

2014 Product Catalog





Ball Valves - Trunnion Series T Trunnion Mounted

Balon's new line of trunnion mounted ball valves include numerous patented features and improvements. Now available in 10" ANSI 150, 8" through 10" full port ANSI 300, 4" through 10" ANSI 600, and 4" ANSI 900. All in carbon steel standard, carbon steel NACE and stainless steel NACE trim configurations.

Ball Valves - Floating Series F Gear Operated

Balon includes gear operators as a standard feature in 4" full port and larger ANSI 600 class valves and 6" full port and larger in ANSI 150 and 300 classes. This is the valve to specify when steel valves are required.



Ball Valves - Floating Series F Flanged End

Available in sizes up to 6" and offered in ANSI 150, 300, 600, 900 and 1500 pressure classes. Because it is totally maintenance free, it eliminates the expense of lubrication and grease contamination in meters and other equipment. This valve is available in ductile iron and carbon steel. Also available in LF2 for low-temp serivce to -50° F.



Ball Valves - Floating Series F Threaded / Grooved

Available in sizes from 1" through 4", with pressures up to 5000 PSI WP. Firesafe design and built in locking device are standard. Bolted body construction protects against end adapter blowout. Offered in carbon steel, aluminum bronze and ductile iron. Also available in LF2 for low-temp service to -50° F.

Ball Valves - Floating Series S Threaded / Grooved

A threaded / grooved end valve available in pressures up to 3000 PSI WP. This valve is available in carbon steel, ductile iron and aluminum bronze. It replaces all threaded end plug valves at a competitive cost. Rugged locking device and fire-safe design are standard.



Available in ¼" through 1", this solid 316 stainless steel ball valve is the solution for corrosive applications. It is widely used in odorant applications. Pressures are up to 3000 PSI. Locking devices are standard on all Series LS.



Ball Valves - Floating Series F Fractional

Balon continues as an innovator in valve design with the extension of our Series F threaded end ball valve. Available in ¼" through 1"- 3000 PSI. Rugged bolted construction, 316 stainless steel ball and stem, and NACE standard. Also offered in LF2 for low-temp service to -50° F.



Balon's weld x weld and weld x flange are designed for buried service and feature patented heat dissipating fins, heavy duty stops, and rugged forged steel components. Available in sizes 2" through 6" in ANSI 150 and ANSI 300 classes. Locking devices and 2" square operating nut are standard.



Gear Operator

Rugged locking device and ductile iron gearbox are standard. With a stainless steel shaft and directional indicator, this gear operator is suitable for both above ground or buried service.



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Swing Check Valves Series C Threaded / Grooved

Perfect for applications where better corrosion resistance is a must. Ease of maintenance with replaceable seat and disc modules. NACE and 316 stainless steel disc are standard. Available in sizes 1" through 3", in carbon steel, ductile iron and aluminum bronze.

Swing Check Valves Series D Threaded / Grooved

This top entry swing check valve is available in ductile iron, carbon steel, and aluminum bronze, in sizes 1" through 4". Stainless steel discs are standard. The Series D is improved by design making bonnet removal simpler. Expect an extended life made possible by this valves patented Hinge-Works feature.



Swing Check Valves Thin and Long Pattern Wafer

With sizes ranging from 2" through 6", Balon's long and thin pattern wafer check valves are available in "hard to find" larger port sizes. NACE and a replaceable stainless steel disc are standard. Sturdy, rugged forged steel body construction. Also available with stainless steel seats.



Swing Check Valves Series C Flanged End

This flanged end carbon steel valve is available in sizes 2" through 6" ANSI Class 150, 300, and 600 with a working pressure of 285, 740, and 1480 respectively. NACE and stainless steel are standard, and the seat and disc module are completely replaceable.



Needle Valves Resilient Seated

precision metering in mind. It features a bonnet locking shroud and an innovative split This valve is available in both carbon steel and stainless steel. 316 stainless steel stems are standard.

seat design with integral lugs to prevent rotation.

This 6,000 PSI needle valve is built with

Needle Valves Metal Seated

This 10,000 PSI needle valve uses an indirect globe style flow path to allow for delicate adjustment at high pressures. It features a bonnet locking shroud. This valve is available in both carbon steel and stainless steel. 316 stainless steel stems are standard.

Balon: The Company



Founded in 1965 by Domer Scaramucci, Balon is a family owned company that has expanded in its almost five decades of operation from an initial 4,000 square foot building to a modern manufacturing facility that encompasses 1,400,000 square feet today.

Mr. Scaramucci's product designs for the oil and gas industry had long been recognized as inherently superior. It was this experience and success that spurred Mr. Scaramucci to start and structure a valve company that would focus on the integrity of the product as a reflection of the integrity of the Company itself. He envisioned higher quality, safer valves, and valves that would embody the

overall Company destiny: to be different by philosophy, better by design.

In the ensuing years, Balon has established a reputation for providing valves that have proven their superior quality and have become the standard by which all others are judged. Our skilled and committed workforce is our most valuable asset and their pride of craftsmanship sets Balon apart from its competition in our pursuit of uncompromising quality and total dedication to customer satisfaction and safety.

Balon is poised for the future as we continue to meet the ever evolving needs of our customers.

The Balon Mission



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

- who use them as our uppermost and defining goal.
- Provide our customers with valves that perform as promised, at a price reflective of their true value to the user.
- Meet the needs of our customers by maintaining a worldwide distributor Treat our vendors, customers, distributors network and a full-time staff of factory trained valve professionals in strategic geographical locations.
- Produce valves with the safety of those
 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.
 - and employees with equanimity and honesty.





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11.2013 Rev.1

Leading the Pack Through Innovation



By the time Domer Scaramucci founded Balon Corporation in 1965, he had already set the standard for valve technology with his patented valve designs for the oil and gas industry. Driven by a spirit for innovation with an emphasis on safety, he laid the ground work for the company that Balon has become today.

Balon's commitment to deliver the benefits of valve engineering and innovation to our customers is reflected through over two hundred patents that we have been issued throughout the United States and Canada. Our

founder's influence on our design engineers continues today as we increase our patent portfolio at an average rate of five patents per year.

Balon has secured a distinguished reputation as an unprecedented innovator of design advances that have become industry standards in ball, check and needle valves. We were first to develop many of the design enhancements that are the features of high quality valves and will continue to "Lead the Pack" through innovative design and state of the art manufacturing methods.

Safety is No Accident: We do it by Design

At Balon, safety and quality are uppermost in our minds when we design and build valves. This commitment is reflected in the fact that Balon has produced almost five decades of injury free service for countless users throughout the world.



Founder - Domer Scaramucci

We didn't achieve this exceptional safety record by avoiding tough applications. Instead, our safety record is the intentional result of a concerted effort to address possible hazards in the way we design and manufacture valves with an inherent margin of safety that surpasses others on the market.

A Balon valve should never be the cause of any accident. In each design change we pursue, we remain aware that our valves are integral to the safety of an operation, whether that operation is large or small. The fire safe features that are included in every Balon ball valve are a prime example of this philosophy.



In our design and manufacture of valves, we will always remember that our exceptional safety record is the pinnacle of our success.



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Customer Support Network



We understand that Balon products are expected to perform at the highest level in terms of safety and operation and to do so in a way that delivers maximum value to the end user. If our customers are to achieve the lowest cost of valve ownership, they must have the ability to communicate directly with factory representatives who are dedicated to complete customer satisfaction.

Balon employs full time, non-commissioned valve specialists throughout North America who concentrate on the development of long-

term relationships with valve distributors and valve owners.

Now and in the future, our distributors and product owners can rely on the prompt, personalized service that Balon has become known for.

For information regarding the nearest Balon representative or Balon distributor, please contact our factory in Oklahoma City by phone at (405) 677-3321, or by email at balon@balon.com.

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Balon Quality



It is Balon's goal to achieve customer satisfaction by providing valve products of clearly superior quality.

At Balon, superior products begin with innovative designs and quality, domestic raw materials. Balon cultivates long-term relationships exclusively with domestic suppliers who share our commitment to product integrity.



Raw materials are brought into our own manufacturing plant for processing. By taking full responsibility for the processing of all raw materials, Balon exercises total control over the Quality Assurance "QA" process. We have a plan for the inspection of every component following each machining operation. Tight tolerance bands are maintained in order to achieve dimensional consistency from part to part and from valve to valve.

We take an "eyes open" approach to quality at Balon. All employees - whether they are machining components, assembling valves, or painting and boxing valves - all employees must keep their eyes open to any situation that might compromise quality.



As important as QA is within our plant, our concern for quality does not stop at Balon's shipping dock. Dozens of Balon representatives sustain our commitment through thousands of customer contacts around the world every year. Customer feedback through our representatives helps us to achieve one of our primary objectives as a company, that of continuous product improvement.

Balon Corporation is licensed by the American Petroleum Institute to the API-6D Standard and by Bureau Veritas to Module H of the Pressure Equipment Directive (PED). Our QA program complies fully with the API Q1 Quality Standard.

At Balon Corporation, Quality Assurance is not merely a process. It is a culture that has been nurtured within our company from the beginning.

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Why Balon is American Made



Some may ask, "Why are Balon Valves made in America?"

We believe the proper question is, "Why would Balon want to manufacture valves anywhere else?"

The heart of America is where Balon humbly opened its doors, in 1965, on a 4000-square-foot shop that employed three persons.

America is where Balon grew, building safer, more rugged, maintenance-free valves that comprise domestic content only.

Prospective employees came to our door, in America, asking for an opportunity to join their futures to ours by becoming skilled craftsmen in our manufacturing plant.

Outstanding domestic foundries and forging houses respectfully asked to build relationships with us.

It was American valve users who first came to recognize that Balon Corporation provides an unmatched combination of product integrity and customer support.

Now, here in America, nearly five decades after our founding, Balon's manufacturing plant has grown to 1,400,000 square feet. We have brought together an excellent group of domestic raw materials suppliers

who understand our insistence on quality and performance. We have hundreds of dedicated employees who spare no effort to manufacture valves that meet our customers' highest expectations. Why change a winning formula?

Balon's diverse work force embodies skills, traditions, and a work ethic with origins around the globe. We honor and respect their cultures and the cultures of all countries. In fact, today, Balon sells and services valves in all regions of the world.

There was a time when "Made in America" meant exactly that. Now, to some, it means something less. It means, perhaps, importing components for final assembly within the borders of the United States.

Let's be clear. At Balon, "Made in America" means what it ought to mean. It means ordering raw materials from domestic foundries and forging houses only. It means standing firmly by our tradition of manufacturing valves that are designed, machined, assembled, and tested, from start to finish, in our own plant in Oklahoma City, Oklahoma.

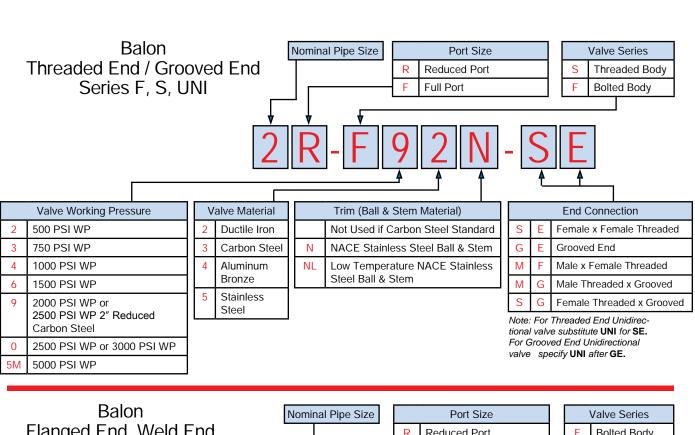
Settle for nothing less. Specify Balon by name.

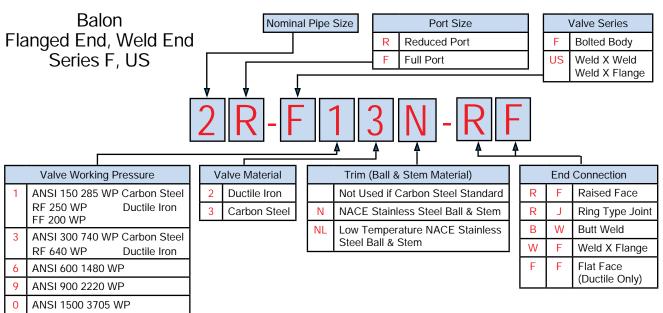
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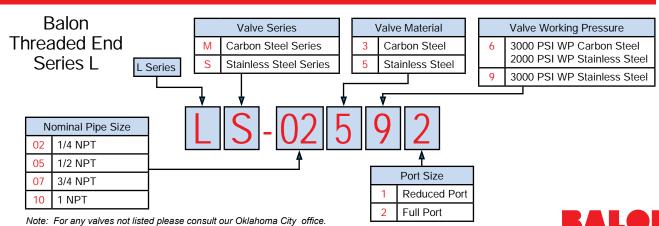
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Floating Ball Valve Identification Key

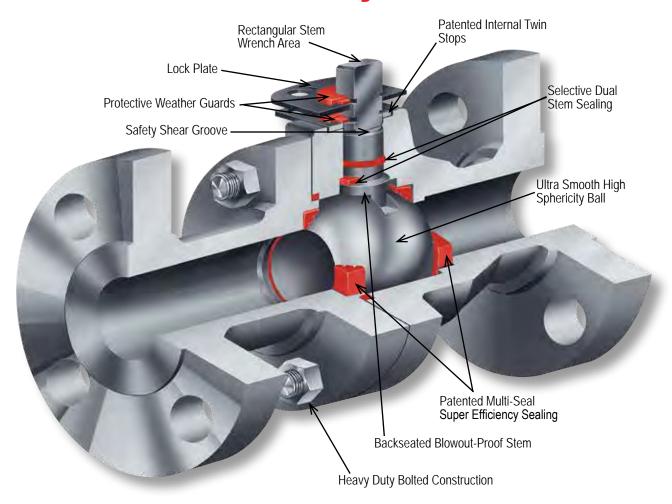






Ball Valve Cut-A-Way

The Balon Valve: Totally Advanced



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 better choice in ball valves. It is a refinement of features proven superior during the use of Balon Ball Valves in thousands of installations since 1965.

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 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 retainer and packing adjustment screws or bolts have been eliminated. Even the stops are internal and give dual precise stopping support during opening and closing. The stem area is grease-packed and protected by dual plastic weather guards to shield this vital area from external elements thereby eliminating the need for maintenance in the field.

Precise Manufacturing Control

Balon uses only the highest quality materials to assure the strength and uniformity necessary for applications where valves 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 multiseal's advanced sealing capability, provides the highest sealing efficiency and substantially reduced operating torque.



Multi-Seal

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.

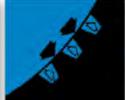




Ordinary Seals are damaged during shutoff. As flow is squeezed through fine-line opening, foreign particles are trapped. Complete shutoff grinds them into the seal. Results: premature damage, leakage, valve failure.



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 supertight "fluid seal rings." Each seal member, working with the next one. creates exclusive "staged differential pressure sealing," for the 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.



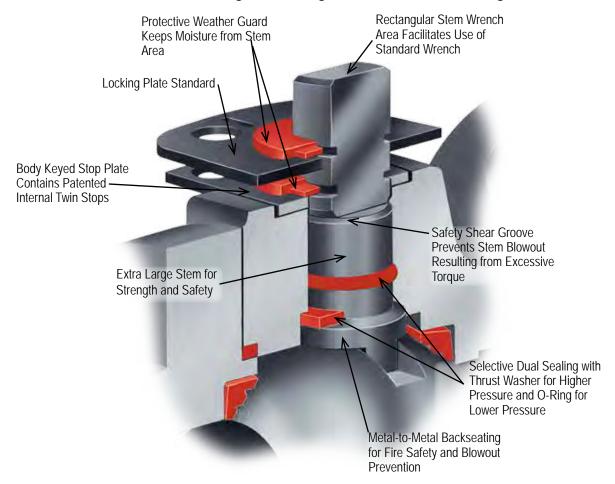
The Multi-Seal design permits selection of seal material best suited to abrasive, high and low pressure applications in toughest services. And the relief pockets formed by the tapered walls, with the series grooving, provide self-compensation for swell to permit easy turning, longlife operation. It takes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



Stem Design

An Advanced Concept in Stem Design

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



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 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.

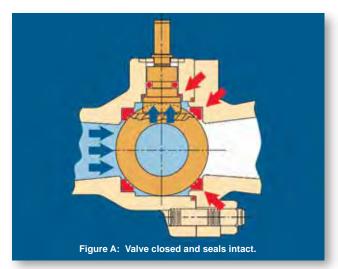
A Combination of Improvements

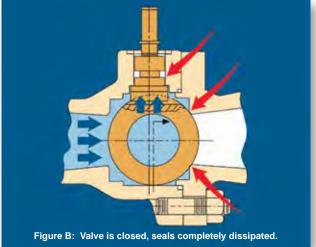
As shown here, the Balon design is simple, yet solves these problems. The clean, functional design of the stem assembly represents dramatic improvement in many ways over conventional designs. As is true of the overall Balon approach, the Balon stem does not present just one special modification or design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



Ball Valve Fire Safety

A More Complete Solution to Fire Safety





After many years of development and testing, Balon patented and introduced a ball valve that represented a dramatic turning point in valve safety. It was the first ball valve with the following:

- Backseated stem to prevent stem blowout
- Packless stem gland housing which eliminates stem adjustment mechanisms
- Stem shear groove to assure controlled stem damage above the backseat
- Full Metal 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 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 interior components of the valve, with seals intact, can be seen in Figure "A". In the closed position the ball is held off of the secondary metal seat position.

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 the metal shoulder machined in the valve body.

Secondary Stem Seal

In figure "B", the seals have been fully dissipated, the 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 metalto-metal sealing capability.

These very simple provisions are intended to provide full operational safety in our valves. Every attempt has been made in our design to produce a valve that is safe and affordable.

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



Series LM Carbon Steel

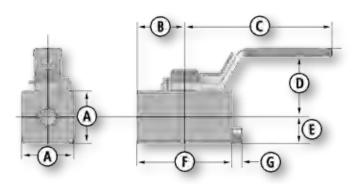
- Lever Operated Ball Valve
- 3000 PSI WP
- **■** 1/4" Through 1"
- Bolted Body Construction
- Multi-Seal Seats
- 316 Stainless Steel Ball and Stem Standard
- Locking Device Standard
- Maintenance Free

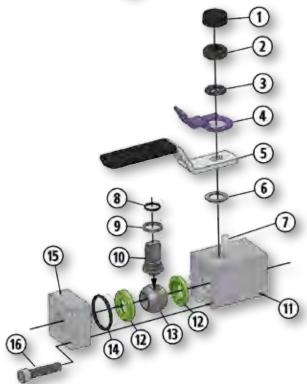


Material Description

ITEM	PART NAME	MATERIAL (STANDARD)
1	Weather Guard	Polyethylene
2	Stem Nut	Carbon Steel
3	Spacer	Carbon Steel
4	Lock Plate	Carbon Steel
5	Handle*	Carbon Steel
6	Stem Washer	Acetal
7	Stop Pin	Carbon Steel
8	Stem O-Ring	Buna-N
9	Stem Seal	TFE
10	Stem	316 Stainless Steel
11	Body	AISI 1215
12	Ball Seat	Nylon (TFE Optional)
13	Ball	316 Stainless Steel
14	Body Seal	Buna-N
15	End Adapter	AISI 1215
16	Body Bolts	ASTM A193 B7M

^{*} Handle and lock device are standard on all Series LM Ball Valves.





SIZE	CATALOG NUMBER STANDARD TRIM 316 SS BALL & STEM	PORT	Α	В	С	D	E	F	G	LBS.	Cv
.25x.37x.25	LM-02362	.37	1.25	1.12	3.5	1.62	.62	2.25	.25	1	-
.50x.37x.50	LM-05361	.37	1.25	1.12	3.5	1.62	.62	2.25	.25	1	6
.75x.75x.75	LM-07362	.75	2	1.81	4.87	2.25	1	3.62	.37	3.5	-
1x.75x1	LM-10361	.75	2	1.81	4.87	2.25	1	3.62	.37	3.5	30





Series F Carbon Steel

- Lever Operated Ball Valve
- 3000 PSI WP
- **■** ¼" Through 1"
- Bolted Body Construction
 - Forged Body and Adapter
 - Rugged Bolted Construction
 - NACE Standard
 - Low-Torque Operation
 - Multi-Seal Seats
 - Maintenance Free
 - Fire Safe Design

Material Description

ITEM	PART NAME	MATERIAL (NACE)
1	Weather Guard	Polyethylene
2	Stem Nut	Carbon Steel
3	Spacer	Carbon Steel
4	Lock Plate	Carbon Steel
5	Handle	Carbon Steel
6	Stem Washer	Acetal
7	Stop Pin	Carbon Steel
8	Stem O-Ring	Fluorocarbon
9	Stem Seal	TFE
10	Stem	316 Stainless Steel
11	Body	ASTM A105/A350 LF2
12	Seat	Nylon (TFE Optional)
13	Ball	316 Stainless Steel
14	Body Seal	Fluorocarbon
15	End Adapter	ASTM A105/A350 LF2
16	Body Bolts	ASTM A193 B7M/ A320 L7M

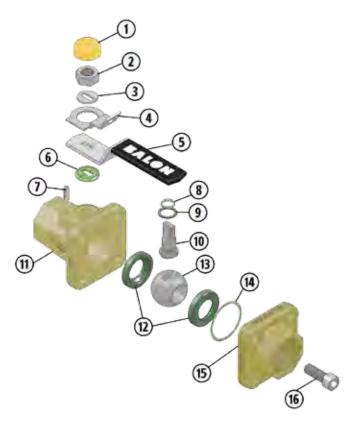
^{*} Handle and lock device are standard.

SIZE	CATALOG NUMBER NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	C	D	ш	F	LBS.	Cv
.25 x .375 x .25	1/4F-F03N-SE	.380	3000	1.75	1.12	3.50	1.88	0.88	2.25	1	-
.50 x .375 x .50	1/2R-F03N-SE	.380	3000	1.75	1.19	3.50	1.88	0.88	2.38	1	6
.75 x .75 x .75	3/4F-F03N-SE	.750	3000	2.62	1.81	4.87	2.56	1.31	3.62	3.2	-
1 x .75 x 1	1R-F03N-SE	.750	3000	2.62	1.88	4.87	2.56	1.31	3.75	3.3	30



Series F Carbon Steel

- Lever Operated Ball Valve
- 3000 PSI WP
- 1/4" Through 1"
- **■** Bolted Body Construction
 - LF2 Forged Steel for Low-Temp Service to -50° F
 - Forged Body and Adapter
 - Rugged Bolted Construction
 - NACE Standard
 - Low-Torque Operation
 - Multi-Seal Seats
 - Maintenance Free
 - Fire Safe Design

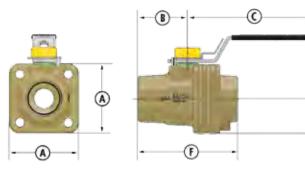




Material Description

ITEM	PART NAME	MATERIAL (NACE)
1	Weather Guard	Polyethylene
2	Stem Nut	Carbon Steel
3	Spacer	Carbon Steel
4	Lock Plate	Carbon Steel
5	Handle	Carbon Steel
6	Stem Washer	Acetal
7	Stop Pin	Carbon Steel
8	Stem O-Ring	Fluorocarbon
9	Stem Seal	TFE
10	Stem	316 Stainless Steel
11	Body	ASTM A350 LF2
12	Seat	Nylon (TFE Optional)
13	Ball	316 Stainless Steel
14	Body Seal	Fluorocarbon
15	End Adapter	ASTM A350 LF2
16	Body Bolts	ASTM A320 L7M

^{*} Handle and lock device are standard.



