JSRH Series

New!
Self-Relieving, Captured Vent and Air Augment options available

High Flow Bio-Pharma Clean Gas Pressure Reducing Valves



The JSRH Series high purity gas pressure regulator was designed and built specifically for Bio-Pharma gas applications. It may also be used on non-cavitating liquids, although it is not drainable.

Traditionally, manufacturers adapted their industrial gas regulators for use in biopharm by simply changing the construction materials and surface finish. Not so with the JSRH. It's been designed specifically to eliminate the exposed threaded connections associated with those traditional designs. And, it features an in-line removable trim set to facilitate quick trim change out and cleaning without valve removal or disassembly.

The durable valve body and metal trim components are machined from ASTMA479 316L SST barstock and the internal components are finished to ASME BPE SF5 20Ra µin (0.5 Ra µm), electropolished standard. The valve is outfitted with the rugged Jorlon diaphragm and Teflon seats and seals that are all FDA approved, USP Class VI compliant materials. These materials of construction enable JSRHF to withstand the rigors of SIP and CIP processes (if required for valves used on liquid applications).

Features

- No exposed threaded connections below diaphragm
- In-line removable seat and trim facilitate cleaning and maintenance
- Barstock construction guarantees material integrity and surface finish
- Optional Gauge Port (for gauges requiring EN 10204 2.2 or 3.1 certification, please consult factory)
- Proprietary Jorlon diaphragm material provides exceptionally long life, CIP/SIP capability, and FDA and USP Class VI compliance

Documentation

The following documentation is shipped at no charge:

- Steriflow Unicert, a QC signed Certificate of Compliance for:
  - Material, listing heat numbers with attached MTR's
  - Surface Finish
  - FDA/USP Class VI - for all thermoplastic and elastomers
- Traceability:
  - Each individual product serial number is traceable to the Unicert serial number, heat numbers and attached MTR's

Other documents must be requested at time of RFQ, or order:

- ADI/TSE Free, Certified Test reports, Certificate of Origin.

Applications

Ideal for clean gases typically found in bio-pharmaceutical, pharmaceutical and food & beverage processes including:

Clean Filter Air
Nitrogen
Carbon Dioxide
Argon
Oxygen
Custom purge or blanket gas
Non-cavitating liquids

NOTE: Though not drainable in any installation orientation, this valve can be used on clean steam or non-cavitating liquids with Steriflow engineering application approval.

STERIFLOW
a division of Jordan Valve

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Specifications

Sizes: 1/2" (DN15), 3/4" (DN20) & 1" (DN25)
End Connections: Tri-clamp, Tube weld end and NPT Standard.
Gauge Ports: 1/4" FNPT is standard. Consult factory for others
Lower Diaphragm Plate/ Body and Diffuser Body Material: ASME SA479 316L (UNS 31603) is standard. EN 10272:2000 GR 1.4435, AL-6XN®, Hastelloy®C-22 and others are optional.
Trim Material*:

- Stem: S21800 Nitronic® 60 Stainless Steel
- Wetted Spring: 316SS

Body Seals: Elastomer o-rings (Viton, Silicon, Kalrez); PTFE gasket - All FDA and USP Class VI compliant
Soft Seat Materials for ANSI Class VI Shut-Off:

- PTFE: 230 psi @ 100°F, 160 psi @ 250°F (16 bar @ 38°C, 11,1 bar @ 121°C) continuous; 150 psi @ 275°F (10,3 bar @ 135°C) for CIP/SIP intermittent [not to exceed 15 min. in one hour period]. FDA, USP Class VI
- PEEK: 230 psi @ 100°F, 150 psi @ 275°F (16 bar @ 38°C, 10,3 bar @ 135°C). FDA, USP Class VI

Shutoff: Class VI
Spring Range:

- 5 - 150 psi (0,34 - 10,3 bar)
- 5 - 100 psi (0,34 - 6,9 bar)
- 5 - 50 psi (0,34 - 3,4 bar)
- 5 - 20 psi (0,34 - 1,4 bar)

Sizing: Please use charts in this brochure for sizing
Maximum Operating Pressure: 230 psi max inlet @ 100°F / psi max ΔP (15,8 bar @ 37,7°C)
Maximum Operating Temperature: 150 psi max inlet @ 275°F (10,3 bar @ 135°C)

Optional Cleaning Specifications

- Clean for Oil-Free
- O2 Cleaning complying with ASTM G93-03 2011 and CGA G-4.1-2009

Flow Capacity - Cv (Kv)

- 1/2": Cv 1.5 (Kv 1,3)
- 3/4" & 1": Cv 1.9 (Kv 1,64)

Failure - Cv (Kv)

- 1/2": Cv 1.8 (Kv 1,56)
- 3/4" & 1": Cv 2.28 (Kv 1,97)

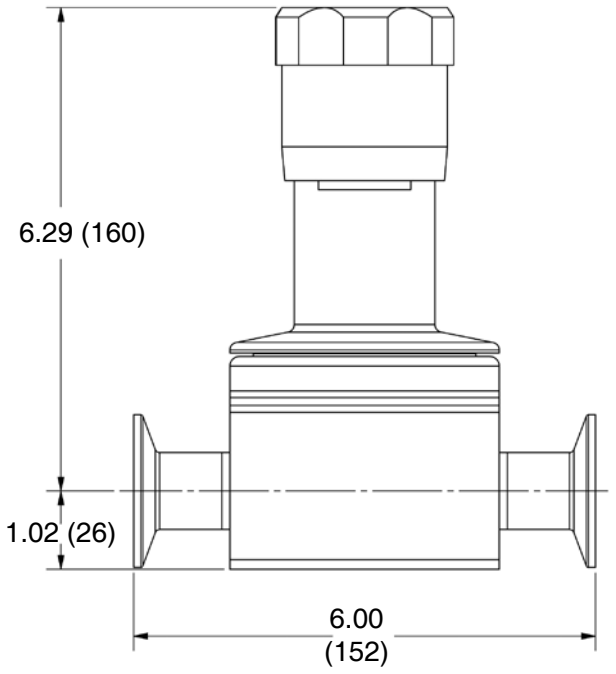
Surface Finish:

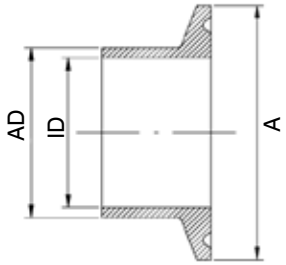
- Wetted Internal surface finish: Mechanically polished, and electropolished to ASME BPE SF5, 20 Ra µin (0.5 Ra µm) as standard**
- Exterior surface finish: Mechanically polished, and electropolished to 40 Ra µin (1.0 Ra µm) as standard
- Other finishes available upon request

* The return spring is manufactured from 316 steel.
** NPT treaded end valves: Threads are not 20 Ra (0.5 Ra). Bottom of outlet cavities (inlet, outlet, or gauge ports) are machine finish only. They cannot be polished to spec without damaging the treads. For pure gas installations, Tri-clamp, or weld end connections recommended if specific surface finish is required at bottom of cavity ports.

Note: For a complete ancillary list of all wetted and non-wetted material specifications, please contact Steriflow Valve.

