



Completely made and assembled in the U.S.A.

Sure Seal Series
500-890
Butterfly Valves
PATENTED

Sizes 2"-12"

*Interchangeable with
Keystone Figure 100 and 99*

Sure Seal is setting the standards for the transportation industry with a new body design that is lightweight and easier to install



**Get More For Your
Money With Sure Seal!**

Sure Seal's patented improvements and special features make our valve superior over all other valves on the market today.



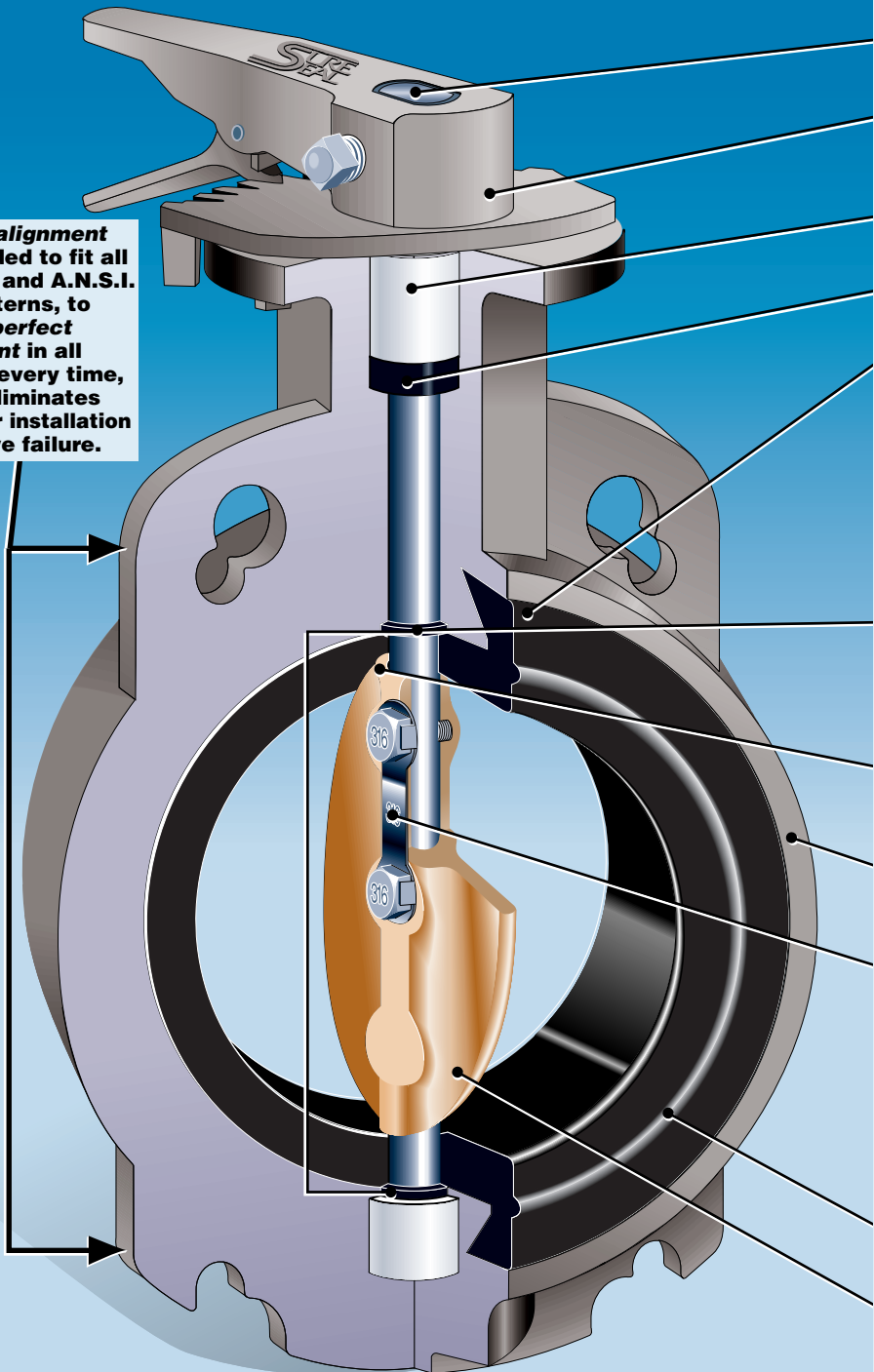
Sure Seal Series 500

PATENTED

Sizes 2"-12"

Offers New Concepts for **QUALITY** and **SAVINGS**

NEW - alignment ears added to fit all T.T.M.A. and A.N.S.I. bolt patterns, to assure **perfect alignment** in all flanges every time, which eliminates improper installation and valve failure.



