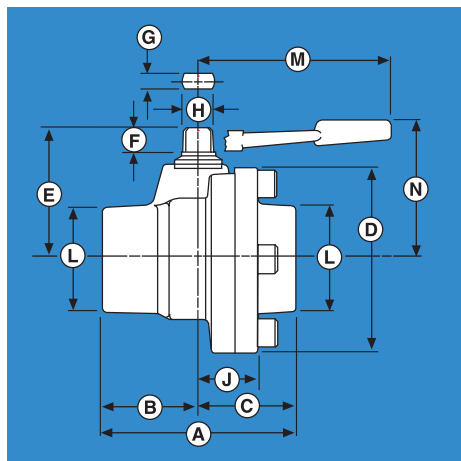
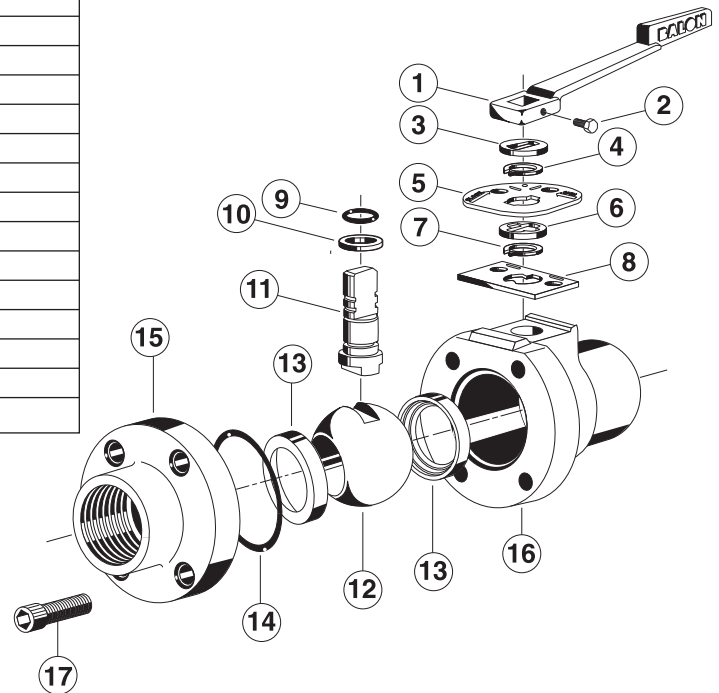
Aluminum Bronze

Material Description

ITEM	PART NAME	MATERIAL NACE (STANDARD)
1	Handle*	Ductile iron
2	Handle bolt	Standard hex bolt
3	Weather guard	Polyethylene
4	Lock plate retainer	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated
6	Dust cover	Polyethylene
7	Stop plate retainer	Carbon spring steel
8	Stop plate	Carbon steel zinc plated
9	Stem O-ring	Fluorocarbon
10	Stem seal	TFE
11	Stem	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	ASTM A-743 CF8M annealed stainless steel
13	Ball seat	Nylon (TFE optional)
14	Body O-ring	Fluorocarbon
15	End adapter	ASTM B148-9D
16	Body	ASTM B148-9D
17	Body bolts	ASTM A-193/B7M

* Balon valves are designed to be operated with a standard open-end wrench.
Handle and Handle Bolt are optional.

Lever Operated
Bolted Construction
1" thru 2"
to 3000 PSI WP



Dimensions

BALON SERIES "F" - ALUMINUM BRONZE - SCREWED END - DIM. DATA															
SIZE	CATALOG NO. NACE TRIM 316 SS STEEL BALL & STEM	PORT	WP	A	B	C	D	E	F	G	H	J	L	M	N
1 x 1 x 1	1F-F04N-SE	1	3000	3%	1 ¹ / ₁₆	1 ¹ / ₁₆	3%	2%	½	.340	.685	1%	1%	4%	2
2 x 1½ x 2	2R-F04N-SE	1½	3000	5%	2%	2%	4%	3%	¾	.434	.873	1%	3	7%	5
2 x 2 x 2	2F-F94N-SE	2	2000	5%	2%	2%	6%	4%	¾	.497	.998	2	3%	10%	5%

BALON SERIES "F" - ALUMINUM BRONZE - GROOVED END - DIM. DATA															
SIZE	CATALOG NO. NACE TRIM 316 SS STEEL BALL & STEM	PORT	WP	A	B	C	D	E	F	G	H	J	L	M	N
2 x 1½ x 2	2R-F94N-GE	1½	2000	5%	2%	2%	4%	3%	¾	.497	.873	1%	2%	7%	5

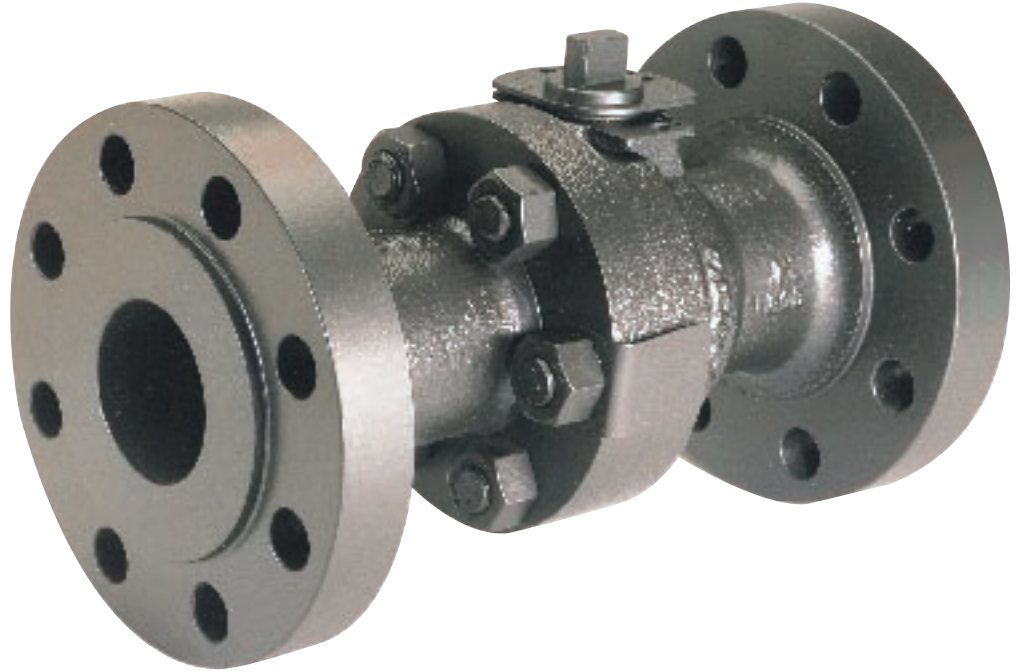
WP is for valve standard equipped with nylon seats. See Chart, page 43. TFE ratings.

Series F Flanged End

Balon Series F carbon steel flanged end ball valves are manufactured to meet the most rigid industry standards such as ANSI, API, MSS, etc.

All Balon flanged end valves are two-piece bolted construction, requiring no lubrication, and are easily field repairable. All have built-in locking devices as standard.

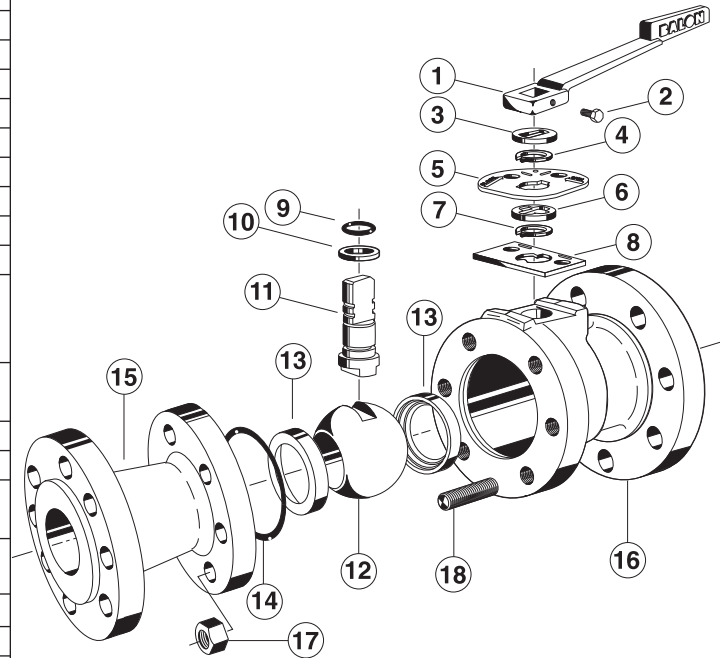
The Series F has been successfully fire tested by an independent laboratory to meet API-6FA and BS-5655 firesafe standards.



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL STAINLESS STEEL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	ASTM A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
17	Body stud nuts	ASTM A-194 ASME SA 194 2H	ASTM A-194 2HM
18	Body stud bolts	ASTM A-193 ASME SA-193 B-7	ASTM A-193 B-7M
19	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M

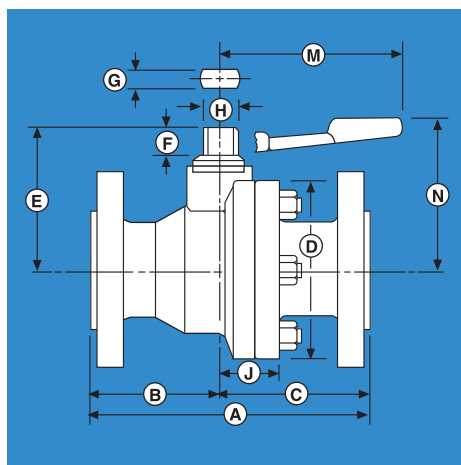
Lever Operated
ANSI Class 150
285 PSI W.P.



* *Balon valves are designed to be operated with a standard open-end wrench.*

Handle and Handle Bolt are optional.

Dimensions



BALON SERIES "F" - CARBON STEEL - FLANGED END - DIM. DATA														
SIZE	CAT. NO.		PORT	A	B	C	D	E	F	G	H	J	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM												
1 x 1 x 1	1F-F13	1F-F13N	1	5	2	3	3 $\frac{3}{8}$	2 $\frac{3}{8}$	$\frac{1}{2}$	0.340	0.685	1 $\frac{1}{8}$	4 $\frac{3}{8}$	3
1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$	1 $\frac{1}{2}$ F-F13	1 $\frac{1}{2}$ F-F13N	1 $\frac{1}{2}$	6 $\frac{1}{2}$	2 $\frac{3}{4}$	3 $\frac{3}{4}$	5	3 $\frac{3}{8}$	$\frac{3}{4}$	0.434	0.873	1 $\frac{1}{2}$	7 $\frac{1}{4}$	5
2 x 1 $\frac{1}{2}$ x 2	2R-F13	2R-F13N	1 $\frac{1}{2}$	7	2 $\frac{3}{4}$	4 $\frac{1}{4}$	5	3 $\frac{3}{8}$	$\frac{3}{4}$	0.434	0.873	1 $\frac{1}{2}$	7 $\frac{1}{4}$	5
2 x 2 x 2	2F-F13	2F-F13N	2	7	2 $\frac{3}{4}$	4 $\frac{1}{4}$	6	4 $\frac{3}{8}$	$\frac{7}{8}$	0.497	0.998	1 $\frac{1}{8}$	10 $\frac{1}{4}$	5 $\frac{1}{2}$
2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$	2 $\frac{1}{2}$ F-F13	2 $\frac{1}{2}$ F-F13N	2 $\frac{1}{2}$	7 $\frac{1}{2}$	3	4 $\frac{1}{2}$	6 $\frac{1}{4}$	5 $\frac{1}{4}$	1 $\frac{1}{8}$	0.622	1.248	2	16	5 $\frac{1}{2}$
3 x 2 x 3	3R-F13	3R-F13N	2	8	3	5	6	4 $\frac{3}{8}$	$\frac{7}{8}$	0.497	0.998	2	10 $\frac{1}{4}$	5 $\frac{1}{2}$
3 x 3 x 3*	3F-F13	3F-F13N	3	8	2 $\frac{3}{8}$	5 $\frac{3}{8}$	7 $\frac{1}{2}$	5 $\frac{1}{4}$	1 $\frac{1}{8}$	0.747	1.373	2 $\frac{3}{8}$	20	6 $\frac{1}{4}$
4 x 3 x 4	4R-F13	4R-F13N	3	9	3 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{3}{8}$	5 $\frac{1}{4}$	1 $\frac{1}{8}$	0.747	1.373	2 $\frac{3}{8}$	20	6 $\frac{1}{4}$
4 x 4 x 4**	4F-F13	4F-F13N	4	9	3 $\frac{3}{4}$	5 $\frac{3}{4}$	9	6 $\frac{1}{8}$	1 $\frac{1}{8}$	0.747	1.373	2 $\frac{1}{2}$	20	7 $\frac{1}{8}$
6 x 4 x 6	6R-F13	6R-F13N	4	10 $\frac{1}{2}$	4 $\frac{3}{4}$	5 $\frac{3}{4}$	9 $\frac{3}{8}$	6 $\frac{1}{8}$	1 $\frac{1}{8}$	0.747	1.373	3	20	7 $\frac{1}{8}$

(For larger sizes, see page 25.)

Most Series F Flanged end valves are available for low temperature service. Consult factory for price and availability.

All Series F available with 316 SS and NACE.

* Flange tapped one end for four - $\frac{3}{8}$ " - 11 x 2 cap screws or four - $\frac{3}{8}$ " - 11 x 2 $\frac{3}{8}$ " studs.

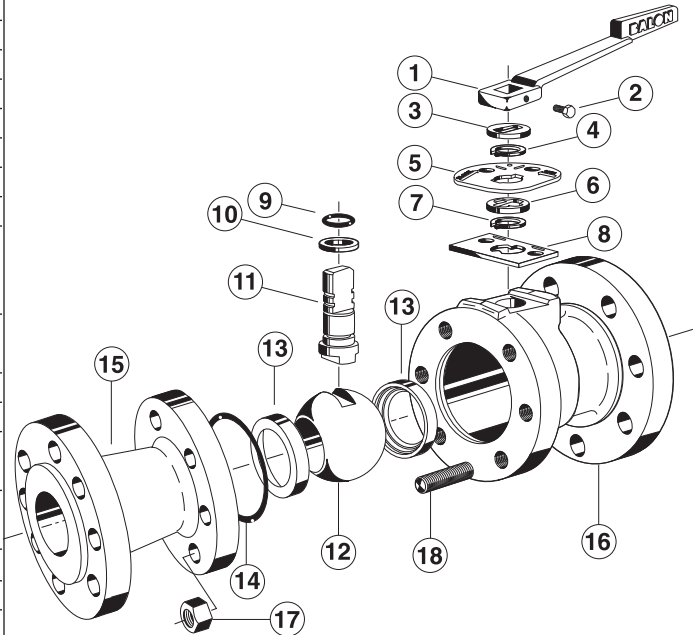
** Flange tapped one end for eight - $\frac{3}{8}$ " - 11 x 2 cap screws or eight - $\frac{3}{8}$ " - 11 x 2 $\frac{3}{8}$ " studs.

WP is for valve equipped with standard nylon seats. See Chart on page 43 for TFE ratings.

