

COSPECT[®] STEAM PRESSURE REDUCING VALVE

MODEL COS-21
DUCTILE CAST IRON
CAST STAINLESS STEEL

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. Patented self-aligning shock-absorbing spherical piston and advanced pilot regulator designs maintain secondary steam pressure accuracy, even during adverse process conditions.
3. Built-in patented 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.



Patented

Specifications

Model	COS-21		
Body Material	Ductile Cast Iron (FCD450) (Equivalent to GGG-40)	Ductile Cast Iron (GGG-40.3)	Cast Stainless Steel (Equivalent to 1.4308)
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.

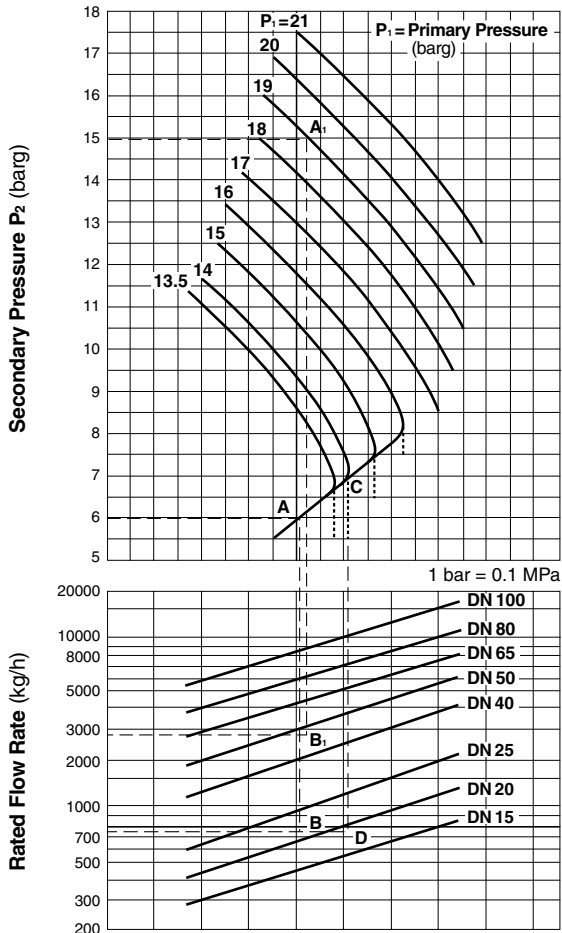
Cv & Kvs Values

	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



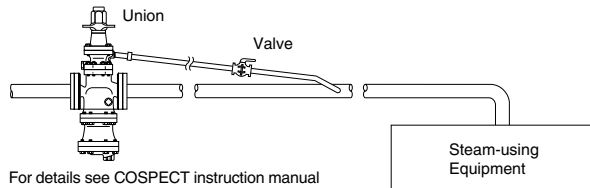
Sizing Examples

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 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.

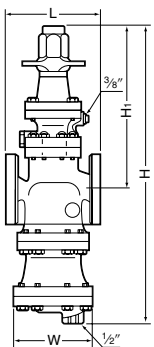
With external secondary pressure-sensing line

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

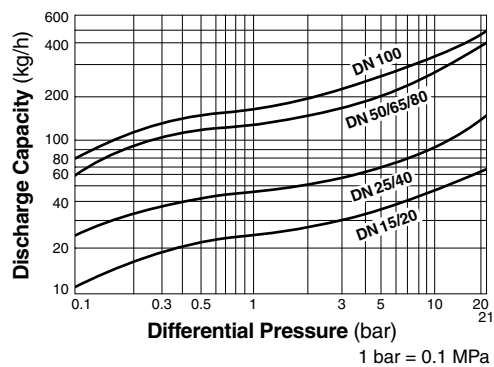
DN	L			H	H ₁	Weight* (kg)
	DIN 2501	ASME Class				
	PN25/40	150RF	300RF			
(15)	150	161	167	515	305	16
(20)		172	178			
25	160	181	187	542	302	22
40	200	215	222	592	322	28
50	230	254	260	655	335	43
65	370	371	377	892	422	65
80	374	374	384			67
100	434	434	450	1050	450	92



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

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

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

TLV® CO., LTD.
 Kakogawa, Japan

is approved by LRQA Ltd. to ISO 9001/14001