STANDARD FEATURES

Stem - Machined from 17-4 Stainless Steel to eliminate twisting of stem. Gives direct disc control of full or partial product flow.

Die Cast Handle and Handle Plate - Die cast handle is lighter and stronger. One handle fits all valves 2" - 6". Handle plate has no bolts which eliminates corrosion and added maintenance cost.

Stem Bushing - Injection molded to reduce cost and hold tighter tolerances. Not machined out of solid stock with waste as other manufacturers.

Stem-Seal - A third seal ensuring absolute seal externally or internally for vacuum or pressure service. Available in Buna-N, EPDM, or Viton®.

Seat - Sure Seal's special formulated blend of nitrile rubber is abrasion resistant from 300° to -40° Fahrenheit and stays resilient and flexible without significant Durometer rise. Testing of above mentioned factors proved to be 30% better in all categories versus other seat compounds available in the transportation industry today. Black is recommended for high abrasion non-edibles such as sands and cement. White is recommended for high abrasion edibles such as salts, granular sugars and all others - FDA approved.

O-Seal (patented) - Two Sure Seal O-Seals give a sure secondary seal as the O-seal becomes part of the body and encircles the stem before entering the seat and disc area. O-seals are also located at top and bottom of stem entry to form an absolute secondary seal. Available in Buna-N, EPDM, Viton®, or Teflon®.

Hub or Primary Seal - Occurs when contact is made between the disc hub and the flat surface of the seat. Hub/seat seals prevent product from attacking stem or body.

Body - Standard aluminum, machined to precision, making a lightweight valve excellent for the transportation industry. Also available in other materials.

Disc Screw and (patented) Sure Lock Assembly - Sure Seal's Sure Lock Disc Screw Assembly is made of 316 Stainless Steel. Disc is machined to precision tolerance in order for Sure Lock to be recessed in face of disc, for extra locking ability. Sure Lock also holds O-Ring in proper position and eliminates costly disc screw back out and shearing of disc screws. Contains two 316 Stainless Steel disc screws. O-Rings are available in Buna-N, EPDM, or Viton®. Factory recommends that the Sure Lock be replaced anytime valve is disassembled and reassembled.

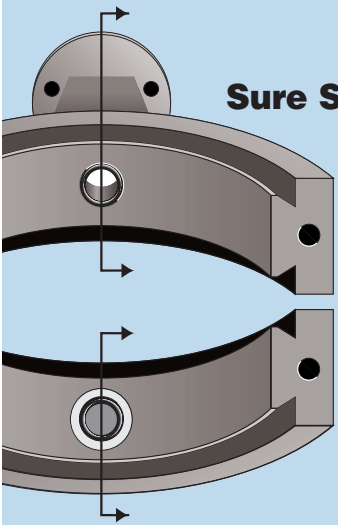
Flange Seal - Sealing O-Ring of resilient seat which provides an absolute seal to all flanges within specifications. Also available in square shoulder.

Disc - Precision machined and hand polished for positive seal with contoured edges for lower operating torque plus increased seat life. Sure Seal offers a full line of under cut discs, sizes 2"-12", making it the only manufacturer to offer this option today.

Designed for maximum product flow. Available in 50 p.s.i. and 150 p.s.i. at same cost. Comes in Nodular Iron, Aluminum Bronze, or 316 Stainless Steel.

Sure O-Seal

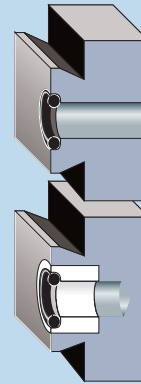
Sure Seal's O-Seal is standard in all Series 500-522, 890-893, 899-892 Valves



Sure O-Seal's Patented O-Seal is machined directly into the housing on the upper body on all valves. Our 2" & 3" valves are machined in the lower body where no bushing is required. While on 4" and larger valves, the O-Seal is in the lower bushing.