Material Description

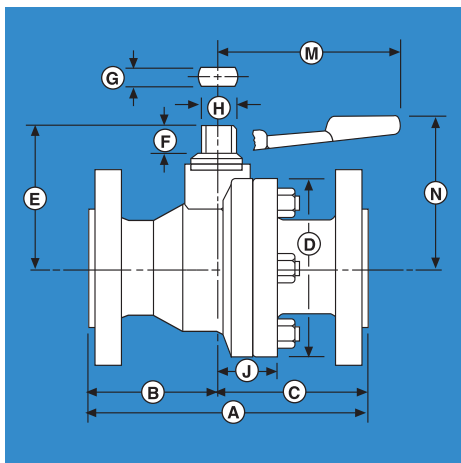
ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 WCB annealed carbon steel
17	Body stud nuts	ASTM A-194 ASME SA 194 2H	ASTM A-194 2HM
18	Body stud bolts	ASTM A-193 ASME SA-193 B-7	ASTM A-193 B-7M
19	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M

Lever Operated
ANSI Class 300
740 PSI W.P.



* *Balon valves are designed to be operated with a standard open-end wrench.*

Handle and Handle Bolt are optional.



Dimensions

BALON SERIES "F" - CARBON STEEL - FLANGED END - DIM. DATA														
SIZE	CAT. NO.		PORT	A	B	C	D	E	F	G	H	J	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM												
2 x 1½ x 2	2R-F33	2R-F33N	1½	8½	¾	4¾	5	¾	¾	.434	.873	1%	7¼	5
2 x 2 x 2	2F-F33	2F-F33N	2	8½	¾	4¾	6½	4%	¾	.497	.998	1%	10¼	5%
3 x 2 x 3	3R-F33	3R-F33N	2	11%	4%	6%	6½	4%	¾	.497	.998	2%	10¼	5%
3 x 3 x 3	3F-F33	3F-F33N	3	11%	4%	6½	8	5%	1/16	.747	1.373	2½	20	6%
4 x 3 x 4	4R-F33	4R-F33N	3	12	5	7	8	5%	1/16	.747	1.373	2%	20	6%
4 x 4 x 4	4F-F33	4F-F33N	4	12	5%	6%	9%	6%	1/16	.747	1.373	3%	20	7%
6 x 4 x 6	6R-F33	6R-F33N	4	15%	6	9%	10	6%	1/16	.747	1.373	3%	20	7%

(For larger sizes, see page 25.)

Most Series F Flanged end valves are available for low temperature service. Consult factory for price and availability.

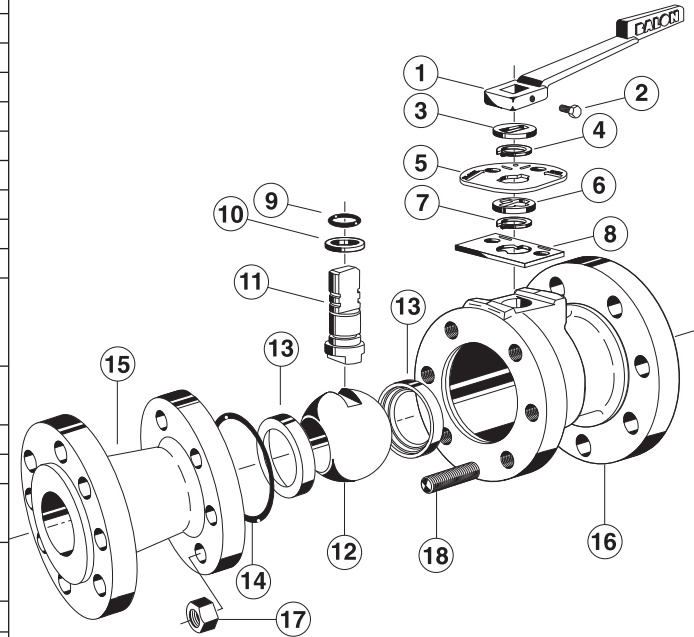
All Series F available with 316 SS and NACE.

WP is for valve equipped with standard nylon seats. See Chart on page 43 for TFE ratings.

Material Description

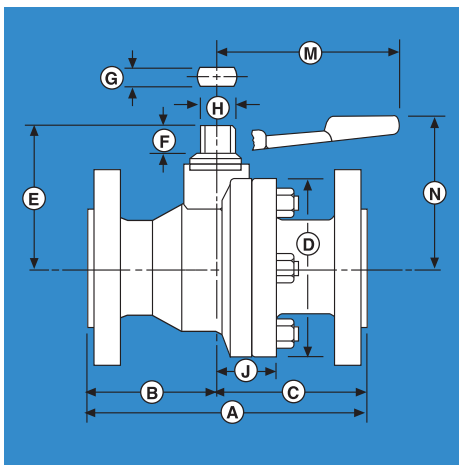
ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 WCB annealed carbon steel
17	Body stud nuts	ASTM A-194 ASME SA 194 2H	ASTM A-194 2HM
18	Body stud bolts	ASTM A-193 ASME SA-193 B-7	ASTM A-193 B-7M
19	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M

Lever Operated
ANSI Class 600
1480 PSI W.P.



* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.



Dimensions

BALON SERIES "F" - CARBON STEEL - FLANGED END - DIM. DATA																	
SIZE	CAT. NO.		PORT	A		B		C		D	E	F	G	H	J	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM		RF	RTJ	RF	RTJ	RF	RTJ								
1x1x1	1F-F63	1F-F63N	1	8½	8½	3⅞	3⅞	4⅞	4⅞	3⅞	2⅞	½	0.340	0.685	1⅞	4⅞	3
1½x1½x1½	1½F-F63	1½F-F63N	1½	9½	9½	4⅞	4⅞	5⅞	5⅞	5⅞	3⅞	¾	0.434	0.873	1¾	7¼	5
2x1½x2	2R-F63	2R-F63N	1½	11½	11½	5⅞	5⅞	6⅞	6⅞	5⅞	3⅞	¾	0.434	0.873	1¾	7¼	5
2x2x2	2F-F63	2F-F63N	2	11½	11½	4⅞	4⅞	6⅞	6⅞	6⅞	4⅞	¾	0.497	0.998	2⅞	10¼	5⅞
2½x2½x2½	2½F-F63	2½F-F63N	2½	13	13	5⅞	5⅞	7⅞	7⅞	7⅞	5⅞	1⅞	0.622	1.248	2⅞	16	5⅞
3x2x3	3R-F63	3R-F63N	2	14	14	5⅞	5⅞	8⅞	8⅞	6⅞	4⅞	¾	0.497	0.998	2⅞	10¼	6⅞
3x3x3	3F-F63	3F-F63N	3	14	14	5⅞	5⅞	8⅞	8⅞	8	5⅞	1⅞	0.747	1.373	2⅞	20	6⅞
4x3x4	4R-F63	4R-F63N	3	17	17	6⅞	6⅞	10⅞	10⅞	8⅞	5⅞	1⅞	0.747	1.373	2⅞	20	6⅞

*(For larger sizes, see page 25.)

Most Series F Flanged end valves are available for low temperature service. Consult factory for price and availability.

All Series F available with 316 SS and NACE.

Note: Specify RF for raised face; RTJ for ring type joint when ordering. All ANSI 600 class valves available for low temp service. Consult factory for price and availability.

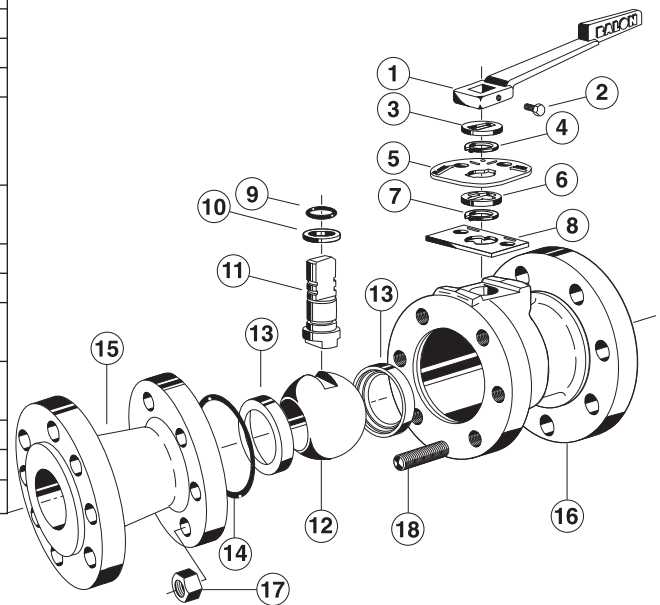
WP is for valve equipped with standard nylon seats. See Chart on page 43 TFE ratings.

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat **	Acetal — Nylon	Acetal — Nylon
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 WCB annealed carbon steel
17	Body stud nuts	ASTM A-194 ASME SA 194 2H	ASTM A-194 2HM
18	Body stud bolts	ASTM A-193 ASME SA-193 B-7	ASTM A-193 B-7M
19	Body bolts	ANSI B18.3 ANSI/ASTM A574	ASTM A-193/B7M

Lever Operated
ANSI Class 900
2220 PSI W.P.

ANSI Class 1500
3705 PSI W.P.

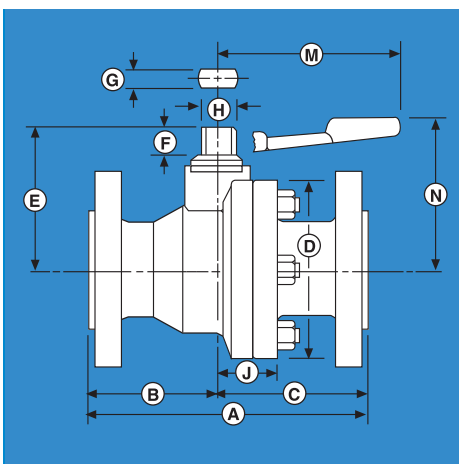


* *Balon valves are designed to be operated with a standard open-end wrench.*

Handle and Handle Bolt are optional.

** *Nylon Seats standard 900 Class, Acetal Seats standard 1500 Class.*

Dimensions



900 ANSI - SERIES "F" BALON BALL VALVE - DIM. DATA ANSI 2220 W.P.																	
SIZE	CAT. NO.		PORT	A		B		C		D	E	F	G	H	J	M	N
	STANDARD TRIM CARBON STEEL	NACE TRIM 316 STAINLESS STEEL		RF	RTJ	RF	RTJ	RF	RTJ								
1x1x1	1F-F93	1F-F93N	1	10	10	4%	4%	5%	5%	4/4	2%	1/2	0.340	0.685	1/4	4%	3
2x1½x2	2R-F93	2R-F93N	1½	14½	14½	6%	6%	8%	8%	6/4	3%	¾	0.434	0.873	1½/16	7¼	5
2x2x2	2F-F93	2F-F93N	2	14½	14½	6	6%	8%	8%	7	4%	7/8	0.497	0.998	2/4	10%	5%
3x2x3	3R-F93	3R-F93N	2	15	15%	6%	6%	8%	8%	7	4%	7/8	0.497	0.998	2/4	10%	6%

1500 ANSI - SERIES "F" BALON BALL VALVE - DIM. DATA ANSI 3705 W.P.																	
SIZE	CAT. NO.		PORT	A		B		C		D	E	F	G	H	J	M	N
	STANDARD TRIM CARBON STEEL	NACE TRIM 316 STAINLESS STEEL		RF	RTJ	RF	RTJ	RF	RTJ								
1x1x1	1F-F03	1F-F03N	1	10	10	4%	4%	5%	5%	4/4	2%	1/2	0.340	0.685	1/4	4%	3
2x1½x2	2R-F03	2R-F03N	1½	14½	14½	6%	6%	8%	8%	6/4	3%	¾	0.434	0.873	1½/16	7¼	5

Note: Specify RF for raised face; RTJ for ring type joint when ordering.

Most Series F Flanged end valves are available for low temperature service. Consult factory for price and availability.

All Series F available with 316 SS and NACE.

Balon Installations

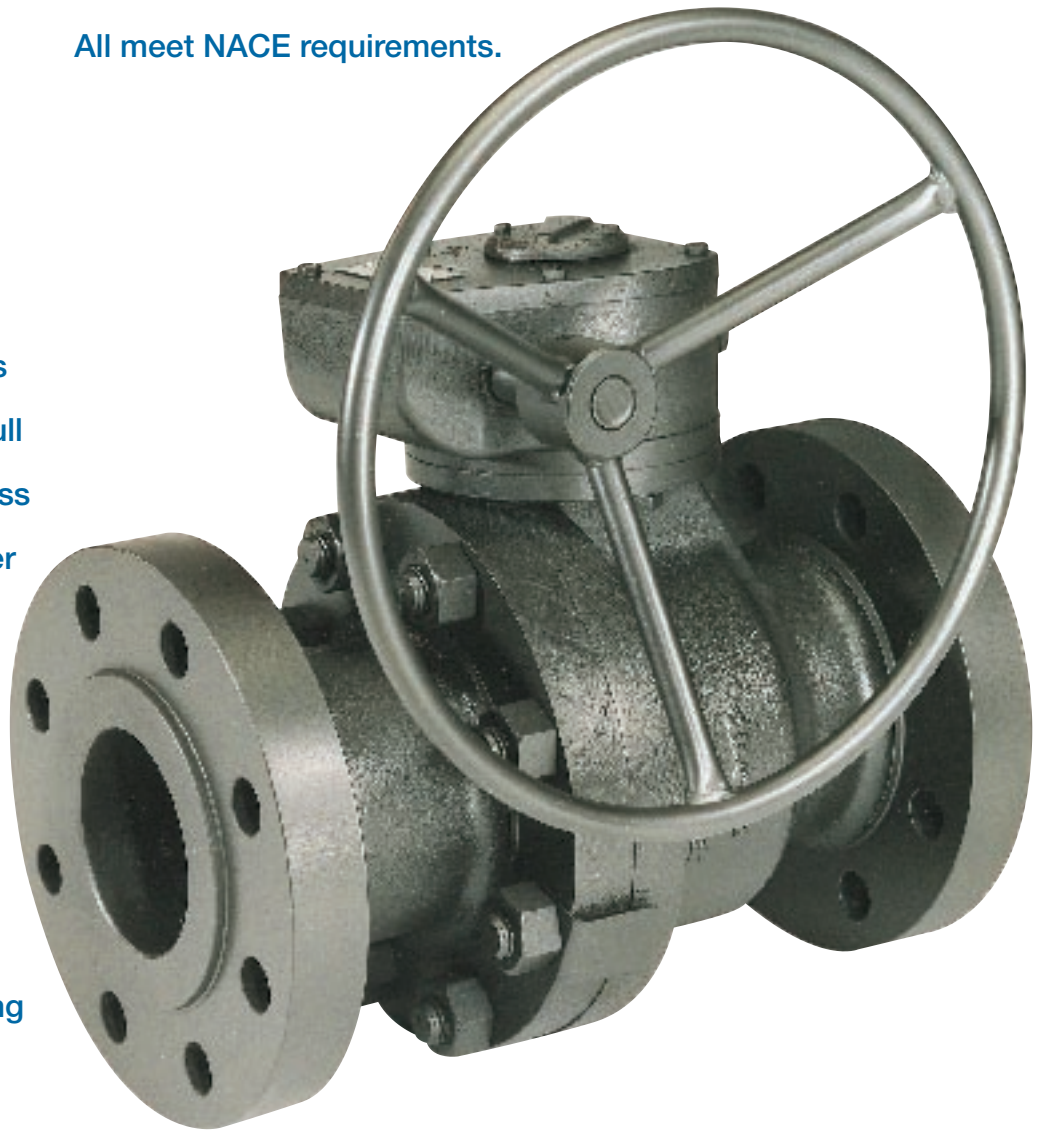


Series F Flanged End

The Balon design and advanced manufacturing methods have allowed us to provide an easy operating, low maintenance, and lower cost alternative to the more expensive and trouble-prone trunnion type ball valves.