Dimensions





DIN 32676 Row B (ISO 1127)

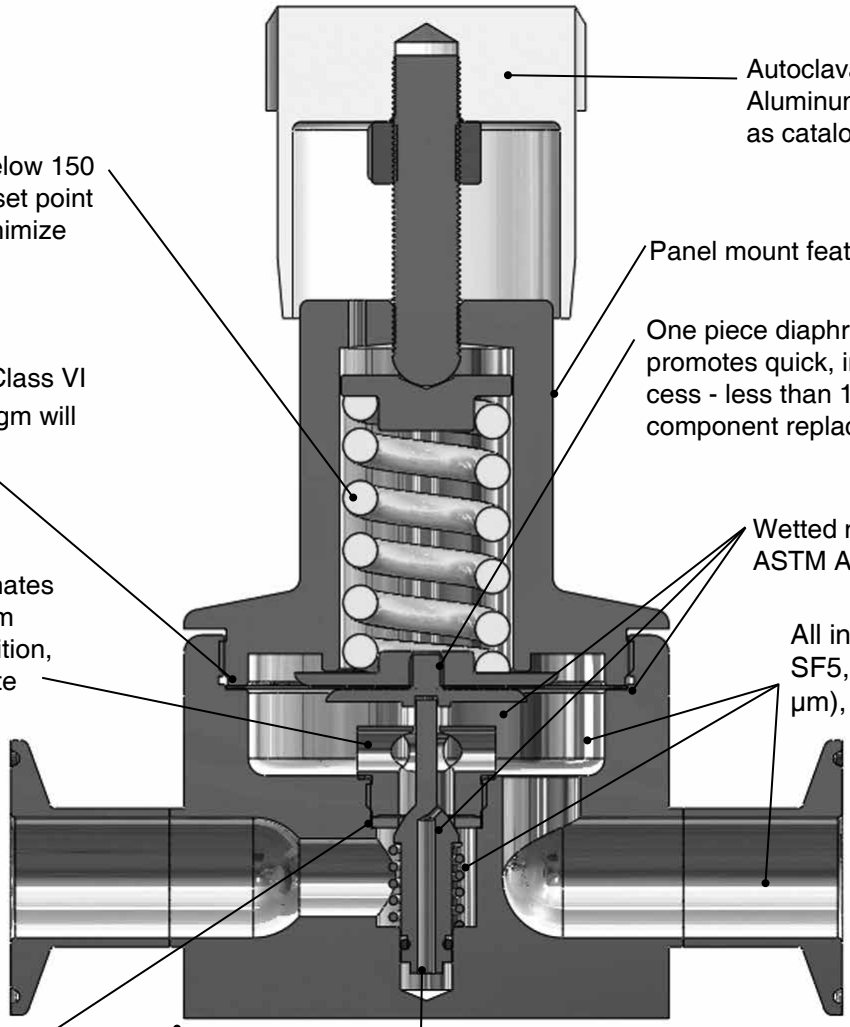
VALVE SIZE	A	AD	ID
DN15	50.5	21.3	18.1
DN15*	34.0	21.3	18.1
DN20	50.5	26.9	23.7
DN25	50.5	33.7	29.7

DIN 32676 Row A (DIN 11850)

VALVE SIZE	A	AD	ID
DN15	34.0	19.0	16.0
DN15*	50.5	19.0	16.0
DN20	34.0	23.0	20.0
DN20*	50.5	23.0	20.0
DN25	50.5	29.0	26.0

* with non-standard Tri-clamp face

Features & Benefits



Autoclavable Anodized Aluminum Knob available as cataloged option

4 spring ranges below 150 psi (10 bar) allow set point optimization to minimize droop

Panel mount feature available

One piece diaphragm subassembly promotes quick, inline maintenance access - less than 10 minutes to complete component replacment

Rugged FDA and USP Class VI Jorlon™ - PTFE diaphragm will eliminate diaphragm failures

Wetted materials are ASTM A479 316L

Hex outlet diffuser eliminates hydraulic flow forces from effecting diaphragm position, insuring smooth, accurate control

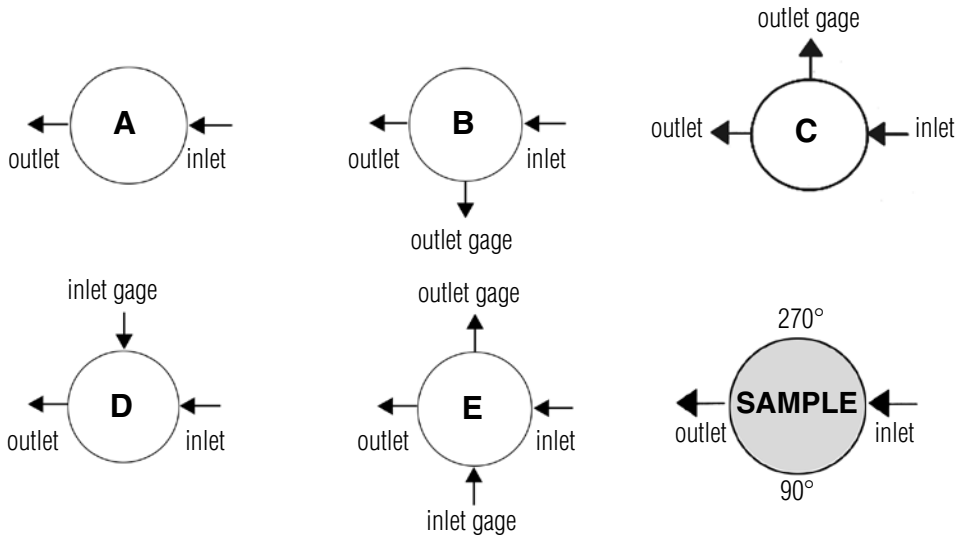
All internal surfaces are SF5, 20 Ra µin (0.5 Ra µm), electropolished

PTFE gasket and soft seat eliminate exposed threads. Both are FDA and USP Class VI compliant materials

Balanced port design minimizes DP forces on the plug, maximizing stability in spite of supply pressure variations

NOTE: Can be used on clean steam or non-cavitating liquids (the design is not drainable) with Steriflow engineering application approval.

Flow Configurations/ Gauge Ports



* Gage ports are 1/4" FNPT. Consult factory for Tri-Clamp or other connections or porting options.

Sample Specifications

Stainless Steel pressure regulator shall be made from ASTM A479 barstock material, which includes body and all wetted metal parts. Regulator shall be activated by an un-tied, FDA approved, USP Class VI certified Jorlon™ diaphragm. Regulator shall be free of exposed threads within wetted process area and valve internal to hold minimal media volume. Regulator shall have one piece diaphragm subassembly, and trim that can be replaced inline without dome/spring chamber disassembly.

Option Definition

Captured Venting

The captured vent option provides a means to vent downsteam, self-relieved gas. To enable this function, a 1/8" FNPT collar is installed on the spring housing. This feature provides a means to safely transport toxic or hazardous, self-relieved downstream gas away from the spring housing via tubing to a safe area.

!VIP! This option must be specified with the Self-Relieving* option if the user wishes to transport self-relieved vented gas to a safe location.

Air Augment

The air augment option provides a means for air loading the valve spring housing for automated control. To enable this function a 1/8" FNPT collar is installed on the spring housing (the same one used for the captured vent option), and a Teflon seal nut is included to seal the adjusting screw threads to prevent leakage. The 1/8" FNPT port is used as the input fitting for loading the spring housing with instrument air to completely automate or augment manual regulator control. An I/P transducer, or a small, self-relieving air set PRV regulator is required (ordered separately) to regulate the instrument air pressure.

*Self-Relieving

The self-relieving option provides an internal mechanism to vent downstream pressure increase (above the set-point) though the spring housing and out a vent hole in the spring housing. If the gas is toxic, or dangerous - the Captured-Vent option (above) must also be specified. The Self-Relieving option allows for immediate pressure reduction when reducing the set point, provides a means to automatically relieve downstream pressure build-up when flow stops and the valve starts to close (sometimes called Lock-up), and alleviates pressure equalization across the orifice when the regulator is not operating.

!VIP! If selecting the Self-relieving option for a Toxic or Hazardous gas - the Captured Vent option must be selected. You cannot Air-Load if the Self-Relieving option is specified.