	CATALOG NUMBER										
SIZE	NACE TRIM 316 SS BALL & STEM	PORT	WP	А	В	С	D	Е	F	LBS.	Cv
.25 x .375 x .25	1/4F-F03NL-SE	.380	3000	1.75	1.12	3.50	1.88	0.88	2.25	1	- 1
.50 x .375 x .50	1/2R-F03NL-SE	.380	3000	1.75	1.19	3.50	1.88	0.88	2.38	1	6
.75 x .75 x .75	3/4F-F03NL-SE	.750	3000	2.62	1.81	4.87	2.56	1.31	3.62	3.2	-
1 x .75 x 1	1R-F03NL-SE	.750	3000	2.62	1.88	4.87	2.56	1.31	3.75	3.3	30





Series S Carbon Steel

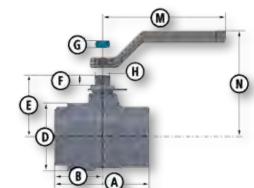
- Lever Operated Ball Valve
- To 5000 PSI WP
- 1" Through 2"

■ Threaded Body Construction

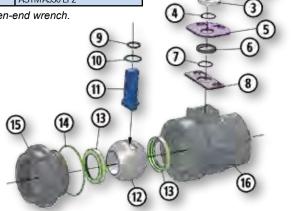
- Available in Low-Temp Service to -50° F
- Multi-Seal Seats
- Fire Safe Design
- NACE Option With 316 Stainless Steel Ball and Stem Available
- Rugged Locking Device StandardMaintenance Free
- **Material Description**

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron
2	Handle Bolt	Standard Hex Bolt	Standard Hex Bolt	Standard Hex Bolt
3	Weather Guard	Polyethylene	Polyethylene	Polyethylene
4	Lock Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
5	Lock Plate	Carbon Steel	Carbon Steel	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
10	Stem Seal	TFE	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
13	Ball Seat	Nylon/Acetal (TFE Optional)	Nylon/Acetal (TFE Optional)	Nylon/Acetal (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
15	End Adapter**	ASTM A105	ASTM A105	ASTM A350 LF2
16	Body**	ASTM A105	ASTM A105	ASTM A350 LF2

*Handle is optional. Balon valves can also be operated with a standard open-end wrench.



** Material for body and end adapter is AISI 4140 on 5000 PSI WP valve.



SIZE	CATALOG NUMBER STANDARD TRIM NACE TRIM LOW TEMP CARBON STEEL BALL & STEM BALL & STEM CATALOG NUMBER 10 10 10 10 10 10 10 10 10 10 10 10 10 1		PORT	WP	А	В	D	E	F	G	Н	M	N	LBS	HANDLE	Cv	
1x1x1	1F-S03-SE	1F-S03N-SE	1F-S03NL-SE	1	3000	4	2	2.75	2.37	.50	.340	.685	4.37	2	4.5	P-333-CS	-
2x1.5x2	2R-S93-SE	2R-S93N-SE	N/A	1.5	2500	5.5	2.75	4.25	3.62	.75	.434	.873	7.25	5.25	14	P-4128-CS	125
2x1.5x2	2R-S03-SE	2R-S03N-SE	N/A	1.5	3000	5.5	2.75	4.25	3.62	.75	.434	.873	7.25	5.25	14	P-4128-CS	125
2x1.5x2	2R-S5M-SE	2R-S5MN-SE	N/A	1.5	5000	5.5	2.75	4.25	3.62	.75	.434	.873	10.25	5.62	14	P-4129-CS	125
2x2x2	2F-S93-SE	2F-S93N-SE	N/A	2	2500	6	3.12	4.87	4.37	.75	.497	.998	10.25	6.20	20	P-4129-CS	-
2x2x2	2F-S03-SE	2F-S03N-SE	N/A	2	3000	6	3.12	4.87	4.37	.75	.497	.998	10.25	6.20	20	P-4129-CS	-



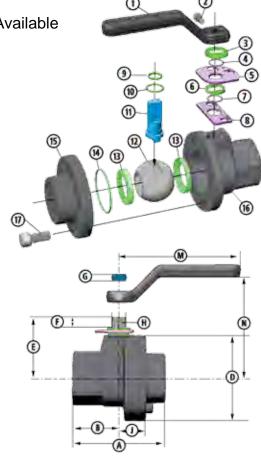
Series F Carbon Steel

- Lever Operated Ball Valve
- To 5000 PSI WP
- 1" Through 4"
- Bolted Body Construction
 - Available in LF2 Forged Steel for Low-Temp Service to -50° F
 - Multi-Seal Seats
 - Bolted Body Protects Against End Adapter Blowout
 - Fire Safe Design
 - NACE Option With 316 Stainless Steel Ball and Stem Available
 - Rugged Locking Device Standard
 - Maintenance Free

Material Description

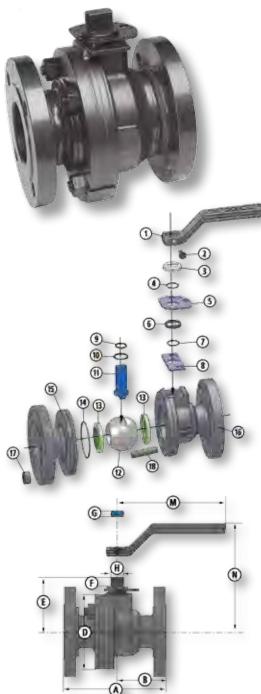
ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron
2	Handle Bolt	Standard Hex Bolt	Standard Hex Bolt	Standard Hex Bolt
3	Weather Guard	Polyethylene	Polyethylene	Polyethylene
4	Lock Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
5	Lock Plate	Carbon Steel	Carbon Steel	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
10	Stem Seal	TFE	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
13	Ball Seat	Nylon/Acetal (TFE Optional)	Nylon/Acetal (TFE Optional)	Nylon/Acetal (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
15	End Adapter	ASTM A105	ASTM A105	ASTM A350LF2
16	Body	ASTM A105	ASTM A105	ASTM A350LF2
17	Body Bolts	ASTM A193 B7M	ASTM A193 B7M	A320L7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.



	CA	TALOG NUMBER																
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	LOW TEMP 316 SS BALL & STEM	PORT	WP	Α	В	D	Ε	F	G	Н	J	M	N	LBS.	HANDLE	Cv
1x1x1	1F-F93-SE	1F-F93N-SE	N/A	1	2500	3.87	1.93	3.37	2.37	.50	.340	.685	1.12	4.37	2	4.3	P-333-CS	[-]
1x1x1	1F-F03-SE	1F-F03N-SE	1F-F03NL-SE	1	3000	3.87	1.93	3.37	2.37	.50	.340	.685	1.12	4.37	2	4	P-333-CS	[-]
1.5x1.5x1.5	1.5F-F03-SE	1.5F-F03N-SE	N/A	1.5	3000	5.25	2.62	5.12	3.62	.75	.434	.873	1.62	7.25	5.25	12.8	P-4128-CS	-
2x1.5x2	2R-F93-SE	2R-F93N-SE	N/A	1.5	2500	5.50	2.75	5.12	3.62	.75	.434	.873	1.62	7.25	5.25	13.5	P-4128-CS	125
2x1.5x2	2R-F03-SE	2R-F03N-SE	2R-F03NL-SE	1.5	3000	5.50	2.75	5.12	3.62	.75	.434	.873	1.62	7.25	5.25	13	P-4128-CS	125
2x1.5x2	2R-F5M-SE	2R-F5MN-SE	N/A	1.5	5000	6	3	6	3.62	.75	.434	.873	1.75	10.25	5.62	20	P-412I-CS	125
2x2x2	2F-F93-SE	2F-F93N-SE	N/A	2	2000	5.75	2.87	6.12	4.37	.87	.497	.998	2	10.25	6.20	20	P-4129-CS	-
2x2x2	2F-F03-SE	2F-F03N-SE	2F-F03NL-SE	2	2500	5.75	2.87	6.12	4.37	.87	.497	.998	2	10.25	6.20	20	P-4129-CS	-
3x2x3	3R-F93-SE	3R-F93N-SE	3R-F93NL-SE	2	2000	7.62	3.81	6.87	4.37	.87	.497	.998	2.06	10.25	6.20	32	P-4129-CS	180
3x3x3	3F-F63-SE	3F-F63N-SE	3F-F63NL-SE	3	1500	8.37	4.18	8	5.75	1.06	.747	1.373	2.375	20	7.75	46	P-4127-DI	-
4x3x4	4R-F63-SE	4R-F63N-SE	4R-F63NL-SE	3	1500	8.87	4.43	8	5.75	1.06	.747	1.375	2.375	20	7.75	47	P-4127-DI	500





Series F Carbon Steel

- Lever Operated Ball Valve
- ANSI Class 150 (285 PSI WP)
- 2" Through 6"
- Bolted Body Construction
- Available in Low-Temp Service to -50° F
- Multi-Seal Seats
- Fire Safe Design
- NACE Option with 316 Stainless Steel Ball and Stem Available
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Handle*	Carbon Steel/	Carbon Steel/	Carbon Steel/
		Ductile Iron	Ductile Iron	Ductile Iron
2	Handle Bolt	Standard Hex Bolt	Standard Hex Bolt	Standard Hex Bolt
3	Weather Guard	Polyethylene	Polyethylene	Polyethylene
4	Lock Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
5	Lock Plate	Carbon Steel	Carbon Steel	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
10	Stem Seal	TFE	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
12	Ball	Carbon Steel	316 Stainless Steel	316 Stainless Steel
		Nickel Chrome Plated		
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
15	End Adapter	ASTM A216 WCB/A105	ASTM A216	ASTM A352
			WCB/A105	LCC/A350 LF2
16	Body	ASTMA216 WCB/A105	ASTM A216 WCB/A105	ASTM A352
				LCC/A350 LF2
17	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

SIZE	CA STANDARD TRIM CARBON STEEL BALL & STEM	TALOG NUMBER NACE TRIM 316 SS BALL & STEM	LOW TEMP 316 SS BALL & STEM	PORT	А	В	D	E	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-F13-RF	2R-F13N-RF	2R-F13NL-RF	1.5	7	3.25	5	3.62	.75	.434	.873	7.25	5.25	21.5	P-4128-CS	125
2x2x2	2F-F13-RF	2F-F13N-RF	2F-F13NL-RF	2	7	2.75	6	4.37	.87	.497	.998	10.25	6.20	28	P-4129-CS	-
3x2x3	3R-F13-RF	3R-F13N-RF	3R-F13NL-RF	2	8	3	6	4.37	.87	.497	.998	10.25	6.20	40	P-4129-CS	200
3x3x3	3F-F13-RF	3F-F13N-RF	3F-F13NL-RF	3	8	3.56	7.50	5.75	1.06	.747	1.373	20	7.75	54	P-4127-DI	-
4x3x4	4R-F13-RF	4R-F13N-RF	4R-F13NL-RF	3	9	4.06	7.87	5.75	1.06	.747	1.373	20	7.75	70	P-4127-DI	525
4x4x4	4F-F13-RF	4F-F13N-RF	4F-F13NL-RF	4	9	4.06	9	6.37	1.06	.747	1.373	20	8.37	80	P-4127-DI	-
6x4x6	6R-F13-RF	6R-F13N-RF	N/A	4	10.5	4.81	9.37	6.37	1.06	.747	1.373	20	8.37	102	P-4127-DI	800



Series F Carbon Steel

- Gear Operated Ball Valve
- ANSI Class 150 (285 PSI WP)
- 6" Through 10"
- **■** Bolted Body Construction
 - Available in Low-Temp Service to -50° F
 - Exclusive Balon Gearbox
 - Suitable for Buried Service
 - ✓ Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - Integral Locking Device Standard
 - Manufactured in our Oklahoma City Plant
 - Multi-Seal Seats
 - Fire Safe Design
 - NACE Option with 316 Stainless Steel Ball and Stem Available
 - Maintenance Free



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
2	Hand Wheel	Carbon Steel	Carbon Steel	Carbon Steel
3	Drive Pin	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
4	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
5	Stem Retainer Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
6	Mounting Plate	Ductile Iron	Ductile Iron	Ductile Iron
7	Mounting Plate Screws	Alloy Steel	Alloy Steel	Alloy Steel
8	Lock Washers	Carbon Steel	Carbon Steel	Carbon Steel
9	Mounting Screws	Alloy Steel	Alloy Steel	Alloy Steel
10	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
11	Stem Seal	TFE	TFE	TFE
12	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
13	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
14	Body	ASTMA216 WCB/A105	ASTMA216 WCB/A105	ASTM A352 LCC/A350 LF2
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Ball Seats	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Op- tional)
17	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
18	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
19	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M

SIZE	CATALOG NUMBER STANDARD TRIM NACE TRIM LOW TEMP				Α	В	С	D	Е	F	G	LBS.	Cv
	CARBON STEEL BALL & STEM	316 SS BALL & STEM	316 SS BALL & STEM										
6x6x6	6F-F13-RF	6F-F13N-RF	6F-F13NL-RF	6	10.5	4.50	4	9.75	13	9	11.19	230	-
6x6x6	6F-F13-RF15.5	6F-F13N-RF15.5	N/A	6	15.5	4.50	4	9.75	13	9	11.19	255	-
8x6x8	8R-F13-RF	8R-F13N-RF	N/A	6	11.5	5.12	4	9.75	13	9	11.19	285	2200
8x8x8	8F-F13-RF	8F-F13N-RF	8F-F13NL-RF	8	18	8	5.25	12	20	11.5	13.75	520	-
10x8x10	10R-F13-RF	10R-F13N-RF	N/A	8	21	9	5.25	12	20	11.5	13.75	580	4200





Series F Carbon Steel

- **■** Lever Operated Ball Valve
- ANSI Class 300 (740 PSI WP)
- 2" Through 6"
- Bolted Body Construction
- Available in Low-Temp Service to -50° F
- Multi-Seal Seats
- Fire Safe Design
- NACE Option With 316 Stainless Steel Ball and Stem Available
- Rugged Locking Device Standard
- Maintenance Free



ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron
2	Handle Bolt	Standard Hex Bolt	Standard Hex Bolt	Standard Hex Bolt
3	Weather Guard	Polyethylene	Polyethylene	Polyethylene
4	Lock Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
5	Lock Plate	Carbon Steel	Carbon Steel	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon- Spring Steel	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
10	Stem Seal	TFE	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
15	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
16	Body	ASTMA216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
17	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

SIZE	CA STANDARD TRIM CARBON STEEL BALL & STEM	TALOG NUMBER NACE TRIM 316 SS BALL & STEM	LOW TEMP 316 SS BALL & STEM	PORT	А	В	D	E	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-F33-RF	2R-F33N-RF	2R-F33NL-RF	1.5	8.50	4	5	3.62	.75	.434	.873	7.25	5.25	29	P-4128-CS	125
2x2x2	2F-F33-RF	2F-F33N-RF	2F-F33NL-RF	2	8.50	3.75	6.50	4.37	.87	.497	.998	10.25	6.20	36	P-4129-CS	-
3x2x3	3R-F33-RF	3R-F33N-RF	3R-F33NL-RF	2	11.12	4.56	6.50	4.37	.87	.497	.998	10.25	6.20	60	P-4129-CS	200
3x3x3	3F-F33-RF	3F-F33N-RF	3F-F33NL-RF	3	11.12	5.12	8	5.75	1.06	.747	1.373	20	7.75	76	P-4127-DI	-
4x3x4	4R-F33-RF*	4R-F33N-RF*	4R-F33NL-RF*	3	12	5.56	8	5.75	1.06	.747	1.373	20	7.75	98	P-4127-DI	525
4x4x4	4F-F33-RF*	4F-F33N-RF*	4F-F33NL-RF*	4	12	5.50	9.37	6.37	1.06	.747	1.373	20	8.37	128	P-4127-DI	-
6x4x6	6R-F33-RF*	6R-F33N-RF*	N/A	4	15.87	7.44	10	6.37	1.06	.747	1.373	20	8.37	196	P-4127-DI	800

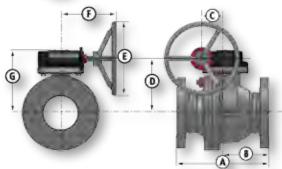
^{*} Also available with Gear Operator.



Series F Carbon Steel

- Gear Operated Ball Valve
- ANSI Class 300 (740 PSI WP)
- 6" Through 8"
- Bolted Body Construction
- Available in Low-Temp Service to -50° F
- Exclusive Balon Gearbox
 - Suitable for Buried Service
 - Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - Integral Locking Device Standard
 - ✓ Manufactured in our Oklahoma City Plant
- Multi-Seal Seats
- Fire Safe Design
- NACE Option With316 Stainless Steel Ball and Stem Available







ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
2	Hand Wheel	Carbon Steel	Carbon Steel	Carbon Steel
3	Drive Pin	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
4	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
5	Stem Retainer Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
6	Mounting Plate	Ductile Iron	Ductile Iron	Ductile Iron
7	Mounting Plate Screws	Alloy Steel	Alloy Steel	Alloy Steel
8	Lock Washers	Carbon Steel	Carbon Steel	Carbon Steel
9	Mounting Screws	Alloy Steel	Alloy Steel	Alloy Steel
10	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
11	Stem Seal	TFE	TFE	TFE
12	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
13	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
14	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Ball Seats	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Optional)
17	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
18	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
19	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M

	C	ATALOG NUMBER											
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	LOW TEMP 316 SS BALL & STEM	PORT	А	В	С	D	Ε	F	G	LBS.	Cv
6x6x6	6F-F33-RF	6F-F33N-RF	6F-F33NL-RF	6	15.87	7.38	4	9.75	13	9	11.19	307	-
8x6x8	8R-F33-RF	8R-F33N-RF	N/A	6	16.50	7.69	4	9.75	13	9	11.19	409	2200





Series F Carbon Steel

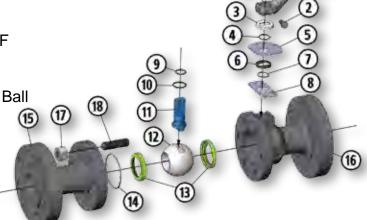
- Lever Operated Ball Valve
- ANSI Class 600 (1480 PSI WP)
- 2" Through 4"
- Bolted Body Construction

■ Available in Low-Temp Service to -50° F

- Multi-Seal Seats
- Fire Safe Design

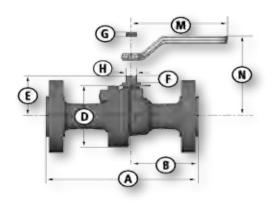
NACE Option with 316 Stainless Steel Ball and Stem Available

- Rugged Locking Device Standard
- Maintenance Free



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron	Carbon Steel/Ductile Iron
2	Handle Bolt	Standard Hex Bolt	Standard Hex Bolt	Standard Hex Bolt
3	Weather Guard	Polyethylene	Polyethylene	Polyethylene
4	Lock Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
5	Lock Plate	Carbon Steel	Carbon Steel	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
10	Stem Seal	TFE	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
15	End Adapter	ASTMA216 WCB/A105	ASTMA216 WCB/A105	ASTM A352 LCC/A350 LF2
16	Body	ASTMA216 WCB/A105	ASTMA216 WCB/A105	ASTM A352 LCC/A350 LF2
17	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M



SIZE	CAT STANDARD TRIM	ALOG NUMBE	R LOW TEMP	PORT	1	4		3	7				СН	N/A	N	LBS.	HANDLE	Cv
SIZE	CARBON STEEL BALL & STEM	316 SS BALL & STEM	316 SS BALL & STEM	PURI	RF	RTJ	RF	RTJ	υ	E	_	G		IVI	IN.	LBS.	HANDLE	CV
2x1.5x2	2R-F63	2R-F63N	2R-F63NL-RF	1.5	11.5	11.62	5.06	5.12	5.37	3.62	.75	.434	.873	7.25	5.25	37	P-4128-CS	125
2x2x2	2F-F63	2F-F63N	2F-F63NL-RF	2	11.5	11.62	4.75	4.81	6.50	4.37	.87	.497	.998	10.25	6.20	48	P-4129-CS	-
3x2x3	3R-F63	3R-F63N	3R-F63NL-RF	2	14	14.12	5.75	5.81	6.62	4.37	.87	.497	.998	10.25	6.75	69	P-4129-CS	200
3x3x3	3F-F63*	3F-F63N*	3F-F63NL-RF*	3	14	14.12	5.50	5.56	8	5.75	1.06	.747	1.373	20	7.75	90	P-4127-DI	-
4x3x4	4R-F63*	4R-F63N*	4R-F63NL-RF*	3	17	17.12	6.87	6.93	8.62	5.75	1.06	.747	1.373	20	7.75	154	P-4127-DI	525

^{*} Also available with Gear Operator.



