

# S-C CLASS

SOFT SEATED BALL VALVES



**gOSCO**  
VALVES  
designs that outperform

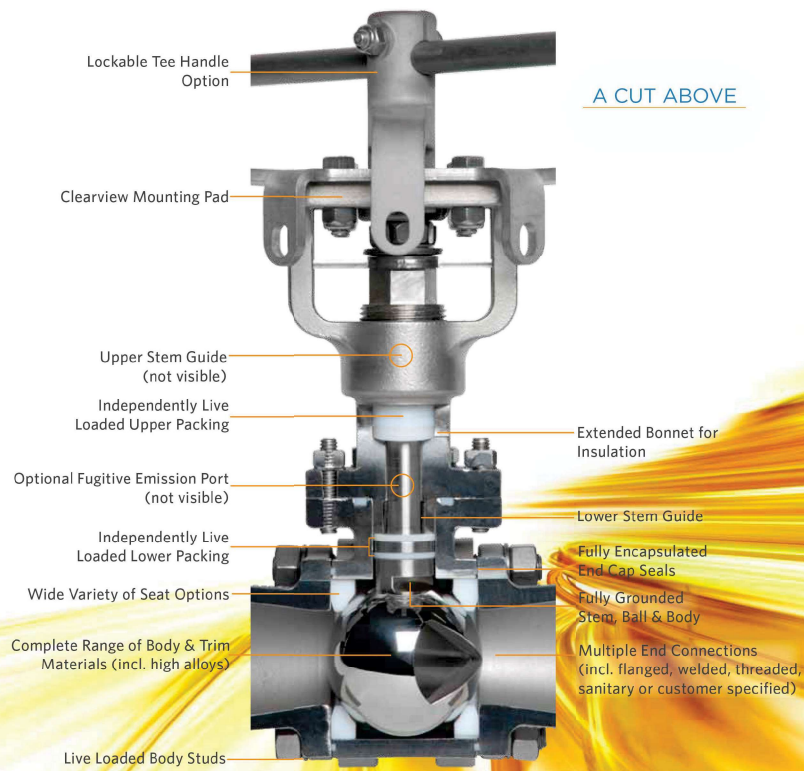
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### S-CLASS CORE TECHNOLOGY

At the heart of every Gosco Valve lies S-Class Core Technology. Each configuration starts life as an S-Class On/Off Valve, and by adding optional components, treatments/coatings, and accessories many applications can be achieved. This provides you with dramatically shorter lead times, quicker setup and an outstanding product that will outperform in some of the most demanding applications.





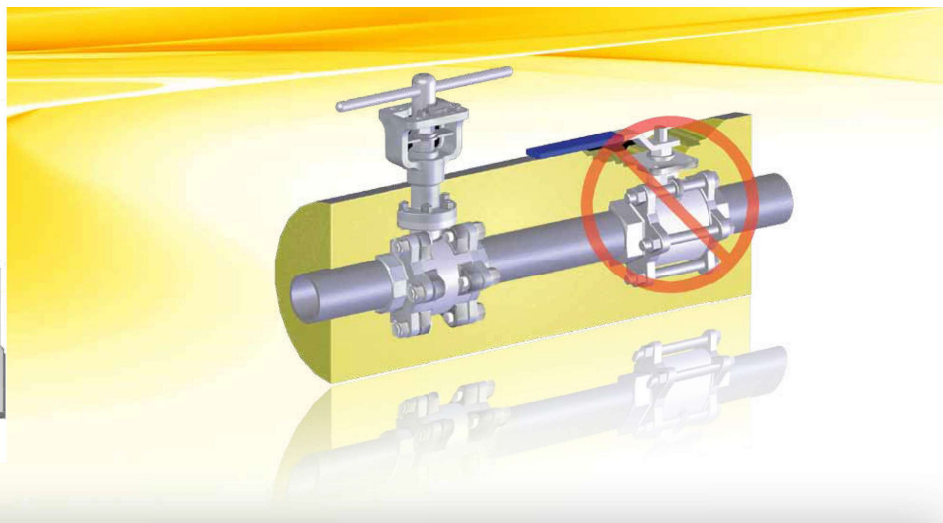
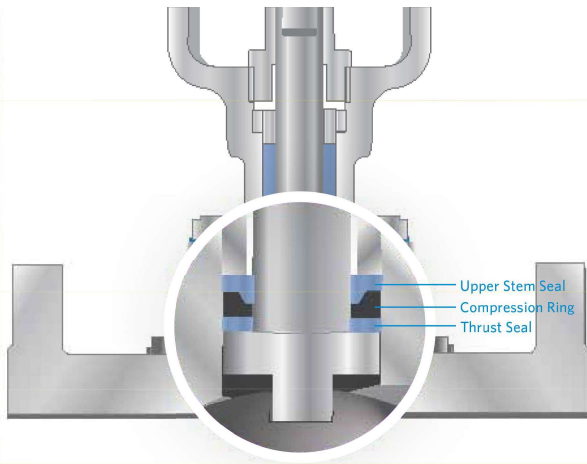
#### THE VISIONARY