Materials: Buna-N, EPDM, Viton®. Teflon® is standard in all Teflon® Valves.

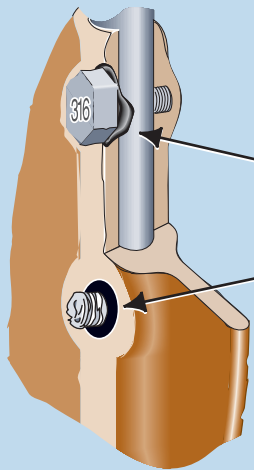
Teflon® and Viton® are register trademarks of E.I. DuPont Co.



Sure O-Seal gives a sure secondary seal as the O-Seal becomes part of the body and encircles the stem before entering the seat and disc area.

O-Seals are located at top & bottom of the stem entry, forming an absolute secondary seal.

Sure Lock

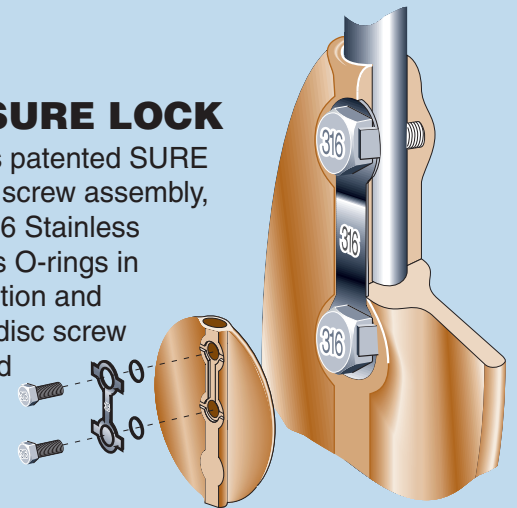


WITHOUT SURE LOCK

O-rings can bind and slip from position
Constant vibrations and opening and closing of valves causes screw backout and shearing

WITH SURE LOCK

Sure Seal's patented SURE LOCK disc screw assembly, made of 316 Stainless Steel, holds O-rings in proper position and eliminates disc screw backout and shearing.

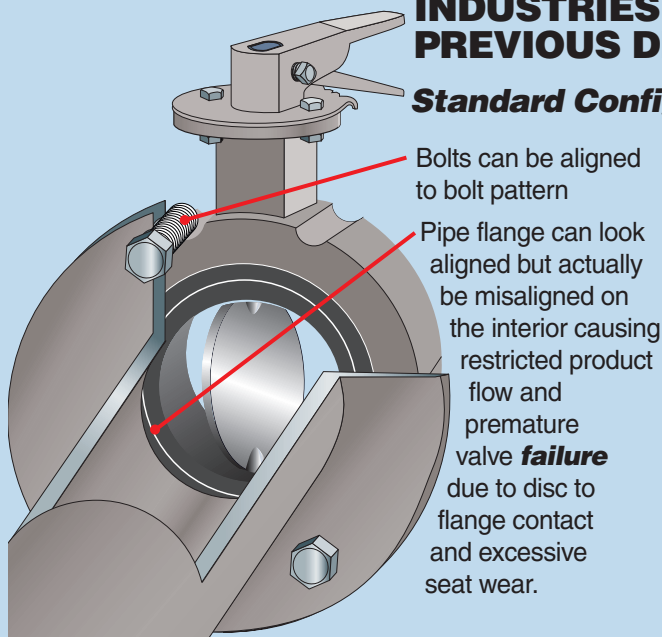


Sure-Align

STOP PREMATURE VALVE FAILURE WITH SURE SEAL'S ALIGNMENT EARS

INDUSTRIES PREVIOUS DESIGN

Standard Configuration

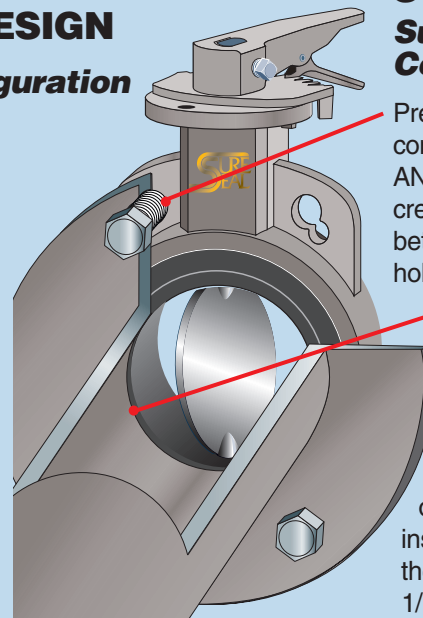


Bolts can be aligned to bolt pattern
Pipe flange can look aligned but actually be misaligned on the interior causing restricted product flow and premature valve **failure** due to disc to flange contact and excessive seat wear.