^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

Series F Carbon Steel

- Gear Operated Ball Valve
- ANSI Class 600 (1480 PSI WP)
- 4" Through 8"
- Bolted Body Construction
 - Available in Low-Temp Service to -50° F
 - Exclusive Balon Gearbox
 - ✓ Suitable for Buried Service
 - Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - ✓ Integral Locking Device Standard
 - Manufactured in our Oklahoma City Plant
 - Multi-Seal Seats
 - Fire Safe Design

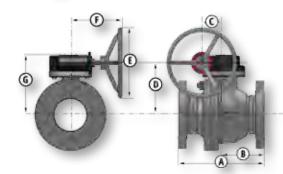
■ NACE Option with 316 Stainless Steel Ball and Stem Available

■ Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)	LOW TEMP (NACE)
1	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
2	Hand Wheel	Carbon Steel	Carbon Steel	Carbon Steel
3	Drive Pin	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
4	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
5	Stem Retainer Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
6	Mounting Plate	Ductile Iron	Ductile Iron	Ductile Iron
7	Mounting Plate Screws	Alloy Steel	Alloy Steel	Alloy Steel
8	Lock Washers	Carbon Steel	Carbon Steel	Carbon Steel
9	Mounting Screws	Alloy Steel	Alloy Steel	Alloy Steel
10	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
11	Stem Seal	TFE	TFE	TFE
12	Stem	Carbon Steel	316 Stainless Steel	316 Stainless Steel
13	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
14	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A352 LCC/A350 LF2
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Ball Seats	Nylon (TFE Optional)	Nylon (TFE Optional)	Nylon (TFE Optional)
17	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel	316 Stainless Steel
18	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A320 7M
19	Body Bolts	ASTM A193 B7	ASTM A193 B7M	ASTM A320 L7M





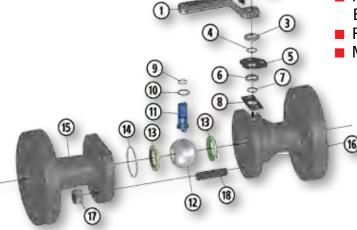
	CATALOG NUMBER STANDARD TRIM NACE TRIM LOWIFMP					Д		Я							
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	LOW TEMP 316 SS BALL & STEM	PORT	RF	RTJ	RF	RTJ	С	D	Ε	F	G	LBS.	Cv
4x4x4	4F-F63	4F-F63N	4F-F63NL-RF	4	17	17.12	7.37	7.43	3	8.19	13	9	9.69	238	-
6x4x6	6R-F63	6R-F63N	6R-F63NL-RF	4	22	22.12	9.88	9.25	3	8.19	13	9	9.69	340	800
6x6x6	6F-F63	6F-F63N	6F-F63NL-RF	6	22	22.12	8.62	8.68	4	9.75	20	11	11.19	440	-
8x6x8	8R-F63	8R-F63N	8R-F63NL-RF	6	26	26.12	10.62	10.68	4	9.75	20	11	11.19	570	2200





Series F Carbon Steel

- Lever Operated Ball Valve
- ANSI Class 900 (2220 PSI WP)
- **2**"
- **■** Bolted Body Construction
- Multi-Seal Seats
- Fire Safe Design
- NACE Option With 316 Stainless Steel Ball and Stem Available
- Rugged Locking Device Standard
- Maintenance Free



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
TIEIVI			· · ·
1	Handle*	Carbon Steel	Carbon Steel
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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel	316 Stainless Steel
		Nickel Chrome Plated	
13	Ball Seat	Nylon	Nylon
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105
16	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105
17	Nuts	ASTM A194 2H	ASTM A194 2HM
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M

SIZE	CATALOG I STANDARD TRIM	CATALOG NUMBER NDARD TRIM NACE TRIM PORT A B D E F G H M N LE		LRS	HANDLE	Cv											
SIZL	CARBON STEEL BALL & STEM	316 SS BALL & STEM	TOKI	RF	RTJ	RF	RTJ	D			G		IVI		LDS.	HANDLE	CV
2x1.5x2	2R-F93	2R-F93N	1.5	14.50	14.62	6.31	6.37	6.25	3.62	.75	.434	.873	7.25	5.25	75	P-4128-CS	125
2x2x2	2F-F93	2F-F93N	2	14.50	14.62	6	6.06	7	4.37	.87	.497	.998	10.25	6.20	81	P-4129-CS	-

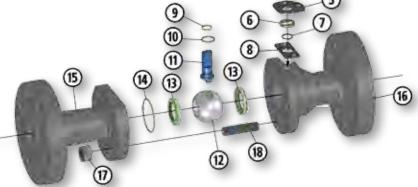


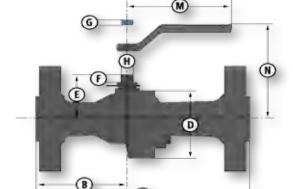
^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

Series F Carbon Steel

- Lever Operated Ball Valve
- ANSI Class 1500 (3705 PSI WP)
- **2**"
- **■** Bolted Body Construction
- Multi-Seal Seats
- Fire Safe Design
- NACE Option With 316 Stainless Steel Ball and Stem Available
- Rugged Locking Device Standard
- Maintenance Free







Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel	Carbon Steel
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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
13	Ball Seat	Acetal	Acetal
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105
16	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105
17	Nuts	ASTM A194 2H	ASTM A194 2HM
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

SIZE	CATALOG NUMBER STANDARD TRIM NACE TRIM		PORT	I	4	I	3	D	F	F	G	н	M	N	LRS	HANDLE	Cv
SIZL	CARBON STEEL BALL & STEM	316 SS BALL & STEM	TOKT	RF	RTJ	RF	RTJ	D			0		IVI	1,	LD3.	HANDLL	
2x1.5x2	2R-F03	2R-F03N	1.5	14.5	14.62	6.31	6.37	6.25	3.62	.75	.434	.873	7.25	5.25	75	P-4129-CS	125

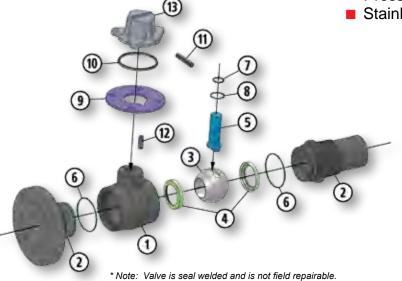


Weld X Flange Connection

Series US Weld X Flange Carbon Steel

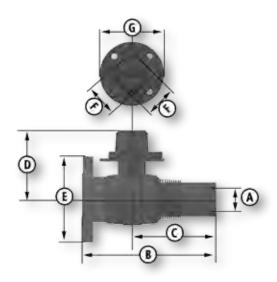


- Weld X Flange Ball Valve
- ANSI Class 150 (285 PSI WP)
- 2" Through 4"
- Multi-Seal Seats
- True Full Port for Hot Tap Service
- Heat Dissipating Fins for Protection of Seats and Seals During Welding
- Rugged Stainless Steel Lock Plate
- Heavy Duty Forged Steel Components
- Solid Balls for Reduction of Turbulence and Pressure Drop
- Stainless Steel Stem Standard



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)
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	Polyethylene
11	Roll Pin	Stainless Steel
12	Stop Pin	Stainless Steel
13	Drive Nut - 2" Square	Ductile Iron



SIZE	CATALOG	PORT/A	В	С	D	Ε	F	G	LBS.	Cv
2x1.5x2	2R-US13-WF	1.5	9.4	5.9	5	6	2	4.5	20	148
2x2x2	2F-US13-WF	2	10	5.9	5.50	6	2	4.5	28	-
3x3x3	3F-US13-WF	3	11.3	5.9	6.75	7.5	2	4.5	53	-
4x3x4	4R-US13-WF	3	10.9	6.4	6.75	9	2	4.5	60	662
4x4x4	4F-US13-WF	4	12.1	6.4	7.50	9	2	4.5	81	-

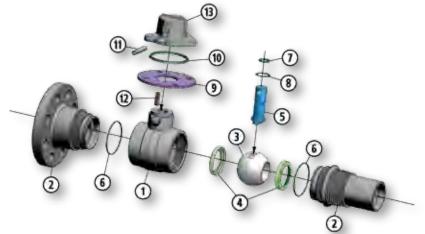


Weld X Flange Connection

Series US Weld X Flange Carbon Steel

- Weld X Flange Ball Valve
- ANSI Class 300 (740 PSI WP)
- 2" Through 4"
- Multi-Seal Seats
- True Full Port for Hot Tap Service
- Heat Dissipating Fins for Protection of Seats and Seals During Welding
- Rugged Stainless Steel Lock Plate
- Heavy Duty Forged Steel Components
- Solid Balls for Reduction of Turbulence and Pressure Drop
- Stainless Steel Stem Standard





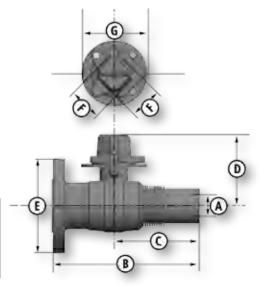
Material Description

ITEM	PART NAME	MATERIAL (STANDARD)
	TAIXT NAIVIL	
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	Polyethylene
11	Roll Pin	Stainless Steel
12	Stop Pin	Stainless Steel
13	Drive Nut - 2" Square	Ductile Iron

Dimensional Data

SIZE	CATALOG	PORT/A	В	С	D	E	F	G	LBS.	Cv
2x1.5x2	2R-US33-WF	1.5	10.15	5.9	5	6.50	2	4.5	23	148
2x2x2	2F-US33-WF	2	10.2	5.9	5.50	6.50	2	4.5	28	-
3x3x3	3F-US33-WF	3	11.5	5.9	6.75	8.25	2	4.5	56	- 1
4x3x4	4R-US33-WF	3	12.4	6.4	6.75	10	2	4.5	70	662
4x4x4	4F-US33-WF	4	12.4	6.4	7.50	10	2	4.5	91	-

* Note: Valve is seal welded and is not field repairable.





Weld X Weld Connection

Series US Weld X Weld Carbon Steel

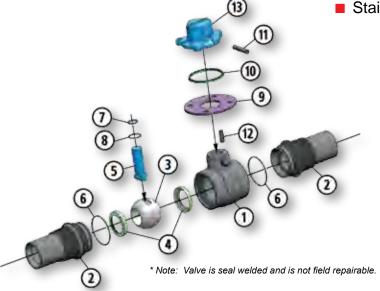




■ 2" Through 6"

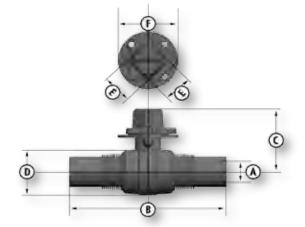


- Heat Dissipating Fins for Protection of Seats and Seals During Welding
- Rugged Stainless Steel Lock Plate
- Heavy Duty Forged Steel Components
- Solid Balls for Reduction of Turbulence and Pressure Drop
- Stainless Steel Stem Standard





ITEM	PART NAME	MATERIAL (STANDARD)
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	Polyethylene
11	Roll Pin	Stainless Steel
12	Stop Pin	Stainless Steel
13	Drive Nut - 2" Square	Ductile Iron



SIZE	CATALOG	PORT/A	В	С	D	Е	F	LBS.	Cv
2x1.5x2	2R-US13-BW	1.5	11.8	5	3.62	2	4.5	17	148
2x2x2	2F-US13-BW	2	11.8	5.50	4.50	2	4.5	23	-
3x3x3	3F-US13-BW	3	11.8	6.75	6.25	2	4.5	44	-
4x3x4	4R-US13-BW	3	12.8	6.75	6.25	2	4.5	45	662
4x4x4	4F-US13-BW	4	12.8	7.50	6.87	2	4.5	69	-
6x4x6	6R-US13-BW	4	13.8	7.50	6.87	2	4.5	71	800



Weld X Weld Connection

Series US Weld X Weld Carbon Steel

- Weld End Ball Valve
- ANSI Class 300 (740 PSI WP)
- 2" Through 6"
- Multi-Seal Seats
- Heat Dissipating Fins for Protection of Seats and Seals During Welding
- Rugged Stainless Steel Lock Plate
- Heavy Duty Forged Steel Components
- Solid Balls for Reduction of Turbulence and Pressure Drop
- Stainless Steel Stem Standard

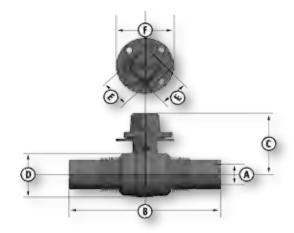


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 * Note: Valve is seal welded and is not field repairable.

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)
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	Polyethylene
11	Roll Pin	Stainless Steel
12	Stop Pin	Stainless Steel
13	Drive Nut - 2" Square	Ductile Iron

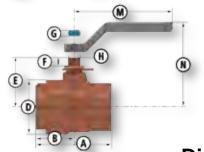
SIZE	CATALOG	PORT/A	В	С	D	E	F	LBS.	Cv
2x1.5x2	2R-US33-BW	1.5	11.8	5	3.62	2	4.5	17	148
2x2x2	2F-US33-BW	2	11.8	5.50	4.50	2	4.5	23	-
3x3x3	3F-US33-BW	3	11.8	6.75	6.25	2	4.5	44	-
4x3x4	4R-US33-BW	3	12.8	6.75	6.25	2	4.5	45	662
4x4x4	4F-US33-BW	4	12.8	7.50	6.87	2	4.5	69	-
6x4x6	6R-US33-BW	4	13.8	7.50	6.87	2	4.5	71	800











Series S Ductile Iron

- **■** Lever Operated Ball Valve
- To 2000 PSI WP
- 1" Through 4"
- Threaded Body Construction
- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	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

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

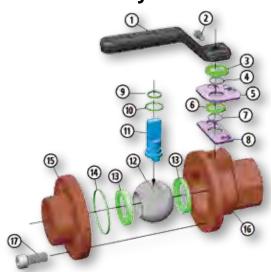
	CATALOG	NUMBER														
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	D	Е	F	G	Н	M	N	LBS.	HANDLE	Cv
1x1x1	1F-S42-SE	1F-S42N-SE	1	1000	3.87	1.93	2.25	2.37	.50	.340	.685	4.37	2	3	P-333-CS	-
1x1x1	1F-S62-SE	1F-S62N-SE	1	1500	3.87	1.93	2.25	2.37	.50	.340	.685	4.37	2	3	P-333-CS	-
1x1x1	1F-S92-SE	1F-S92N-SE	1	2000	4	2	2.50	2.37	.50	.340	.685	4.37	2	4	P-333-CS	-
2x1.5x2	2R-S32-SE	2R-S32N-SE	1.5	750	5.25	2.62	3.37	3.62	.62	.434	.873	7.25	5.25	8	P-4128-CS	125
2x1.5x2	2R-S42-SE	2R-S42N-SE	1.5	1000	5.25	2.62	3.37	3.62	.75	.434	.873	7.25	5.25	8	P-4128-CS	125
2x1.5x2	2R-S62-SE	2R-S62N-SE	1.5	1500	5.25	2.62	3.37	3.62	.75	.434	.873	7.25	5.25	8.5	P-4128-CS	125
2x1.5x2	2R-S92-SE	2R-S92N-SE	1.5	2000	5.50	2.75	3.75	3.62	.75	.434	.873	7.25	5.25	10	P-4128-CS	125
2x2x2	2F-S32-SE	2F-S32N-SE	2	750	5.75	2.87	4.25	4.37	.75	.497	.998	10.25	6.20	12	P-4129-CS	-
2x2x2	2F-S42-SE	2F-S42N-SE	2	1000	5.75	2.87	4.25	4.37	.75	.497	.998	10.25	6.20	13	P-4129-CS	-
2x2x2	2F-S62-SE	2F-S62N-SE	2	1500	6	3	4.75	4.37	.75	.497	.998	10.25	6.20	15	P-4129-CS	-
2x2x2	2F-S92-SE	2F-S92N-SE	2	2000	6	3	4.75	4.37	.75	.497	.998	10.25	6.20	16	P-4129-CS	-
3x2x3	3R-S32-SE	3R-S32N-SE	2	750	7.25	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17.8	P-4129-CS	180
3x2x3	3R-S62-SE	3R-S62N-SE	2	1500	7.25	3.62	5	4.37	.75	.497	.998	10.25	6.20	22	P-4129-CS	180
3x2.5x3*	3R-S42-SE	3R-S42N-SE	2.5	1000	7.62	3.93	5.25	5.25	1.06	.622	1.248	16	5.75	24	P-4126-DI	400
3x3x3	3F-S32-SE	3F-S32N-SE	3	750	8	4	6	5.75	.87	.747	1.373	20	7.75	31	P-4127-DI	-
3x3x3	3F-S42-SE	3F-S42N-SE	3	1000	8.75	4.37	6	5.75	.87	.747	1.373	20	7.75	35	P-4127-DI	-
4x3x4	4R-S32-SE	4R-S32N-SE	3	750	8.75	4.37	6	5.75	.87	.747	1.373	20	7.75	36	P-4127-DI	525
4x3x4	4R-S42-SE	4R-S42N-SE	3	1000	8.75	4.37	6	5.75	.87	.747	1.373	20	7.75	35	P-4127-DI	525
4x4x4	4F-S22-SE	4F-S22N-SE	4	500	9.37	4.68	7.50	6.37	1.06	.747	1.373	20	8.37	49	P-4127-DI	-

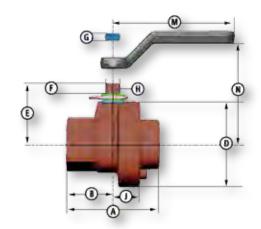
^{*} This reduced port valve has a 2.5" bore for increased flow.



Series F Ductile Iron

- Lever Operated Ball Valve
- To 2000 PSI WP
- 1" Through 4"
- Bolted Body Construction







- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- Bolted Body Protects Against End Adapter Blowout
- Fire Safe Design
- NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	AISI 1018 Nickel Chrome Plated	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	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	ASTM A-193 B7M	ASTM A193 B7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

	CATALOG	NUMBER															
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	D	E	F	G	Н	J	M	N	LBS.	HANDLE	Cv
1x1x1	1F-F92-SE	1F-F92N-SE	1	2000	3.87	1.93	3.37	2.37	.50	.340	.685	1.12	4.37	2	4	P-333-CS	-
2x1.5x2	2R-F92-SE	2R-F92N-SE	1.5	2000	5.50	2.75	4.87	3.62	.75	.434	.873	1.62	7.25	5.25	12.4	P-4128-CS	125
2x2x2	2F-F62-SE	2F-F62N-SE	2	1500	5.75	2.87	6.12	4.37	.87	.497	.998	2	10.25	6.20	19	P-4129-CS	-
2x2x2	2F-F92-SE	2F-F92N-SE	2	2000	5.75	2.87	6.12	4.37	.87	.497	.998	2	10.25	6.20	19	P-4129-CS	-
2.5x2.5x2.5	2.5F-F62-SE	2.5F-F62N-SE	2.5	1500	7	3.50	6.87	5.25	1.06	.622	1.248	2.25	16	6.75	27	P-4126-DI	-
3x2x3	3R-F62-SE	3R-F62N-SE	2	1500	7.25	3.62	6.75	4.37	.87	.497	.998	2.12	10.25	6.20	26	P-4129-CS	180
3x2x3	3R-F92-SE	3R-F92N-SE	2	2000	7.25	3.62	6.75	4.37	.87	.497	.998	2.12	10.25	6.20	26	P-4129-CS	180
3x3x3	3F-F42-SE	3F-F42N-SE	3	1000	8.12	4.06	7.75	5.75	1.06	.747	1.373	2.375	20	7.75	40	P-4127-DI	-
4x3x4	4R-F42-SE	4R-F42N-SE	3	1000	8.62	4.31	7.75	5.75	1.06	.747	1.375	2.375	20	7.75	42	P-4127-DI	500
4x4x4	4F-F32-SE	4F-F32N-SE	4	750	9.37	4.68	9.25	6.37	1.06	.747	1.375	3.12	20	8.37	64	P-4127-DI	-

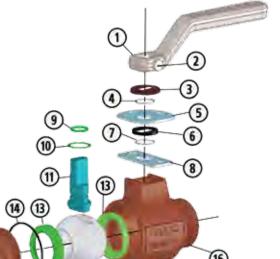


Male x Female Threaded End Connection



Series S Ductile Iron

- Lever Operated Ball Valve
- 750 PSI WP
- 2" Through 4"
- Threaded Body Construction

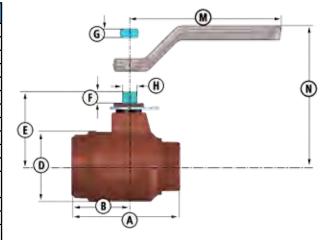


■ High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength

- Multi-Seal Seats
- Fire Safe Design
- NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
	,	Fully Annealed	Fully Annealed
16	Body	ASTM A395 Class 60-40-18 Fully Annealed	ASTM A395 Class 60-40-18 Fully Annealed



	CATALOG	CATALOG NUMBER														
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	WP	А	В	D	E	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S32-MF	2R-S32N-MF	1.5	750	5	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	8	P-4128-CS	140
3x2x3	3R-S32-MF	3R-S32N-MF	2	750	6.68	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17.8	P-4129-CS	200
4x3x4	4R-S32-MF	4R-S32N-MF	3	750	8.38	4.50	6	5.75	.87	.747	1.373	20	7.75	36	P-4127-DI	550

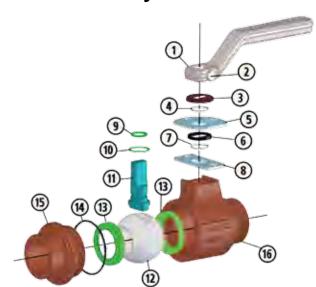


^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

Male Threaded x Grooved **End Connection**

Series S Ductile Iron

- Lever Operated Ball Valve
- **750 PSI WP**
- 2" Through 4"
- Threaded Body Construction



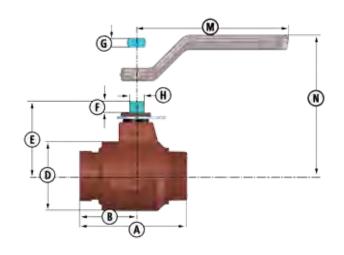


- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- Fire Safe Design

 NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed
16	Body	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed



	CATALOG	NUMBER														
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	D	Е		G	H	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S32-MG	2R-S32N-MG	1.5	750	5.06	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	8	P-4128-CS	140
3x2x3	3R-S32-MG	3R-S32N-MG	2	750	6.68	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17.8	P-4129-CS	200
4x3x4	4R-S32-MG	4R-S32N-MG	3	750	8.50	4.50	6	5.75	.87	.747	1.373	20	7.75	36	P-4127-DI	550

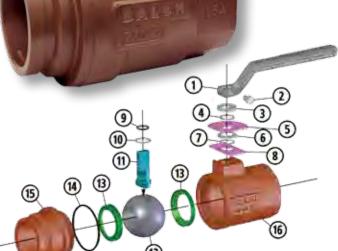


^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.

Female Threaded x Grooved **End Connection**



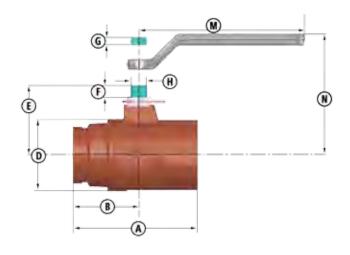
- **Lever Operated Ball Valve**
- **750 PSI WP**
- 2" Through 4"
- **■** Threaded Body Construction



- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- Fire Safe Design NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel	316 Stainless Steel
		Nickel Chrome Plated	
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed
16	Body	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed



	CATALOG	NUMBER														
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	D	Е	F	G	H	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S32-SG	2R-S32N-SG	1.5	750	5.50	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	8	P-4128-CS	140
3x2x3	3R-S32-SG	3R-S32N-SG	2	750	7.25	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17.8	P-4129-CS	200
4x3x4	4R-S32-SG	4R-S32N-SG	3	750	8.87	4.50	6	5.75	.87	.747	1.373	20	7.75	36	P-4127-DI	550



Grooved End Connection

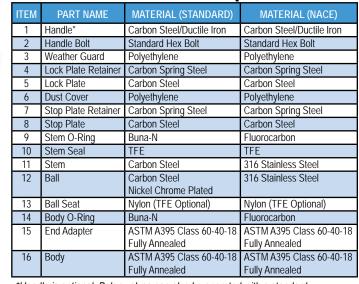
Series S Ductile Iron

- **Lever Operated Ball Valve**
- To 1000 PSI WP
- 2" Through 4"
- Threaded Body Construction



- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- Fire Safe Design
- NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description



*Handle is optional. Balon valves can also be operated with a standard open-end wrench.



SIZE	CATALOG I STANDARD TRIM CARBON STEEL BALL & STEM	NUMBER NACE TRIM 316 SS BALL & STEM	PORT	WP	Α	В	D	Е	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S32-GE	2R-S32N-GE	1.5	750	5.12	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	7.5	P-4128-CS	140
2x1.5x2	2R-S42-GE	2R-S42N-GE	1.5	1000	5.12	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	7.5	P-4128-CS	140
3x2x3	3R-S32-GE	3R-S32N-GE	2	750	7.25	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17	P-4129-CS	200
3x2x3	3R-S42-GE	3R-S42N-GE	2	1000	7.25	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	17	P-4129-CS	200
4x3x4	4R-S32-GE	4R-S32N-GE	3	750	8.87	4.50	6	5.75	.87	.747	1.373	20	7.75	34	P-4127-DI	550



Flanged End Connection

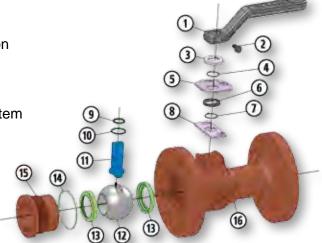


Series F Ductile Iron

- **■** Lever Operated Ball Valve
- ANSI Class 300*
 Raised Face (640 PSI WP)
- 2" Through 4"

* Dimensions meet ANSI standard B16.34; rated working pressure meets ANSI standard B16.42

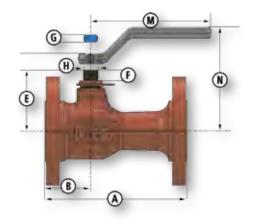
- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Multi-Seal Seats
- Fire Safe Design
- NACE Valves Include 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free Sealing Improvement Over Lubricated Ball Valves and Cast Iron Plug Valves
- Eliminates High Maintenance of Lubricated Valves



Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel
6	Dust Cover	Polyethylene	Polyethylene
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel
8	Stop Plate	Carbon Steel	Carbon Steel
9	Stem O-Ring	Buna-N	Fluorocarbon
10	Stem Seal	TFE	TFE
11	Stem	Carbon Steel	316 Stainless Steel
12	Ball	Carbon Steel	316 Stainless Steel
		Nickel Chrome Plated	
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)
14	Body O-Ring	Buna-N	Fluorocarbon
15	End Adapter	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed
16	Body	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18
		Fully Annealed	Fully Annealed

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.