In keeping with our emphasis on personnel safety, our 4" full bore and larger ANSI 600 class and our 6" full bore and larger ANSI 150 and 300 class valves are equipped with gear operators as standard. This eliminates the need for extremely long operating handles which can be a significant hazard to operating personnel both offshore and onshore.

These gear operated valves are firesafe, require no lubrication, and are standard with 316 stainless steel ball and stem. All meet NACE requirements.



Material Description

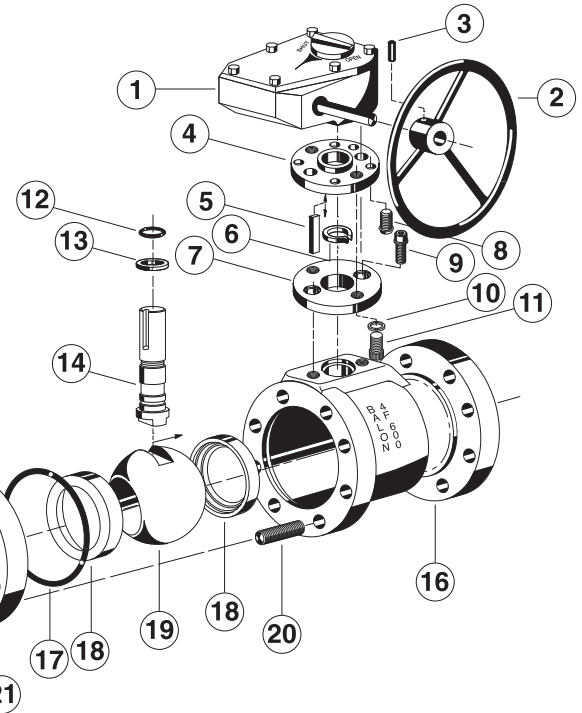
ITEM	PART NAME	MATERIAL (NACE)
1	Gear Operator	
2	Hand Wheel	
3	Drive Pin	
4	Gear Box Adapt. Plate	ASTM A536-72 ductile iron A395-74 class 60-40-18
5	Stem Key	Steel key stock
6	Stem Retainer Ring	Carbon spring steel
7	Mounting Plate	ASTM A536-72 ductile iron A395-74 class 60-40-18
8	Gear Box Mtg. Screws	ANSI B18.3 82 button head cap screw
9	Mtg. Plate Screws	ANSI B18.3 82 SHCS modified
10	Lock Washers	ANSI B27.1 zinc plated internal tooth
11	Mounting Screws	ANSI B18.3 SHCS
12	Stem O-ring	Fluorocarbon
13	Stem seal	TFE
14	Stem	AISI A-316 stainless steel annealed ASTM A276-316
15	End Adapter	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel
17	Body O-ring	Fluorocarbon
18	Ball Seats *	Nylon (Acetal optional)
19	Ball	ASTM A-743-CF8M/316 annealed stainless steel
20	Body Stud Bolts	ASTM A193 B-7M
21	Body Stud Nuts	ASTM A194 2HM

**Gear Operated
Bolted Construction**

**ANSI Class 150
285 PSI W.P.**

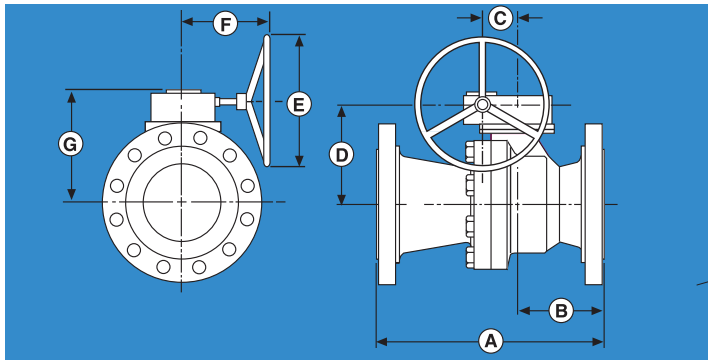
**ANSI Class 300
740 PSI W.P.**

**ANSI Class 600
1480 PSI W.P.**



Above valves sold standard with 316 SS trim (NACE) and gear operated with hand wheel.

* Ball Seats Acetal standard 6" full 600 (6F-F63N).



Dimensions

BALON SERIES "F" GEAR OPERATED BALL VALVE DIM. DATA													
ANSI CLASS	SIZE	PORT	CAT. NO. NACE TRIM 316 SS STEEL BALL & STEM	WP	A		B		C	D	E	F	G
					RF	RJ	RF	RJ					
150	6x6x6	6	6F-F13N*	285	10½	NA	4½	NA	3¾	9¼	14	9½	11½
150	8x6x8	6	8R-F13N	285	11½	NA	5½	NA	3¾	9¼	14	9½	11½
150	8x8x8	8	8F-F13N	285	18	NA	8	NA	5	12	18	13	14
150	10x8x10	8	10R-F13N	285	21	NA	9	NA	5	12	18	13	14
300	6x6x6	6	6F-F33N	740	15½	NA	6¾	NA	4¾	9¾	14	9¾	12
300	8x6x8	6	8R-F33N	740	16½	NA	7¾	NA	4¾	9¾	14	9¾	12
600	4x4x4	4	4F-F63N**	1480	17	17½	7¾	7¾	3	8½	12	10¼	10½
600	6x4x6	4	6R-F63N**	1480	22	22½	9¾	9¾	3	8½	12	10¼	10½
600	6x6x6	6	6F-F63N**	1480	22	22½	8¾	8¾	4½	10	18	11	12
600	8x6x8	6	8R-F63N**	1480	26	26½	10¾	10¾	4½	10	18	11	12

Most Series F Flanged end valves are available for low temperature service. Consult factory for price and availability.

Note: Gear operator available with locking flange. Consult factory.

*Flange tapped one end for eight ¼"- 10 x 2½ cap screws or eight ¼"- 10 x 3 studs.

**Specify RF for raised face; RTJ for ring type joint when ordering.

Note: Above valves sold standard with 316 SS trim (NACE) and gear operated.

Series F Flanged End

Designed to eliminate the high maintenance lubricated plug and ball valves. Made of high grade ductile iron, the Series “F” needs no lubrication and is maintenance free.

While priced competitively to the lubricated valves, the Series “F” comes standard with Multi-Seal seats, non adjustable stem sealing, internal twin stops, safety shear groove, built-in locking device and more.

The Series “F” Ductile Iron Flanged end valves are available to meet NACE MR-0175, current revision, and can be provided with either flat-faced or raised-face configurations.



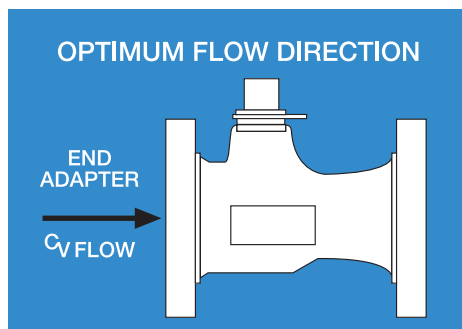
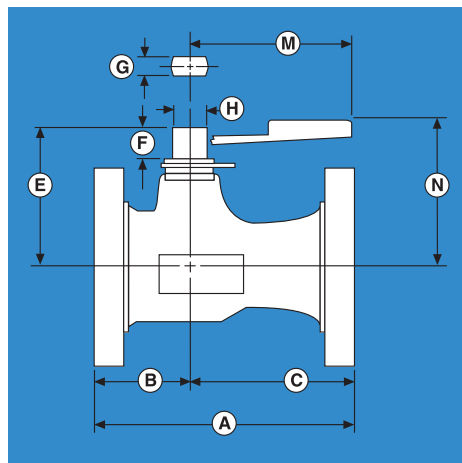
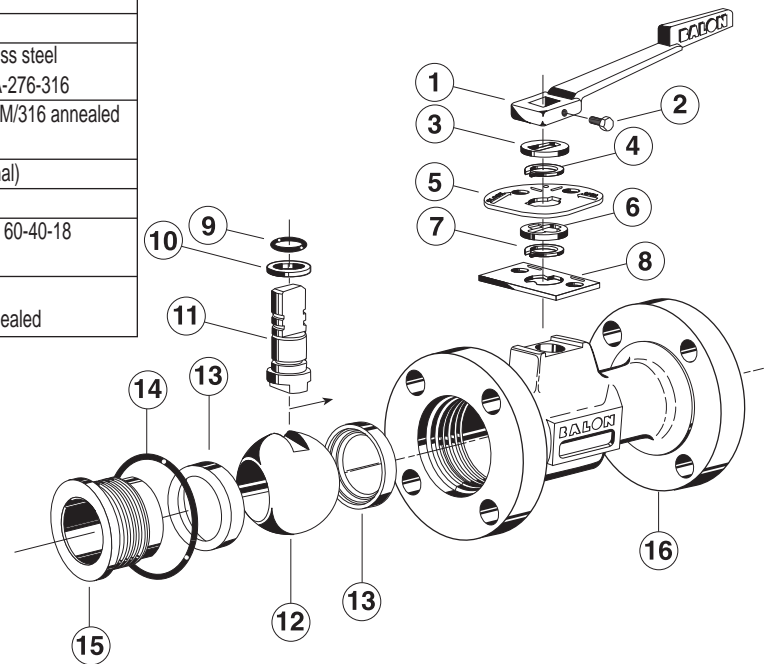
Material Description

ITEM	PART NAME	MATERIAL DESCRIPTION	MATERIAL DESCRIPTION (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather Guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM A395 class 60-40-18 fully annealed	ASTM A395 class 60-40-18 fully annealed
16	Body	ASTM A395 class 60-40-18 fully annealed	ASTM A395 class 60-40-18 fully annealed

* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.

Lever Operated
2" - 6"
ANSI Class 125
Flat Face 200 PSI W.P.
ANSI Class 150
Raised Face 250 PSI W.P.
ANSI Class 300
Raised Face 640 PSI W.P.



Dimensions

BALON SERIES "F" LEVER OPERATED BALL VALVE DIM. DATA														
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM	PORT	WP CLASS 125 FLAT FACE (FF) CLASS 150 RAISED FACE (RF)	A	B	C	E	F	G	H	M	N	Cv
2x1½x2	2R-F12	2R-F12N	1½	FF 200	7	2¼	4¼	3%	¾	.434	.873	7 1/4	5	159
				RF 250										
3x2x3	3R-F12	3R-F12N	2	FF 200	8	3	5	4%	¾	.497	.998	10¼	5%	263
				RF 250										
4x3x4	4R-F12	4R-F12N	3	FF 200	9	3%	5%	5%	¾	.747	1.373	20	6%	744
				RF 250										
6x4x6	6R-F12	6R-F12N	4	FF 200	10½	3¾	6¼	6%	¾	.747	1.373	20	7%	868
				RF 250										
					WP CLASS 300 RAISED FACE (RF)									
2x1½x2	2R-F32	2R-F32N	1½	RF 640	8½	2¼	5%	3%	¾	.434	.873	7 1/4	5	171
3x2x3	3R-F32	3R-F32N	2	RF 640	11%	3	8%	4%	¾	.497	.998	10¼	5%	290
4X3X4	4R-F32	4R-F32N	3	RF 640	12	3%	8%	5%	¾	.747	1.373	20	6%	814

All Series F available with 316 SS and NACE.

WP is for valve equipped with standard nylon seats. See Chart on page 43 for TFE ratings.

Series US Weld X Weld

The Series US weld end ball valve provides a stronger, more durable, easier operating and a better sealing valve that is dramatically superior to others on the market.

General Features

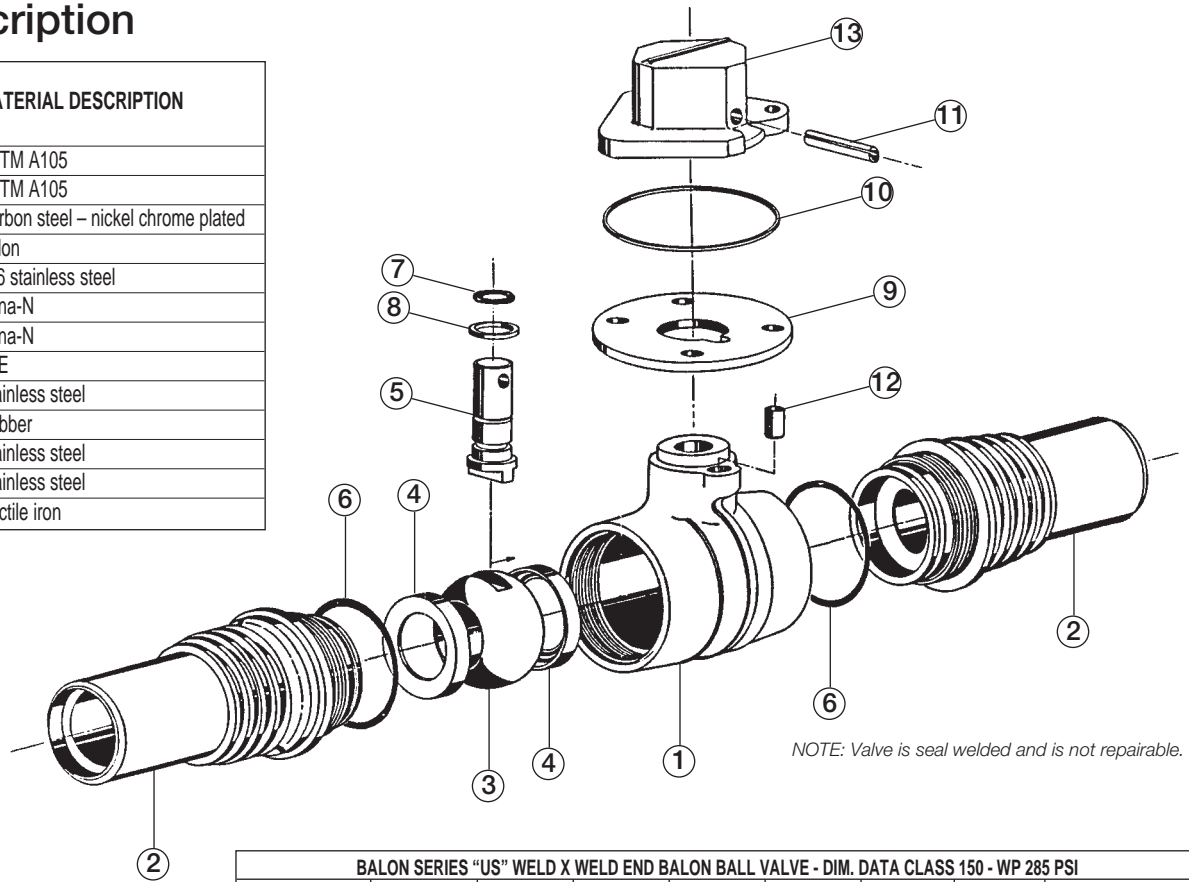
- Heat dissipating fins provide an extra margin of protection for the resilient seats and seals by dissipating the heat imposed during the final welding process.
- MULTI-SEAL grooved and tapered seats provide tighter sealing and easier operation at high and low operating pressures.
- Heavy duty stainless steel 3/8" diameter stops.
- Heavy Duty forged steel components.