PREVIOUS DESIGN

SURE-ALIGN

Sure Seal's New Configuration



Precision Alignment Ears conform to both TTMA and ANSI flange patterns and create a perfect alignment between flange and valve hole patterns.

Interior of pipe flange aligns to seat eliminating guess work caused by standard valve hole patterns and guarantees trouble free disc operation. When bolts are installed, in any bolt pattern, the valve is always within 1/16" of exact center of pipe.

NEW DESIGN



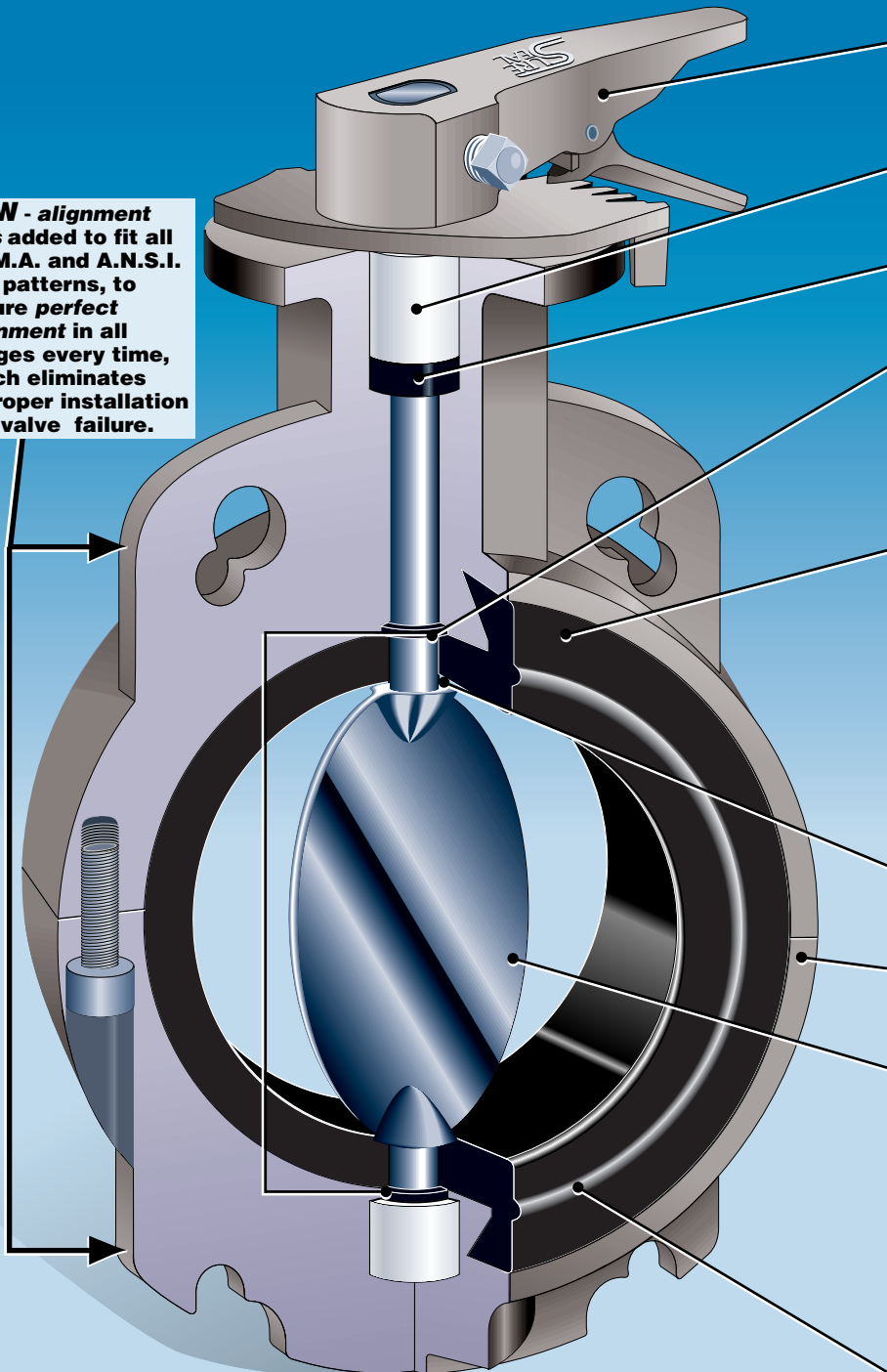
Sure Seal Series 890

PATENTED

Sizes 2"-12"

A Truly Sanitary Valve for the Long Haul

NEW - alignment ears added to fit all T.T.M.A. and A.N.S.I. bolt patterns, to assure *perfect alignment* in all flanges every time, which eliminates improper installation and valve failure.



STANDARD FEATURES

Die Cast Handle and Handle Plate - Die cast handle is lighter and stronger. One handle fits all valves 2" - 6". Handle plate has no bolts which eliminates corrosion and added maintenance cost.

Stem Bushing - Injection molded to reduce cost and hold tighter tolerances. Not machined out of solid stock with waste as other manufacturers.

Stem-Seal - A third seal ensuring absolute seal externally or internally for vacuum or pressure service. Available in Buna-N, EPDM, or Viton®.