The Clearview Mounting Pad is a patented design that combines a cast bracket with an ISO 5211 mounting pad. The pad is raised and open, keeping the stem flats visible. Packing adjustments are accessible without removing the actuator or insulation.

#### KILLER INSTINCT

The fugitive emissions port is located between the Sealmaster and the upper packing. If leakage occurs past the Sealmaster, the upper packing is designed to contain the leak. For lethal applications, the fugitive emissions port can be purged with an inert gas, and a pressure switch can monitor leakage. It is very important that the purge pressure is higher than the process pressure because this will prevent the process media from escaping.





### SEAL THE DEAL

The Sealmaster is a patented stem seal that is comprised of three parts - an upper stem seal, compression ring and a thrust seal. When the Sealmaster is tightened, the compression ring squeezes the upper stem seal against the valve's body. The Sealmaster stem seal can be re-tightened to recommended torques.

### SKY'S THE LIMIT

The extended bonnet is perfect for insulated lines. There is a minimum of 2" between the top of the flange and bottom of the Clearview Mounting Pad. Even with insulation in place, the stem flats are visible, packing adjustments are accessible, and the actuator is raised away from elevated process temperatures, preventing damage to the actuator seals.

# CRYO VALVE

The S-Class **Cryogenic Valve** can handle temperatures as low as  $-200^{\circ}\text{C}$  ( $-328^{\circ}\text{F}$ ). A bolt-on retrofit kit is also available.

Our cryogenic valves have a minimum 12" extension to protect the actuator/handle from ice ball build up. A retrofit assembly consisting of a replacement stem, bonnet and packing is pre-torqued and tested in the factory for hassle-free maintenance. We offer oxygen cleaning and trim options for temperatures as low as  $-200^{\circ}\text{C}$  ( $-328^{\circ}\text{F}$ ).



# BLOCK & BLEED

S-Class **Block & Bleed Valves** feature Single/  
Double Block & Bleed with live loaded seats.

We offer three styles of Block+Bleed valves:

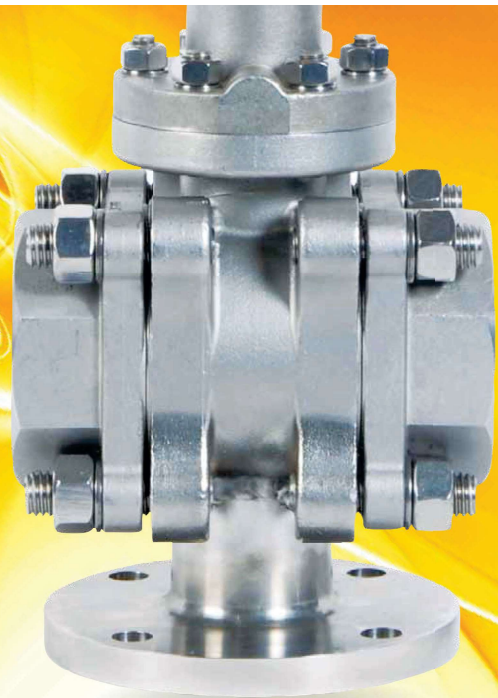
- Single Block & Bleed with live loaded seats (one valve, two seats, and a bleed valve)
- Double Block & Bleed (two valves with a spacer between them and a bleed valve)
- Double Block & Bleed in a single body (one valve, four seats, and a bleed valve)



## 3-WAY VALVE

S-Class **3-Way Diverter Valves** provide bottom entry with flow to the left or right ports. "Single-L" for 180°, "Double-L" for 90°.

