



COSPECT[®] STEAM PRESSURE REDUCING VALVE

MODEL **COS-21** DUCTILE CAST IRON
STAINLESS STEEL

SELF-ACTUATED PRESSURE REDUCING VALVE WITH SHOCK-ABSORBING PISTON

Features

Technologically advanced pressure reducing valve combined with condensate separator and steam trap provides accurate control and steam conditioning to maximize process system performance.

1. Space-saving unit simplifies system layout, piping and maintenance.
2. Self-aligning shock-absorbing spherical piston and advanced pilot regulator designs maintain secondary steam pressure accuracy, even during adverse process conditions.
3. Built-in cyclone separator, with condensate separation efficiency as high as 98%, and self-modulating free float steam trap provide dry, high-quality steam supply.
4. Major internal components made of stainless steel for long service life.
5. Large surface area integral screens for pilot valve and main valve extend trouble-free service.
6. Internal secondary pressure-sensing channel makes external sensing line unnecessary.
7. Sizes DN 65 and larger have a silencer for noise reduction.



Specifications

Model	COS-21		
Body Material	Ductile Cast Iron (JIS FCD450) (equivalent to GGG-40)	Ductile Cast Iron (GGG 40.3)	Cast Stainless Steel (A351 Gr.CF8) (equivalent to 1.4312)
Connection	Flanged	Flanged	Flanged
	ASME	DIN	DIN
Size	DN 15, 20, 25, 40, 50, 65, 80, 100		DN 15, 20, 25, 40, 50
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



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.

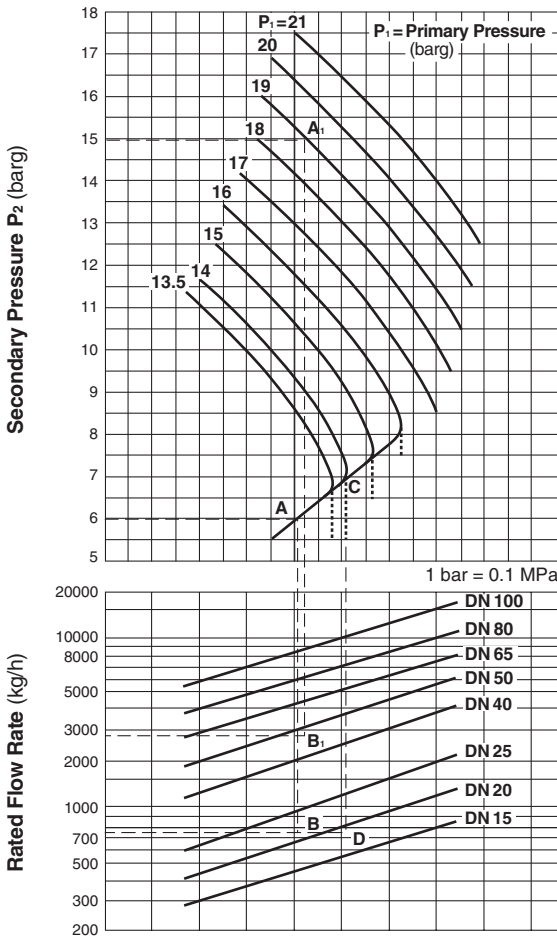
Cv & Kvs Values

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



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

Sizing Chart



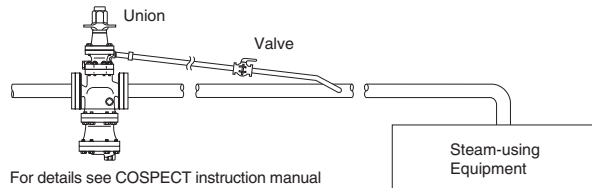
Sizing Examples

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 A₁ of 19 barg primary pressure and 15 barg set pressure. Go to point A₁ and down until 2800 kg/h, point B₁ 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 COS-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 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.

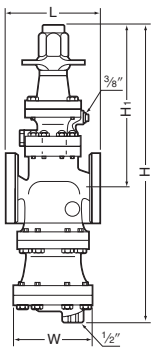
With external secondary pressure-sensing line

1. Obtain intersecting point C of 14 barg primary pressure. Go straight down from point C 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

COS-21 Flanged* (mm)

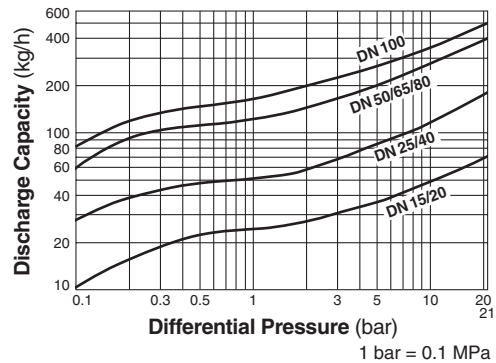
DN	L		H	H ₁	W	Weight** (kg)
	DIN 2501 PN25/40	ASME Class 150RF 300RF				
(15)	150	161	515	305	105	16
(20)		172				
25	160	181	542	302	150	22
40	200	215	592	322	165	28
50	230	254	655	335	195	43
65	370	371	890	430	280	65
80	374	374	890	430	280	67
100	434	434	1048	468	350	92



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

() No ASME standard for ductile cast iron; machined to fit steel flanges
 * Flange to flange dimension of DN 15 and DN 65-100 not according to DIN standard, due to size of separator and steam trap.
 ** Height and weight are for DIN PN 25/40
 Other standards available, but length and weight may vary

Trap Discharge Capacity



- Note: 1. The discharge capacity is the maximum continuous condensate discharge 6 °C below saturated steam temperature.
 2. The differential pressure is the difference between the COS-21 inlet and its trap outlet pressure.



DO NOT use this product under conditions that exceed maximum differential pressure, as condensate backup will occur!

Manufacturer

ISO 9001/ISO 14001



is approved by LRQA Ltd. to ISO 9001/14001