

# Flow Control Cartridges

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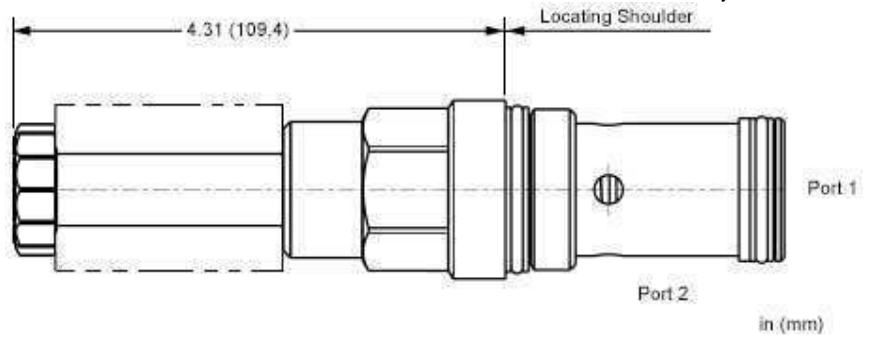
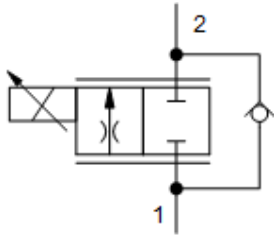
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Series	Ports	Cavities
<b>Series Z Cartridges</b> 3/8-24 UNF Cartridge Thread 5 mm Valve Hex Size 11 - 14 Nm Valve Installation Torque	3-Port	T-382A
<b>Series P Cartridges</b> M16 Cartridge Thread 22,2 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port	T-8A T-8DP T-9A
<b>Series O Cartridges</b> M16 Cartridge Thread 19,1 mm Valve Hex Size 25,4 mm Valve Hex Size 27 - 33 Nm Valve Installation Torque	2-Port 2-Port (Deep) 3-Port 3-Port 4-Port	T-162A T-162DP T-150A T-163A T-30A
<b>Series OC Cartridges</b> 3/4-16 UNF Cartridge Thread 22,2 mm Valve Hex Size 19-22 lbf ft Valve Installation Torque	4-Port (Common)	SC-08-04
<b>Series 1 Cartridges</b> M20 Cartridge Thread 22,2 mm Valve Hex Size 41 - 47 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 6-Port	T-10A T-13A T-11A T-21A T-31A T-61A
<b>Series 1C Cartridges</b> 7/8-14 UNF Cartridge Thread 25,4 mm Valve Hex Size 23-26 lbf ft Valve Installation Torque	2-Port (Common) 4-Port (Common)	SC-10-02 SC-10-04
<b>Series 2 Cartridges</b> 1"-14 UNS Cartridge Thread 28,6 mm Valve Hex Size 61 - 68 Nm Valve Installation Torque	2-Port 2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-3A T-5A T-2A T-22A T-32A T-52AD T-52A T-62A
<b>Series 3 Cartridges</b> M36 Cartridge Thread 31,8 mm Valve Hex Size 203 - 217 Nm Valve Installation Torque	2-Port 3-Port 4-Port 4-Port 4-Port (Dual path) 6-Port 6-Port	T-16A T-17A T-23A T-33A T-53AD T-53A T-63A
<b>Series 4 Cartridges</b> M48 Cartridge Thread	2-Port 2-Port (Undercut)	T-18A T-18AU

41,3 mm Valve Hex Size  
474 - 508 Nm Valve Installation Torque

3-Port	T-19A
3-Port (Undercut)	T-19AU
4-Port	T-24A
4-Port (Undercut)	T-24AU
4-Port	T-34A
4-Port (Dual path)	T-54AD
6-Port	T-54A
6-Port	T-64A



Normally closed, electro-proportional pressure-compensated flow control with reverse-flow check valves provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are proportional from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

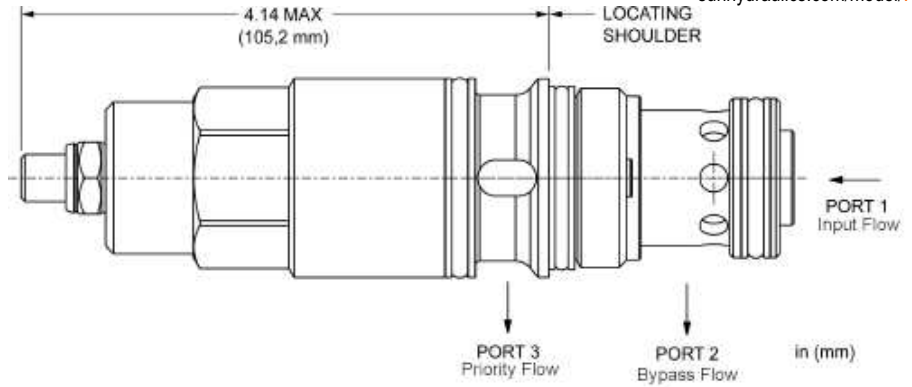
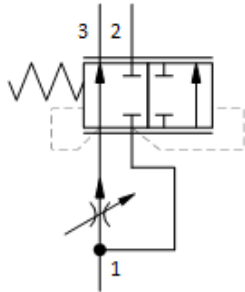
Maximum Operating Pressure	5000 psi
Viscosity Range	35 - 2000 SUS
Response Time - Typical	50 ms
Switching Frequency	3,600 max. cycles/hr
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: FDEPXB**

CONTROL	(X) FLOW RATE	(B) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>B</b> 11 gpm (42 L/min.) <b>C</b> 19 gpm (72 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available



This valve is a fully adjustable, bypass/restrictive, priority flow control valve. The valve takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority requirement, the excess is bypassed out port 2.

The valve pressure compensates the priority flow for precise flow regulation for applications where there may be wide pressure fluctuations. Port 2 may also be completely blocked so that the valve can be used as a 2-way, pressure compensated flow control from 1 to 3.

**TECHNICAL DATA**

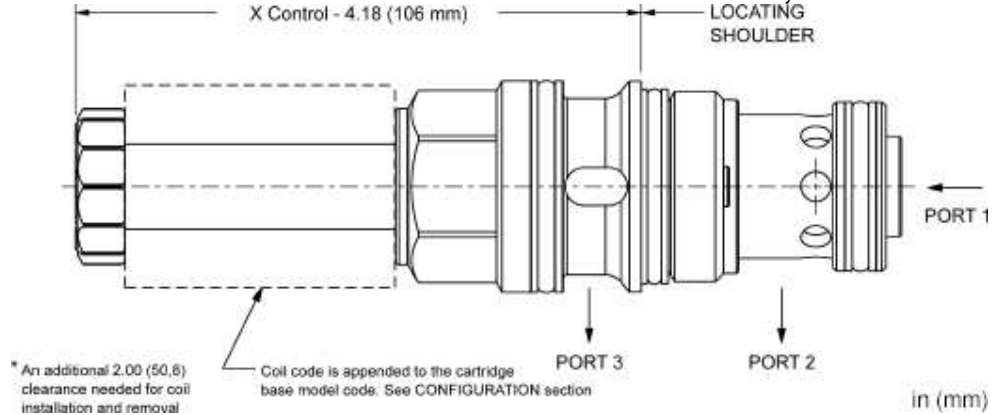
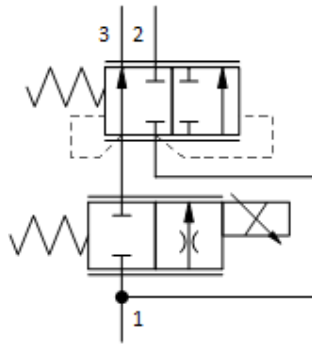
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Viscosity Range	35 - 2000 SUS
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Typical Valve Leakage at 110 SUS (24 cSt) from port 1 to port 3 at 5000 psi (350 bar)	75 mL/min.
Rated Maximum Priority	17.6 gpm
Response Time - Typical	50 ms

**CONFIGURATION OPTIONS**

**Model Code Example: FRELLAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N)
<b>L</b> Standard Screw Adjustment	<b>A</b> .02 - 18 gpm	<b>N</b> Buna-N	
H Calibrated Handknob with Detent Lock		V Viton	
K Handknob			
Y Tri-Grip Handknob			



This valve is a normally closed, electro-proportional, bypass/restrictive, priority flow control valve. The valve takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority requirement, the excess is bypassed out port 2.

The valve pressure compensates the priority flow for precise flow regulation for applications where there may be wide pressure fluctuations. Port 2 may also be completely blocked so that the valve can be used as a 2-way, electro-proportional pressure compensated flow control from 1 to 3.

### TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Viscosity Range	35 - 2000 SUS
Typical Valve Leakage at 110 SUS (24 cSt) from port 1 to port 3 at 1450 psi (100 bar)	30 mL/min.
Typical Valve Leakage at 110 SUS (24 cSt) from port 1 to port 3 at 5000 psi (350 bar)	110 mL/min.
Response Time - Typical	50 ms
Switching Frequency	3,600 max. cycles/hr
U.S. Patent #	10,969,033
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Viton: 990017006

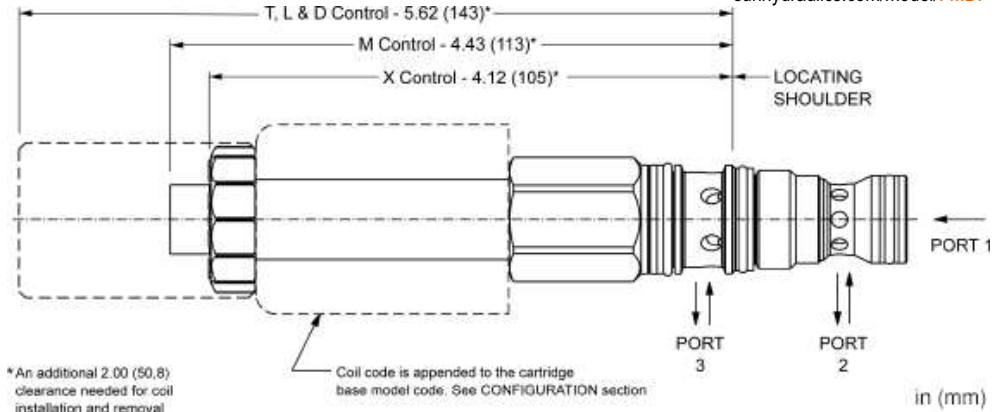
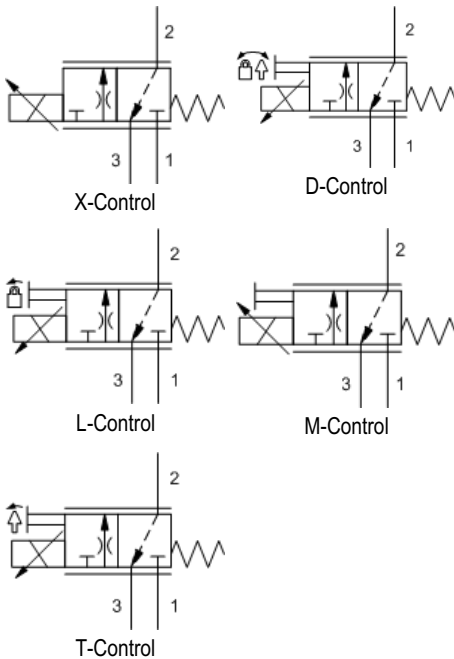
### NOTES

- Patents are pending for this product.
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
- An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

### CONFIGURATION OPTIONS

#### Model Code Example: FREPXAN

CONTROL	(X) FLOW RATE	(A) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>A</b> Nominal 8 gpm (30 L/min.) <b>B</b> Nominal 16 gpm (60 L/min.) <b>C</b> Nominal 22 gpm (88 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	No coil * Additional coil options are available



This valve is a 3-way, meter-in, electro-proportional throttle. The flow path, unenergized, has the supply blocked at port 1 and port 2 is drained to tank at port 3. Energizing the coil generates a closing force on the spool, creating a metering orifice in the 1 to 2 direction that is proportional to the coil command current. The valve self-compensates in the 1-to-2 direction and with the addition of an external compensator will provide pressure compensated flow control.

Flow in the 2-to-3 direction is not proportional and is limited in the interest of increased resolution and capacity. Flow capacity in the 2-to-3 direction is about 1.5 gpm (6 L/min). This valve is meant to be used in a circuit that has a separate passage to tank such as a cushion lock circuit. Two FMDFs in conjunction with a cushion lock circuit create a meter-in/meter-out 3-position 4-way.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min. @1000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.

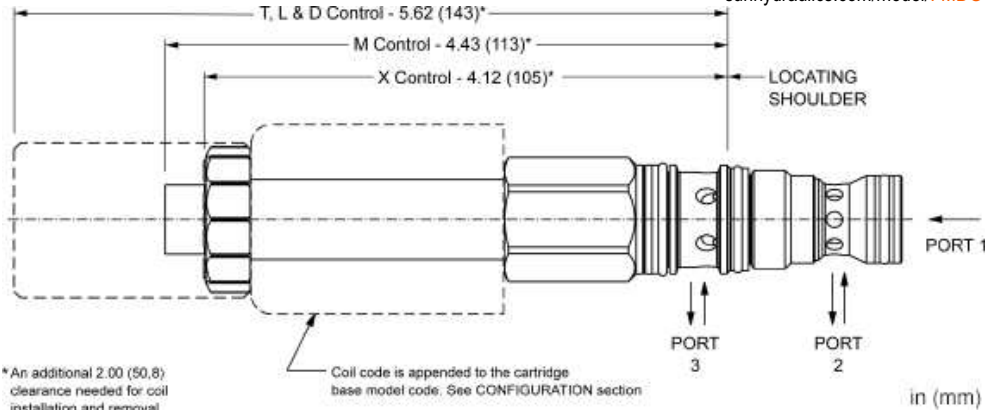
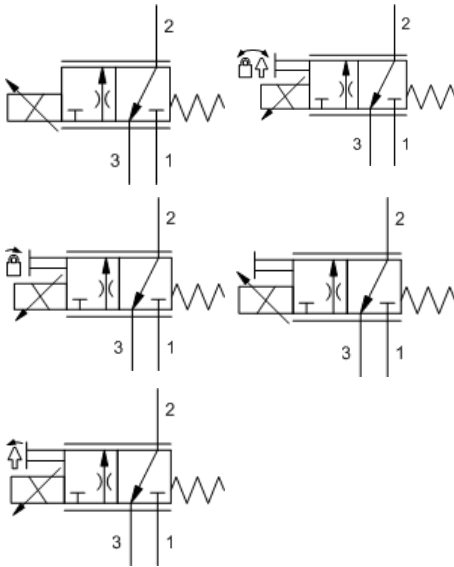
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**

**Model Code Example: FMDFXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> .1 - 9 gpm (0,4 - 34 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.6 gpm (0,4 - 6.1 L/min.)	<b>V</b> Viton	* Additional coil options are available
<b>L</b> Twist/Lock (Detent) Manual Override	<b>B</b> .1 - 4 gpm (0,4 - 15 L/min.)		
<b>M</b> Manual Override	<b>C</b> .1 - 6 gpm (0,4 - 23 L/min.)		
<b>T</b> Twist (Momentary) Manual Override			





This valve is a 3-way, meter-in, electro-proportional throttle. The flow path, unenergized, has the supply blocked at port 1 and port 2 connected to tank at port 3. Energizing the coil generates a closing force on the spool, creating a metering orifice in the 1 to 2 direction that is proportional to the coil command current. The valve self-compensates in the 1 to 2 direction and with the addition of an external compensator will provide pressure compensated flow control. Flow in the 2 to 3 direction is not proportional.

**TECHNICAL DATA**

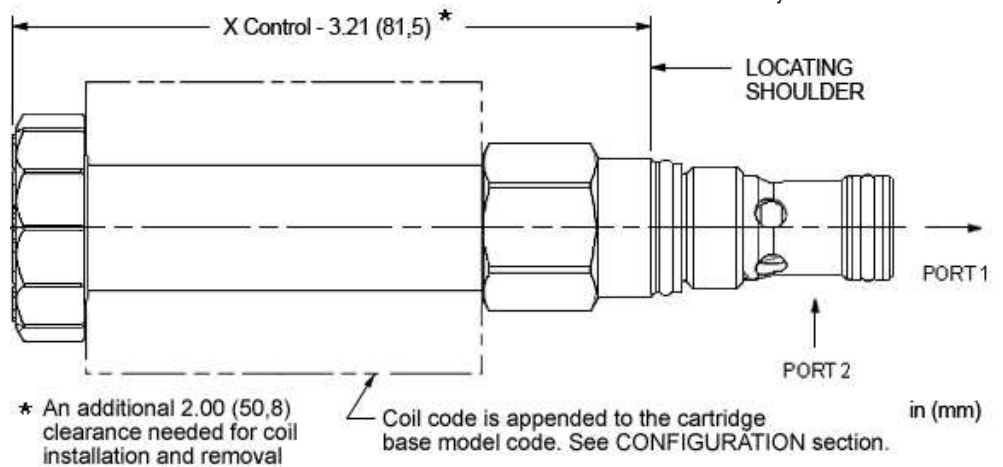
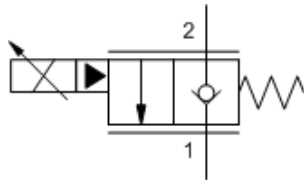
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min. @ 1000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	Viton: 990411006

**CONFIGURATION OPTIONS**

**Model Code Example: FMDGXCN**

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>C</b> .1 - 6 gpm (0,4 - 23 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.6 gpm (0,4 - 6.1 L/min.)	<b>V</b> Viton	* Additional coil options are available
<b>L</b> Twist/Lock (Detent) Manual Override	<b>B</b> .1 - 4 gpm (0,4 - 15 L/min.)		
<b>M</b> Manual Override			
<b>T</b> Twist (Momentary) Manual Override			



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally, allowing flow from port 2 to 1. In the open condition, flow from 1 to 2 will cause the valve to auto-close and only pilot flow will pass from 1 to 2.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

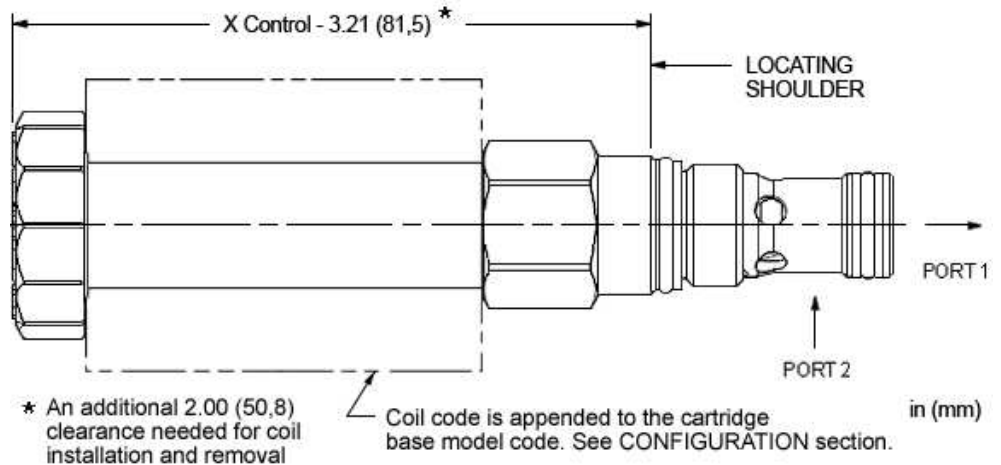
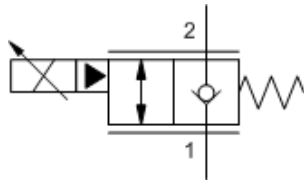
Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	3000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min.@3000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**
**Model Code Example: FPBDXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	No coil

\* Additional coil options are available



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally, allowing flow from port 2 to 1. The check will allow flow from 1 to 2 in either the open or closed condition.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

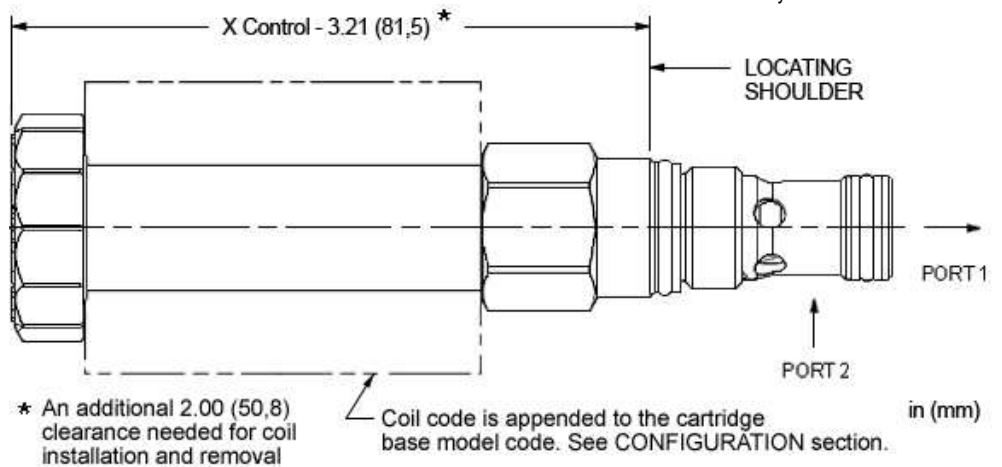
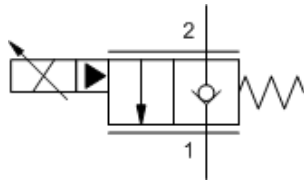
Hysteresis (with dither)	15%
Linearity (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	3000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min. @3000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**
**Model Code Example: FPBEXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally, allowing flow from port 2 to 1. In the open condition, flow from 1 to 2 will cause the valve to auto-close and only pilot flow will pass from 1 to 2.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

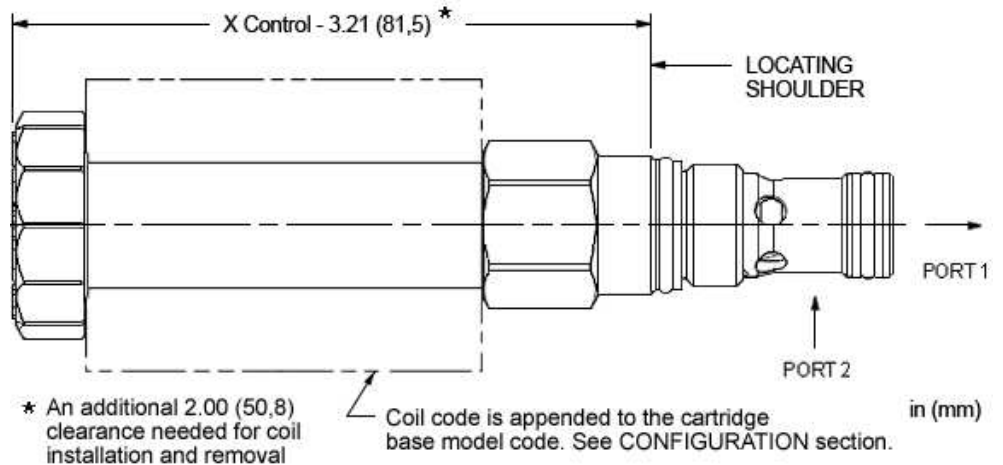
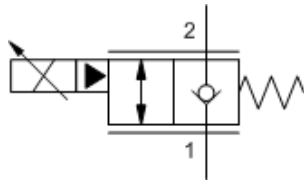
Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min. @3000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**
**Model Code Example: FPBFXDN**

<b>CONTROL</b>	<b>(X) FLOW RATE</b>	<b>(D) SEAL MATERIAL</b>	<b>(N) COIL *</b>
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	No coil

\* Additional coil options are available



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally, allowing flow from port 2 to 1. The check will allow flow from 1 to 2 in either the open or closed condition.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

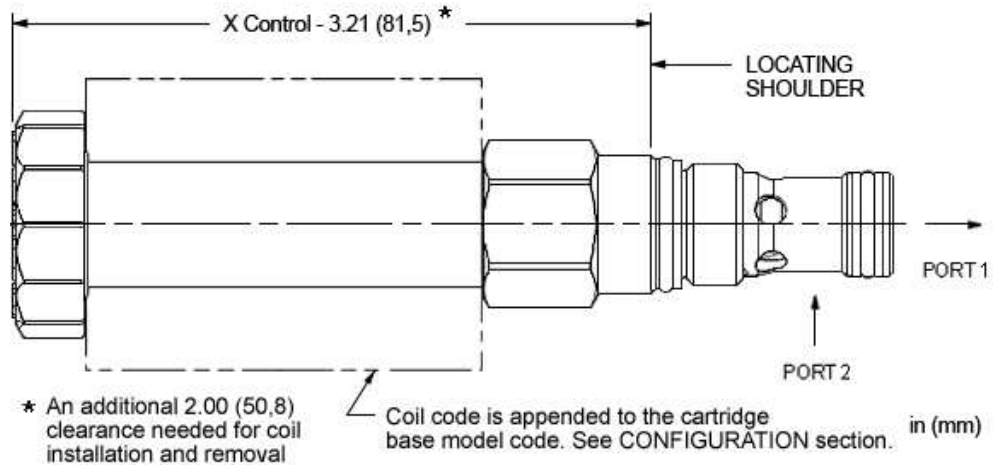
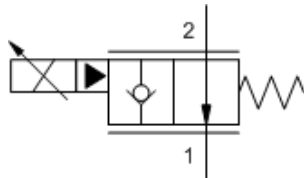
Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min.@5000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

**NOTES**

- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
- An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**
**Model Code Example: FPBGXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b> * Additional coil options are available



This valve is a pilot-operated, normally open, electro-proportional throttle with reverse free-flow check. Energizing the coil generates a closing force on the pilot stage which pushes the main stage poppet against the seat, proportionally blocking flow from port 2 to 1. In the open condition, flow from 1 to 2 will cause the valve to auto-close and only pilot flow will pass from 1 to 2.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min.@5000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

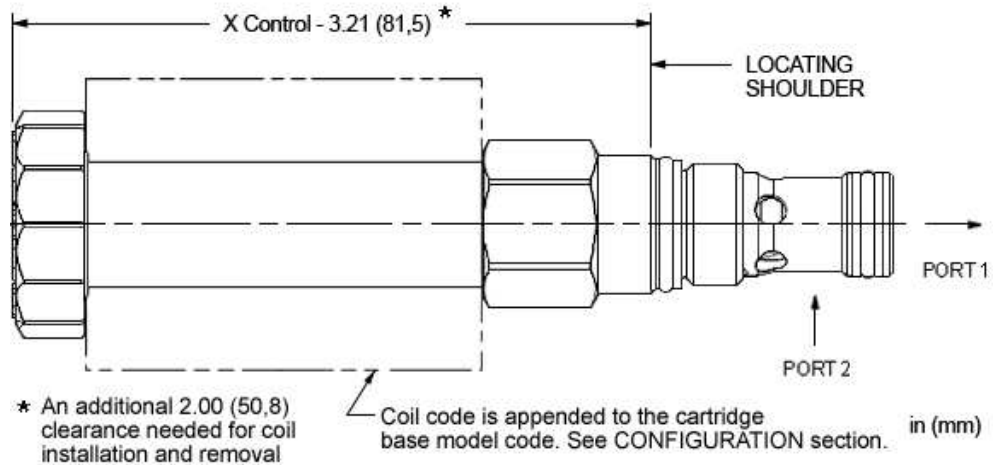
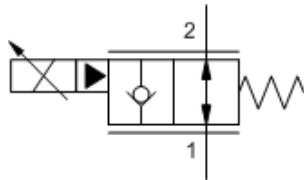
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**

**Model Code Example: FPBIXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available



This valve is a pilot-operated, normally open, electro-proportional throttle with reverse free-flow check. Energizing the coil generates a closing force on the pilot stage which pushes the main stage poppet against the seat, proportionally blocking flow from port 2 to 1. The check will allow flow from 1 to 2 in either the open or closed condition.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min.@5000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna-N: 990162007
Seal kit - Cartridge	Viton: 990162006

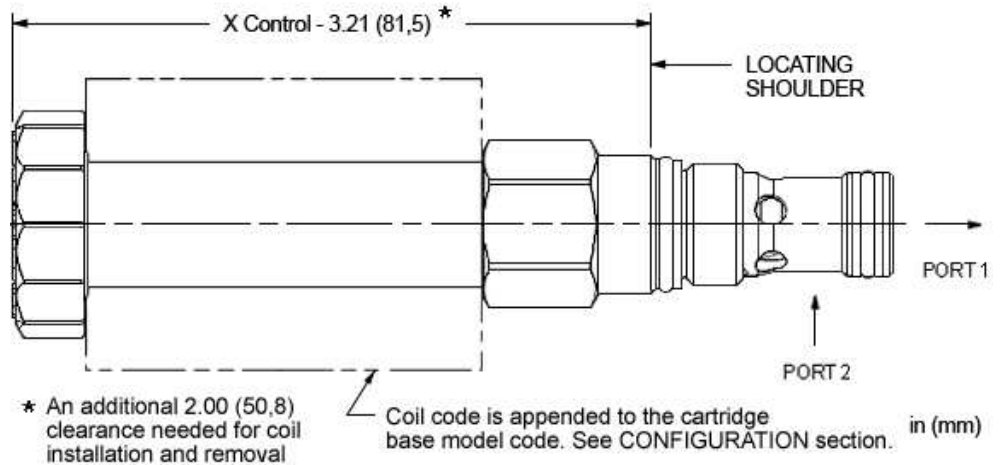
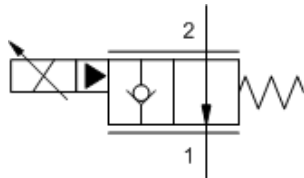
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**

**Model Code Example: FPBJXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available



This valve is a pilot-operated, normally open, electro-proportional throttle with reverse free-flow check. Energizing the coil generates a closing force on the pilot stage which pushes the main stage poppet against the seat, proportionally blocking flow from port 2 to 1. In the open condition, flow from 1 to 2 will cause the valve to auto-close and only pilot flow will pass from 1 to 2.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	3000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min. @3000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna-N: 990162007
Seal kit - Cartridge	Viton: 990162006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

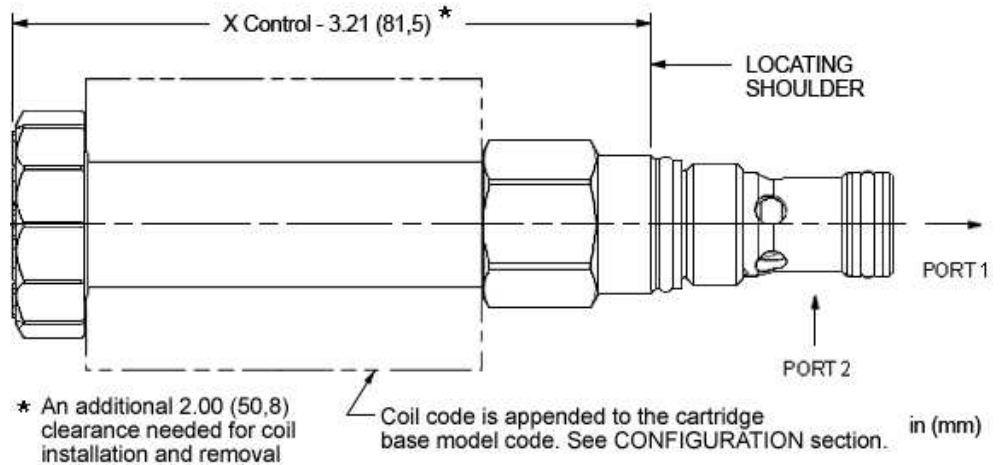
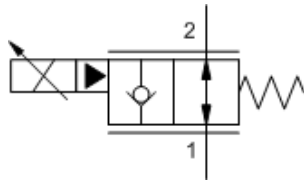
**CONFIGURATION OPTIONS**

**Model Code Example: FPBMXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available





This valve is a pilot-operated, normally open, electro-proportional throttle with reverse free-flow check. Energizing the coil generates a closing force on the pilot stage which pushes the main stage poppet against the seat, proportionally blocking flow from port 2 to 1. The check will allow flow from 1 to 2 in either the open or closed condition.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Hysteresis (with dither)	15%
Linearity (with dither)	3%
Repeatability (with dither)	3%
Recommended dither frequency	140 Hz
Maximum Operating Pressure	3000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min. @3000 psi
Check Cracking Pressure	100 psi
Viscosity Range	35 - 2000 SUS
Deadband, nominal (as a percentage of input)	48%
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

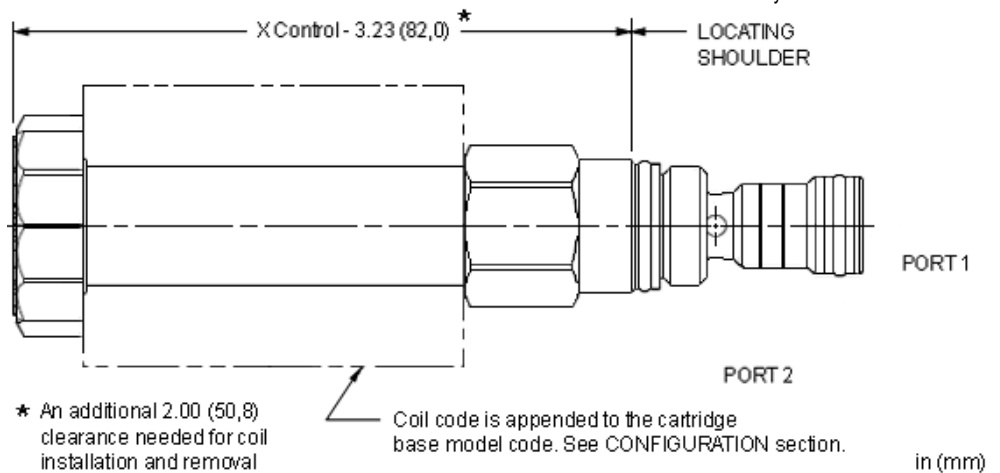
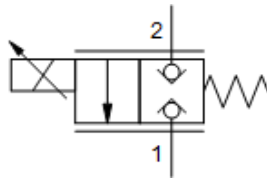
- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**

**Model Code Example: FPBNXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 5 gpm @ 200 psi (14 bar) differential (20 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>No coil</b>

\* Additional coil options are available



This valve is a normally closed, electro-proportional, blocking poppet throttle that is spring-biased closed. Energizing the coil generates an opening force on the poppet proportional to the command current, and this force is countered by the spring and flow forces. This force balance creates a metering orifice whose effective size is proportional to the current. The valve exhibits a large degree of self-compensation in the 2-to-1 direction and will provide proportional flow control in the 1-to-2 direction with the addition of an external compensator. Full reverse flow (1-to-2) with 100% command in the 1-to-2 direction is possible without a compensator under all conditions.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

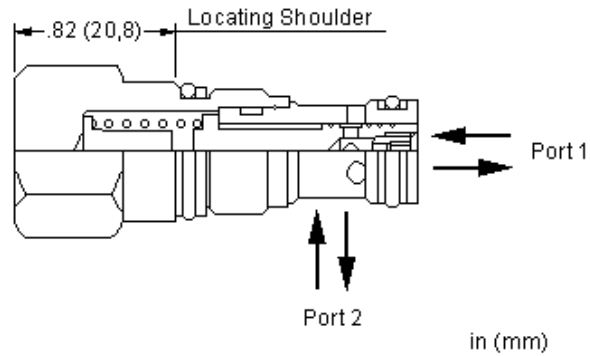
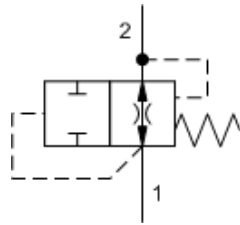
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	0.004 in <sup>3</sup> /min. @5000 psi
Viscosity Range	35 - 2000 SUS
Response Time - Typical	50 ms
Switching Frequency	15,000 max. cycles/hr
U.S. Patent #	10,302,201
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Viton: 990162006

- NOTES**
- Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.
  - An additional 2.00 inches (50,8 mm) beyond the valve extension is needed for coil installation and removal.

**CONFIGURATION OPTIONS**

**Model Code Example: FPBUXCN**

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override M Manual Override	<b>C</b> Nominal 2.6 gpm @ 200 psi (14 bar) differential (9.8 L/min) (9,8 L/min.)	<b>N</b> Buna-N V Viton	No coil * Additional coil options are available



Flow fuse cartridges are used to maintain the position of a hydraulic actuator in the event of a hose or line break. The valve allows flow to and from the actuator but closes instantly if flow from the actuator exceeds the setting of the valve. NOTE: Because the valve responds so rapidly, it is sensitive to any transient flow above the valve setting.

**TECHNICAL DATA**

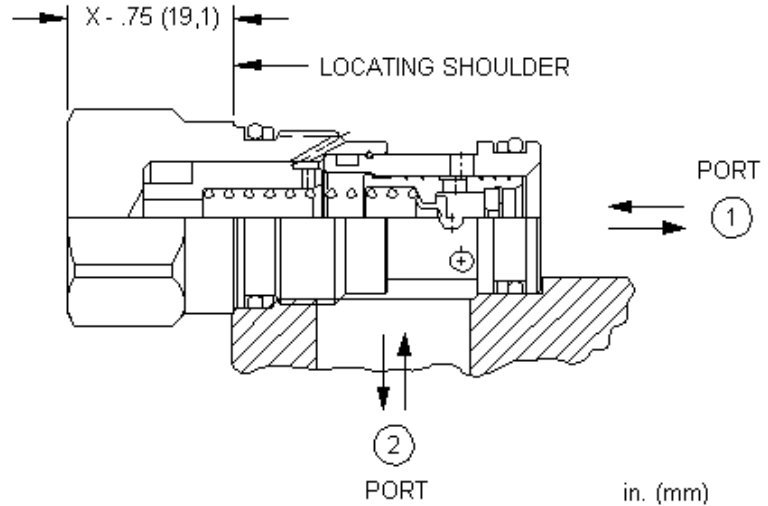
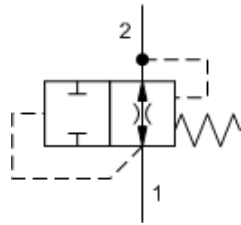
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	1 in <sup>3</sup> /min.@1000 psi
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	EPDM: 990162014
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**

**Model Code Example: FQBAXAN**

<b>CONTROL</b>	<b>(X) SETTING RANGE</b>	<b>(A) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .5 - 2.25 gpm (2 - 8,5 L/min.)	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated <b>/LH</b> Mild Steel, Zinc-Nickel



Flow fuse cartridges are used to maintain the position of a hydraulic actuator in the event of a hose or line break. The valve allows flow to and from the actuator but closes instantly if flow from the actuator exceeds the setting of the valve. NOTE: Because the valve responds so rapidly, it is sensitive to any transient flow above the valve setting.

**TECHNICAL DATA**

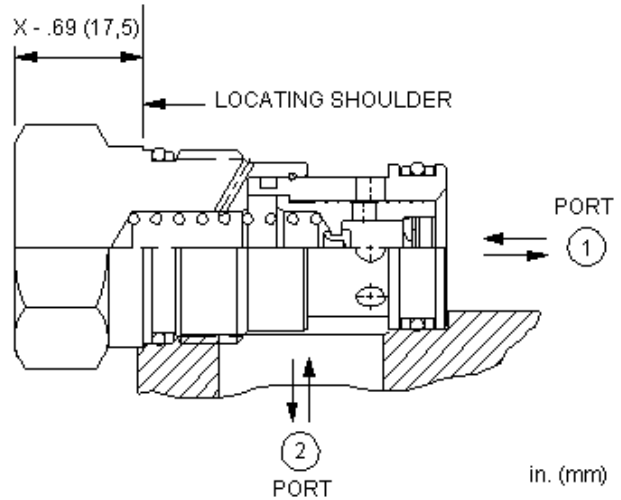
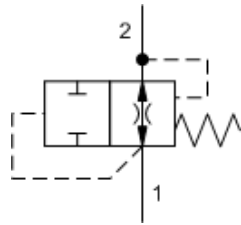
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**CONFIGURATION OPTIONS**

Model Code Example: FQCAXAN

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A Replaceable Orifice .5 - 6 gpm (2 - 23 L/min.)	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Flow fuse cartridges are used to maintain the position of a hydraulic actuator in the event of a hose or line break. The valve allows flow to and from the actuator but closes instantly if flow from the actuator exceeds the setting of the valve. NOTE: Because the valve responds so rapidly, it is sensitive to any transient flow above the valve setting.

**TECHNICAL DATA**

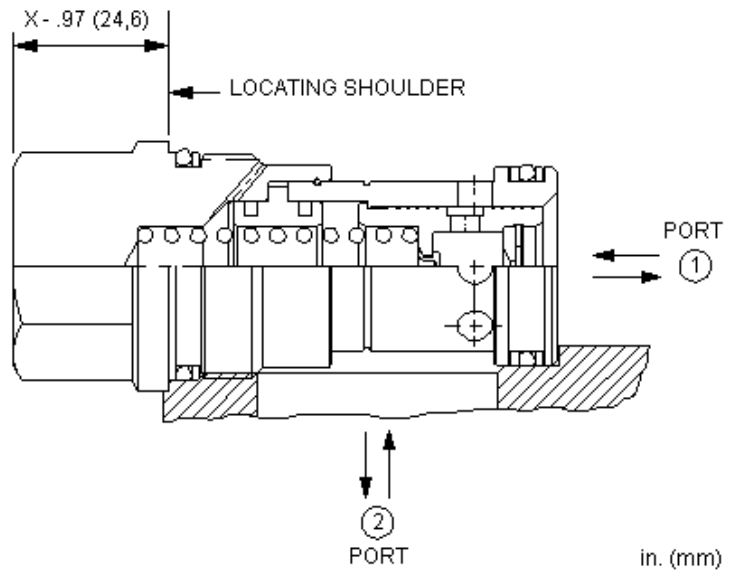
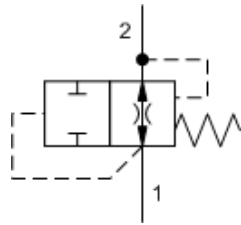
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	3 in <sup>3</sup> /min.@1000 psi
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

**CONFIGURATION OPTIONS**

**Model Code Example: FQEAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A Replaceable Orifice 1 - 15 gpm (4 - 60 L/min.)	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Flow fuse cartridges are used to maintain the position of a hydraulic actuator in the event of a hose or line break. The valve allows flow to and from the actuator but closes instantly if flow from the actuator exceeds the setting of the valve. NOTE: Because the valve responds so rapidly, it is sensitive to any transient flow above the valve setting.

**TECHNICAL DATA**

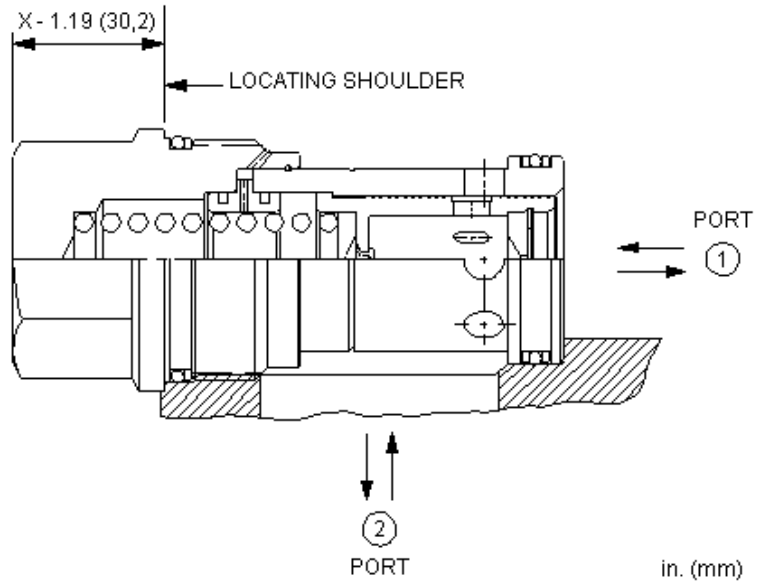
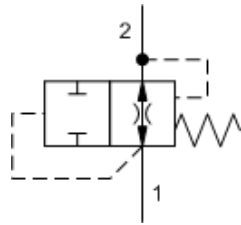
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min.@1000 psi
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: FQGAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A Replaceable Orifice 1 - 25 gpm (4 - 95 L/min.)	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Flow fuse cartridges are used to maintain the position of a hydraulic actuator in the event of a hose or line break. The valve allows flow to and from the actuator but closes instantly if flow from the actuator exceeds the setting of the valve. NOTE: Because the valve responds so rapidly, it is sensitive to any transient flow above the valve setting.