O-Seal (patented) - Two Sure Seal O-Seals give a sure secondary seal as the O-seal becomes part of the body and encircles the stem before entering the seat and disc area. O-seals are also located at top and bottom of stem entry to form an absolute secondary seal. Available in Buna-N, EPDM, Viton®, or Teflon®.

Seat - Sure Seal's special formulated blend of nitrile rubber is abrasion resistant from 300° to -40° Fahrenheit and stays resilient and flexible without significant Durometer rise. Testing of above mentioned factors proved all season blend to be 30% better in all categories versus other seat compounds available in the transportation industry today. Black is recommended for high abrasion non-edibles such as sands and cement. White is recommended for high abrasion edibles such as salts, granular sugars and all others - FDA approved.

Hub Seal or Primary Seal - Occurs when contact is made between the disc hub and the flat surface of the seat. Hub/seat seals prevent product from attacking stem or body.

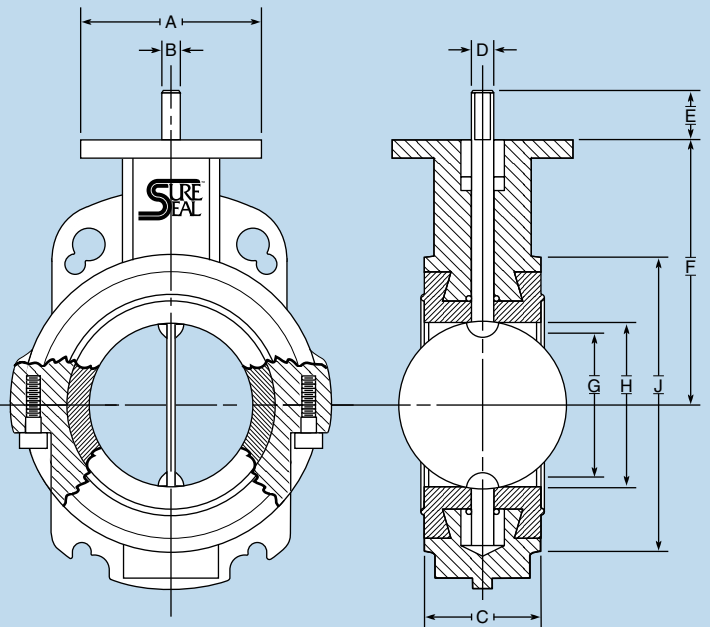
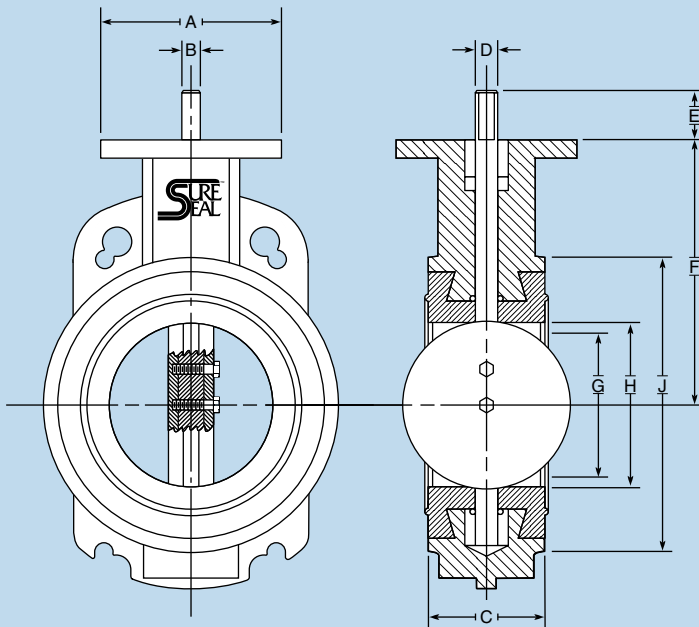
Body - Standard aluminum, machined to precision, making a lightweight valve excellent for the transportation industry. Also available in other materials.