- Solid balls which have a straight through flow path instead of being concave or hollow, thus reducing turbulence and pressure drop.



Material Description

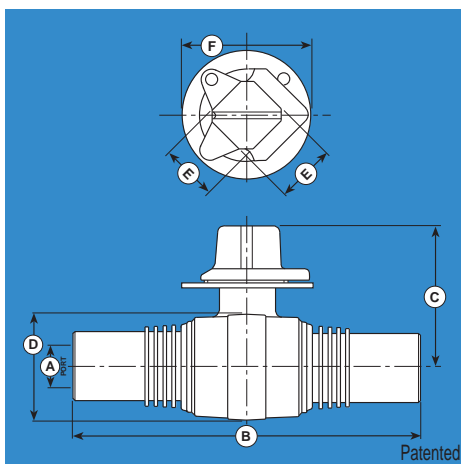
ITEM	PART NAME	MATERIAL DESCRIPTION
1	Body	ASTM A105
2	Adapter	ASTM A105
3	Ball	Carbon steel – nickel chrome plated
4	Seats	Nylon
5	Stem	316 stainless steel
6	Body O-ring	Buna-N
7	Stem O-ring	Buna-N
8	Stem seal	TFE
9	Lock plate	Stainless steel
10	Weather seal	Rubber
11	Roll pin	Stainless steel
12	Stop pin	Stainless steel
13	Drive nut, 2" square	Ductile iron



BALON SERIES "US" WELD X WELD END BALON BALL VALVE - DIM. DATA CLASS 150 - WP 285 PSI								
SIZE	A PORT	B	C	D	E	F	Cv	CAT. NO.
2 x 1½ x 2	1½	11.8	5	3¾	2	4½	148	2R-US13-BW
2 x 2 x 2	2	11.8	5½	4½	2	4½	*	2F-US13-BW
3 x 2½ x 3	2½	11.8	6¾	5¼	2	4½	550	3R-US13-BW
3 x 3 x 3	3	11.8	6¾	6¼	2	4½	*	3F-US13-BW
4 X 3 X 4	3	12.8	6¾	6¼	2	4½	662	4R-US13-BW
4 X 4 X 4	4	12.8	7½	6¾	2	4½	*	4F-US13-BW
6 X 4 X 6	4	13.8	7½	6¾	2	4½	800	6R-US13-BW

BALON SERIES "US" WELD X WELD END BALON BALL VALVE - DIM. DATA CLASS 300 - WP 740 PSI								
SIZE	A PORT	B	C	D	E	F	Cv	CAT. NO.
2 x 1½ x 2	1½	11.8	5	3¾	2	4½	148	2R-US33-BW
2 x 2 x 2	2	11.8	5½	4½	2	4½	*	2F-US33-BW
3 x 2½ x 3	2½	11.8	6¾	5¼	2	4½	550	3R-US33-BW
3 x 3 x 3	3	11.8	6¾	6¼	2	4½	*	3F-US33-BW
4 X 3 X 4	3	12.8	6¾	6¼	2	4½	662	4R-US33-BW
4 X 4 X 4	4	12.8	7½	6¾	2	4½	*	4F-US33-BW
6 X 4 X 6	4	13.8	7½	6¾	2	4½	800	6R-US33-BW

* Equal to equivalent length of pipe.



Series US Weld X Flange

To broaden the user benefits of the Series US, Balon has added the weld-by-flange configuration to the weld-by-weld line of the series. The weld-by-flange valve adds significant versatility to the Series US, and mirrors the same worthwhile and meaningful features of the weld-by-weld line such as:

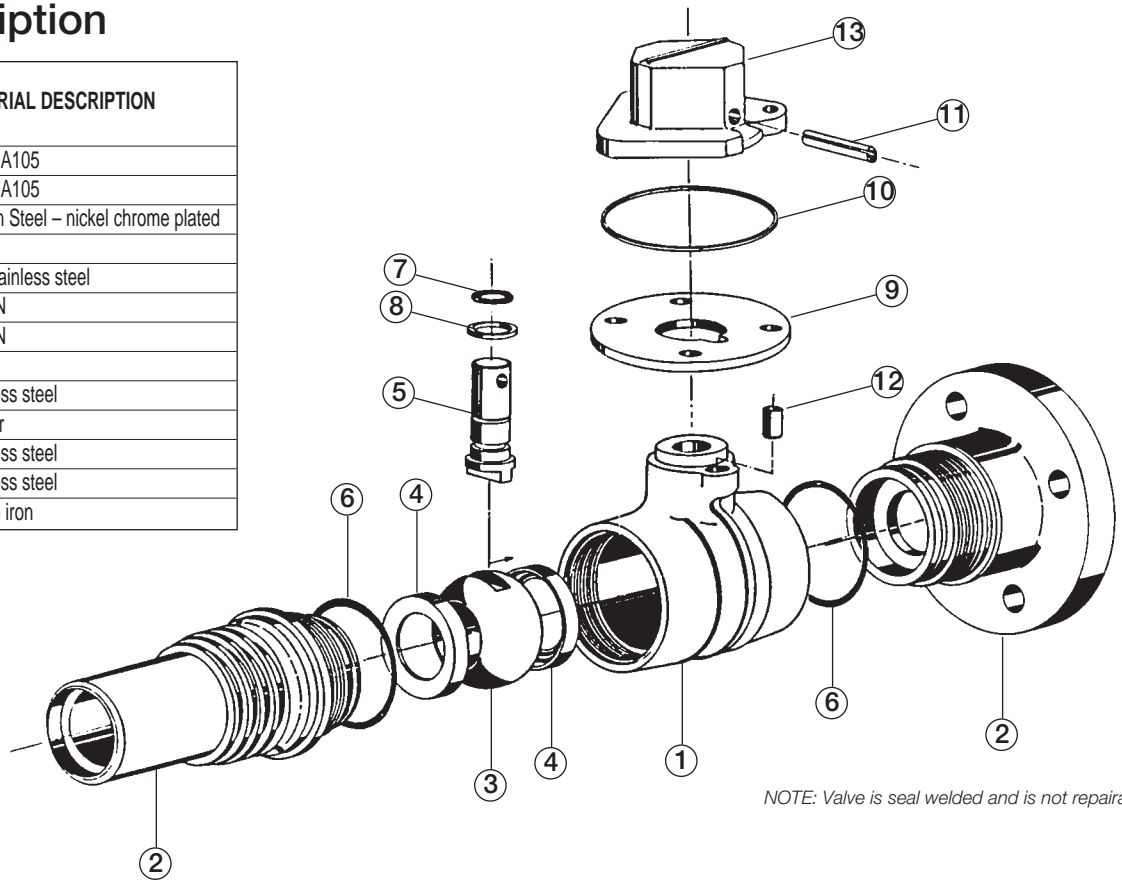
- Heat dissipating fins on the weld end side of the valve for convenient and safe field welding.
- Balon's thirty-six year performance record with its special grooved and tapered MULTI-SEAL seat design.
- Rugged stainless steel 3/8" diameter stops.

- Balls which, because they are solid instead of hollow, provide a straight-through flow path, thus assuring reduced turbulence and pressure drop across the valve.



Material Description

ITEM	PART NAME	MATERIAL DESCRIPTION
1	Body	ASTM A105
2	Adapter	ASTM A105
3	Ball	Carbon Steel – nickel chrome plated
4	Seats	Nylon
5	Stem	316 Stainless steel
6	Body O-ring	Buna-N
7	Stem O-ring	Buna-N
8	Stem seal	TFE
9	Lock plate	Stainless steel
10	Weather seal	Rubber
11	Roll pin	Stainless steel
12	Stop pin	Stainless steel
13	Drive nut, 2" square	Ductile iron



NOTE: Valve is seal welded and is not repairable.

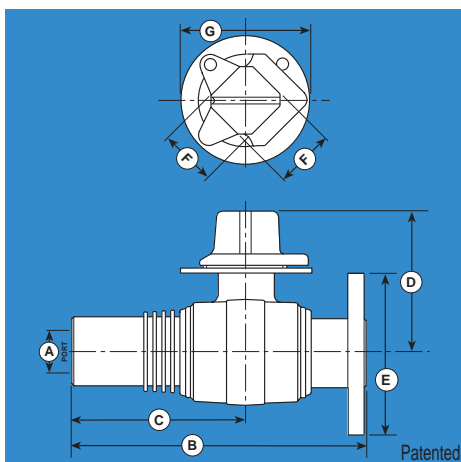
BALON SERIES "US" WELD X FLANGE END BALON BALL VALVE - DIM. DATA CLASS 150 - WP 285 PSI

SIZE	A PORT	B	C	D	E	F	G	Cv	CAT. NO.
2 x 1½ x 2	1½	9.4	5.9	5	6	2	4½	148	2R-US13-WF
2 x 2 x 2	2	10.0	5.9	5½	6	2	4½	*	2F-US13-WF
3 x 2½ x 3	2½	9.9	5.9	6⅞	7½	2	4½	550	3R-US13-WF
3 x 3 x 3	3	11.3	5.9	6¾	7½	2	4½	*	3F-US13-WF
4 X 3 X 4	3	10.9	6.4	6¾	9	2	4½	662	4R-US13-WF
4 X 4 X 4	4	12.1	6.4	7½	9	2	4½	*	4F-US13-WF

BALON SERIES "US" WELD X FLANGE END BALON BALL VALVE - DIM. DATA CLASS 300 - WP 740 PSI

SIZE	A PORT	B	C	D	E	F	G	Cv	CAT. NO.
2 x 1½ x 2	1½	10.15	5.9	5	6½	2	4½	148	2R-US33-WF
2 x 2 x 2	2	10.2	5.9	5½	6½	2	4½	*	2F-US33-WF
3 x 2½ x 3	2½	11.46	5.9	6⅞	8¼	2	4½	550	3R-US33-WF
3 x 3 x 3	3	11.5	5.9	6¾	8¼	2	4½	*	3F-US33-WF
4 X 3 X 4	3	12.4	6.4	6¾	10	2	4½	662	4R-US33-WF
4 X 4 X 4	4	12.4	6.4	7½	10	2	4½	*	4F-US33-WF

* Equal to equivalent length of pipe.



Series S Screwed End / Grooved End / UNI-directional Screwed End

Designed originally to accommodate the intermediate pressures in the oil and gas industry, the popularity of the Series S has resulted in a continued extension of sizes, pressures, and materials.

The Series S is available in Balon ductile iron in pressures from 500 psi to 2000 psi, and in carbon steel and stainless steel in pressures to 3000 psi. All have built-in locking devices and, unlike others on the market, require no lubrication for the life of the valve.

UNI-directional modification for tank draw-down service.

While no design can prevent a valve from freezing, Balon has introduced a new UNI-directional modification which reduces the likelihood that a temporary freeze will result in permanent damage to the valve. This

design modification incorporates a relief hole in the upstream side of the closed ball. When water trapped inside the ball cavity freezes and expands, the relief hole allows dissipation of the increased internal pressure.

As shown in the diagram on the following

page, the addition of the relief hole renders the valve unidirectional with the body side of the valve positioned upstream for proper sealing and operation. Balon's new UNI-directional modification is available as an option

within the Series S valve line.

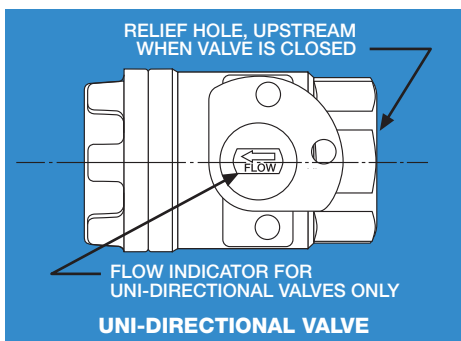
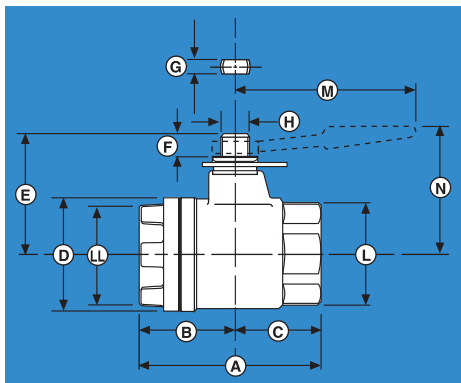


Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL STAINLESS STEEL (NACE)
1	*Handle	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Carbon steel zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM A395 class 60-40-18 fully annealed	ASTM A395 class 60-40-18 fully annealed
16	Body	ASTM A395 class 60-40-18 fully annealed	ASTM A395 class 60-40-18 fully annealed

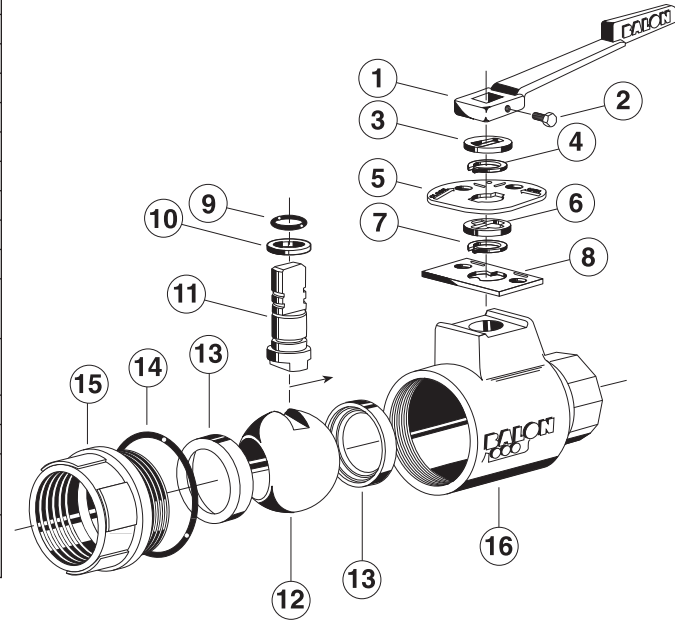
* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.



All Series S available with 316 SS and NACE.
WP is for valve equipped with standard nylon seats. See Chart on page 43 TFE ratings.