**TECHNICAL DATA**

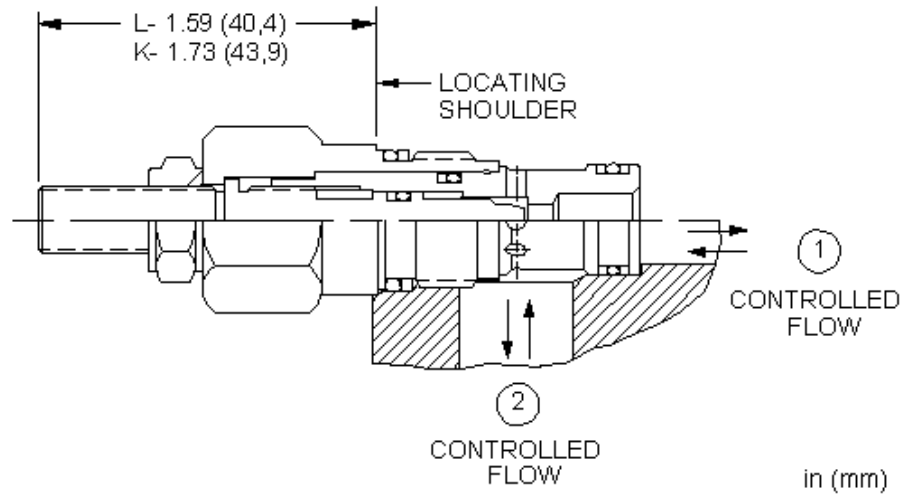
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min.@1000 psi
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

Model Code Example: FQIAXAN

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice 1 - 50 gpm (4 - 200 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

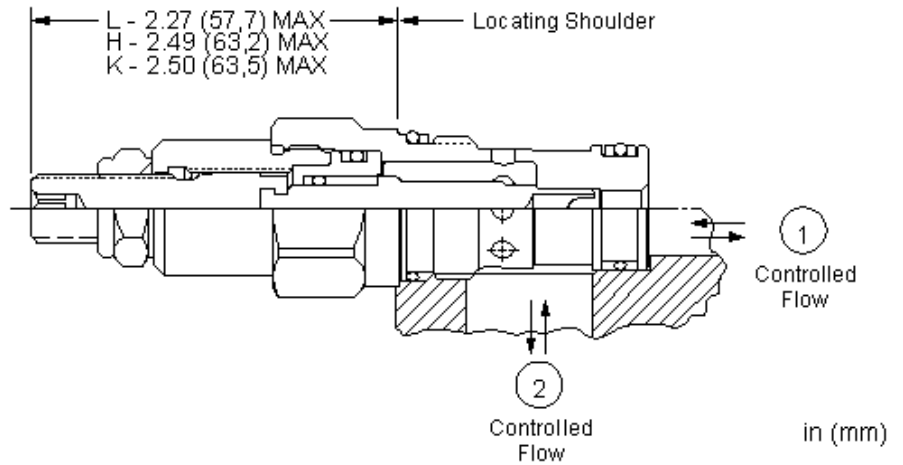
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	1/2 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	EPDM: 990162014
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**
**Model Code Example: NFBCLCN**

<b>CONTROL</b>	<b>(L) MAXIMUM ORIFICE DIAMETER</b>	<b>(C) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>L</b> Standard Screw Adjustment	<b>C</b> .16 in. (4 mm)	<b>N</b> Buna-N	Standard Material/Coating
<b>K</b> Handknob		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>W</b> Hex Wrench Adjustment		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel





Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

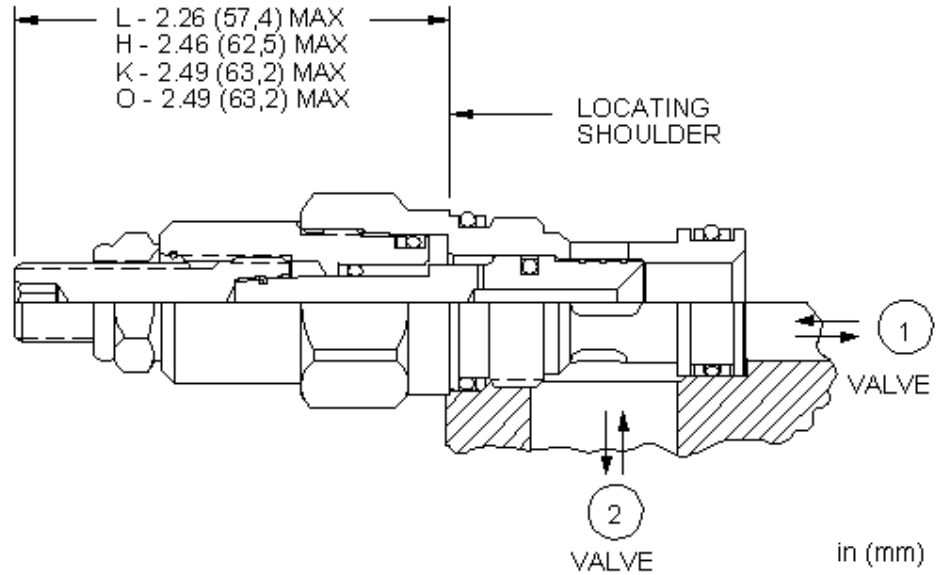
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: NFCCLCN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>C</b> .19 in. (4,8 mm)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>D</b> .09 in. (2,3 mm)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob, Flow Control			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

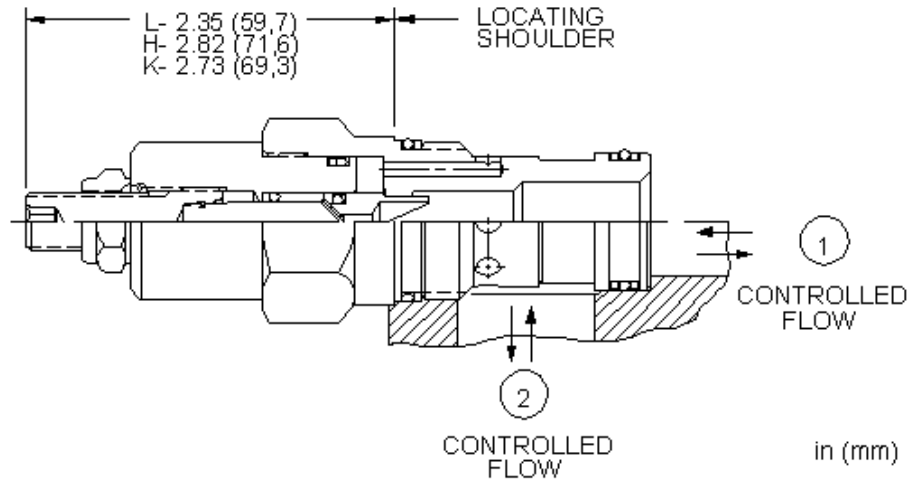
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

Model Code Example: **NFCDLFN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(F) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>F</b> .33 in. (8,4 mm)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

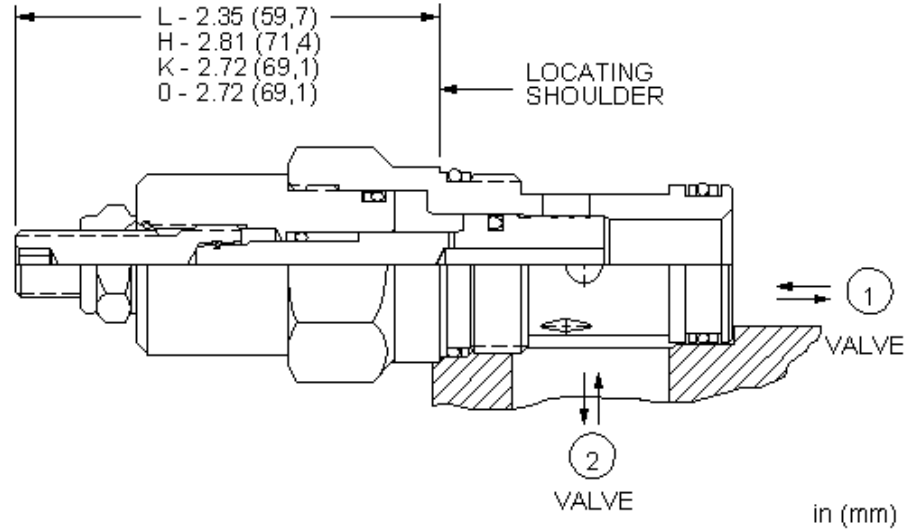
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**
**Model Code Example: NFDCLAN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> .25 in. (6,4 mm)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>B</b> .12 in. (3,0 mm)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

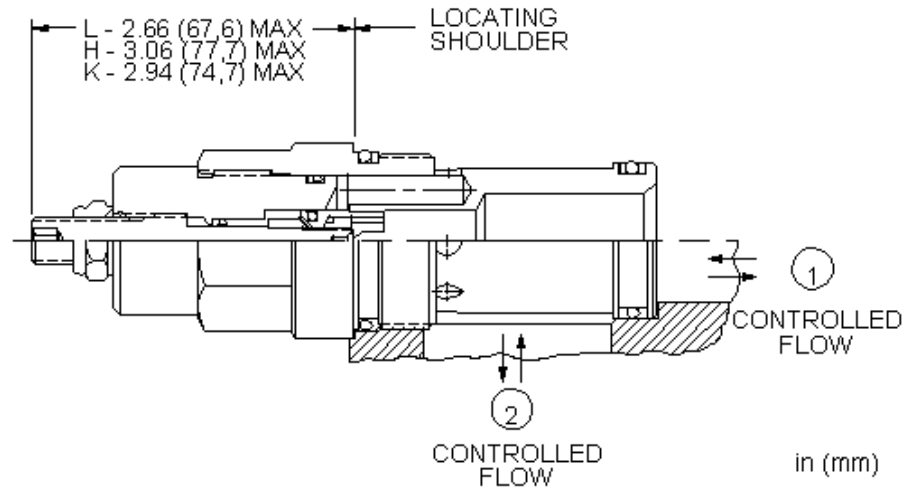
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Polyurethane: 990203014
Seal kit - Cartridge	Viton: 990203006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: NFDDLGN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(G) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>G</b> .5 in. (12,7 mm)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

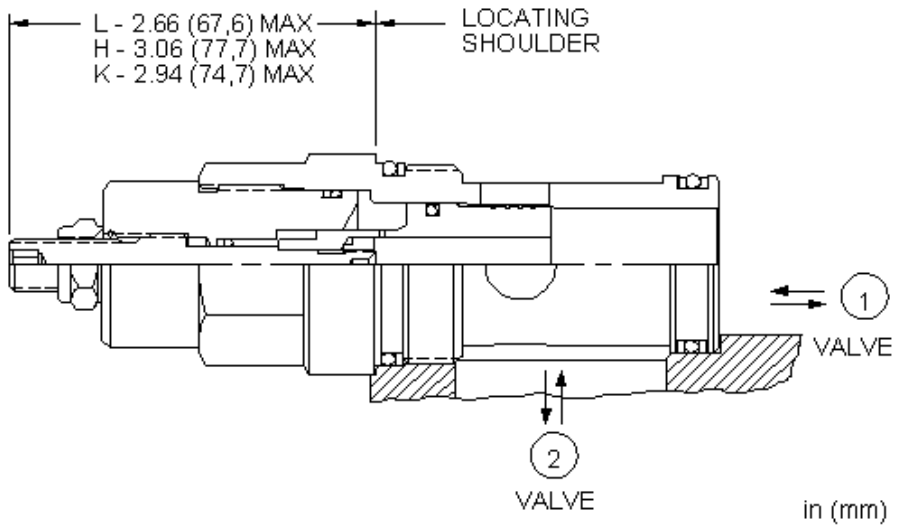
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**
**Model Code Example: NFECLEN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(E) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	E .38 in. (9,7 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	F .28 in. (7,1 mm)	E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

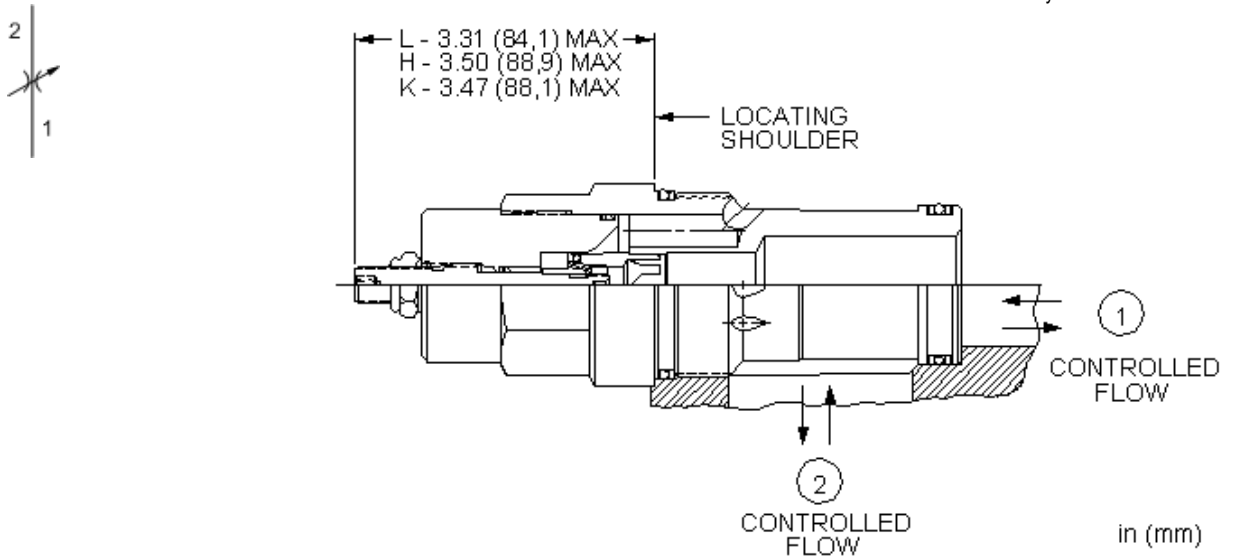
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**
**Model Code Example: NFEDLHN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>H</b> .69 in. (17,5 mm)	<b>N</b> Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

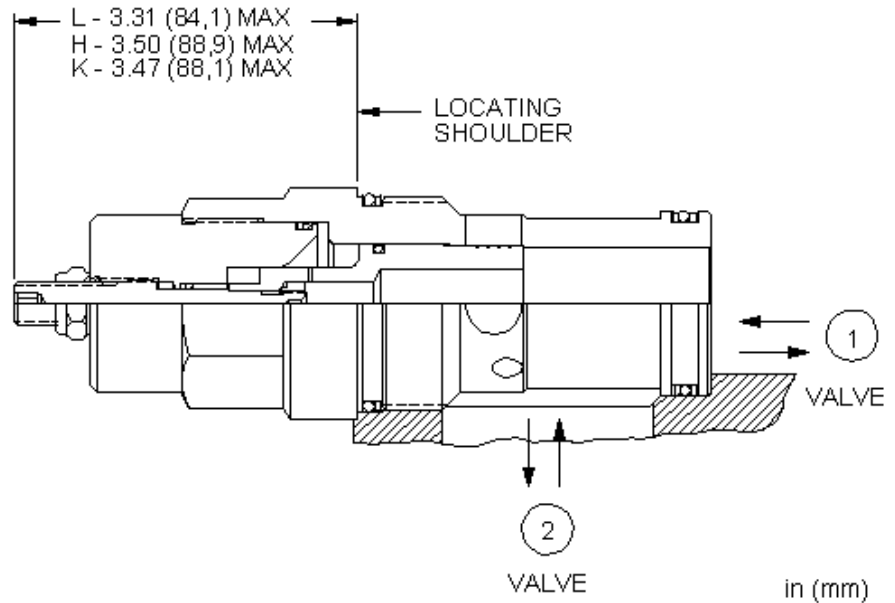
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: NFFCLGN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(G) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	G .56 in. (14,2 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	H .38 in. (9,7 mm)	E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
Y Tri-Grip Handknob, Flow Control			



Needle valves are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff valves.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

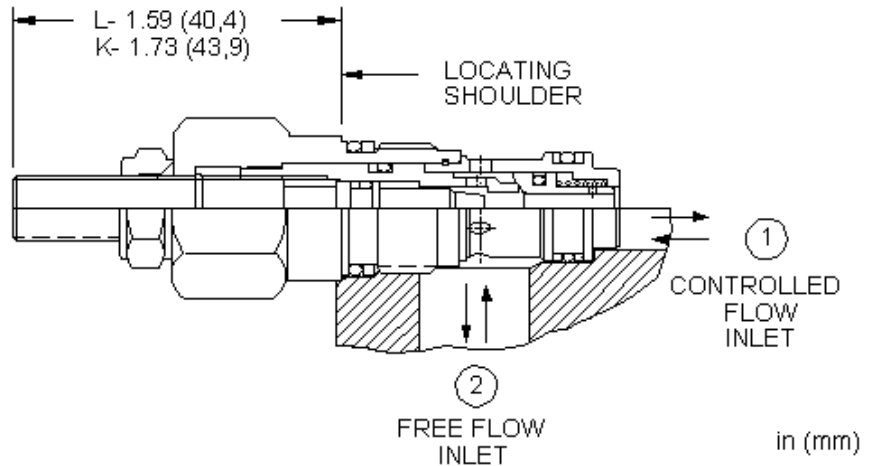
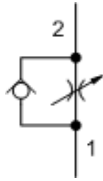
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: NFFDLIN**

CONTROL	(L) MAXIMUM ORIFICE DIAMETER	(I) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	I .85 in. (21,6 mm)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel
R Capped Screw Adjustment			
Y Tri-Grip Handknob			





Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

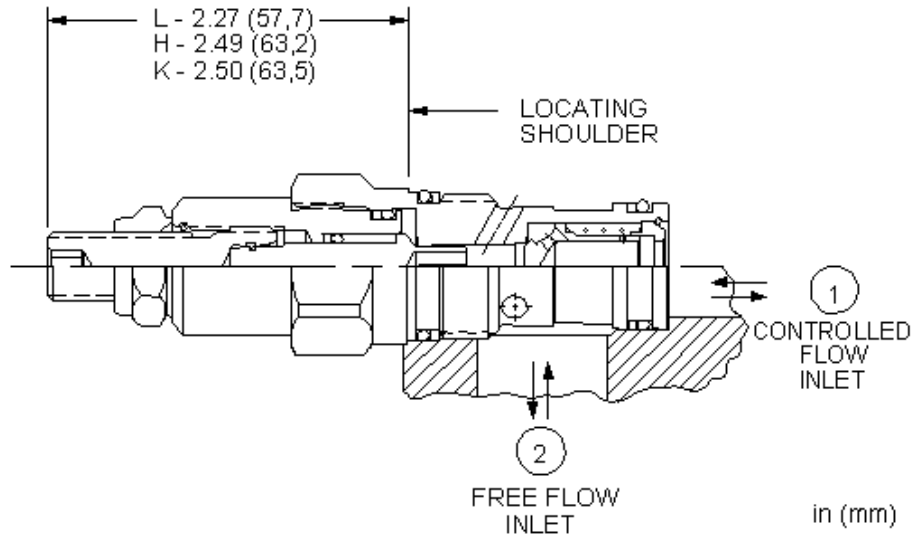
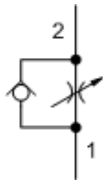
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**

**Model Code Example: NCBBLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment K Handknob	C 30 psi (2 bar)	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

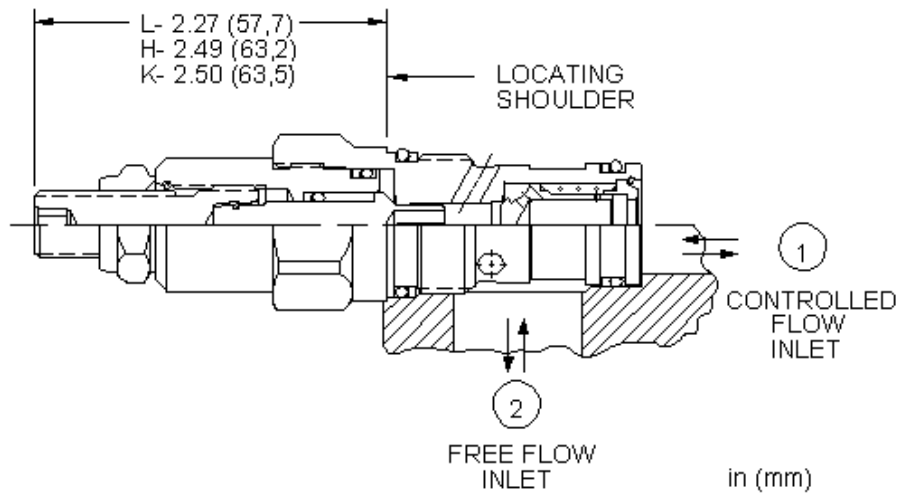
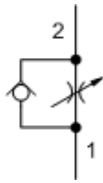
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: NCCBLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>R</b> Capped Screw Adjustment			
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

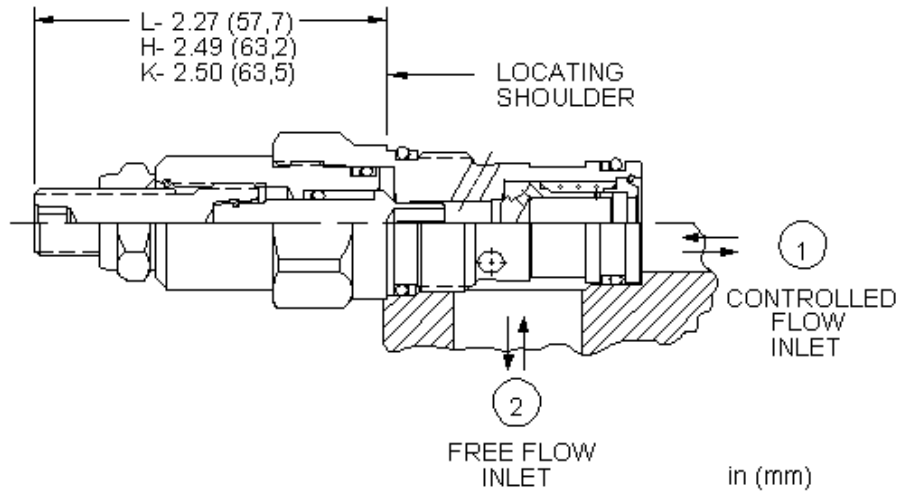
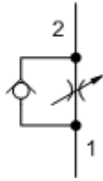
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**
**Model Code Example: NCCCLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)		/LH Mild Steel, Zinc-Nickel
<b>O</b> Handknob with Panel Mount			
<b>R</b> Capped Screw Adjustment			
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

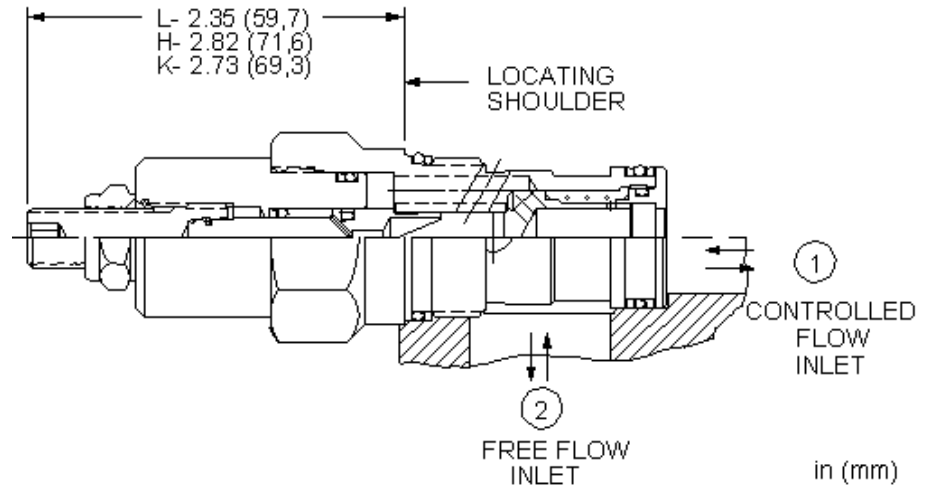
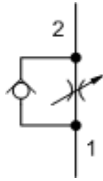
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**
**Model Code Example: NCCDLAN**

CONTROL	(L) REVERSE FLOW CHECK	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> 4 psi (0,3 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>B</b> 15 psi (1 bar)	<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>C</b> 30 psi (2 bar)		/LH Mild Steel, Zinc-Nickel
<b>O</b> Handknob with Panel Mount	<b>D</b> 50 psi (3,5 bar)		
<b>R</b> Capped Screw Adjustment	<b>E</b> 75 psi (5 bar)		
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

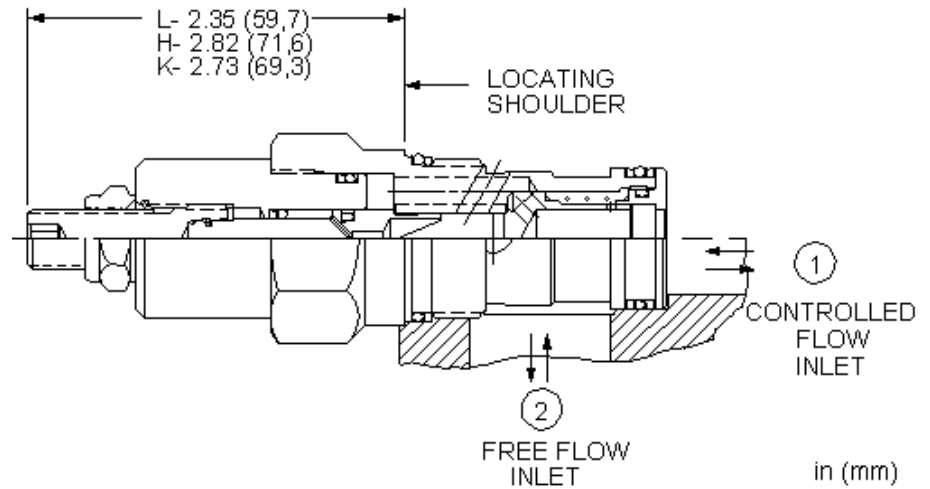
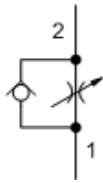
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: NCEBLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

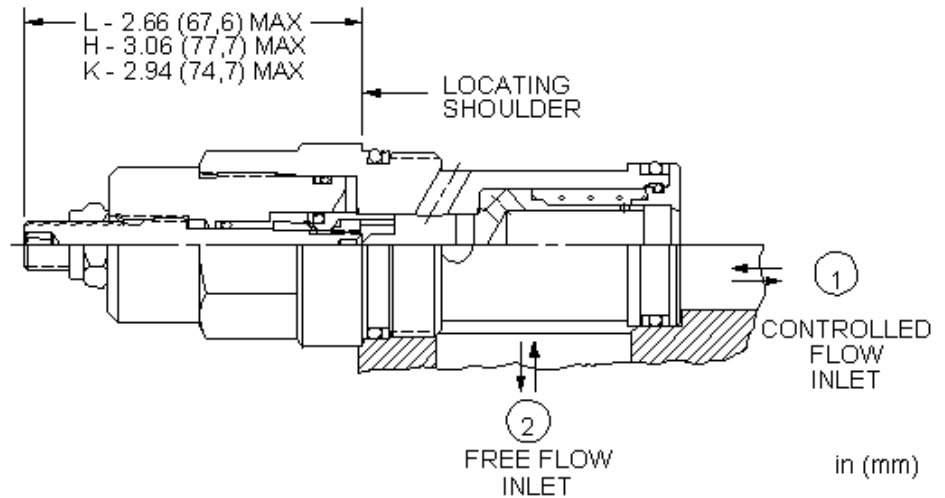
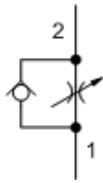
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: NCECLCN**

<b>CONTROL</b>	<b>(L) REVERSE FLOW CHECK</b>	<b>(C) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)		
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

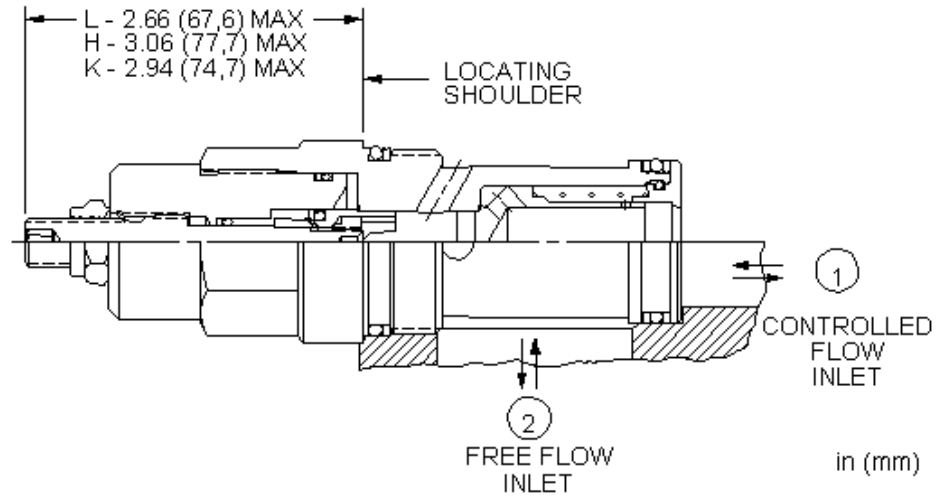
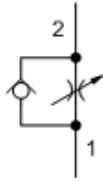
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: NCFBLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

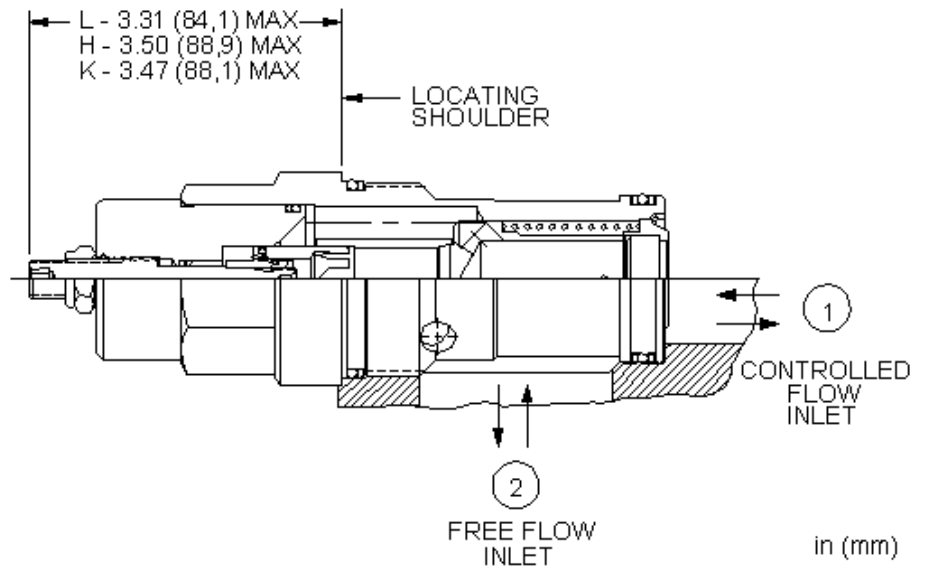
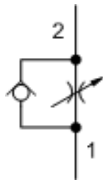
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**
**Model Code Example: NCFCLCN**

<b>CONTROL</b>	<b>(L)</b>	<b>REVERSE FLOW CHECK</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>	<b>MATERIAL/COATING</b>
<b>L</b> Standard Screw Adjustment		<b>C</b> 30 psi (2 bar)		<b>N</b> Buna-N		Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock		<b>A</b> 4 psi (0,3 bar)		<b>E</b> EPDM		/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>E</b> 75 psi (5 bar)		<b>V</b> Viton		/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob						





Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

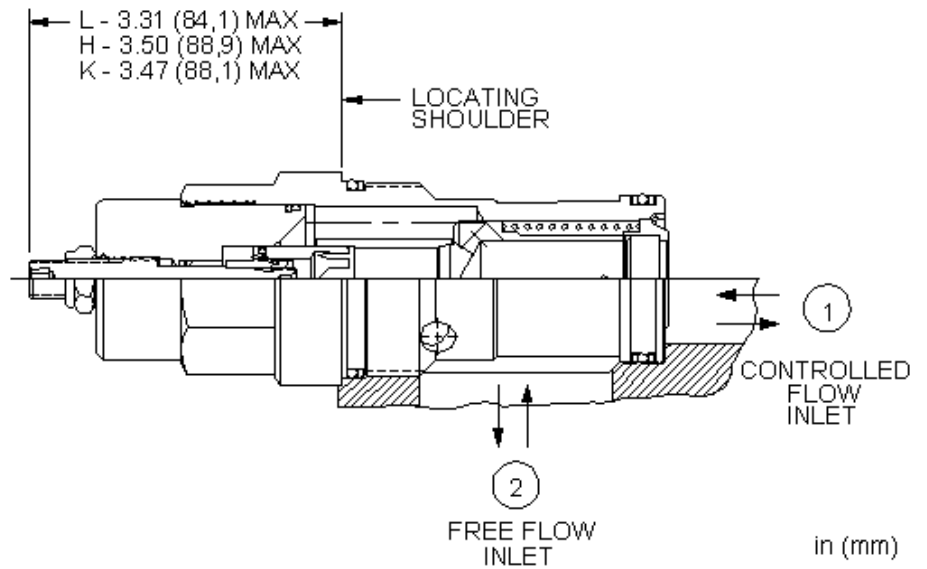
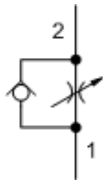
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

Model Code Example: **NCGBLCN**

CONTROL	(L)	REVERSE FLOW CHECK	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
<b>L</b> Standard Screw Adjustment		<b>C</b> 30 psi (2 bar)		<b>N</b> Buna-N		Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock		<b>A</b> 4 psi (0,3 bar)		<b>E</b> EPDM		/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>E</b> 75 psi (5 bar)		<b>V</b> Viton		/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob						



Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

**TECHNICAL DATA**

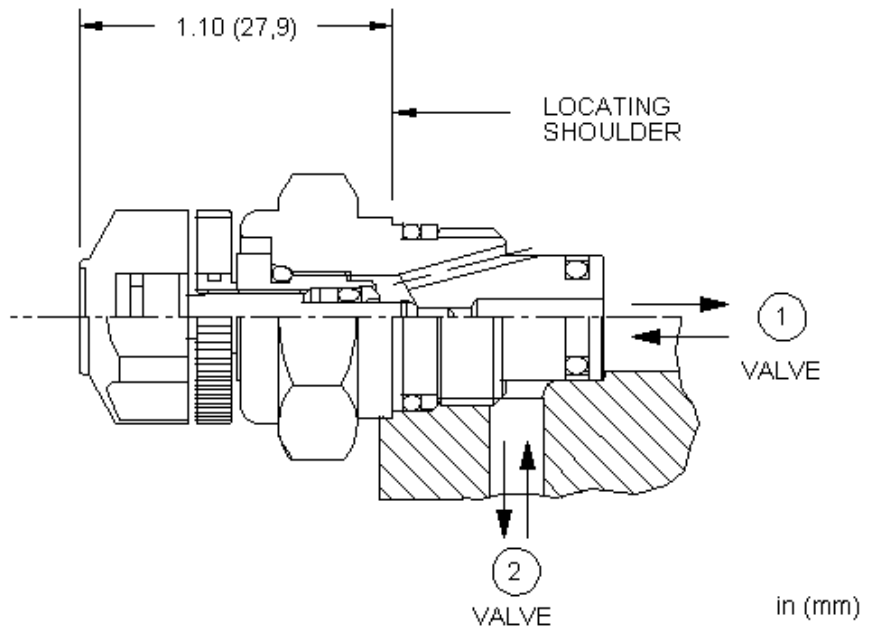
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 drops/min.
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: NCGCLCN**

CONTROL	(L) REVERSE FLOW CHECK	(C) SEAL MATERIAL	(N)
<b>L</b> Standard Screw Adjustment	<b>C</b> 30 psi (2 bar)	<b>N</b> Buna-N	
<b>H</b> Calibrated Handknob with Detent Lock	<b>A</b> 4 psi (0,3 bar)	<b>V</b> Viton	
<b>K</b> Handknob	<b>E</b> 75 psi (5 bar)		
<b>Y</b> Tri-Grip Handknob			



Two-port, pilot-stage needle valves are fully adjustable devices used to regulate pilot flow in a main-stage valve or to meter in/out flow in low flow applications. These cartridges are designed for pilot flow applications and utilize Sun's T-8A cavity so they can be used in conjunction with Sun's pilot-operated, main-stage valves.

**TECHNICAL DATA**

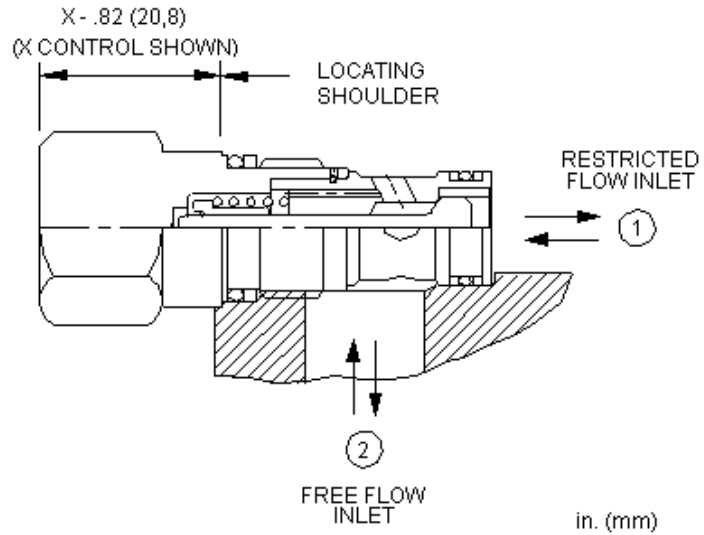
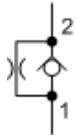
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	3
Effective Orifice Size	.035 in.
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	EPDM: 990008014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

**CONFIGURATION OPTIONS**

**Model Code Example: NFABKXN**

CONTROL	(K)	MAXIMUM ORIFICE DIAMETER	(X)	SEAL MATERIAL	(N)
<b>K</b> Handknob		<b>X</b> .03 in. (0,8 mm)		<b>N</b> Buna-N	
				<b>E</b> EPDM	
				<b>V</b> Viton	



This valve is a fixed-orifice, non-pressure-compensated flow control with a reverse flow check. The flow setting is specified by the user and is set at the factory.

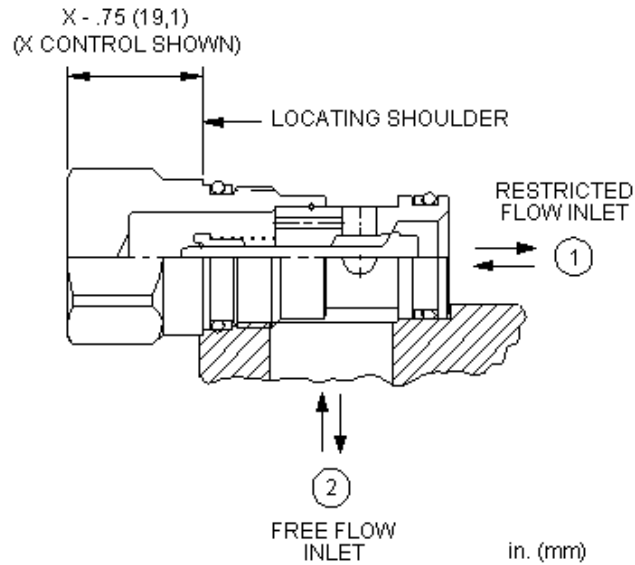
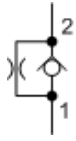
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Orifice Range	.016 - .062 in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**
**Model Code Example: CNACXCN**

CONTROL	(X) SETTING RANGE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>C</b> 30 psi (2 bar) Cracking Pressure, .016 - .062 in. (0,4 - 1,6 mm) <b>A</b> 4 psi (0,3 bar) Cracking Pressure, .016 - .062 in. (0,4 - 1,6 mm) <b>E</b> 75 psi (5 bar) Cracking Pressure, .016 - .062 in. (0,4 - 1,6 mm)	<b>N</b> Buna-N <b>V</b> Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



This valve is a fixed-orifice, non-pressure-compensated flow control with a reverse flow check. The flow setting is specified by the user and is set at the factory.

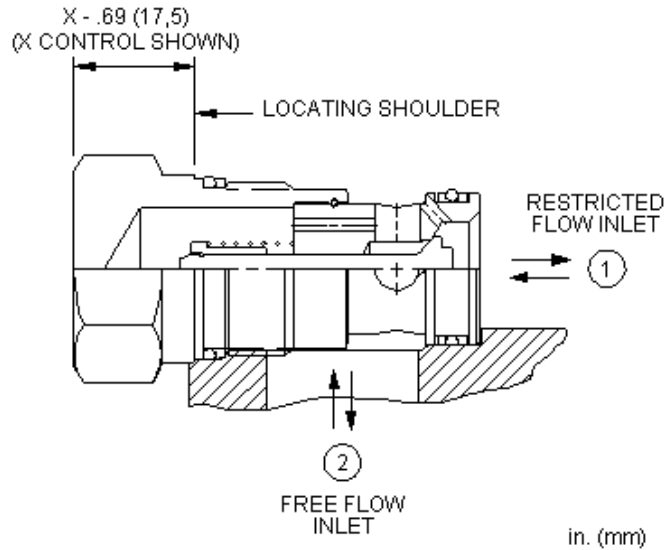
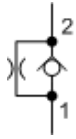
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Orifice Range	.016 - .153 in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**CONFIGURATION OPTIONS**
**Model Code Example: CNCCXCN**

CONTROL	(X) SETTING RANGE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>C</b> 30 psi (2 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel
	<b>A</b> 4 psi (0,3 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)		
	<b>B</b> 15 psi (1 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)		
	<b>D</b> 50 psi (3,5 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)		
	<b>E</b> 75 psi (5 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)		
	<b>F</b> 100 psi (7 bar) Cracking Pressure, .016 - .153 in. (0,4 - 3,9 mm)		



This valve is a fixed-orifice, non-pressure-compensated flow control with a reverse flow check. The flow setting is specified by the user and is set at the factory.

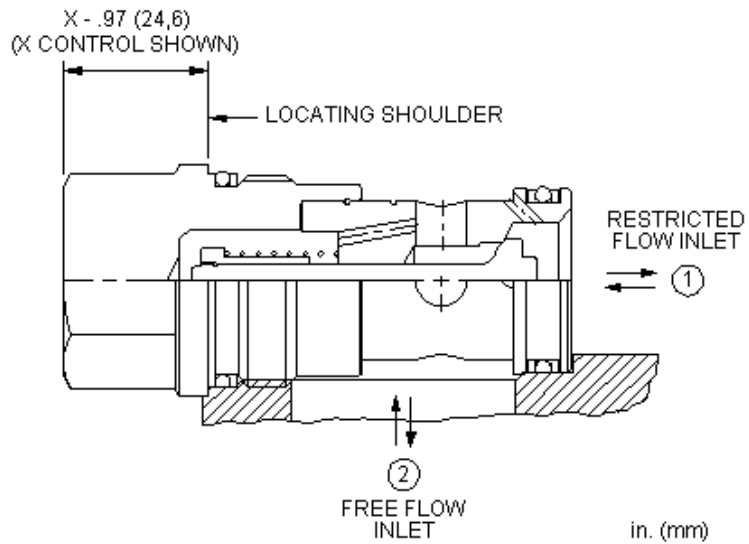
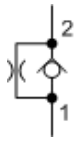
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Orifice Range	.016 - .135 in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

**CONFIGURATION OPTIONS**
**Model Code Example: CNECXCN**

<b>CONTROL</b>	<b>(X) SETTING RANGE</b>	<b>(C) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>C</b> 30 psi (2 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm) <b>A</b> 4 psi (0,3 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm) <b>B</b> 15 psi (1 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm) <b>D</b> 50 psi (3,5 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm) <b>E</b> 75 psi (5 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm) <b>F</b> 100 psi (7 bar) Cracking Pressure, .016 - .135 in. (0,4 - 3,4 mm)	<b>N</b> Buna-N <b>V</b> Viton	Standard Material/Coating /AP Stainless Steel, Passivated



This valve is a fixed-orifice, non-pressure-compensated flow control with a reverse flow check. The flow setting is specified by the user and is set at the factory.