Disc/Stem - *Sure Seal's standard is 255, a duplex stainless which is more corrosion resistant and almost twice as strong as all other butterfly valve manufacturers' standard 316 stainless steel.* This eliminates shaft twisting and contamination from corrosion and allows a thin disc design which increases CV rating without reducing strength. *Satin Finish is standard in all Sure Seal valves - a true food grade finish which is a costly option with other valve manufacturers.* Other materials are also available.

Flange Seal - Sealing O-Ring of resilient seat which provides an absolute seal to all flanges within specifications.

Sure Seal Series 500

Sure Seal Series 890



Valve Size		SERIES 500 ONLY							
Valve Dimension	2	3	4	5	6	8	10	12	
A	4.00	4.000	4.000	4.000	4.000	6.000	6.000	6.000	
B	.375	.375	.438	.438	.438	.500	.625	—	
C	1.625	1.750	2.000	2.125	2.125	2.500	2.500	3.000	
D	.563	.563	.625	.625	.625	.750	.875	1.125	
E	1.250	1.250	1.250	1.250	1.250	1.250	1.250	2.000	
F	3.938	4.875	6.000	6.000	6.500	8.313	9.000	10.625	
G	1.688	2.875	3.875	5.000	6.000	8.000	10.063	11.938	
H	2.125	3.125	4.125	5.188	6.125	8.125	10.125	12.093	
J	3.762	4.438	6.270	7.125	8.250	10.600	12.495	15.375	

500	
A	Stem
B	Top Bushing
C	Stem Packing
D	Housing
E	Sure O-Seal (2)
F	Seat
G	Bottom Bushing
H	Disc
I	O-Rings (2)
J	Sure Lock
K	Disc Screws (2)

890	
A	Top Bushing
B	Stem Packing
C	Housing
D	Sure O-Seal (2)
E	Housing Bolts
F	Seat
G	Bottom Bushing
H	Disc/Stem

890 NOTES:

6" — D = .750; B = .500 10" — E = 2.000; D = 1.125 W/KEYWAY
 8" — D = .875; B = .625

GENERAL NOTES:

C = INSTALLED WIDTH
 G = MINIMUM ALLOWABLE INSIDE DIA. OF PIPE OR MATING FLANGE
 2"-10" — D = STEM CONNECTION DIA.; B = FLATS
 12" — D = STEM CONNECTION DIA.; KEYWAY = .250 X .250
 J = 3.850 ON 2" CAST IRON BODIES
 J = 4.525 ON 3"-500 CAST IRON BODY