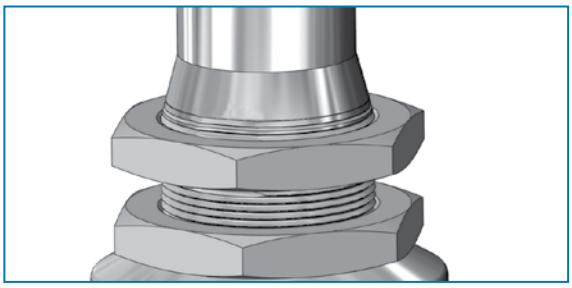
Panel Mount

The panel mounted regulator option illustrated on the next page requires a panel cut out of 1-1/2". When this option is specified, the regulator comes fitted with a threaded spring housing, and a panel mounting ring to secure the regulator to the panel.

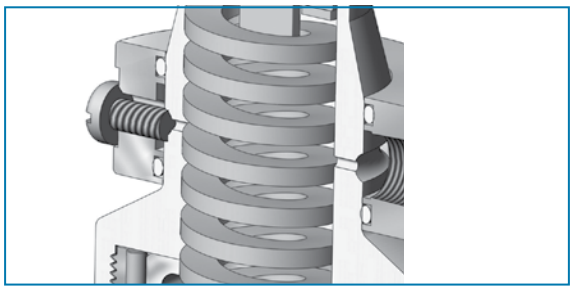
Gauge Ports - Pressure Gauge

For inlet and outlet pressure gauges (and the gauges) are available as standard options

Option Illustrations



Panel Mount Option



Captured Vent Option (1/8" NPT)

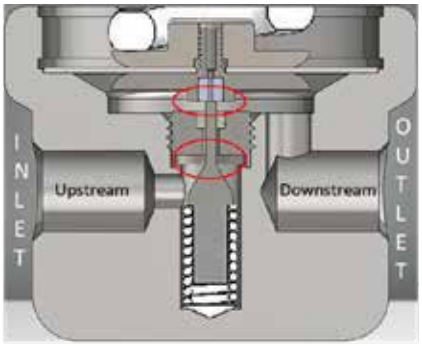


Figure 1: Self Relieving Valve in Closed Position when P2 = set point and flow stops

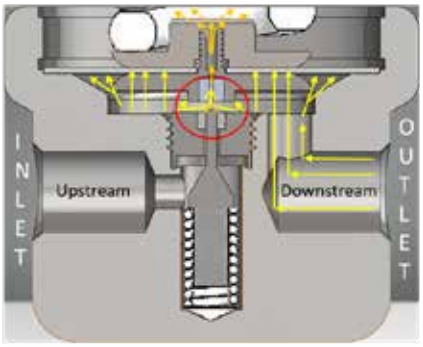
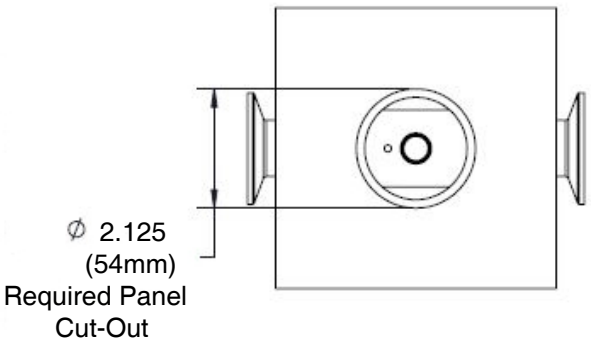


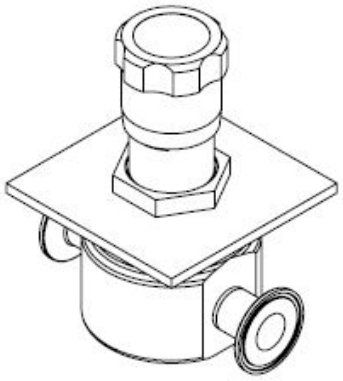
Figure 2: Self Relieving Valve in Closed Position when flow stops and P2 > set point. Showing overpressure release.

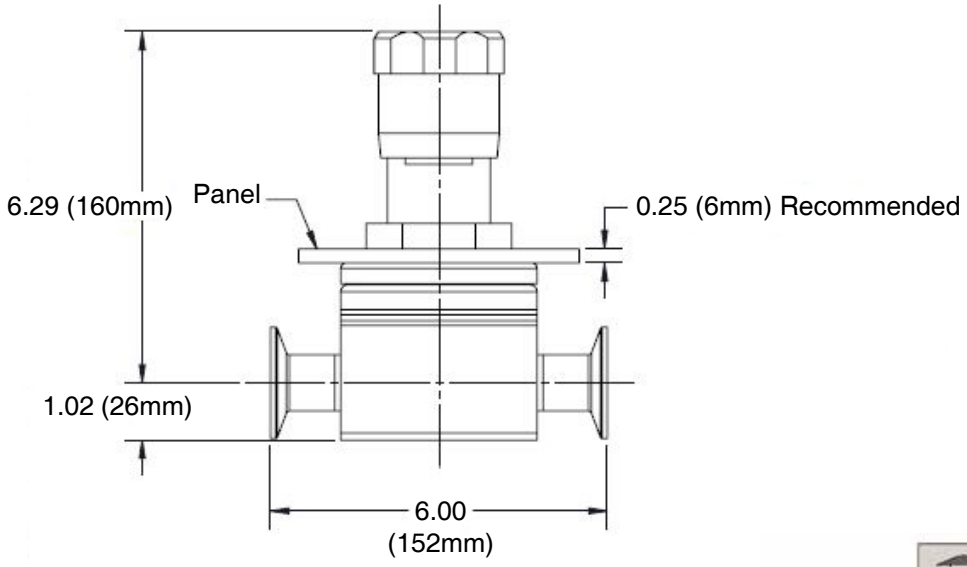
Concept illustration of Self-Relieving Option

Dimensions with Panel Mount Feature

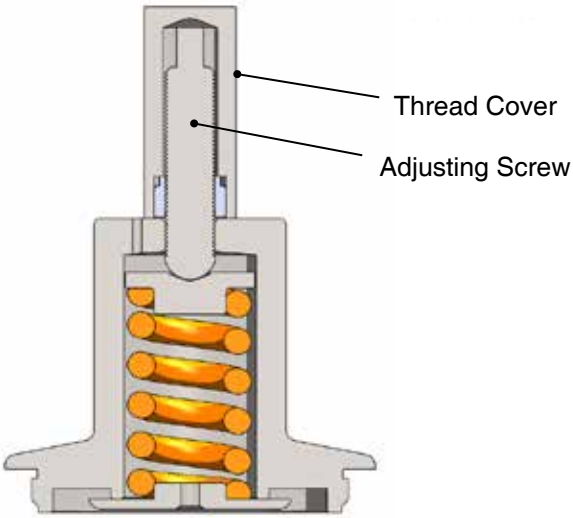
1/2" – 1" JSRH with Panel Mount and Tri-Clamp Ends







Tamper Proof: The tamper proof option replaces the standard adjusting knob with a stainless steel thread cover.



