REDUCING VALVE FOR STEAM

MODEL COSR-21
DUCTILE CAST IRON

Features

Technologically advanced, pilot operated 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 extends trouble-free service.
4. Internal secondary pressure-sensing channel makes external sensing line unnecessary.
5. COSR-21, Sizes DN 65 and larger have a silencer for noise reduction.

Patented

Specifications

Model		COSR-21	
Connection		Flanged	
		DIN	ASME
Size		DN 15, 20, 25, 32, 40, 50, 65, 80, 100	
Body Material		Ductile Cast Iron (GGG-40.3)	Ductile Cast Iron JIS FCD450 (GGG-40)
Maximum Operating Pressure (barg)	PMO	21	
Maximum Operating Temperature (°C)	TMO	220	
Primary Pressure Range (barg)		13.5 – 21	
Adjustable Pressure Range (all conditions must be met)		From 5.5 barg to 84% of primary pressure	
		Maximum differential pressure 8.5 bar	
Minimum Adjustable Flow Rate		5% of rated flow rate (For DN 65 – DN 100: 10% of rated flow rate)	

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): 1 bar = 0.1 MPa
Maximum Allowable Pressure (barg) PMA: 21
Maximum Allowable Temperature (°C) TMA: 220

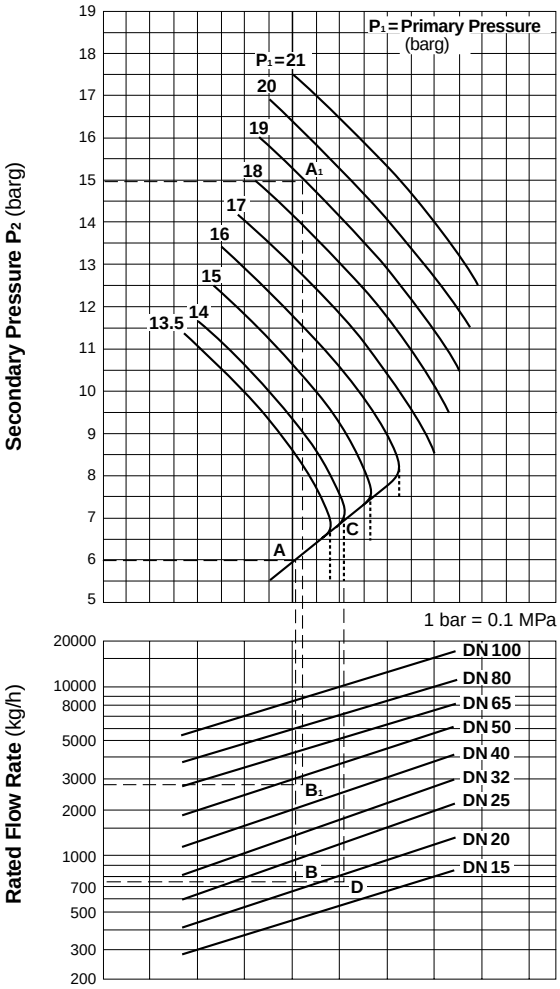
CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

Cv & Kvs Values

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

CAUTION The Cv & Kvs values shown are for the valve in the full fail open position. These values are not to be used for COSR-21 sizing, and instead may be used as one of the factors in calculations for safety valve selection.

Sizing Chart



Sizing Examples

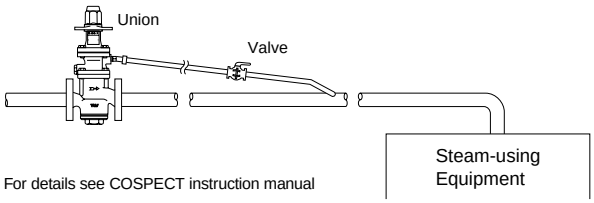
For P_1 over 16 barg

For primary pressure of 19 barg, set pressure 15 barg, and saturated steam flow rate 2800 kg/h, select an appropriate size.

1. Locate intersecting point A_1 of 19 barg primary pressure and 15 barg set pressure. Go to point A_1 and down until 2800 kg/h, point B_1 is reached.
2. Since point B is located between DN 40 and DN 50, the larger size, DN 50, should be chosen.

Special Instructions for P_1 under 16 barg

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: $P_2 < \frac{1}{2} P_1$).



For details see COSPECT instruction manual

For primary pressure of 14 barg, set pressure 6 barg, and saturated steam flow rate 750 kg/h, select an appropriate size.

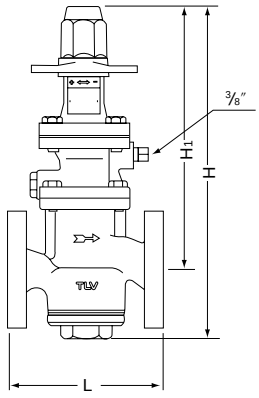
With internal secondary pressure-sensing channel

1. Locate intersecting point A of 14 barg primary pressure and 6 barg set pressure. Go to point A and down until 750 kg/h, point B, is reached.
2. Since point B is located between DN 20 and DN 25, the larger size, DN 25, should be chosen.

With external secondary pressure-sensing line

1. Obtain intersecting point C of 14 barg primary pressure. Go straight down from point C to 6 barg set pressure, and continue until 750 kg/h, point D, is reached.
2. Since point D is located between DN 15 and DN 20, the larger size, DN 20, should be chosen.

Dimensions



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

COSR-21 Flanged **DIN**

DN	L PN 25/40*	H	H_1	Weight (kg)
15	130	377	305	12
20	150			13
25	160		302	15
32	180	405	322	21
40	200			22
50	230	432	335	29
65	290	576	433	59
80	310			60
100	350	655	470	89

* DIN 2501

COSR-21 Flanged **ASME**

Size	Class 150 RF	Class 300 RF	H	H_1	Weight* (kg)
(15)	161	167	405	305	11
(20)	172	178			13
25	181	187	422	302	15
32	212	219	457	322	19
40	215	222			21
50	254	260	490	335	36
65	371	377	655	430	59
80	374	384			62
100	434	450	768	468	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

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