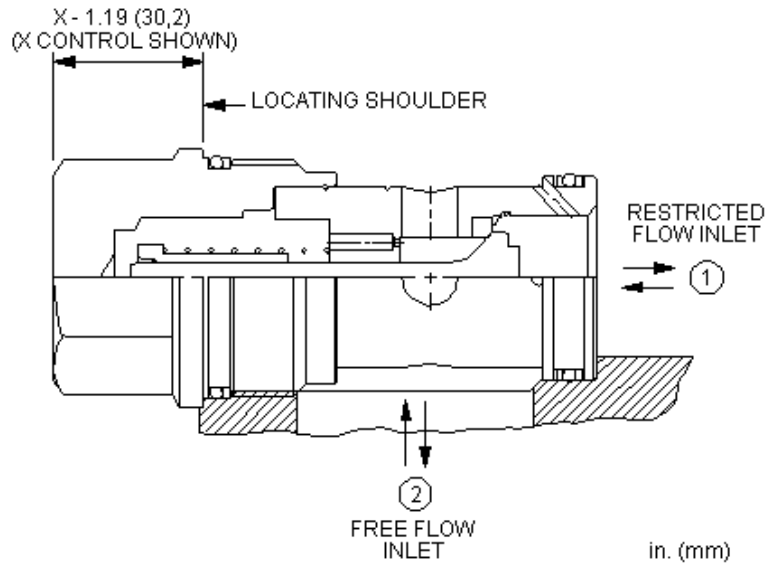
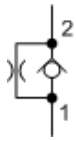
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Orifice Range	.016 - .218 in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**
**Model Code Example: CNGCXCN**

CONTROL	(X) SETTING RANGE	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>C</b> 30 psi (2 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated
	<b>A</b> 4 psi (0,3 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>B</b> 15 psi (1 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>D</b> 50 psi (3,5 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>E</b> 75 psi (5 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>F</b> 100 psi (7 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		



This valve is a fixed-orifice, non-pressure-compensated flow control with a reverse flow check. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

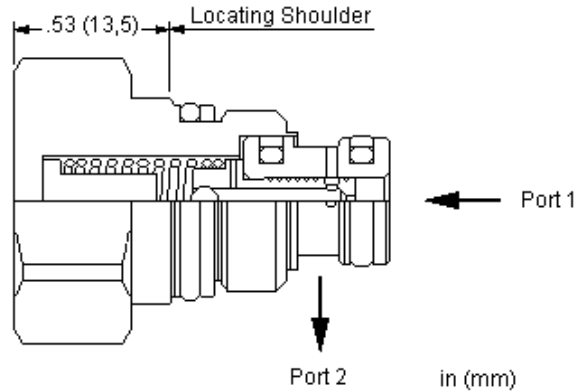
Maximum Operating Pressure	5000 psi
Orifice Range	.016 - .218 in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: CNICXCN**

CONTROL	(X) SETTING RANGE	(C) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>C</b> 30 psi (2 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)	<b>N</b> Buna-N	
	<b>A</b> 4 psi (0,3 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)	<b>V</b> Viton	
	<b>B</b> 15 psi (1 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>D</b> 50 psi (3,5 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>E</b> 75 psi (5 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		
	<b>F</b> 100 psi (7 bar) Cracking Pressure, .016 - .218 in. (0,4 - 5,5 mm)		





Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. A variety of flow rates are available.

**TECHNICAL DATA**

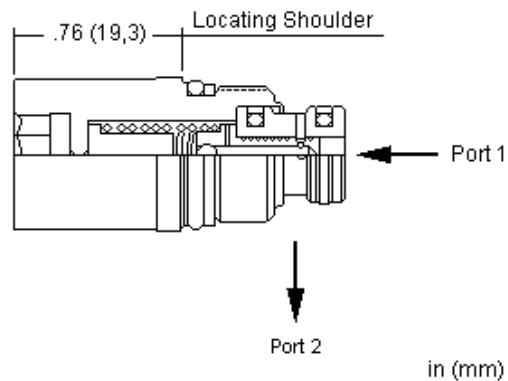
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	EPDM: 990008014
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

**CONFIGURATION OPTIONS**

**Model Code Example: FXAAXAN**

CONTROL	(X) FLOW RATE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 15 in <sup>3</sup> /min. (250 cc/min.)	<b>N</b> Buna-N	Standard Material/Coating
	<b>B</b> 20 in <sup>3</sup> /min. (330 cc/min.)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
	<b>D</b> 40 in <sup>3</sup> /min. (660 cc/min.)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
	<b>F</b> 60 in <sup>3</sup> /min. (1 L/min.)		
	<b>H</b> 80 in <sup>3</sup> /min. (1.3 L/min.)		
	<b>J</b> 100 in <sup>3</sup> /min. (1.6 L/min.)		
	<b>L</b> 120 in <sup>3</sup> /min. (2.0 L/min.)		



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. A variety of flow rates are available.

**TECHNICAL DATA**

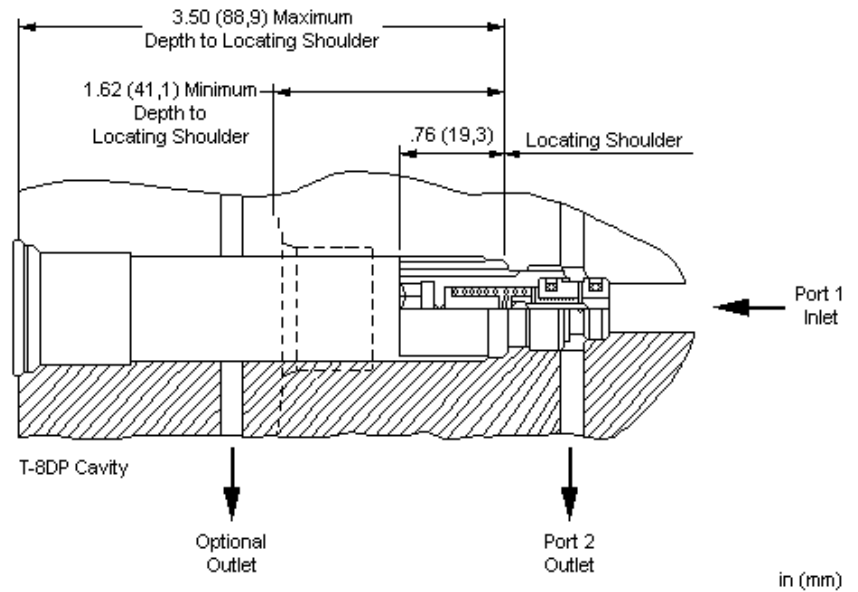
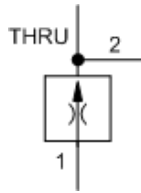
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Valve Internal Hex Size	5/16 in.
Seal kit - Cartridge	Buna: 990008007
Seal kit - Cartridge	Polyurethane: 990008002
Seal kit - Cartridge	Viton: 990008006

**CONFIGURATION OPTIONS**

**Model Code Example: FXAGXAN**

CONTROL	(X) FLOW RATE	(A) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>A</b> 15 in <sup>3</sup> /min. (250 cc/min.)	<b>N</b> Buna-N	
	<b>B</b> 20 in <sup>3</sup> /min. (330 cc/min.)	<b>V</b> Viton	
	<b>D</b> 40 in <sup>3</sup> /min. (660 cc/min.)		
	<b>F</b> 60 in <sup>3</sup> /min. (1 L/min.)		
	<b>H</b> 80 in <sup>3</sup> /min. (1.3 L/min.)		
	<b>J</b> 100 in <sup>3</sup> /min. (1.6 L/min.)		
	<b>L</b> 120 in <sup>3</sup> /min. (2.0 L/min.)		



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. A variety of flow rates are available. The THRU port at the top of the valve can be used as the outlet with port 2 blocked. See cavity drawing for details.

**TECHNICAL DATA**

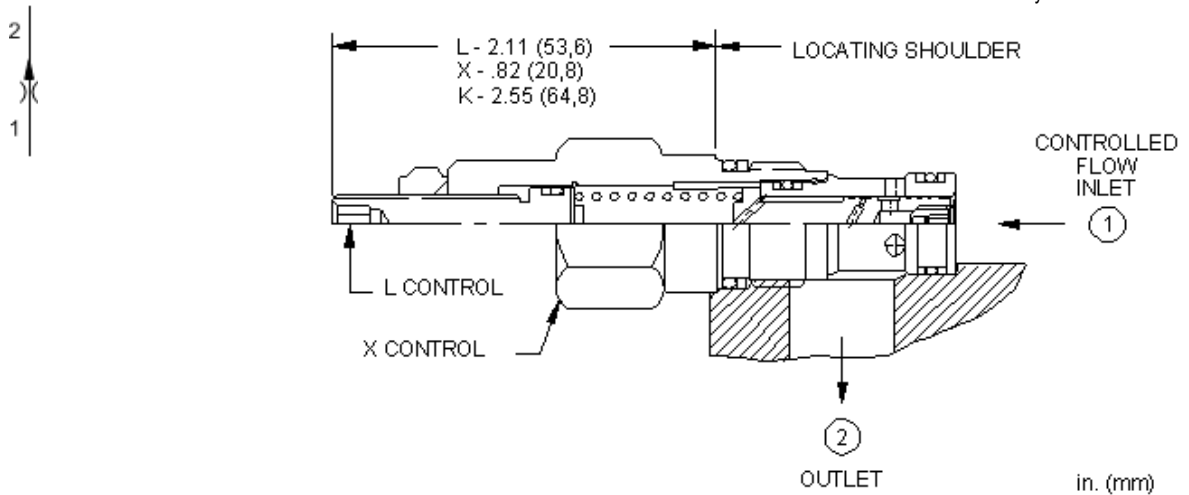
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Valve Internal Hex Size	5/16 in.

**CONFIGURATION OPTIONS**

Model Code Example: **FXAMXAN**

CONTROL	(X)	FLOW RATE	(A)	SEAL MATERIAL	(N)
<b>X</b> Not Adjustable		<b>A</b> 15 in <sup>3</sup> /min. (250 cc/min.)		<b>N</b> Buna-N	
		<b>B</b> 20 in <sup>3</sup> /min. (330 cc/min.)		<b>V</b> Viton	
		<b>D</b> 40 in <sup>3</sup> /min. (660 cc/min.)			
		<b>F</b> 60 in <sup>3</sup> /min. (1 L/min.)			
		<b>H</b> 80 in <sup>3</sup> /min. (1.3 L/min.)			
		<b>J</b> 100 in <sup>3</sup> /min. (1.6 L/min.)			
		<b>L</b> 120 in <sup>3</sup> /min. (2.0 L/min.)			



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

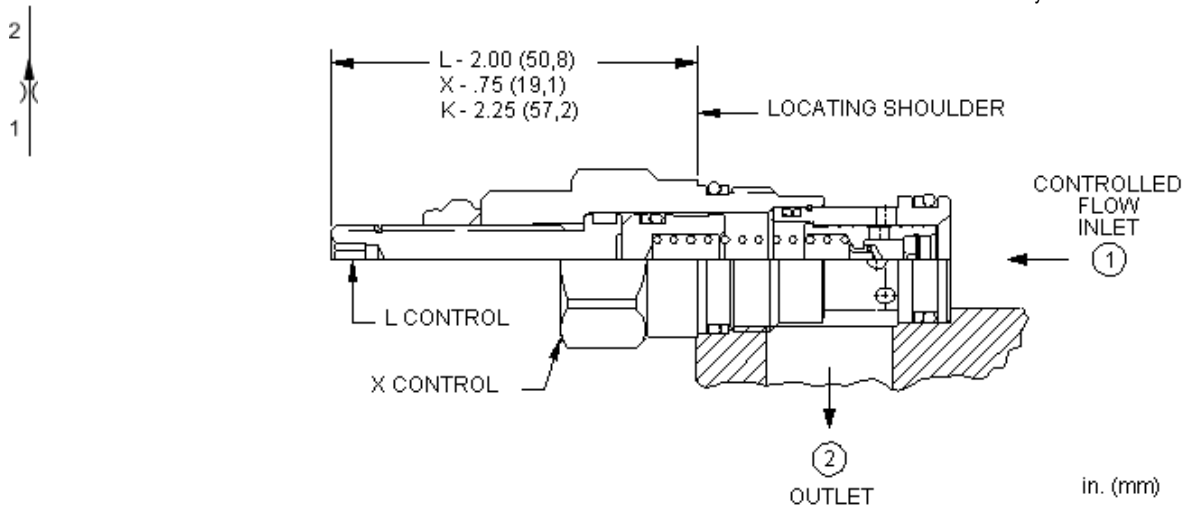
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	EPDM: 990162014
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**

**Model Code Example: FXBAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Fixed Orifice .1 - 3 gpm (0,4 - 11 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	/LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

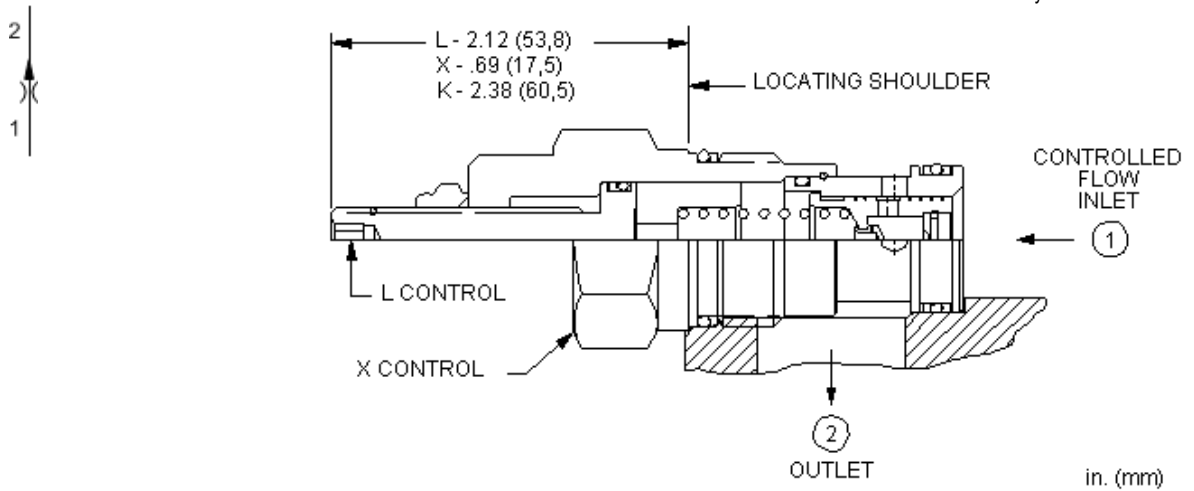
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**CONFIGURATION OPTIONS**

Model Code Example: **FXCAXAN**

CONTROL	(X)	SETTING RANGE	(A)	SEAL MATERIAL	(N)	MATERIAL/COATING
<b>X</b> Not Adjustable		<b>A</b> Replaceable Orifice .1 - 6 gpm (0,4 - 23 L/min.)		<b>N</b> Buna-N		Standard Material/Coating
L Tuning Adjustment				E EPDM		/AP Stainless Steel, Passivated
K Handknob				V Viton		/LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

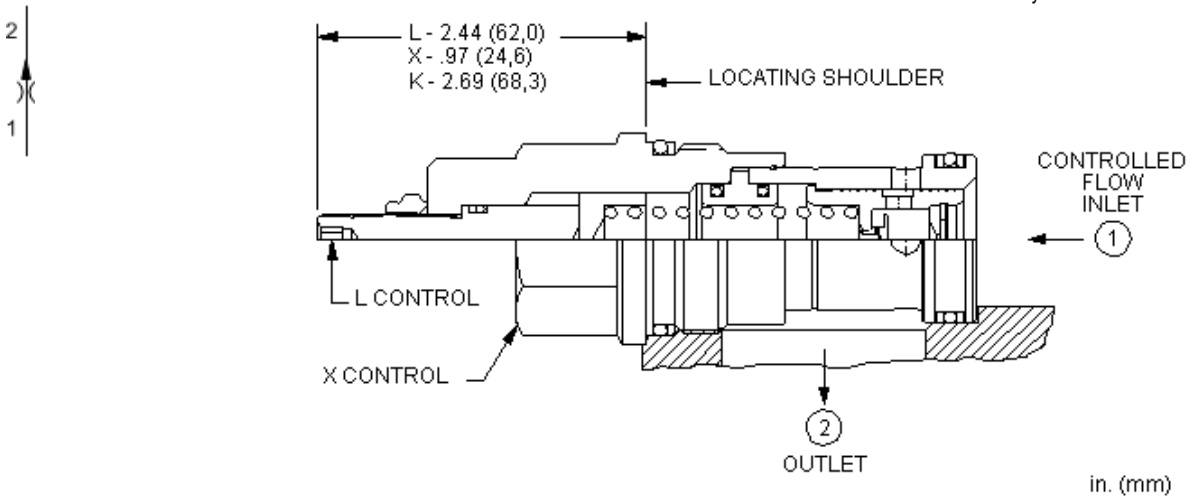
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

**CONFIGURATION OPTIONS**

**Model Code Example: FXDAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

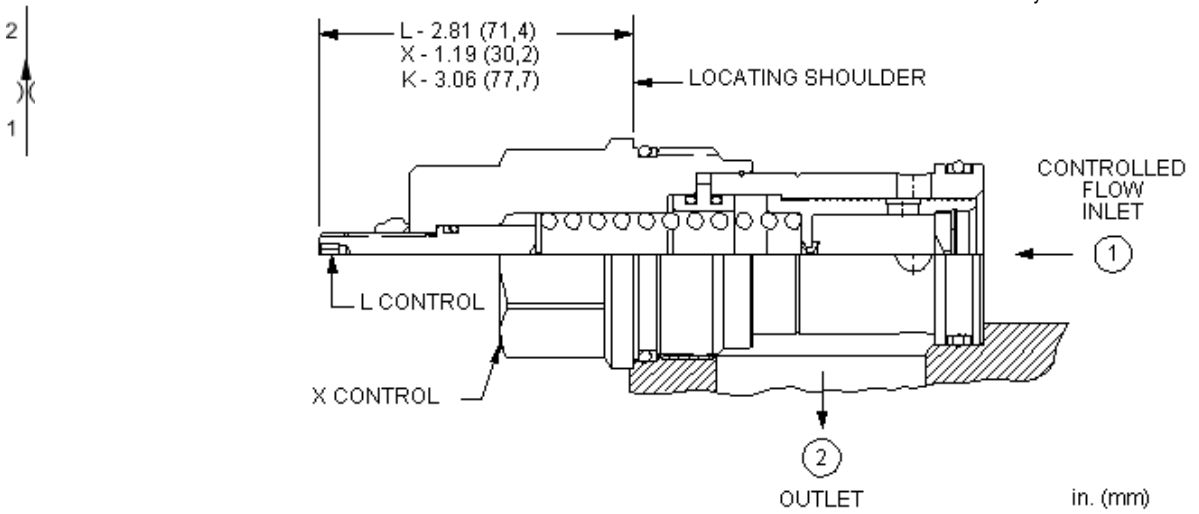
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: FXEALAN**

CONTROL	(L) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Tuning Adjustment	<b>A</b> Replaceable Orifice .2 - 25 gpm (0,8 - 95 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>C</b> Tamper Resistant - Factory Set		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>X</b> Not Adjustable			



Fixed-orifice, pressure-compensated flow controls provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

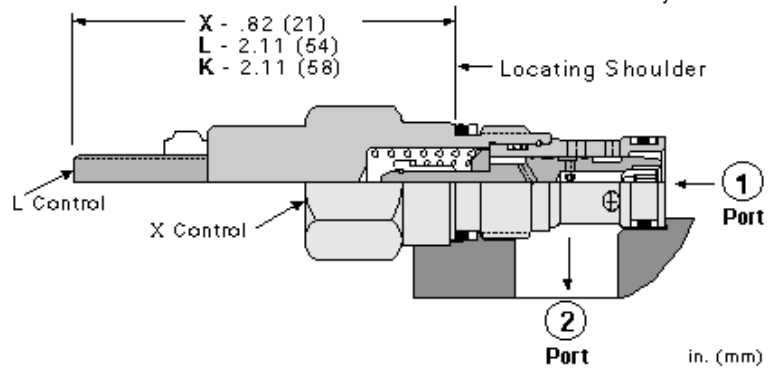
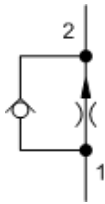
Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

Model Code Example: **FXFAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .2 - 50 gpm (1 - 200 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment		<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	





Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

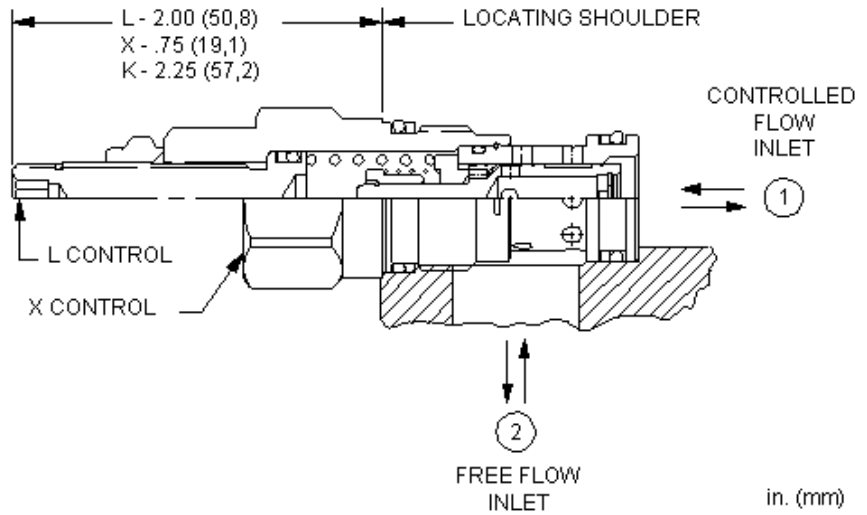
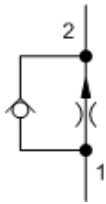
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**

Model Code Example: FCBBXAN

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .1 - 3 gpm (0,4 - 11 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment		V Viton	/AP Stainless Steel, Passivated
K Handknob			/LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

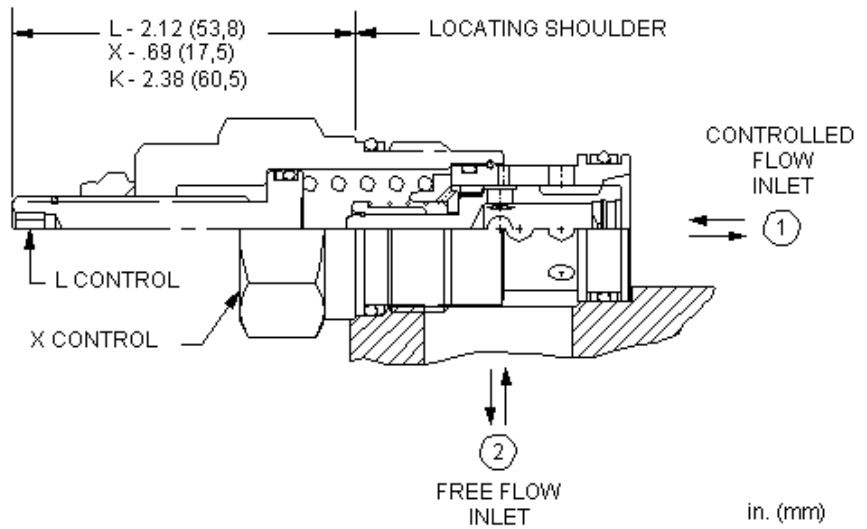
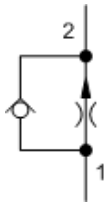
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**CONFIGURATION OPTIONS**

Model Code Example: FCCBXAN

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .1 - 6 gpm (0,4 - 23 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment		V Viton	/AP Stainless Steel, Passivated
K Handknob			/LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

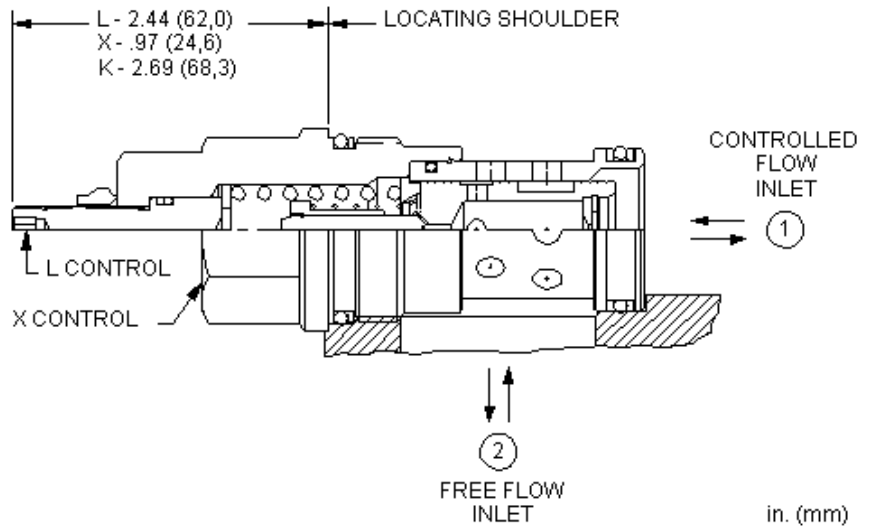
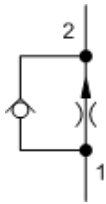
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

**CONFIGURATION OPTIONS**

**Model Code Example: FCDBXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment K Handknob	<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

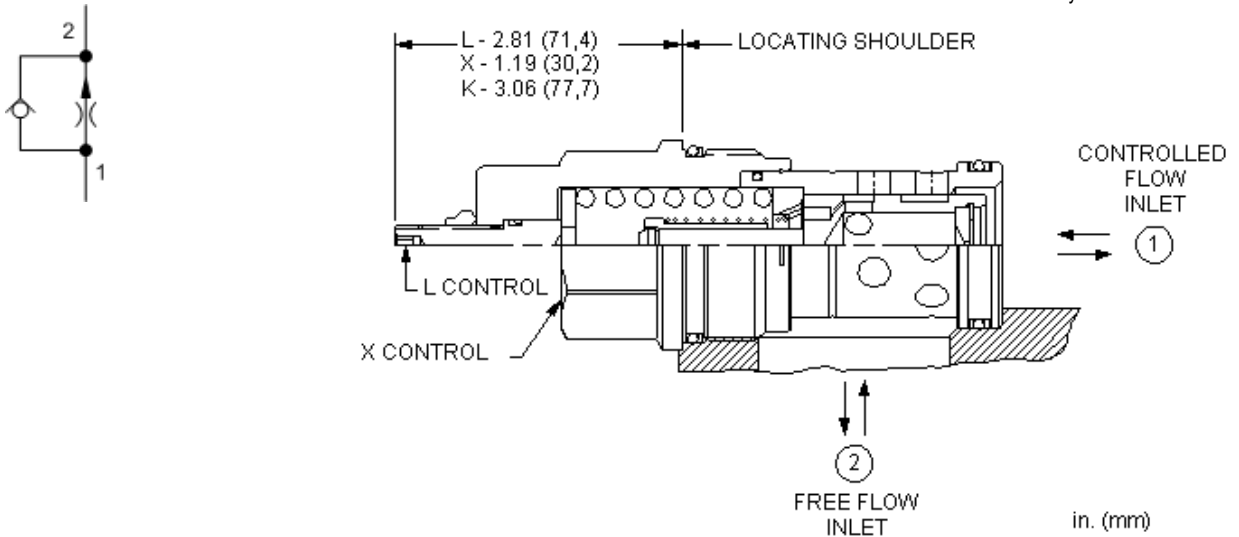
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: FCEBXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .2 - 25 gpm (0,8 - 95 L/min.)	<b>N</b> Buna-N	<b>Standard Material/Coating</b>
L Tuning Adjustment		V Viton	/AP Stainless Steel, Passivated
C Tamper Resistant - Factory Set			/LH Mild Steel, Zinc-Nickel
K Handknob			



Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

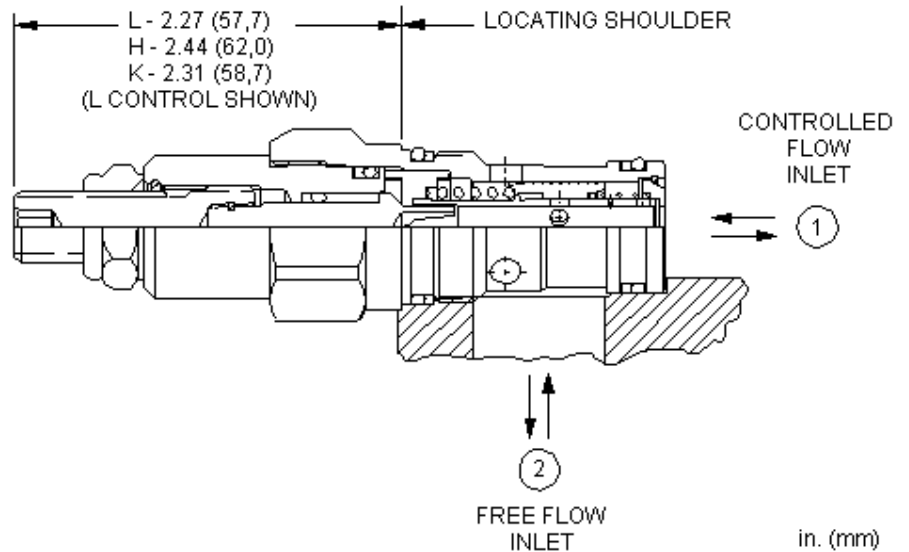
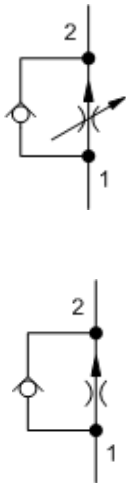
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: FCFBXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .2 - 50 gpm (1 - 200 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment		V Viton	/AP Stainless Steel, Passivated
K Handknob			



Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

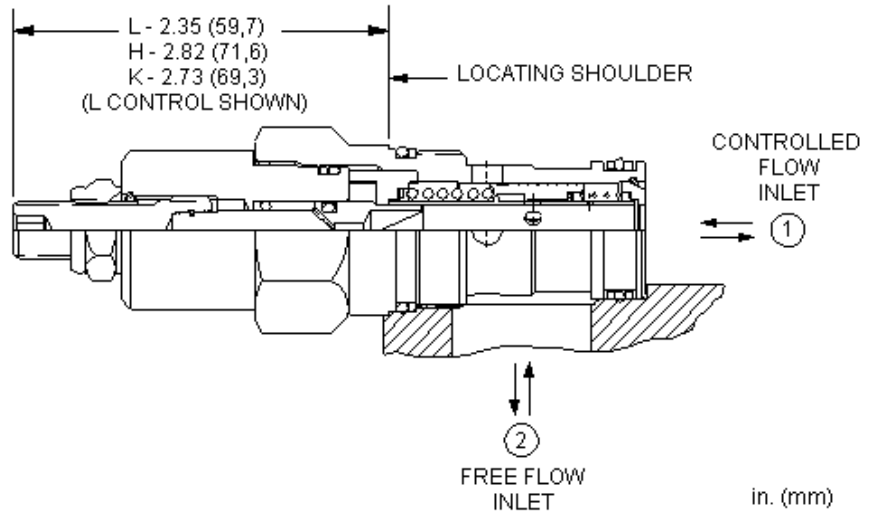
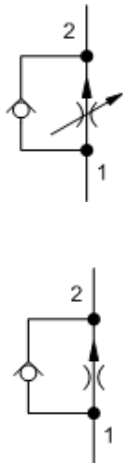
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990010007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990010002
Seal kit - Cartridge	Viton: 990010006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: FDBALAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> .1 - 6 gpm (0,4 - 23 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>B</b> .1 - 2 gpm (0,4 - 8 L/min.)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>Y</b> Tri-Grip Handknob			



Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

**TECHNICAL DATA**

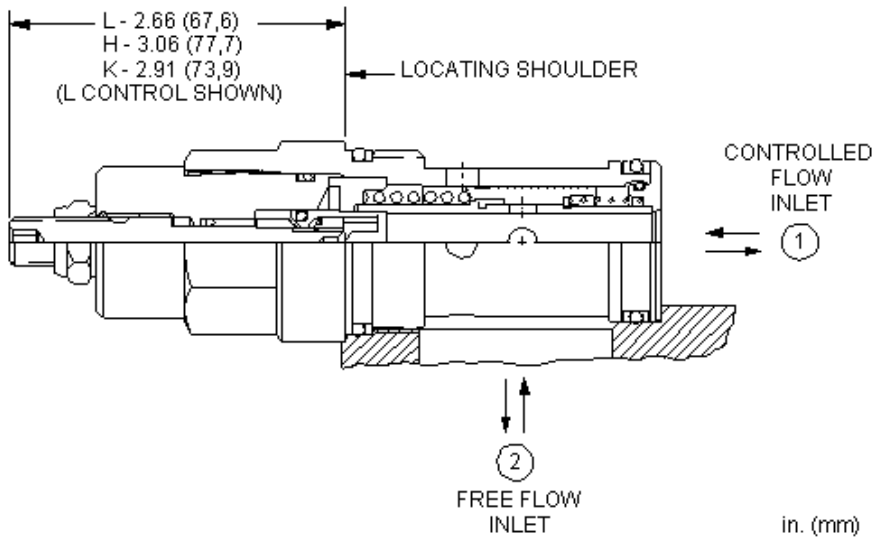
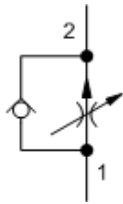
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**
**Model Code Example: FDCBLAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
L Standard Screw Adjustment	A .2 - 12 gpm (0,8 - 45 L/min.)	N Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock	B .2 - 3 gpm (0,8 - 11 L/min.)	E EPDM	/LH Mild Steel, Zinc-Nickel
K Handknob		V Viton	
Y Tri-Grip Handknob			



Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

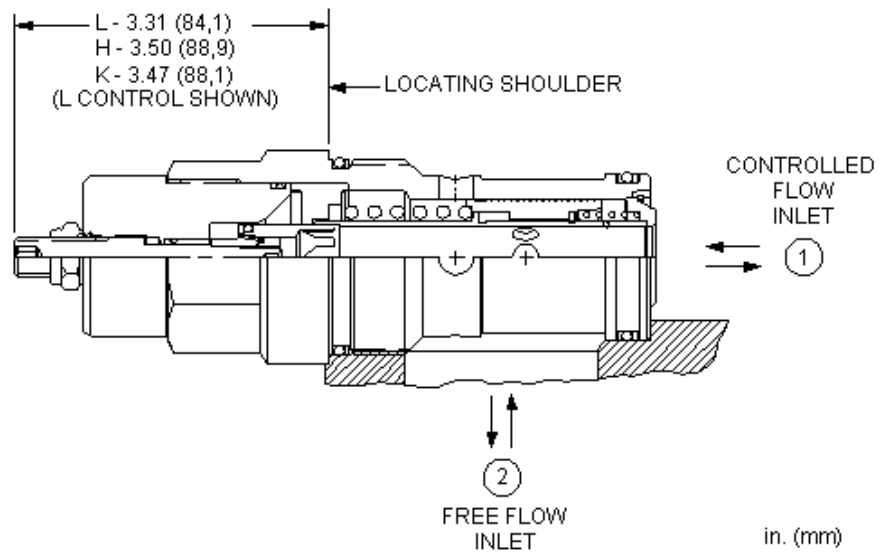
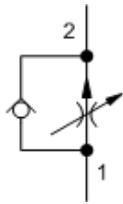
Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

**CONFIGURATION OPTIONS**

**Model Code Example: FDEALAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> .2 - 25 gpm (0,8 - 95 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>H</b> Calibrated Handknob with Detent Lock	<b>B</b> .2 - 16 gpm (0,8 - 60 L/min.)	<b>E</b> EPDM	/LH Mild Steel, Zinc-Nickel
<b>K</b> Handknob		<b>V</b> Viton	
<b>Y</b> Tri-Grip Handknob			





Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

**TECHNICAL DATA**

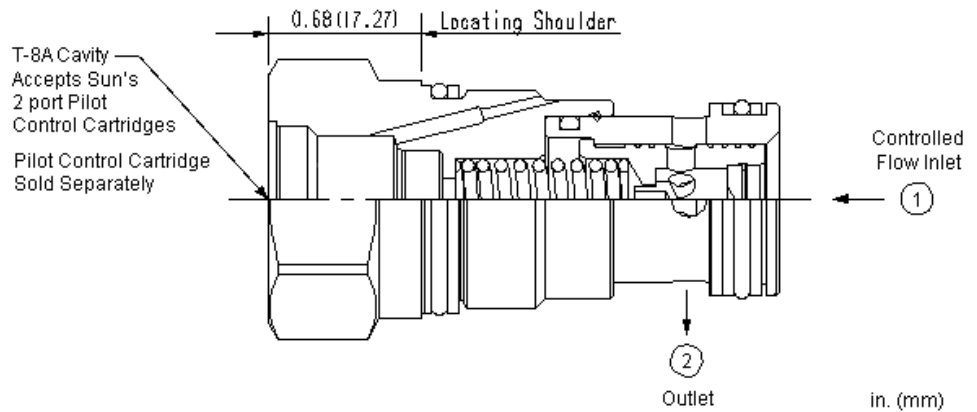
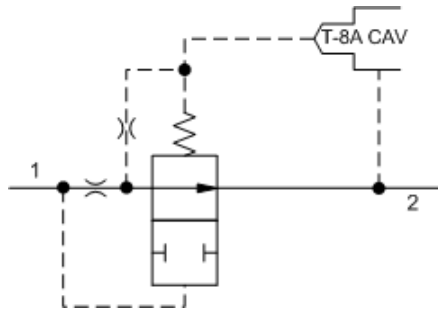
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990018007
Seal kit - Cartridge	EPDM: 990018014
Seal kit - Cartridge	Polyurethane: 990018002
Seal kit - Cartridge	Viton: 990018006

**CONFIGURATION OPTIONS**

**Model Code Example: FDFALAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> .2 - 50 gpm (1 - 200 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
H Calibrated Handknob with Detent Lock		E EPDM	/LH Mild Steel, Zinc-Nickel
K Handknob		V Viton	
Y Tri-Grip Handknob			



This valve is a fixed-orifice, pressure-compensated flow control valve with an integral pilot control cavity. The pilot control cavity will accept any T-8A pilot control cartridge. This type of valve provides precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow setting is specified by the user and is set at the factory.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

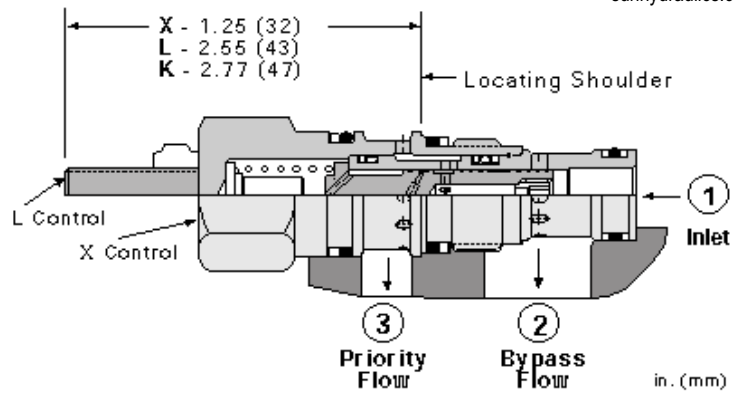
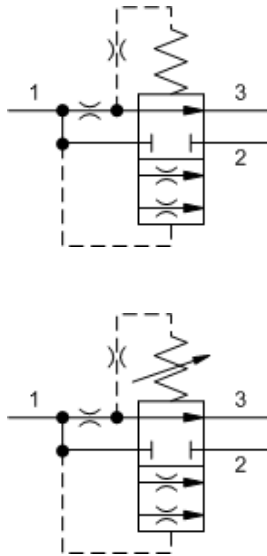
Maximum Operating Pressure	5000 psi
Pilot Control Cavity	T-8A
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	Viton: 990203006

**NOTES** Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

**CONFIGURATION OPTIONS**

**Model Code Example: FXDA8AN**

SETTING RANGE	(A)	SEAL MATERIAL	(N)
<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)		<b>N</b> Buna-N	
		<b>E</b> EPDM	
<b>B</b> Permanent Orifice .1 - 12 gpm (0,4 - 45 L/min.)		<b>V</b> Viton	



Bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit.

**TECHNICAL DATA**

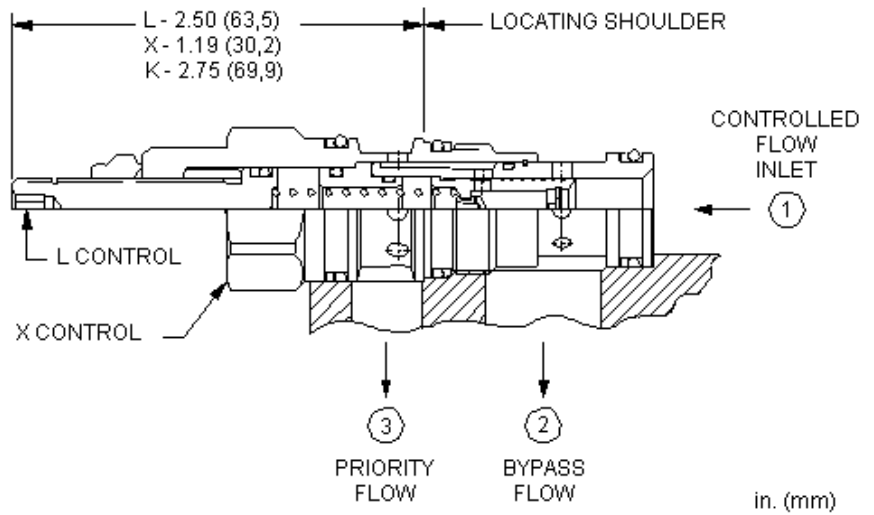
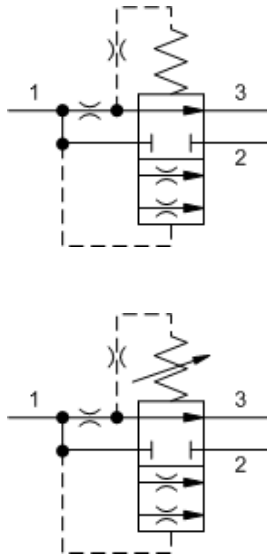
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Input Flow	7.5 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

**Model Code Example: FRBAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N)
X Not Adjustable	A Replaceable Orifice .1 - 3 gpm (0,4 - 11 L/min.)	N Buna-N	
L Tuning Adjustment		V Viton	



Bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit.

**TECHNICAL DATA**

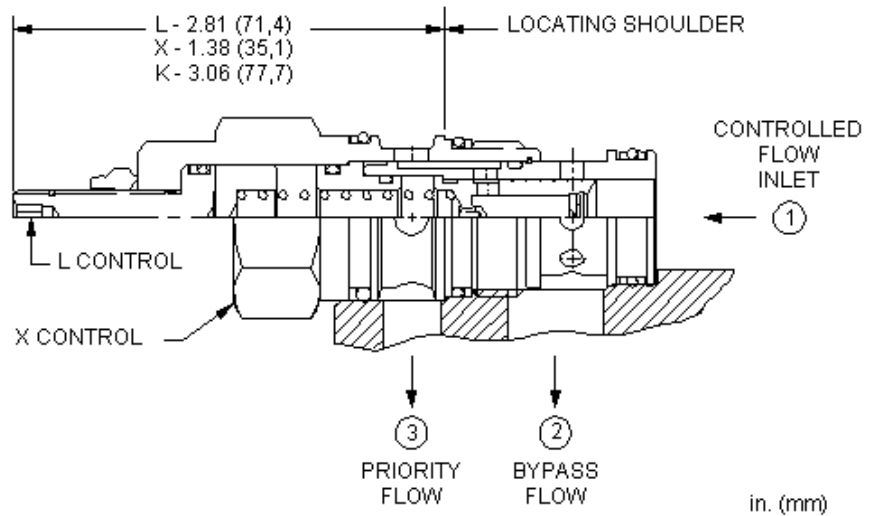
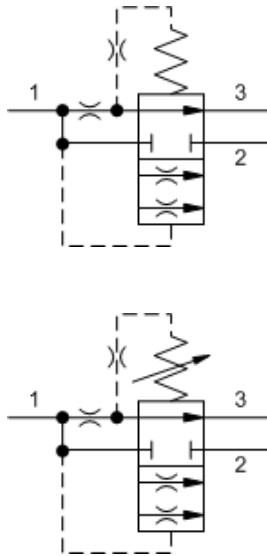
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Input Flow	15 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**

**Model Code Example: FRCA<sub>X</sub>AN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment K Handknob	<b>A</b> Replaceable Orifice .1 - 6 gpm (0,4 - 23 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

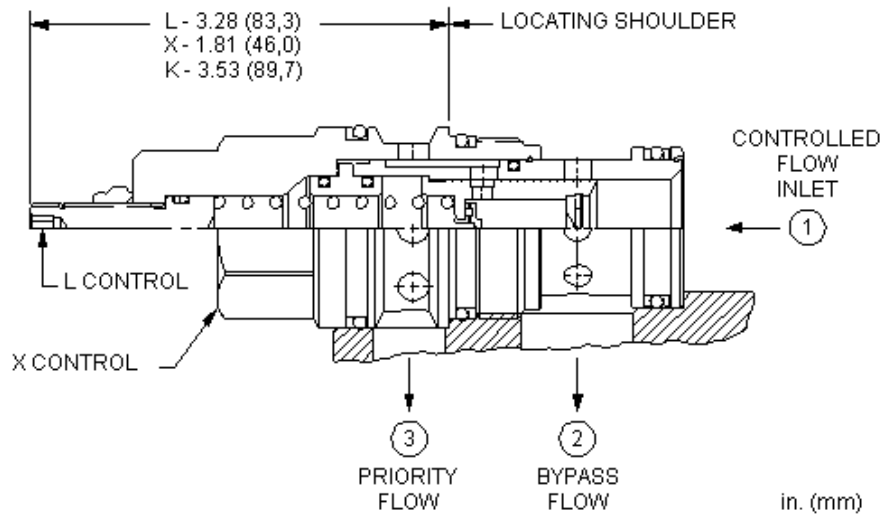
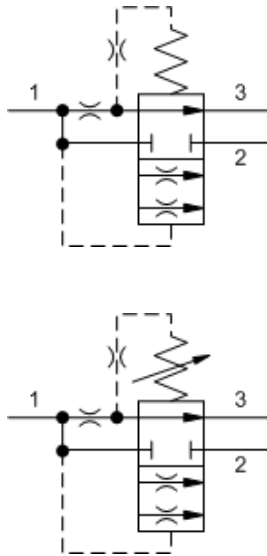
Maximum Operating Pressure	5000 psi
Maximum Input Flow	30 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	EPDM: 990202014
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**NOTES** For Series 1 cartridges configured with an O control (panel mount handknob), a .75 in. (19 mm) diameter hole is required in the panel.

