



# COSPECT<sup>®</sup> STEAM PRESSURE REDUCING VALVE

## MODEL COS-21

### SELF-ACTUATED STEAM CONDITIONING SYSTEM WITH UNIQUE PISTON DESIGN

#### Benefits

Technologically advanced COSPECT Pressure Reducing Valve provides accurate control and steam conditioning to maximize process steam system performance.

1. Combination conditioning system includes pressure reducing valve, condensate separator, and steam trap.
2. Unique SCE separator's 98% efficiency can deliver high quality steam of 99.8% dryness.
3. Resulting dry steam improves heat transfer by 9% average, enhances product quality, speeds batch times, and extends down-stream valve life.
4. Unique Shock-Absorbing Spherical (SAS) piston delivers stable secondary pressure.
5. Valve maintains high accuracy during severe conditions of varying primary pressure and fluctuating flow rates.
6. Internal screens for pilot and main valves extend maintenance-free service.
7. Designed with PTFE gaskets for inspection ease.



#### Specifications

Model	COS-21
Connection	Screwed
Size (in)	½, ¾, 1
Body Material	Ductile Cast Iron
Maximum Operating Pressure (psig) PMO	300
Maximum Operating Temperature (°F) TMO	428
Maximum Allowable Pressure (psig) PMA	300
Maximum Allowable Temperature (°F) TMA	428
Primary Pressure Range (psig)	190 – 300
Adjustable Differential Pressure (psig)	30 – 120
Pressure Adjustment Range (psig)	80 – 252
Maximum Adjustable Secondary Pressure (psig)	84% of Primary Pressure
Minimum Adjustable Secondary Pressure (psig)	80 psig (or Primary Pressure minus 120 psi, whichever is higher)
Minimum Adjustable Flow Rate	5 % of Rated Flow Rate
Accuracy of Regulation (psi) AOR	± 1 (under steady flow conditions)
Seat Leakage Rating	Less than 0.1% of Rated Flow Rate

COS-21 is a non-standard product; consult TLV for delivery time required.