ı		CATALOG N	NUMBER												
	SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	Α	В	Ε	F	G	Н	M	N	LBS.	HANDLE	Cv
ſ	3x2x3	3R-F32-RF	3R-F32N-RF	2	11.12	3	4.37	.75	.497	.998	10.25	6.20	40	P-4129-CS	200
	4x3x4	4R-F32-RF	4R-F32N-RF	3	12	3.37	5.75	.87	.747	1.373	20	7.75	72	P-4127-DI	525



Flanged End Connection

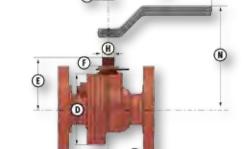
Series F Ductile Iron

- **Lever Operated Ball Valve**
- ANSI Class 125* Flat Face (200 PSI WP)
- ANSI Class 150* Raised Face (250 PSI WP)
- 2" Through 6"
- Bolted Body Construction
- * Dimensions meet ANSI standard B16.34; rated working pressure meets ANSI standard B16.42
 - High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
 - Multi-Seal Seats
 - Fire Safe Design
 - NACE Valves Include 316 Stainless Steel Ball and Stem
 - Rugged Locking Device Standard
 - Maintenance Free Sealing Improvement Over Lubricated Ball Valves and Cast Iron Plug Valves
 - Eliminates High Maintenance of Lubricated Valves

Material Description

ITEM	PART NAME	MATERIAL (STANDARD)	MATERIAL (NACE)					
1	Handle*	Carbon Steel/Ductile Iron	Carbon Steel/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	Carbon Steel					
6	Dust Cover	Polyethylene	Polyethylene					
7	Stop Plate Retainer	Carbon Spring Steel	Carbon Spring Steel					
8	Stop Plate	Carbon Steel	Carbon Steel					
9	Stem O-Ring	Buna-N	Fluorocarbon					
10	Stem Seal	TFE	TFE					
11	Stem	Carbon Steel	316 Stainless Steel					
12	Ball	Carbon Steel	316 Stainless Steel					
		Nickel Chrome Plated						
13	Ball Seat	Nylon (TFE Optional)	Nylon (TFE Optional)					
14	Body O-Ring	Buna-N	Fluorocarbon					
15	End Adapter	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18					
		Fully Annealed	Fully Annealed					
16	Body	ASTM A395 Class 60-40-18	ASTM A395 Class 60-40-18					
		Fully Annealed	Fully Annealed					
17	Nuts	ASTM A194 2H	ASTM A194 2HM					
18	Body Bolts	ASTM A193 B7	ASTM A193 B7M					

*Handle is optional. Balon valves can also be operated with a standard open-end wrench.



SIZE	CATALOG I STANDARD TRIM	NUMBER NACE TRIM	PORT	V	WP		В	0	_	_	C	_	M	N	LBS.	HANDLE	Cv
SIZE	CARBON STEEL BALL & STEM	316 SS BALL & STEM	FORT	CLASS 125 FLAT FACE	CLASS 150 RAISED FACE	А	Б	U	L		G		IVI	IN	LDS.	HANDLE	CV
2x1.5x2	2R-F12	2R-F12N	1.5	FF200	RF250	7	3.25	5	3.62	.75	.434	.873	7.25	5.25	23	P-4128-CS	125
2x2x2	2F-F12	2F-F12N	2	-	RF250	7	2.75	6	4.37	.87	.497	.998	10.25	6.20	28	P-4129-CS	-
3x2x3	3R-F12	3R-F12N	2	FF200	RF250	8	3	6	4.37	.75	.497	.998	10.25	6.20	40	P-4129-CS	200
3x3x3	3F-F12	3F-F12N	3	-	RF250	8	3.56	7.50	5.75	1.06	.747	1.373	20	7.75	54	P-4127-DI	-
4x3x4	4R-F12	4R-F12N	3	FF200	RF250	9	4.06	7.87	5.75	.87	.747	1.373	20	7.75	65	P-4127-DI	525
4x4x4	4F-F12	4F-F12N	4	-	RF250	9	4.06	9	6.37	1.06	.747	1.373	20	8.37	80	P-4127-DI	-
6x4x6	6R-F12**	6R-F12N*	4	FF200	RF250	10.50	3.81		6.37	.87	.747	1.373	20	8.37	75	P-4127-DI	800

^{**} Uni-body design.





Threaded End Connection



■ Lever Operated Ball Valve

■ To 1000 PSI WP

■ 2" Through 4"

■ Threaded Body Construction

■ Enhanced Protection Against CO₂ and Saltwater Corrosion

- NACE Standard
- Multi-Seal Seats
- Fire Safe Design
- Minimizes Risk of Galling Associated with Stainless Steel
- 316 Stainless Steel Ball and Stem
- Rugged Locking Device Standard
- Maintenance Free

Material Description

ITEM	PART NAME	MATERIAL NACE (STANDARD)
1	Handle*	Carbon Steel/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	316 Stainless Steel
12	Ball	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)
14	Body O-Ring	Fluorocarbon
15	End Adapter	ASTM B148-9D (955)
16	Body	ASTM B148-9D (955)

*Handle is optional. Balon valves can also be operated with a standard open-end wrench.



SIZE	CATALOG	PORT	WP	Α	В	D	Ε	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S44N-SE	1.5	1000	5.25	2.66	3.38	3.66	.75	.434	.873	7.25	5.25	7.5	P-4128-CS	125
2x2x2	2F-S44N-SE	2	1000	5.75	2.88	4.25	4.38	.75	.497	.998	10.25	6.20	12	P-4129-CS	-
3x2x3	3R-S44N-SE	2	1000	7.25	3.50	4.50	4.38	.75	.497	.998	10.25	6.20	17	P-4129-CS	180
3x3x3	3F-S44N-SE	3	1000	8.75	4.38	6	5.75	.88	.747	1.373	20	7.75	31	P-4127-DI	-
4x3x4	4R-S44N-SE	3	1000	8.75	4.38	6	5.75	.88	.747	1.373	20	7.75	36	P-4127-DI	525
4x4x4	4F-S34N-SE	4	750	9.38	4.69	7	6.38	1.06	.747	1.373	20	8.38	52	P-4127-DI	-



Threaded End Connection

Series F Aluminum Bronze

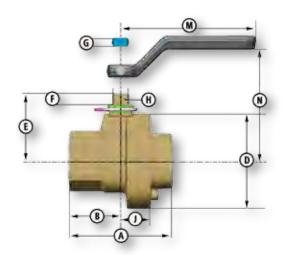
- **Lever Operated Ball Valve**
- To 3000 PSI WP
- 1" Through 2"
- Bolted Body Construction



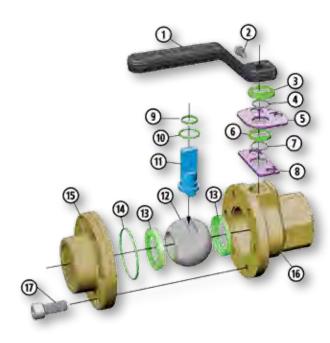
Material Description

ITEM	PART NAME	MATERIAL NACE (STANDARD)
1	Handle*	Carbon Steel
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	316 Stainless Steel
12	Ball	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)
14	Body O-Ring	Fluorocarbon
15	End Adapter	ASTM B148-9D (955)
16	Body	ASTM B148-9D (955)
17	Body Stud Bolts	ASTM A193 B7M

^{*}Handle is optional. Balon valves can also be operated with a standard open-end wrench.



- Enhanced Protection Against CO₂ and Saltwater Corrosion
- NACE Standard
- Minimizes Risk of Galling Associated with Stainless Steel
- Multi-Seal Seats
- Fire Safe Design
- Rugged Locking Device Standard
- Maintenance Free



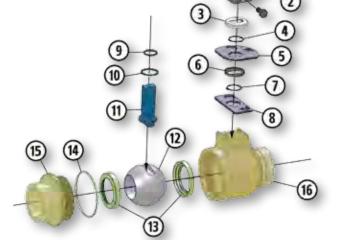
SIZE	CATALOG	PORT	WP	Α	В	D	Е	F	G	Н	J	M	Ν	LBS.	HANDLE	Cv
1x1x1	1F-F04N-SE	1	3000	3.87	1.93	3.37	2.37	.50	.340	.685	1.12	4.37	2	4	P-333-CS	-
2x1.5x2	2R-F04N-SE	1.5	3000	5.50	2.75	4.87	3.62	.75	.434	.873	1.62	7.25	5.25	12.5	P-4128-CS	125
2x2x2	2F-F94N-SE	2	2000	5.75	2.87	6.12	4.37	.87	.497	.998	2	10.25	6.20	19	P-4129-CS	-



Grooved End Connection



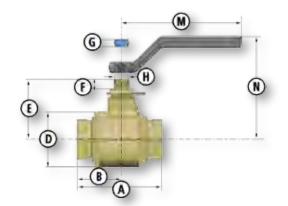
- **■** Lever Operated Ball Valve
- 1000 PSI WP
- 2" Through 4"
- Threaded Body Construction
- Enhanced Protection Against CO₂ and Saltwater Corrosion
- Multi-Seal Seats
- Fire Safe Design
- NACE Standard
- Rugged Locking Device Standard
- Maintenance Free



Material Description

ITEM	PART NAME	MATERIAL NACE (STANDARD)
1	Handle*	Carbon Steel/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	316 Stainless Steel
12	Ball	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)
14	Body O-Ring	Fluorocarbon
15	End Adapter	ASTM B148-9D (955)
16	Body	ASTM B148-9D (955)

*Handle is optional. Balon valves can also be operated with a standard open-end wrench.



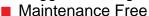
SIZE	CATALOG NUMBER NACE TRIM 316 SS BALL & STEM	PORT	А	В	D	E	F	G	Н	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-S44N-GE	1.5	5.12	2.68	3.37	3.62	.62	.434	.873	7.25	5.25	7.5	P-4128-CS	140
3x2x3	3R-S44N-GE	2	7.25	3.50	4.50	4.37	.75	.497	.998	10.25	6.20	16	P-4129-CS	200
4x3x4	4R-S44N-GE	3	8.87	4.50	6	5.75	.87	.747	1.373	20	7.75	34	P-4127-DI	550



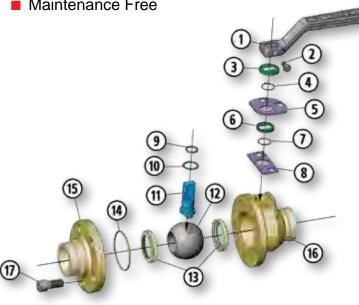
Grooved End Connection

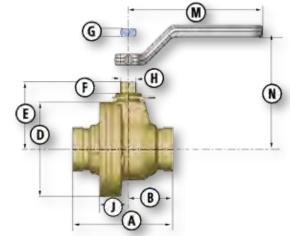
Series F Aluminum Bronze

- Lever Operated Ball Valve
- 2000 PSI WP
- 2"
- Bolted Body Construction
- Enhanced Protection Against CO₂ and Saltwater Corrosion
- Multi-Seal Seats
- Fire Safe Design
- NACE Standard
- Rugged Locking Device Standard









Material Description

	matorial	Doodription
ITEM	PART NAME	MATERIAL NACE (STANDARD)
1	Handle*	Carbon Steel
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	316 Stainless Steel
12	Ball	316 Stainless Steel
13	Ball Seat	Nylon (TFE Optional)
14	Body O-Ring	Fluorocarbon
15	End Adapter	ASTM B148-9D (955)
16	Body	ASTM B148-9D (955)
17	Body Bolts	ASTM A193 B7M

*Handle is optional. Balon valves can also be operated with a standard open-end wrench.

SIZE	CATALOG	PORT	Α	В	D	Е	F	G	Н	J	M	N	LBS.	HANDLE	Cv
2x1.5x2	2R-F94N-GE	1.5	5.5	2.75	4.87	3.62	.75	.497	.873	1.62	7.25	5.25	11.5	P-4128-CS	140



Threaded End Connection

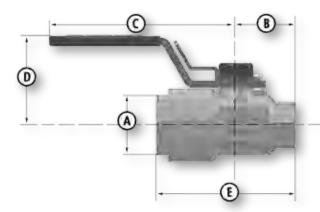
Series LS Threaded End Stainless Steel



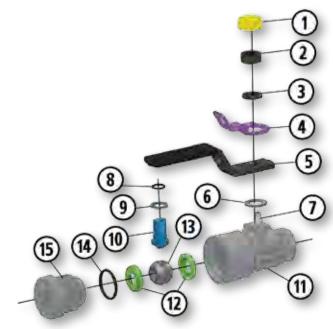
Material Description

		•
ITEM	PART NAME	MATERIAL (STANDARD)
1	Weather Guard	Polyethylene
2	Stem Nut	Stainless Steel
3	Spacer	Stainless Steel
4	Lock Plate	Stainless Steel
5	Handle*	Stainless Steel
6	Stem Washer	Acetal
7	Stop Pin	Stainless Steel
8	Stem O-Ring	Fluorocarbon
9	Stem Seal	TFE
10	Stem	316 Stainless Steel
11	Body	316 Stainless Steel
12	Ball Seat	Nylon (TFE Optional)
13	Ball	316 Stainless Steel
14	Body O-Ring	Fluorocarbon
15	Adapter	316 Stainless Steel

* Handle and locking device standard on all Series LS Ball Valves.



- Lever Operated Ball Valve
- To 3000 PSI WP
- 1/4" Through 1"
- Threaded Body Construction
- Multi-Seal Seats
- NACE Standard
- Exclusive Patented Design Inhibits Loosening of End Adapter
- All Metal Components Made of Stainless Steel
- Maintenance Free



SIZE	CATALOG	PORT	WP	Α	В	С	D	Е	LBS.	Cv
.25x.37x.25	LS-02592	.37	3000	1.37	1.12	3.50	1.62	2.62	.91	-
.50x.37x.50	LS-05561	.37	2000	1.37	1.12	3.50	1.62	2.50	.75	6
.50x.37x.50	LS-05591	.37	3000	1.37	1.43	3.50	1.62	3	1	6
.75x.75x.75	LS-07592	.75	3000	2.12	1.75	4.87	2.25	3.75	2.5	-
1x.75x1	LS-10561	.75	2000	2.12	1.87	4.87	2.25	3.75	2	30
1x.75x1	LS-10591	.75	3000	2.12	2	4.87	2.25	4.12	2.5	30



Ball Valve Handles

SIZE & PORT	PART NO.	LBS.	LENGTH	IMAGE
1" Full Port	P-333-CS*	0.25	4 3/8"	PALONO
1.5" Full - 2" Reg Port	P-4128-CS**	0.75	8 1/4"	CON LINION O
2R-S5M / 2R-F5M	P-4125-DI**	1.25	11"	
2" Full - 3" Reg Port	P-4129-CS**	1.75	11"	USA DABOD *41
2.5" Full Port	P-4126-DI**	3.0	11"	
3" Full - 6" Reg Port	P-4127-DI**	4.0	18"	



^{*}Optional handle. Held on with snap ring.
**Optional handle. Held in place with set-screw.

Actuator Sizing

Actuator Sizing

Recommended actuator output torques for Balon ball valves may be found on Balon Corporation's website at www.balon.com.

The recommended actuator output torques listed on our website are breakaway torques and are adequate for the operation of Balon ball valves equipped with standard seats and used to control clean liquid at ambient temperature.

The recommended run torque is approximately 1/2, or 50%, of the recommended breakaway torque.

The recommended re-seat torque is approximately 3/4, or 75%, of the recommended breakaway torque.

Corrosion, scale, build-up on the ball, or other service conditions can drastically alter torque requirements and should be given consideration when selecting actuation or automation equipment.





Standards and Specifications

Balon utilizes the following standards in the manufacture of ball valves. It should be noted that not all styles, configurations and materials used in Balon valves meet all of these standards in their entirety.

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

API (American Petroleum Institute)
API-6FA Fire Test For Resilient-Seated Valves API 5B Inspection Of Threads
'
API-6D Pipeline Valves, End Closures,
Connectors And Swivels.
API-Q1 Quality Programs
API-594 Wafer Check Valves
ANSI (American National Standard Institute)
ANSI-B 16.5 - Pipe Flanges And Flanged Fittings
ANSI-B 16.10 - Face-To-Face End-To-End
Dimensions
ANSI-B
Flanged Fittings
ANSI-B 16.34 - Valves - Flanged End,
Threaded And Butt Weld
ANSI-B (B1.20.1) - Pipe Threads General

Purpose (Inch)

	. (Manufacturers Standardization Society) . Standard Finishes For Contact Faces Of Pipe Flanges And Connection End
	Flanges Of Valves And Fittings
MSS-SP25	. Standard Marking System For Valves, Fittings,
	Flanges And Fittings
MSS-SP72	. Ball Valves With Flanged Or Butt
	Welding Ends For General Service
MSS-SP82	. Valve Pressure Test Methods
NACE MR-01-75	.Sulfide Stress Cracking, Resistant
	Metallic Material For Oil Field Equipment (NACE
	Materials Are Optional And Must Be Specified

On Purchase Orders)

CE marking to the PED available on most products

Balon valves contain grease and are not suitable for oxygen service due to an increased risk of combustion or explosion.



Application Guide

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 judgement 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

VAL MATE					T AN	D SE <i>A</i> RIAL	\L
Media *	Carbon Steel	Ductile Iron	316 SS	Buna-N	Viton	Nylon	TFE
Air	Е	Е	Е	Е	Е	Е	Е
Alcohols	G	G	Е	Е	Е	F	Е
Amines (conc.)	F	F	F	U	U	F	F
Ammonia, Anhydrous	E	G	Е	F	U	Е	Е
- Aqueous	F	F	F	F	U	G	F
- Solutions	G	G	Е	F	U	G	Е
Benzene or Benzol	G	G	E	Ü	Ē	Ē	Ē
Brines	F	F	G	E	Е	Е	Е
Bunker Oils (Fuels)	G	G	E	Е	Е	Е	E
Butane	Ē	F	E	E	E	E	F
Carbolic Acid (Phenol)	U	Ū	G	U	G	U	E
Carbon Dioxide, Dry	E	F	E	G	G	G	E
Carbonic Acid	U	U	G	G	Ē	Ē	Ē
Carbon Tetrachloride, Dry	F	F	F	Ü	Ē	Ē	Ē
-Wet	Ü	U	G	Ü	E	E	E
Carbonated Water	G	G	E	E	E	G	E
Crude Oil, Sweet	E	F	Ē	Ē	F	Ē	Ē
- Sour	G	G	Ē	F	G	G	E
Diethylamine (DEA)	F	F	F	Ü	U	F	Ē
Diesel Fuels	F	F	F	F	F	F	F
Dowtherm A and E	G	G	Ē	U	Ē	E	Ē
Drilling Mud	G	G	Ē	E	Ē	Ē	E
Ethane	F	F	F	F	F	F	F
Ethylene	Ē	Ē	Ē	U	E	E	Ē
Ethylene Glycol	G	G	G	E	Ē	G	Ē
Fuel Oil	G	G	Ē	E	Ē	E	Ē
Gas, Manufactured	G	G	G	Ē	Ē	Ē	Ē
- Natural	G	G	Ē	Ē	E	Ē	E
- Odorizers	G	G	Ē	U	Ē	G	Ē
- Sour	G	G	Ē	F	Ē	E	Ē
Gasoline, Leaded	E	G	Ē	G	Ē	Ē	Ē
- Unleaded	E	G	Ē	F	Ē	Ē	Ē
- Aviation	Ē	G	Ē	G	Ē	Ē	Ē
- Motor	F	G	F	F	F	F	Ē
Glycols	G	G	G	Ē	F	G	F
Heptane	F	F	F	F	F	F	F
Hexane	Ē	Ē	Ē	E	Ē	Ē	Ē
Hydraulic Oil				_			
- Petroleum Base	Ε	Е	Е	Е	Е	Ε	Е
- Phosphate Base	F	F	F	U	F	F	F
Hydrocloric Acid				_ ŭ			
-Air Free	U	U	U	F	Е	U	Е
Hydrofloric Acid	U	U	Ü	Ü	Ū	U	F
Hydrogen Gas	G	G	Ē	Ē	E	Ē	Ē
Hydrogen Sulfide,							
Dry(Conc.)	G	G	Ε	F	F	E	Ε
Wet(Conc.)	F	U	G	U	F	Е	Е
Illuminating Gas	F	F	F	F	F	-	F
Iso-Octane	E	G	E	E	E	F	F
* Consult Oklahoma Citv of							

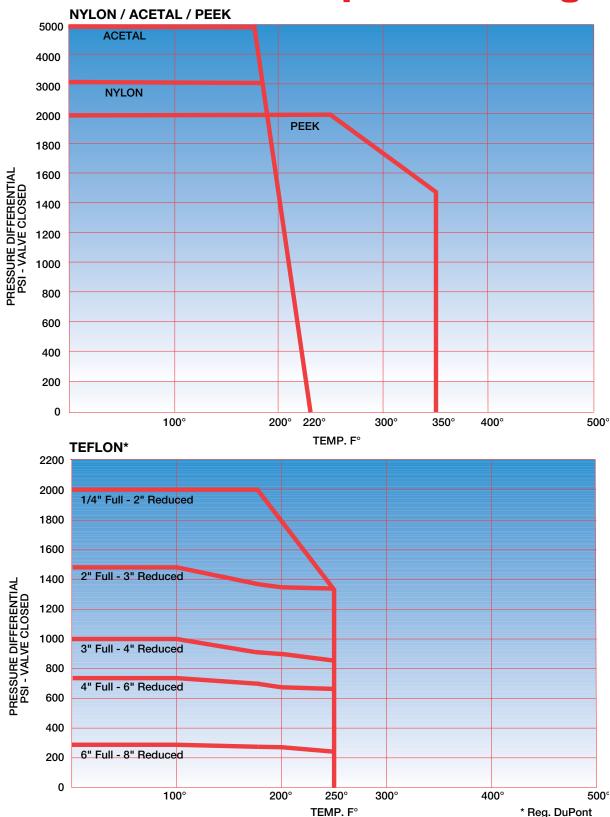
VAL	SEAT AND SEAL						
MATE	RIAL			N	//ATEI	RIAL	
Media *	Carbon Steel	Ductile Iron	316 SS	Buna-N	Viton	Nylon	TFE
Isopropyl Alcohol	G	G	G	G	Е	G	Е
- Ether	Е	G	Е	G	U	Е	Е
JP-4 Fuel	Е	Е	Е	Е	Е	Е	Е
JP-5 Fuel	Е	E	Е	Е	Е	Е	Е
JP-6 Fuel	Е	Е	E	E	E	Е	Ε
Kerosene	G	G	Е	Е	Е	E	Ε
Liquified Pet. Gas (LPG)	G	G	G	E	E	E	E
Lubricating Oil	Е	E	Е	Е	E	Е	Ε
Mercaptan (Conc.)	G	G	E	F	E	G	E
Methane	E	E	Е	E	E	E	E
Muratic Acid	U	U	U	G	E	U	E
Naphtha	G	G	E	G	E	Е	Е
Naphthalene	E	G	E	U	E	E	E
Natural Gas	E	E	E	E	E	E	E
Nitrogen	E	E	E	E	E	E	E
Oil, Animal	E	E	E	E	E		E
- Cottonseed	F	F	G	E	E	E	E
- Fish	G	G	E	E	E	E	E
- Fuel	G	G	E	E	E	E	E
- Lube	E	E	E	E	E	E	E
- Mineral	G	G	E	E	E	E	E
- Petroleum, Refined	E	G	E	E	E	E	E
Oil-Water Mixtures	E	E	E	E	E	E	E
Parafin	G	G	E	G	E	E	E
Pentane	G	G	E	U	E	E	E
Producer Gas	G	G	G	E	E	Ē	E
Propane	E	E	E	E	E	E	E
Propyl Alcohol	E	E	E	E	E	E	E
Propylene Glycol	E	E	E	E	E	F	E
Sea Water	U	U	E	E	E	E	E
Sodium Acetate	G	G	G	G	U	G	E
- Hydroxide, Cold, 20%	E	E	E	G	G	E	E
- Hydroxide, Hot, 20%	F	F	G	G	G F	G	E
- Hydroxide, Cold, 50%	G	G	G	F U	F	F U	F
- Hydroxide, Hot, 50%	G F	G F	G	U	F	U	F
- Hydroxide, Cold, 70%	G	F	G	U	F		- F - U
- Hydroxide, Hot, 70%	F	F			IJ		-
Steam (212° F)			E	U		U	E
Stoddard Solvent	G	G	G F	E	E U	G	E
Sulfur Dioxide (Dry)	G F	G F	G	U F	E	F G	E
Sulfuric Acid, 0-7%	U	U	F	U	F	U	F
- 50%	U	U	U	_			
- 50%	U	U	U	U	E F	U	E
Toluene or Toluol	E	E	E	U	E	E	E
Water, Distilled, Aerated	U	U	F	E	G	F	F
- Fresh	F	F	F	F	F	F	F
- Fresn - Sea	U	U	E	E	E	F	F
	E E	G	F	E	F	F	F
Wax Emulsions Waxes	E	E	E	E	E	E	E
	F	F	F	E U	F	F	F
Xylene, Dry	E	E	E	U	E	E	E

^{*} Consult Oklahoma City office for compatibility of Aluminum Bronze Material



Seat Pressure Ratings

Seat Pressure & Temperature Ratings



All Balon valves are rated for a minimum temperature of -20° F except for valves designated as low temperature valves, which are rated for a minimum temperature of -50° F.