**CONFIGURATION OPTIONS**

**Model Code Example: FRDAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment		E EPDM	/AP Stainless Steel, Passivated
K Handknob		V Viton	



Bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit.

**TECHNICAL DATA**

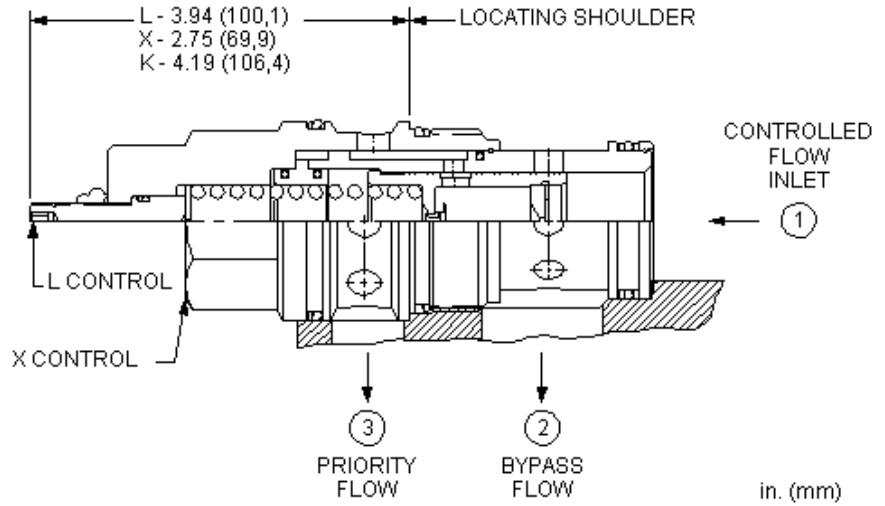
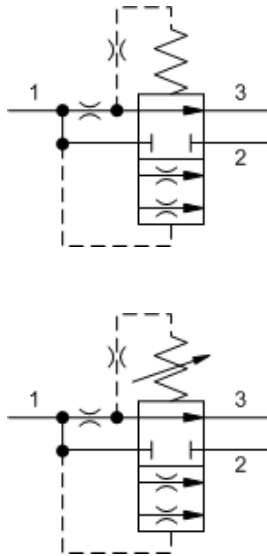
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Input Flow	60 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**

**Model Code Example: FREAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .2 - 25 gpm (0,8 - 95 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment		<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>K</b> Handknob			/LH Mild Steel, Zinc-Nickel



Bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit.

**TECHNICAL DATA**

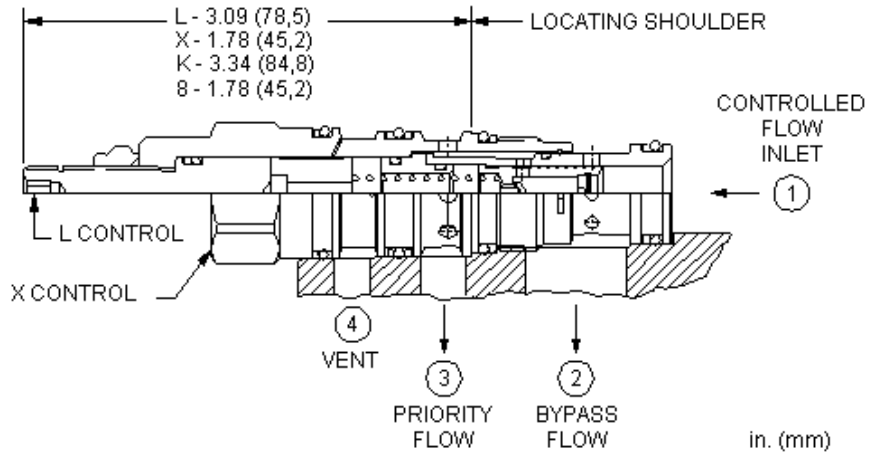
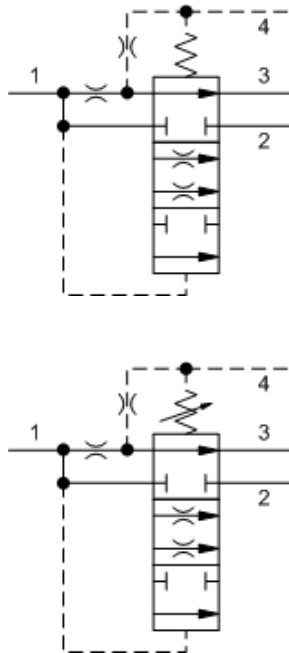
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Input Flow	120 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**

**Model Code Example: FRFAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment K Handknob	<b>A</b> Replaceable Orifice .2 - 50 gpm (1 - 200 L/min.)	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated



Ventable, bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit. A vent port (port 4) allows these valves to be controlled remotely.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

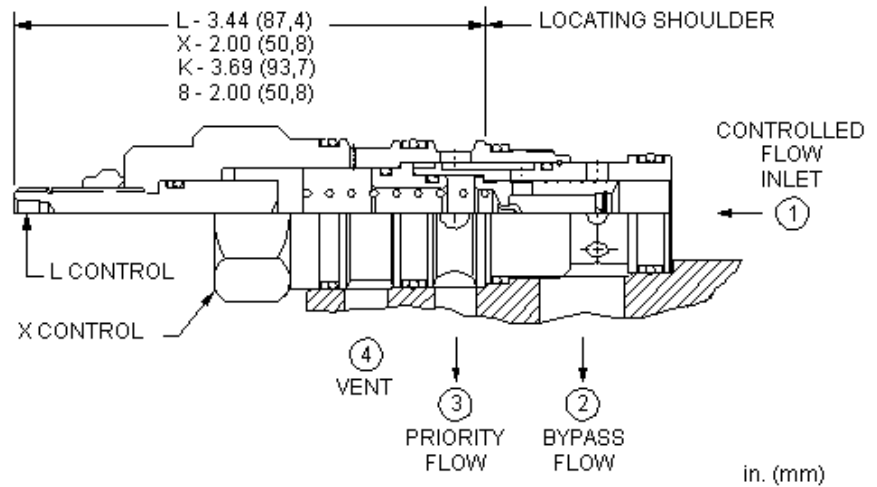
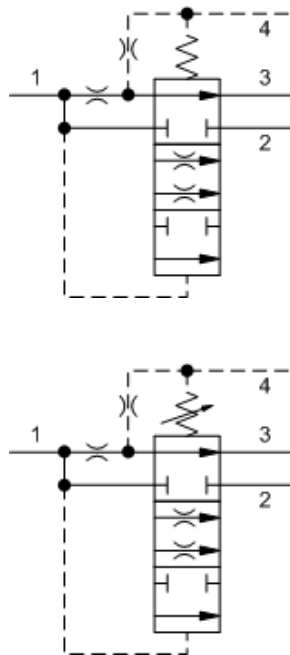
Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	15 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

**Model Code Example: FVCAXAN**

CONTROL	(X)	SETTING RANGE	(A)	SEAL MATERIAL	(N)
X Not Adjustable		A Replaceable Orifice .1 - 6 gpm (0,4 - 23 L/min.)		N Buna-N	
L Tuning Adjustment				V Viton	





Ventable, bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit. A vent port (port 4) allows these valves to be controlled remotely.

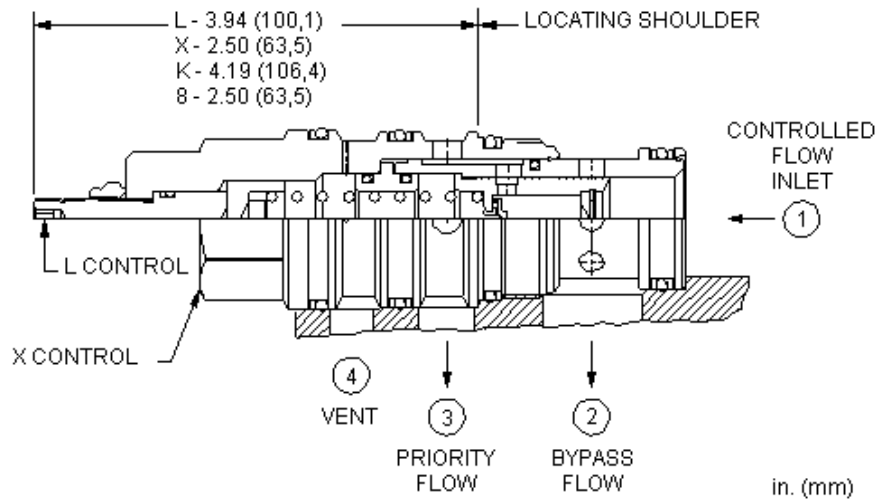
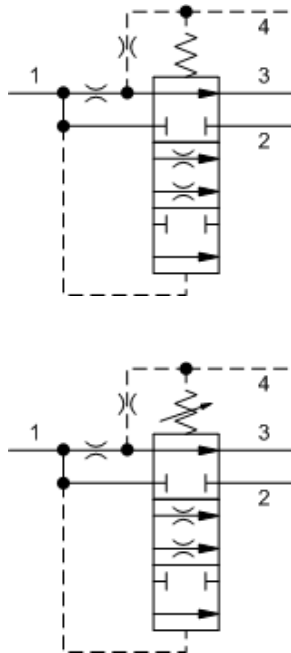
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	30 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	EPDM: 990022014
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**CONFIGURATION OPTIONS**
**Model Code Example: FVDAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)	<b>N</b> Buna-N	
L Tuning Adjustment		<b>E</b> EPDM	
		<b>V</b> Viton	



Ventable, bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit. A vent port (port 4) allows these valves to be controlled remotely.

**TECHNICAL DATA**

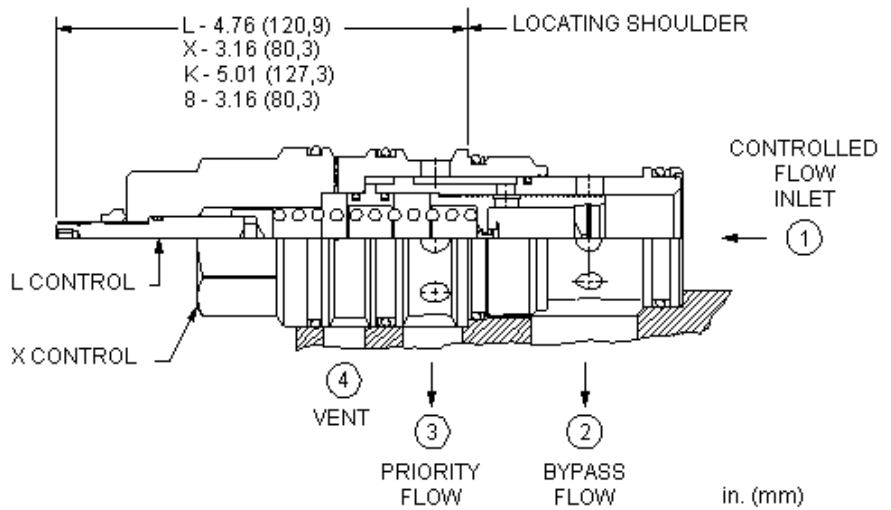
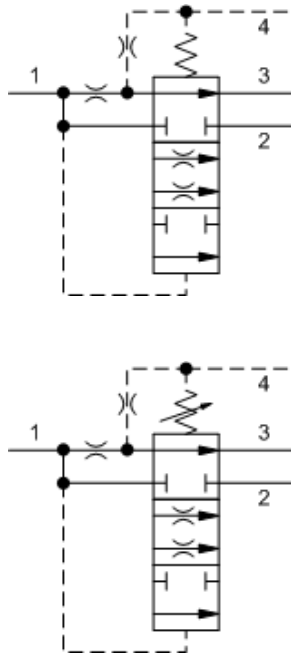
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	60 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**CONFIGURATION OPTIONS**

**Model Code Example: FVEAXAN**

CONTROL	(X) SETTING RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> Replaceable Orifice .2 - 25 gpm (0,8 - 95 L/min.)	<b>N</b> Buna-N	Standard Material/Coating
<b>K</b> Handknob		<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
<b>L</b> Tuning Adjustment			



Ventable, bypass/restrictive, fixed-orifice, priority flow controls take an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit. A vent port (port 4) allows these valves to be controlled remotely.

**TECHNICAL DATA**

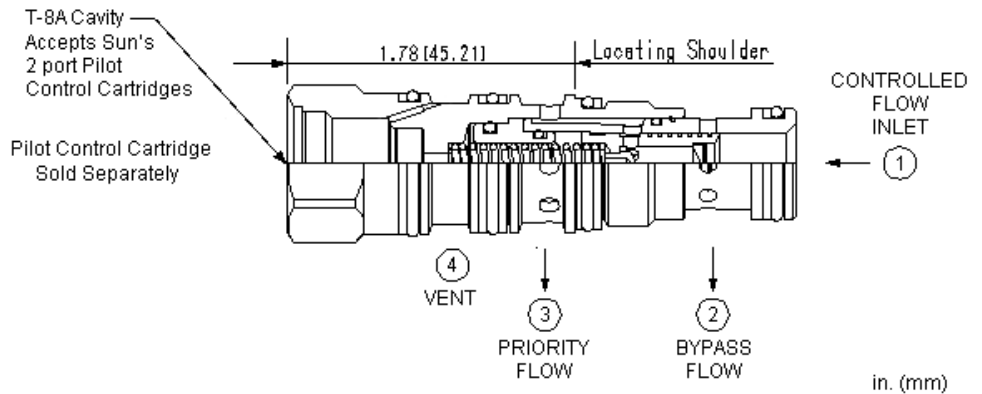
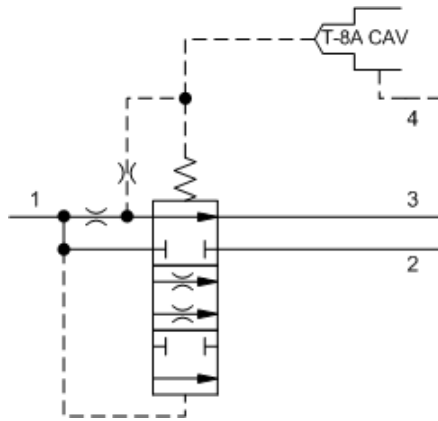
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	120 gpm
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**CONFIGURATION OPTIONS**

Model Code Example: **FVFXAN**

CONTROL	(X)	SETTING RANGE	(A)	SEAL MATERIAL	(N)
<b>X</b> Not Adjustable		<b>A</b> Replaceable Orifice .2 - 50 gpm (1 - 200 L/min.)		<b>N</b> Buna-N	
L Tuning Adjustment				E EPDM	
				V Viton	



This valve is a ventable, bypass/restrictive, fixed-orifice, priority flow control with an integral pilot control cavity. The pilot control cavity will accept any T-8A pilot pressure or directional control cartridge. It takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess flow is bypassed out of port 2. Bypass flow may be used for a secondary circuit. Depending on which pilot control valve is installed in the T-8A cavity, priority flow can be selected electrically, manually, hydraulically or pneumatically.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

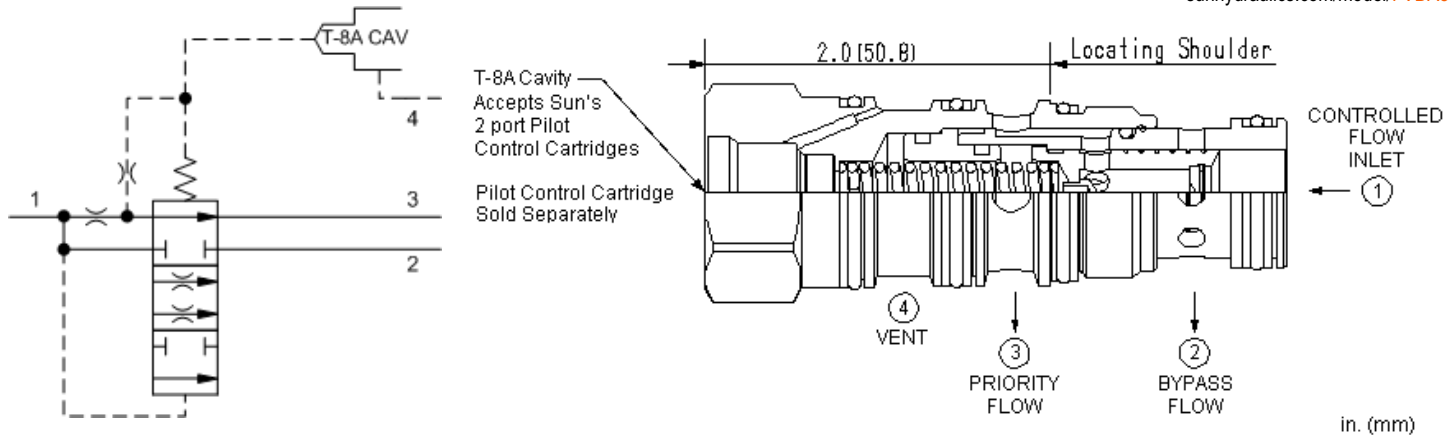
Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	15 gpm
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	20 - 25 lbf ft
Pilot Control Valve Hex Size	7/8 in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**NOTES** Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

**CONFIGURATION OPTIONS**

Model Code Example: **FVCA8AN**

SETTING RANGE	(A)	SEAL MATERIAL	(N)
A Replaceable Orifice .1 - 6 gpm (0,4 - 23 L/min.)		N Buna-N	
B Permanent Orifice .1 - 6 gpm (0,4 - 23 L/min.)		V Viton	



This valve is a ventable, bypass/restrictive, fixed-orifice, priority flow control with an integral pilot control cavity. The pilot control cavity will accept any T-8A pilot pressure or directional control cartridge. It takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess flow is bypassed out of port 2. Bypass flow may be used for a secondary circuit. Depending on which pilot control valve is installed in the T-8A cavity, priority flow can be selected electrically, manually, hydraulically or pneumatically.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

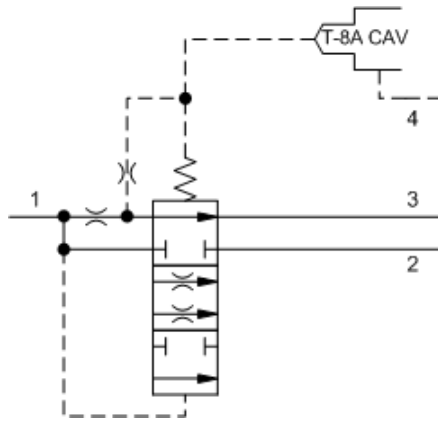
Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	30 gpm
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	20 - 25 lbf ft
Pilot Control Valve Hex Size	7/8 in.
Seal kit - Cartridge	Buna: 990022007
Seal kit - Cartridge	EPDM: 990022014
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**NOTES** Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

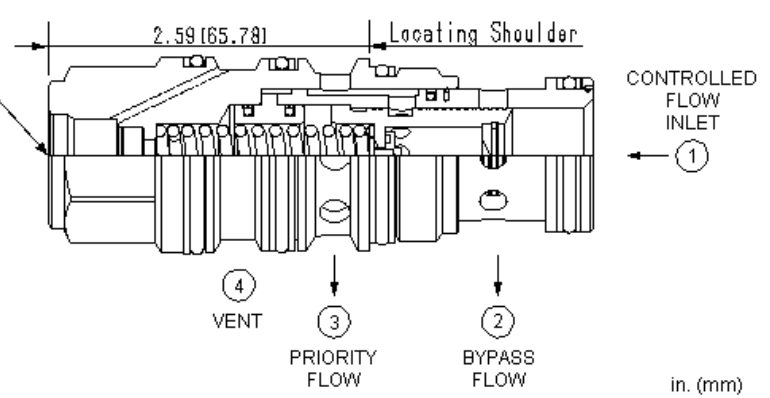
**CONFIGURATION OPTIONS**

**Model Code Example: FVDA8AN**

SETTING RANGE	(A)	SEAL MATERIAL	(N)
<b>A</b> Replaceable Orifice .1 - 12 gpm (0,4 - 45 L/min.)		<b>N</b> Buna-N	
<b>B</b> Permanent Orifice .1 - 12 gpm (0,4 - 45 L/min.)		<b>E</b> EPDM	
		<b>V</b> Viton	



T-8A Cavity  
Accepts Sun's  
2 port Pilot  
Control Cartridges  
Pilot Control Cartridge  
Sold Separately



This valve is a ventable, bypass/restrictive, fixed-orifice, priority flow control with an integral pilot control cavity. The pilot control cavity will accept any T-8A pilot pressure or directional control cartridge. It takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess flow is bypassed out of port 2. Bypass flow may be used for a secondary circuit. Depending on which pilot control valve is installed in the T-8A cavity, priority flow can be selected electrically, manually, hydraulically or pneumatically.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

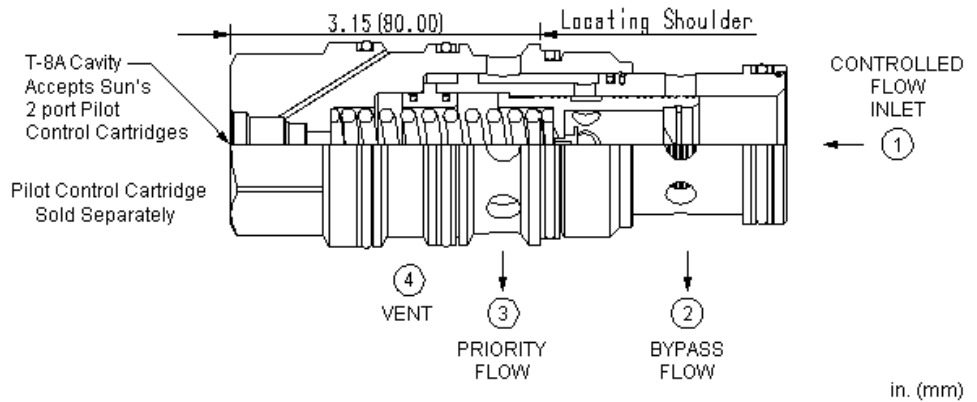
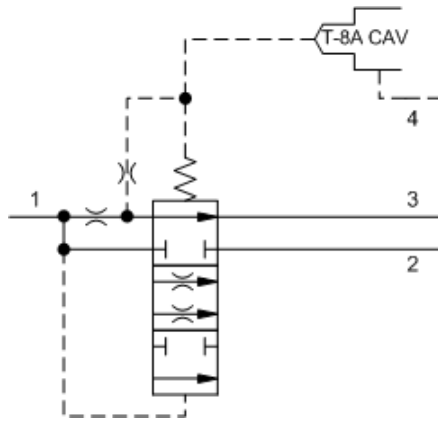
Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	60 gpm
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	20 - 25 lbf ft
Pilot Control Valve Hex Size	7/8 in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**NOTES** Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

**CONFIGURATION OPTIONS**

**Model Code Example: FVEA8AN**

SETTING RANGE	(A)	SEAL MATERIAL	(N)
<b>A</b> Replaceable Orifice .2 - 25 gpm (0,8 - 95 L/min.)		<b>N</b> Buna-N	
<b>B</b> Permanent Orifice .2 - 25 gpm (0,8 - 95 L/min.)		<b>V</b> Viton	



This valve is a ventable, bypass/restrictive, fixed-orifice, priority flow control with an integral pilot control cavity. The pilot control cavity will accept any T-8A pilot pressure or directional control cartridge. It takes an input flow at port 1 and uses it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess flow is bypassed out of port 2. Bypass flow may be used for a secondary circuit. Depending on which pilot control valve is installed in the T-8A cavity, priority flow can be selected electrically, manually, hydraulically or pneumatically.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

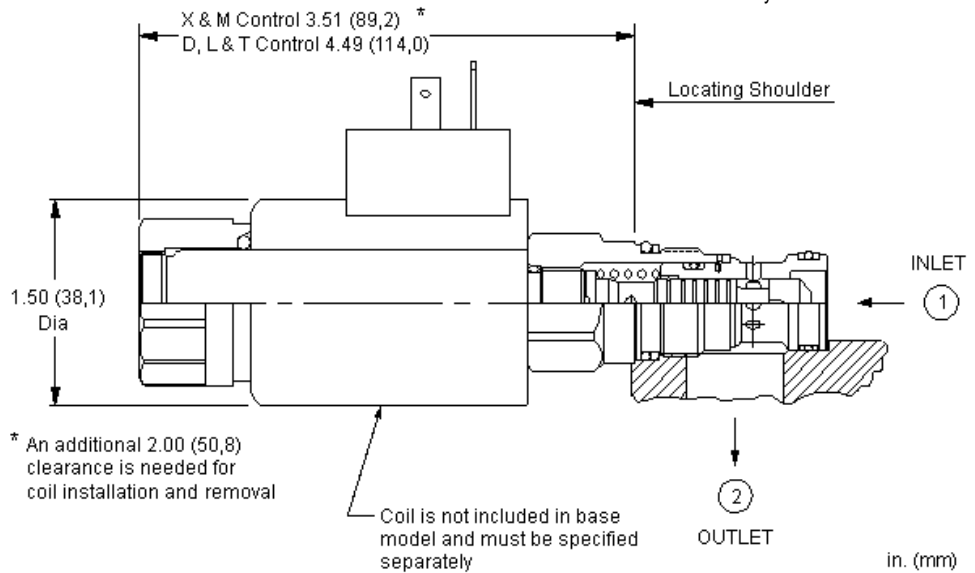
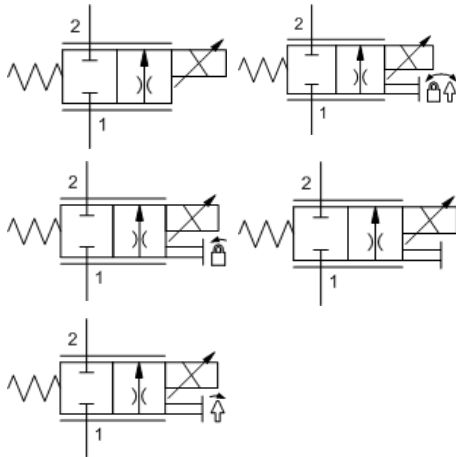
Maximum Operating Pressure	5000 psi
Nominal Vent Flow	46 in <sup>3</sup> /min.
Maximum Input Flow	120 gpm
Pilot Control Cavity	T-8A
Pilot Control Valve Installation Torque	20 - 25 lbf ft
Pilot Control Valve Hex Size	7/8 in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**NOTES** Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

**CONFIGURATION OPTIONS**

**Model Code Example: FVFA8AN**

SETTING RANGE	(A)	SEAL MATERIAL	(N)
<b>A</b> Replaceable Orifice .2 - 50 gpm (1 - 200 L/min.)		<b>N</b> Buna-N	
<b>B</b> Permanent Orifice .2 - 50 gpm (1 - 200 L/min.)		<b>E</b> EPDM	
		<b>V</b> Viton	



This valve is a normally closed, electro-proportional throttle that is spring-biased closed. Energizing the coil generates an opening force on the spool proportional to the command current, and this force is countered by the spring and flow forces. This force balance creates a metering orifice whose effective size is proportional to the current. The valve exhibits a large degree of self-compensation in the 1-to-2 direction and will provide proportional flow control in the 2-to-1 direction with the addition of an external compensator. Full reverse flow (2-to-1) with 100% command in the 2-to-1 direction is possible without a compensator under all conditions.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min. @ 3000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	EPDM: 990010014
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

**NOTES** Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

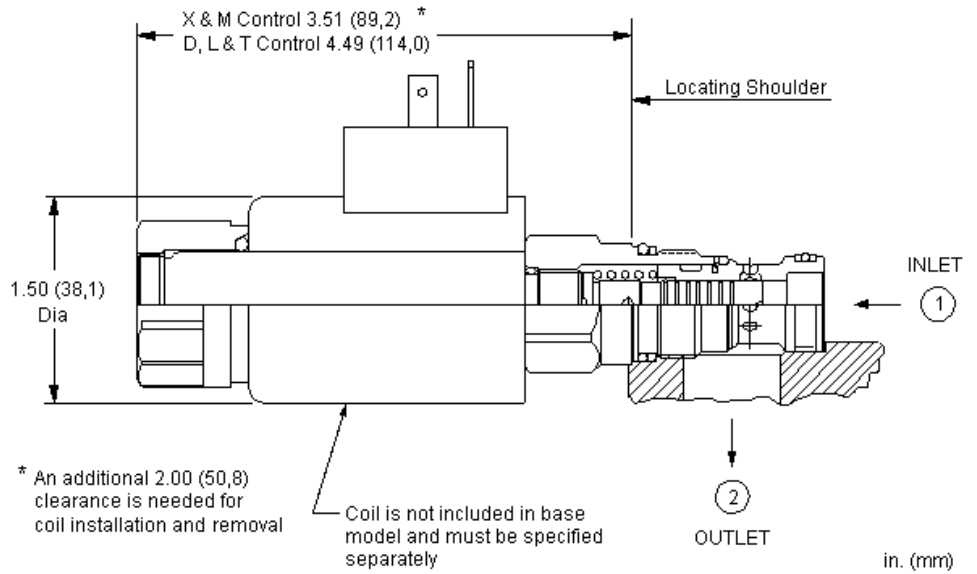
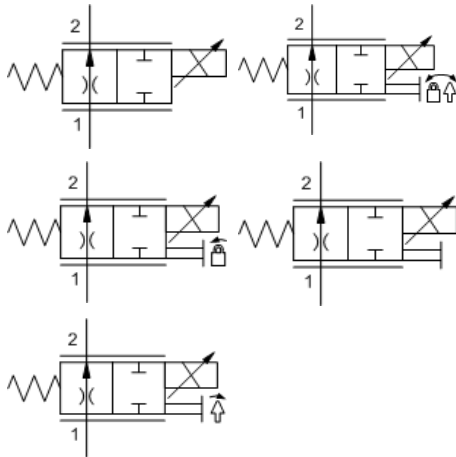
**CONFIGURATION OPTIONS**
**Model Code Example: FPCCXCN**

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>C</b> .25 - 7 gpm (1 - 28 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.5 gpm (0,4 - 6 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<b>E</b> Twist (Extended) Manual Override	<b>B</b> .15 - 3.5 gpm (0,6 - 14 L/min.)	<b>V</b> Viton	<b>224</b> DIN 43650-Form A, 24 VDC
<b>L</b> Twist/Lock (Detent) Manual Override	<b>D</b> .25 - 10 gpm (1 - 40 L/min.)		<b>224NX01</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
<b>M</b> Manual Override			<b>224NX02</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
<b>T</b> Twist (Momentary) Manual Override			<b>912</b> Deutsch DT04-2P, 12 VDC
			<b>912NX01</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			<b>912NX02</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver



- transient voltage suppression (TVS) diodes, with XMD-02 driver
- 924** Deutsch DT04-2P, 24 VDC
- 924NX01** Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
- 924NX02** Deutsch DT04-2P, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver

\* Additional coil options are available



This valve is a normally open electro-proportional throttle that is spring-biased open. Energizing the coil generates an closing force on the spool proportional to the command current, and this force is countered by the spring and flow forces. This force balance creates a metering orifice whose effective size is proportional to the current. The valve exhibits a large degree of self-compensation in the 1-to-2 direction and will provide proportional flow control in the 2-to-1 direction with the addition of an external compensator. Full reverse flow (2-to-1) with no command in the 2-to-1 direction is possible without a compensator under all conditions.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min.@3000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Seal kit - Cartridge	Buna: 990413007
Seal kit - Cartridge	Polyurethane: 990413002
Seal kit - Cartridge	Viton: 990413006

**NOTES** Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

**CONFIGURATION OPTIONS**

Model Code Example: FPCHXCN

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>C</b> .25 - 7 gpm (1 - 28 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.5 gpm (0,4 - 6 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<b>E</b> Twist (Extended) Manual Override	<b>B</b> .15 - 3.5 gpm (0,6 - 14 L/min.)	<b>V</b> Viton	<b>224</b> DIN 43650-Form A, 24 VDC
<b>L</b> Twist/Lock (Detent) Manual Override			<b>224NX01</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
<b>M</b> Manual Override			<b>224NX02</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
<b>T</b> Twist (Momentary) Manual Override			<b>912</b> Deutsch DT04-2P, 12 VDC
			<b>912NX01</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			<b>912NX02</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression

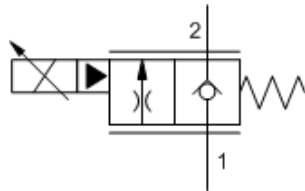
transient voltage suppression  
(TVS) diodes, with XMD-02  
driver

**924** Deutsch DT04-2P, 24 VDC

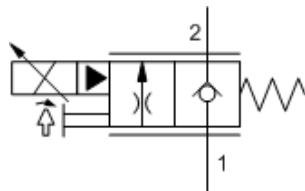
**924NX01** Deutsch DT04-2P, 24 VDC, no  
transient voltage suppression  
(TVS) diodes, with XMD-01  
driver

**924NX02** Deutsch DT04-2P, 24 VDC, no  
transient voltage suppression  
(TVS) diodes, with XMD-02  
driver

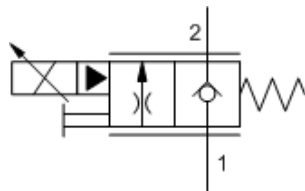
\* Additional coil options are available



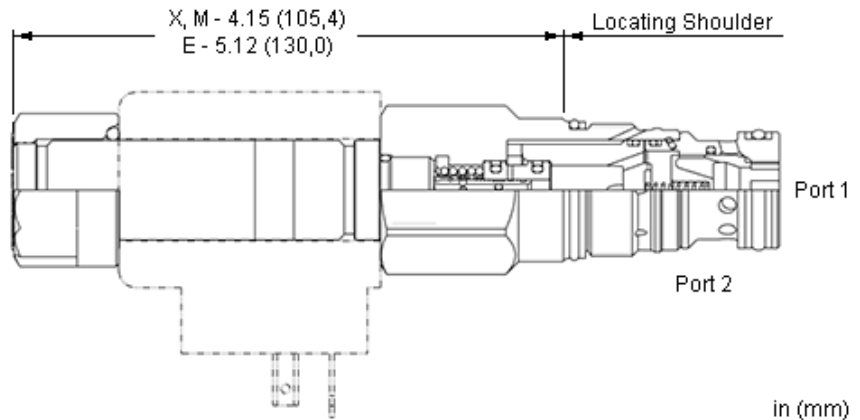
X-Control



E-Control



M-Control



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally. Metered flow is from port 1 to port 2 with reverse free flow from port 2 to port 1.

**TECHNICAL DATA**

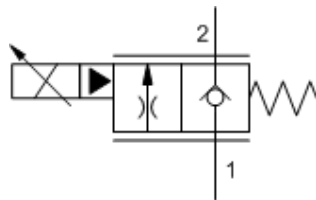
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Recommended dither frequency	100 Hz
Maximum Valve Leakage at 110 SUS (24 cSt)	20 drops/min. @5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Deadband, nominal (as a percentage of input)	25%
Manual Override Stroke	.06 in.
Seal kit - Cartridge	Buna: 990203007
Seal kit - Cartridge	EPDM: 990203014
Seal kit - Cartridge	Viton: 990203006

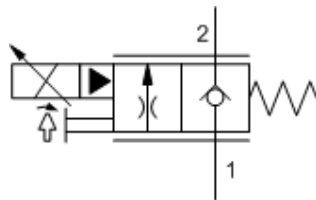
**CONFIGURATION OPTIONS**
**Model Code Example: FPFKXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> Nominal 20 gpm @ 200 psi (14 bar) differential (80 L/min.)	<b>N</b> Buna-N	No coil
<b>E</b> Twist (Extended) Manual Override	<b>B</b> Nominal 10 gpm @ 200 psi (14 bar) differential (40 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<b>M</b> Manual Override		<b>V</b> Viton	<b>224</b> DIN 43650-Form A, 24 VDC
			<b>912</b> Deutsch DT04-2P, 12 VDC
			<b>924</b> Deutsch DT04-2P, 24 VDC

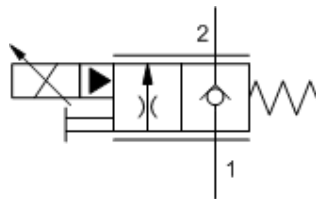
\* Additional coil options are available



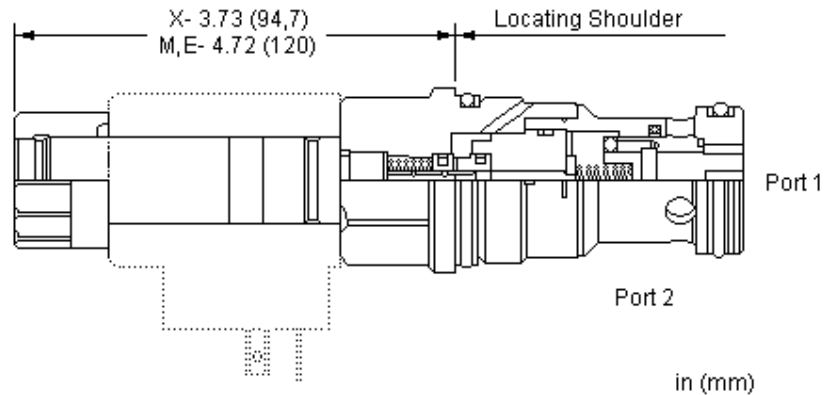
X-Control



E-Control



M-Control



This valve is a pilot-operated, normally closed, electro-proportional throttle with reverse free-flow check. Energizing the coil generates an opening force on the pilot stage which vents the main stage poppet to open proportionally. Metered flow is from port 1 to port 2 with reverse free flow from port 2 to port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Recommended dither frequency	100 Hz
Maximum Valve Leakage at 110 SUS (24 cSt)	20 drops/min.@5000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Deadband, nominal (as a percentage of input)	25%
Manual Override Stroke	.06 in.
Seal kit - Cartridge	Buna: 990016007
Seal kit - Cartridge	EPDM: 990016014
Seal kit - Cartridge	Polyurethane: 990016002
Seal kit - Cartridge	Viton: 990016006

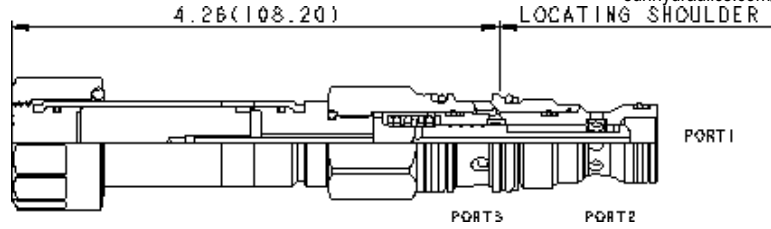
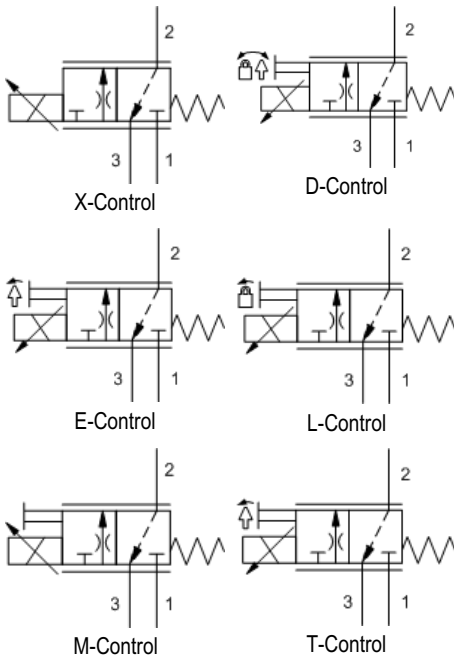
**CONFIGURATION OPTIONS**
**Model Code Example: FPHKXCN**

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>C</b> Nominal 40 gpm @ 200 psi (14 bar) differential (160 L/min.)	<b>N</b> Buna-N	No coil
<b>E</b> Twist (Extended) Manual Override	<b>A</b> Nominal 20 gpm @ 200 psi (14 bar) differential (80 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<b>M</b> Manual Override	<b>E</b> Nominal 60 gpm @ 200 psi (14 bar) differential (240 L/min.)	<b>V</b> Viton	<b>224</b> DIN 43650-Form A, 24 VDC
			<b>224NX01</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			<b>224NX02</b> DIN 43650-Form A, 24 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
			<b>912</b> Deutsch DT04-2P, 12 VDC
			<b>912NX01</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-01 driver
			<b>912NX02</b> Deutsch DT04-2P, 12 VDC, no transient voltage suppression (TVS) diodes, with XMD-02 driver
			<b>924</b> Deutsch DT04-2P, 24 VDC
			<b>924NX01</b> Deutsch DT04-2P, 24 VDC, no transient voltage suppression

.....  
(TVS) diodes, with XMD-01  
driver

**924NX02** Deutsch DT04-2P, 24 VDC, no  
transient voltage suppression  
(TVS) diodes, with XMD-02  
driver

\* Additional coil options are available



This valve is a 3-way, meter-in, electro-proportional throttle. The flow path, unenergized, has the supply blocked at port 1 and port 2 is drained to tank at port 3. Energizing the coil generates a closing force on the spool, creating a metering orifice in the 1 to 2 direction that is proportional to the coil command current. The valve self-compensates in the 1-to-2 direction and with the addition of an external compensator will provide pressure compensated flow control.