Our quarter turn 3-Way Diverter Valves are bottom entry with flow to the left or right ports. We offer a "Single-L Port" ball for 180° applications (there is no mixing of the media between the two ports), and a "Double-L Port" ball for 90° applications (there is mixing between the ports). The seats are live loaded so that they seal in both directions.

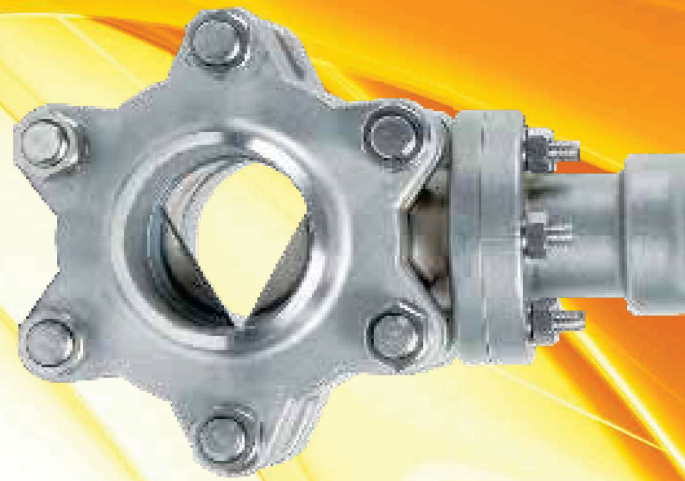




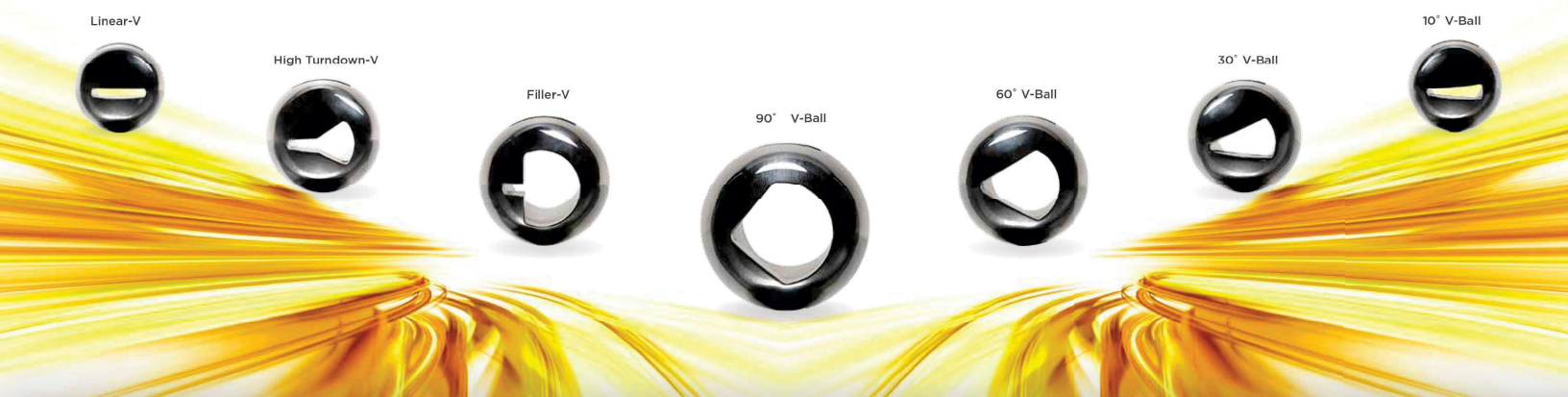
# VARI-V VALVE

The S-Class **Vari-V Ball Valve** offers precise flow control through a specific profile that is machined into the ball.