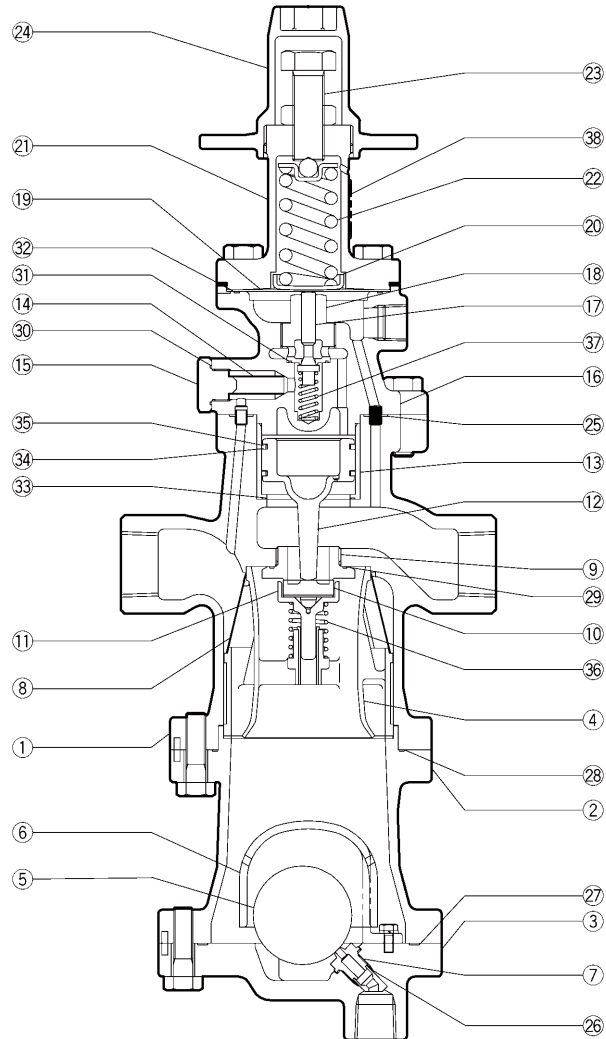


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

### Configuration

No.	Description	Material
①	Main Body	Ductile Cast Iron
②	Trap Body	Ductile Cast Iron
③	Trap Cover	Ductile Cast Iron
④	Separator	Stainless Steel
⑤	Float	Stainless Steel
⑥	Float Cover	Cast Iron
⑦	Trap Valve Seat	Stainless Steel
⑧	Separator Screen	Stainless Steel
⑨	Main Valve Seat	Stainless Steel
⑩	Main Valve	Stainless Steel
⑪	Main Valve Holder	Stainless Steel
⑫	Piston	Stainless Steel
⑬	Cylinder	Stainless Steel
⑭	Pilot Screen	Stainless Steel
⑮	Pilot Screen Holder	Carbon Steel
⑯	Pilot Valve Body	Ductile Cast Iron
⑰	Pilot Valve	Stainless Steel
⑱	Pilot Valve Seat	Stainless Steel
⑲	Diaphragm	Stainless Steel
⑳	Diaphragm Support	Brass
㉑	Spring Housing	Ductile Cast Iron
㉒	Coil Spring	Carbon Steel
㉓	Adjustment Screw	Cr-Mo Steel
㉔	Spanner Cap	Cast Iron
㉕	Gasket (Pilot Body/Main Body)	Flourine Resin
㉖	Trap Valve Seat Gasket	Flourine Resin
㉗	Gasket (Trap Body/Trap Cover)	Flourine Resin
㉘	Gasket(Main Body/Trap Body)	Flourine Resin
㉙	Main Valve Seat Gasket	Flourine Resin
㉚	Pilot Screen Holder Gasket	Flourine Resin
㉛	Pilot Valve Seat Gasket	Flourine Resin
㉜	Diaphragm Gasket	Flourine Resin
㉝	Cylinder Gasket	Flourine Resin
㉞	Piston Ring	Flourine Resin
㉟	Tension Ring	Stainless Steel
㊱	Main Valve Spring	Stainless Steel
㊲	Pilot Valve Spring	Stainless Steel
㊳	Nameplate	Stainless Steel

Contact TLV for available replacement parts.



### Cv Values

	Nominal Valve Size		
	1/2"	3/4"	1"
Cv (US)	3.8	6.9	11.1
Cv (UK)	3.2	5.7	9.2
Kvs (DIN)	3.3	5.9	9.5



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

## Capacity Table

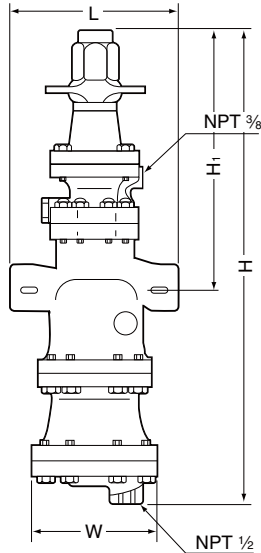
With external (factory standard) or internal (option) secondary pressure-sensing channel or line (lb/h)