Flow in the 2-to-3 direction is not proportional and is limited in the interest of increased resolution and capacity. Flow capacity in the 2-to-3 direction is about 1.5 gpm (6 L/min). This valve is meant to be used in a circuit that has a separate passage to tank such as a cushion lock circuit. Two FMDAs in conjunction with a cushion lock circuit create a meter-in/meter-out 3-position 4-way.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

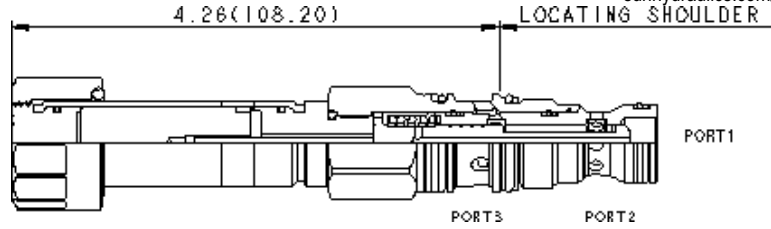
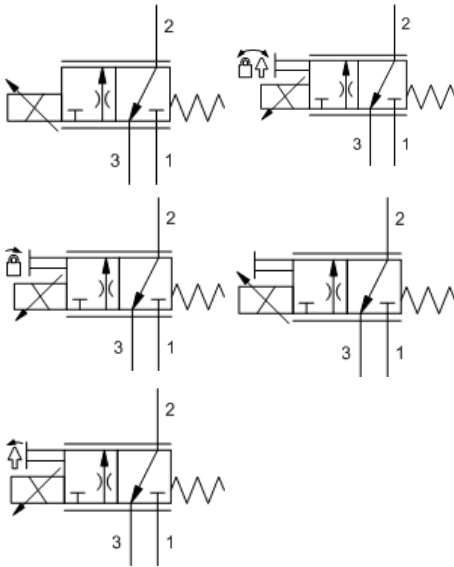
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	Viton: 990411006

**NOTES** Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

**CONFIGURATION OPTIONS**

**Model Code Example: FMDAXDN**

CONTROL	(X) FLOW RATE	(D) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>D</b> .1 - 9 gpm (0,4 - 34 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.6 gpm (0,4 - 6.1 L/min.)	<b>E</b> EPDM	<b>212</b> DIN 43650-Form A, 12 VDC
<b>E</b> Twist (Extended) Manual Override	<b>B</b> .1 - 4 gpm (0,4 - 15 L/min.)	<b>V</b> Viton	<b>224</b> DIN 43650-Form A, 24 VDC
<b>L</b> Twist/Lock (Detent) Manual Override	<b>C</b> .1 - 6 gpm (0,4 - 23 L/min.)		<b>912</b> Deutsch DT04-2P, 12 VDC
<b>M</b> Manual Override			<b>924</b> Deutsch DT04-2P, 24 VDC
<b>T</b> Twist (Momentary) Manual Override			* Additional coil options are available



This valve is a 3-way, meter-in, electro-proportional throttle. The flow path, unenergized, has the supply blocked at port 1 and port 2 connected to tank at port 3. Energizing the coil generates a closing force on the spool, creating a metering orifice in the 1 to 2 direction that is proportional to the coil command current. The valve self-compensates in the 1 to 2 direction and with the addition of an external compensator will provide pressure compensated flow control. Flow in the 2 to 3 direction is not proportional.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min. @ 1000 psi
Manual Override Force Requirement	5 lbs/1000 psi @ Port 1
Manual Override Stroke	.10 in.
Seal kit - Cartridge	Buna: 990411007
Seal kit - Cartridge	Viton: 990411006

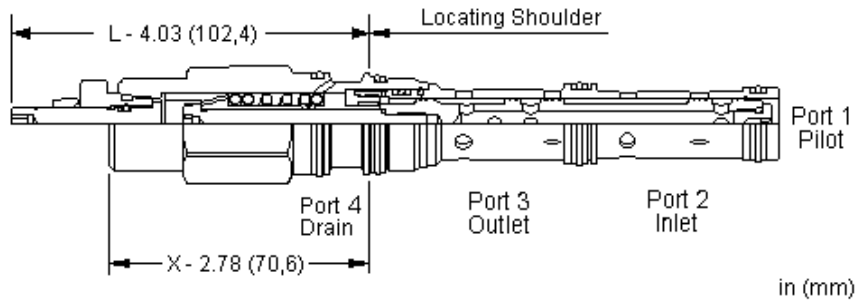
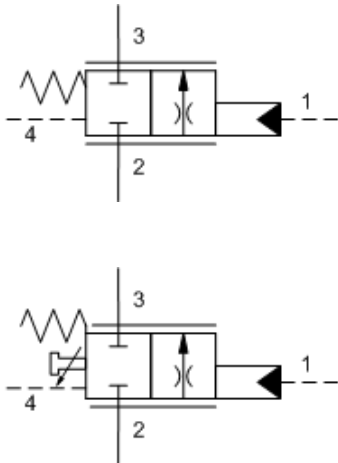
**NOTES** Please verify cartridge clearance requirements when choosing a Sun manifold. Different valve controls and coils require different clearances.

**CONFIGURATION OPTIONS**

**Model Code Example: FMDBXCN**

CONTROL	(X) FLOW RATE	(C) SEAL MATERIAL	(N) COIL *
<b>X</b> No Manual Override	<b>C</b> .1 - 6 gpm (0,4 - 23 L/min.)	<b>N</b> Buna-N	No coil
<b>D</b> Twist/Lock (Dual) Manual Override	<b>A</b> .1 - 1.6 gpm (0,4 - 6.1 L/min.)	<b>V</b> Viton	<b>212</b> DIN 43650-Form A, 12 VDC
<b>E</b> Twist (Extended) Manual Override	<b>B</b> .1 - 4 gpm (0,4 - 15 L/min.)		<b>224</b> DIN 43650-Form A, 24 VDC
<b>L</b> Twist/Lock (Detent) Manual Override			<b>912</b> Deutsch DT04-2P, 12 VDC
<b>M</b> Manual Override			<b>924</b> Deutsch DT04-2P, 24 VDC
<b>T</b> Twist (Momentary) Manual Override			* Additional coil options are available





This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 opposes the spring and creates a variable metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

The valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

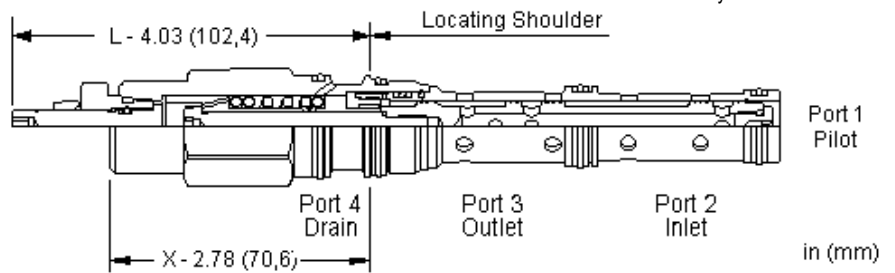
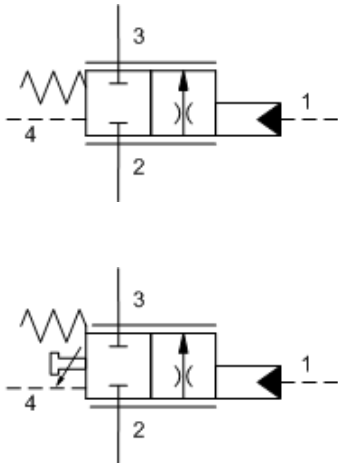
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min @1000 psi
Pilot Volume Displacement	.05 in <sup>3</sup>
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Hysteresis	35 %
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990152007
Seal kit - Cartridge	Viton: 990152006

**NOTES** When installed in Sun's standard T-52A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

**Model Code Example: FTCA<sup>X</sup>C<sup>N</sup>**

CONTROL	(X)	SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
<b>X</b> Not Adjustable		<b>C</b> Normally Closed		<b>N</b> Buna-N		Standard Material/Coating
L Stroke Adjustment				V Viton		/LH Mild Steel, Zinc-Nickel



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 opposes the spring and creates a variable metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

The valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

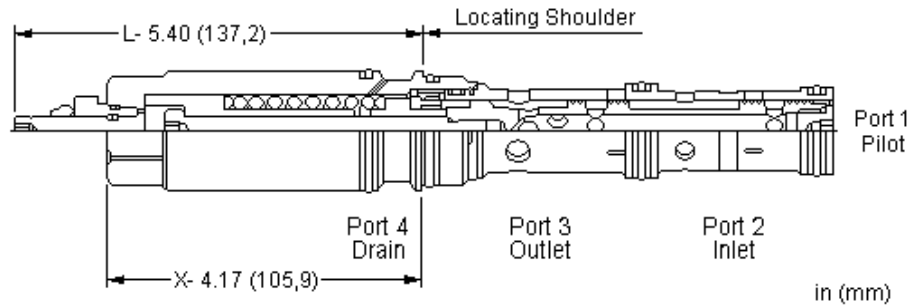
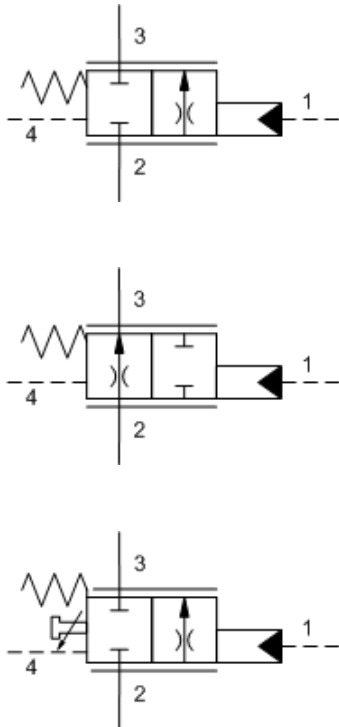
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.05 in <sup>3</sup>
Hysteresis	35 %
Seal kit - Cartridge	Buna: 990152007
Seal kit - Cartridge	Viton: 990152006

**NOTES** When installed in Sun's standard T-52A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

**Model Code Example: FTDAXCN**

<b>CONTROL</b>	<b>(X)</b> <b>SPOOL CONFIGURATION</b>	<b>(C)</b> <b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Stroke Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Pilot pressure at port 1 opposes the spring and creates a variable metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

The valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

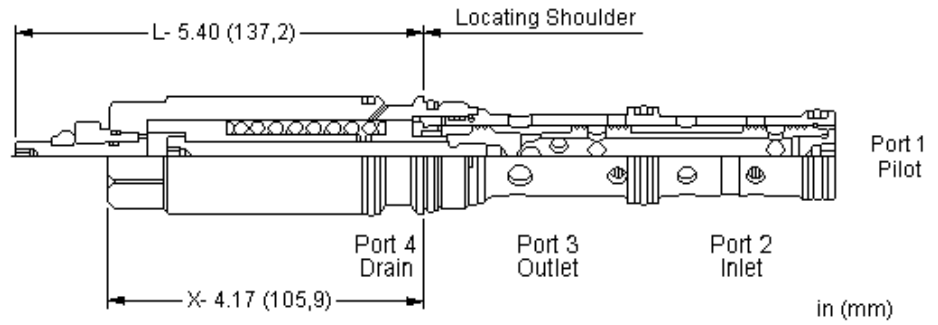
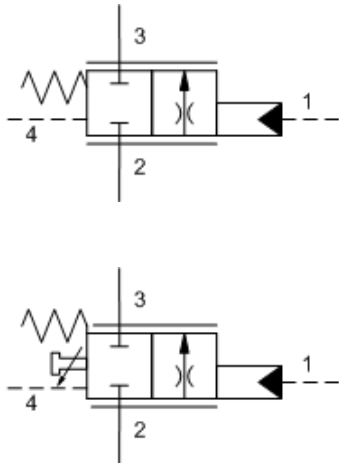
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Hysteresis	35 %
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990053007
Seal kit - Cartridge	Viton: 990053006

**NOTES** When installed in Sun's standard T-53A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

**Model Code Example: FTEAXCN**

<b>CONTROL</b>	<b>(X)</b> <b>SPOOL CONFIGURATION</b>	<b>(C)</b> <b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Stroke Adjustment	<b>C</b> Normally Closed <b>H</b> Normally Open	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 opposes the spring and creates a variable metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

The valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

### TECHNICAL DATA

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

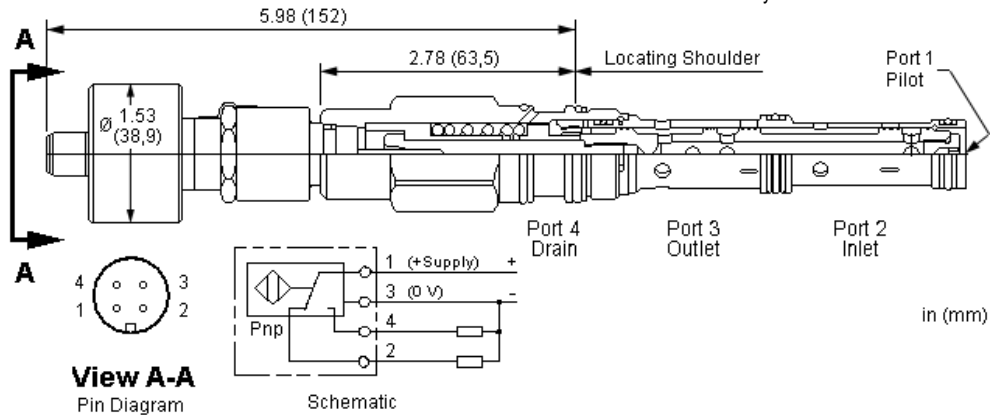
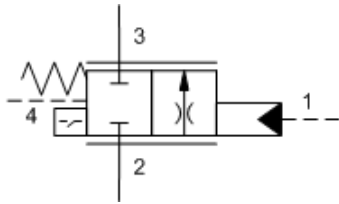
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Adjustment - No. of CCW Turns from Fully Closed to Fully Open	5
Hysteresis	35 %
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990053007
Seal kit - Cartridge	Viton: 990053006

**NOTES** When installed in Sun's standard T-53A line mount manifold, plug unused ports and expect higher pressure drops.

### CONFIGURATION OPTIONS

**Model Code Example: FTFAXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>C</b> Normally Closed	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Stroke Adjustment		<b>V</b> Viton	/AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The metering passage is self-compensating.

This valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

This valve incorporates a position switch to provide confirmation that the valve is closed.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

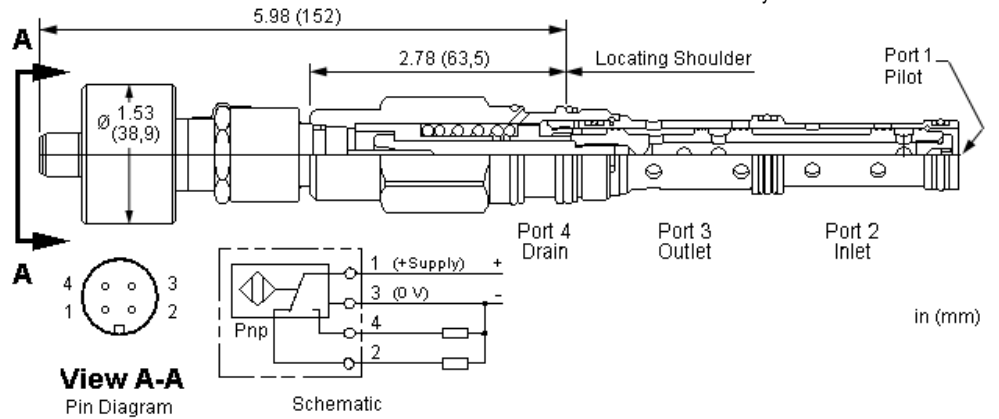
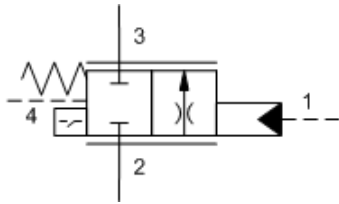
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.05 in <sup>3</sup>
Seal kit - Cartridge	Buna: 990152007
Seal kit - Cartridge	Viton: 990152006

**NOTES** When installed in Sun's standard T-52A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

**Model Code Example: FTCAZCN**

<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>C</b> Normally Closed		<b>N</b> Buna-N	
		<b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The metering passage is self-compensating.

This valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

This valve incorporates a position switch to provide confirmation that the valve is closed.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

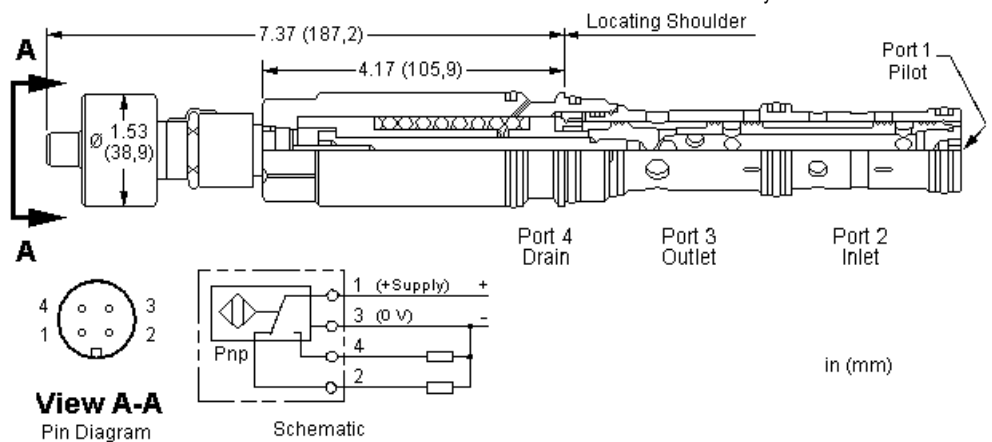
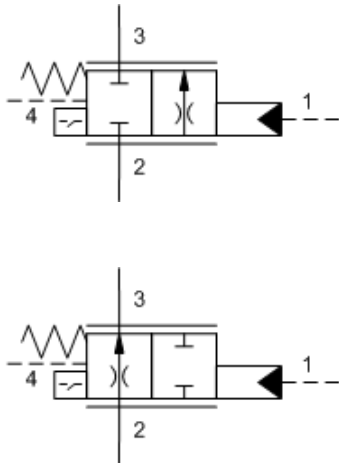
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.05 in <sup>3</sup>
Seal kit - Cartridge	Buna: 990152007
Seal kit - Cartridge	Viton: 990152006

**NOTES** When installed in Sun's standard T-52A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

Model Code Example: FTDAZCN

<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>C</b> Normally Closed		<b>N</b> Buna-N	
		<b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The metering passage is self-compensating.

This valve uses a dual-path design, Ports 2 and 3 incorporate a double-port area.

This valve incorporates a position switch to provide position confirmation.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

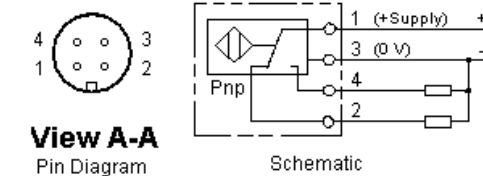
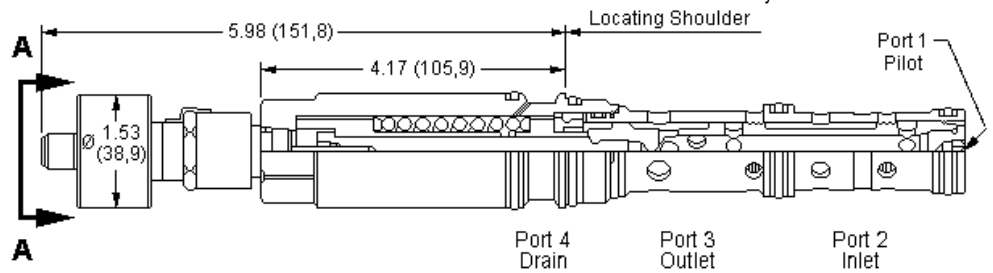
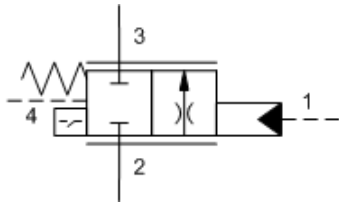
Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Seal kit - Cartridge	Buna: 990053007
Seal kit - Cartridge	Viton: 990053006

**NOTES** When installed in Sun's standard T-53A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

Model Code Example: **FTEAZCN**

<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>C</b> Normally Closed		<b>N</b> Buna-N	
<b>H</b> Normally Open		<b>V</b> Viton	



in (mm)

This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The metering passage is self-compensating.

This valve uses a dual-path design. Ports 2 and 3 incorporate a double-port area.

This valve incorporates a position switch to provide confirmation that the valve is closed.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Pilot Pressure Required for Full Shift at Rated Flow	290 - 340 psi
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	10 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Seal kit - Cartridge	Buna: 990053007
Seal kit - Cartridge	Viton: 990053006

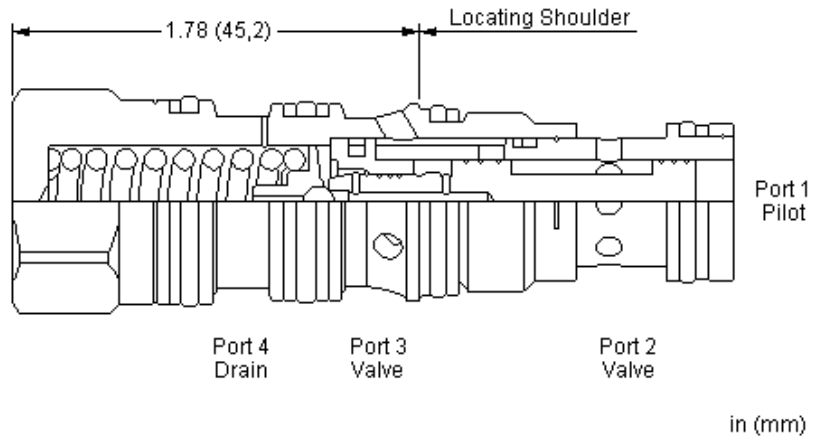
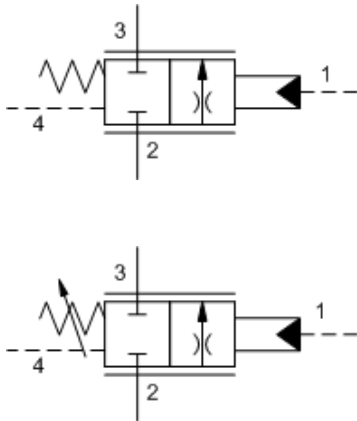
**NOTES** When installed in Sun's standard T-53A line mount manifold, plug unused ports and expect higher pressure drops.

**CONFIGURATION OPTIONS**

**Model Code Example: FTFAZCN**

<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>C</b> Normally Closed		<b>N</b> Buna-N	
		<b>V</b> Viton	





This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

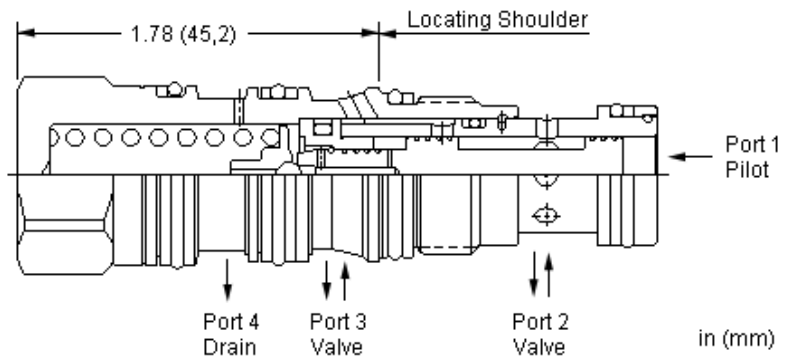
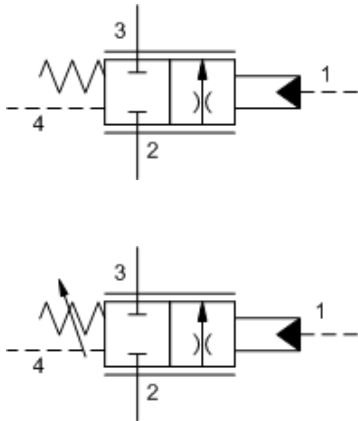
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.02 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	EPDM: 990021014
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

**Model Code Example: FKBA<sup>X</sup>CN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

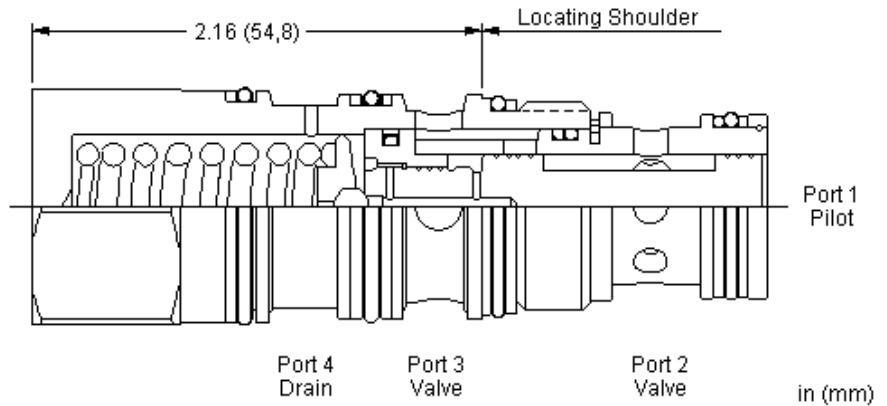
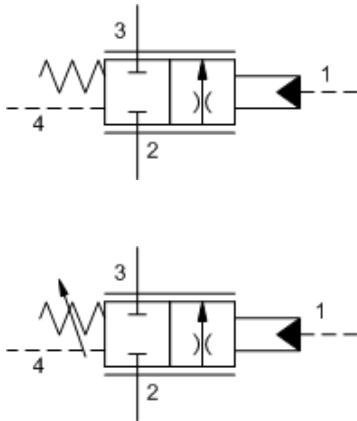
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.02 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

**Model Code Example: FKCA<sup>(X)</sup>C<sup>(C)</sup>N<sup>(N)</sup>**

<b>CONTROL</b>	<b>(X)</b>	<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>C</b> Normally Closed		<b>N</b> Buna-N	
L Tuning Adjustment				V Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

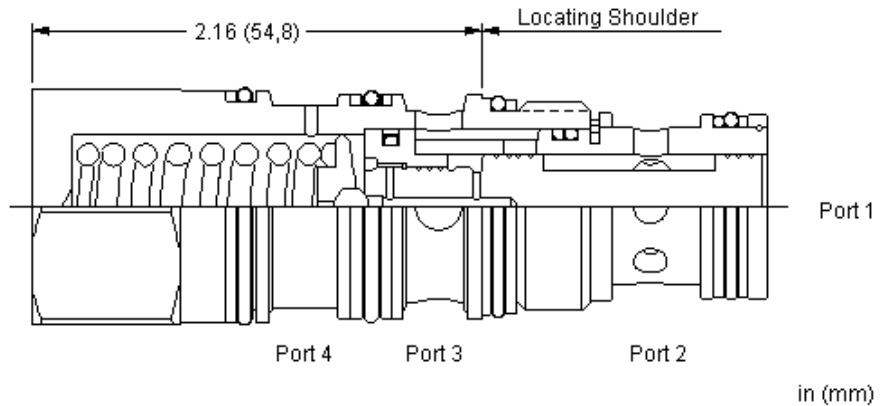
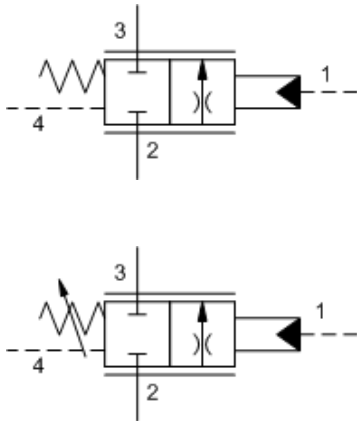
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.03 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990022002
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**CONFIGURATION OPTIONS**

**Model Code Example: FKDAXCN**

<b>CONTROL</b>	<b>(X)</b> <b>SPOOL CONFIGURATION</b>	<b>(C)</b> <b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

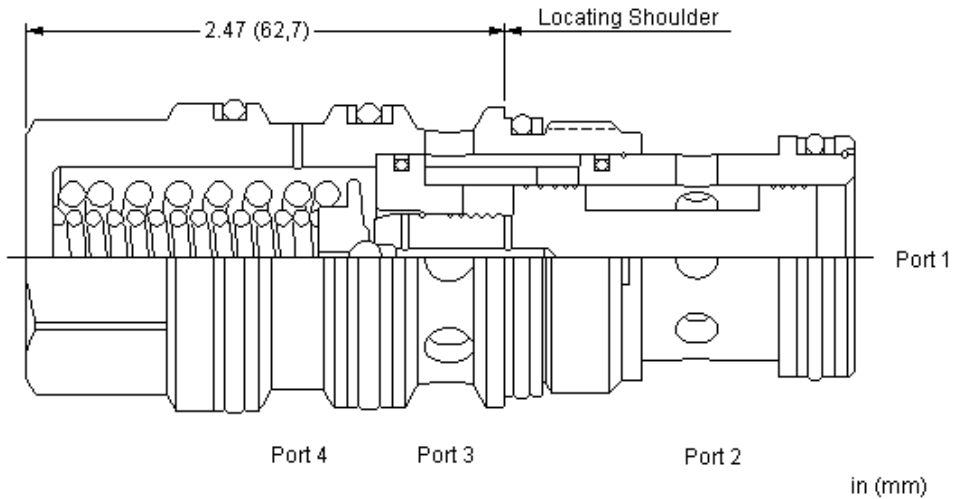
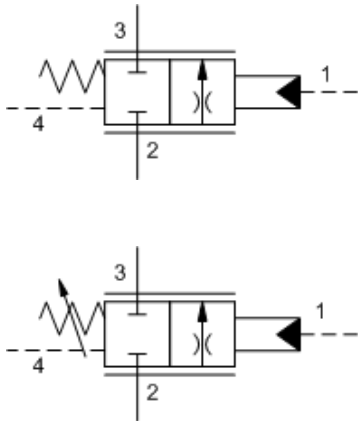
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.30 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990022002
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**CONFIGURATION OPTIONS**

**Model Code Example: FKEAXCN**

<b>CONTROL</b>	<b>(X)</b> <b>SPOOL CONFIGURATION</b>	<b>(C)</b> <b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

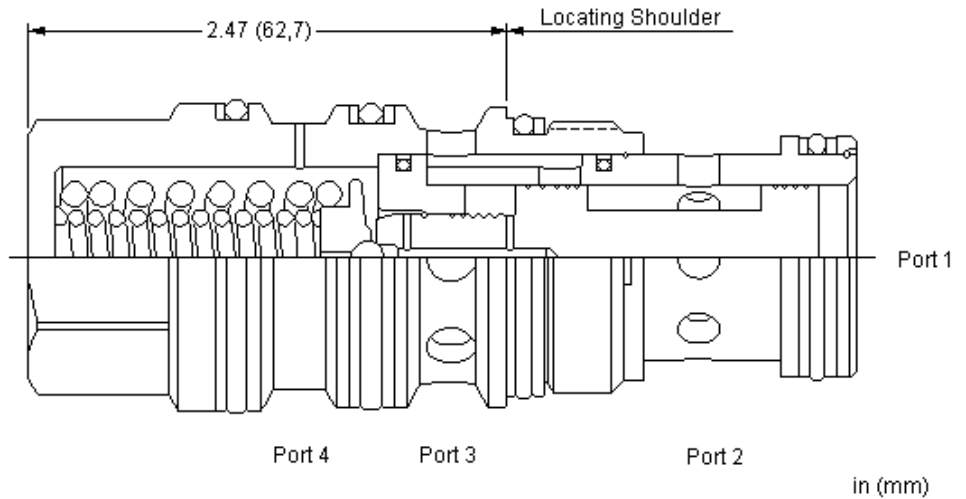
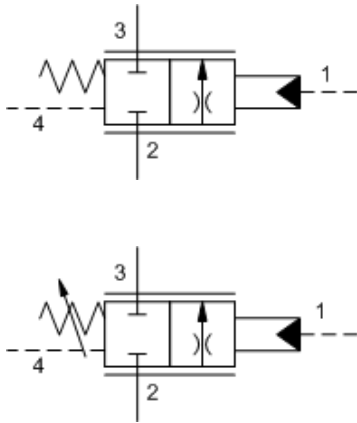
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**CONFIGURATION OPTIONS**

Model Code Example: **FKFAXCN**

<b>CONTROL</b>	<b>(X)</b>	<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>C</b> Normally Closed		<b>N</b> Buna-N	
<b>L</b> Tuning Adjustment				<b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

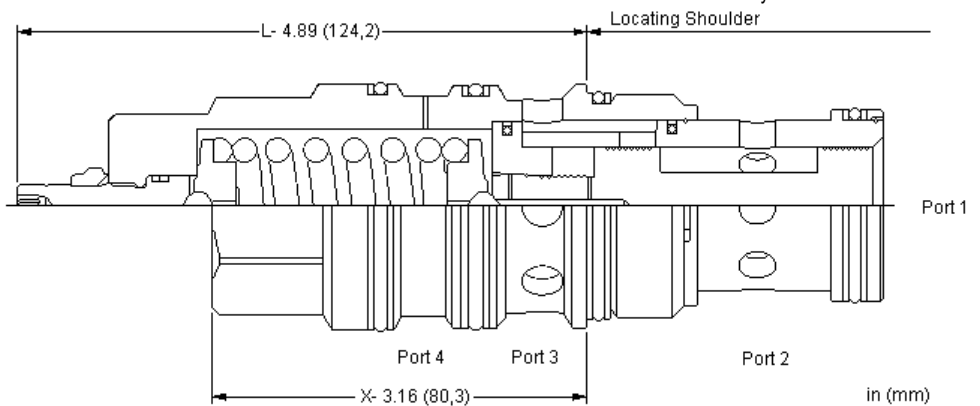
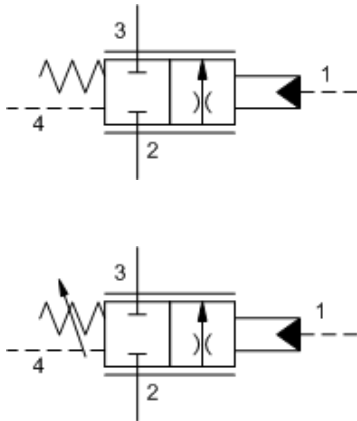
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	EPDM: 990023014
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**CONFIGURATION OPTIONS**
**Model Code Example: FKGAXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N E EPDM V Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

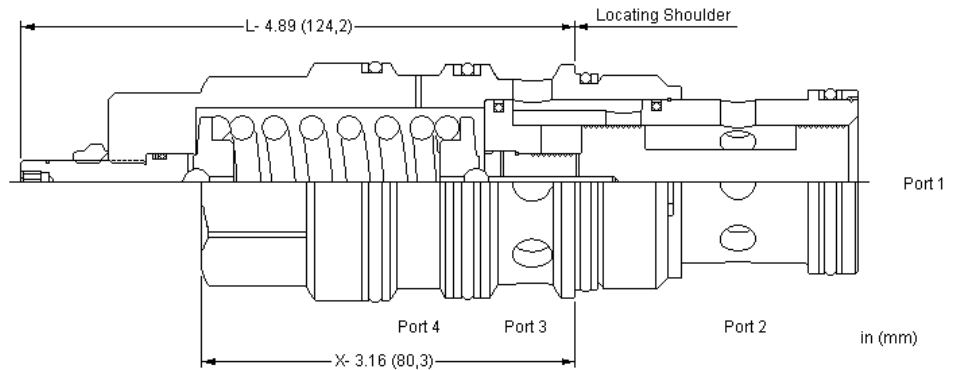
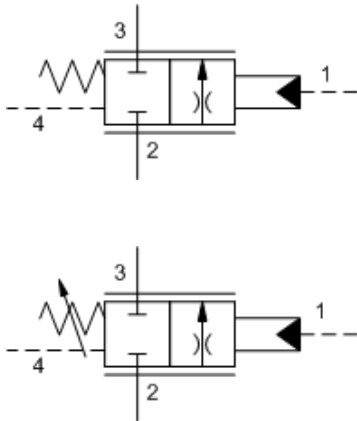
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.20 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**CONFIGURATION OPTIONS**

**Model Code Example: FKHAXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

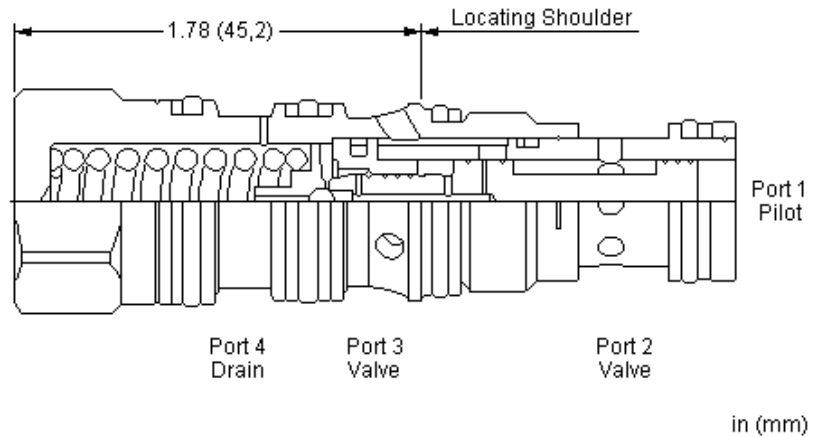
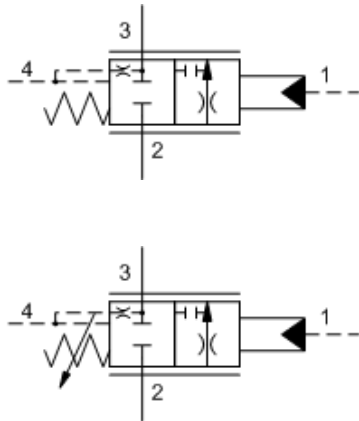
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min. @1000 psi
Pilot Volume Displacement	.20 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**CONFIGURATION OPTIONS**

Model Code Example: **FKIAXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated





This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

### TECHNICAL DATA

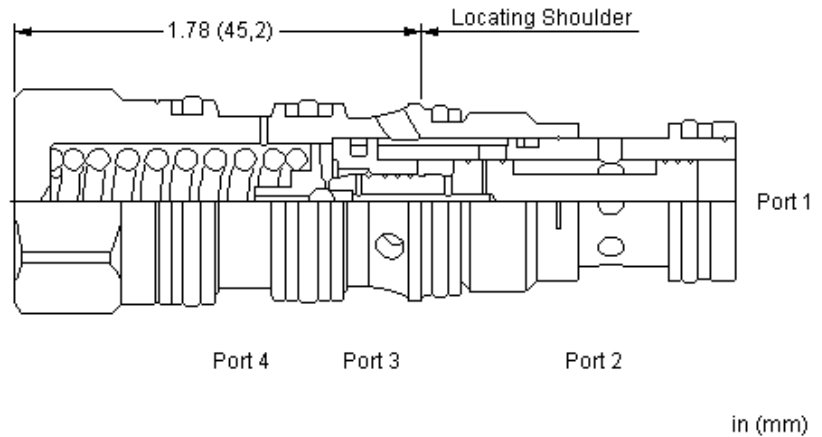
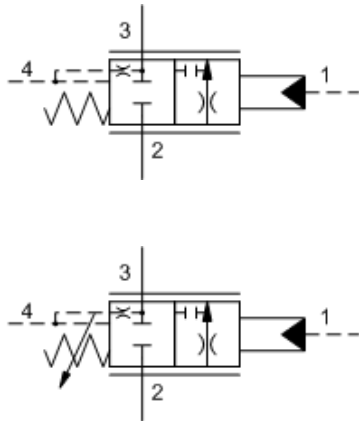
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.02 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

### CONFIGURATION OPTIONS

**Model Code Example: FKBBXCN**

CONTROL	(X)	SPOOL CONFIGURATION	(C)	SEAL MATERIAL	(N)	MATERIAL/COATING
X Not Adjustable		C Normally Closed		N Buna-N		Standard Material/Coating
L Tuning Adjustment				V Viton		/AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

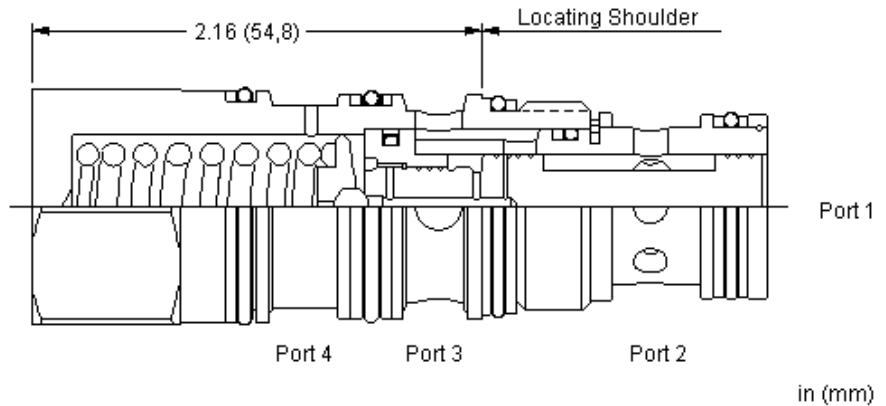
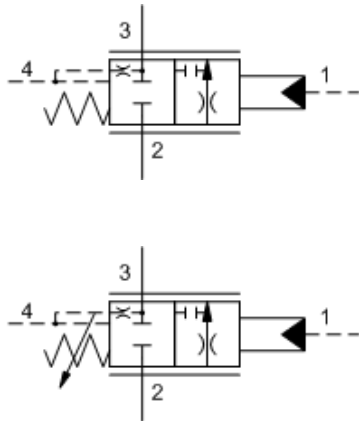
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.02 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

**Model Code Example: FKCBXCN**

<b>CONTROL</b>	<b>(X)</b>	<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>C</b> Normally Closed		<b>N</b> Buna-N	
<b>L</b> Standard Screw Adjustment				<b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

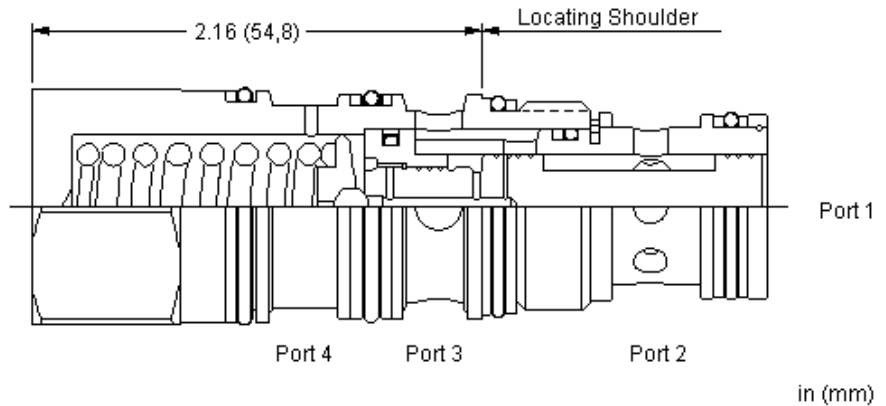
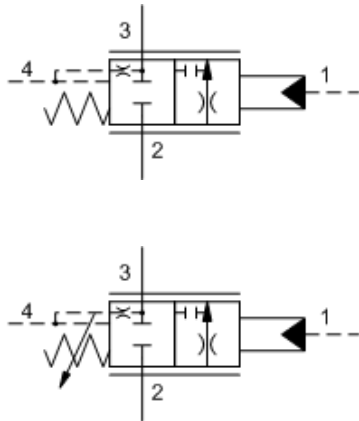
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.30 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990022002
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**CONFIGURATION OPTIONS**

**Model Code Example: FKDBXCN**

<b>CONTROL</b>	<b>(X) SPOOL CONFIGURATION</b>	<b>(C) SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

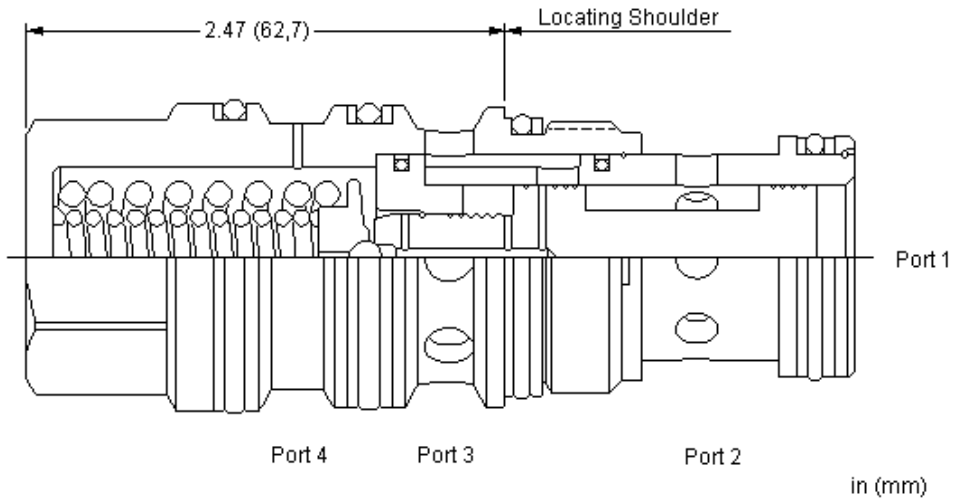
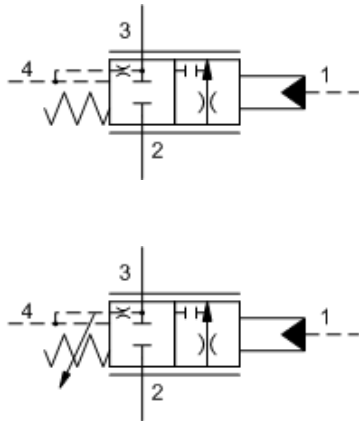
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.30 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990022002
Seal kit - Cartridge	Polyurethane: 990022002
Seal kit - Cartridge	Viton: 990022006

**CONFIGURATION OPTIONS**

**Model Code Example: FKEBXCN**

<b>CONTROL</b>	<b>(X) SPOOL CONFIGURATION</b>	<b>(C) SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable L Tuning Adjustment	<b>C</b> Normally Closed	<b>N</b> Buna-N <b>V</b> Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

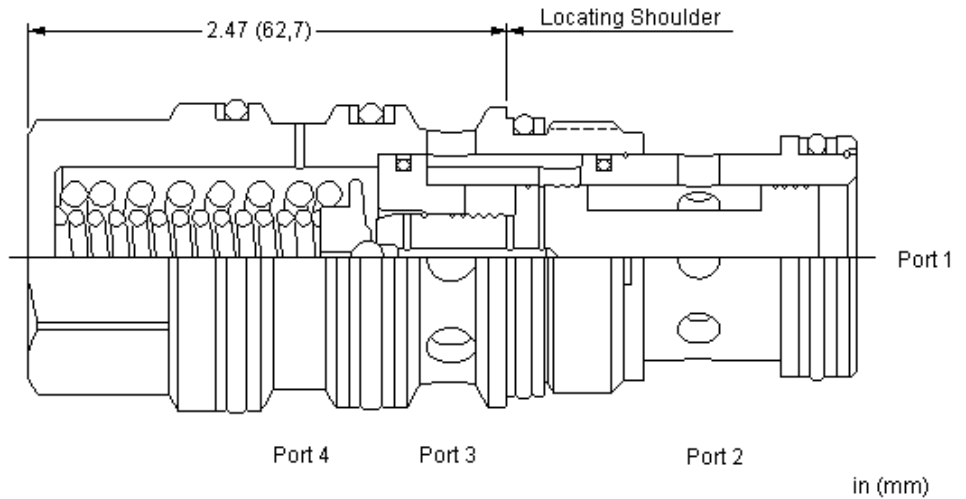
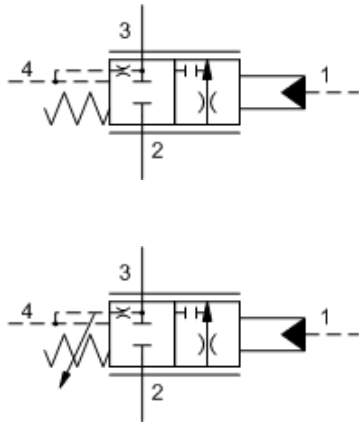
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	EPDM: 990023014
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**CONFIGURATION OPTIONS**

**Model Code Example: FKFBXCN**

<b>CONTROL</b>	<b>(X)</b>	<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
X Not Adjustable L Tuning Adjustment		C Normally Closed		N Buna-N E EPDM V Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.10 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990023007
Seal kit - Cartridge	Polyurethane: 990023002
Seal kit - Cartridge	Viton: 990023006

**CONFIGURATION OPTIONS**

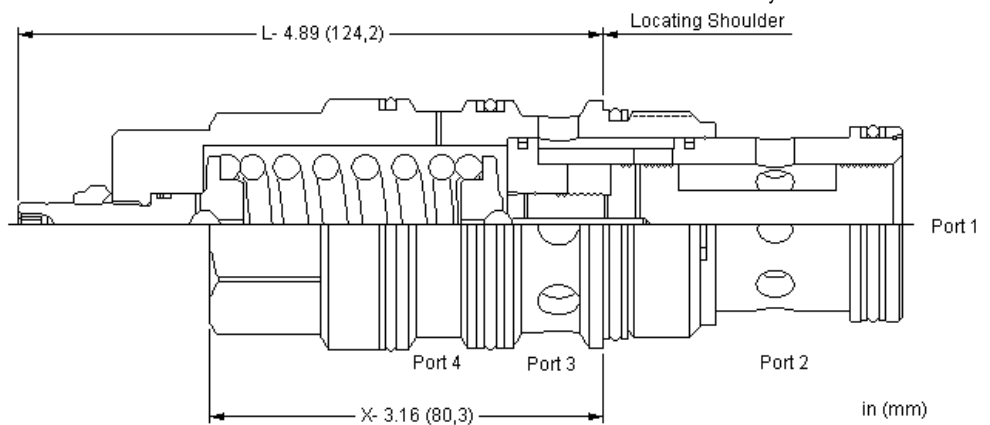
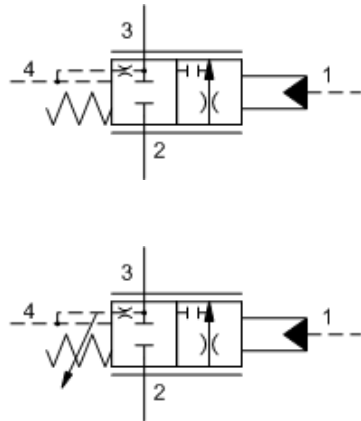
**Model Code Example: FKGBXCN**

**CONTROL** (X) **SPOOL CONFIGURATION** (C) **SEAL MATERIAL** (N)

**X** Not Adjustable      **C** Normally Closed      **N** Buna-N

L Tuning Adjustment

V Viton



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

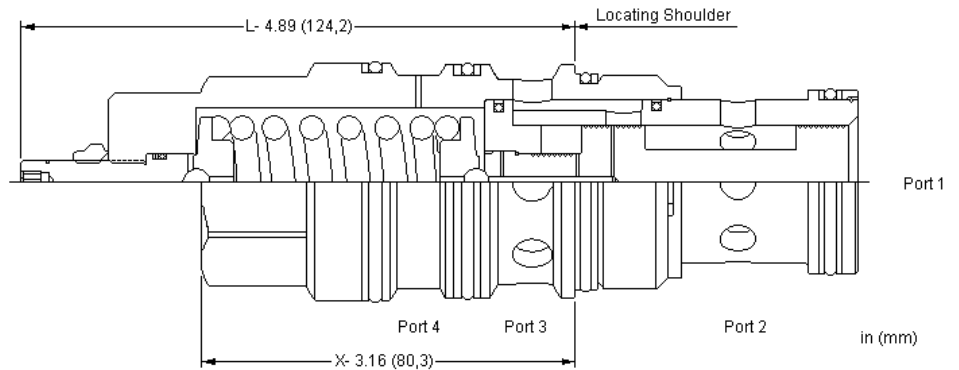
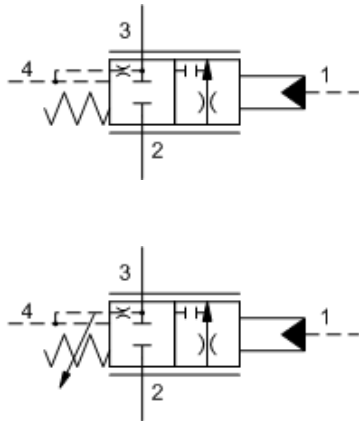
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.20 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**CONFIGURATION OPTIONS**

**Model Code Example: FKHBXCN**

<b>CONTROL</b>	<b>(X)</b>	<b>SPOOL CONFIGURATION</b>	<b>(C)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>C</b> Normally Closed		<b>N</b> Buna-N	
L Tuning Adjustment				E EPDM	
				V Viton	



This valve is a 2-way, 2-position proportional throttle. Ports 2 and 3 are normally closed. Pilot pressure at port 1 creates a metering orifice between port 2 and 3 that is proportional to the pressure at 1. The force balance of the flow forces, spring and pilot pressure results in a degree of partial self-compensation as the load pressure changes.