Flow Data for Cv trim selection - Curves shown with teflon seat

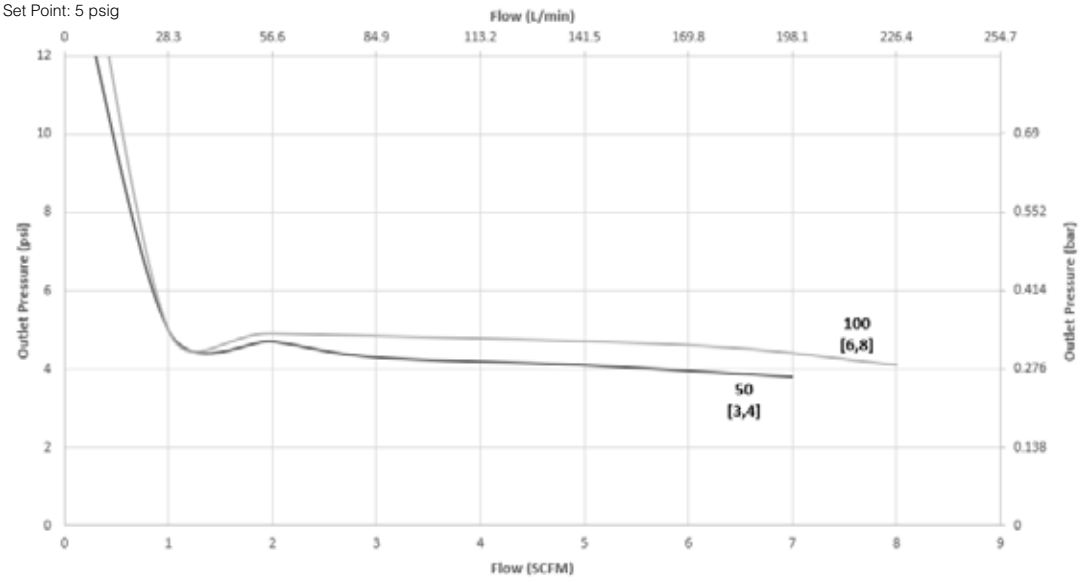
The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

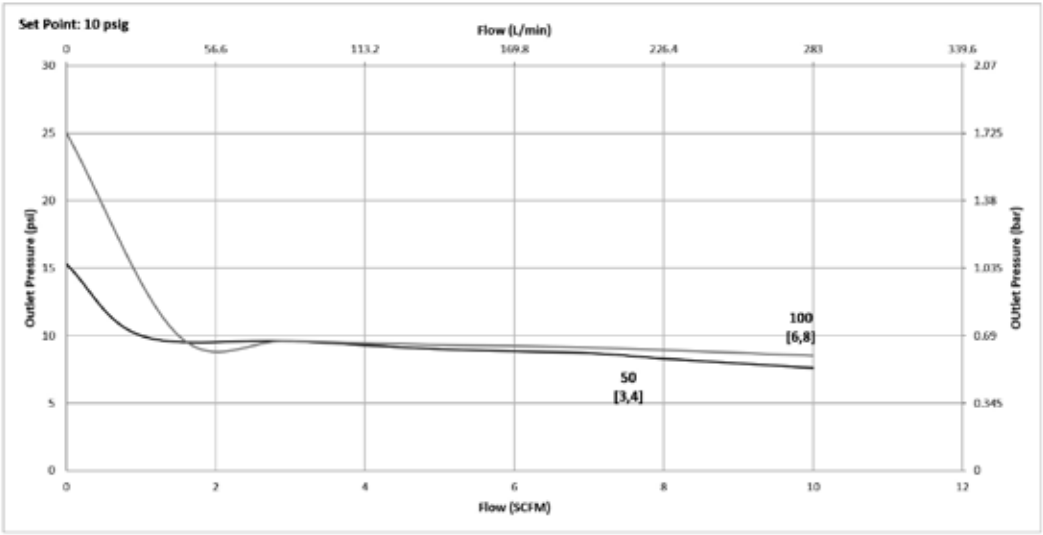
Flow Coefficient: 1.5

Range Spring: 5-20 psig (0,34 – 1,38 bar)

Maximum inlet pressure: 230 psig (15,86 bar)

Set Point: 5 psig





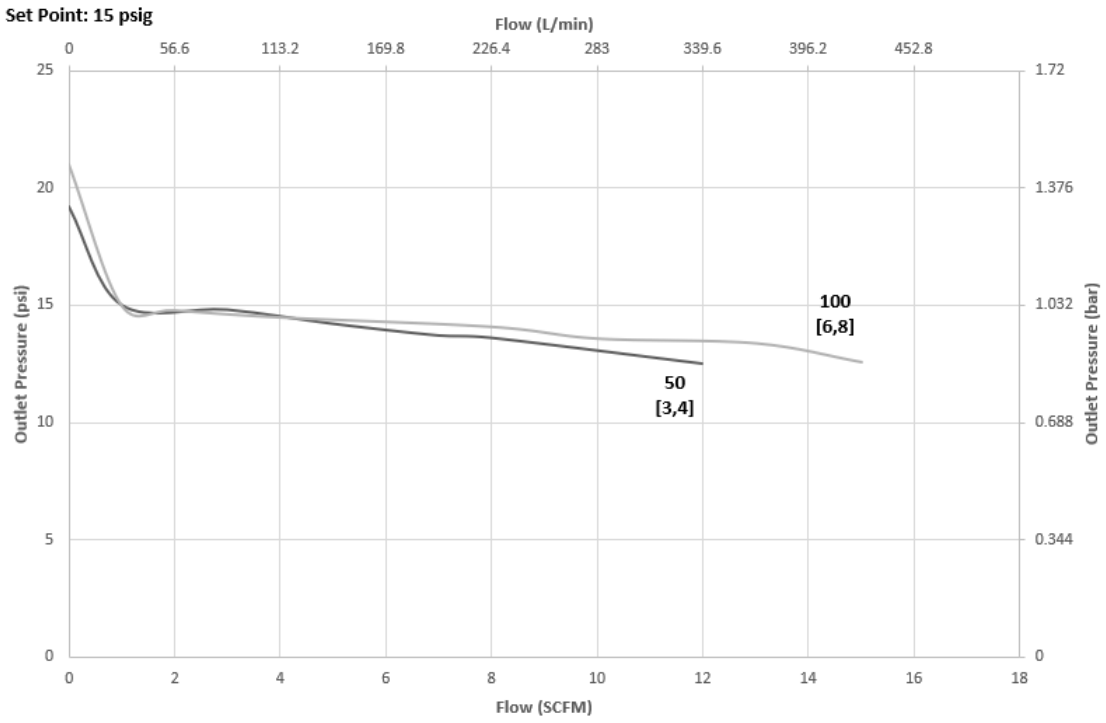
Flow Data for Cv trim selection - Curves shown with teflon seat

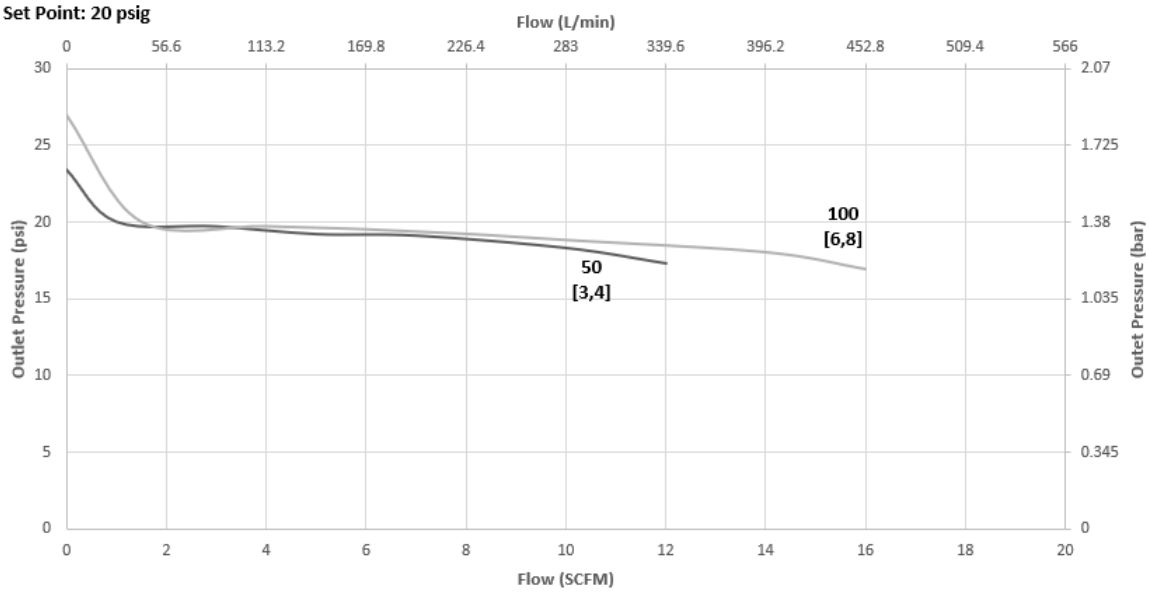
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Flow Coefficient: 1.5

