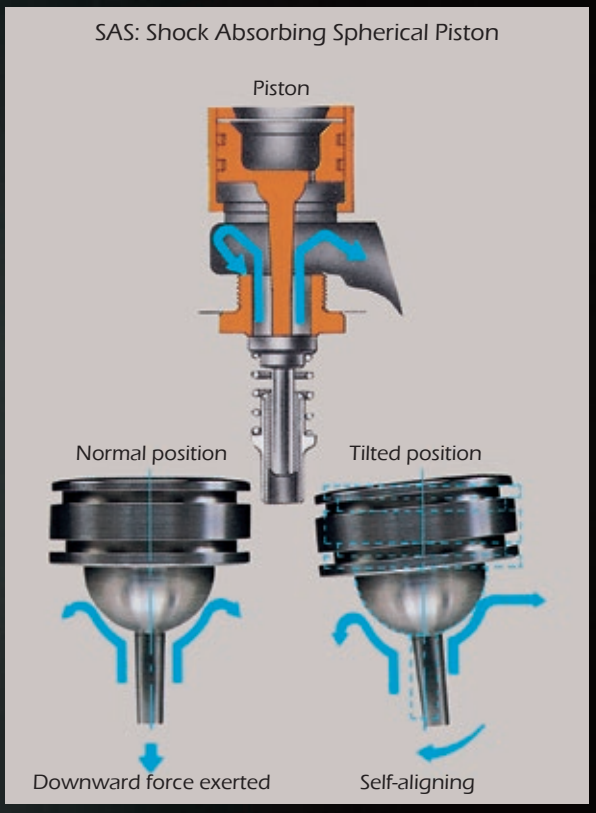
TLV®

STEAM PRESSURE REDUCING VALVES

COSR-3
COSR-16
COSR-16HT
COSR-21

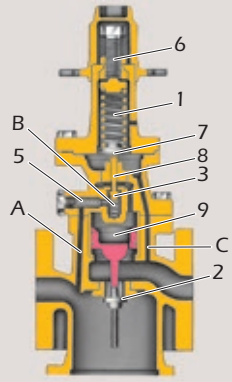


Features

Technologically advanced pressure reducing valve for accurate control in process steam systems.

- Self-aligning shock-absorbing spherical piston and advanced pilot regulator designs maintain secondary steam pressure accuracy, even during adverse process conditions.
- Major internal components made of stainless steel for long service life.
- Large surface area integral screen protects the pilot valve from contamination and extends trouble-free service life.
- Optional internal secondary pressure-sensing channel allows for elimination of external downstream sensing lines for simpler installation and minimal piping space.
- Sizes 2½" and larger have internal noise silencers for quiet operation.
- Cast steel models available for high-temperature superheated steam applications. (COSR-16HT)

How It Works



When upper coil spring (1) is uncompressed, main valve (2) and pilot valve (3) are closed. Steam enters through passage (A), passes through screen (5) and enters pilot chamber (B).

The secondary pressure is set by tightening adjusting screw (6), which compresses the upper coil spring (1) and flexes the diaphragm (7), forcing pilot guide (8) to open pilot valve (3). Steam enters chamber above piston (9), forcing it down. Main valve (2) opens the orifice, providing steam to the secondary side.

Some steam, entering the outlet side, flows through outlet pressure passage (C) into a chamber below the diaphragm (7), and lifts it. The position of pilot valve (3) is then determined by the balance of the upward force on the diaphragm with the downward force of upper coil spring (1). Thus the preset secondary steam pressure itself adjusts the force applied to the piston (9) and the opening of the main valve (2). Secondary pressure remains stable at all times.