When precise control of flow or pressure is required in a soft seated ball valve, the S-Class Vari-V Control Valve is perfect for your tough applications. Standard 10°, 30°, 60°, 90° V's are cut into the ball for diverse C, and control requirements. Custom profile Vs are used for unusual applications requiring special flow characteristics.



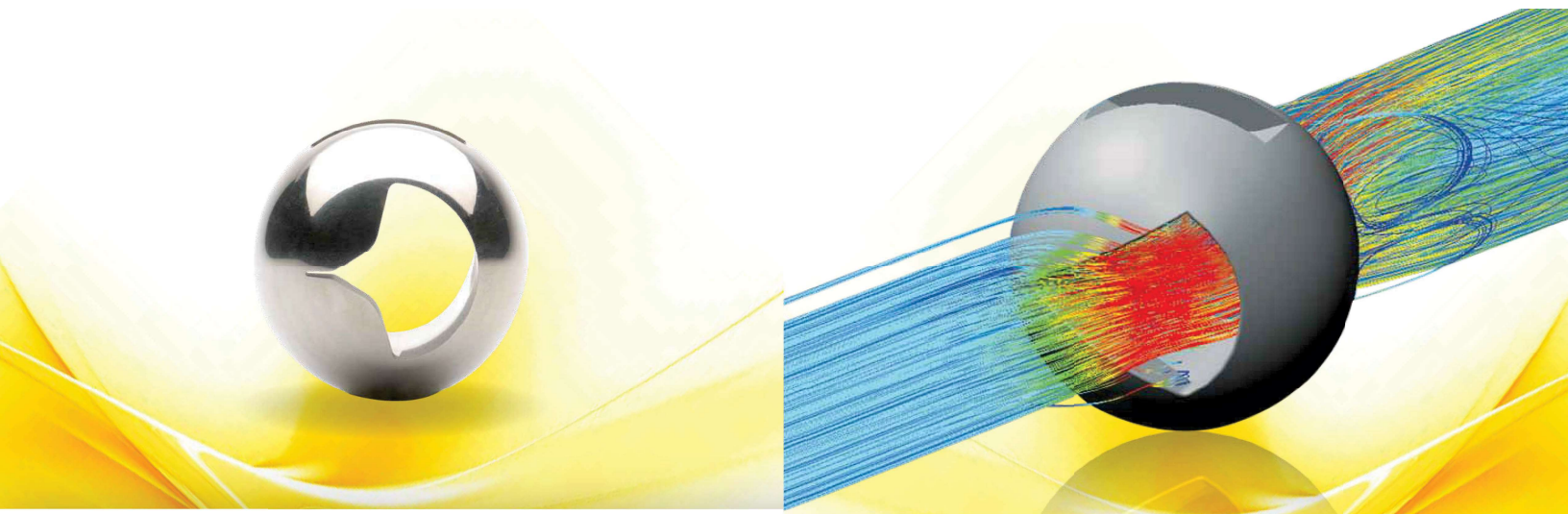




## CONTROL FREAK

At the heart of every Gosco control valve is the Vari-V ball. The profile of the V-ball determines the flow characteristic of the valve and can be changed to suit the application. 10°, 30°, 60° and 90° V-balls are the most commonly used, but several other profiles are readily available. The Linear-V is a slot in the ball that can be machined for precise flow requirements. The Filler-V is used when you need maximum flow for filling followed by precise flow to accurately control the levels. The High Turndown-V maximizes flow in the open position, and provides fine flow control when the valve is partially closed. The transition between high flow and fine control with the Vari-V is extremely smooth.