This valve includes a bleed-down feature which connects ports 3 to 4 in the spring-biased position. The bleed-down feature is useful when the valve is used as a meter-in flow control in circuits which include counterbalance valves downstream of port 3. The bleed-down connection is closed as the valve is piloted with increasing pressure at port 1.

Pressure at port 4 directly opposes pressure at port 1.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

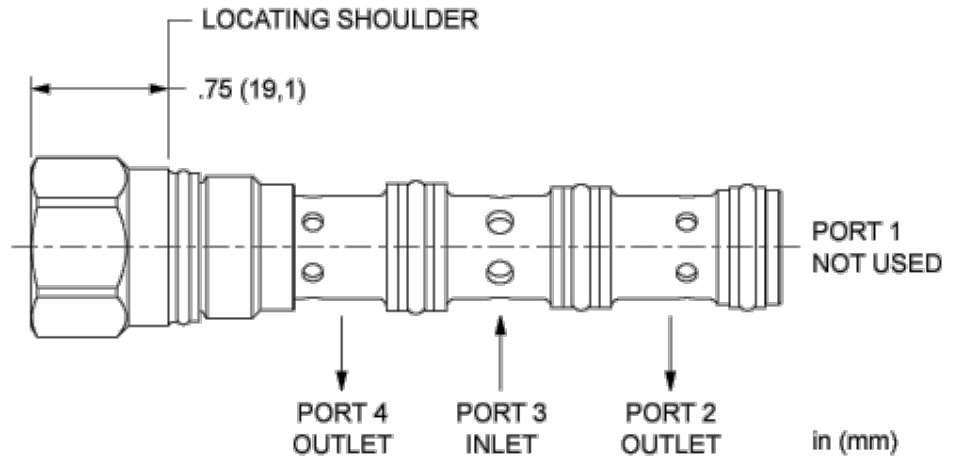
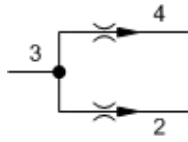
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	6 in <sup>3</sup> /min.@1000 psi
Pilot Volume Displacement	.20 in <sup>3</sup>
Minimum Pilot Pressure to Operate	100 psi
Bypass orifice	.03 in.
Hysteresis	± 2 %
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990024007
Seal kit - Cartridge	EPDM: 990024014
Seal kit - Cartridge	Polyurethane: 990024002
Seal kit - Cartridge	Viton: 990024006

**CONFIGURATION OPTIONS**

**Model Code Example: FKIBXCN**

CONTROL	(X) SPOOL CONFIGURATION	(C) SEAL MATERIAL	(N)
X Not Adjustable L Tuning Adjustment	C Normally Closed	N Buna-N E EPDM V Viton	





Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

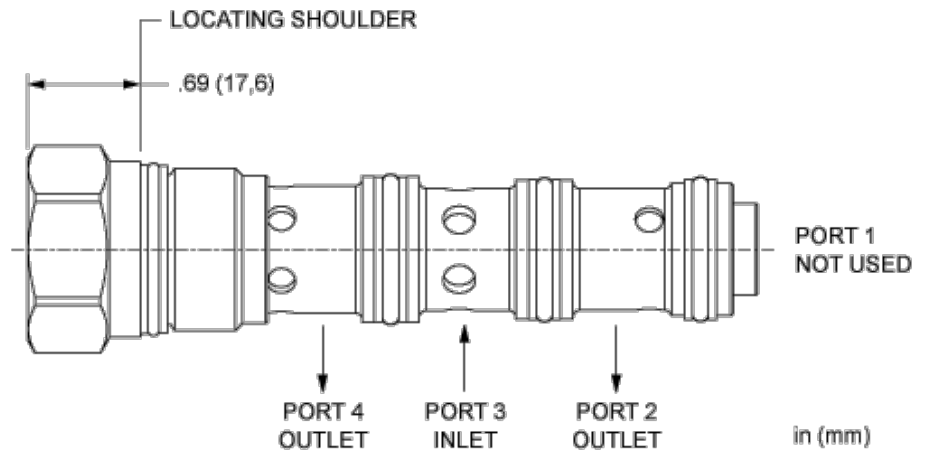
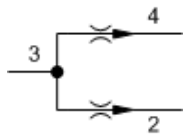
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	±6.5%
Divisional Accuracy at Max Input Flow	±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Rated Input Flow with 50/50 Split	1.5 - 8 gpm
Rated Input Flow with 40/60 Split	1.4 - 7 gpm
Rated Input Flow with 33/67 Split	1.2 - 6 gpm
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: FSCDXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50 B 40/60 C 33/67	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

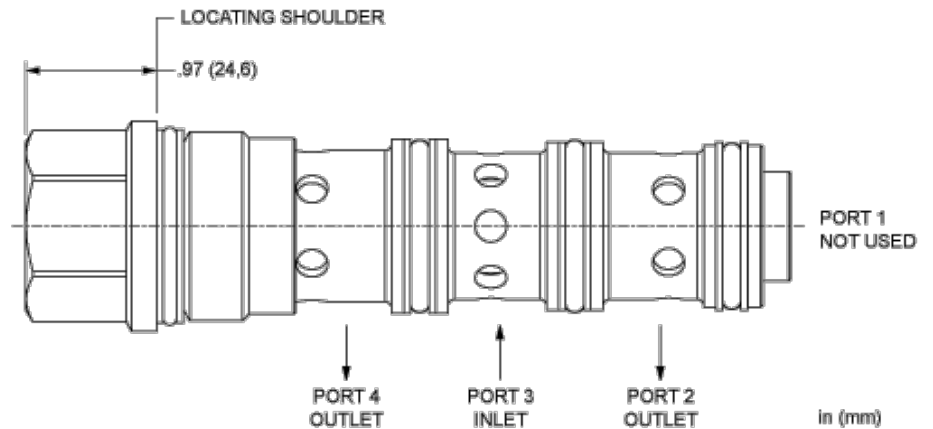
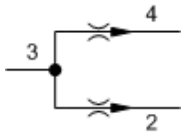
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	±6.5%
Divisional Accuracy at Max Input Flow	±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Rated Input Flow with 50/50 Split	3 - 15 gpm
Rated Input Flow with 40/60 Split	2.5 - 12.5 gpm
Rated Input Flow with 33/67 Split	2.2 - 11 gpm
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDDXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50 <b>B</b> 40/60 <b>C</b> 33/67	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

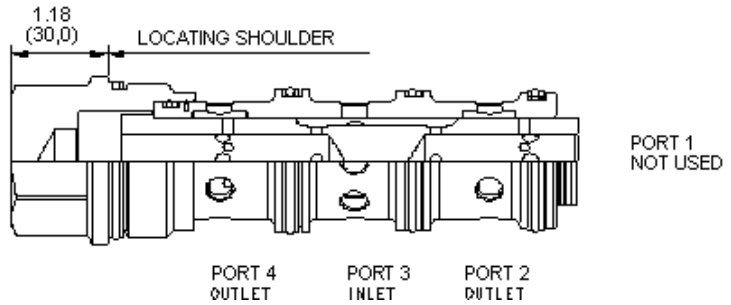
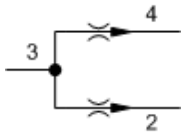
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	±6.5%
Divisional Accuracy at Max Input Flow	±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Rated Input Flow with 50/50 Split	6 - 30 gpm
Rated Input Flow with 40/60 Split	5 - 25 gpm
Rated Input Flow with 33/67 Split	4.4 - 22 gpm
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSEDXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50 <b>B</b> 40/60 <b>C</b> 33/67	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	<b>Standard Material/Coating</b> /AP Stainless Steel, Passivated



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

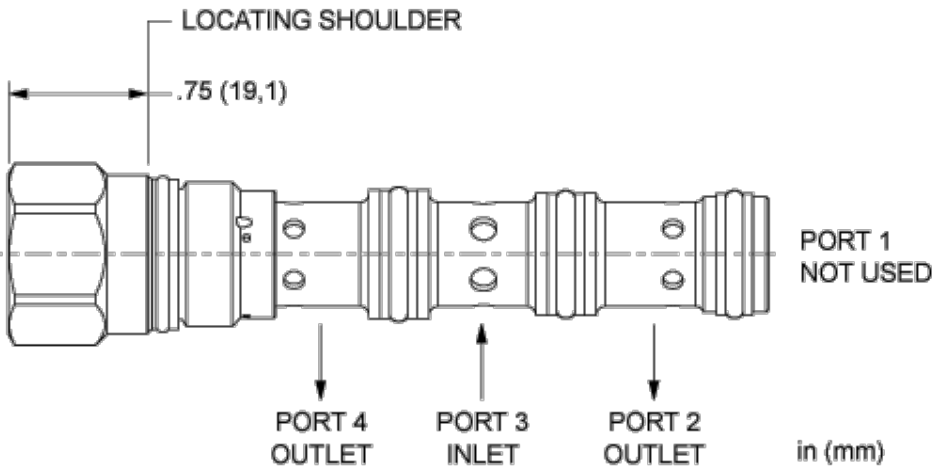
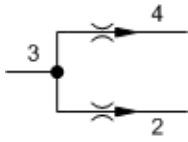
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	±6.5%
Divisional Accuracy at Max Input Flow	±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Rated Input Flow with 50/50 Split	12 - 60 gpm
Rated Input Flow with 40/60 Split	10 - 50 gpm
Rated Input Flow with 33/67 Split	9 - 45 gpm
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**
**Model Code Example: FSFDXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50 B 40/60 C 33/67 D 25/75	<b>N</b> Buna-N V Viton	Standard Material/Coating /LH Mild Steel, Zinc-Nickel



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

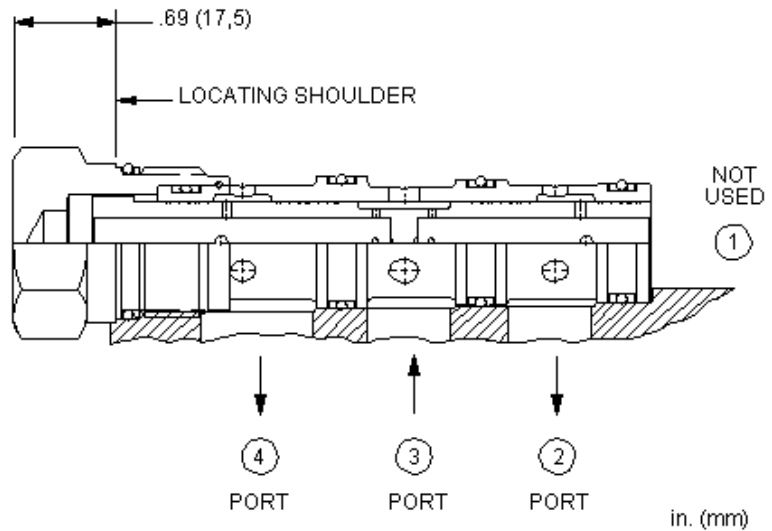
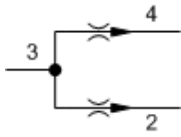
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	±4.5%
Divisional Accuracy at Max Input Flow	±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Rated Input Flow with 50/50 Split	.6 - 3 gpm
Rated Input Flow with 40/60 Split	.5 - 2.5 gpm
Rated Input Flow with 33/67 Split	.45 - 2.2 gpm
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**
**Model Code Example: FSBDXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50 B 40/60 C 33/67	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

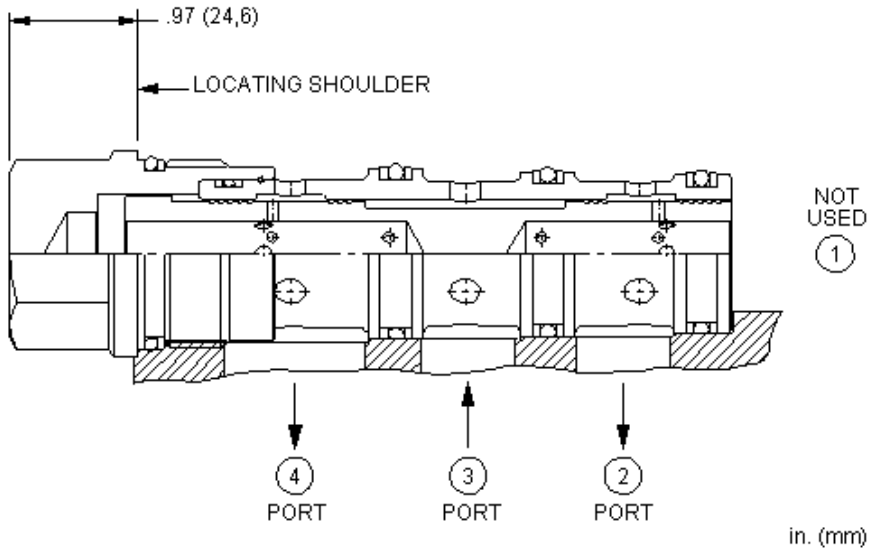
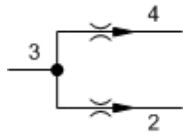
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDCXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

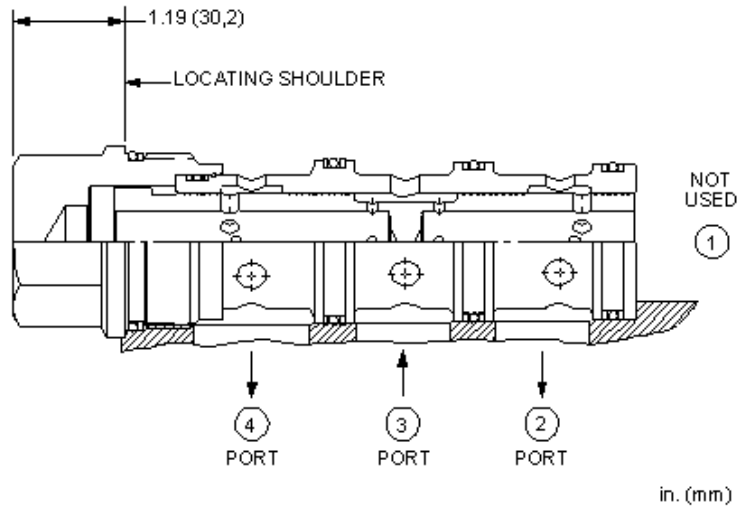
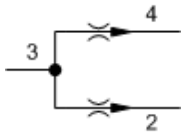
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

Model Code Example: **FSECXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Flow dividers are sliding-spool, pressure-compensated devices used to split oil flow to two different branches of a circuit in a designated ratio. These valves are suitable for applications that use the following: unidirectional hydraulic motors, hydraulic cylinders where flow division in one direction only is required, and multiple circuits that are serviced from one pump supply.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

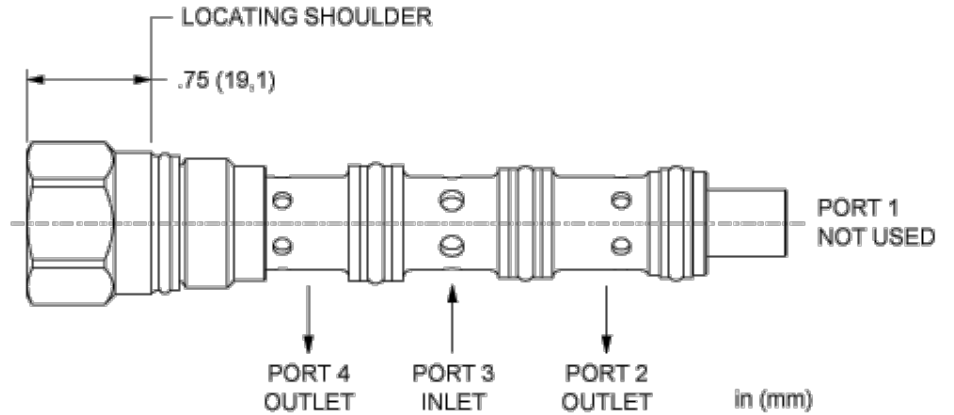
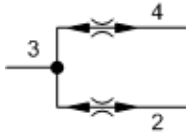
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	250 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFCXAN**

<b>CONTROL</b>	<b>(X)</b> FLOW SPLIT	<b>(A)</b> SEAL MATERIAL	<b>(N)</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N	<b>V</b> Viton





Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

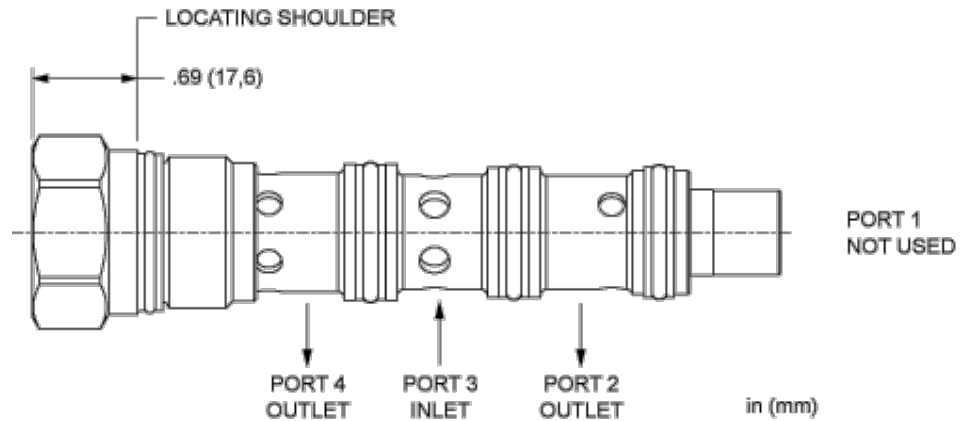
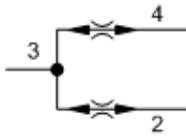
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: FSCAXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

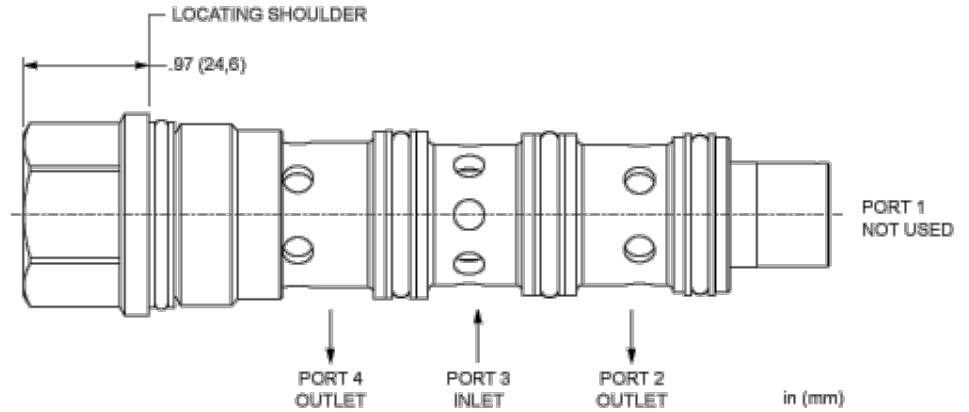
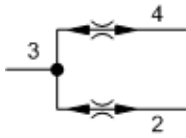
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	EPDM: 990032014
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**
**Model Code Example: FSDAXAN**

<b>CONTROL</b>	<b>(X) FLOW SPLIT</b>	<b>(A) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated



Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

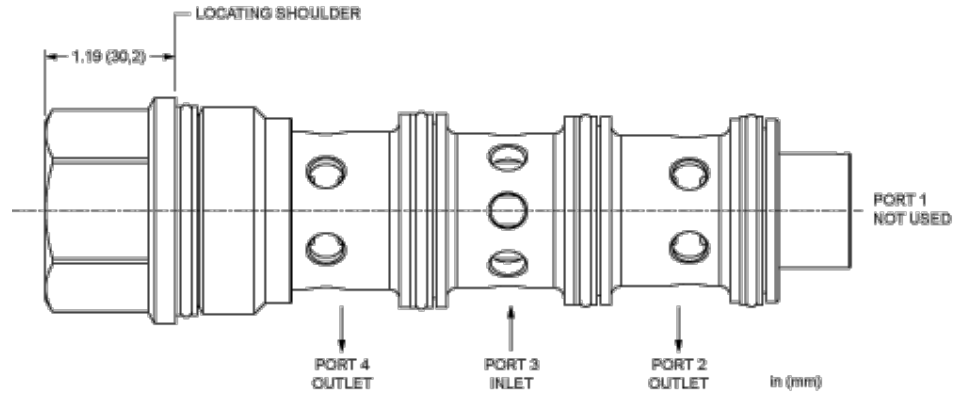
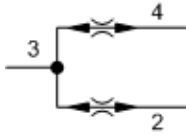
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSEAXAN**

<b>CONTROL</b>	<b>(X)</b>	<b>FLOW SPLIT</b>	<b>(A)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
X Not Adjustable		A 50/50		N Buna-N V Viton	



Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

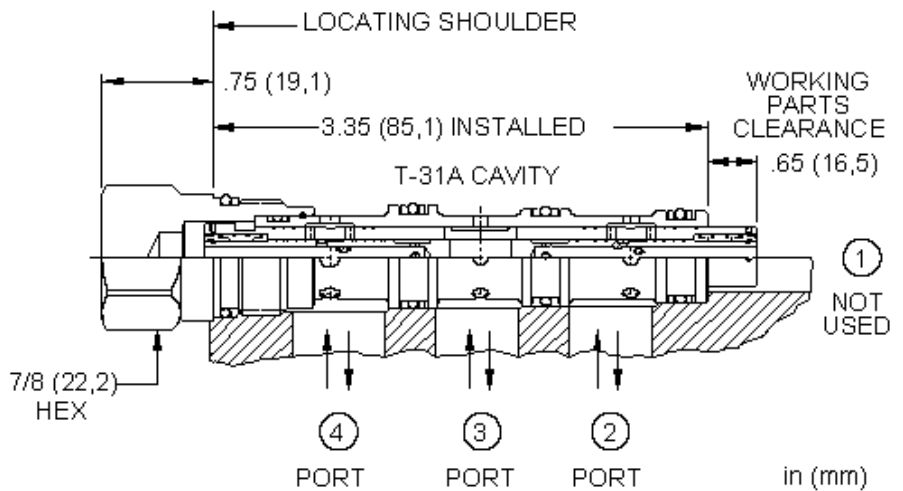
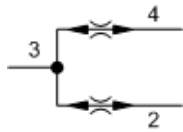
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFAXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating



High accuracy, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

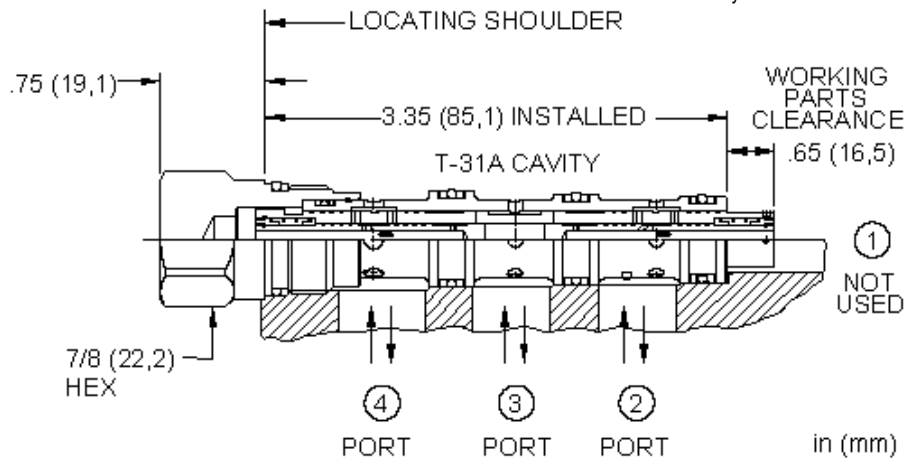
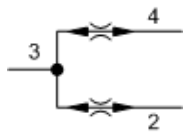
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±3.5%
Divisional Accuracy at Max Input Flow	50% ±2.0%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

Model Code Example: **FSAAXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N E EPDM V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

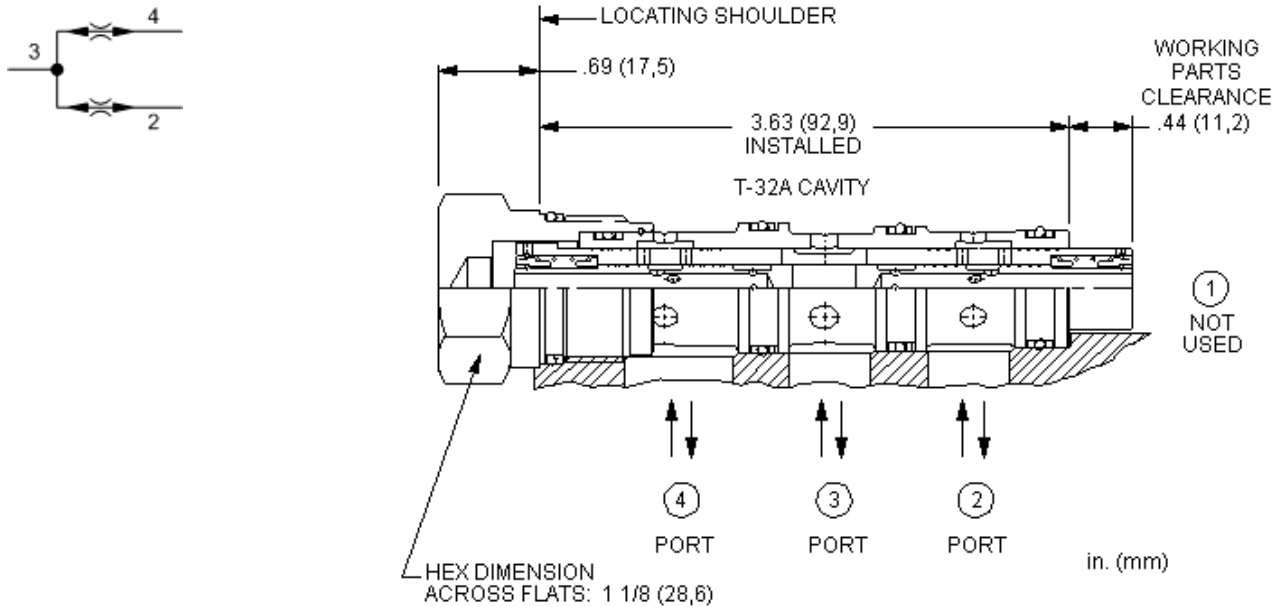
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±3.0%
Divisional Accuracy at Max Input Flow	50% ±2.0%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: FSBAXAN**

<b>CONTROL</b>	<b>(X) FLOW SPLIT</b>	<b>(A) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated <b>/LH</b> Mild Steel, Zinc-Nickel



High accuracy, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

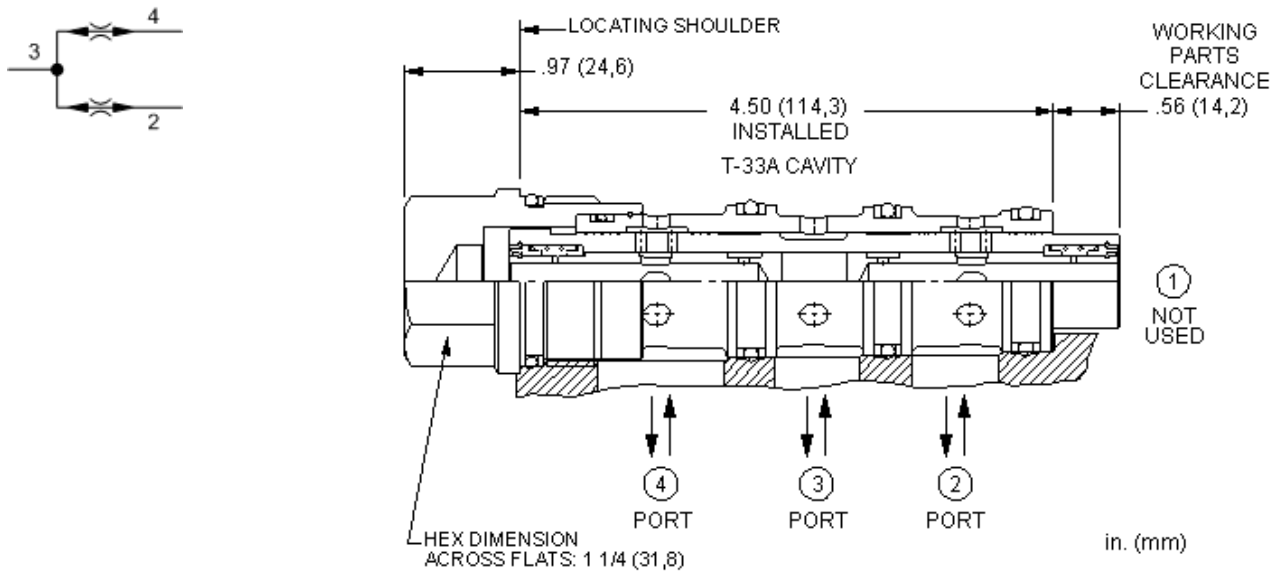
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±2.5%
Divisional Accuracy at Max Input Flow	50% ±1.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDGXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /LH Mild Steel, Zinc-Nickel



High accuracy, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

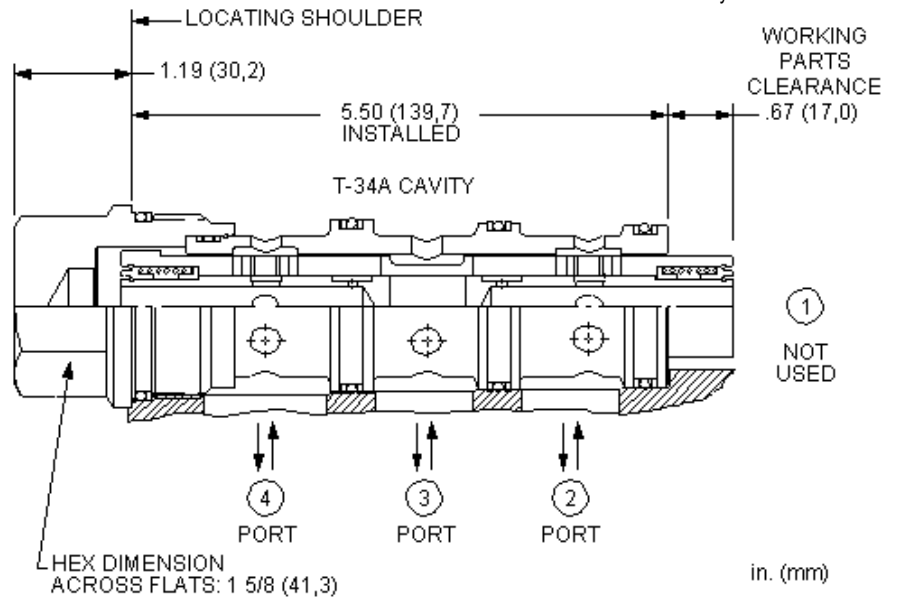
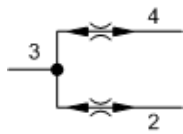
Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±2.5%
Divisional Accuracy at Max Input Flow	50% ±1.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSEGXAN**

<b>CONTROL</b>	<b>(X)</b> FLOW SPLIT	<b>(A)</b> SEAL MATERIAL	<b>(N)</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N	<b>V</b> Viton





High accuracy, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

**TECHNICAL DATA**

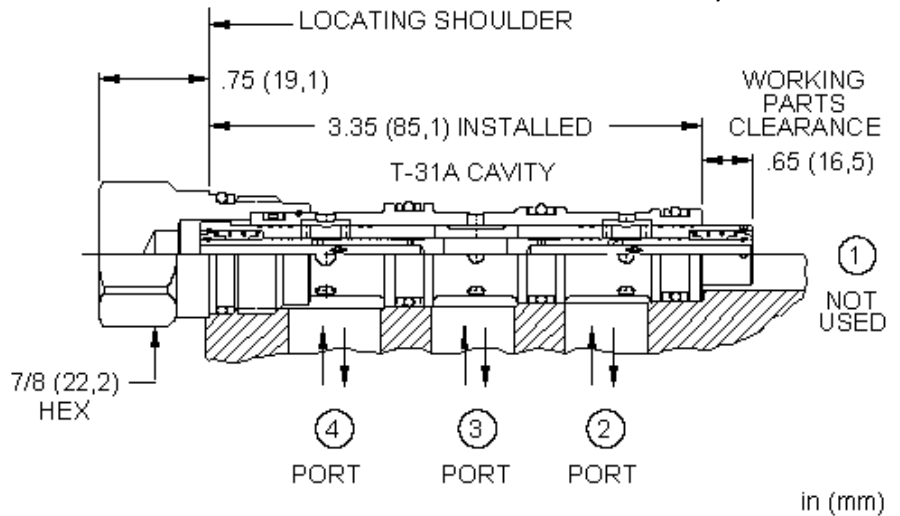
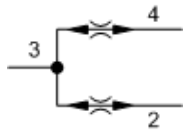
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±2.5%
Divisional Accuracy at Max Input Flow	50% ±1.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFGXAN**

<b>CONTROL</b>	<b>(X)</b>	<b>FLOW SPLIT</b>	<b>(A)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
X Not Adjustable		A 50/50		N Buna-N V Viton	



High-capacity, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves have approximate 15% greater capacity than standard closed-center divider/combiners and are designed for use in tractive drive systems. Note: Accuracy on these cartridges is not equivalent to the accuracy of standard closed-center divider/combiners.

**TECHNICAL DATA**

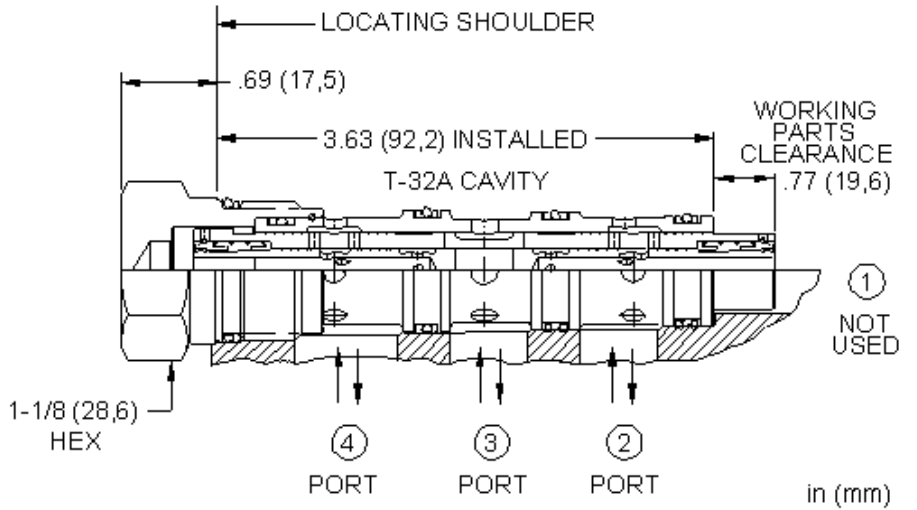
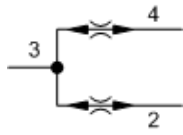
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±6.5%
Divisional Accuracy at Max Input Flow	50% ±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

Model Code Example: **FSCHXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



High-capacity, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves have approximate 15% greater capacity than standard closed-center divider/combiners and are designed for use in tractive drive systems. Note: Accuracy on these cartridges is not equivalent to the accuracy of standard closed-center divider/combiners.

**TECHNICAL DATA**

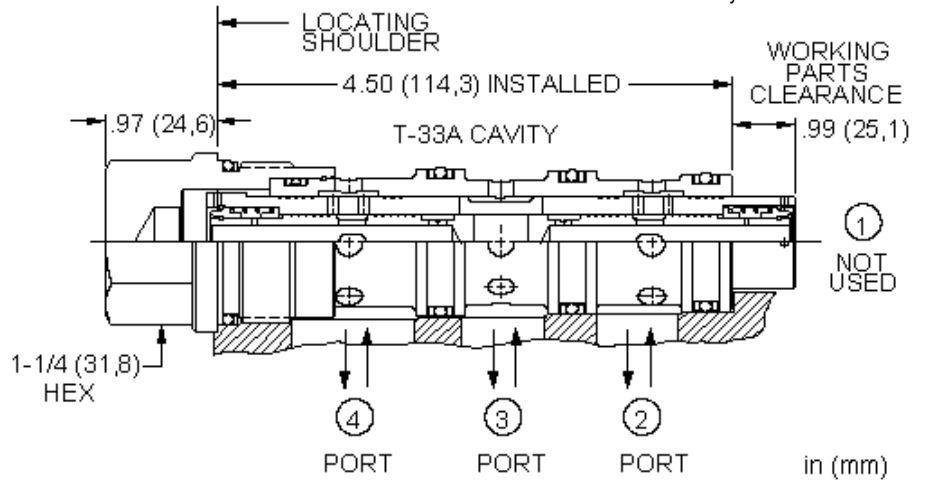
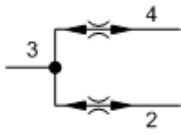
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±6.5%
Divisional Accuracy at Max Input Flow	50% ±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDHXAN**

<b>CONTROL</b>	<b>(X)</b> FLOW SPLIT	<b>(A)</b> SEAL MATERIAL	<b>(N)</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N	<b>V</b> Viton



High-capacity, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves have approximate 15% greater capacity than standard closed-center divider/combiners and are designed for use in tractive drive systems. Note: Accuracy on these cartridges is not equivalent to the accuracy of standard closed-center divider/combiners.