Flow Coefficient Data

Flow Coefficient Data

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.

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.

Cv data for reduced port valves are listed on the product pages.

For more information visit our website at www.balon.com





Shale Play Installations







BALOR

FREEZE RESISTANT UNI-DIRECTIONAL OPTION

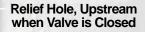


UNI-Directional Valve

UNI-Directional Modification for Freeze Resistance

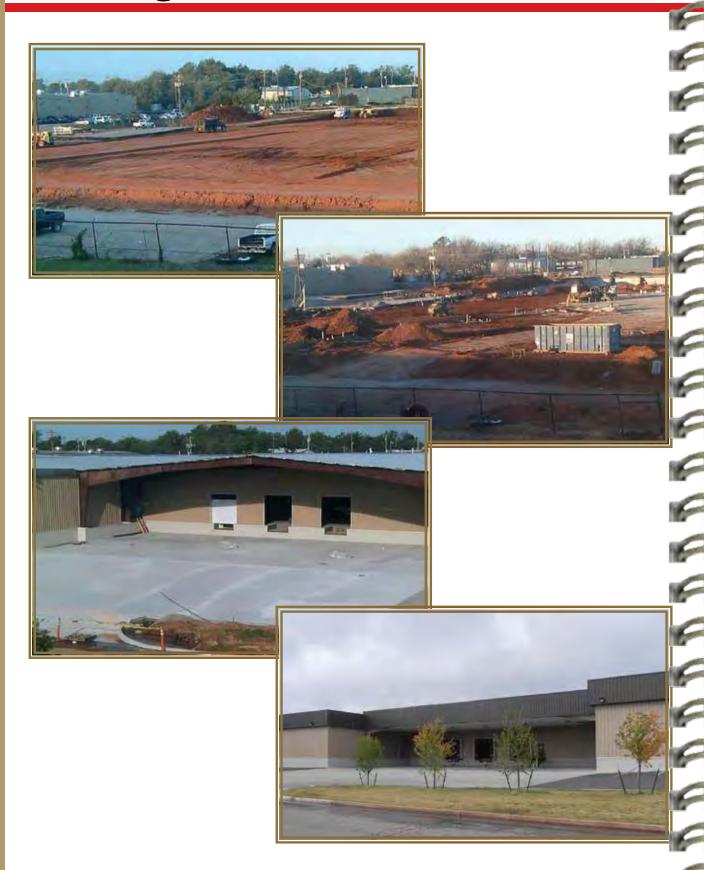
While no design can prevent a valve from freezing, Balon offers a UNI-Directional option that reduces the likelihood of a temporary freeze resulting in permanent damage to the valve. This design modification incorporates a relief hole in the upstream side of the closed ball. When water trapped inside the ball cavity freezes and expands, the relief hole allows dissipation of the increased internal pressure.

As shown in the photographs, the addition of the relief hole renders the valve uni-directional with the body side of the valve positioned upstream for proper sealing and operation. Balon's freeze-resistant, UNI-Directional option is available on nearly every ball valve Balon offers. Please call the factory for pricing and availability when requesting the freeze resistant, UNI-Directional option.





Building for the Future...





GEAR OPERATOR

BALON GEAR OPERATORS
Why We Make Our Own Gear Operators Gear Operator Features

G-1

G-2

G-3

Gear Operator

Why We Make Our Own Gear Operators







We manufacture our own Balon gear operators because our customers expect and deserve gear operators that measure up to the proven safety, sealability, and durability of Balon ball valves.

Balon has seized an opportunity to advance gearbox safety and performance where commodity gearbox manufacturers have fallen short. By incorporating rugged features and upgraded materials, the Balon gear operator extends service life and enhances both safety and ease of operation.

And, as with every component of our valves, the Balon gear operator is 100% made in America by Balon Corporation.

Please consult the chart below for sizes and pressure classes on which Balon gear operators are standard.

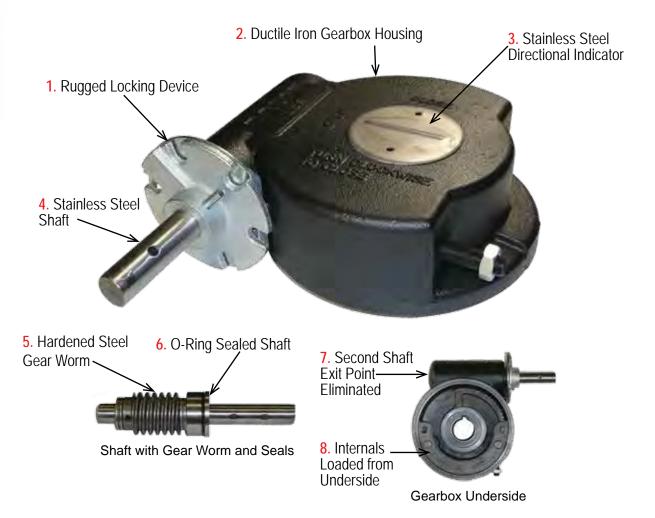
Balon Gear Operator Models and their corresponding Valves *									
B44 ** 11 Turns			B100 25 Turns						
4F-F63-RF(RJ)	6F-F13-RF	8F-F13-RF	10F-T33-RF						
4F-F63N-RF(RJ)	6F-F13N-RF	8F-F13N-RF	10F-T33CN-RF						
4F-T63-RF(RJ)	6F-F13-RF15.5	8F-T33-RF	10F-T33SN-RF						
4F-T63CN-RF (RJ)	6F-F13N-RF15.5	8F-T33CN-RF	10F-T63-RF(RJ)						
4F-T63SN-RF (RJ)	6F-F33-RF	8F-T33SN-RF	10F-T63CN-RF(RJ)						
6R-F63-RF(RJ)	6F-F33N-RF	8F-T63-RF(RJ)	10F-T63SN-RF(RJ)						
6R-F63N-RF(RJ)	6F-F63-RF(RJ)	8F-T63CN-RF(RJ)							
4F-T93-RF(RJ)	6F-F63N-RF(RJ)	8F-T63SN-RF(RJ)							
4F-T93CN-RF(RJ)	6F-T63-RF(RJ)	10R-F13-RF							
4F-T93SN-RF(RJ)	6F-T63CN-RF(RJ)	10R-F13N-RF							
	6F-T63SN-RF(RJ)	10F-T13-RF							
	8R-F13-RF	10F-T13CN-RF							
	8R-F13N-RF	10F-T13SN-RF							
	8R-F33-RF								
	8R-F33N-RF								
	8R-F63-RF(RJ)								
	8R-F63N-RF(RJ)								

^{*} Gear operator models are also applicable on equivalent low-temp, high-temp, and uni-directional valves.

^{**}Balon Gear Operator Model B44 is available as an option on any Balon 3" bore or 4" bore carbon steel flanged valve. Please consult factory for details.



Gear Operator Features



1. Rugged Locking Device Standard

A rugged locking device is standard with every Balon gearbox.

2. Ductile Iron Gearbox Housing

For all gearbox housings, Balon uses highstrength ductile iron, a more malleable material with a yield strength comparable to carbon steel.

3. Stainless Steel Directional Indicator

The Balon gearbox includes a low-profile stainless steel directional indicator. The indicator seal protects the stem journal from external contaminants.

4. Stainless Steel Shaft

All Balon gear operators are equipped with stainless steel shafts as standard, thus reducing corrosion concerns and assuring smoother gearbox operation.

5. Hardened Steel Gear Worm

Gear worms are often susceptible to galling and wear. Balon takes the additional step of hardening our steel gear worms, making them highly resistant to galling and premature failure.

6-8. Suitable for Above Ground and Buried Service

The Balon gearbox is designed to prevent water and external contaminants from invading the box and causing corrosion and operating problems. 6) The shaft is completely O-ring sealed. 7) Balon has eliminated the second shaft exit point, a common *entry* point for external contaminants in more ordinary gearboxes. 8) The internal components of Balon's gearbox are loaded from the underside, not from the top, and are sealed against the encroachment of external contaminants.

We Don't Import Valves We Make Them...



We Don't Export Jobs We Create Them...

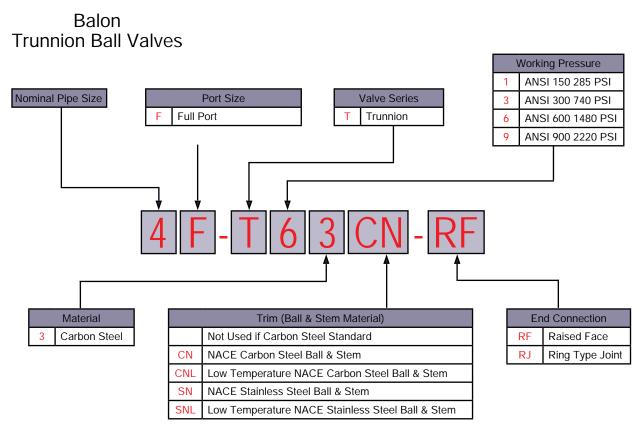


BALOR

TRUNNION BALL VALVES

TRUNNION BALL VALVES TRUNNION VALVE IDENTIFICATION KEY	T-1 T-2
Trunnion Ball Valve Features	T-3
SERIES T BALL VALVES	
Carbon Steel, ANSI 150, 285 PSI WP (10") Carbon Steel, ANSI 300, 740 PSI WP (8" Through 10") Carbon Steel, ANSI 600, 1480 PSI WP (4" Through 10") Carbon Steel, ANSI 900, 2220 PSI WP (4")	T-4, T-5 T-6, T-7 T-8, T-9 T-10,T-11
TECHNICAL INFORMATION	
Actuator Sizing / Standards and Specifications	T-12

Trunnion Valve Identification Key



Note: For any valves not listed please consult factory.

Trunnion Valve Features

Trunnion Ball Valve Special Features







FULL-RANGE SEALING WITH MULTI-SEAL

Most trunnion-mounted ball valves have difficulty sealing at both high and low pressures. Balon's Multi-Seal seats provide multi sealing surfaces for full-range sealing. This results in steady operating torques for low pressure applications and high pressure applications. Multi-Seal is standard in every valve.

BLOWOUT-PROOF STEM WITH SAFETY SHEAR GROOVE

To prevent hazardous blowout, the Balon Series T stem is internally loaded and back-seated. And, as an added precaution each stem includes Balon's safety shear groove. If the stem should be inadvertently sheared, breakage occurs at a point located a safe distance from the pressure zone.

LOAD-BEARING BLOCKS

Balon has done away with the externally inserted lower trunnion, a hazardous leak path, a maintenance nuisance, and a blowout point. The Balon Series T incorporates load-bearing blocks. Even at maximum pressure, the blocks bear the load uniformly and reduce lateral stress,

keeping the ball centered. Balon has eliminated the premature bearing failure associated with traditional trunnion valve designs.

DOUBLE-BLOCK-AND-BLEED AND SECONDARY SEALING

Every Balon Series T includes a bleed fitting for double-block-and-bleed, and every valve allows grease injection for secondary sealing.

LOCKING DEVICE ON EVERY VALVE

Balon Series T valves, like all Balon gear operated valves, feature standard locking devices in all sizes.

FIRE-SAFE AS STANDARD

With Balon, there is no need to ask for "fire safe." Every Balon Series T ball valve is fire-safe as standard.

100% AMERICAN-MADE

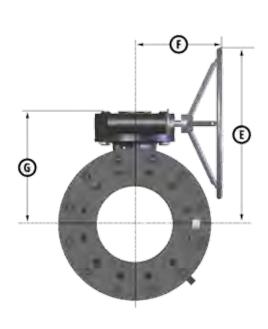
Like all Balon valves, the Series T comprises 100% domestic raw materials. All machining work is performed in our Oklahoma City plant by Balon employees.

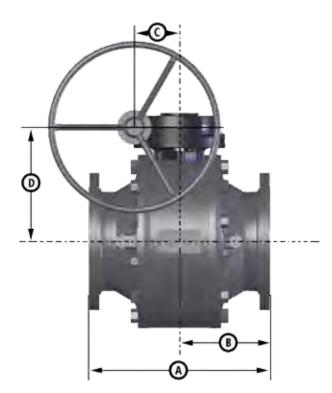




Series T Carbon Steel

- Gear Operated Trunnion Ball Valve
- ANSI Class 150 (285 PSI WP)
- **10**"
- Bolted Body Construction
- Exclusive Balon Gearbox
 - Suitable for Buried Service
 - Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - ✓ Integral Locking Device Standard
 - ✓ Manufactured in our Oklahoma City Plant
- Multi-Seal Seats
- Fire Safe Design



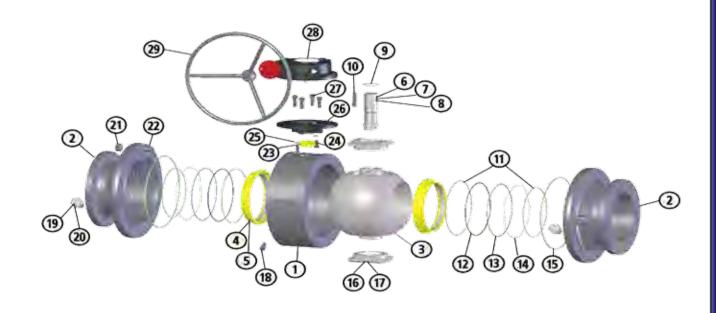


	CATALOG NUMBER											
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM*	NACE TRIM 316 SS BALL & STEM*	PORT	А	В	С	D	E	F	G	LBS.
10x10x10	10F-T13-RF	10F-T13CN-RF*	10F-T13SN-RF*	10	21.00	10.5	5.25	13.26	20	13.56	15.25	937.5

^{*} NACE Valves are also available in low temp. Call factory for details.



Series T Carbon Steel



Material Description

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE
1	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
2	Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
4	Seat Carrier	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
5	Seat Insert	Nylon/Acetal	Nylon/Acetal	Nylon/Acetal
6	Stem	Carbon Steel	Carbon Steel	316 Stainless Steel
7	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
8	Stem Thrust Washer	TFE	TFE	TFE
9	Snap Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
10	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
11	Seat O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
12	Fireseal	Graphite	Graphite	Graphite
13	Fireseal Support Ring	Stainless Steel	Stainless Steel	Stainless Steel
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Bearing Block	Carbon Steel	Carbon Steel	Stainless Steel
17	Trunnion Bearing	316 SS/TFE	316 SS/TFE	316 SS/TFE
18	Bleed Fitting*	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
19	Sealant Injection Fitting	Alloy Steel	Alloy Steel	Alloy Steel
20	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
21	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A194 2HM
22	Studs	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B7M
23	Stem Bearing	Glass/TFE	Glass/TFE	Glass/TFE
24	Hexhead Capscrew	Alloy Steel	Alloy Steel	Alloy Steel
25	Lock Washer	Alloy Steel	Alloy Steel	Alloy Steel
26	Adapter Plate	Ductile Iron	Ductile Iron	Ductile Iron
27	Capscrews	Alloy Steel	Alloy Steel	Alloy Steel
28	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
29	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel

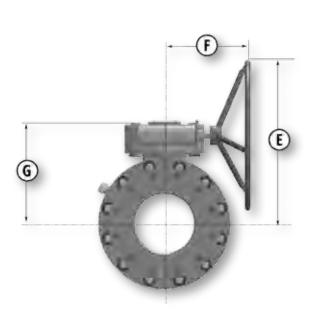
^{* 3/8&}quot; NPT

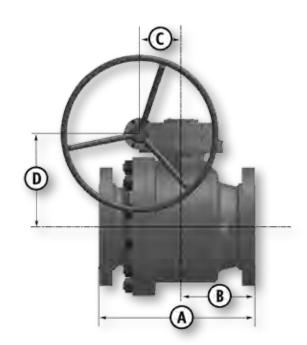




Series T Carbon Steel

- Gear Operated Trunnion Ball Valve
- ANSI Class 300 (740 PSI WP)
- 8"
- Bolted Body Construction
- Exclusive Balon Gearbox
 - Suitable for Buried Service
 - Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - Integral Locking Device Standard
 - ✓ Manufactured in our Oklahoma City Plant
- Multi-Seal Seats
- Fire Safe Design



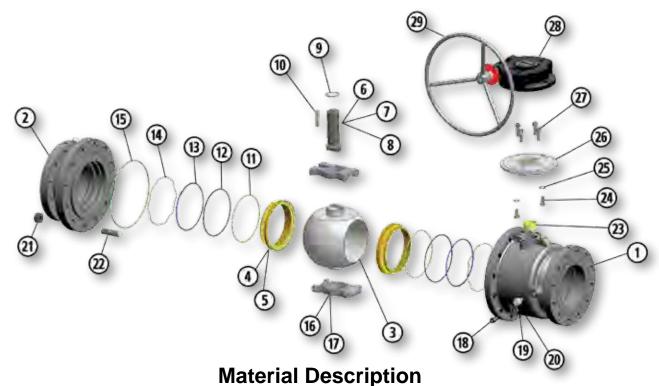


	CATALOG NUMBER											
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM*	NACE TRIM 316 SS BALL & STEM*	PORT	A	В	С	D	E	F	G	LBS.
8x8x8	8F-T33-RF	8F-T33CN-RF*	8F-T33SN-RF*	8	19.75	9.37	5.25	11.75	20	11.56	13.67	684
10x10x10	10F-T33-RF	10F-T33CN-RF*	10F-T33SN-RF*	10	22.38	11.2	3.04	17.83	20	13.25	19.57	1200

^{*} NACE Valves are also available in low temp. Call factory for details.



Series T Carbon Steel



ITEM PART NAME STANDARD TRIM CARBON STEEL NACE STAINLESS STEEL NACE ASTM A216 WCB/A105 ASTM A216 WCB/A105 ASTM A216 WCB/A105 Body ASTM A216 WCB/A105 ASTM A216 WCB/A105 ASTM A216 WCB/A105 Adapter Carbon Steel Carbon Steel 316 Stainless Steel Nickel Chrome Plated Nickel Chrome Plated Seat Carrier Carbon Steel Carbon Steel 316 Stainless Steel Nickel Chrome Plated Nickel Chrome Plated 5 Seat Insert Nylon/Acetal Nylon/Acetal Nylon/Acetal Stem Carbon Steel Carbon Steel 316 Stainless Steel 6 Stem O-Ring Buna-N Fluorocarbon Fluorocarbon Stem Thrust Washer TFE 8 Carbon Spring Steel Snap Ring Carbon Spring Steel Carbon Spring Steel Steel Key Stock 10 Stem Key Steel Key Stock Steel Key Stock 11 Seat O-Ring Buna-N Fluorocarbon Fluorocarbon 12 Fireseal Graphite Graphite Graphite Fireseal Support Ring Stainless Steel Stainless Steel Stainless Steel 13 14 Spring Inconel X-750 Inconel X-750 Inconel X-750 Body O-Ring 15 Buna-N Fluorocarbon Fluorocarbon Bearing Block Carbon Steel Carbon Steel Stainless Steel 16 17 Trunnion Bearing 316 SS/TFE 316 SS/TFE 316 SS/TFE 316 Stainless Steel 316 Stainless Steel Bleed Fitting* 316 Stainless Steel 18 Sealant Injection Fitting 19 Alloy Steel Alloy Steel Alloy Steel Internal Check Fitting 316 Stainless Steel 20 316 Stainless Steel 316 Stainless Steel ASTM A194 2H ASTM A194 2HM ASTM A194 2HM 21 Nuts **ASTM A193 B7** ASTM A193 B7M Studs ASTM A193 B7M Stem Bearing Glass/TFE Glass/TFE Glass/TFE Hexhead Capscrew Alloy Steel Alloy Steel Alloy Steel Lock Washer Alloy Steel Alloy Steel Alloy Steel 25 Adapter Plate 26 Ductile Iron Ductile Iron Ductile Iron Capscrews Alloy Steel Alloy Steel Alloy Steel 27 28 Gear Operator Ductile Iron Ductile Iron Ductile Iron 29 Handwheel Carbon Steel Carbon Steel Carbon Steel

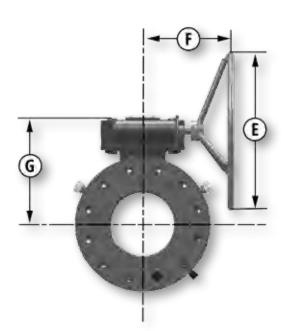
^{* 3/8&}quot; NPT

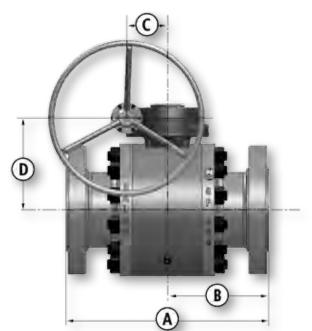




Series T Carbon Steel

- Gear Operated Trunnion Ball Valve
- 4" Through 10"
- ANSI Class 600 (1480 PSI WP)
- Bolted Body Construction
- Exclusive Balon Gearbox
 - Suitable for Buried Service
 - ✓ Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - ✓ Integral Locking Device Standard
 - ✓ Manufactured in our Oklahoma City Plant
- Multi-Seal Seats
- Fire Safe Design



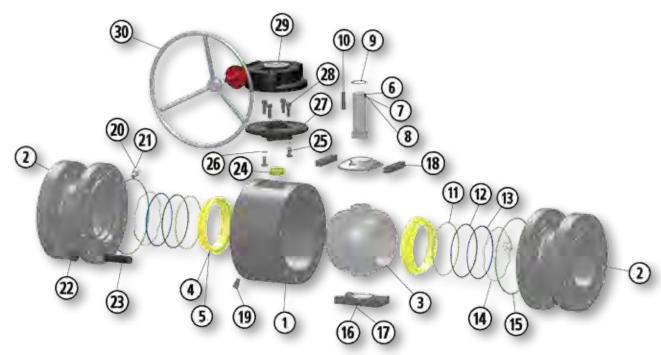


	CATALOG NUMBER					Д		В						
SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	RF	RTJ	RF	RTJ	С	D	E	F	G	LBS.
4x4x4	4F-T63	4F-T63CN*	4F-T63SN*	4	17	17.12	9	8.56	3.04	8.06	13	8.75	9.68	309
6x6x6	6F-T63	6F-T63CN*	6F-T63SN*	6	22	22.12	11	11.06	4.06	9.69	20	11.19	11.31	560
8x8x8	8F-T63	8F-T63CN*	8F-T63SN*	8	26	26.12	13	13.06	5.25	11.75	20	11.56	13.68	998
10x10x10	10F-T63	10F-T63CN*	10F-T63SN*	10	31	31.12	15.5	15.56	3.038	17.82	26	14.00	19.57	1550

^{*} NACE Valves are also available in low temp. Call factory for details.