Range Spring: 5-20 psig (0,34 – 1,38 bar)

Maximum inlet pressure: 230 psig (15,86 bar)





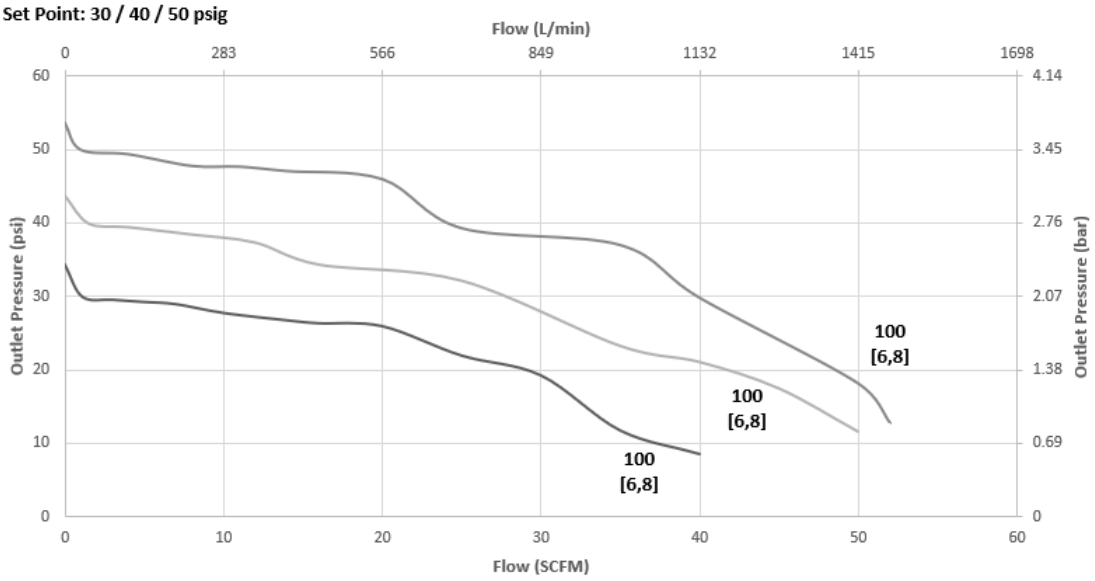
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.5

Range Spring: 5-50 psig (0,34 – 3,44 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



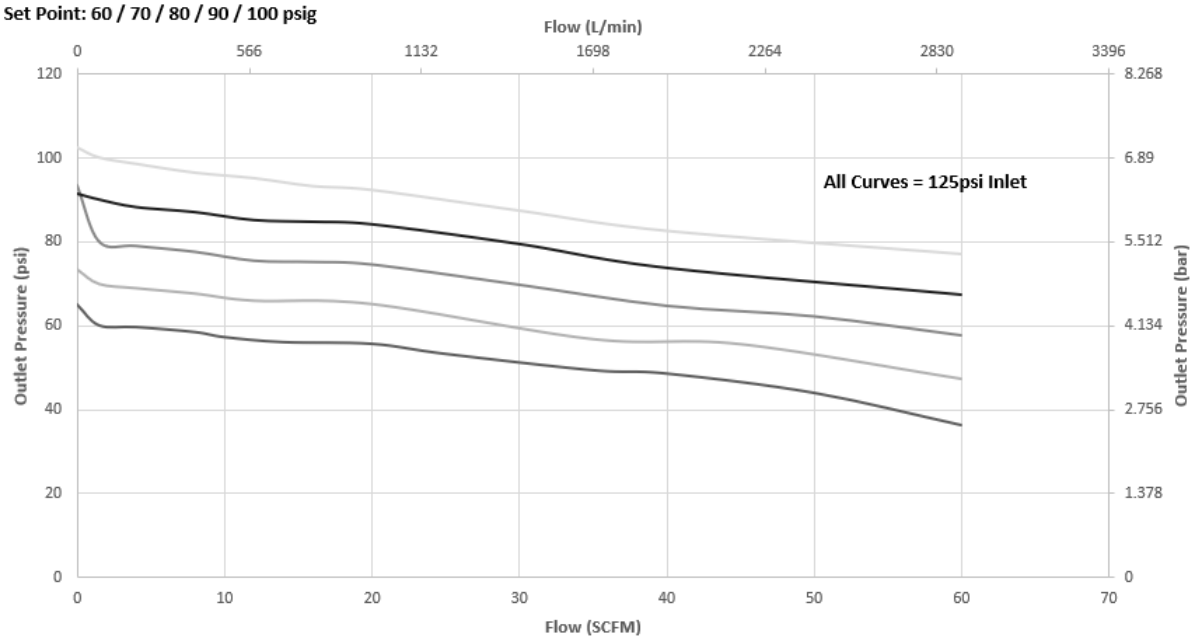
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.5

Range Spring: 5-100 psig (0,34 – 6,89 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



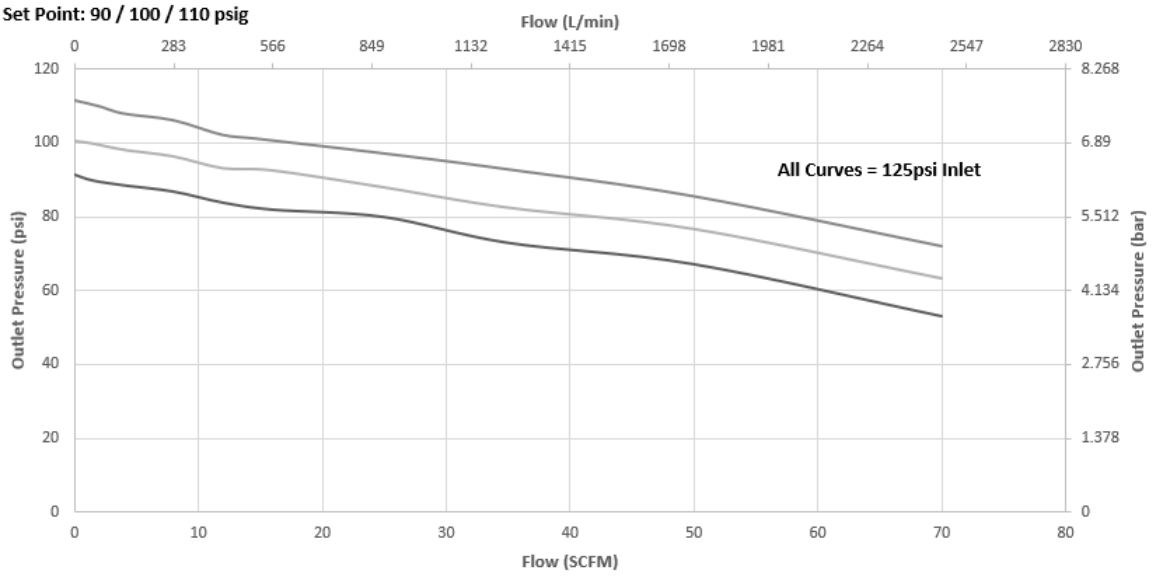
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.5

Range Spring: 5-150 psig (0,34 – 10,34 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