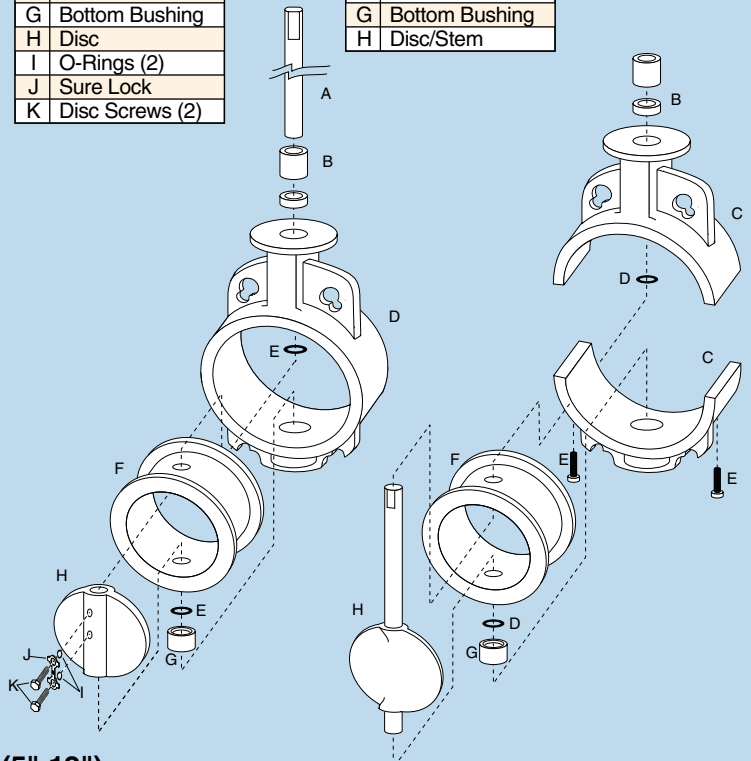
Top Plate Drilling

		SERIES 500 ONLY							
	2	3	4	5	6	8	10	12	
No. Holes	4	4	4	4	4	4	4	4	
Bolt Circle	3.250	3.250	3.250	3.250	3.250	5.000	5.000	5.000	
Hole Dia.	.438	.438	.438	.438	.438	.563	.563	.563	

Weight in Pounds*

		SERIES 500 ONLY							
	2	3	4	5	6	8	10	12	
500	3	4	7	7	9	22	29	48	
890	3	3	6	7	8	17	29	48	

*Weight is based on aluminum body with 255 SS disc.



Wafer Bolt Circle Data (5"-12")

Valve Size	Pattern Style	Bolt Circle	No. Holes	Hole Dia.
2	T.T.M.A.	3.750	6	.438
	T.T.M.A.	4.250	4	.438
	A.N.S.I.	4.750	4	.688
3	T.T.M.A.	4.875	6	.438
	T.T.M.A.	4.875	8	.438
	A.N.S.I.	6.000	4	.688
4	T.T.M.A.	5.875	8	.438
	T.T.M.A.	7.000	6	.562
	A.N.S.I.	7.500	8	.688

Valve Size	Pattern Style	Bolt Circle	No. Holes	Hole Dia.
5	T.T.M.A.	7.875	6	.562
	A.N.S.I.	8.500	8	.812
6	T.T.M.A.	9.000	8	.562
	A.N.S.I.	9.500	8	.812
8	T.T.M.A.	11.625	8	.688
	A.N.S.I.	11.750	8	.812
10	T.T.M.A.	13.750	8	.688
	A.N.S.I.	14.250	12	.937
12	T.T.M.A.	16.750	12	.688
	A.N.S.I.	17.000	12	.937

Valve Conversion Table

Sure Seal	Keystone	Ultraflo
Series 890	Fig #099	Model 390
Series 500	Fig #100	Model 400
Series 522	Fig #122	Model 422
Series 892	Fig #992	Model 392
Series 893	Fig #993	Model 393
Series 899	Fig #999	Model 399



NOTES:
 All aluminum valve bodies have as standard all T.T.M.A. and A.N.S.I. drill patterns.