Series T Carbon Steel



Material Description

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE
1	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
2	Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
4	Seat Carrier	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
5	Seat Insert	Nylon/Acetal	Nylon/Acetal	Nylon/Acetal
6	Stem	Carbon Steel	Carbon Steel	316 Stainless Steel
7	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
8	Stem Thrust Washer	TFE	TFE	TFE
9	Snap Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
10	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
11	Seat O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
12	Fireseal	Graphite	Graphite	Graphite
13	Fireseal Support Ring	Stainless Steel	Stainless Steel	Stainless Steel
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Bearing Block	Carbon Steel	Carbon Steel	Stainless Steel
17	Trunnion Bearing	316 SS/TFE	316 SS/TFE	316 SS/TFE
18	Spacer Block	Stainless Steel	Stainless Steel	Stainless Steel
19	Bleed Fitting*	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
20	Sealant Injection Fitting	Alloy Steel	Alloy Steel	Alloy Steel
21	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
22	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A194 2HM
23	Studs	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B7M
24	Stem Bearing	Glass/TFE	Glass/TFE	Glass/TFE
25	Hexhead Capscrew	Alloy Steel	Alloy Steel	Alloy Steel
26	Lock Washer	Alloy Steel	Alloy Steel	Alloy Steel
27	Adapter Plate	Ductile Iron	Ductile Iron	Ductile Iron
28	Capscrews	Alloy Steel	Alloy Steel	Alloy Steel
29	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
30	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel

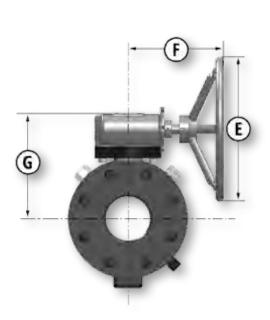
^{* 3/8&}quot; NPT

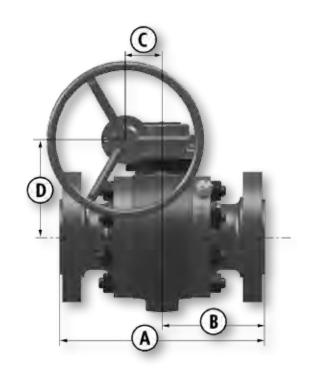




Series T Carbon Steel

- Gear Operated Trunnion Ball Valve
- 4"
- ANSI Class 900 (2220 PSI WP)
- Bolted Body Construction
 - Exclusive Balon Gearbox
 - Suitable for Buried Service
 - ✓ Stainless Steel Input Shaft Standard
 - ✓ Stainless Steel Directional Indicator
 - ✓ Integral Locking Device Standard
 - ✓ Manufactured in our Oklahoma City Plant
 - Multi-Seal Seats
 - Fire Safe Design



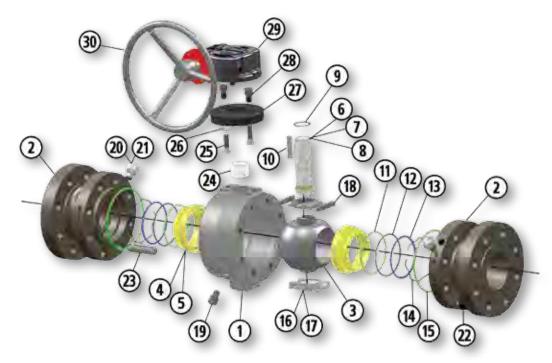


		CATALOG NUMBER					Δ		R						
	SIZE	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM	NACE TRIM 316 SS BALL & STEM	PORT	RF	RTJ	RF	RTJ	С	D	Е	F	G	LBS.
ĺ	4x4x4	4F-T93	4F-T93CN*	4F-T93SN*	4	18	18.12	9	9.06	3.04	8.06	13	8.75	9.68	331

^{*} NACE Valves are also available in low temp. Call factory for details.



Series T Carbon Steel



Material Description

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE
1	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
2	Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105	ASTM A216 WCB/A105
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
4	Seat Carrier	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
5	Seat Insert	Nylon/Acetal	Nylon/Acetal	Nylon/Acetal
6	Stem	Carbon Steel	Carbon Steel	316 Stainless Steel
7	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
8	Stem Thrust Washer	TFE	TFE	TFE
9	Snap Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
10	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
11	Seat O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
12	Fireseal	Graphite	Graphite	Graphite
13	Fireseal Support Ring	Stainless Steel	Stainless Steel	Stainless Steel
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Bearing Block	Carbon Steel	Carbon Steel	Stainless Steel
17	Trunnion Bearing	316 SS/TFE	316 SS/TFE	316 SS/TFE
18	Spacer Block	Stainless Steel	Stainless Steel	Stainless Steel
19	Bleed Fitting*	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
20	Sealant Injection Fitting	Alloy Steel	Alloy Steel	Alloy Steel
21	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
22	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A194 2HM
23	Studs	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B7M
24	Stem Bearing	Glass/TFE	Glass/TFE	Glass/TFE
25	Hexhead Capscrew	Alloy Steel	Alloy Steel	Alloy Steel
26	Lock Washer	Alloy Steel	Alloy Steel	Alloy Steel
27	Adapter Plate	Ductile Iron	Ductile Iron	Ductile Iron
28	Capscrews	Alloy Steel	Alloy Steel	Alloy Steel
29	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
30	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel

^{* 3/8&}quot; NPT



Actuator Sizing

Actuator Sizing

Recommended actuator output torques for Balon ball valves may be found on Balon Corporation's website at www.balon.com.

The recommended actuator output torques listed on our website are breakaway torques and are adequate for the operation of Balon ball valves equipped with standard seats and used to control clean liquid at ambient temperature.

The recommended run torque is approximately 1/2, or 50%, of the recommended breakaway torque.

The recommended re-seat torque is approximately 3/4, or 75%, of the recommended breakaway torque.

Corrosion, scale, build-up on the ball, or other service conditions can drastically alter torque requirements and should be given consideration when selecting actuation or automation equipment.

Purpose (Inch)



Standards and Specifications

Balon utilizes the following standards in the manufacture of ball valves. It should be noted that not all styles, configurations and materials used in Balon valves meet all of these standards in their entirety.

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

9.1.01.1.01.01.01.01	
API (American Petroleum Institute)	MSS (Manufacturers Standardization Society)
API-6FA Fire Test For Resilient-Seated Valves	MSS-SP6 Standard Finishes For Contact Faces Of
API 5B Inspection Of Threads	Pipe Flanges And Connection End
API-6D Pipeline Valves, End Closures,	Flanges Of Valves And Fittings
Connectors And Swivels.	MSS-SP25 Standard Marking System For Valves, Fittings,
API-Q1 Quality Programs	Flanges And Fittings
API-594 Wafer Check Valves	MSS-SP72 Ball Valves With Flanged Or Butt
ANSI (American National Standard Institute)	Welding Ends For General Service
ANSI-B 16.5 - Pipe Flanges And Flanged Fittings	MSS-SP82 Valve Pressure Test Methods
ANSI-B 16.10 - Face-To-Face End-To-End	NACE MR-01-75 Sulfide Stress Cracking, Resistant
Dimensions	Metallic Material For Oil Field Equipment (NACE
ANSI-B 16.42 Ductile Iron Pipe Flanges And	Materials Are Optional And Must Be Specified
Flanged Fittings	On Purchase Orders)
ANSI-B 16.34 - Valves - Flanged End,	
ANSI-B (B1.20.1) - Pipe Threads General	
, (2 (2	

CE marking to the PED available on most products

Balon valves contain grease and are not suitable for oxygen service due to an increased risk of combustion or explosion.

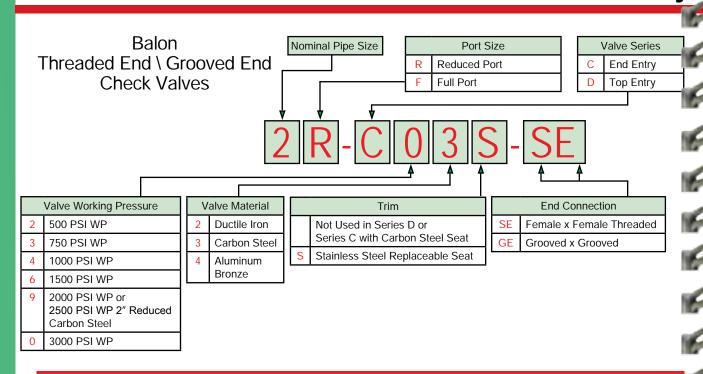


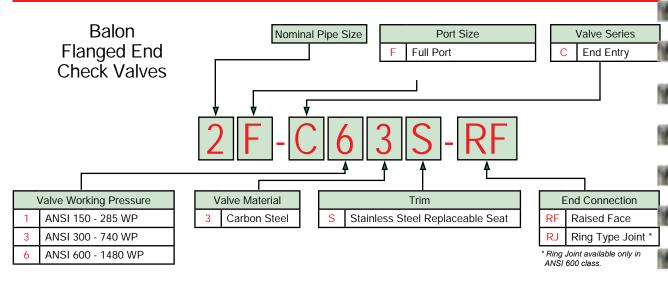
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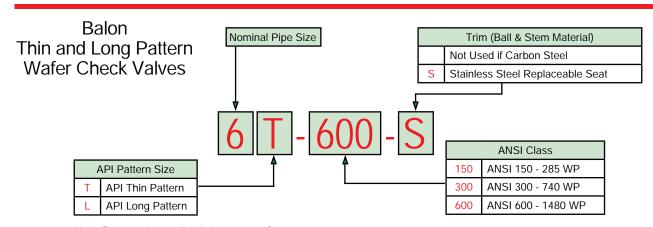
SWING CHECK VALVES

SALON SWING CHECK VALVES CHECK VALVE IDENTIFICATION KEY	C-1 C-2
CHECK VALVE IDENTIFICATION RET	0-2
Balon Check Valve Features	C-3
SERIES D CHECK VALVES	
CARBON STEEL VALVES	
Female x Female Threaded End Connection Carbon Steel, To 2500 PSI WP, Threaded End (1" Through 2")	C-4
DUCTILE IRON VALVES	0-4
Female x Female Threaded End Connection	
Ductile Iron, To 2000 PSI WP, Threaded End (1" Through 4")	C-5
Grooved x Grooved End Connection	
Ductile Iron, 750 PSI WP, Grooved End (2" Through 4")	C-6
ALUMINUM BRONZE VALVES	
Female x Female Threaded End Connection	0.7
Aluminum Bronze, To 2000 PSI WP, Threaded End (1" Through 4") Grooved x Grooved End Connection	C-7
Aluminum Bronze, To 1000 PSI WP, Grooved End (2" Through 4")	C-8
SERIES C CHECK VALVES	
ALUMINUM BRONZE VALVES	
Female x Female Threaded End Connection	
Aluminum Bronze, 3000 PSI WP, Threaded End (2")	C-9
DUCTILE IRON VALVES	
Female x Female Threaded End Connection	0.40
Ductile Iron, To 750 PSI WP, Threaded End (2" Through 3") Ductile Iron, To 1000 PSI WP, Threaded End (2" Through 3")	C-10 C-10
Ductile Iron, 2000 PSI WP, Threaded End (2" Through 3")	C-10 C-11
CARBON STEEL VALVES	011
Female x Female Threaded End Connection	
Carbon Steel, To 3000 PSI WP, Threaded End (1" Through 2")	C-12
Grooved x Grooved End Connection	
Carbon Steel, To 1000 PSI WP, Grooved End (2" Through 3")	C-12
Female x Female Threaded End Connection Carbon Steel, 3000 PSI WP, Threaded End (2")	C-13
Wafer Check	C-13
Wafer ANSI 150, 285 PSI WP Thin Pattern (2" Through 6")	C-14
Wafer ANSI 150, 285 PSI WP Long Pattern (2" Through 6")	C-15
Wafer ANSI 300, 740 PSI WP Thin Pattern (2" Through 6")	C-16
Wafer ANSI 300, 740 PSI WP Long Pattern (2" Through 6")	C-17
Wafer ANSI 600, 1480 PSI WP Thin Pattern (2" Through 6")	C-18
Wafer ANSI 600, 1480 PSI WP Long Pattern (2" Through 6") Flanged End Connection	C-19
Carbon Steel, Flanged End, ANSI 150, 285 PSI WP (2" Through 6")	C-20
Carbon Steel, Flanged End, ANSI 300, 740 PSI WP (2" Through 6")	C-21
Carbon Steel, Flanged End, ANSI 600, 1480 PSI WP (2" Through 6")	C-22

Check Valve Identification Key







Note: For any valves not listed please consult factory.

Check Valve Features

Series D Check Valves

The Balon Series D is a top-entry check valve which is available in carbon steel, ductile iron and aluminum bronze.

All series D are full port to allow for uninterrupted flow through the valve. As is the case with all of Balon's other check valves, all series D meet NACE and include 316 stainless steel discs as standard components.

All Series D feature a specially designed, patented hingeworks consisting of a hinge pin and bearing block. As with the disc, the hinge and bearing block are also made of stainless steel. This special hinge-works supports the disc and encases the hinge in a stainless steel bearing that is fixed in place to prevent the hinge from rubbing against the dissimilar metal of the valve body.

In competitive check valves, this rubbing of dissimilar metals causes erosion and wear and can greatly shorten the useful life of the valve.

Balon's exclusive, patented hinge-works is yet another example of how Balon solves problems by raising the threshold of quality and lowering the cost of ownership.



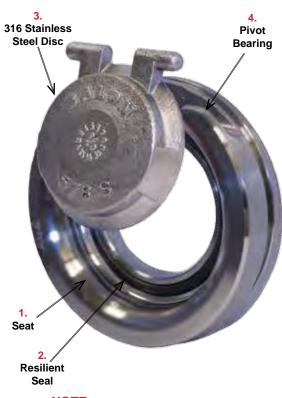
Series C Check Valves

Balon has breathed new life into check valve art by providing a fresh approach that conquers common swing check valve problems of the past.

Check valves often are subjected to damaging service requiring periodic replacement of internal components. Yet the design of most check valves prevents replacement of one of the most important components in a check valve; the seat, which can lead to premature valve failure.

Balon's Series C Check Valves solve this problem by using an innovative cartridge assembly that affords the user an economical and easy way to replace the entire checking mechanism (the disc, seal and seat) in the field, thereby extending the life of the valve.

- 1. Notice the Seat...it is an integral part of the replaceable module and not cast into the body as in other check valves.
- 2. Notice the Resilient Seal...it is firmly anchored into the seat rather than the disc, protecting it from the destructive abrading and blasting effect of the flow.
- **3. Notice the Disc...**it has an integral pivot pin. No problem with wear prone pins and bushings. A positive solution to early mechanical failure.
- **4. Notice the Pivot Bearing...**it is part of the seat module and not the valve body. It is a replaceable part, allowing complete valve renewal.



NOTE:

Use of swing check valves in reciprocating compressor service can substantially reduce service life.





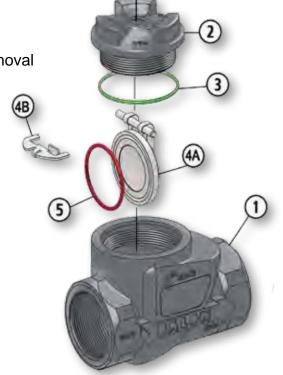
Series D Carbon Steel

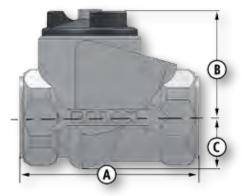
- Top Entry Swing Check Valve
- To 2500 PSI WP
- 1" Through 2"
- Threaded Body Construction
- Patented Hinge-Works for Extended Life
- Stainless Steel Disc Standard
- Improved by Design for Easier Bonnet Removal
- NACE Standard

Material Description

		-			
ITEM	PART NAME DESCRIPTION				
1	Body	ASTM A216 WCB/A105			
2	Bonnet	ASTM A216 WCB/A105			
3	Bonnet Seal	Fluorocarbon (Buna-N Optional)			
4A	Disc	Replaceable 316 Stainless Steel			
4B	Disc Hanger	Stainless Steel			
5	Disc Seal	Fluorocarbon			
6*	Pipe Plug	Carbon Steel			

^{*} Not available in 1"





SIZE	CATALOG	PORT	WP	А	В	С	LBS.
1	1F-D63-SE	1	1500	4.25	2.87	1.12	4.5
1	1F-D93-SE	1	2500	4.25	2.87	1.12	4.5
2	2F-D63-SE	2	1500	6	3.75	1.81	12
2	2F-D93-SE	2	2500	6	3.75	1.81	12



Series D Ductile Iron

- **Top Entry Swing Check Valve**
- To 2000 PSI WP
- 1" Through 4"
- Threaded Body Construction





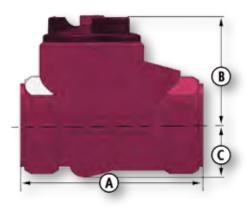
- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Patented Hinge-Works for Extended Life
- Stainless Steel Disc Standard
- Improved by Design for Easier Bonnet Removal
- NACE Standard

Material Description

_			-
	ITEM	PART NAME	DESCRIPTION
Γ	1	Body	ASTM A395 Class 60-40-18 Fully Annealed
Γ	2	Bonnet	ASTM A395 Class 60-40-18 Fully Annealed
	3	Bonnet Seal	Fluorocarbon (Buna-N Optional)
	4A	Disc	Replaceable 316 Stainless Steel
	4B	Disc Hanger	Stainless Steel
	5	Disc Seal	Fluorocarbon
	6*	Pipe Plug	Carbon Steel
	4B 5	Disc Hanger Disc Seal	Stainless Steel Fluorocarbon

^{*} Not available in 1"

SIZE	CATALOG	PORT	WP	Α	В	С	LBS.
1	1F-D42-SE	1	1000	4.25	2.87	1.12	4
1	1F-D92-SE	1	2000	4.25	2.87	1.12	4
2	2F-D12-SE	2	300	6	3.75	1.81	10
2	2F-D32-SE	2	750	6	3.75	1.81	10
2	2F-D42-SE	2	1000	6	3.75	1.81	10
2	2F-D62-SE	2	1500	6	3.75	1.87	11
2	2F-D92-SE	2	2000	6	3.75	1.87	11
3	3F-D32-SE	3	750	8	4.45	2.43	21
4	4F-D32-SE	4	750	10	5.54	3.00	36



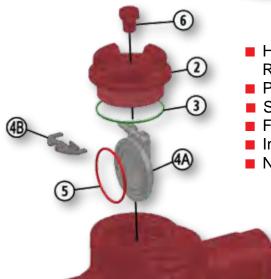


Grooved End Connection



Series D Ductile Iron

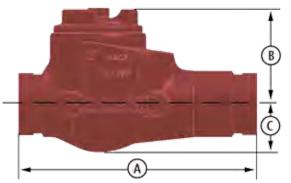
- Top Entry Swing Check Valve
- 750 PSI WP
- 2" to 4"
- Threaded Body Construction



- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Patented Hinge-Works for Extended Life
- Stainless Steel Disc Standard
- Fully Machined Grooves
- Improved by Design for Easier Bonnet Removal
- NACE Standard



ITEM	PART NAME	DESCRIPTION
1	Body	ASTM A395 Class 60-40-18 Fully Annealed
2	Bonnet	ASTM A395 Class 60-40-18 Fully Annealed
3	Bonnet Seal	Fluorocarbon
4A	Disc	Replaceable 316 Stainless Steel
4B	Disc Hanger	Stainless Steel
5	Disc Seal	Fluorocarbon
6	Pipe Plug	Carbon Steel



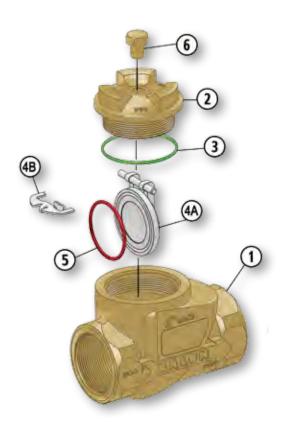
SIZE	CATALOG	PORT	WP	Α	В	С	LBS.
2	2F-D32-GE	2	750	9	3.58	1.82	10
3	3F-D32-GE	3	750	10.75	4.50	2.45	20
4	4F-D32-GE	4	750	12	5.54	2.95	36



Series D Aluminum Bronze

- Top Entry Swing Check Valve
- To 2000 PSI WP
- 1" to 4"
- Threaded Body Construction





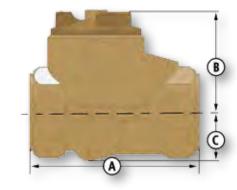
- Enhanced Protection Against CO₂ and Saltwater Corrosion
- Replaceable Disc
- NACE Standard
- 316 Stainless Steel Disc Standard
- Improved by Design for Easier Bonnet Removal
- Minimizes Risk of Galling Associated with Stainless Steel

Material Description

ITEM	PART NAME	DESCRIPTION
1	Body	ASTM B148 9D (955)
2	Bonnet	ASTM B148 9D (955)
3	Bonnet Seal	Fluorocarbon
4A	Disc	Replaceable 316 Stainless Steel
4B	Disc Hanger	Stainless Steel
5	Disc Seal	Fluorocarbon
6*	Pipe Plug	316 Stainless Steel

^{*} Not available in 1"

SIZE	CATALOG	PORT	WP	Α	В	С	LBS.
1	1F-D94-SE	1	2000	4.25	2.87	1.12	4
2	2F-D44-SE	2	1000	6	3.75	1.87	9.8
2	2F-D94-SE	2	2000	6	3.75	1.87	11
3	3F-D44-SE	3	1000	8	4.45	2.43	21
4	4F-D44-SE	4	1000	10	5.54	3.00	36