Flow Data for Cv trim selection - Curves shown with teflon seat

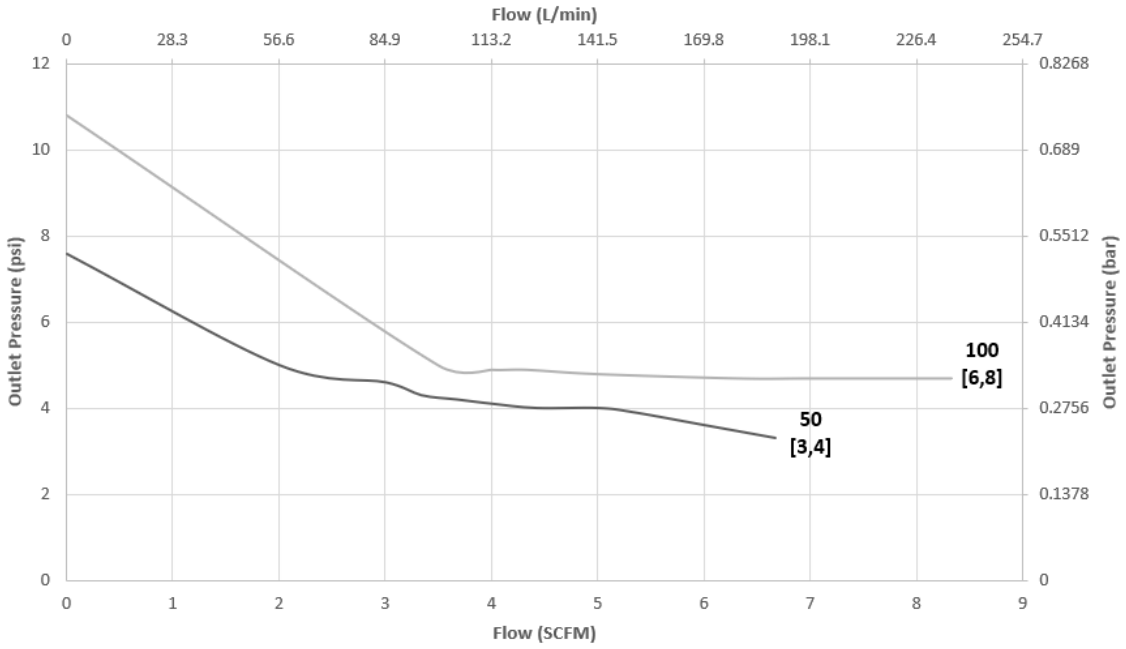
The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.9

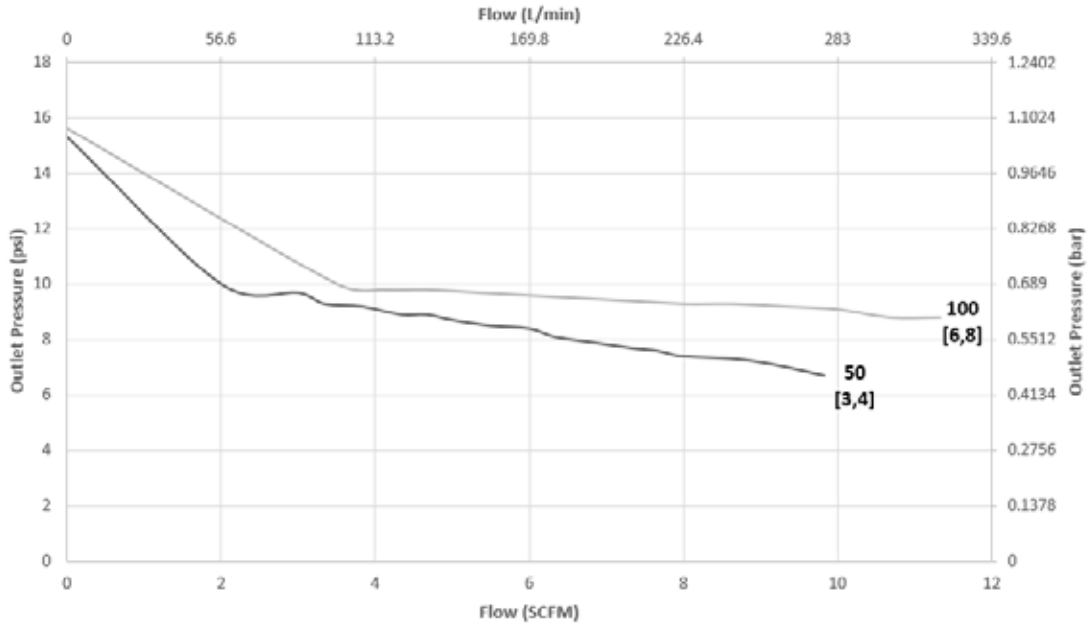
Range Spring: 5-20 psig (0,34 – 1,38 bar)

Maximum inlet pressure: 230 psig (15,86 bar)

Set Point: 5 psig



Set Point: 10 psig



Flow Data for Cv trim selection - Curves shown with teflon seat

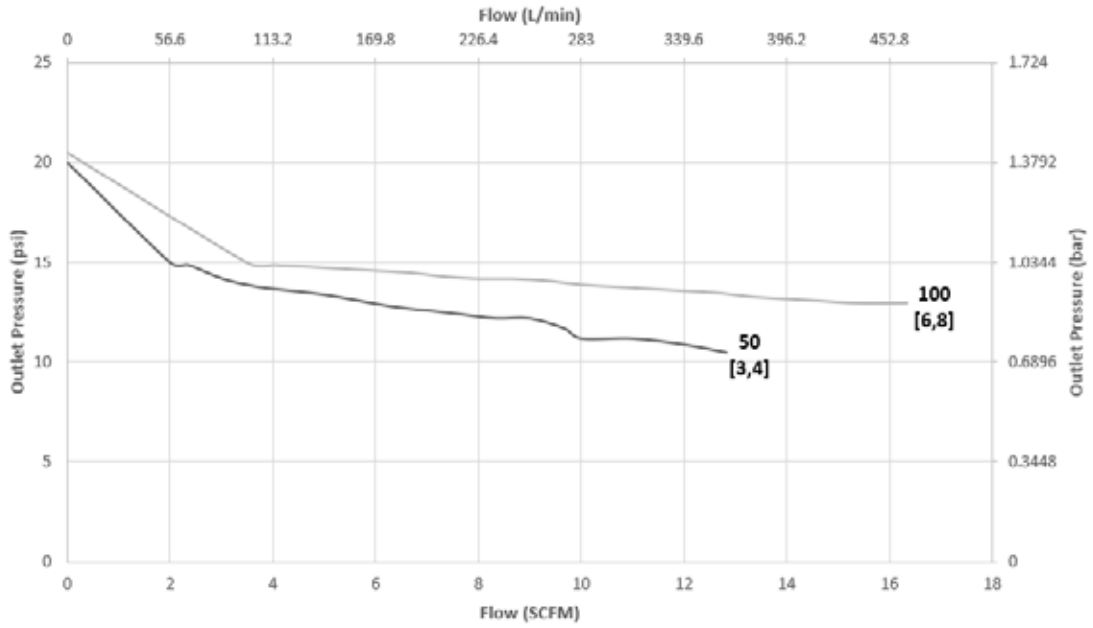
The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.9