- **Linear-V**  
is a slot in the ball that can be machined for precise flow requirements
- **Filler-V**  
is used when you need maximum flow for filling, followed by precise flow to accurately control the levels
- **High Turndown-V**  
maximizes flow in the open position, and provides fine flow control when the valve is partially closed



#### FREE SPIRIT

Custom V-balls are available for applications that possess specific flow requirements which can not be met with the standard V-balls. Using Computational Fluid Dynamics (CFD), we can create a V-ball with a specific profile to fit any application. Anti-cavitation trim is also available. For examples of custom V-ball applications, including videos and specifications, visit [www.goscovalves.com](http://www.goscovalves.com)

#### FLUID PERFORMER

Computational Fluid Dynamics (CFD) is used to calculate the flow through the trim of a valve. It determines locations of high velocity and high flow, and assists in trim engineering for specific applications where velocities need to be controlled. CFD is also used to determine the flow coefficient ( $C_v$ ) of Gosco Vari-V balls and aids in designing them to custom specifications.



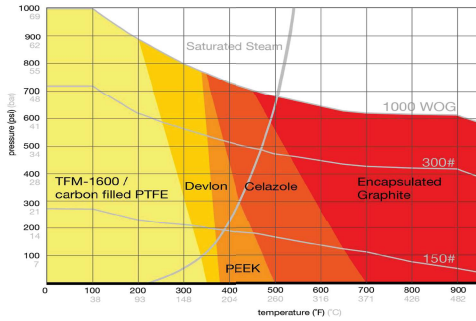


## GOSCO BALL VALVE TORQUES\* (IN.LBS)

Valve Size	TFM-1600 / carbon-filled PTFE		Devlon		PEEK / Graphite	
	Standard Port	Full Port	Standard Port	Full Port	Standard Port	Full Port
1/2"	n/a	120	n/a	140	n/a	150
3/4"	120	150	140	170	150	200
1"	150	200	170	250	200	300
1 1/4"	200	250	250	320	300	400
1 1/2"	280	330	320	380	400	520
2"	330	450	380	550	520	650
2 1/2"	450	900	550	1050	650	1450
3"	900	1800	1050	2100	1450	2750
4"	1800	3300	2100	3750	2750	4500
6"	3300	4200	3750	5600	4500	5700
8"	4200	*	5600	*	6700	*

\*Torque values are based on a shut-off pressure of 300psi, calculations are based on clean water @ 70°F. Values will increase linearly by 50% between 300psi and 1000psi shut-off. Please contact Gosco Valves for 3-Way Diverter and Gosco Cryogenic Valve torques.

## PRESSURE/TEMPERATURE CHART



### M-CLASS VALVES

For temperatures over 1100°F (538°C) and/or pressures over 1000psi (69bar), please refer to Gosco M-CLASS Valves  
www.mclassvalve.com