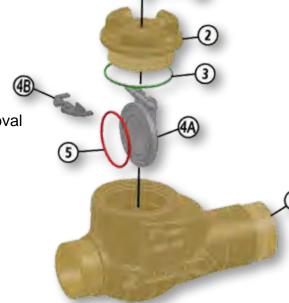


Grooved End Connection



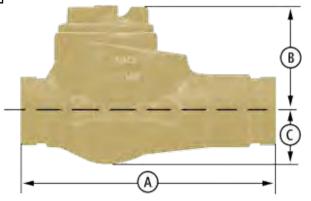
Series D Aluminum Bronze

- Top Entry Swing Check Valve
- 1000 PSI WP
- 2" to 4"
- Threaded Body Construction
- Enhanced Protection Against CO₂ and Saltwater Corrosion
- Replaceable Disc
- NACE Standard
- 316 Stainless Steel Disc Standard
- Improved by Design for Easier Bonnet Removal



Material Description

ITEM	PART NAME	DESCRIPTION
1	Body	ASTM B148 9D (955)
2	Bonnet	ASTM B148 9D (955)
3	Bonnet Seal	Fluorocarbon
4A	Disc	Replaceable 316 Stainless Steel
4B	Disc Hanger	Stainless Steel
5	Disc Seal	Fluorocarbon
6	Pipe Plug	316 Stainless Steel



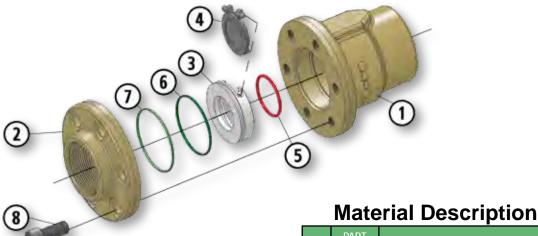
SIZE	CATALOG	PORT	WP	Α	В	С	LBS.
2	2F-D44-GE	2	1000	9	3.58	1.82	9.75
3	3F-D44-GE	3	1000	10.75	4.50	2.45	21
4	4F-D44-GE	4	1000	12	5.54	2.95	36



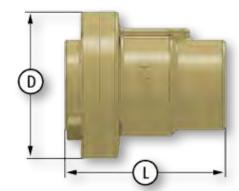
Series C Aluminum Bronze

- Swing Check Valve
- 3000 PSI WP
- **2**"
- **■** Bolted Body Construction
 - Enhanced Protection Against CO₂ and Saltwater Corrosion
 - Replaceable Seat Disc Cartridge
 - Seal Located in Seat, Thus Protected From Flow
 - NACE Standard
 - 316 Stainless Steel Disc Standard
 - Minimizes Risk of Galling Associated with Stainless Steel





	material Becomption				
ITEM	PART NAME	DESCRIPTION			
1	Body	ASTM B148 9D (955)			
2	Adapter	ASTM B148 9D (955)			
3	Seat	Replaceable 316 Stainless Steel			
4	Disc	Replaceable 316 Stainless Steel			
5	O-Ring	Seat Seal: Fluorocarbon			
6	O-Ring	Assembly Seal: Fluorocarbon			
7	O-Ring	Body Seal: Fluorocarbon			
8	Bolts	ASTM A193 B7M			



SIZE	CATALOG	PORT	D	L	LBS.
2	2R-C04S-SE	1.5	4.88	5.37	10.9





Material Description

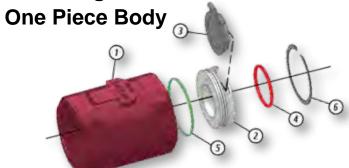
ITEM	PART NAME	DESCRIPTION		
1	Body	ASTM A395 Class 60-40-18 Fully Annealed		
2	Seat	Replaceable Carbon Steel		
3	Disc	Replaceable 316 Stainless Steel		
4	O-Ring	Seat Seal: Fluorocarbon		
5	O-Ring	Body Seal: Buna-N		
6	Retaining Ring	316 Stainless Steel		

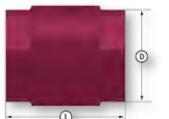
Series C Ductile Iron

Swing Check Valve

■ 750 PSI WP

■ 2" Through 3"





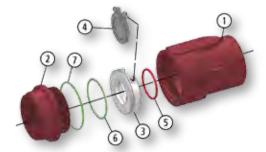
Dimensional Data

SIZE	CATALOG	PORT	D	L	LBS.
2	2R-C32-SE	1.25	3	3.62	3.3
3	3R-C32-SE	2	4.25	4.50	7.3

- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Replaceable Seat Disc Cartridge
- Stainless Steel Disc Standard
- Swing Check Valve
- 1000 PSI WP
- **2**"
- Threaded Body Construction

- Seal Located in Seat, Thus Protected From Flow
- NACE Standard

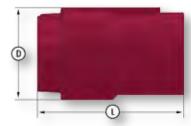




Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT		
1	Body	ASTM A395 Class 60-40-18 Fully Annealed	ASTM A395 Class 60-40-18 Fully Annealed		
2	Adapter	ASTM A395 Class 60-40-18 Fully Annealed	d ASTM A395 Class 60-40-18 Fully Anneale		
3	Seat	Replaceable Carbon Steel	Replaceable 316 Stainless Steel		
4	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel		
5	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon		
6	O-Ring Assembly Seal: Buna-N		Assembly Seal: Fluorocarbon		
7	O-Ring	Body Seal: Buna-N	Body Seal: Fluorocarbon		

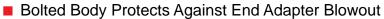
	CATALO	CATALOG NUMBER				
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LBS.
2	2R-C42-SE	2R-C42S-SE	1.5	3.37	5.37	6





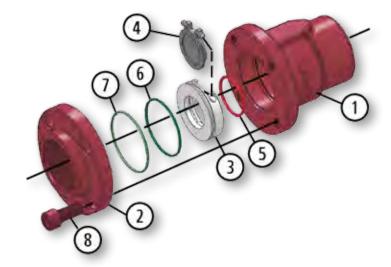
Series C Ductile Iron

- Swing Check Valve
- 2000 PSI WP
- 2" Through 3"
- Bolted Body Construction



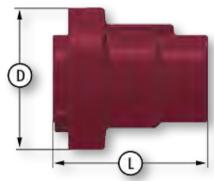
- High Grade Annealed Ductile Iron for Better Corrosion Resistance and Greater Yield Strength
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- 316 Stainless Steel Disc Standard





Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A395 Class 60-40-18 Fully Annealed	ASTM A395 Class 60-40-18 Fully Annealed
2	Adapter	ASTM A395 Class 60-40-18 Fully Annealed	ASTM A395 Class 60-40-18 Fully Annealed
3	Seat	Replaceable AISI 1018 Carbon Steel	Replaceable 316 Stainless Steel
4	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
5	O-Ring	Body Seal: Buna-N	Body Seal: Fluorocarbon
6	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
7	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
8	Bolts	ASTM A193 B7M	ASTM A193 B7M



	CATALOG	NUMBER				
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LBS.
2	2R-C92-SE	2R-C92S-SE	1.5	4.87	5.50	10
3	3R-C92-SE	3R-C92S-SE	2	6.75	7.25	24.3



Threaded \ Grooved End





Series C Carbon Steel

- Swing Check Valve
- To 3000 PSI WP
- 1" Through 2"
- Threaded Body Construction

Material Description

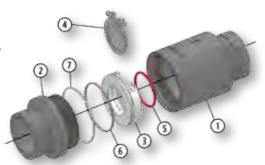
ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT		
1	Body	ASTM A105 Carbon Steel	AISI 1018 Carbon Steel		
2	Adapter	ASTM A105 Carbon Steel	AISI 1018 Carbon Steel		
3	Seat	Replaceable Carbon Steel	Replaceable 316 Stainless Steel		
4	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel		
5	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon		
6	O-Ring Assembly Seal: Buna-N Assembly Seal:		Assembly Seal: Fluorocarbon		
7	O-Ring	Body Seal: Buna-N	Body Seal: Fluorocarbon		

Dimensional Data

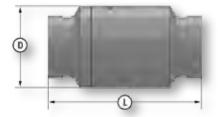
	CATALOG	NUMBER					
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	WP	D	L	LBS.
1	1F-C63-SE	1F-C63S-SE	1	1500	2.75	4.25	4.2
1	1F-C03-SE	1F-C03S-SE	1	3000	2.75	4.25	4.2
2	2F-C43-SE	2F-C43S-SE	2	1000	4	5.75	10.5

- 4.2 4.2 4.2 10.5
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- 316 Stainless Steel Disc Standard

- Swing Check Valve
- 1000 PSI WP
- 2" Through 3"
- Threaded Body Construction







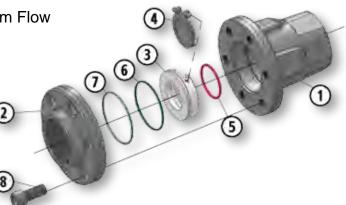
	CATALOG					
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LBS.
2	2R-C43-GE	2R-C43S-GE	1.5	3.12	5.87	5.3
3	3R-C43-GE	3R-C43S-GE	2	4	6.50	9.8



Series C Carbon Steel

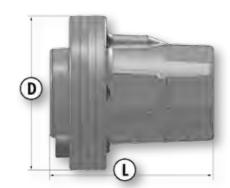
- **■** Swing Check Valve
- 3000 PSI WP
- **2**"
- Bolted Body Construction
 - Bolted Body Protects Against End Adapter Blowout
 - Replaceable Seat Disc Cartridge
 - Seal Located in Seat, Thus Protected From Flow
 - NACE Standard
 - 316 Stainless Steel Disc Standard





Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A216 WCB/A105	ASTM A216 WCB/A105
2	Adapter	ASTM A216 WCB/A105	ASTM A216 WCB/A105
3	Seat	Replaceable	Replaceable
		Carbon Steel	316 Stainless Steel
4	Disc	Replaceable	Replaceable
		316 Stainless Steel	316 Stainless Steel
5	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
6	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
7	O-Ring	Body Seal: Buna-N	Body Seal: Fluorocarbon
8	Bolts	ASTM A193 B7M	ASTM A193 B7M



	CATALOG					
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LBS.
2	2R-C03-SE	2R-C03S-SE	1.5	4.87	5.37	11.7



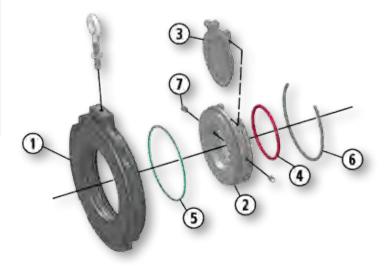


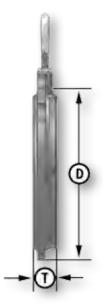
Wafer Check Valves Carbon Steel

- Thin Pattern Swing Check Valve
- ANSI 150 (285 PSI WP)
- 2" Through 6"
- **■** Forged Steel Body Construction
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- 316 Stainless Steel Disc Standard
- Generally Larger Port Sizes Than Other Brands

Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or 17-PH Stainless Steel
3	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel





	CATALOG NUMBER					STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	T	LENGTH	LBS.
2	2T-150	2T-150S	1.25	4.12	.75	4.25	2.5
3	3T-150	3T-150S	2	5.37	.75	4.50	4.4
4	4T-150	4T-150S	2.81	6.87	.75	4.50	7
6	6T-150	6T-150S	4.50	8.75	.87	5	13.5



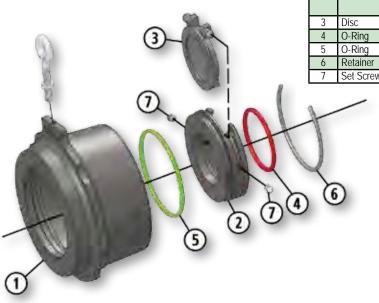
Wafer Check Valves Carbon Steel

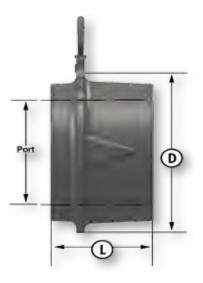
- Long Pattern Swing Check Valve
- ANSI 150 (285 PSI WP)
- 2" Through 6"
- **■** Forged Steel Body Construction
 - Replaceable Seat Disc Cartridge
 - Seal Located in Seat, Thus Protected From Flow
 - NACE Standard
 - 316 Stainless Steel Disc Standard
 - Generally Larger Port Sizes
 Than Other Brands



Material Description

ITEM	NAME	SEAT	SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or
			17-PH Stainless Steel
3	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel





	CATALOG NUMBER					STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LENGTH	LBS.
2	2L-150	2L-150S	1.50	4.12	2.37	5.75	4.9
3	3L-150	3L-150S	2	5.37	2.87	6.50	11.8
4	4L-150	4L-150S	3	6.87	2.87	6.50	15
6	6L-150	6L-150S	4.75	8.75	3.87	8	34



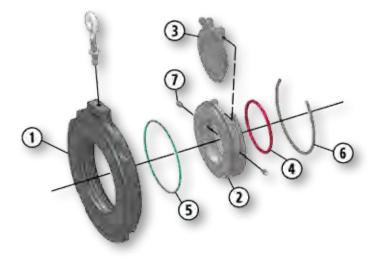


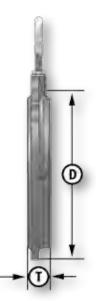
Wafer Check Valves Carbon Steel

- Thin Pattern Swing Check Valve
- ANSI 300 (740 PSI WP)
- 2" Through 6"
- **■** Forged Steel Body Construction
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- 316 Stainless Steel Disc Standard
- Generally Larger Port Sizes Than Other Brands

Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or 17-4PH Stainless Steel
3	Disc	Replaceable Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel





	CATALOG NUMBER					STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	Т	LENGTH	LBS.
2	2T-300	2T-300S	1.25	4.37	.75	4.50	2.5
3	3T-300	3T-300S	2	5.87	.75	5.25	4.4
4	4T-300	4T-300S	2.81	7.12	.75	5.50	6.95
6	6T-300	6T-300S	4.50	9.87	.87	5.75	13.6



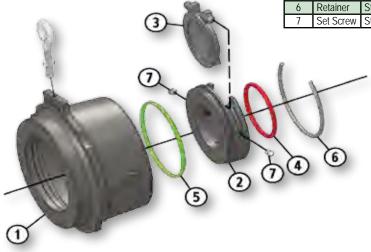
Wafer Check Valves Carbon Steel

- Long Pattern Swing Check Valve
- ANSI 300 (740 PSI WP)
- 2" Through 6"
- **■** Forged Steel Body Construction
 - Replaceable Seat Disc Cartridge
 - Seal Located in Seat, Thus Protected From Flow
 - NACE Standard
 - 316 Stainless Steel Disc Standard
 - Generally Larger Port Sizes
 Than Other Brands

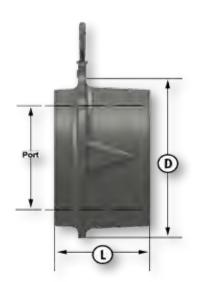


Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or
			17-4PH Stainless Steel
3	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel



CATALOG		NUMBER				STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LENGTH	LBS.
2	2L-300	2L-300S	1.5	4.37	2.37	6.25	4.9
3	3L-300	3L-300S	2	5.87	2.87	7.25	11.8
4	4L-300	4L-300S	3	7.12	2.87	7.75	15
6	6L-300	6L-300S	4.75	9.87	3.87	9	34.8





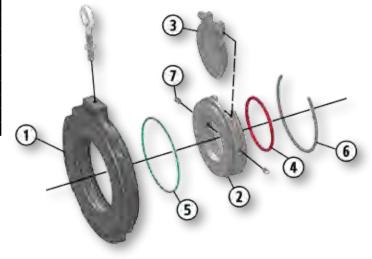


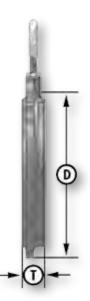
Wafer Check Valves Carbon Steel

- Thin Pattern Swing Check Valve
- ANSI 600 (1480 PSI WP)
- 2" Through 6"
- Forged Steel Body Construction
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- 316 Stainless Steel Disc Standard
- Generally Larger Port Sizes Than Other Brands

Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or 17-4PH Stainless Steel
3	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel





	CATALOG NUMBER					STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	T	LENGTH	LBS.
2	2T-600	2T-600S	1.25	4.37	.75	5.25	2.5
3	3T-600	3T-600S	2	5.87	.75	6	4.4
4	4T-600	4T-600S	2.62	7.62	.87	7	8.5
6	6T-600	6T-600S	4	10.50	1.12	8	19



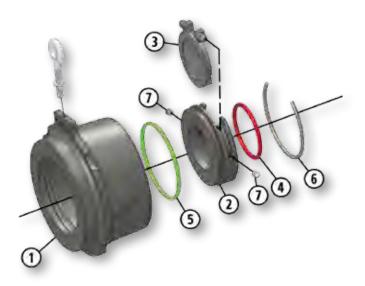
Wafer Check Valves Carbon Steel

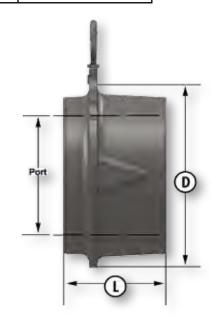
- Long Pattern Swing Check Valve
- ANSI 600 (1480 PSI WP)
- 2" Through 6"
- **■** Forged Steel Body Construction
 - Replaceable Seat Disc Cartridge
 - Seal Located in Seat, Thus Protected From Flow
 - NACE Standard
 - 316 Stainless Steel Disc Standard
 - Generally Larger Port Sizes
 Than Other Brands



Material Description

ITEM	PART NAME	CARBON STEEL SEAT	STAINLESS STEEL SEAT
1	Body	ASTM A105	ASTM A105
2	Seat	Replaceable Carbon Steel	Replaceable 316 Or 17-4PH Stainless Steel
3	Disc	Replaceable 316 Stainless Steel	Replaceable 316 Stainless Steel
4	O-Ring	Seat Seal: Fluorocarbon	Seat Seal: Fluorocarbon
5	O-Ring	Assembly Seal: Buna-N	Assembly Seal: Fluorocarbon
6	Retainer	Stainless Steel	Stainless Steel
7	Set Screw	Stainless Steel	Stainless Steel





	CATALOG NUMBER					STUD	
SIZE	CARBON STEEL SEAT	STAINLESS STEEL SEAT	PORT	D	L	LENGTH	LBS.
2	2L-600	2L-600S	1.5	4.37	2.37	6.75	4.9
3	3L-600	3L-600S	2	5.87	2.87	8	11.8
4	4L-600	4L-600S	3	7.87	3.12	9.25	16
6	6L-600	6L-600S	4.75	10.50	5.37	12.50	48

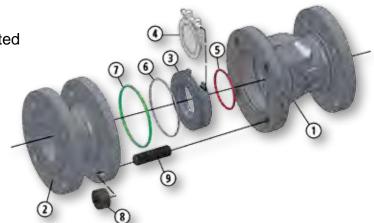


Flanged End Connection



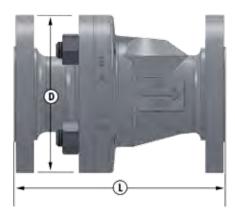
Series C Carbon Steel

- Swing Check Valve
- ANSI Class 150 (285 PSI WP)
- 2" Through 6"
- Bolted Body Construction
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- Stainless Steel Disc and Seat Standard



Material Description

	1	
ITEM	PART NAME	DESCRIPTION
1	Body	ASTM A216 WCB
2	Adapter	ASTM A216 WCB
3	Seat	Replaceable 316 Stainless Steel
4	Disc	Replaceable 316 Stainless Steel
5	O-Ring	Seat Seal: Fluorocarbon
6	O-Ring	Assembly Seal: Fluorocarbon
7	O-Ring	Body Seal: Fluorocarbon
8	Nuts	ASTM A194 2HM
9	Body Bolts	ASTM A193 B7M



SIZE	CATALOG	PORT	D	L	LBS.
2	2F-C13S-RF	2	6	8	27
3	3F-C13S-RF	3	7.50	9.5	48
4	4F-C13S-RF	4	9	11.5	74
6	6F-C13S-RF	6	12.75	14	162



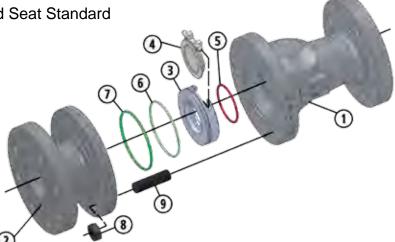
Flanged End Connection

Series C Carbon Steel

- Swing Check Valve
- ANSI Class 300 (740 PSI WP)
- 2" Through 6"
- Bolted Body Construction



- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- Stainless Steel Disc and Seat Standard



Material Description

0	

ITEM	PART NAME	DESCRIPTION
1	Body	ASTM A216 WCB
2	Adapter	ASTM A216 WCB
3	Seat	Replaceable 316 Stainless Steel
4	Disc	Replaceable 316 Stainless Steel
5	O-Ring	Seat Seal: Fluorocarbon
6	O-Ring	Assembly Seal: Fluorocarbon
7	O-Ring	Body Seal: Fluorocarbon
8	Nuts	ASTM A194 2HM
9	Body Bolts	ASTM A193 B7M

SIZE	CATALOG	PORT	D	L	LBS.
2	2F-C33S-RF	2	6.50	10.5	37
3	3F-C33S-RF	3	8	12.5	74
4	4F-C33S-RF	4	9.37	14	111
6	6F-C33S-RF	6	13.25	17.5	268

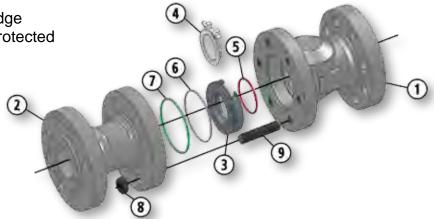


Flanged End Connection



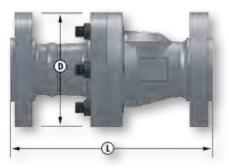
Series C Carbon Steel

- Swing Check Valve
- ANSI Class 600 (1480 PSI WP)
- 2" Through 6"
- Bolted Body Construction
- Replaceable Seat Disc Cartridge
- Seal Located in Seat, Thus Protected From Flow
- NACE Standard
- Stainless Steel Disc and Seat Standard



Material Description

ITEM	PART NAME	DESCRIPTION
1	Body	ASTM A216 WCB
2	Adapter	ASTM A216 WCB
3	Seat	Replaceable 316 Stainless Steel
4	Disc	Replaceable 316 Stainless Steel
5	O-Ring	Seat Seal: Fluorocarbon
6	O-Ring	Assembly Seal: Fluorocarbon
7	O-Ring	Body Seal: Fluorocarbon
8	Nuts	ASTM A194 2HM
9	Body Bolts	ASTM A193 B7M



SIZE	CATA	ALOG	PORT D -		L	LBS.	
SIZE	RAISED FACE	RING JOINT	PURI	U	RF	RJ	LBS.
2	2F-C63S-RF	2F-C63S-RJ	2	6.50	11.5	11.62	42
3	3F-C63S-RF	3F-C63S-RJ	3	8	14	14.12	80
4	4F-C63S-RF	4F-C63S-RJ	4	10.75	17	17.12	188
6	6F-C63S-RF	6F-C63S-RJ	6	13.75	22	22.12	384









Commitment... to Customer Satisfaction







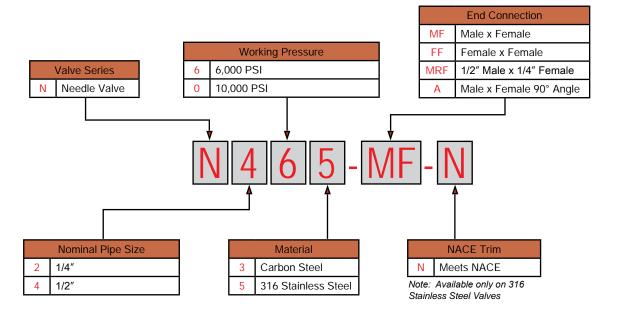


NEEDLE VALVES

NEEDLE VALVES NEEDLE VALVE IDENTIFICATION KEY	N-1 N-2
Balon Needle Valve Features	N-3
CARBON STEEL NEEDLE VALVES 6,000 PSI WP Resilient Seated	
Male x Female (1/4" and 1/2")	N-4
Female x Female (1/4" and 1/2")	N-4
Male x 90° Angle Female (½" x ¼") 10,000 PSI WP Metal Seated	N-4
Male x Female (1/4" and 1/2")	N-5
Female x Female (½")	N-5
316 STAINLESS STEEL SEATED NEEDLE VALVES 6,000 PSI WP Resilient Seated	
Male x Female (1/4" and 1/2")	N-6
Female x Female (½") 10,000 PSI WP Metal Seated	N-6
Male x Female (1/4" and 1/2")	N-7
Female x Female (½")	N-7

Needle Valve Identification Key

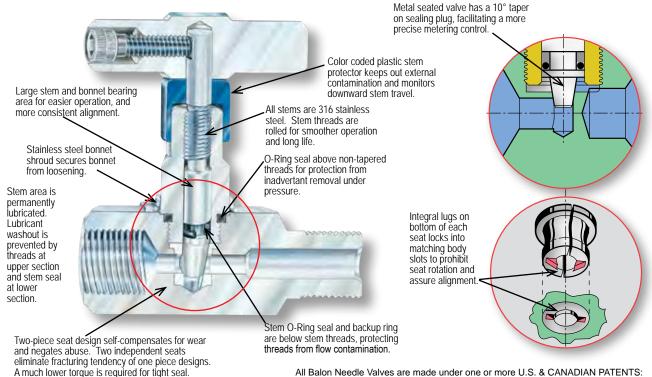
Balon Carbon Steel \ Stainless Steel Needle Valves



Note: For any valves not listed please consult factory.