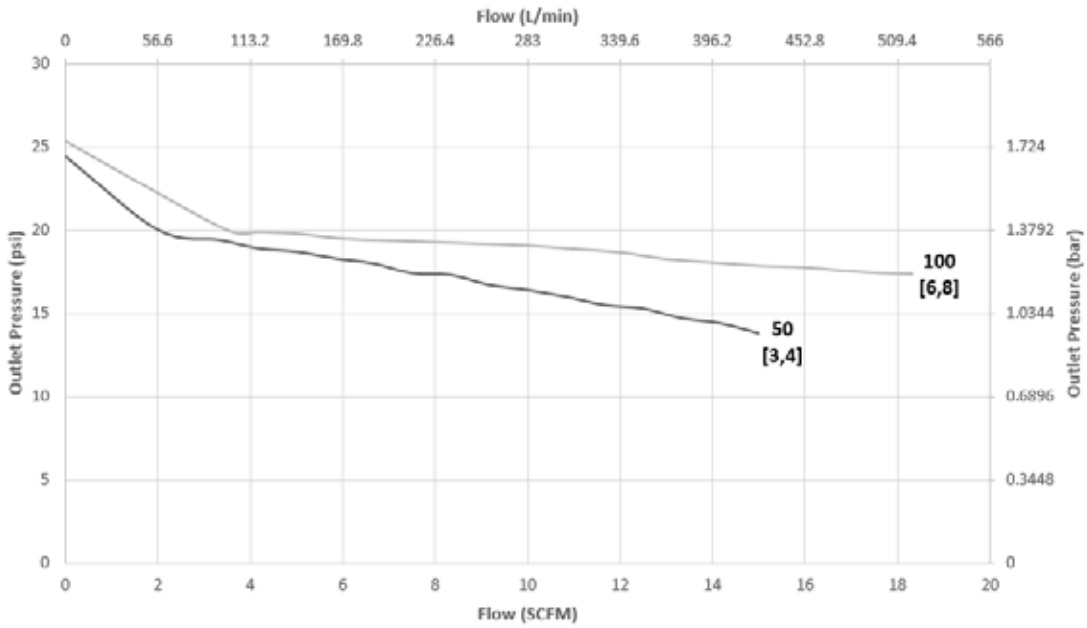
Range Spring: 5-20 psig (0,34 – 1,38 bar)

Maximum inlet pressure: 230 psig (15,86 bar)

Set Point: 15 psig



Set Point: 20 psig



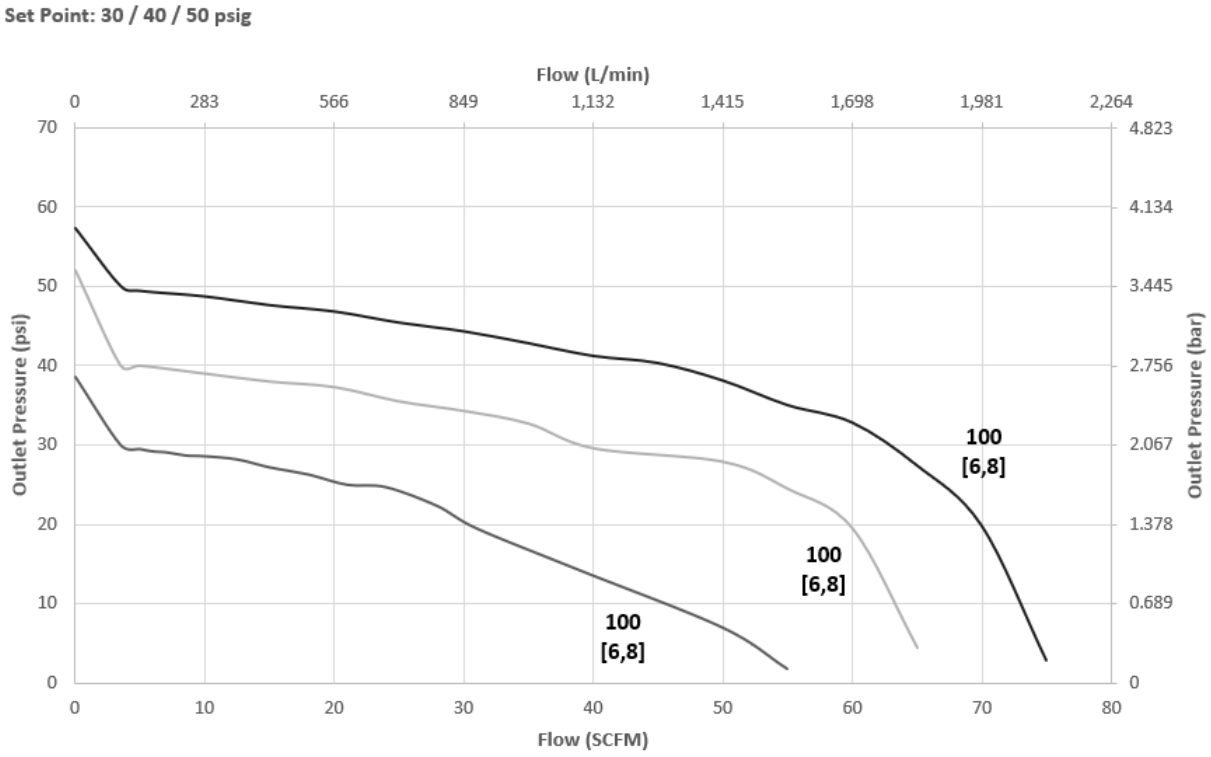
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.9

Range Spring: 5-50 psig (0,34 – 3,44 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



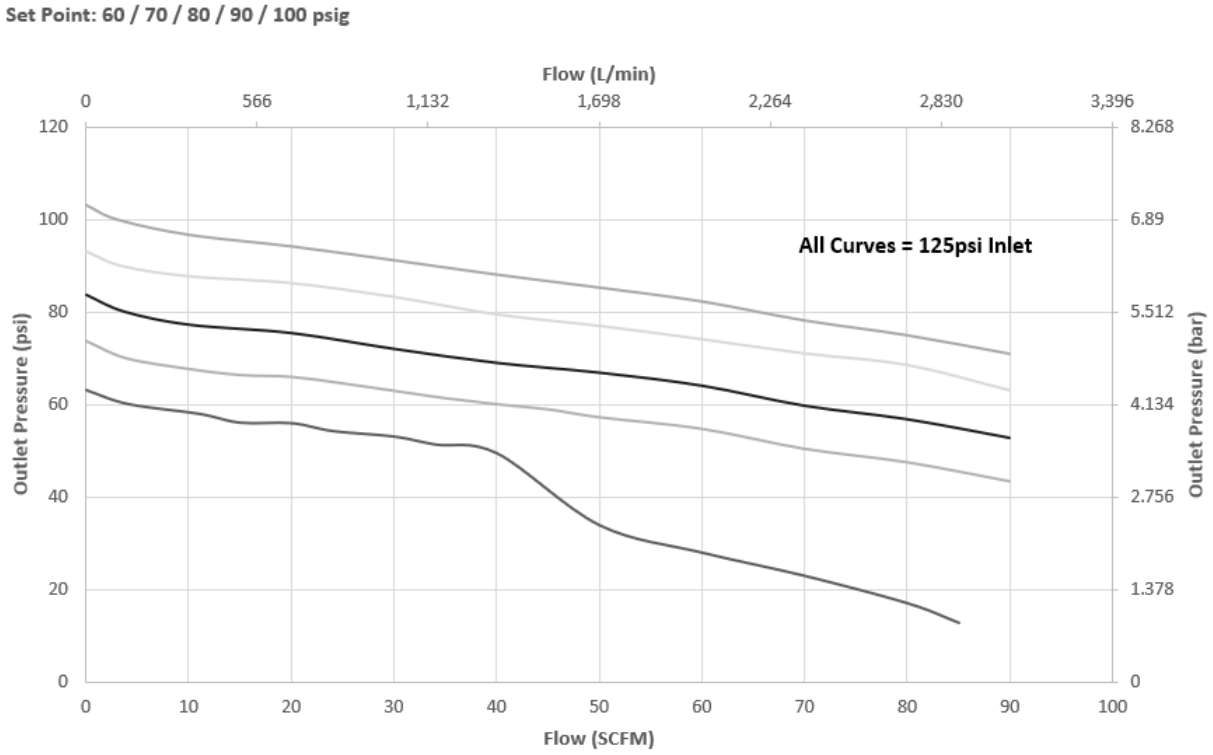
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.9

Range Spring: 5-100 psig (0,34 – 6,89 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