U.S. Patent #5207411, 5360030 and other U.S. & Foreign Patents Pending.
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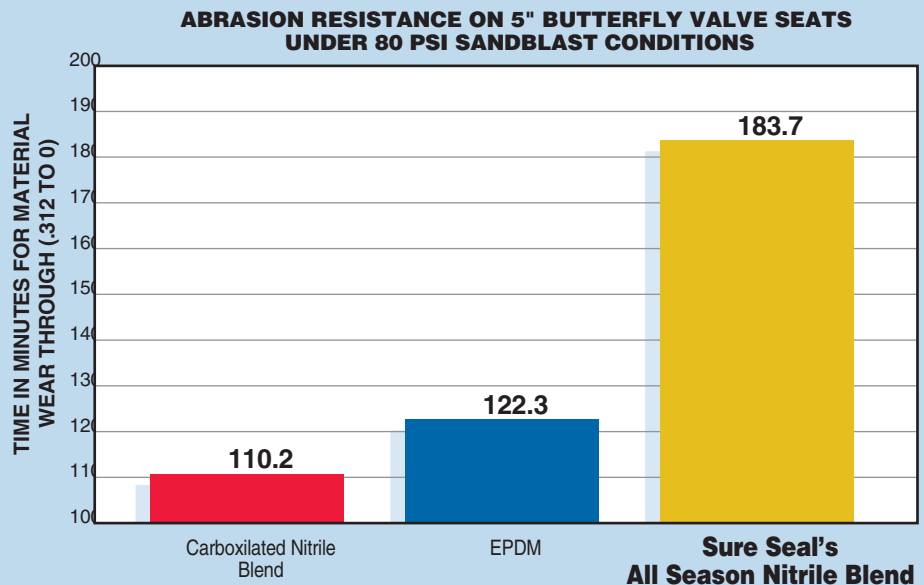
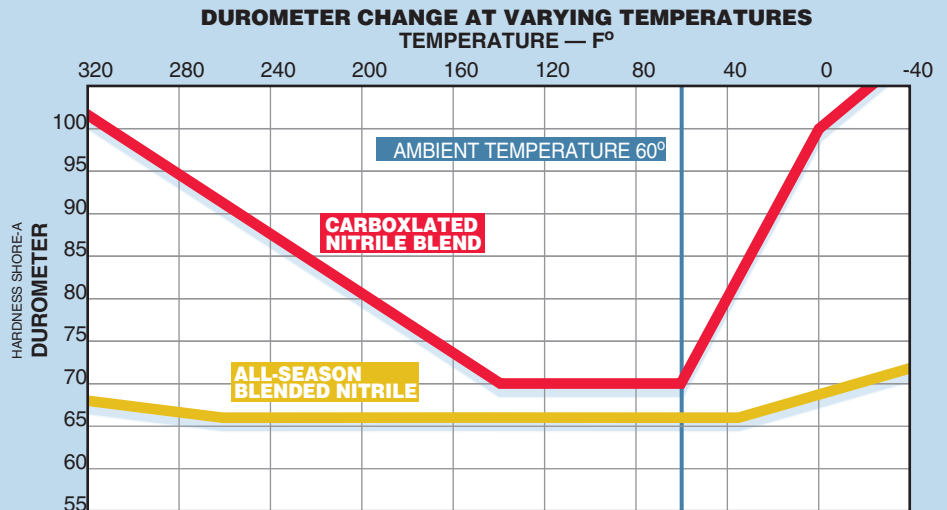
Sure Seal's New All-Season Abrasion-Resistant Valve Seat Specifically Designed for the Transportation Industry.



The All-Season Seat, unlike other seats, does not change in Durometer significantly in hot or cold temperature changes or lose abrasion resistances in temperature change.

What is Durometer? It is the method of measuring the hardness of a rubber part. In most other valve seats that are abrasion resistant, such as Carboxylated Nitrile, it is resilient and abrasion resistant from 220° to -40° Fahrenheit. When the temperature drops below -40° Fahrenheit or above 220° Fahrenheit, the Durometer starts to raise and the rubber seat gets harder which increases the torque in the butterfly valve, making it harder to open or close. This can result in twisting of the stem or serious damage to the valve. To reduce the hot and cold temperature effect to the Carboxylated Nitrile rubber, you would have to add plasticizers or other fillers which take away from the abrasion resistance of the Carboxylated Nitrile, making it a Carboxylated Nitrile blend.

Sure Seal's special formulated blend of nitrile rubber is abrasion resistant from 300° to -40° Fahrenheit and stays resilient and flexible without significant Durometer rise. Black is recommended for high abrasion non-edibles such as sands and cement. White is recommended for high abrasion edibles such as salts, granular sugars and all others - FDA approved. The following graphs show the Durometer change at different temperatures of Carboxylated Nitrile blend and Sure Seal's All-Season blend of nitrile rubber. Also there is a graph showing the abrasion resistance of Sure Seal's All-Season blend of nitrile compared to Carboxylated Nitrile blend after fillers have been added, and EPDM Seat Material.



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The data presented in this brochure is meant for general information only. Manufacturer is not responsible for acceptability of these products in regard to individual system requirements. For specific performance data and correct materials selection, please contact your Sure Seal Dealer.