Standard Specifications

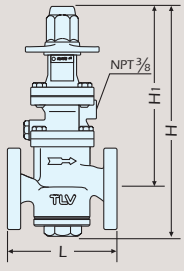
Model	COSR-3		COSR-16		COSR-16HT	COSR-21	
Body Material	Cast Iron		Cast Iron		Cast Steel	Ductile Cast Iron	
Connection	Screwed	Flanged	Screwed	Flanged	Flanged	Screwed	Flanged
Size (in)	1, 1¼, 1½, 2	1½ , 2	1, 1¼, 1½, 2	1½, 2 , 2½, 3, 4, 6	2½, 3, 4	½, ¾, 1	1, 1½ , 2
Max. Operating Pressure (psig) PMO	45		250		250	300	
Max. Operating Temperature(°F) TMO	428		428		572	428	
Max. Allowable Pressure (psig) PMA	250		250		250	300	
Max. Allowable Temperature (°F) TMA	428		428		572	428	
Primary Pressure Range (psig)	15 to 45		30 to 250		30 to 250	190 to 300	
Adjustable Differential Pressure (psi)	not applicable		10 to 120		10 to 120	30 to 120	
Pressure Adjustment Range (psig)	1.5 to 7		5 to 210		5 to 210	80 to 252	
Max. Adjustable Secondary Pressure (psig)	7		84% of Primary Pressure (or Primary Pressure minus 10 psi, whichever is lower)			84% of Primary Pressure	
Mini. Adjustable Secondary Pressure (psig)	1.5		10% of Primary Pressure (or Primary Pressure minus 120 psi, whichever is higher) (except primary pressures up through 85 psig as shown in the Capacity Tables)			80 psig (or Primary Pressure minus 120 psi, whichever is higher)	
Mini. Adjustable Flow Rate	5% of rated flow rate* for ½" to 2"; 10% of rated flow rate* for 2½" to 6"						
Accuracy of Regulation (psi) AOR	±1 (under steady flow conditions)						
Seat Leakage Rating	Less than 0.1% of Rated Flow Rate						

* See SDS (Specification Data Sheet) for rated flow rate

CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

CAUTION DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE. Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

Dimensions



Sizes ½" to 1" shown. Configuration of larger sizes differs slightly.

COSR-3 Screwed, Flanged (in)

Size	L Screwed NPT	L ASME Class 250RF	H	H1	Weight* (lb)
¾	6 7/8	–	14 1/16	11 1/4	–
1	7 1/2	7 3/8		11 1/8	29
1 1/4	8 11/16	8 11/16	15 3/16	11 5/8	38
1 1/2		8 3/4			42
2	10 1/4	10 1/4	16 3/16	12 3/8	57

Other standards available, but length and weight may vary
* Weight for Class 250 RF

COSR-16/COSR-16HT Screwed, Flanged (in)

Size	L Screwed NPT	L ASME Class 250RF	H	H1	Weight* (lb)
½	6 7/8	–	14 1/16	11 1/4	–
¾		–			–
1	7 1/2	7 3/8		11 1/8	29
1 1/4	8 11/16	8 11/16	15 3/16	11 7/8	38
1 1/2		8 3/4		11 5/8** 11 7/8	42
2	10 1/4	10 1/4	16 3/16	12 3/8	57
2 1/2	–	14 13/16 [14 7/8]	21 13/16 [22]	16 13/16 [16 3/8]	121 [132]
3	–	15 1/16 [15 1/8]			130 [143]
4	–	17 11/16 [17 3/4]	24 15/16 [25]	17 5/8 [17 3/4]	209 [231]
6	–	24 1/2	31 7/8	20 7/8	452

[ ] COSR-16HT, Class 300RF
Other standards available, but length and weight may vary
* Weight for Class 250 RF ** Screwed

COSR-21 Screwed, Flanged (in)

Size	L Screwed NPT	L ASME Class 250RF	H	H1	Weight* (lb)
½	6 7/8	–	16	12	–
¾		–			–
1	7 1/2	7 3/8	16 5/8	11 7/8** 4 7/8	33
1 1/2	–	8 3/4	18	12 11/16	46
2	–	10 1/4	19 5/16	13 3/16	79

Other standards available, but length and weight may vary
* Weight for Class 300 RF ** Screwed

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Member of FCI Fluid Controls Institute, Inc. Technical Resources for Instrumentation and Fluid Control

Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001
ISO 9001
ISO 14001

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Specifications subject to change without notice.