Lever Operated Threaded Construction 1" thru 4" To 2000 PSI WP



Dimensions

BALON SERIES "S" SCREWED END - DIM. DATA																
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	H	L	LL	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM														
1x1x1	1F-S62-SE	1F-S62N-SE	1	1500	3/4	1 1/16	1 1/16	2 1/4	2 1/4	1/2	0.340	0.685	1 1/4	2	4 1/2	2
1x1x1	1F-S92-SE	1F-S92N-SE	1	2000	4	2	2	2 1/2	2 1/2	1/2	0.340	0.685	2 1/16	2	4 1/2	2
1x1x1	1F-S42-SE	1F-S42N-SE	1	1000	3/4	1 1/16	1 1/16	2 1/4	2 1/4	1/2	0.340	0.685	1 1/4	2	4 1/2	2
2x1 1/2x2	2R-S62-SE	2R-S62N-SE	1 1/2	1500	5/4	2 1/4	2 1/4	3 3/4	3 3/4	3/4	0.434	0.873	3	3	7 1/4	5
2x1 1/2x2	2R-S92-SE	2R-S92N-SE	1 1/2	2000	5/4	2 1/4	2 1/4	3 3/4	3 3/4	3/4	0.434	0.873	3 1/4	3 1/4	7 1/4	5
2x1 1/2x2	2R-S42-SE	2R-S42N-SE	1 1/2	1000	5/4	2 1/4	2 1/4	3 3/4	3 3/4	3/4	0.434	0.873	3	3	7 1/4	5
2x1 1/2x2	2R-S32-SE	2R-S32N-SE	1 1/2	750	5/4	2 1/4	2 1/4	3 3/4	3 3/4	3/4	0.434	0.873	3 3/8	3 3/8	7 1/4	5
2x2x2	2F-S32-SE	2F-S32N-SE	2	750	5/4	2 1/4	2 1/4	4 1/4	4 1/4	3/4	0.497	0.998	3	3	10 1/4	5 1/2
2x2x2	2F-S62-SE	2F-S62N-SE	2	1500	6	3	3	4 1/4	4 1/4	3/4	0.497	0.998	3 1/4	3 1/4	10 1/4	5 1/2
2x2x2	2F-S42-SE	2F-S42N-SE	2	1000	5 1/2	2 1/4	2 1/4	4 1/4	4 1/4	3/4	0.497	0.998	3	3	10 1/4	5 1/2
2x2x2	2F-S92-SE	2F-S92N-SE	2	2000	6	3	3	4 1/4	4 1/4	3/4	0.497	0.998	3 1/4	3 1/4	10 1/4	5 1/2
*3x2 1/2x3	3R-S42-SE	3R-S42N-SE	2 1/2	1000	7 1/4	3 3/8	3 3/8	5 1/4	5 1/4	1 1/16	0.622	1.248	4 1/8	4	16	5 1/2
3x2x3	3R-S62-SE	3R-S62N-SE	2	1500	7 1/4	3 3/8	3 3/8	5	4 3/4	3/4	0.497	0.998	4 1/2	4 1/2	10 1/4	5 1/2
3x3x3	3F-S32-SE	3F-S32N-SE	3	750	8	4	4	6	5 1/4	3/4	0.747	1.373	4 1/4	4	20	6 1/2
3x2x3	3R-S32-SE	3R-S32N-SE	2	750	7 1/4	3 1/2	3 1/2	4 1/2	4 1/4	3/4	0.497	0.998	4 1/4	4	10 1/4	5 1/2
3x3x3	3F-S42-SE	3F-S42N-SE	3	1000	8 1/4	4 1/4	4 1/4	6	5 1/4	3/4	0.747	1.373	4 1/2	4 1/2	20	6 1/2
4x3x4	4R-S32-SE	4R-S32N-SE	3	750	8 1/4	4 1/4	4 1/4	6	5 1/4	3/4	0.747	1.373	5 1/8	5 1/4	20	6 1/2
4x3x4	4R-S42-SE	4R-S42N-SE	3	1000	8 1/4	4 1/4	4 1/4	6	5 1/4	3/4	0.747	1.373	5 1/8	5 1/4	20	6 1/2
4x4x4	4F-S22-SE	4F-S22N-SE	4	500	9 1/4	4 1/16	4 1/16	7 1/4	6 1/4	1 1/16	0.747	1.373	5 1/8	5 1/4	20	7 1/4

* This reduced port valve has a 2 1/2" bore for increased flow.

BALON SERIES "S" GROOVED END - DIM. DATA																
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	H	L	LL	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM														
2x1 1/2x2	2R-S32-GE	2R-S32N-GE	1 1/2	750	5 1/4	2 1/16	2 1/16	3 3/4	3 3/4	3/4	0.434	0.873	2 1/4	2 3/4	7 1/4	5
3x2x3	3R-S32-GE	3R-S32N-GE	2	750	7 1/4	3 1/2	3 1/2	4 1/2	4 1/4	3/4	0.497	0.998	3 1/2	3 1/2	10 1/4	5 1/2
4x3x4	4R-S32-GE	4R-S32N-GE	3	750	8 1/4	4 1/2	4 1/2	6	5 1/4	3/4	0.747	1.373	4 1/2	4 1/2	20	6 1/2

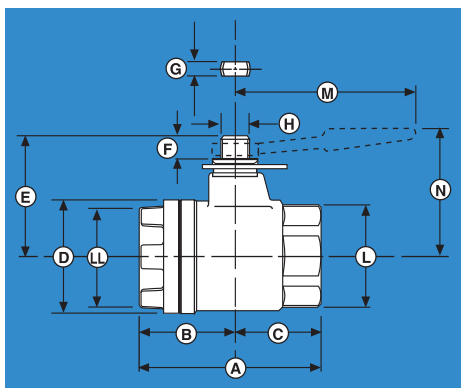
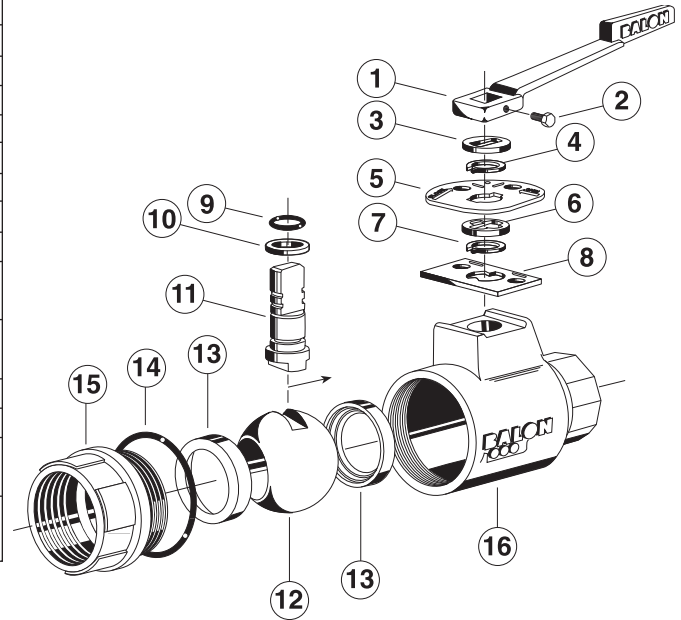
Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL STAINLESS STEEL (NACE)
1	Handle*	Ductile iron	Ductile iron
2	Handle bolt	Standard hex bolt	Standard hex bolt
3	Weather guard	Polyethylene	Polyethylene
4	Lock plate retainer	Carbon spring steel	Carbon spring steel
5	Lock plate	Carbon steel - zinc plated	Carbon steel - zinc plated
6	Dust cover	Polyethylene	Polyethylene
7	Stop plate retainer	Carbon spring steel	Carbon spring steel
8	Stop plate	Carbon steel zinc plated	Carbon steel zinc plated
9	Stem O-ring	Buna	Fluorocarbon
10	Stem seal	TFE	TFE
11	Stem	Stress proof zinc plated ASTM A311-79 Class B	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	AISI 1018 nickel chrome plated	ASTM A-743-CF8M annealed stainless steel
13	Ball seat	Nylon-Acetal	Nylon-Acetal
14	Body O-ring	Buna	Fluorocarbon
15	End adapter	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel
16	Body	ASTM 216 grade WCB annealed carbon steel	ASTM 216 grade WCB annealed carbon steel

* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.

Lever Operated Threaded Construction To 3000 PSI WP



Dimensions

BALON SERIES "S" SCREWED END - DIM. DATA																
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	H	L	LL	M	N
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM														
1x1x1	1F-S93-SE	1F-S93N-SE	1	2500	4	2	2	2 3/4	2 3/8	1/2	0.340	.685	2 1/8	2	4 3/8	2
1x1x1	1F-S03-SE	1F-S03N-SE	1	3000	4	2	2	2 3/4	2 3/8	1/2	0.340	.685	2 1/8	2	4 3/8	2
2x1 1/2x2	2R-S93-SE	2R-S93N-SE	1 1/2	2500	5 1/2	2 3/4	2 3/4	4 1/4	3 3/8	3/4	0.434	.873	3 1/2	3 3/4	7 1/4	5
2x1 1/2x2	2R-S03-SE	2R-S03N-SE	1 1/2	3000	5 1/2	2 3/4	2 3/4	4 1/4	3 3/8	3/4	0.434	.873	3 1/2	3 3/4	7 1/4	5
2x2x2	2F-S03-SE	2F-S03N-SE	2	3000	6	3 3/8	2 1/2	4 1/8	4 3/8	3/4	0.497	.998	3 1/2	3 3/4	10 1/4	5 3/8
2x2x2	2F-S93-SE	2F-S93N-SE	2	2500	6	3 3/8	2 1/2	4 1/8	4 3/8	3/4	0.497	.998	3 1/2	3 3/4	10 1/4	5 3/8

All Series S available with 316 SS and NACE.

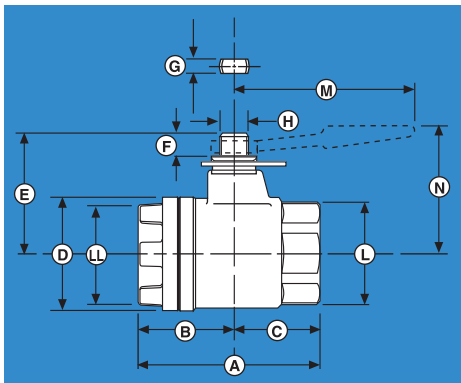
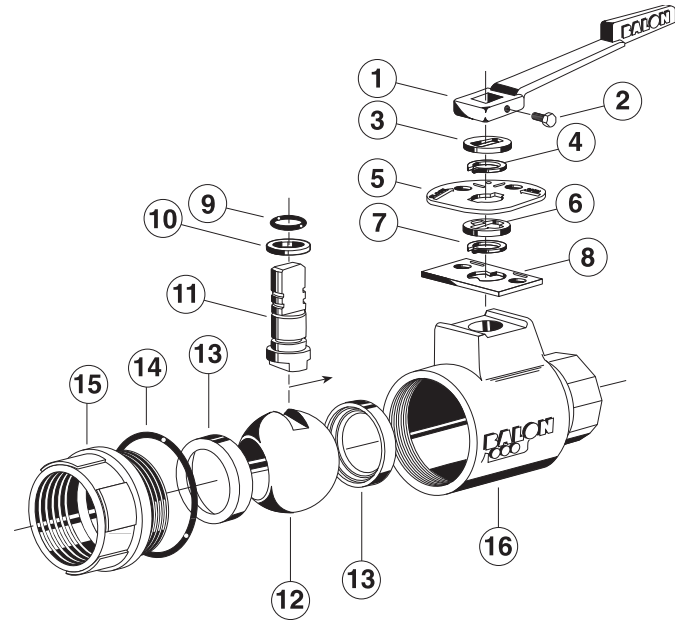
Material Description

ITEM	PART NAME	MATERIAL STAINLESS STEEL (STANDARD NACE)
1	Handle*	Ductile iron
2	Handle bolt	Standard hex bolt
3	Weather guard	Polyethylene
4	Lock plate retainer	Stainless steel
5	Lock plate	Stainless steel
6	Dust cover	Polyethylene
7	Stop plate retainer	Stainless steel
8	Stop plate	Stainless steel
9	Stem O-ring	Fluorocarbon
10	Stem seal	TFE
11	Stem	AISI A-316 stainless steel annealed ASTM A-276-316
12	Ball	ASTM A-743-CF8M/316 annealed stainless steel
13	Ball seat	Acetal-nylon
14	Body O-ring	Fluorocarbon
15	End adapter	ASTM A351-CF8M annealed stainless steel
16	Body	ASTM A351-CF8M annealed stainless steel

* Balon valves are designed to be operated with a standard open-end wrench.

Handle and Handle Bolt are optional.

Lever Operated
Threaded Construction
To 3000 PSI WP



Dimensions

BALON SERIES "S" SCREWED END - DIM. DATA															
SIZE	NACE TRIM 316 STAINLESS STEEL BALL & STEM	CAT. NO. PORT	WP	A	B	C	D	E	F	G	H	L	LL	M	N
1x1x1	1F-S05N-SE	1	3000	4	2	2	2 1/4	2 3/8	1/2	0.340	.685	2 1/16	2	4 7/8	2
2x1 1/2x2	2R-S95N-SE	1 1/2	2000	5 1/2	2 3/4	2 3/4	4 1/4	3 3/8	3/4	0.434	.873	3 1/2	3 1/2	7 1/4	5
2x1 1/2x2	2R-S05N-SE	1 1/2	3000	5 1/2	2 3/4	2 3/4	4 1/4	3 3/8	3/4	0.434	.873	3 1/2	3 1/2	7 1/4	5
2x2x2	2F-S95N-SE	2	2000	6	3 3/8	2 3/8	4 3/8	4 3/8	3/4	0.497	.998	3 1/2	3 1/2	10 1/4	5 1/2
2x2x2	2F-S05N-SE	2	3000	6	3 3/8	2 3/8	4 3/8	4 3/8	3/4	0.497	.998	3 1/2	3 1/2	10 1/4	5 1/2

Series LM Screwed End

A Simple Superior Valve

The Series LM valve is a low cost route to quality. Since introduced, it has become a favorite valve for drip service, meter hookups, blow down, emergency shutdown, and anywhere a dependable quarter turn block valve is needed.

Machined from barstock, this valve is priced low enough for low pressure service, but the rugged bolted construction assures strength and rigidity for high pressure service in the plant and in the field.

The wide ranging capability of this valve is enhanced by the 316 stainless steel ball and stem which are standard in all Series LM valves.

General Features

- Locking device and handle
- Socket head bolting for strength.
- Multi-seal seats standard.
- Smooth uninterrupted external surfaces - no corrosion traps.
- Symmetry of design allows versatile in-line position or placement.
- Low torque operation at full rated pressure.
- Nylon seats standard with TFE optional (see chart page 42).
- NACE available.