Needle Valve Features

Balon: The Benchmark for Needle Valves



All Balon Needle Valves are made under one or more U.S. & CANADIAN PATENTS: 4,431,021, 4,452,428, 4,607,422, and 4,811,929 Canadian 1987, 1993.

INTEGRATED STEM AND BONNET DESIGN

The stem and bonnet assembly presents a number of balanced features integrated in such a way as to provide a general improvement in stem operation, service life, and overall safety.

All stems are 316 stainless steel for almost universal corrosion resistance and therefore much longer life.

Stem threads are located above the stem sealing area so that they are protected against contamination from the flow, again contributing to smoother operation and longer life. The thread area is lubricated at the factory, and the stem seal prevents washout of the lubricant, making for a permanently lubricated valve.

The stem threads are rolled for smoother operation and longer life. Note also that the stem and bonnet bearing area is larger than normally encountered. This makes for more precise stem alignment and gives a "superb quality feel" of operation, and it enhances overall seal ability.

An O-ring provides the primary stem sealing with a back-up ring providing lower friction, longer seal life, and a permanently adjusted stem seal arrangement. The color coded plastic stem protector keeps external contamination out of the thread area.

Thick cross sectional area limits and cushions downward handle movement, thus helping to prevent overtightening of stem.

The stainless steel bonnet shroud fits over the hex wrench flats of the bonnet and secures it into position to impede loosening by vibration or other undetected causes.

The bonnet also contains an O-ring seal above the threads. Because

these threads are not tapered, forcible removal of the bonnet would result in early blow-out of the O-ring and immediate leakage, warning against further removal of the bonnet. Conventional designs with tapered threads and no O-ring would not give warning of an impending blowout.

No other needle valve on the market today provides such a complete and rational approach to solving existing operational and safety concerns.

ADVANCE SEALING CONCEPT

Balon's exclusive seat design is a split two-piece design consisting of two counter positioned conical sections. This arrangement provides independent bidirectional sealing. On closing, downward movement of sealing plug transmits force radially. Each seat section "floats" laterally, slightly promoting self-compensation for wear, as well as resistance to distortion, scoring, binding and permanent set, all common maladies of needle valves in general. Since each seat section responds to the cleaving effect of the sealing plug, bubble tight sealing occurs early, with less stem torque required than in other designs.

The split seat configuration preempts seat fracturing, a common cause of valve leakage. Two seats acting separately but also in concert, offer higher integrity sealing and extended service life.

Integral lugs on bottom of each seat section lock into matching recesses in the valve body. Seat rotation is denied. Alignment is assured and consistently maintained.

The Balon concept is not merely an answer to needle valve sealing problems, it constitutes a continued effort to, "raise the threshold of quality and lower the cost of ownership".



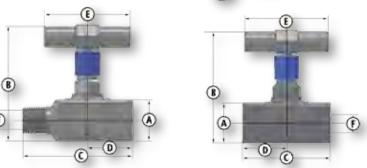
6000 PSI / Resilient Seated

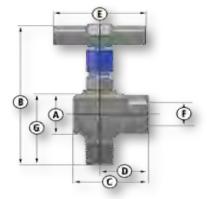


- 316 Stainless Steel Stem Standard
- Non-Rotating Seats
- Bonnet Locking Shroud
- Precise Metering
- Split Seat Design
- Maximum Temp 200°

Material Description

ITEM	PART NAME	CARBON STEEL VALVE
1	Body (MxF) (90 °)	A216 WCB
	• • • • • • • • • • • • • • • • • • • •	(Investment Casting)
2	Body (FxF)	1215 CRS
3	Body (MxF)	AISI 1018
4	Handle	12L14 CRS
5	Handle Bolt	SHCS Zinc Plated
6	Bonnet Cover	Polyethylene
7	Bonnet	12L14 CRS
8	Bonnet O-Ring	Buna-N
9	Stem	316 Stainless Steel
10	Stem Back-up Ring	Buna-N
11	Stem O-Ring	Buna-N
12	Resilient Seat (2 Piece)	Acetal
13	Bonnet Locking Shroud	304 Stainless Steel



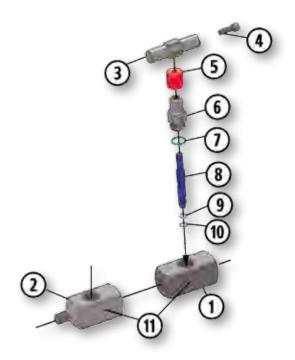


SIZE	CATALOG NUMBER CARBON STEEL	SEAT	DIAGRAM	А	В	С	D	Е	F	G	LBS.
.25	N263-MF	Resilient	Α	1.25	3.87	3.25	1.37	2.62	.219	N/A	1.5
.25	N263-FF	Resilient	В	1.25	3.87	2.75	1.37	2.62	.219	N/A	1.5
.50	N463-MF	Resilient	Α	1.25	3.87	3.37	1.37	2.62	.219	N/A	1.5
.50x.25	N463-MRF	Resilient	А	1.25	3.87	3.37	1.37	2.62	.219	N/A	1.5
.50	N463-FF	Resilient	В	1.25	3.87	2.75	1.37	2.62	.219	N/A	1.5
.50	N463-A	Resilient	С	1.25	4.87	2.12	1.37	2.62	.219	2.25	1.5



10000 PSI / Metal Seated

- 316 Stainless Steel Stem Standard
- Bonnet Locking Shroud
- **■** Precise Metering
- Maximum Temp 200°

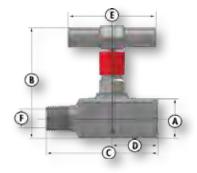


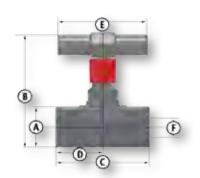




Material Description

ITEM	PART NAME	CARBON STEEL VALVE
1	Body (FxF)	AISI 1018
2	Body (MxF)	AISI 1018
3	Handle	12L14 CRS
4	Handle Bolt	SHCS Zinc Plated
5	Bonnet Cover	Polyethylene
6	Bonnet	12L14 CRS
7	Bonnet O-Ring	Buna-N
8	Stem	316 Stainless Steel
9	Stem Back-up Ring	Buna-N
10	Stem O-Ring	Buna-N
11	Bonnet Locking Shroud	304 Stainless Steel





SIZE	CATALOG NUMBER CARBON STEEL	SEAT	DIAGRAM	А	В	С	D	E	F	LBS.
.25	N203-MF	Metal	А	1.25	3.87	3.25	1.37	2.62	.219	1.5
.50	N403-MF	Metal	А	1.25	3.87	3.37	1.37	2.62	.219	1.5
.50	N403-FF	Metal	В	1.25	3.87	2.75	1.37	2.62	.219	1.5



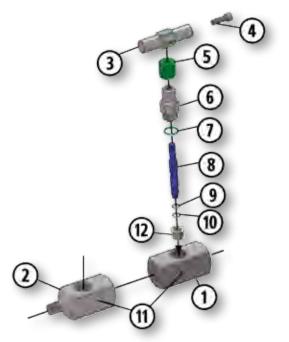


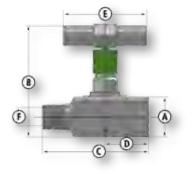
- Non-Rotating Seats
- **■** Bonnet Locking Shroud
- **■** Precise Metering
- Split Seat Design
- Maximum Temp 200°

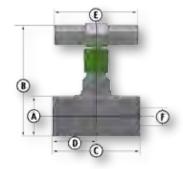


Material Description

ITEM	PART NAME	STAINLESS STEEL
1	Body (FxF)	316 Stainless Steel
2	Body (MxF)	316 Stainless Steel
3	Handle	303 Stainless Steel
4	Handle Bolt	18-8 Stainless Steel
5	Bonnet Cover	Polyethylene
6	Bonnet	316 Stainless Steel
7	Bonnet O-Ring	Buna-N (NACE Fluorocarbon)
8	Stem	316 Stainless Steel
9	Stem Back-up Ring	Buna-N (NACE Fluorocarbon)
10	Stem O-Ring	Buna-N (NACE Fluorocarbon)
11	Resilient Seat (2 Piece)	Acetal
12	Bonnet Locking Shroud	304 Stainless Steel







SIZE	CATALOG NUMBER		SEAT	DIAGRAM	Δ	D	C	n	_	_	LBS.
	STAINLESS STEEL	NACE	SEAI	DIAGRAM	A	Ь	C	U	-	, r	LD3.
.25	N265-MF	N265-MFN	Resilient	А	1.25	3.87	3.25	1.37	2.62	.219	1.5
.50	N465-MF	N465-MFN	Resilient	А	1.25	3.87	3.37	1.37	2.62	.219	1.5
.50	N465-FF	N465-FFN	Resilient	В	1.25	3.87	2.75	1.37	2.62	.219	1.5



10000 PSI / Metal Seated

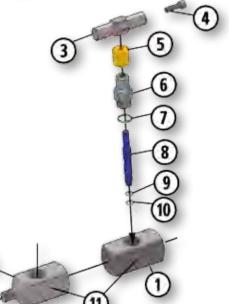
- Bonnet Locking Shroud
- **■** Precise Metering
- Maximum Temp 200°

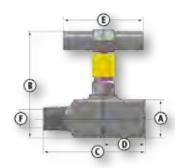


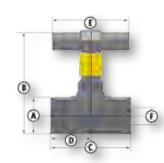


Material Description

ITEM	PART NAME	STAINLESS STEEL
1	Body (FxF)	316 Stainless Steel
2	Body (MxF)	316 Stainless Steel
3	Handle	303 Stainless Steel
4	Handle Bolt	18-8 Stainless Steel
5	Bonnet Cover	Polyethylene
6	Bonnet	316 Stainless Steel
7	Bonnet O-Ring	Buna-N (NACE Fluorocarbon)
8	Stem	316 Stainless Steel
9	Stem Back-up Ring	Buna-N (NACE Fluorocarbon)
10	Stem O-Ring	Buna-N (NACE Fluorocarbon)
11	Bonnet Locking Shroud	304 Stainless Steel





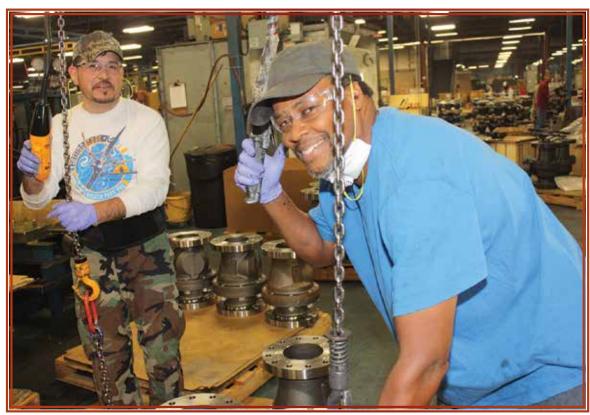


SIZE	CATALOG NUMBER		SEAT	DIAGRAM	^	D	_	_	F	F	LBS.
	STAINLESS STEEL	NACE	SEAI	DIAGRAM	A	Б	C	υ	-		LDS.
.25	N205-MF	N205-MFN	Metal	Α	1.25	3.87	3.25	1.37	2.62	.219	1.5
.50	N405-MF	N405-MFN	Metal	А	1.25	3.87	3.37	1.37	2.62	.219	1.5
.50	N405-FF	N405-FFN	Metal	В	1.25	3.87	2.75	1.37	2.62	.219	1.5



People Make the Difference









TERMS AND CONDITIONS

Terms and Conditions

Order Acceptance: Any written or oral purchase order received from Buyer by Balon Corporation ("Balon" or "Seller") shall be construed as a written acceptance of Balon's offer to sell and shall be filled in accordance with the terms and conditions of sale set forth herein. Balon's acceptance of Buyer's order is expressly conditioned on Buyer's assent to the terms and conditions set forth below. The terms and conditions of Balon's proposal and acknowledgment (if any), including without limitation the terms and conditions set forth below, shall prevail over any conflicting or different terms in Buyer's order. Buyer's terms of purchase will not be considered a counteroffer to Balon's terms and conditions of sale. All terms and conditions proposed by Buyer which are different from or in addition to these Terms and Conditions are expressly rejected by Balon. Such different and/or additional terms and conditions proposed by Buyer shall not become a part of Buyer's order, and Balon's Terms and Conditions shall control the transaction.

Quotations, Prices and Discounts: Any product, service capability or manufacturing capability which may be available at the time a quotation is made is subject to prior sale. Prices quoted are valid for thirty (30) days, unless specifically stated otherwise on the quotation, and are subject to change without notice. The price in effect at the time of shipment including any escalation formula will apply, unless a valid quotation or written agreement to the contrary exists between Buyer and Balon. Unless otherwise expressly stated in writing and acknowledged by an authorized officer of Balon Corporation, all prices set forth in any of Balon's correspondence, printed material, quotations, acknowledgments, other documents or verbal communications are in U.S. dollars and reflect F.O.B. Balon's shipping point. Any documentation pertaining to traceability requirements for raw materials or products or documentation required for any routine or special processes must be identified by the Buyer at the time of quotation (if any) or at the time of order placement, whichever is earlier. All published prices and discounts are subject to change without notice. While Balon Corporation strives to provide accurate product and pricing information, pricing or typographical errors may occur. In the event that an item is listed at an incorrect price or with incorrect information due to an error in pricing or product information, Balon Corporation shall have the right, at its sole discretion, to refuse or cancel any orders placed for that item. In the event that an item is mispriced, Balon Corporation may, at its sole discretion, either contact Buyer for instructions or cancel the order and notify Buyer of such cancellation.

Invoice Terms: Payment for all materials, products and services at the full Invoice stated net price must be received in hand, in good funds at Balon Corporation during normal business hours within thirty (30) calendar days from the date of Invoice (the "Due Date"). The amount of each Invoice for which Balon has not received payment in hand, in good funds at Balon Corporation during normal business hours within thirty (30) calendar days from the date of Invoice, shall be subject to the maximum legal interest rate per annum, or such lesser rate as Balon may determine in its sole discretion, computed daily commencing on the Due Date and continuing until Balon has received in hand, in good funds all amounts due in connection with such Invoice, including without limitation all interest accrued thereon. Balon reserves the right to impose a minimum billing charge on all sales, change orders or order supplements. Buyer agrees that

title and risk of loss shall pass to Buyer on the date of Balon's Invoice.

Taxes, Duties and Exports: Any tax or other charge imposed by law on the sale or production of goods or the performance of services shall be paid by the Buyer, unless the law specifically provides that such payment must be made by Balon, in which case Buyer shall reimburse Balon for such payment as part of the purchase price. Custom duties, consular fees, insurance charges and other comparable charges will be borne solely by Buyer. Consular fees for legalizing invoices, stamping bills of lading, or other documents required by the laws of any country or destination are not included in quotations or selling prices. Balon assumes no responsibility for any fines or other charges imposed due to errors or incorrect declarations.

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

Freight Charges, Allowances and Claims: All shipments are F.O.B. at Balon's plant in Oklahoma City, Oklahoma. Freight charges will be allowed on orders of 1,000 pounds or more for shipment to one (1) destination within the continental United States or Canada (excluding Alaska) when all items are ordered in whole number multiples of minimum carton quantities. Freight allowances are via least expensive way. If Buyer designates a more costly transportation route or carrier, Balon shall have the right to assess a charge upon Buyer for the difference between the cost of Buyer's designated transportation route or carrier and the least expensive transportation method available to Balon. Buyer assumes risk of loss upon delivery to the carrier, regardless of who pays shipping costs. Unless requested in writing by the Buyer, no shipments are insured by Balon against damage or loss in transit. Balon will place insurance as nearly as possible in accordance with Buyer's written instructions but in such case Balon acts only as agent between the insurance company and the Buyer and assumes no liability whatsoever. Any claims for shipping loss, breakage or damage (obvious or concealed) are Buyer's responsibility and should be made to the carrier. All claims regarding shortages must be made to Balon in writing within thirty (30) days from receipt of shipment and must be accompanied by the packing list(s) covering the shipment.

Shipping Schedules: Shipment schedules are given as accurately as conditions permit and effort will be made to make shipments as scheduled. Balon will not be responsible for deviations in meeting shipping schedules nor for any losses or damages (including but not limited to any consequential, exemplary, indirect, incidental, punitive or special damages) incurred or suffered by Buyer or any third party arising out of or in connection with any deviations in the scheduled shipping of Buyer's Order. Balon shall have additional time within which to perform as may be reasonably necessary under the circumstances and shall have the right to apportion its production among its customers in such a manner as Balon deems equitable in its sole discretion.

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



Return Policy: Unused products of current manufacturing design 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 (1) 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 reimbursement or cash payment.

Limited Warranty: Balon warrants its products against defects in material and workmanship for one (1) year from the original date of shipment. Buyer has one (1) year from the original date of shipment to notify Balon, in writing, of any alleged defect in or non-conformance of any product. Upon Balon's request, Buyer shall return the product F.O.B. to Balon's designated plant or service location at Buyer's sole cost and expense. Balon shall have no liability for removal or reinstallation of products. If, in Balon's sole judgment, the product does not conform or is found to be defective in material or workmanship, then Balon, at its sole option, shall either repair the product, replace the product or repay to Buyer the full price paid by Buyer for such product, without interest. If any stipulated remedy shall fail in its essential purpose, Balon shall refund the purchase price of such product, without interest, as the sole and exclusive remedy for any and all claims whether in contract, strict liability, tort or otherwise.

THIS LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR NON-INFRINGEMENT. EVENT SHALL BALON BE LIABLE FOR ANY DAMAGES OF ANY KIND OR NATURE IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT(S) ALLEGED TO BE DEFECTIVE, INCLUDING BUT NOT LIMITED TO ANY CONSEQUENTIAL, EXEMPLARY, INDIRECT, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES, LOSS OF ANTICIPATED PROFITS, LOSS OF USE OF EQUIPMENT OR OF ANY INSTALLATION, SYSTEM OR FACILITY INTO OR AT WHICH BALON'S PRODUCT(S) MAY BE USED OR INSTALLED. PROVIDED, HOWEVER, BALON SHALL NOT BE RESPONSIBLE FOR ANY LOSS OR DAMAGE OF ANY KIND ORNATURE INCLUDING BUT NOT LIMITED TO ANY CONSEQUENTIAL, EXEMPLARY, INDIRECT, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES IF THE PRODUCT IS: USED IN A SERVICE FOR WHICH IT WAS NOT MANUFACTURED; SUBJECTED TO PRESSURE IN EXCESS OF THE MAXIMUM OPERATING PRESSURE FOR SUCH PRODUCT AS DETERMINED BY BALON IN ITS SOLE DISCRETION; TAMPERED WITH OR ALTERED BY ANYONE OTHER THAN AN AUTHORIZED REPRESENTATIVE OF BALON; OR NOT MAINTAINED IN STRICT ACCORDANCE WITH BALON'S RECOMMENDED MAINTENANCE PROCEDURES.

This Limited Warranty may only be altered, amended, expanded, modified, rescinded or terminated in writing signed by an authorized officer of Balon.

Not Intended for Nuclear Use: The products sold hereunder

are not designed or manufactured for use in or with any atomic installation or activity.

Design Changes: Balon, in its sole discretion, shall have the right to manufacture the products provided hereunder as far in advance of its estimated shipping schedule as it deems appropriate. Balon expressly reserves the right to change or modify the design and construction of any product in the course of its manufacturing process without incurring any obligation or liability to furnish or install such changes, modifications or improvements to products previously or subsequently sold.

Indemnification: Buyer agrees to hold Balon and its affiliates and their respective agents, directors, employees, officers and shareholders harmless from any and all attorneys' fees, claims, damages, expert witness fees, fines, litigation costs, losses and remediation expenses to real or personal property, arising in whole or in part from the discharge, escape, loss or spill of hydrocarbons, hazardous waste or other pollutants, regardless of whether such discharge, escape, loss or spill either results from or arises out of the negligence or sole negligence of Balon, its affiliates or their respective agents, directors, employees, officers and shareholders or results from or arises out of any defect in the design or manufacture of Balon's products or results from or arises out of a failure by Balon to warn against any foreseeable danger. Buyer acknowledges and agrees that this indemnity shall apply both to property owned or controlled by Buyer and property owned or controlled by any third party.

Modification, Rescission and Waiver: Balon's Terms and Conditions of Sale herein may only be amended, modified or rescinded by a written instrument signed by an authorized officer of Balon at its office in Oklahoma City, Oklahoma that expressly states as its purpose to amend, modify or rescind these Terms and Conditions of Sale in whole or in part. Failure by Balon to insist in any one or more instances upon the performance of any of these Terms and Conditions of Sale or the failure of Balon to exercise any of its rights hereunder shall not be construed as a waiver or relinquishment of any such term, condition, or right hereunder and shall not affect Balon's right to insist upon strict performance and compliance with regard to any unexecuted portions of this contract or future performance of these terms and conditions. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any of the provisions of this Agreement.

Choice of Law, Forum and Venue: These Terms and Conditions of Sale shall for all purposes be governed by and interpreted and enforced in accordance with the laws of the State of Oklahoma, without reference to or application of any conflict of laws provision which would direct the application of the law of any other jurisdiction. Buyer agrees (i) not to file or institute any action, lawsuit or proceeding asserting any claim, defense, offset or right against Balon or any of its affiliates or any of their respective agents, directors, employees, officers or shareholders that relates in any way to any product sold or service supplied by Balon or to these Terms and Conditions of Sale (an "Action") before any court, tribunal forum or venue other than the state or federal district courts located within Oklahoma County, Oklahoma (collectively, the "Oklahoma Courts") and (ii) to submit, without objection, in any Action to the in personam jurisdiction of the Oklahoma Courts.





Leading the Pack Through Innovation





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