Primary Steam Press. (psig)	Secondary (Set) Steam Pressure (psig)		Nominal Valve Size		
	External Line	Internal Channel (option)	½"	¾"	1"
190	*160	*160	660	900	1340
	150	150	790	1120	1760
	125	125	900	1320	1980
	100	100	1120	1690	2420
	**80 – 95	95	1180	1780	2540
		**80	810	1120	1760
200	*168	*168	660	950	1390
	160	160	730	1100	1540
	150	150	880	1320	1940
	125	125	1030	1540	2200
	**80 – 100	100	1210	1760	2860
		**80	880	1320	1910
210	*176	*176	700	1060	1540
	175	175	730	1080	1560
	150	150	1010	1520	2200
	125	125	1140	1720	2640
	**90 – 105	105	1250	1870	2890
		100	1190	1780	2750
	**90	1030	1540	2200	
225	*189	*189	700	1030	1540
	185	185	730	1060	1560
	175	175	880	1280	1870
	150	150	1140	1740	2640
	125	125	1320	1940	2860
	**105 – 113	113	1450	2130	3150
	**105	1170	1780	2640	
240	*202	*202	700	1030	1540
	200	200	730	1060	1560
	175	175	1080	1540	2200
	150	150	1360	1980	3190
	125	125	1540	2200	3520
	**120	**120	1630	2420	3960
250	*210	*210	840	1120	1760
	200	200	950	1360	1980
	175	175	1320	1940	2860
	150	150	1720	2420	3960
	**130	**130	1800	2860	4510
260	*218	*218	860	1230	1800
	210	210	900	1320	1890
	200	200	1060	1540	2200
	175	175	1360	2000	3080
	150	150	1760	2640	4400
	**140	**140	1850	2860	4620
275	*231	*231	860	1210	1800
	225	225	920	1360	1980
	200	200	1230	1800	2860
	175	175	1630	2420	3740
	**155	**155	1980	3300	5060
290	*244	*244	880	1320	1850
	240	240	950	1360	2000
	225	225	1120	1650	2420
	200	200	1500	2130	3520
	175	175	1910	2860	4620
	**170	**170	1940	2970	4840
300	*252	*252	970	1410	2050
	250	250	1080	1540	2310
	225	225	1390	2000	3190
	200	200	1780	2640	4510
	**180	**180	2020	3300	5060

\* Maximum adjustable secondary pressure \*\* Minimum adjustable secondary pressure

**Dimensions**

• **COS-21** Screwed

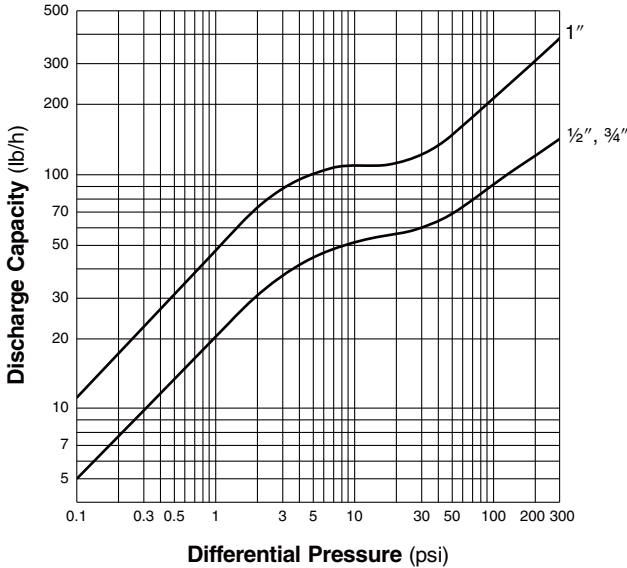


**COS-21** Screwed\* (in)

Size	L	H	H <sub>1</sub>	W	Weight (lb)
1/2	6 7/8	20 1/4	12	4 1/8	33
3/4					35
1	7 1/2	21 5/16	11 7/8	5 7/8	44

\* NPT, other standards available

**Discharge Capacity of Steam Trap**



- Note: 1. The discharge capacity is the maximum continuous condensate discharge 11 °F 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!



DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE. Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

**TLV CORPORATION**

13901 South Lakes Drive, Charlotte, NC 28273-6790  
 Phone: 704-597-9070 Fax: 704-583-1610  
 E-mail: [tlv@tlvengineering.com](mailto:tlv@tlvengineering.com)  
 For Technical Service 1-800 "TLV TRAP"



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

ISO 9001/ISO 14001