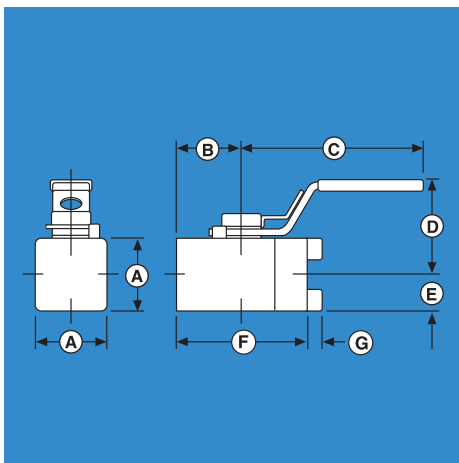
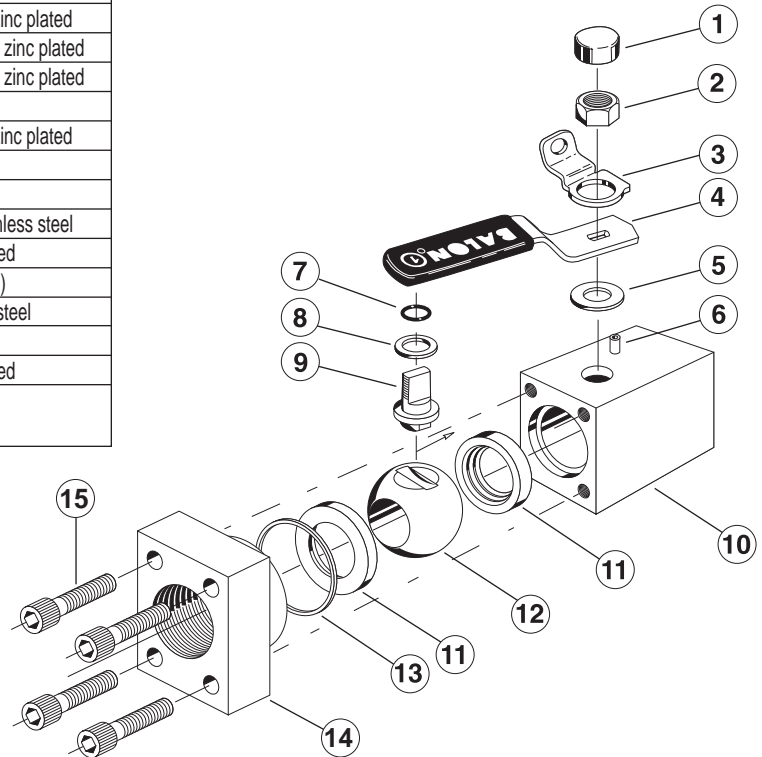


Material Description

ITEM	PART NAME	MATERIAL DESCRIPTION (STANDARD)	MATERIAL DESCRIPTION (NACE)
1	Weather guard	Polyethylene	Polyethylene
2	Stem nut	ANSI B18.8.2-179 zinc plated	ANSI B18.8.2-179 zinc plated
3	Lock plate	AISI: 1008 HR steel zinc plated	AISI: 1008 HR steel zinc plated
4	Handle	AISI: 1008 HR steel zinc plated	AISI: 1008 HR steel zinc plated
5	Stem washer	Acetal	Acetal
6	Stop Pin	ANSI B18.8.2-179 zinc plated	ANSI B18.8.2-179 zinc plated
7	Stem O-ring	Buna	Fluorocarbon
8	Stem seal	TFE	TFE
9	Stem	AISI: Type 316 stainless steel	AISI: Type 316 stainless steel
10	Body	AISI: 1215 zinc plated	AISI: 1018 zinc plated
11	Ball seat	Nylon (TFE optional)	Nylon (TFE optional)
12	Ball	AISI: 316 stainless steel	AISI: 316 stainless steel
13	Body seal	Buna	Fluorocarbon
14	End adapter	AISI: 1215 zinc plated	AISI: 1018 zinc plated
15	Body bolts	ANSI B18.3-1982 ANSI ASTM A/574-1980	ASTM A-193-B7M

* Handle and locking device standard on all Series LM ball valves.

Lever Operated Bolted Body Construction 3000 PSI W.P.



Dimensions

BALON 3000 PSI WP - SERIES "LM" BALON BALL VALVE - DIM. DATA												
SIZE	CAT. NO.		PORT	WP	A	B	C	D	E	F	G	
	STANDARD TRIM 316 STAINLESS STEEL BALL & STEM	NACE TRIM 316 STAINLESS STEEL BALL & STEM										
1/4 x 3/8 x 1/4	LM-02362	LM-02362-N	3/4	3000	1 1/4	1 1/8	3 1/2	1 1/8	3/8	2 1/4	1/4	
1/2 x 3/8 x 1/2	LM-05361	LM-05361-N										
3/4 x 3/4 x 3/4	LM-07362	LM-07362-N	3/4	3000	2	1 1/16	4 1/8	2 1/4	1	3 3/8	3/8	
1 x 3/4 x 1	LM-10361	LM-10361-N										

All Series LM available with NACE trim.

WP is for valve equipped with standard nylon seats. See Chart on page 43 for TFE ratings.

All Series LM available with NACE trim.

Series LS Screwed End

The Series LS solid stainless steel ball valve has been designed to stand up consistently against the very toughest of applications. It is intended for services such as CO₂, H₂S, saltwater, and other severely corrosive media.

Made of stainless steel throughout (including balls, stems, and handles) the LS is available in both 2000 psi and 3000 psi working pressures. They are maintenance-free and require no field lubrication for the life of the valve.

The LS features an exclusive patented design to inhibit the loosening of the end adapter. The adapter end of the body is machine-cripped at each wrench flat of the end adapter itself, thus securing the adapter to the body.

General Features

- All metal components of stainless steel.
- Locking device and handle.
- Multi-seal seats standard.
- Low torque operation at full rated pressure.
- Machine-cripped tailpiece
- NACE standard

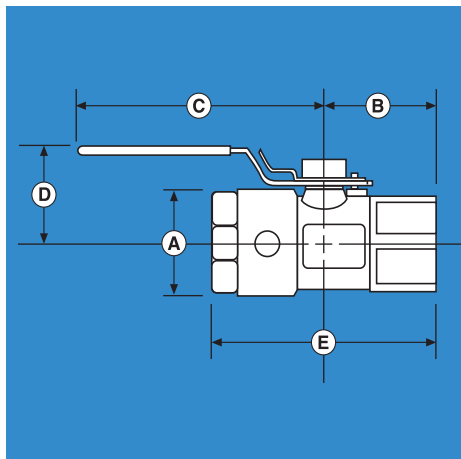
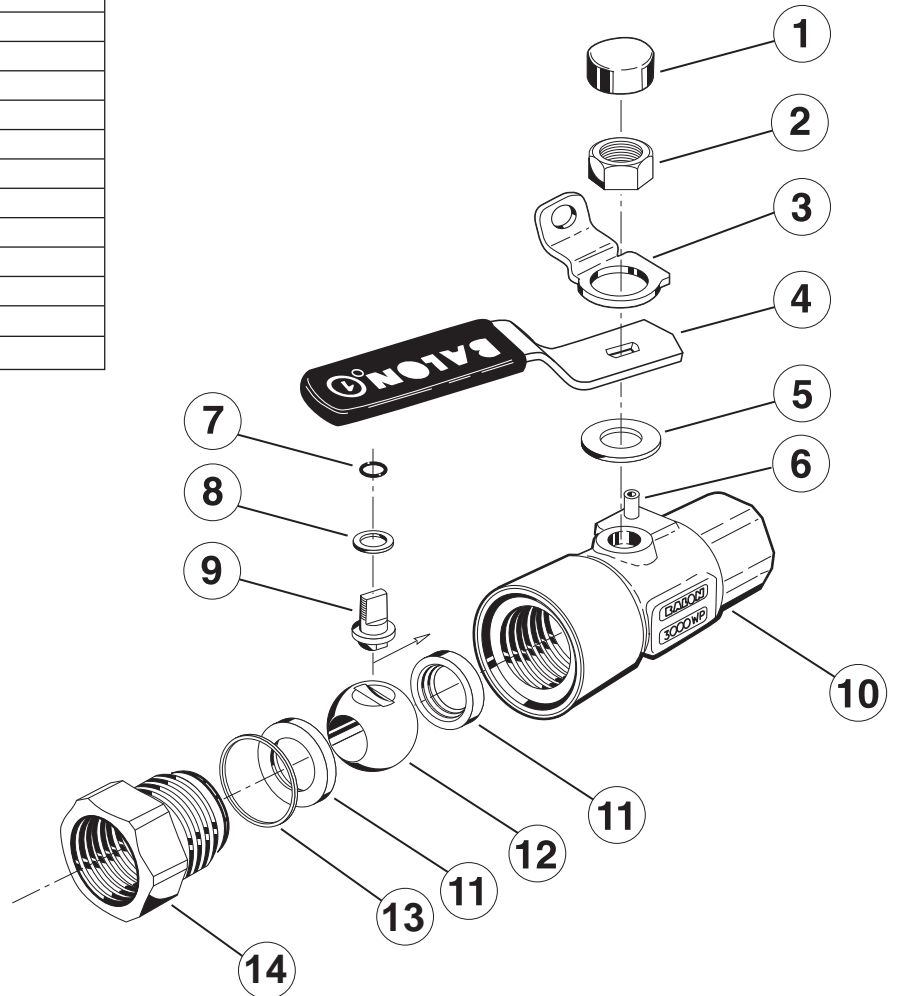


Material Description

ITEM	PART NAME	MATERIAL DESCRIPTION (NACE STANDARD)
1	Weather guard	Polyethylene
2	Stem nut	Stainless steel
3	Lock plate	Stainless steel
4	Handle	Stainless steel
5	Stem washer	Acetal
6	Stop pin	Stainless steel
7	Stem O-ring	Buna
8	Stem seal	TFE </td
9	Stem	AISI: 316 stainless steel
10	Body	AISI: 316 stainless steel
11	Ball seat	Nylon (TFE optional)
12	Ball	AISI: 316 stainless steel
13	Body seal	Fluorocarbon
14	Adapter	AISI: 316 stainless steel

* Handle and locking device standard on all Series LS ball valves.

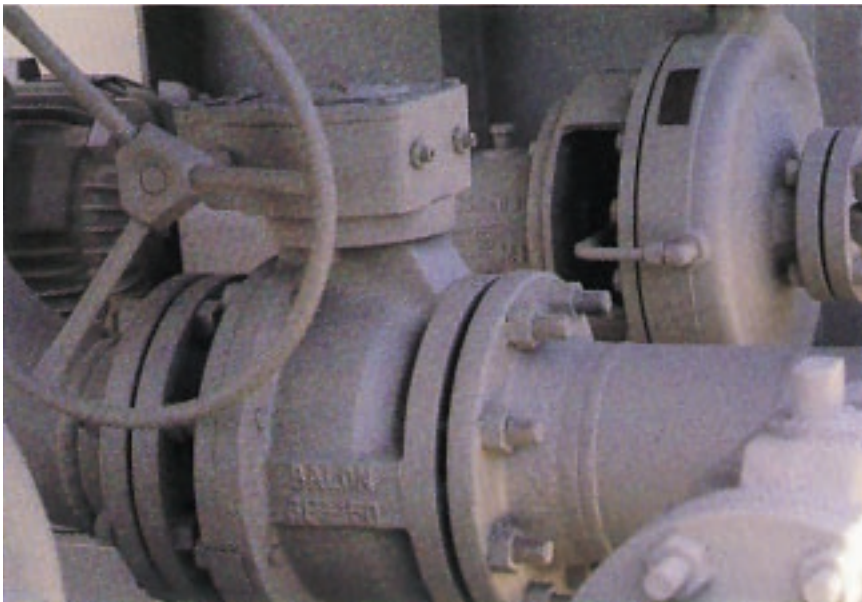
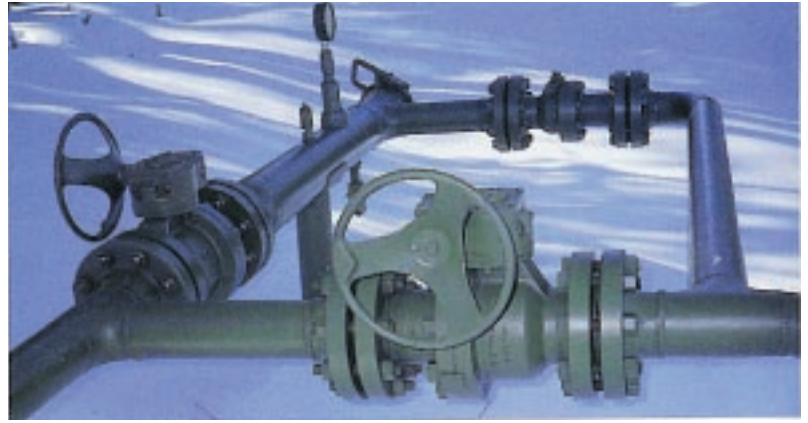
Lever Operated
Threaded Construction
2000-3000 PSI W.P.



BALON SERIES "LS" SCREWED END BALON BALL VALVE - DIM. DATA								
SIZE	CAT. NO.	PORT	W.P.	A	B	C	D	E
1/4 x 3/8 x 1/4	LS-02592	3/8	3000	1.375	1.125	3 1/2	1 1/8	2 1/8
1/2 x 3/8 x 1/2	LS-05591	3/8	3000	1.375	1.438	3 1/2	1 1/8	3
1/2 x 3/8 x 1/2	LS-05561	3/8	2000	1.375	1.125	3 1/2	1 1/8	2 1/2
3/4 x 3/4 x 3/4	LS-07592	3/4	3000	2.125	1.750	4 1/8	2 1/4	3 3/4
1 x 3/4 x 1	LS-10591	3/4	3000	2.125	2.000	4 1/8	2 1/4	4 1/8
1 x 3/4 x 1	LS-10561	3/4	2000	2.125	1.875	4 1/8	2 1/4	3 3/4

WP is for valve equipped with standard nylon seats. See Chart on page 43 for TFE ratings.

Balon Installations



BALON[®]

Technical and
Engineering Data



Media and Application Guide

This BALON "Media and Application Guide" provides assistance to the engineer in selecting the best material for a particular service. The final selection of materials however, requires the judgment of the user because it may

be necessary to sacrifice certain physical properties of a material to take better advantage of others.

Information contained in the following chart is believed to be reliable and is intended to be used by trained personnel at their own discretion and

risk. Due to many factors which affect the rate of corrosion, we suggest that final acceptability be established by test under actual operating conditions.

Ratings are based on media at ambient temperatures except as noted.

