



# STEAM PRESSURE REDUCING VALVE

## MODEL COSR-21

### Features

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

1. Patented self-aligning shock-absorbing spherical piston and advanced pilot regulator designs maintain secondary steam pressure accuracy, even during adverse process conditions.
2. Major internal components made of stainless steel for long service life.
3. Large surface area integral screen for pilot valve extend trouble-free service.
4. Internal secondary pressure-sensing channel makes external sensing lines unnecessary.
5. COSR-21, sizes 65 mm and larger have a silencer for noise reduction.



Patented

### Specifications

Model	COSR-21	
Connection	Flanged	
Size (mm)	15, 20, 25, 32, 40, 50, 65, 80, 100	
Body Material	Ductile Cast Iron	
Maximum Operating Pressure (MPaG)	PMO	2.1
Maximum Operating Temperature (°C)	TMO	220
Primary Pressure Range (MPaG)	1.35 – 2.1	
Adjustable Pressure Range (all conditions must be met)	Within 10 – 84% of primary pressure but with a minimum pressure of 0.55 MPaG	
	Maximum differential pressure 0.85 MPa	
Minimum Adjustable Flow Rate	5% of rated flow rate (For 65 mm – 100 mm: 10% of rated flow rate)	

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS):

1 MPa = 10.197 kg/cm<sup>2</sup>

Maximum Allowable Pressure (MPaG) PMA: 2.1

Maximum Allowable Temperature (°C) TMA: 220



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.

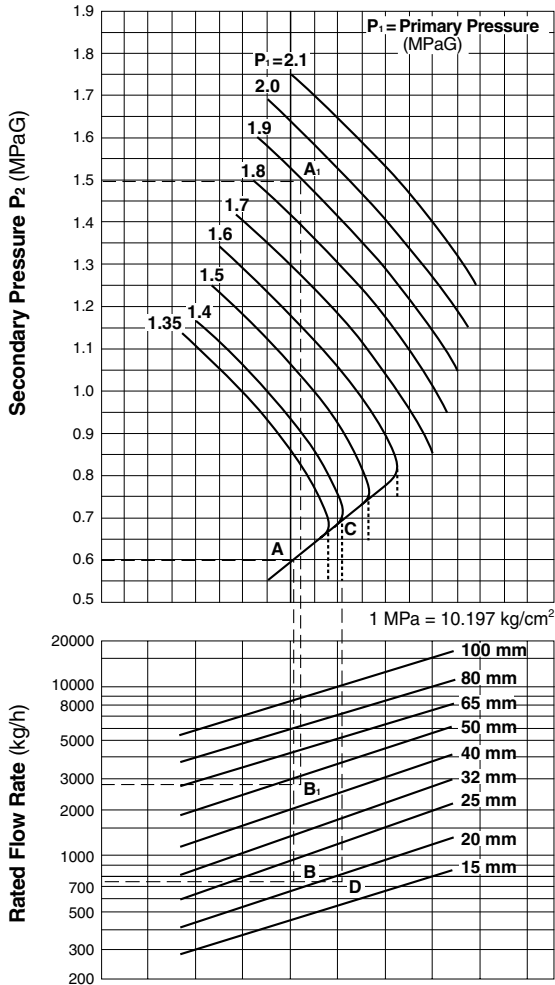
### Cv Values

	Nominal Valve Size (mm)								
	15	20	25	32	40	50	65	80	100
Cv (US)	3.8	6.9	11.1	15.5	24.0	37.2	59.3	85.0	128
Cv (UK)	3.2	5.7	9.2	12.9	20.0	31.0	49.4	70.8	107
Kvs (DIN)	3.3	5.9	9.5	13.3	20.6	31.9	50.8	72.9	110



The Cv & Kvs values shown are for the valve in the full fail open position. These values are not to be used for COSR sizing, and instead may be used as one of the factors in calculations for safety valve selection.

Sizing Chart



Sizing Examples

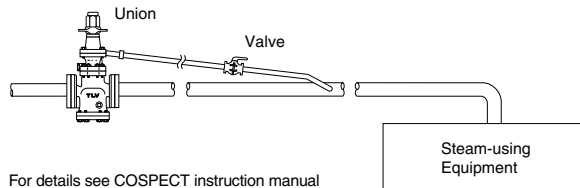
For  $P_1$  over 1.6 MPaG

For primary pressure of 1.9 MPaG, set pressure 1.5 MPaG, and saturated steam flow rate 2800 kg/h, select an appropriate size.

1. Locate intersecting point A<sub>1</sub> of 1.9 MPaG primary pressure and 1.5 MPaG set pressure. Go to point A<sub>1</sub> and down until 2800 kg/h, point B<sub>1</sub> is reached.
2. Since point B is located between 40 mm and 50 mm, the larger size, 50 mm, should be chosen.

Special Instructions for  $P_1$  under 1.6 MPaG

The vertical dotted lines in the graph represent the increased capacity often achievable when the internal sensing features of COSR-21 are enhanced by the installation of a 3/8 inch external secondary pressure-sensing line (condition:  $P_2 < 1/2 P_1$ ).



For details see COSPECT instruction manual

For primary pressure of 1.4 MPaG, set pressure 0.6 MPaG, and saturated steam flow rate 750 kg/h, select an appropriate size.

With internal secondary pressure-sensing channel

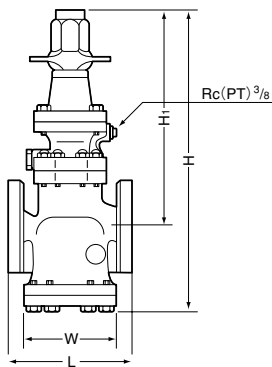
1. Locate intersecting point A of 1.4 MPaG primary pressure and 0.6 MPaG set pressure. Go to point A and down until 750 kg/h, point B, is reached.
2. Since point B is located between 20 mm and 25 mm, the larger size, 25 mm, should be chosen.

With external secondary pressure-sensing line

1. Obtain intersecting point C of 1.4 MPaG primary pressure. Go straight down from point C until 750 kg/h, point D, is reached.
2. Since point D is located between 15 mm and 20 mm, the larger size, 20 mm, should be chosen.

1 MPa = 10.197 kg/cm<sup>2</sup>

Dimensions



Size 15-50 shown. Configuration of larger sizes differs slightly.

COSR-21 Flanged\* (mm)

Size	L		H	H <sub>1</sub>	W	Weight (kg)
	ASME class					
	150RF	300RF				
(15)	161	167	405	305	105	11
(20)	172	178				
25	181	187	422	302	125	15
32	212	219	457	322	150	19
40	215	222				
50	254	260	490	355	195	36
65	371	377	655	430	280	59
80	374	384				
100	434	450	768	468	350	95

( ) No ASME standard exists for ductile cast iron; machined to fit steel flanges  
Other standards available, but length and weight may vary

\* Weight is for Class 300 RF