## PART NUMBER ORDERING SYSTEM<sup>1</sup>

E.G. PART NUMBER 02F150-A2A2-TECHN-10VBFPE

Size	Port	Connection	Body	Trim	Seat	Packing	Ball	Handle	Special
01 = 1/2" valve	0 = standard port	NPT = national pipe thread	00 = 316/316L Stainless Steel	00 = 316 SS stem and ball	TTE = TFM-1600, 3rd generation PTFE	07V = PTFE chevron	10V = 10" Ven-V	T = tee handle	FE = drilled fugitive emission port
02 = 3/4" valve	1 = full port	000 = socket weld ends	03 = Carbon Steel	07 = 17-4PH stem, 316 SS ball	TCT = 20% carbon filled PTFE	07A = standard graphite	30V = 30" Ven-V	B = bar shaft (for actuation)	DL = Double L Port SL = Single L Port
03 = 1" valve	1 = true port	000 = butt weld ends	A0 = Alloy 20	K2 = 17-4PH stem, Koroalloy ball	(LMP) = UHMWPE	07V = Cryogenic Valve <sup>2</sup>	60V = 60" Ven-V	G = gear box	O2 = oxygen cleaned
04 = 1 1/4" valve	*	150 = 150# flanged	HC = Hastelloy® C	K1 = 17-4PH stem, borided 718 ball	FEK = 30% carbon filled PEEK	*	90V = 90" Ven-V	L = lever	FS = fire safe
05 = 1 1/2" valve	*	300 = 300# flanged	EP = Duplex	HC = Hastelloy® C276	VRK = FDA approved virgin PEEK	*	LNV = liner Ven-V	K = lock-out bracket	F1 = FS + FE
06 = 2" valve	*	000 = 000# flanged	04 = Super Duplex	AE = Alloy 20	0CV = Devlon	*	HV = high/low Ven-V	R = round handle	F2 = FS + O2
07 = 2 1/2" valve	*	150 = 150# flanged	M0 = Monel™ 400	HM = K Monel™	0LZ = Celazole	*	FIV = filter Ven-V	1 = T + K	00 = FE + O2
08 = 3" valve	*	010 = split body, 150# flange <sup>3</sup>	M0 = Monel™ 500	01 = Super Duplex	001 = encapsulated graphite	*	APC = arcuate ball	2 = G + K	VC = vacuum
09 = 4" valve	*	000 = extended butt weld ends	T0 = Titanium, Gr2	1B = Hastelloy® B	CV4 = Cavity Filter <sup>4</sup>	*	03 = drilled ball	3 = L + K	NS = no special
10 = 6" valve	*	07H = other	T0 = Titanium, Gr3	0 = Inconel® 625	07H = other	*	07H = other	4 = R + K	07 = other
11 = 8" valve	*	20K = 2500#	T0 = Titanium, Gr5	07 = other	KLF = KEL-F	*	NON = regular ball	0 = other	*
07 = other	*	*	07 = other	*	*	*	*	*	*

<sup>1</sup> Please visit [goscovalue.com](http://goscovalue.com) to download up-to-date part ordering information.

<sup>2</sup> Block and bleed valves have different part numbers. Please contact Gosco Valves for further information.

<sup>3</sup> Example valve description: 3/4" valve, full port, 150# flanged, CSTM body, Alloy 20 ball and stem, TFM-1600 seat, PTFE chevron packing, 10" Ven-V ball, drilled fugitive emission port

<sup>4</sup> Specific to the Gosco Cryogenic Valve part number. Includes standard cryogenic extension, PTFE chevron packing, and a drilled ball for pressure relief.

<sup>5</sup> CVT = cavity filter TFM-1600; CVU = cavity filter UHMWPE; CVD = cavity filter Devlon; CVC = cavity filter 25% carbon-filled PTFE

<sup>6</sup> Only available on full port valves

## DESIGN SPECIFICATIONS

ANSI/ASME B1.3M screw thread gauging system for dimensional acceptability

ANSI/ASME B16.10 face-to-face and end-to-end dimensions of valves

ANSI/ASME B16.24 valves-flanged, threaded and welding ends

ANSI/ASME B16.5 pipe flanges and pipe fittings

ASTM A192/A 194M-96B standard specifications for alloy steel and stainless steel bolting materials for high temperature service

ASTM A193/A 193M-96 standard specifications for carbon and alloy steel nuts and bolts for high-pressure and high temperature service

CSA B31-95 boiler, pressure vessel and pressure piping code

API 598 valve inspection and testing

CRN Canadian Registration Number (09118515)

ISO 9001:2000

API 607 3<sup>rd</sup> edition

TUV section 318.4

WARRANTY - THE SELLER WARRANTS ITS PRODUCTS AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP, WHEN USED ON THOSE SERVICES APPROVED BY THE SELLER, FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ORIGINAL SHIPMENT. THE SELLER'S LIABILITY UNDER THIS WARRANTY SHALL BE LIMITED TO REPAIR OR REPLACEMENT AT SELLER'S OPTION OF SUCH DEFECTIVE PRODUCTS, FOB FACTORY UPON PROOF OF DEFECT SATISFACTORY TO SELLER. SELLER SHALL HAVE NO FURTHER LIABILITY FOR DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO PERSONAL INJURIES AND PROPERTY DAMAGE, RESULTING FROM USE OF SELLER'S PRODUCT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, SPECIAL, AND CONSEQUENTIAL DAMAGES. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES ARISING FROM ANY BREACH OF THESE TERMS AND CONDITIONS FROM THE USE OF ITS PRODUCTS.



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