E – Excellent

G – Good

F – Fair

U – Unsatisfactory

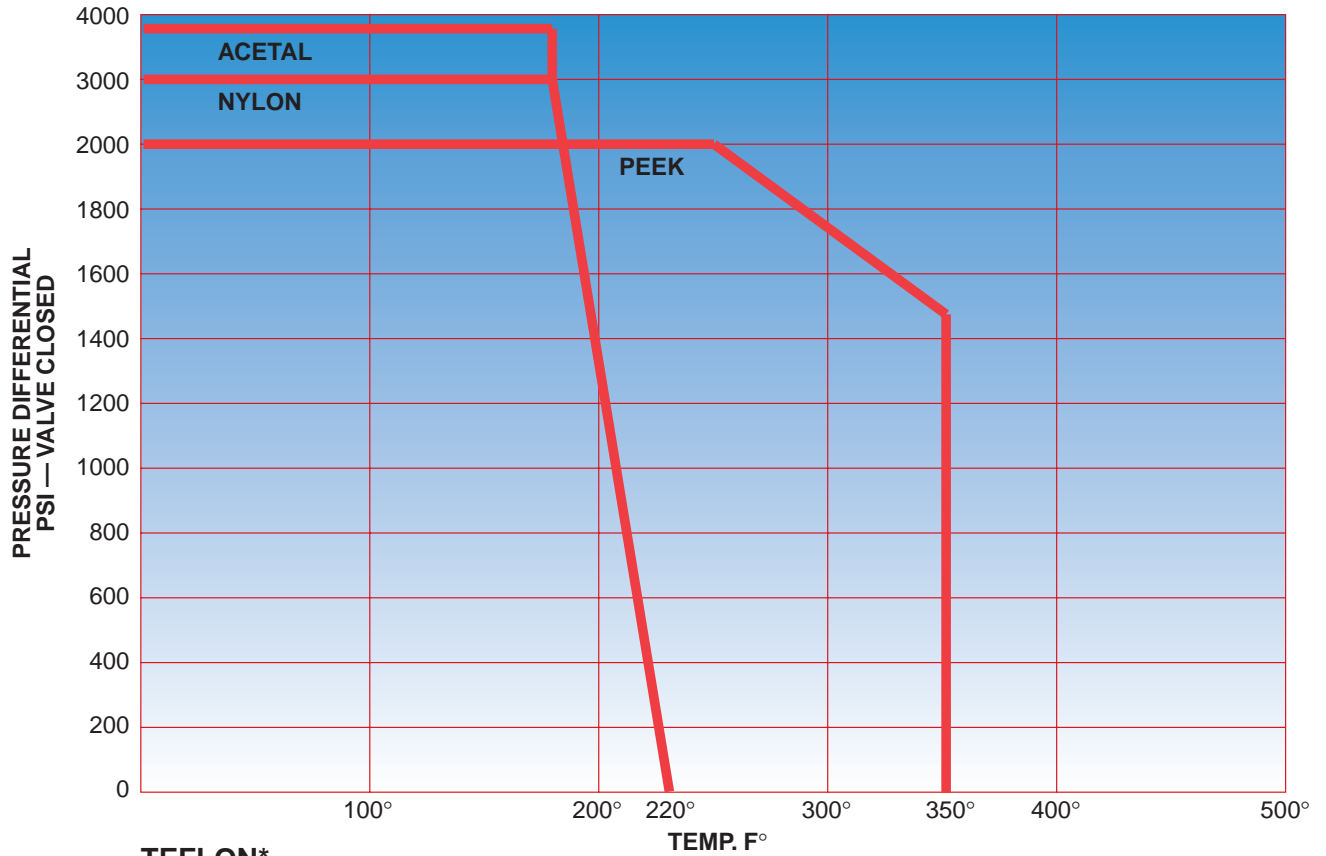
BLANK – Insufficient Data

MEDIA*	VALVE MATERIAL			SEAT and SEAL MATERIAL				MEDIA*	VALVE MATERIAL			SEAT and SEAL MATERIAL			
	Carbon Steel	Ductile Iron	316 SS	Buna-N	Viton	Nylon	TFE		Carbon Steel	Ductile Iron	316 SS	Buna-N	Viton	Nylon	TFE
Air	E	E	E	E	E	E	E	JP-4 Fuel	E	E	E	E	E	E	E
Alcohols	G	G	E	E	E	F	E	JP-5 Fuel	E	E	E	E	E	E	E
Amines (Conc.)	E	E	E	U	U	E	E	JP-6 Fuel	E	E	E	E	E	E	E
Ammonia, Anhydrous	E	G	E	F	U	E	E	Kerosene	G	G	E	E	E	E	E
– Aqueous	E	E	E	F	U	G	E	Liquefied Pet. Gas (LPG)	G	G	G	E	E	E	E
– Solutions	G	G	E	F	U	G	E	Lubricating Oil	E	E	E	E	E	E	E
Benzene or Benzol	G	G	E	U	E	E	E	Mercaptan (Conc.)	G	G	E	F	E	G	E
Brines	F	F	G	E	E	E	E	Methane	E	E	E	E	E	E	E
Bunker Oils (Fuels)	G	G	E	E	E	E	E	Muriatic Acid	U	U	U	G	E	U	E
Butane	E	E	E	E	E	E	E	Naphtha	G	G	E	G	E	E	E
Carbolic Acid (Phenol)	U	U	G	U	G	U	E	Naphthalene	E	G	E	U	E	E	E
Carbon Dioxide, Dry	E	F	E	G	G	G	E	Natural Gas	E	E	E	E	E	E	E
Carbonic Acid	U	U	G	G	E	E	E	Nitrogen	E	E	E	E	E	E	E
Carbon Tetrachloride, Dry	F	F	E	U	E	E	E	Oil, Animal	E	E	E	E	E	E	E
– Wet	U	U	G	U	E	E	E	– Cottonseed	F	F	G	E	E	E	E
Carbonated Water	G	G	E	E	E	G	E	– Fish	G	G	E	E	E	E	E
Crude Oil, Sweet	E	E	E	E	E	E	E	– Fuel	G	G	E	E	E	E	E
– Sour	G	G	E	F	G	G	E	– Lube	E	E	E	E	E	E	E
Diethylamine (DEA)	E	E	E	U	U	E	E	– Mineral	G	G	E	E	E	E	E
Diesel Fuels	E	E	E	E	E	E	E	– Petroleum, Refined	E	G	E	E	E	E	E
Dowtherm A and E	G	G	E	U	E	E	E	Oil-Water Mixtures	E	E	E	E	E	E	E
Drilling Mud	G	G	E	E	E	E	E	Paraffin	G	G	E	G	E	E	E
Ethane	E	E	E	E	E	E	E	Pentane	G	G	E	U	E	E	E
Ethylene	E	E	E	U	E	E	E	Producer Gas	G	G	G	E	E	E	E
Ethylene Glycol	G	G	G	E	E	G	E	Propane	E	E	E	E	E	E	E
Fuel Oil	G	G	E	E	E	E	E	Propyl Alcohol	E	E	E	E	E	E	E
Gas, Manufactured	G	G	G	E	E	E	E	Propylene Glycol	E	E	E	E	E	F	E
– Natural	G	G	E	E	E	E	E	Sea Water	U	U	E	E	E	E	E
– Odorizers	G	G	E	U	E	G	E	Sodium Acetate	G	G	G	G	U	G	E
– Sour	G	G	E	F	E	E	E	– Hydroxide, Cold, 20%	E	E	E	G	G	E	E
Gasoline, Leaded	E	G	E	G	E	E	E	– Hydroxide, Hot, 20%	F	F	G	G	G	G	E
– Unleaded	E	G	E	F	E	E	E	– Hydroxide, Cold, 50%	G	G	G	F	F	F	F
– Aviation	E	G	E	G	E	E	E	– Hydroxide, Hot, 50%	G	G	G	U	F	U	F
– Motor	E	G	E	F	E	E	E	– Hydroxide, Cold, 70%	F	F	G	U	F	F	F
Glycols	G	G	G	E	E	G	E	– Hydroxide, Hot, 70%	G	F	G	U	F	U	U
Heptane	E	E	E	E	E	E	E	Steam (212°F)	E	E	E	U	U	U	E
Hexane	E	E	E	E	E	E	E	Stoddard Solvent	G	G	G	E	E	G	E
Hydraulic Oil								Sulfur Dioxide (Dry)	G	G	E	U	U	F	E
– Petroleum Base	E	E	E	E	E	E	E	Sulfuric Acid, 0-7%	F	F	G	F	E	G	E
– Phosphate Base	E	E	E	U	E	E	E	– 20%	U	U	F	U	E	U	E
Hydrochloric Acid, Air Free	U	U	U	F	E	U	E	– 50%	U	U	U	U	E	U	E
Hydrofluoric Acid	U	U	U	U	U	U	F	– 100%	U	U	U	U	E	U	E
Hydrogen Gas	G	G	E	E	E	E	E	Toluene or Toluol	E	E	E	U	E	E	E
Hydrogen Sulfide, Dry(Conc.)	G	G	E	F	F	E	E	Water, Distilled, Aerated	U	U	E	E	G	E	E
– Wet (Conc.)	F	U	G	U	F	E	E	– Fresh	F	F	E	E	E	E	E
Illuminating Gas	E	E	E	E	E	E	E	– Sea	U	U	E	E	E	E	E
Iso-Octane	E	G	E	E	E	E	E	Wax Emulsions	E	G	E	E	E	E	E
Isopropyl Alcohol	G	G	G	G	E	G	E	Waxes	E	E	E	E	E	E	E
– Ether	E	G	E	G	U	E	E	Xylene, Dry	E	E	E	U	E	E	E

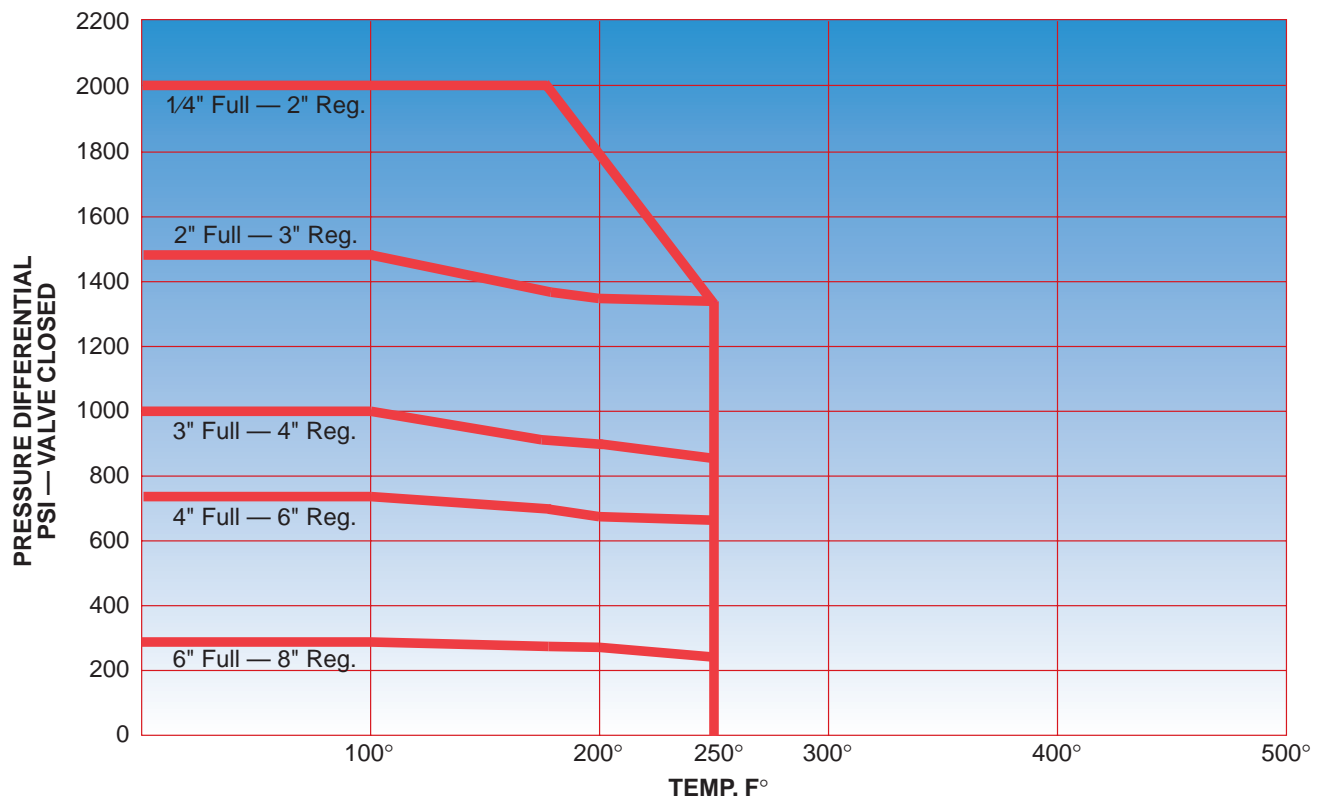
* Consult Oklahoma City for compatibility of Aluminum Bronze material.

Seat Pressure - Temperature Ratings

NYLON / ACETAL



TEFLON*



* Reg. DuPont

Balon Flow Data

Carbon Steel Flanged Valves

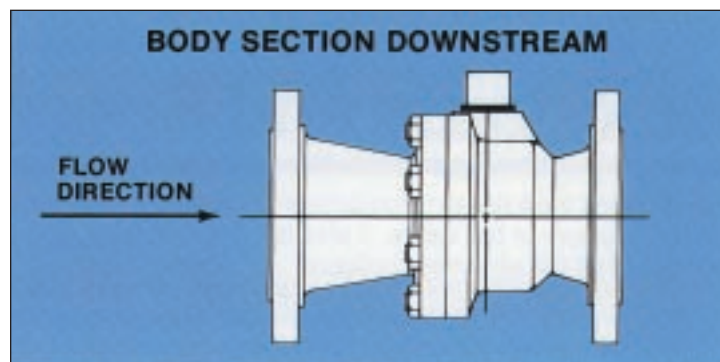
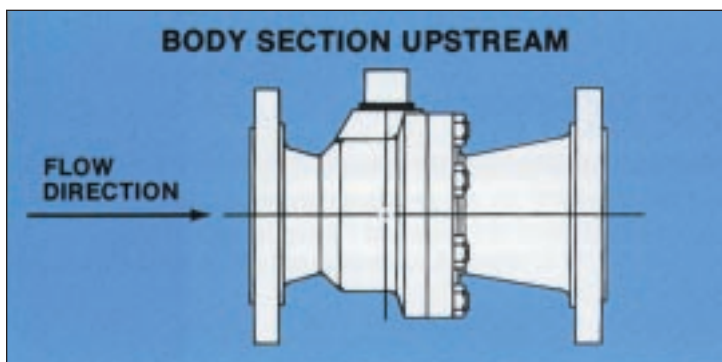
Cv Ratings of Regular Port Valve

Balon valves are designed with the ball center offset from the valve center. This permits optimum castability of the body and the adapter, and results in better castings. The longer taper in the

adapter also improves flow characteristics. The direction in which the valve is installed in the line has an effect on flow capacity.

The calculated figures listed below illustrate this effect. It should be noted

that actual performance cannot be expected to duplicate tabulated figures due to the effects of adjacent fittings, flange alignment, pipe size and roughness, etc.



FLANGED VALVE Cv						
SIZE	CLASS 150	CLASS 300	CLASS 400	CLASS 600	CLASS 900	CLASS 1500
2 x 1½	139	128	SEE CLASS 600	116	117	117
2½ x 2	256	240	CLASS 600	202	-	-
3 x 2	235	215	600	200	274	-
4 x 3	518	537	512	482	-	-
6 x 4	821	987	-	1170	-	-
8 x 6	2469	3162	-	3396	-	-

FLANGED VALVE Cv						
SIZE	CLASS 150	CLASS 300	CLASS 400	CLASS 600	CLASS 900	CLASS 1500
2 x 1½	118	119	SEE CLASS 600	107	114	114
2½ x 2	212	208	CLASS 600	191	-	-
3 x 2	178	190	600	180	255	-
4 x 3	451	462	509	430	-	-
6 x 4	741	802	-	964	-	-
8 x 6	2360	2732	-	2933	-	-

Cv Ratings of Full Bore Valve

Depending upon pipe schedule with which they are used, Balon full bore valves have bore sizes exceeding or nearly equaling the pipe inside diameter. The best method of computing system pressure losses is to consider the valve an equivalent length of pipe as shown below.

