

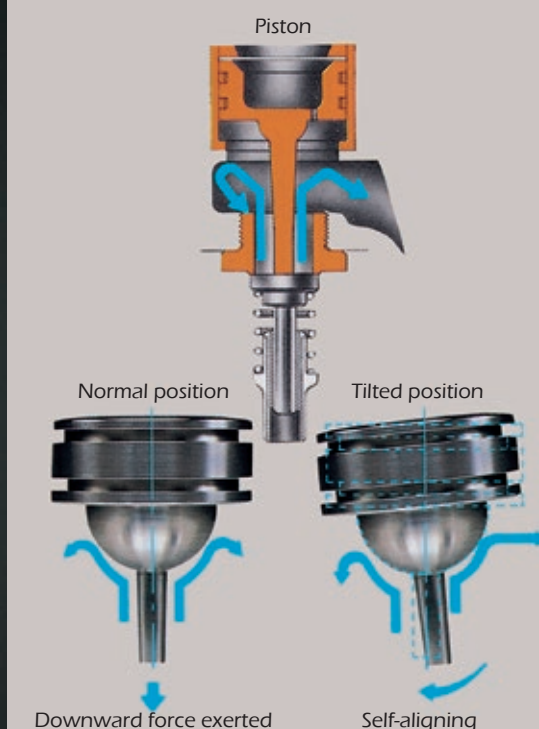
TLV®

STEAM PRESSURE REDUCING VALVES

COSR-3
COSR-16
COSR-21



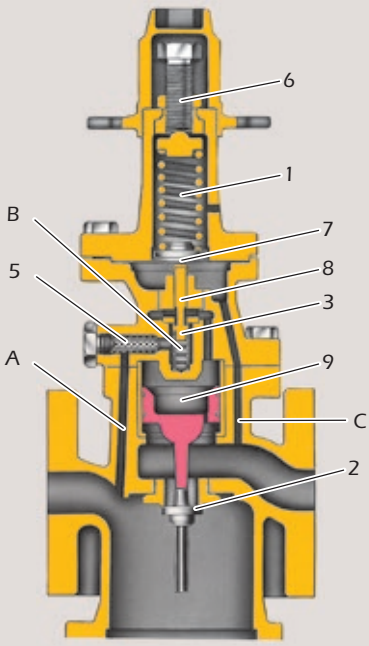
SAS: Shock Absorbing Spherical Piston



Features

- The shock absorbing spherical (**SAS**) piston maintains the secondary pressure with high accuracy.
- Stable secondary pressure can be maintained, even with fluctuations in primary pressure or flow rate.
- Self-aligning feature allows the piston to move smoothly, resulting in accurate responsive control.
- Internal primary and secondary pressure sensing channels make external sensing line attachments to the valve unnecessary for most applications.
- All key internal parts are made of stainless steel.
- Computerized (**MC-COSR**) valves are also available.

How It Works



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

When secondary pressure is set by tightening adjusting screw (6), upper coil spring (1) is compressed and diaphragm (7) flexes, 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-21
Body Material*	Cast Iron	Ductile Cast Iron	Cast Iron	Ductile Cast Iron	Ductile Cast Iron
Connection	Screwed	Flanged		Flanged	
		ASME	DIN	ASME	DIN
Size	3/4", 1"	DN 20, 25, 32, 40, 50		1/2", 3/4", 1"	DN 15, 20, 25, 32, 40, 50, 65, 80, 100, 150
Max. Operating Pressure (barg) PMO	3		13	16	21
Max. Operating Temperature (°C) TMO	200	220	200	220	220
Primary Pressure Range (barg)	1 to 3		2 to 13	2 to 16	13.5 to 21
Adjustable Pressure Range (all conditions must be met)	0.1 to 0.5 barg		Within 10 to 84% of primary pressure but with minimum pressure of 0.3 barg		From 5.5 barg to 84% of primary pressure
	—		Differential pressure between 0.7 to 8.5 bar		Maximum differential pressure 8.5 bar
Minimum Adjustable Flow Rate	5% of rated flow rate**		5% of rated flow rate** (For DN 65 and larger: 10% of rated flow rate**)		

* COSR-3 flanged: cast stainless steel sizes 20, 25, 32, 40, 50 available on request
 COSR-16/21 flanged: cast stainless steel sizes 15, 20, 25, 32, 40, 50 (ASME and DIN) and cast steel sizes 65 & 80 (DIN) available on request
 ** See SDS (Specification Data Sheet) for rated flow rate

PRESSURE SHELL DESIGN CONDITIONS (NOT OPERATING CONDITIONS): Maximum Allowable Pressure (MPaG) PMA: 13 (Cast Iron), 21 (Ductile Cast Iron)
 Maximum Allowable Temperature (°C) TMA: 200 °C (Cast Iron), 220 °C (Ductile Cast Iron)

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.

Dimensions

Diagram of a valve showing dimensions L, H, H1, and a 3/8 inch detail. The valve body has 'TLV' and an arrow symbol.

Sizes DN 15 to 25 shown.
Configuration of larger sizes differs slightly.

COSR-3/COSR-16 Screwed, Flanged							(mm)		COSR-21 Flanged							(mm)		
Size (DN)	Screwed Rc(PT)	L				H	H ₁	Weight** (kg)	Size (DN)	L			H	H ₁	H	H ₁	Weight* (kg)	
		DIN2501 PN25/40	125FF	(150RF)	250RF					(300RF)	DIN2501 PN25/40	150RF						300RF
(15)	175	130	—	170	—	170	357	285	8.8	(15)	130	161	167	377	305	405	305	9
(20)		150	—	182	—	182		285	9.5	(20)	150	172	178		305	405	305	9.7
25	190	160	176	188	180	192	385	282	11	25	160	181	187	405	302	422	302	11
32	220	180	206	220	220	220		295*	16	32	180	212	219		405	322	457	322
40		200	209		222	224	302	17	40	200	215	222	322	457		322	17	
50	260	230	247	255	260	261	412	315	24	50	230	254	260	432	335	490	335	24
65	—	290	362	372	377	378	554	411	50	65	290	371	377	576	433	655	430	51
80	—	310	365	374	383	384		52	80	310	374	384	430		655	430	52	
100	—	350	434	434	450	450	633	448	80	100	350	434	450	655	470	768	468	81
125	—	—		456	456	—		—	—	—	—	—	—	—	—	—	—	—
150	—	480	600	600	622	622	810	530	176									

() No ASME standard exists for ductile cast iron; machined to fit steel flanges
 Class 125 FF can connect to 150 RF, 250 RF can connect to 300 RF
 Other standards available, but length and weight may vary
 * Screwed ** Weight is for DIN PN 25/40

Sizes DN 15 to 25 shown. Configuration of larger sizes differs slightly.

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 Class 125 FF can connect to 150 RF, 250 RF can connect to 300 RF
 Other standards available, but length and weight may vary
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 Other standards available, but length and weight may vary
 * Weight is for DIN PN 25/40

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is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001
ISO 14001