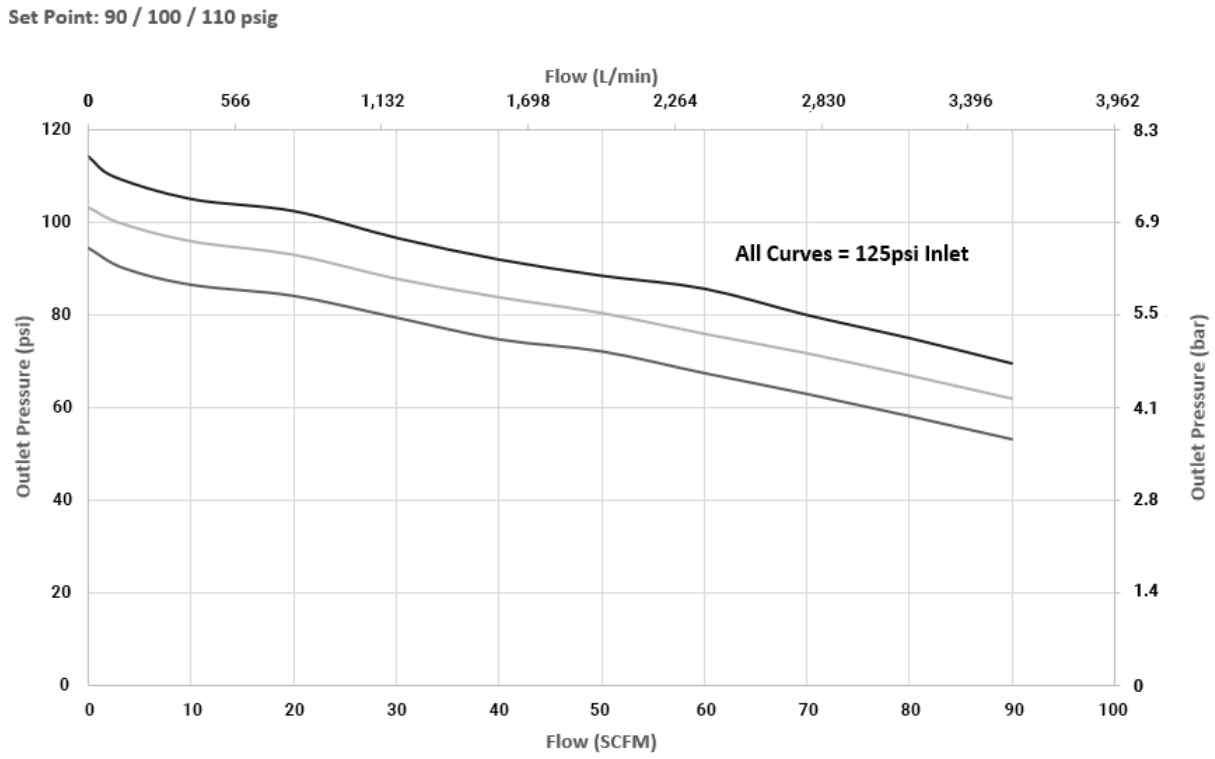
Flow Data for Cv trim selection - Curves shown with teflon seat

The graphs illustrate the change or "droop" in outlet pressures as the flow rate increases, and the lockup (setpoint rise) as flow decreases and approaches zero.

Flow Coefficient: 1.9

Range Spring: 5-150 psig (0,34 – 10,34 bar)

Maximum inlet pressure: 230 psig (15,86 bar)



Ordering Schematic

Model		Size		Material	/	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12	13 & 14	15	16	17

Model	
JSRH	High Flow Gas Pressure Reducing Valve

Size	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)

Material*	
6L	Stainless Steel 316L
30	S. Steel 316L, ≤30 Ra µin (0,76 Ra µm) EP

1 & 2	Body Feature		
End Connection/Int. Finish		Port Configuration**	
C	Tri-Clamp 20Ra EP	A	Port "A"
P	FNPT 20Ra EP	B	Port "B"
T	Tube Weld End 20Ra EP	C	Port "C"
S[1]	ISO TRI-CLAMP, DIN15	D	Port "D"
V[1]	ISO W/34.0mm Face TR-Clamp, DIN15	E	Port "E"
R[1]	ISO T-Clamp, DN20		
D[2]	DIN Tri-Clamp, DN15		
N[2]	DIN T-Clamp, DN15 w/50.5mm face		
U[2]	DIN T-Clamp, DN20		
X[2]	DIN T-Clamp, DN20 w/50.5mm face		
M[3]	DIN Tube Weld, DN15		
H[4]	ISO Tube Weld, DN15		
E[1]	ISO Tri-Clamp, DN25		
F[2]	DIN Tri-Clamp, DN25		
G[3]	DIN Tube Weld DN20		
J[4]	ISO Tube Weld DN20		
K[3]	DIN Tube Weld DN25		
L[4]	ISO Tube Weld DN25		
ZZ	Non-Standard		

[1] Acc. to DIN 32676 Row B (ISO 1127). See dimensions, page 2
[2] Acc. to DIN 32676 Row. See dimensions, page 2
[3] Acc. to DIN 11866, DIN 11850 Row A
[4] Acc. to DIN 11866 Row B
* See page 2 for complete material specifications.
** Std. Gauge Port conns are 1/4" FNPT. Consult factory for availability of other alternatives

3 & 4	O-Ring & Trim - FDA & USP Class VI
1E	USP - EPDM & 6L
1V	USP - Viton & 6L
1K	USP - KLRZ & 6L
1L	USP - Silicone & 6L
2E	USP-EPDM & 6L Self Relieving
2V	USP-VIT & 6L Self Releiving
2K	USP-KLRZ & 6L Self Releiving
2L	USP-SIL & 6L Self Releiving

* All are FDA + USP Class VI certified

5 & 6	Trim - FDA & USP Class VI
PK	PEEK (1/2" 1.5 Cv) (3/4" & 1" 1.9 CV)
TF	PTFE (1/2" 1.5 Cv) (3/4" & 1" 1.9 Cv)
ZZ	Non-Standard

7 & 8	Range Spring/Outlet Pressure
02	5 - 20 PSI (0,3 - 1,4 bar)
05	5 - 50 PSI (0,3 - 3,4 bar)
10	5 - 100 PSI (0,3 - 6,9 bar)
15	5 - 150 (0,3 - 10,3 bar)
ZZ	Non-Standard

9 & 10	Diaphragm Material
JL	Jorlon PTFE - FDA & USP Class VI
ZZ	Non-Standard

11 & 12	Actuator
SK	Standard Actuator / Nylon Knob
AK	Standard Actuator / Autoclavable Anod. Aluminum Knob
PM*	Panel Mount (see illustrations page 5 & 6)
CV[1]	Captured Vent provides fitting on spring housing for venting self-relieved gas
AA[1]	Air Loading provides fitting for air input on spring housing, and a stem seat nut
TP	Tamper Proof Option (see page 6)
ZZ	Non-Standard

[1] See page 5 for complete description
* When combined with gauge options, the guage(s) will be behind the panel

13 & 14	Inlet Gauge*
0N	None
0B	0 - 30 PSIG/Bar (Dual)
0C	0 - 60 PSIG/Bar (Dual)
0D	0 - 100 PSIG/Bar (Dual)
0E	0 - 160 PSIG/Bar (Dual)
0F	0 - 200 PSIG/Bar (Dual)
0G	0 - 400 PSIG/Bar (Dual)
ZZ	Non-Standard

* Gauges are Oil Free and O2 clean as standard.

Continued on next page

Ordering Schematic (Continued)

Model		Size		Material	/	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12	13 & 14	15	16	17

15	Outlet Gauge*
N	None
B	0 - 30 PSIG/Bar (Dual)
C	0 - 60 PSIG/Bar (Dual)
D	0 - 100 PSIG/Bar (Dual)
E	0-160 PSIG/Bar (Dual)
ZZ	Non-Standard

16	SEP Compliance
0	None Required
G	SEP Compliant
Z	Non-Standard

17	Accessories
0	None
S	Clean For Oil Free
X	Clean For Oxygen*
A	EN10204 3.1 Cert for Wetted Parts
Z	Non-Standard

*Procedure complies with ASTM G-93 2011 and CGA G-4.1-2009

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