Using the Cv method of rating full bore valves does not provide good accuracy. The reason for this is that Cv tests do not provide valid data until the measured pressure drop equals at least 2 psi. In the relatively short length involved in a valve, extremely high velocities are required to generate that pressure drop. At these high velocities

(which are well beyond those used in industry) other effects, such as vibration and pulsation are then created by "super turbulent" flow. The net results are Cv ratings which are lower than would be derived if pressure losses could be consistently measured at velocities in the usable range.

EQUIVALENT. LENGTH OF PIPE - FEET					
SIZE	CLASS 150	CLASS 300	CLASS 600	CLASS 900	CLASS 1500
1	.42	-	.71	.83	.83
1½	.53	.62	.79	-	-
2	.58	.71	.96	1.21	1.21
2½	.62	.79	1.09	-	-
3	.66	.93	1.17	-	-
4	.75	1.00	1.42	-	-
6	.88	1.32	1.83	-	-

Actuator Sizing

Because the actuator sizing is so critical to the proper operation and life of a ball valve, we have chosen not to publish torque values. Misinterpretation of manual torque data can lead to undersizing, while misinterpretation of

factored torque values can mislead as to ease of manual operation. Furthermore, type of service conditions can significantly alter standard torque requirements. Balon valves have been recognized for years as a very easy to

operate valve. We will be glad to provide sizing information upon request through one of our field representatives or from our Oklahoma City headquarters.

Standards and Specifications

Balon utilizes the following standards in the manufacture of ball valves. It should be noted that not all styles, configura-

tions and materials used in Balon Valves meet all of these standards in their entirety.

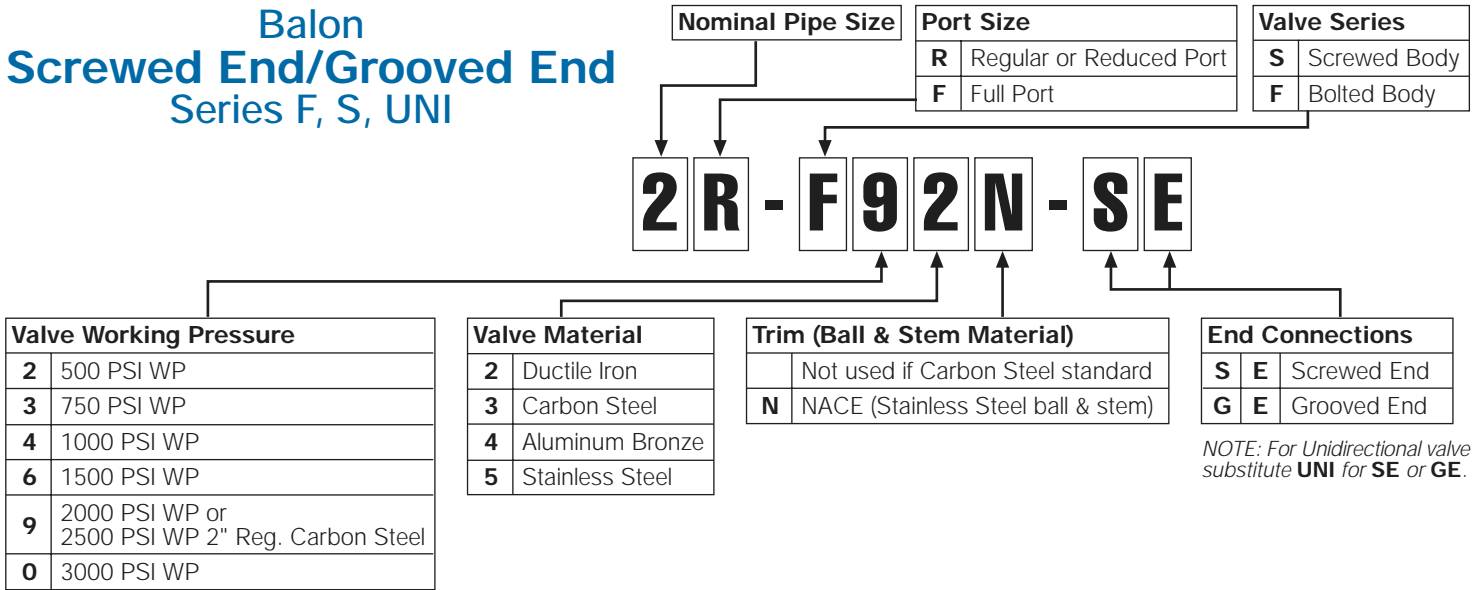
User should, therefore, specify a given standard if there is a need to assure total compliance with a given standard.

Balon valves are manufactured to the following standards and specifications, among others.

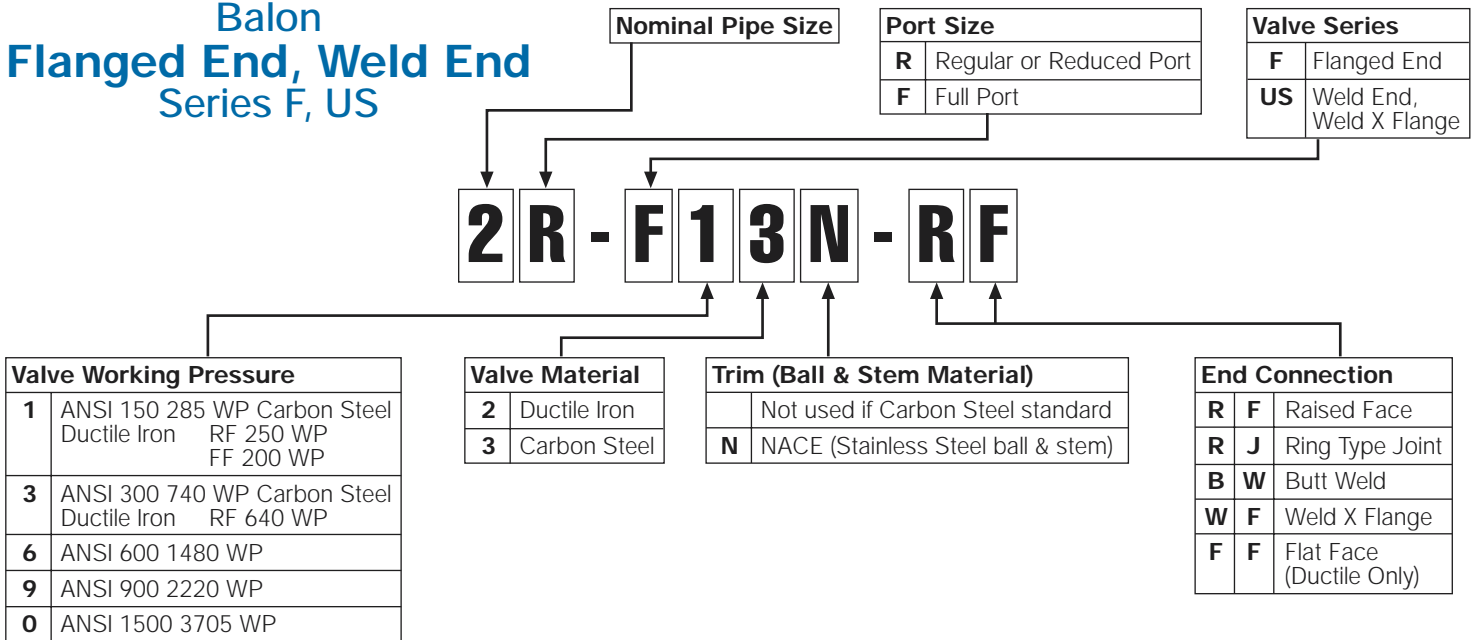
API (AMERICAN PETROLEUM INSTITUTE)	VALVES AND FITTINGS
API 6FA FIRE TEST FOR SOFT-SEATED VALVES	MSS-SP25 STANDARD MARKING SYSTEM FOR VALVES, FITTINGS, FLANGES AND FITTINGS
API 5B INSPECTION OF THREADS	MSS-SP72 BALL VALVES WITH FLANGED OR BUTT WELDING ENDS FOR GENERAL SERVICE
API 6D PIPELINE VALVES, END CLOSURES, CONNECTORS AND SWIVELS	MSS-SP82 VALVE PRESSURE TEST METHODS
API-Q1 QUALITY PROGRAMS	MSS-SP84 STEEL VALVES-SOCKET WELDING AND THREADED ENDS
API-594 WAFER CHECK VALVES	NACE MR-01-75 SULFIDE STRESS CRACKING, RESISTANT METALLIC MATERIAL FOR OILFIELD EQUIPMENT (NACE MATERIALS ARE OPTIONAL AND MUST BE SPECIFIED ON PURCHASE ORDERS)
ANSI (AMERICAN NATIONAL STANDARD INSTITUTE)	U.S. COAST GUARD
ANSI-B 16.5 - PIPE FLANGES AND FLANGED FITTINGS	ACCEPTED AS AN APPROVED AFFIDAVITED MANUFACTURER OF VALVES FOR USE ON COAST GUARD INSPECTED AND CERTIFIED EQUIPMENT (46 CFR 56.07-5)
ANSI-B 16.10 - FACE-TO-FACE END-TO-END DIMENSIONS	ASSOCIATION OF AMERICAN RAILROADS
ANSI-B 16.42 DUCTILE IRON PIPE FLANGES AND FLANGED FITTINGS	TANK CARS
ANSI-B 16.34 - VALVES - FLANGED END, THREADED AND BUTT WELD	
ANSI-B (B1.20.1) - PIPE THREADS GENERAL PURPOSE (INCH)	
MSS (MANUFACTURERS STANDARDIZATION SOCIETY)	
MSS-SP6 STANDARD FINISHES FOR CONTACT FACES OF PIPE FLANGES AND CONNECTION END FLANGES OF	

Identification Key

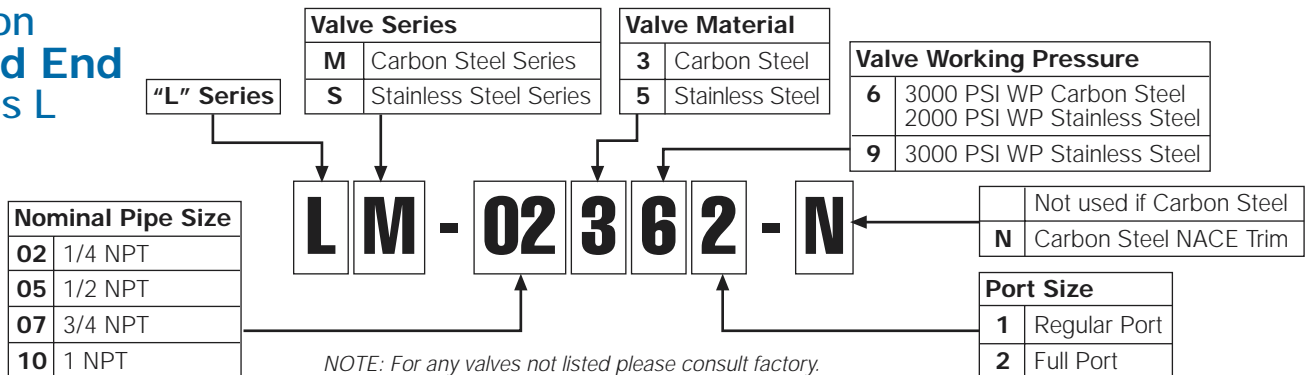
Balon Screwed End/Grooved End Series F, S, UNI



Balon Flanged End, Weld End Series F, US



Balon Screwed End Series L



Terms and Conditions

PRICES AND DISCOUNTS

All published prices and discounts are subject to change without notice.

LITERATURE

Published information such as catalogs, brochures, or other literature is subject to change without notice.

FREIGHT ALLOWANCE

All shipments are F.O.B. at Balon's plant in Oklahoma City, with full freight allowed on shipments of 1000 pounds or more to one (1) destination within the continental United States or Canada (excluding Alaska). Freight allowances are via cheapest way. For customers designating a more costly transportation, a charge will be made for the difference between it and the cheapest way.

DELIVERY

Estimated shipping dates are based as accurately as possible on current conditions in effect at time of estimate. Shipping Dates appearing on acknowledgements, or offered in any other manner, are approximate, and order will be shipped as soon as completed and ready for shipment, unless otherwise agreed to in writing. Balon assumes no liability for failure or delay in delivery due to acts of God, difference with workmen, local labor shortages, fire, flood or other casualty, government regulations, or edicts, shortages or failure of raw material, supplies, fuel, power or transportation, breakdown of equipment or any other causes beyond Balon's reasonable control.

CANCELLATION

Firm orders which have been accepted and entered shall not be subject to cancellation except by permission of and on the terms prescribed by Balon Corporation.

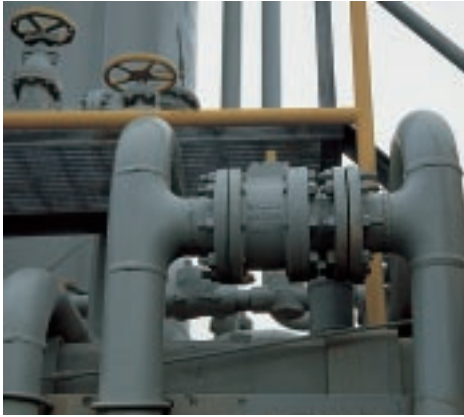
RETURN POLICY

Unused products may be returned only upon written consent of Balon's Oklahoma City office. Credit will be issued only on products which are received by Balon within one year after the date of original purchase and returned by prepaid freight at Buyer's expense together with a copy of Balon's Return Authorization Form and documents which verify the original purchase order number and original invoice number. A deduction will be made for any cost incurred by Balon in restoring products to saleable condition. Credit may be used only for the purchase of merchandise and is not subject to cash reimbursements or cash payments.

LIMITED WARRANTY

Balon warrants its products against defects in material and workmanship for one year from the original date of shipment. In the event a Balon product is defective in a manner covered by this Limited Warranty, Balon, at its option, will either replace or repair the product. Alternatively, if any stipulated remedy shall fail in its essential purpose, Balon shall refund the purchase price of such product as the sole and exclusive remedy for any and all claims whether in contract, strict liability, tort or otherwise. THIS LIMITED WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES AND REMEDIES, EXPRESS OR IMPLIED. BALON MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR NON-INFRINGEMENT. IN NO EVENT SHALL BALON BE LIABLE FOR ANY DAMAGES OF ANY KIND OR NATURE, INCLUDING BUT NOT LIMITED TO ANY CONSEQUENTIAL, EXEMPLARY, INDIRECT, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES AND IN NO EVENT SHALL BALON'S LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT(S). Products which have been subjected to abuse, alteration, misuse, neglect or unauthorized repair or installation, as determined solely by Balon, are not covered by this Limited Warranty. All alterations, additions, improvements or attachments to the product(s), not authorized in writing and signed by an authorized officer of Balon shall be deemed to be a waiver of this Limited Warranty and shall render this Limited Warranty null and void. This Limited Warranty may only be altered, amended, expanded, modified, rescinded or terminated in writing signed by an authorized officer of Balon.

Balon Installations



Balon Installations



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