**TECHNICAL DATA**

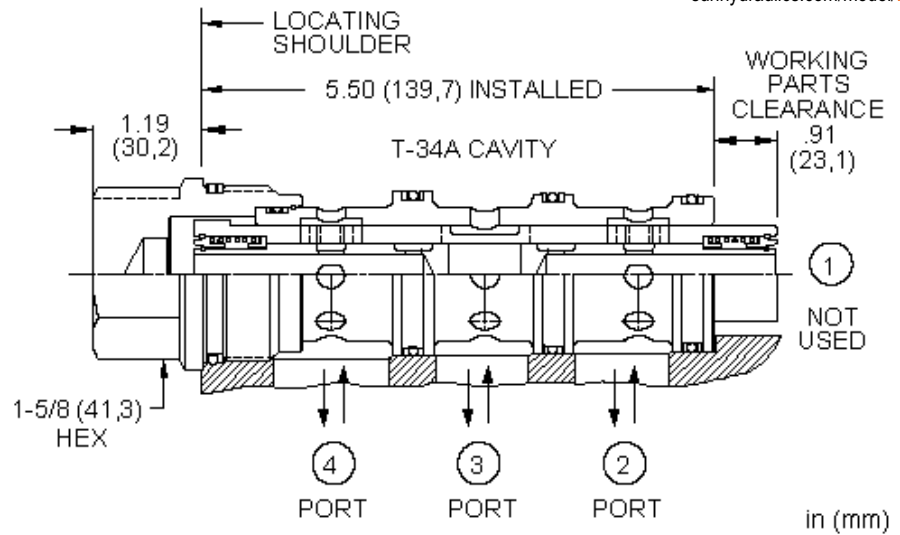
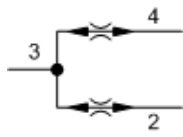
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±6.5%
Divisional Accuracy at Max Input Flow	50% ±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSEHXAN**

<b>CONTROL</b>	<b>(X)</b> FLOW SPLIT	<b>(A)</b> SEAL MATERIAL	<b>(N)</b>
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N	<b>V</b> Viton



High-capacity, closed-center flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves have approximate 15% greater capacity than standard closed-center divider/combiners and are designed for use in tractive drive systems. Note: Accuracy on these cartridges is not equivalent to the accuracy of standard closed-center divider/combiners.

**TECHNICAL DATA**

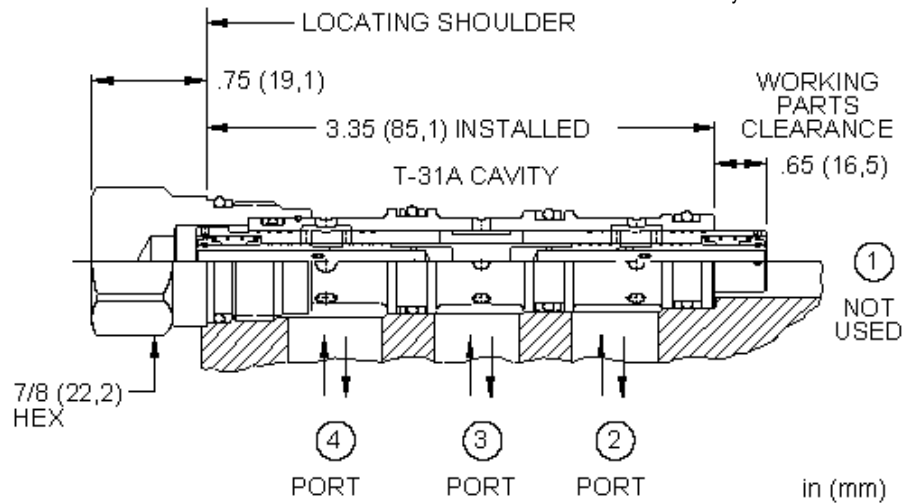
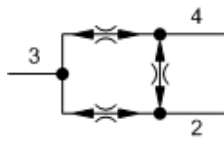
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±6.5%
Divisional Accuracy at Max Input Flow	50% ±3.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFHAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /LH Mild Steel, Zinc-Nickel



Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

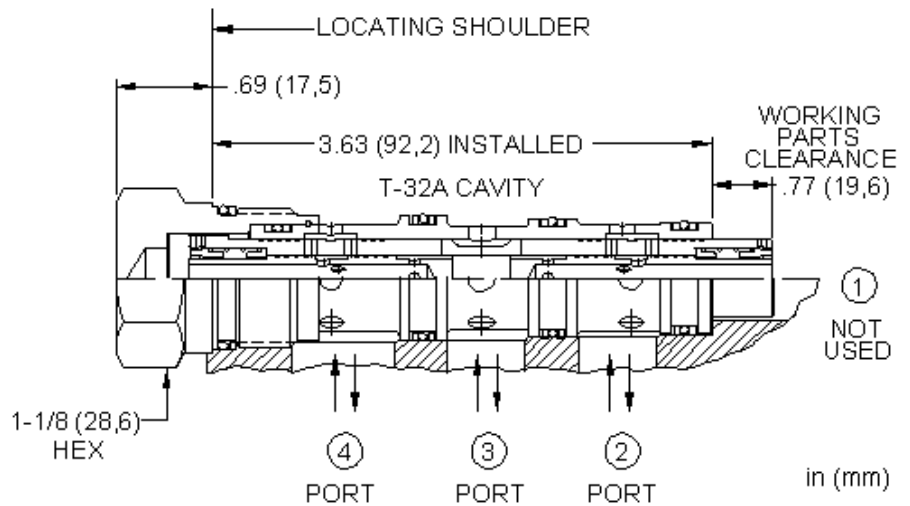
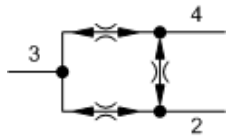
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: FSCSXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

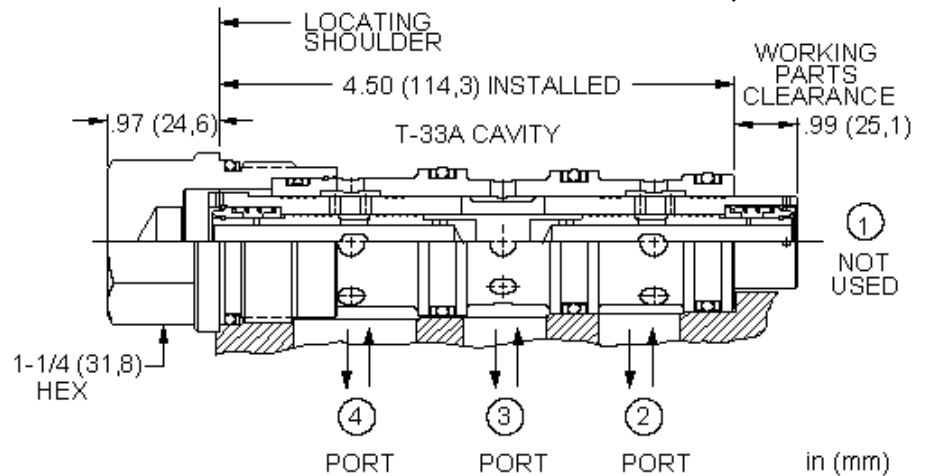
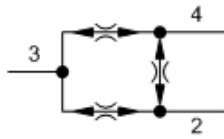
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDSXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

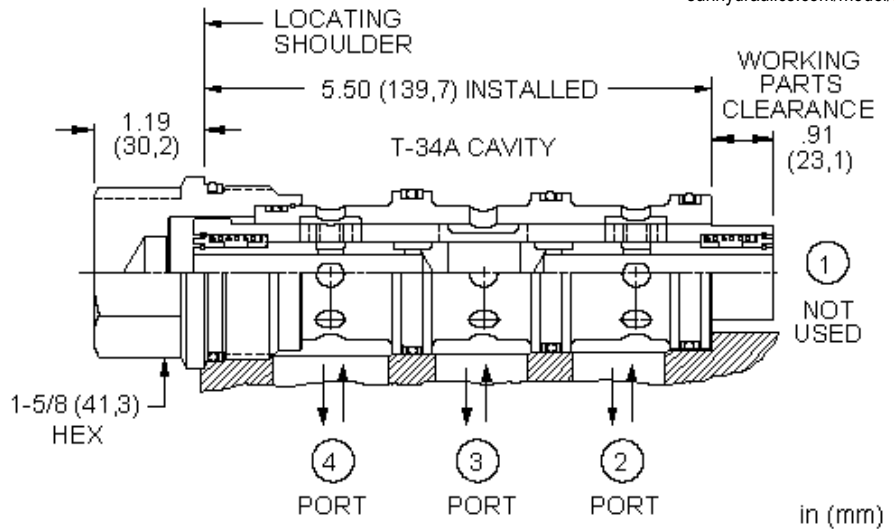
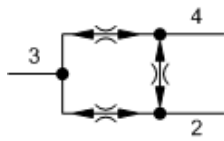
Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSESXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated





Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

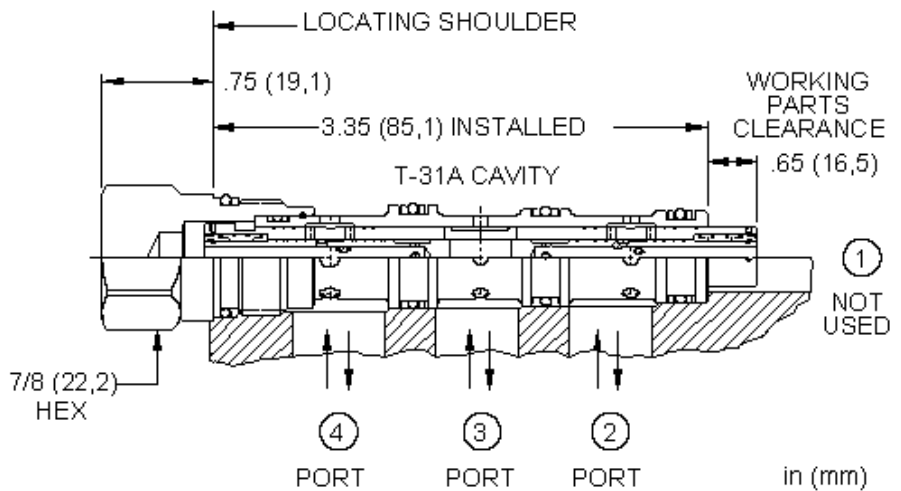
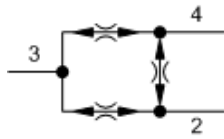
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±4.5%
Divisional Accuracy at Max Input Flow	50% ±2.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFSXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated



High accuracy, synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

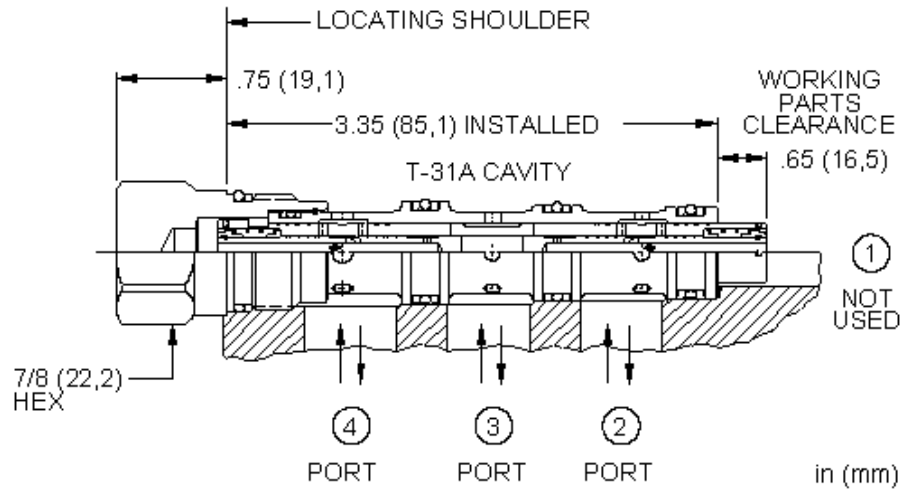
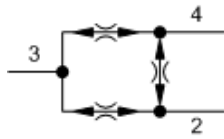
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±3.5%
Divisional Accuracy at Max Input Flow	50% ±2.0%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**
**Model Code Example: FSASXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N E EPDM V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

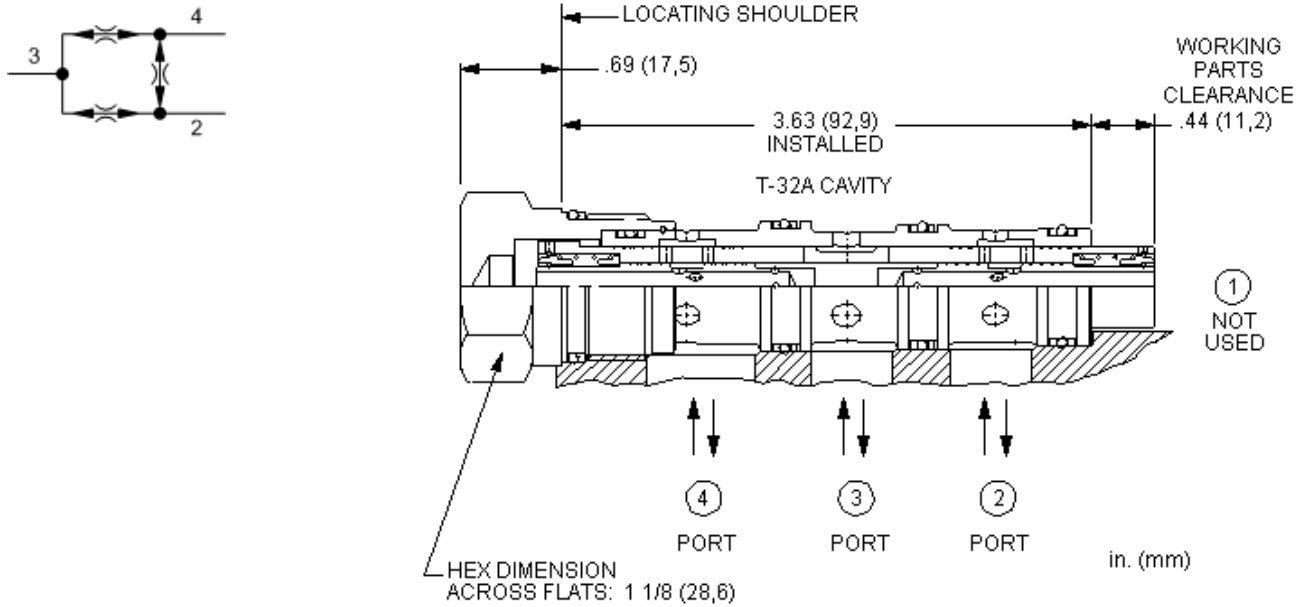
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±3.0%
Divisional Accuracy at Max Input Flow	50% ±2.0%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: FSBSXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



High accuracy, synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

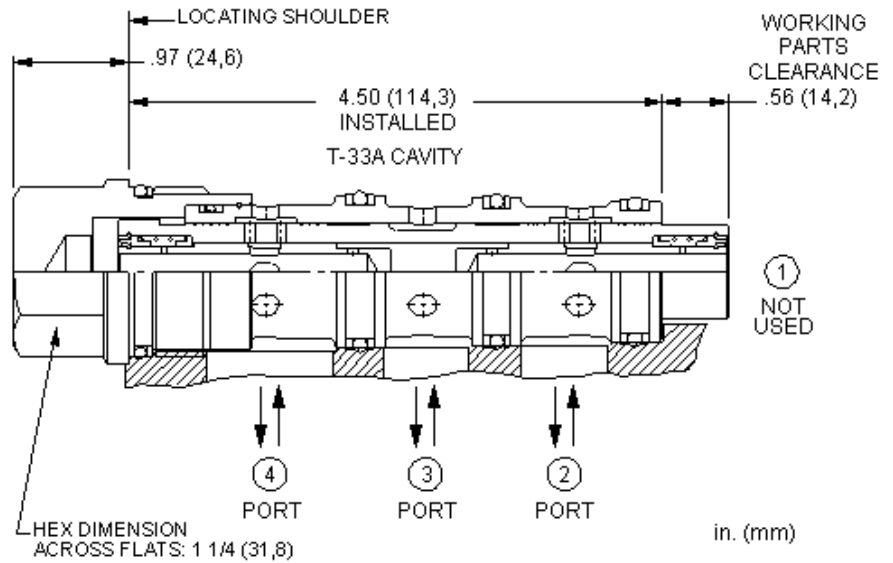
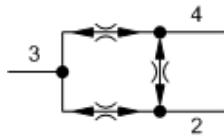
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±3.0%
Divisional Accuracy at Max Input Flow	50% ±2.0%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: FSDRXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>A</b> 50/50	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



High accuracy, synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

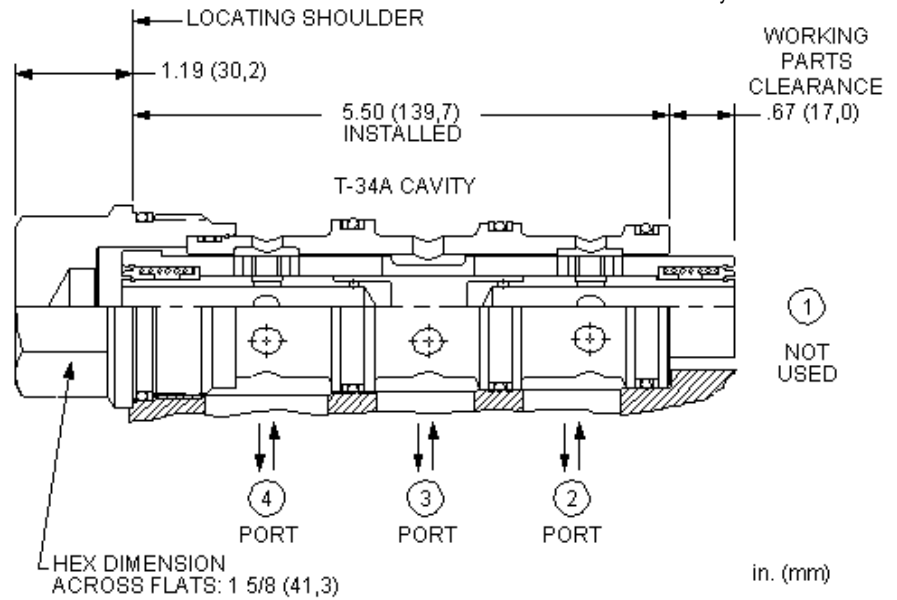
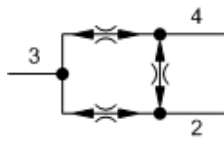
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±2.5%
Divisional Accuracy at Max Input Flow	50% ±1.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: FSERXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /LH Mild Steel, Zinc-Nickel



High accuracy, synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a synchronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

**TECHNICAL DATA**

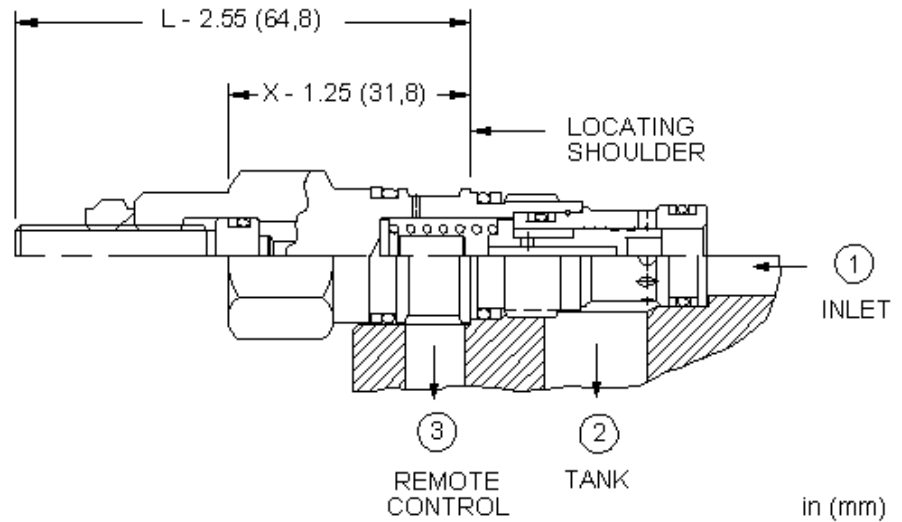
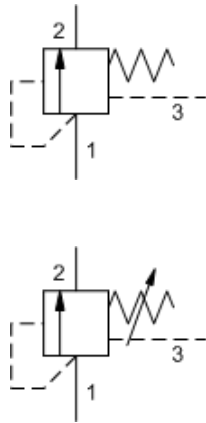
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Divisional Accuracy at Minimum Input Flow	50% ±2.5%
Divisional Accuracy at Max Input Flow	50% ±1.5%
Pressure Drop at Minimum Rated Input Flow	30 psi
Pressure Drop at Maximum Rated Input Flow	350 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

**Model Code Example: FSFRXAN**

CONTROL	(X) FLOW SPLIT	(A) SEAL MATERIAL	(N) MATERIAL/COATING
X Not Adjustable	A 50/50	N Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

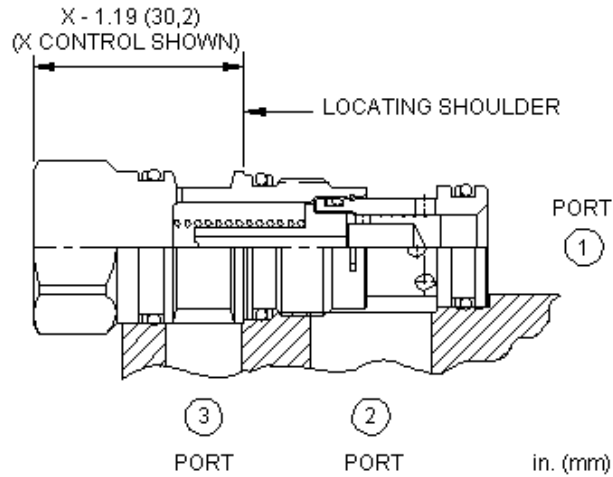
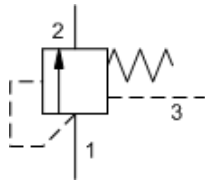
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

Model Code Example: LRBCXHN

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment	D 50 psi (3,5 bar)	V Viton	/AP Stainless Steel, Passivated
	F 100 psi (7 bar)		



Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

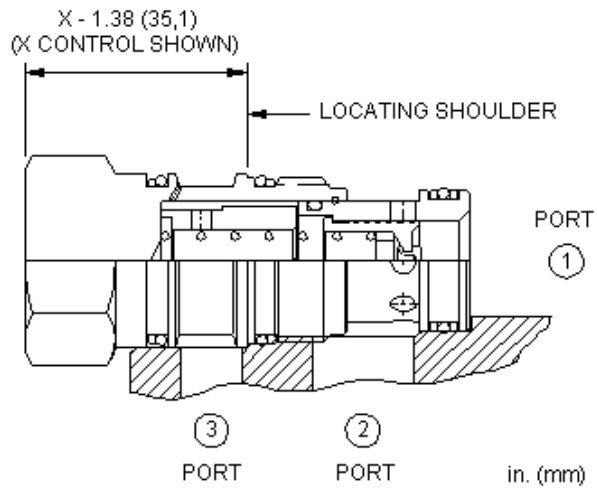
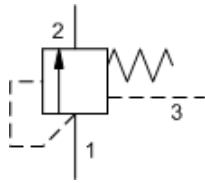
Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	EPDM: 990011014
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**

**Model Code Example: LRDCXHN**

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) D 50 psi (3,5 bar) F 100 psi (7 bar) G 150 psi (10,5 bar)	<b>N</b> Buna-N E EPDM V Viton	<b>N</b> Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel





Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

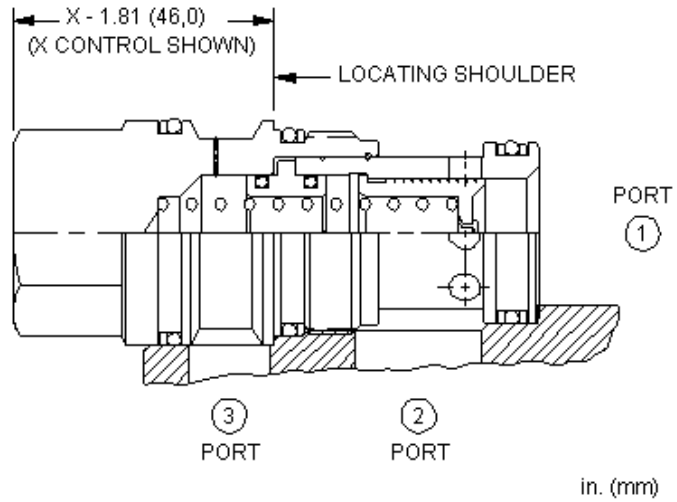
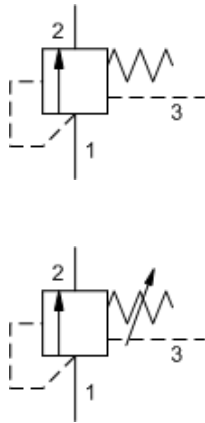
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**
**Model Code Example: LRFCXHN**

<b>CONTROL</b>	<b>(X) DIFFERENTIAL PRESSURE</b>	<b>(H) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) <b>D</b> 50 psi (3,5 bar) <b>F</b> 100 psi (7 bar) <b>G</b> 150 psi (10,5 bar)	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	<b>Standard Material/Coating</b> <b>/AP</b> Stainless Steel, Passivated <b>/LH</b> Mild Steel, Zinc-Nickel



Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

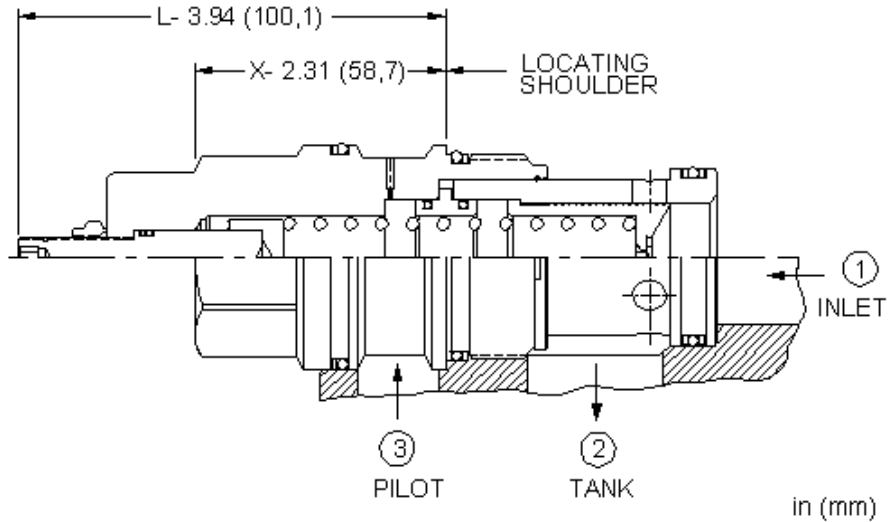
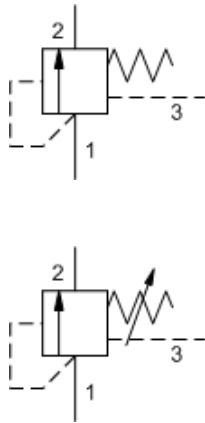
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**

**Model Code Example: LRHCXHN**

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment	<b>D</b> 50 psi (3,5 bar)	<b>V</b> Viton	/AP Stainless Steel, Passivated
	<b>F</b> 100 psi (7 bar)		
	<b>G</b> 150 psi (10,5 bar)		



Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

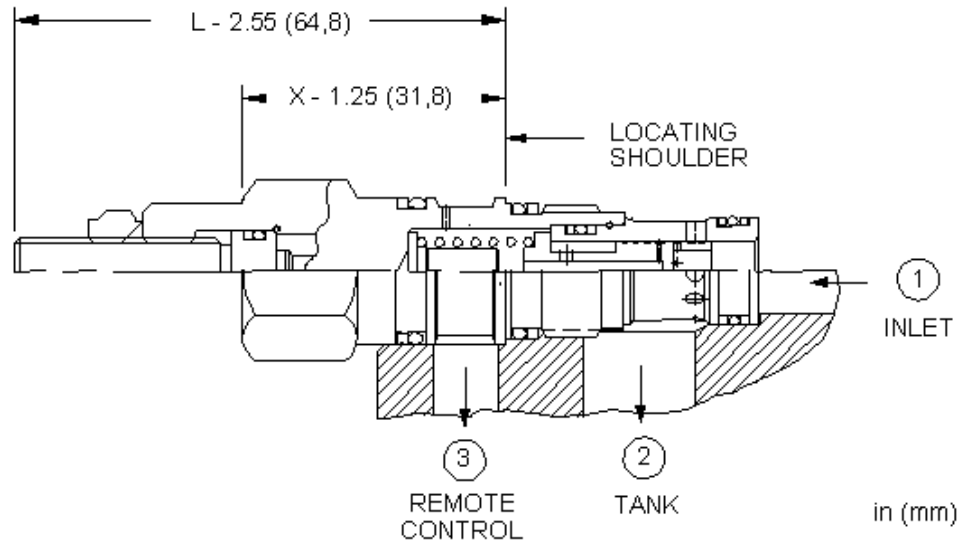
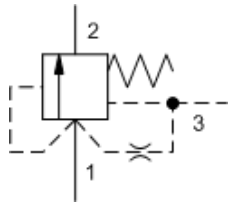
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**

Model Code Example: LRJ CXHN

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment	D 50 psi (3,5 bar)	E EPDM	/AP Stainless Steel, Passivated
	F 100 psi (7 bar)	V Viton	
	G 150 psi (10,5 bar)		



Normally closed modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage relief valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

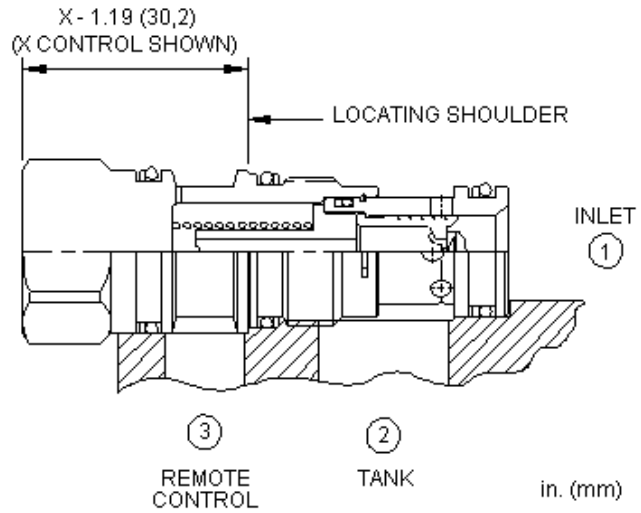
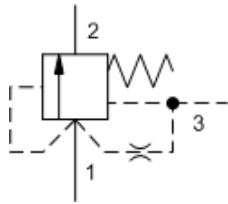
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in <sup>3</sup> /min.
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

**Model Code Example: LRBALDN**

CONTROL	(L) DIFFERENTIAL PRESSURE	(D) SEAL MATERIAL	(N)
L Tuning Adjustment	D 50 psi (3,5 bar) F 100 psi (7 bar) H 200 psi (14 bar)	N Buna-N V Viton	



Normally closed modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage relief valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

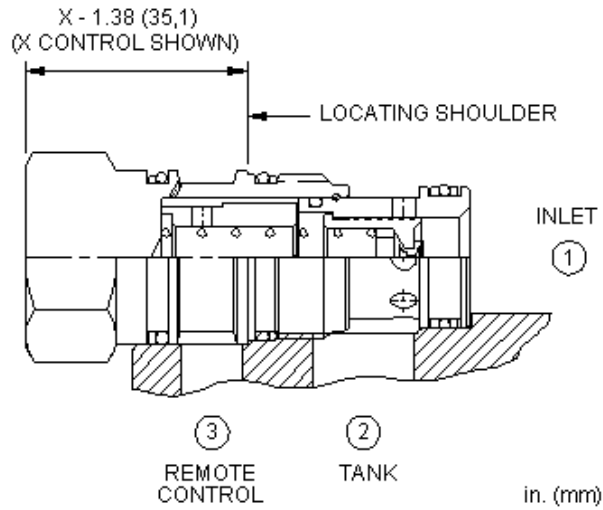
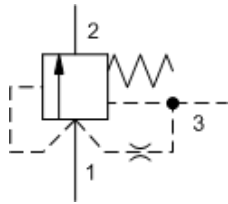
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in <sup>3</sup> /min.
Maximum Valve Leakage at 110 SUS (24 cSt)	1 in <sup>3</sup> /min.@1000 psi
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**

**Model Code Example: LRDAXHN**

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) D 50 psi (3,5 bar) F 100 psi (7 bar)	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Normally closed modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage relief valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

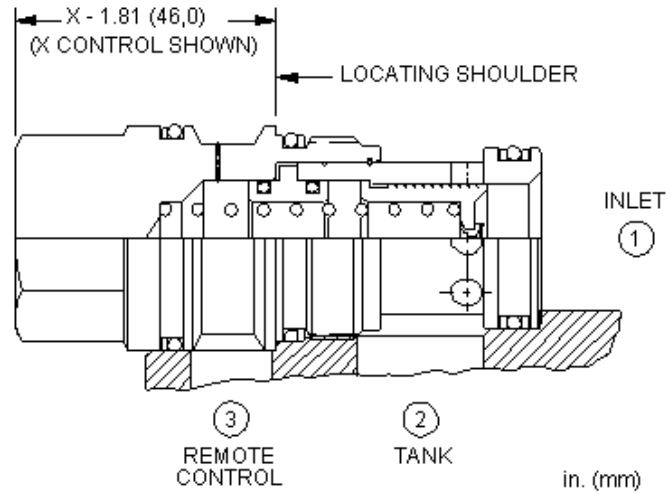
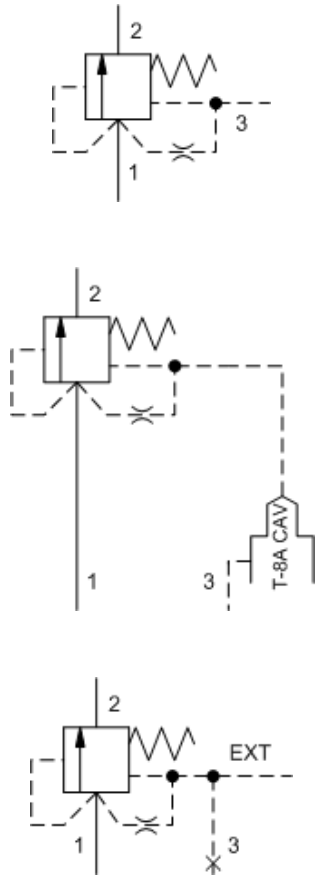
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in <sup>3</sup> /min.
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**

Model Code Example: **LRFAXHN**

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) D 50 psi (3,5 bar) F 100 psi (7 bar) G 150 psi (10,5 bar)	<b>N</b> Buna-N V Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Normally closed modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage relief valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

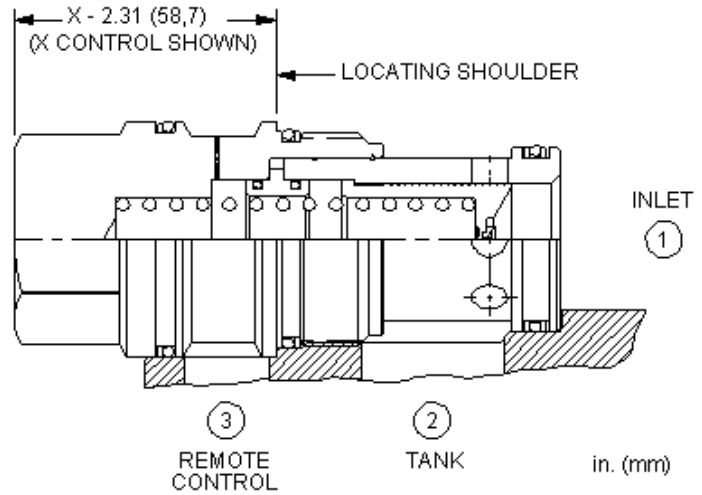
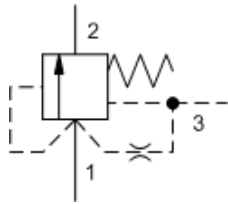
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in <sup>3</sup> /min.
Control Orifice Diameter	.021 in.
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**

**Model Code Example: LRHAXHN**

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>E</b> External 4-SAE Port, Port 3 blocked	<b>D</b> 50 psi (3,5 bar)	<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>L</b> Tuning Adjustment	<b>F</b> 100 psi (7 bar)		
	<b>G</b> 150 psi (10,5 bar)		



Normally closed modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage relief valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

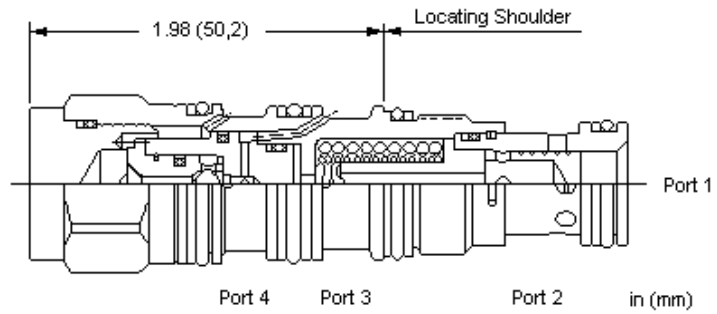
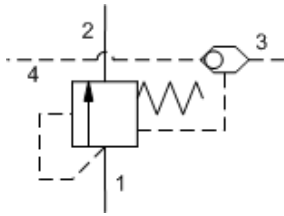
Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in <sup>3</sup> /min.
Control Orifice Diameter	.021 in.
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**

Model Code Example: LRJAXHN

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) A 12 psi B 20 psi (1,5 bar) C 30 psi (2 bar) D 50 psi (3,5 bar)	<b>N</b> Buna-N V Viton	<b>N</b> Standard Material/Coating /AP Stainless Steel, Passivated





A normally closed modulating element, used as a bypass compensator, ensures a constant pressure drop across an external orifice to create a pressure compensated flow control. The resulting flow remains constant regardless of variations in upstream or downstream pressure.

A ball shuttle connects the after orifice signal from the higher of port 3 or 4 to the pilot area.

**TECHNICAL DATA**

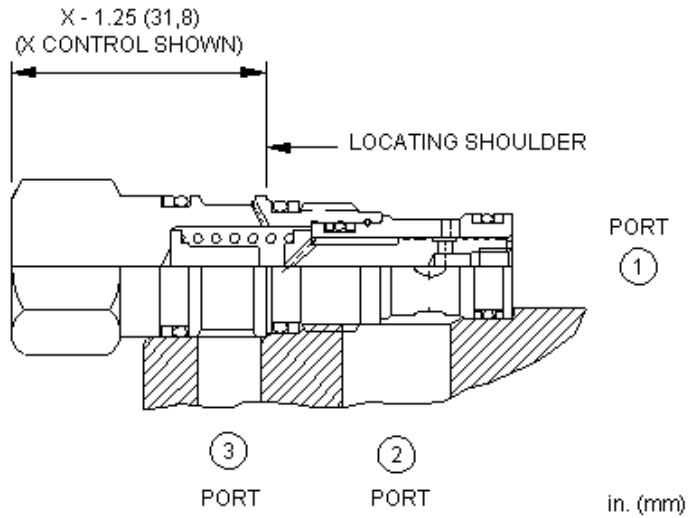
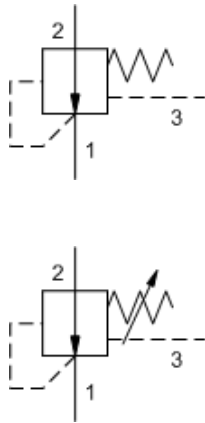
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Nominal Compensating Pressure	200 psi
Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

**Model Code Example: LRDSXHN**

<b>CONTROL</b>	<b>(X)</b>	<b>DIFFERENTIAL PRESSURE</b>	<b>(H)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>H</b> 200 psi (14 bar)		<b>N</b> Buna-N	
				<b>V</b> Viton	



Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

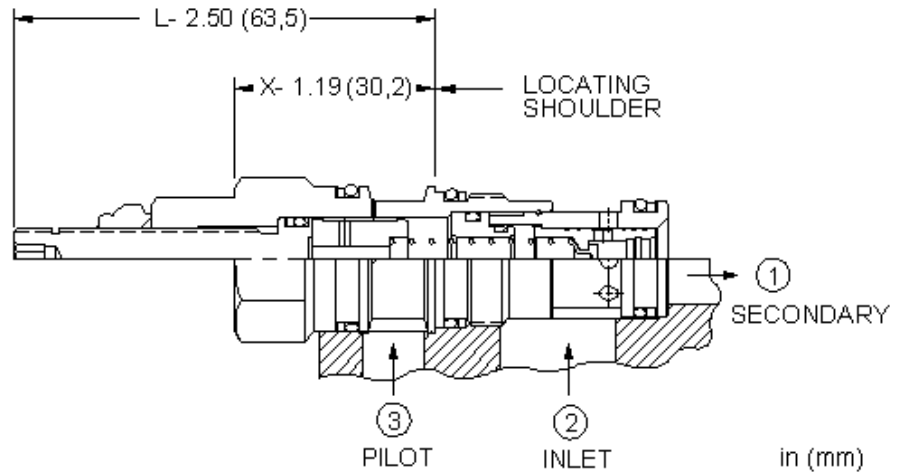
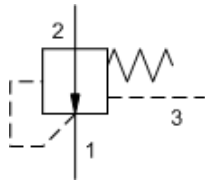
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

Model Code Example: LPBCXHN

CONTROL	(X)	DIFFERENTIAL PRESSURE	(H)	SEAL MATERIAL	(N)
<b>X</b> Not Adjustable		<b>H</b> 200 psi (14 bar)		<b>N</b> Buna-N	
L Tuning Adjustment		D 50 psi (3,5 bar)		V Viton	
		F 100 psi (7 bar)			



Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

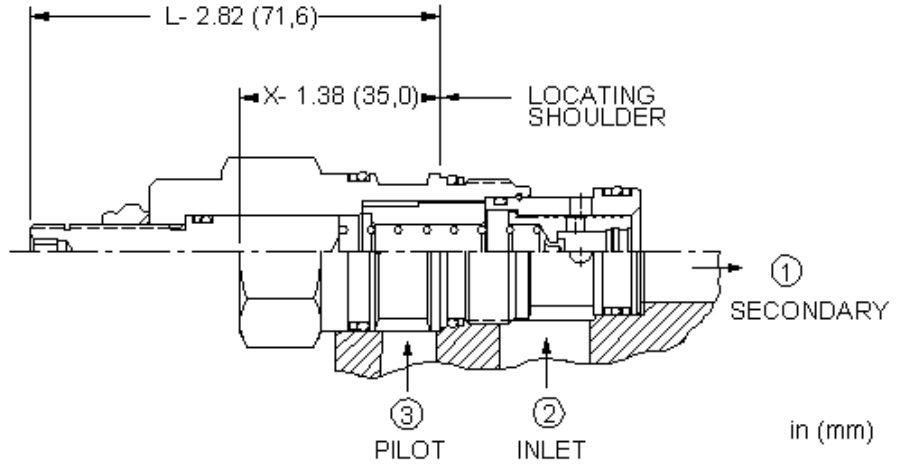
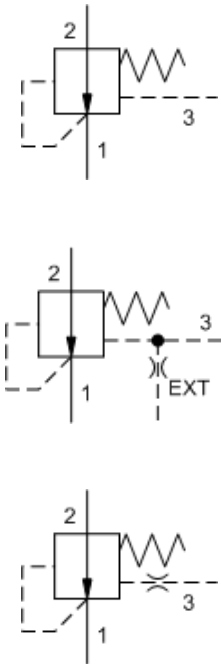
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**

**Model Code Example: LPDCXHN**

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) D 50 psi (3,5 bar) F 100 psi (7 bar) G 150 psi (10,5 bar)	<b>N</b> Buna-N E EPDM V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

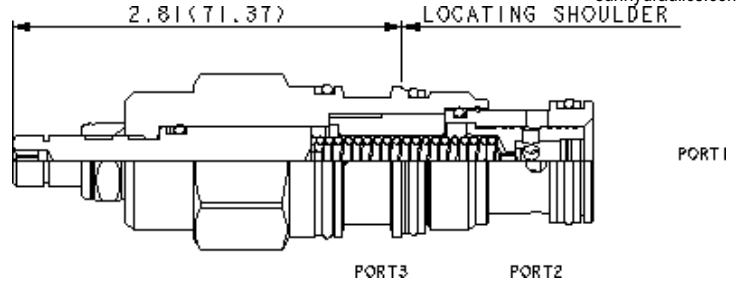
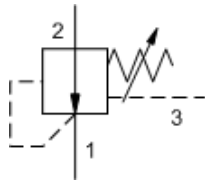
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**

Model Code Example: LPFCXHN

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar) D 50 psi (3,5 bar) F 100 psi (7 bar) G 150 psi (10,5 bar)	<b>N</b> Buna-N E EPDM V Viton	Standard Material/Coating /AP Stainless Steel, Passivated /LH Mild Steel, Zinc-Nickel



Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

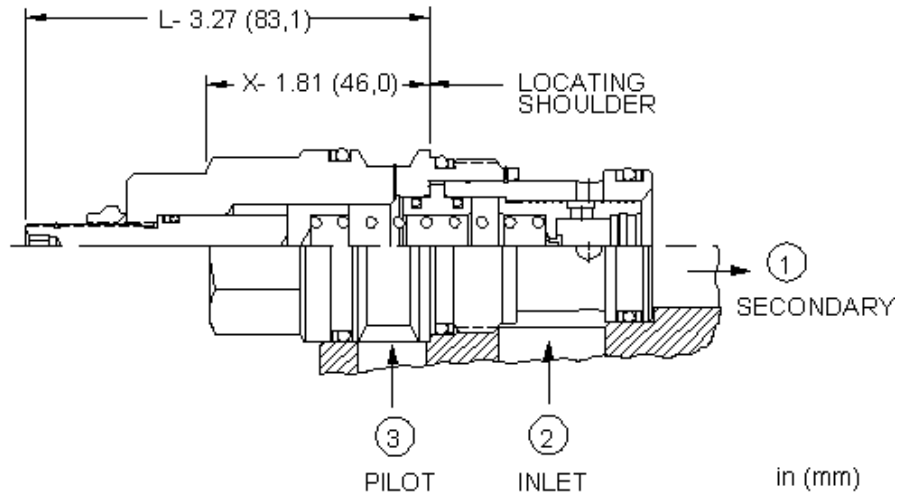
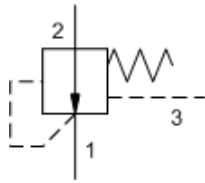
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**

**Model Code Example: LPFCLDN**

<b>DIFFERENTIAL PRESSURE</b>	<b>(D) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>D</b> 50 psi (3,5 bar)	<b>N</b> Buna-N	<b>Standard Material/Coating</b>
	<b>E</b> EPDM	<b>/LH Mild Steel, Zinc-Nickel</b>
	<b>V</b> Viton	



Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

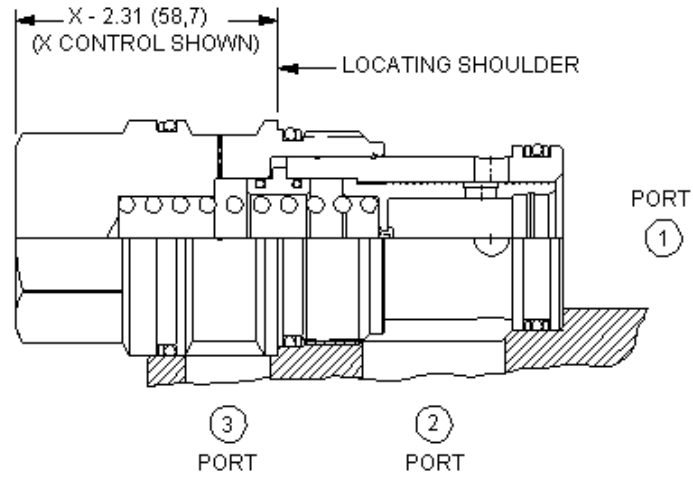
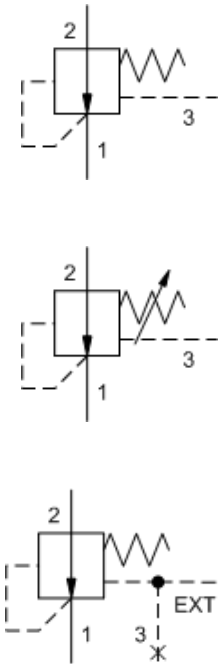
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	EPDM: 990017014
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**

Model Code Example: LPHCXHN

CONTROL	(X) DIFFERENTIAL PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
	<b>D</b> 50 psi (3,5 bar)	<b>E</b> EPDM	/AP Stainless Steel, Passivated
	<b>F</b> 100 psi (7 bar)	<b>V</b> Viton	/LH Mild Steel, Zinc-Nickel
	<b>G</b> 150 psi (10,5 bar)		



in. (mm)

Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

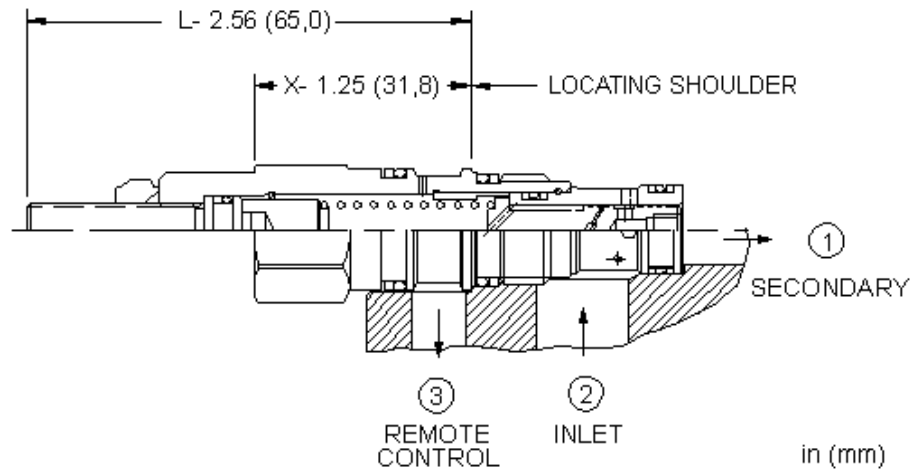
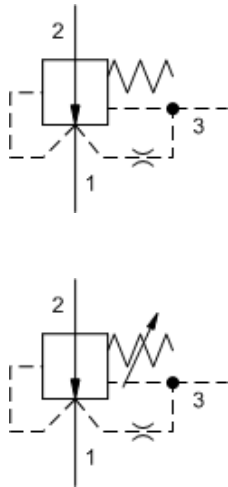
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**
**Model Code Example: LPJ CXHN**

<b>CONTROL</b>	<b>(X) DIFFERENTIAL PRESSURE</b>	<b>(H) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	<b>Standard Material/Coating</b>
<b>P</b> External 1/4 NPTF Pilot Port, Port 3 Blocked	<b>D</b> 50 psi (3,5 bar)	<b>V</b> Viton	<b>/AP</b> Stainless Steel, Passivated
	<b>F</b> 100 psi (7 bar)		<b>/LH</b> Mild Steel, Zinc-Nickel
	<b>G</b> 150 psi (10,5 bar)		



These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

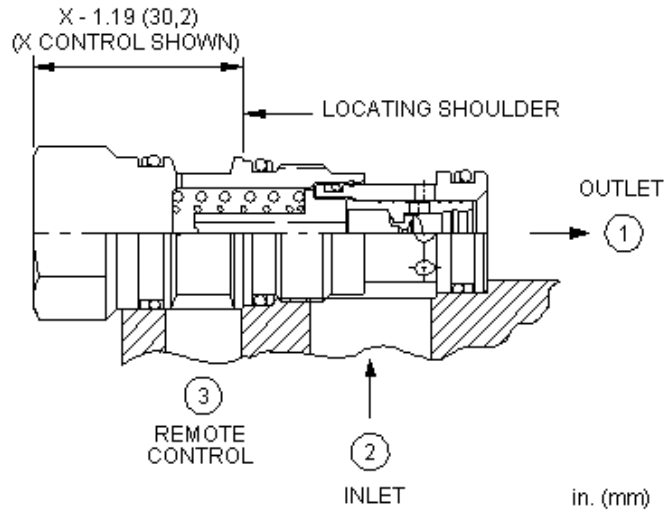
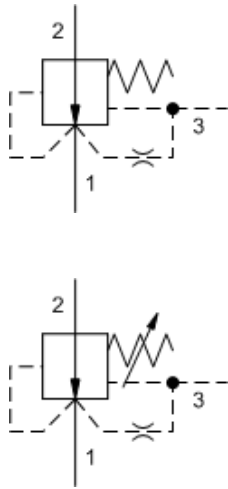
Maximum Operating Pressure	5000 psi
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

Model Code Example: LPBAXHN

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	
L Tuning Adjustment	D 50 psi (3,5 bar)	V Viton	
	F 100 psi (7 bar)		





These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

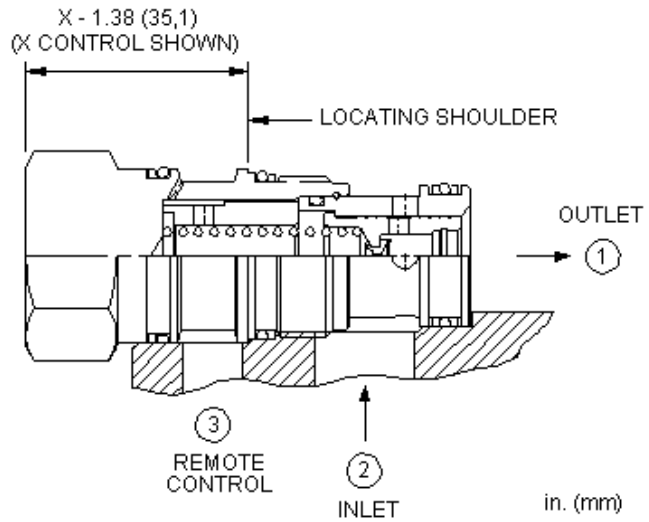
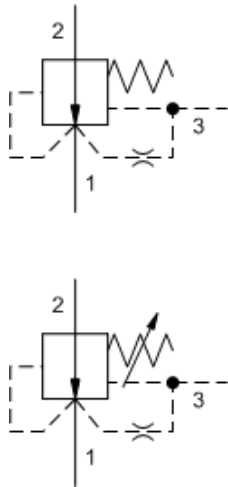
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in <sup>3</sup> /min.
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**

Model Code Example: LPDAXHN

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment	D 50 psi (3,5 bar)	V Viton	/AP Stainless Steel, Passivated
	F 100 psi (7 bar)		



These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

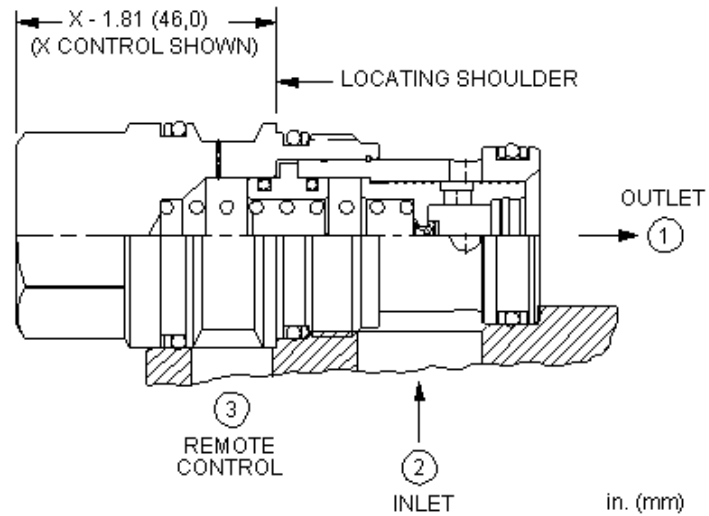
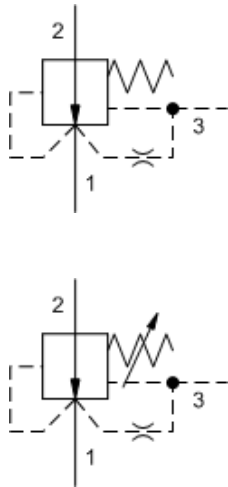
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	10 - 15 in <sup>3</sup> /min.
Control Orifice Diameter	.016 in.
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**

**Model Code Example: LPFAXHN**

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment	<b>D</b> 50 psi (3,5 bar)	<b>V</b> Viton	/AP Stainless Steel, Passivated



These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

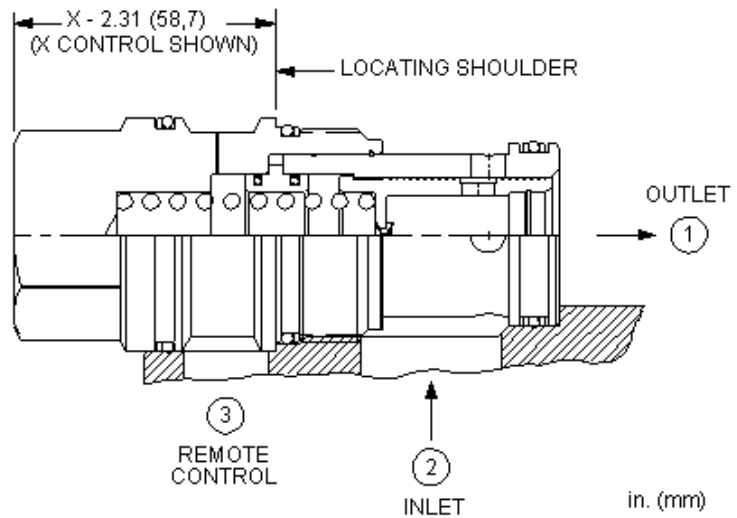
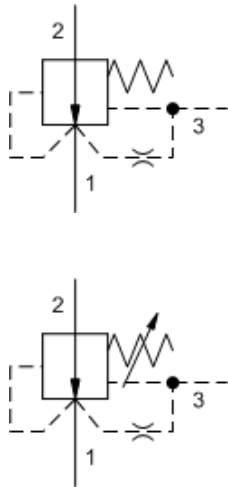
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in <sup>3</sup> /min.
Control Orifice Diameter	.021 in.
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**

**Model Code Example: LPHAXDN**

<b>CONTROL</b>	<b>(X) BIAS PRESSURE</b>	<b>(D) SEAL MATERIAL</b>	<b>(N) MATERIAL/COATING</b>
<b>X</b> Not Adjustable	<b>D</b> 50 psi (3,5 bar)	<b>N</b> Buna-N	Standard Material/Coating
<b>L</b> Tuning Adjustment	<b>F</b> 100 psi (7 bar)	<b>E</b> EPDM	<b>/AP</b> Stainless Steel, Passivated
	<b>G</b> 150 psi (10,5 bar)	<b>V</b> Viton	
	<b>H</b> 200 psi (14 bar)		



These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

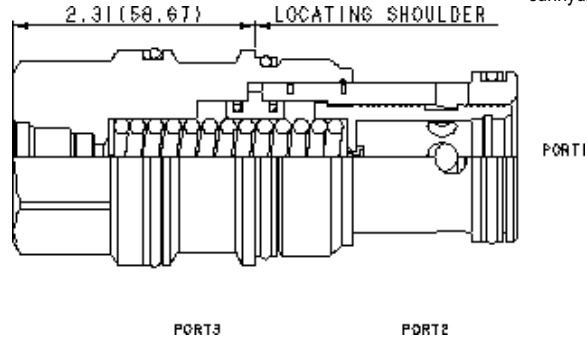
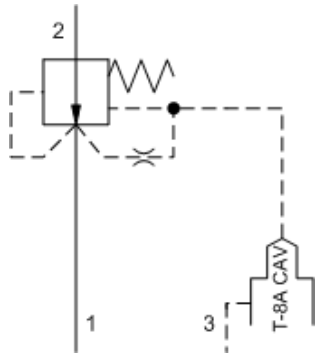
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in <sup>3</sup> /min.
Control Orifice Diameter	.021 in.
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**

Model Code Example: LPJAXHN

CONTROL	(X) BIAS PRESSURE	(H) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>H</b> 200 psi (14 bar)	<b>N</b> Buna-N	Standard Material/Coating
L Tuning Adjustment	D 50 psi (3,5 bar)	E EPDM	/AP Stainless Steel, Passivated
	F 100 psi (7 bar)	V Viton	
	G 150 psi (10,5 bar)		



These normally open modulating elements with an internal orifice between port 1 and port 3 can be used as a main-stage reducing valve. The valve can be controlled remotely using a pilot relief or pilot solenoid valve.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Control Pilot Flow	15 - 30 in <sup>3</sup> /min.
Pilot Control Cavity	T-8A
Control Orifice Diameter	.021 in.
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

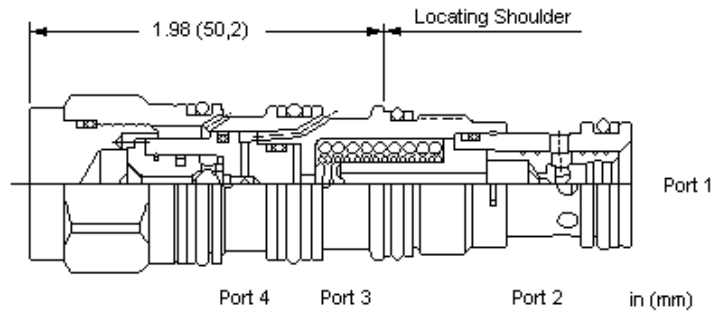
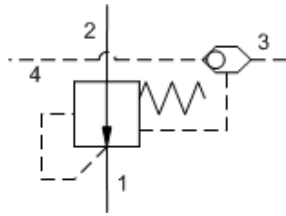
**NOTES**

Compound cartridge (pilot and main stage) assembly information is provided for reference only. Cartridges must be ordered separately and assembled at point of use.

**CONFIGURATION OPTIONS**

**Model Code Example: LPJA8DN**

BIAS PRESSURE	(D)	SEAL MATERIAL	(N)
<b>D</b> 50 psi (3,5 bar)		<b>N</b> Buna-N	
		E EPDM	
		V Viton	



A normally open modulating element, used as a restrictive compensator, ensures a constant pressure drop across an external orifice to create a pressure compensated flow control. The resulting flow remains constant regardless of variations in upstream or downstream pressure.

A ball shuttle connects the after orifice signal from the higher of port 3 or 4 to the pilot area.

**TECHNICAL DATA**

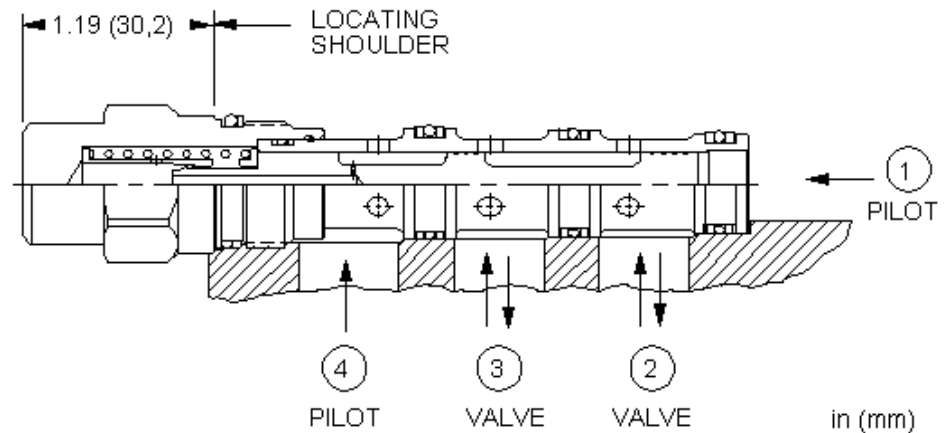
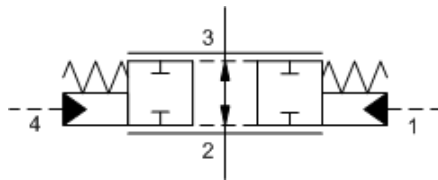
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Nominal Compensating Pressure	200 psi
Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990021007
Seal kit - Cartridge	Polyurethane: 990021002
Seal kit - Cartridge	Viton: 990021006

**CONFIGURATION OPTIONS**

Model Code Example: LPDSXHN

<b>CONTROL</b>	<b>(X)</b>	<b>DIFFERENTIAL PRESSURE</b>	<b>(H)</b>	<b>SEAL MATERIAL</b>	<b>(N)</b>
<b>X</b> Not Adjustable		<b>H</b> 200 psi (14 bar)		<b>N</b> Buna-N	
				<b>V</b> Viton	



These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

**TECHNICAL DATA**

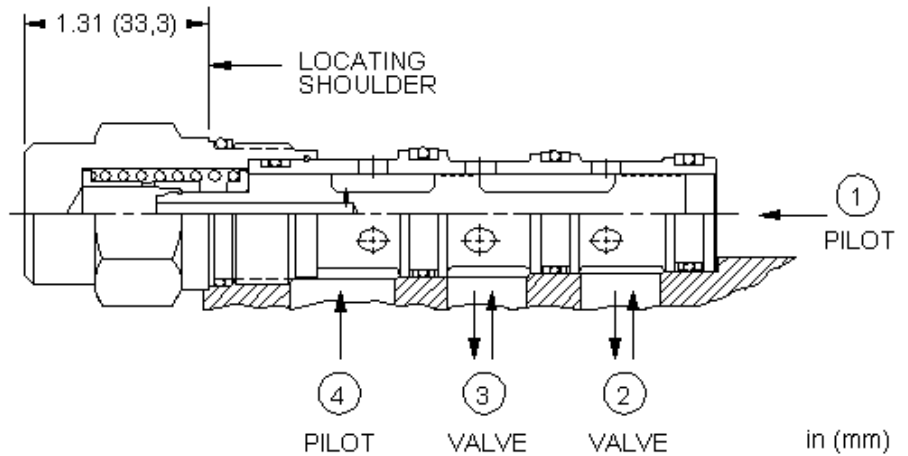
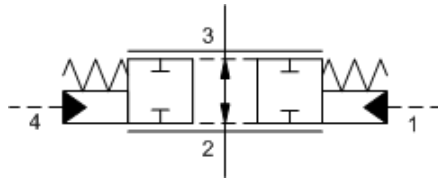
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	EPDM: 990031014
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

Model Code Example: LHDTXFN

CONTROL	(X) NOMINAL CONTROL PRESSURE (F)	SEAL MATERIAL (N)
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) D 50 psi (3,5 bar) E 75 psi (5 bar)	<b>N</b> Buna-N E EPDM V Viton



These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

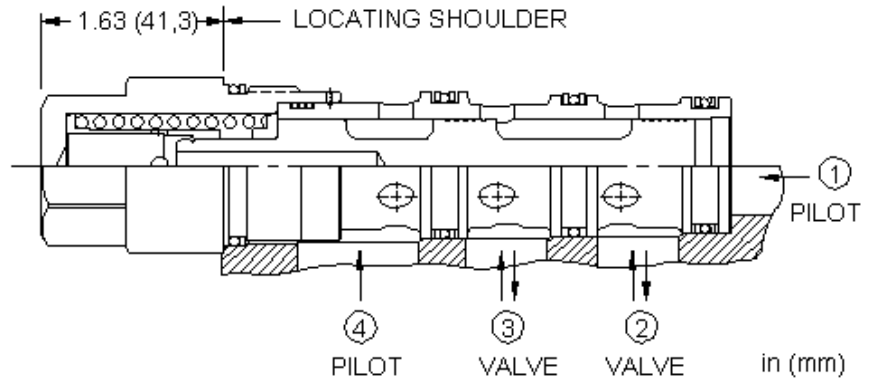
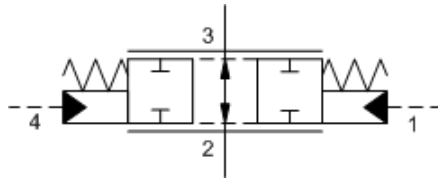
Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	EPDM: 990032014
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

Model Code Example: LHFTXFN

CONTROL	(X) NOMINAL CONTROL PRESSURE (F)	SEAL MATERIAL (N)
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) D 50 psi (3,5 bar) E 75 psi (5 bar)	<b>N</b> Buna-N E EPDM V Viton





These bi-directional, normally open, modulating elements used with an external orifice, create a bi-directional, pressure compensated flow control.

**TECHNICAL DATA**

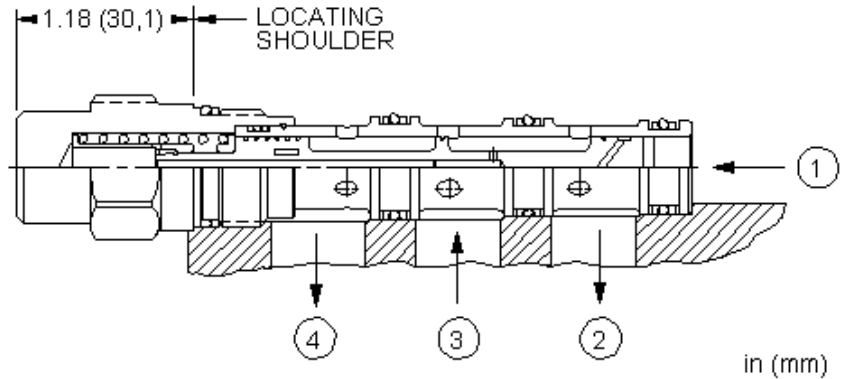
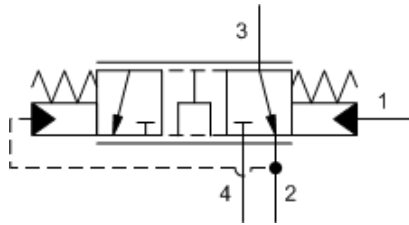
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	EPDM: 990033014
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

Model Code Example: LHHTXFN

CONTROL	(X) DIFFERENTIAL PRESSURE	(F) SEAL MATERIAL	(N) MATERIAL/COATING
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) <b>D</b> 50 psi (3,5 bar) <b>E</b> 75 psi (5 bar)	<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	Standard Material/Coating /AP Stainless Steel, Passivated



Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

**TECHNICAL DATA**

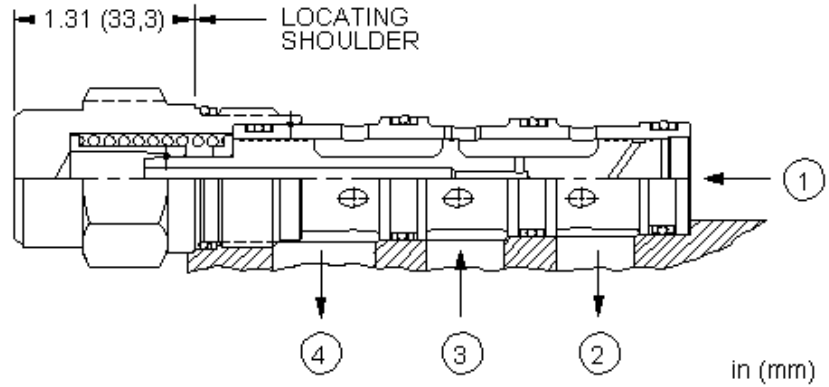
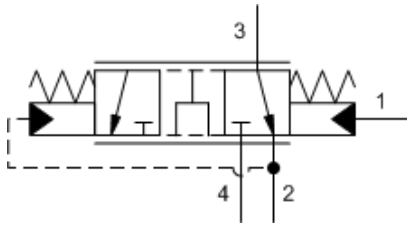
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990031007
Seal kit - Cartridge	Polyurethane: 990031002
Seal kit - Cartridge	Viton: 990031006

**CONFIGURATION OPTIONS**

**Model Code Example: LHDAXFN**

CONTROL	(X)	DIFFERENTIAL PRESSURE	(F)	SEAL MATERIAL	(N)
<b>X</b> Not Adjustable		<b>F</b> 100 psi (7 bar)		<b>N</b> Buna-N	
		E 75 psi (5 bar)		E EPDM	
				V Viton	



Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

**TECHNICAL DATA**

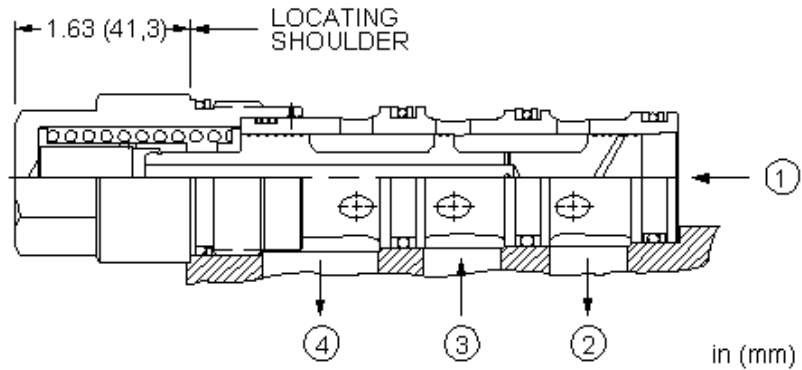
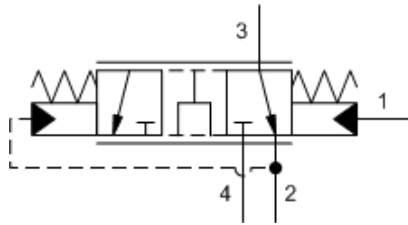
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990032007
Seal kit - Cartridge	EPDM: 990032014
Seal kit - Cartridge	Polyurethane: 990032002
Seal kit - Cartridge	Viton: 990032006

**CONFIGURATION OPTIONS**

**Model Code Example: LHFAXFN**

CONTROL	(X) DIFFERENTIAL PRESSURE	(F) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) E 75 psi (5 bar)	<b>N</b> Buna-N E EPDM V Viton	



Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

**TECHNICAL DATA**

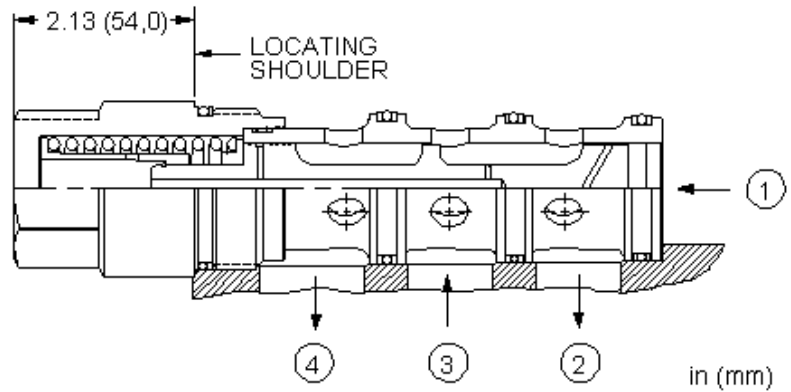
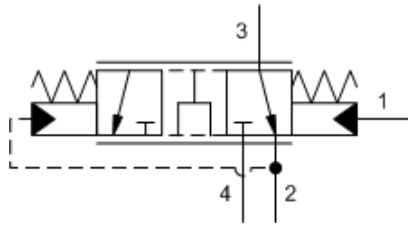
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990033007
Seal kit - Cartridge	EPDM: 990033014
Seal kit - Cartridge	Polyurethane: 990033002
Seal kit - Cartridge	Viton: 990033006

**CONFIGURATION OPTIONS**

**Model Code Example: LHHAXFN**

CONTROL	(X) DIFFERENTIAL PRESSURE	(F)	SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) <b>E</b> 75 psi (5 bar)		<b>N</b> Buna-N <b>E</b> EPDM <b>V</b> Viton	



Bypass/restrictive modulating elements, when combined with an external orifice, create a bypass/restrictive flow control. Input flow (port 3) is directed to the priority or control flow at port 2. Once the priority requirements are met, excess flow is bypassed out port 4. The after-orifice signal is connected to port 1. The before-orifice design allows both pressure and flow to be controlled on the priority side of the circuit regardless of pressure in the bypass circuit. These valves work equally well in either closed or open center systems. Their main use is to allow after-market accessories to be driven off the host machine's hydraulic system without adding an additional pump.

**TECHNICAL DATA**

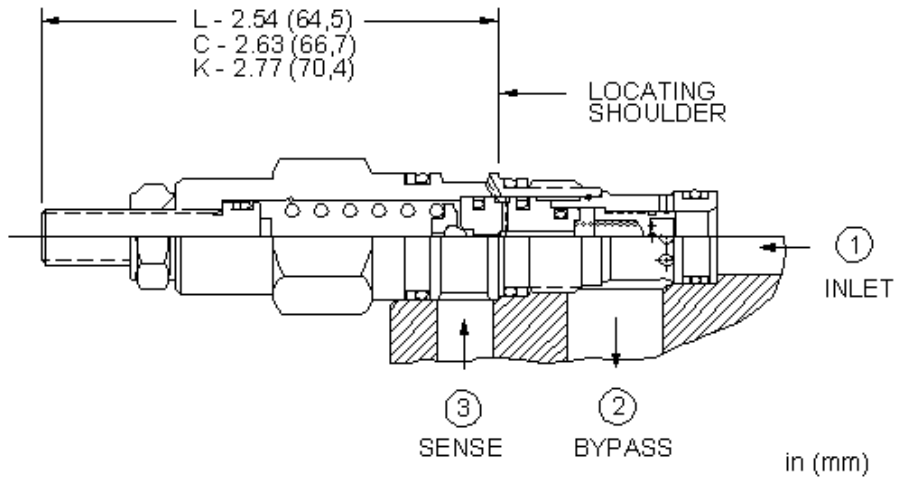
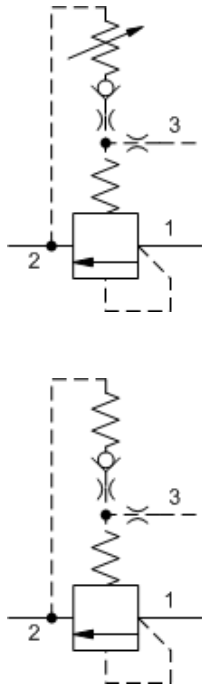
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990034007
Seal kit - Cartridge	EPDM: 990034014
Seal kit - Cartridge	Polyurethane: 990034002
Seal kit - Cartridge	Viton: 990034006

**CONFIGURATION OPTIONS**

Model Code Example: LHJAXFN

CONTROL	(X) DIFFERENTIAL PRESSURE	(F) SEAL MATERIAL	(N)
<b>X</b> Not Adjustable	<b>F</b> 100 psi (7 bar) E 75 psi (5 bar)	<b>N</b> Buna-N E EPDM V Viton	



Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

**TECHNICAL DATA**

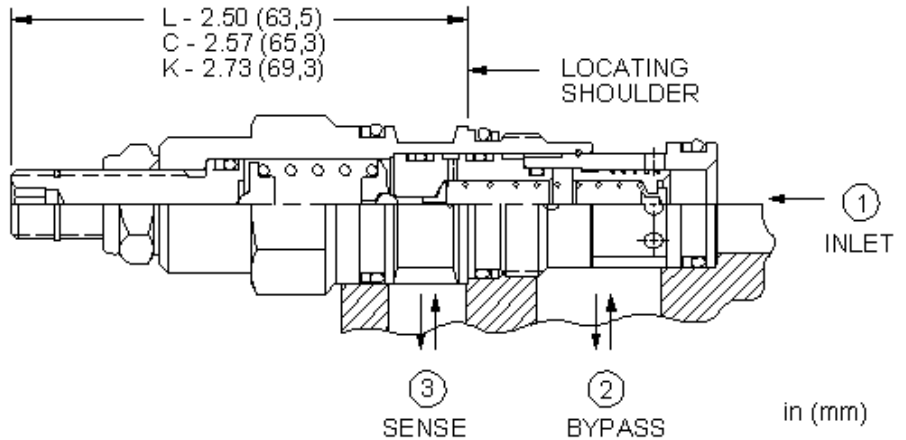
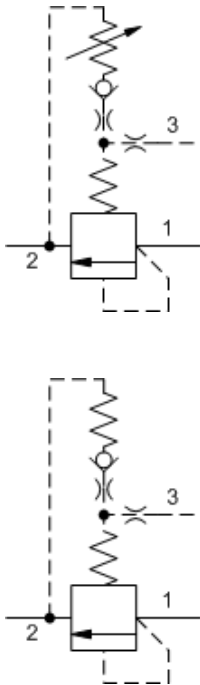
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Factory Pressure Settings Established at	4 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990163007
Seal kit - Cartridge	Polyurethane: 990163002
Seal kit - Cartridge	Viton: 990163006

**CONFIGURATION OPTIONS**

**Model Code Example: RVBBLAN**

CONTROL	(L)	ADJUSTMENT RANGE	(A)	SEAL MATERIAL	(N)
<b>L</b> Standard Screw Adjustment	<b>A</b>	75 - 3000 psi (5 - 210 bar), 1000 psi (70 bar) Standard Setting	<b>N</b>	Buna-N	
<b>C</b> Tamper Resistant - Factory Set	<b>B</b>	75 - 1500 psi (5 - 105 bar), 1000 psi (70 bar) Standard Setting	<b>V</b>	Viton	
<b>K</b> Handknob	<b>C</b>	75 - 6000 psi (5 - 420 bar), 1000 psi (70 bar) Standard Setting			
	<b>N</b>	75 - 800 psi (5 - 55 bar), 400 psi (28 bar) Standard Setting			
	<b>Q</b>	75 - 400 psi (5 - 28 bar), 200 psi (14 bar) Standard Setting			
	<b>W</b>	75 - 4500 psi (5 - 315 bar), 1000 psi (70 bar) Standard Setting			



Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

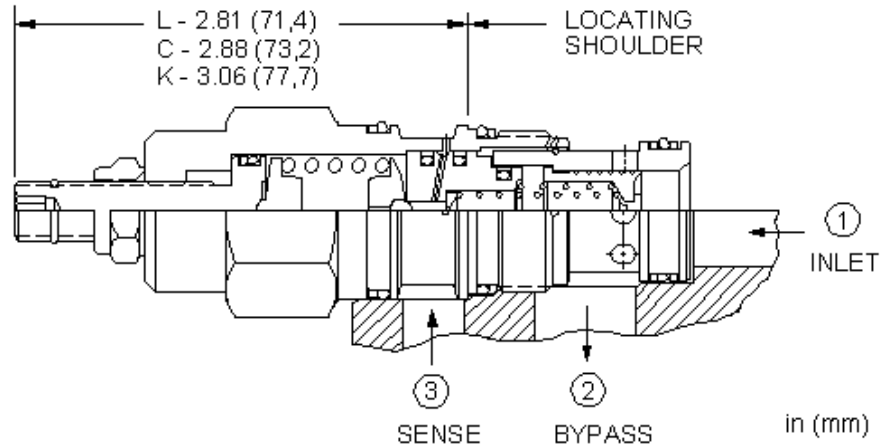
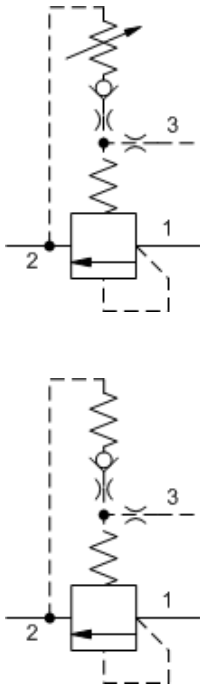
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Factory Pressure Settings Established at	4 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	2 in <sup>3</sup> /min.@1000 psi
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990011007
Seal kit - Cartridge	Polyurethane: 990011002
Seal kit - Cartridge	Viton: 990011006

**CONFIGURATION OPTIONS**
**Model Code Example: RVCBLAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	<b>N</b> Buna-N	Standard Material/Coating
<b>C</b> Tamper Resistant - Factory Set	<b>B</b> 50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>C</b> 150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting		/LH Mild Steel, Zinc-Nickel



Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

**TECHNICAL DATA**

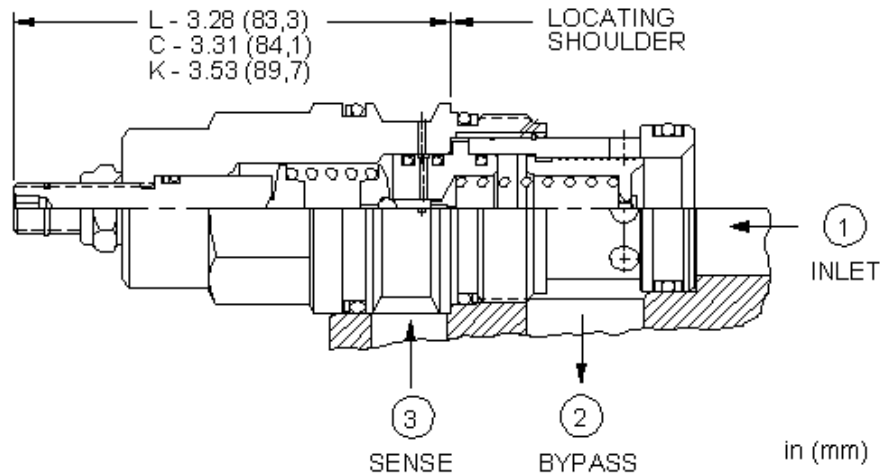
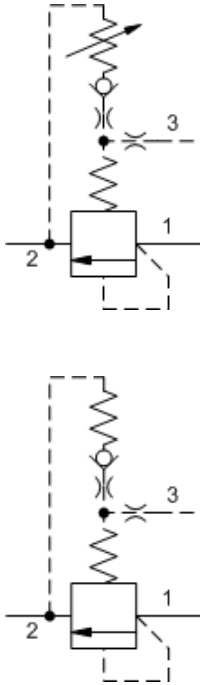
NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Factory Pressure Settings Established at	4 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	3 in <sup>3</sup> /min. @1000 psi
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**
**Model Code Example: RVEBLAN**

CONTROL	(L)	ADJUSTMENT RANGE	(A)	SEAL MATERIAL	(N)	MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b>	100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	<b>N</b>	Buna-N		Standard Material/Coating
<b>C</b> Tamper Resistant - Factory Set	<b>B</b>	50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	<b>V</b>	Viton		/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>C</b>	100 - 6000 psi (7 - 420 bar), 1000 psi (70 bar) Standard Setting				
<b>W</b> Hex Wrench Adjustment	<b>W</b>	100 - 4500 psi (7 - 315 bar), 1000 psi (70 bar) Standard Setting				
<b>Y</b> Tri-Grip Handknob						





Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

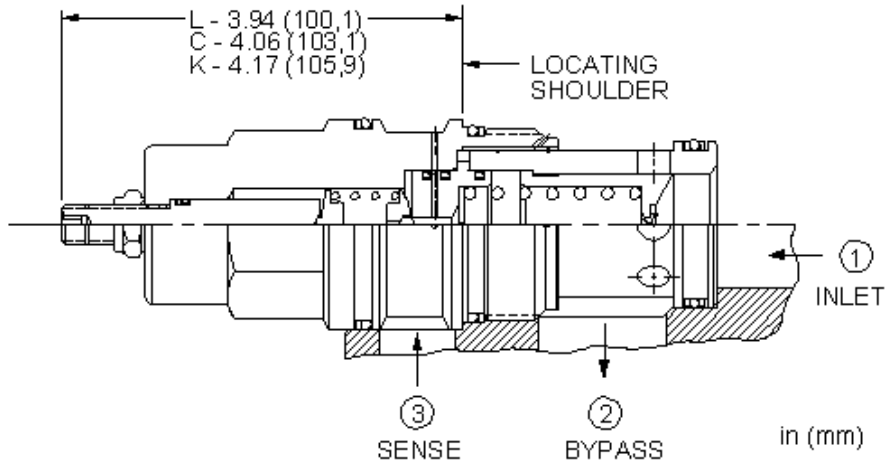
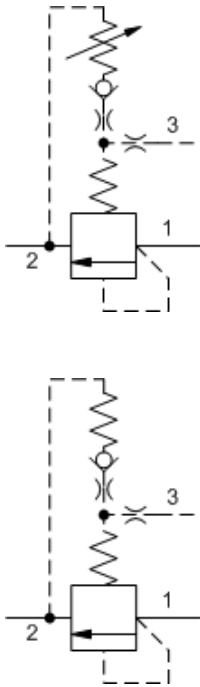
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Factory Pressure Settings Established at	4 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	4 in <sup>3</sup> /min. @1000 psi
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990017007
Seal kit - Cartridge	Polyurethane: 990017002
Seal kit - Cartridge	Viton: 990017006

**CONFIGURATION OPTIONS**
**Model Code Example: RVGBLAN**

CONTROL	(L) ADJUSTMENT RANGE	(A) SEAL MATERIAL	(N) MATERIAL/COATING
<b>L</b> Standard Screw Adjustment	<b>A</b> 100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	<b>N</b> Buna-N	Standard Material/Coating
<b>C</b> Tamper Resistant - Factory Set	<b>B</b> 150 - 1500 psi (10,5 - 105 bar), 1000 psi (70 bar) Standard Setting	<b>V</b> Viton	/AP Stainless Steel, Passivated
<b>K</b> Handknob	<b>C</b> 100 - 6000 psi (7 - 420 bar), 1000 psi (70 bar) Standard Setting		



Three-port normally closed modulating elements with relief provide two functions when combined with an external orifice. The mainstage is a bypass compensator that controls a priority flow into the circuit, determined by the external orifice. Input flow in excess of the priority flow is bypassed to tank (port 2). If the inlet (port 1) pressure rises to the valve setting, the valve operates as a normal relief valve.

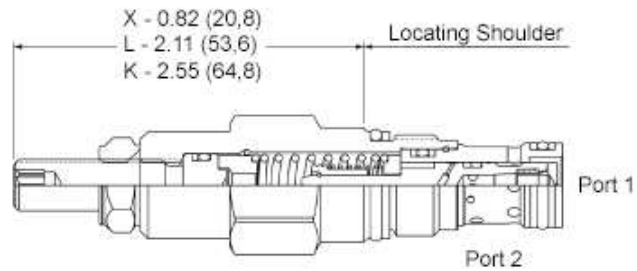
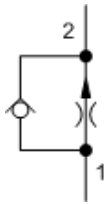
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Factory Pressure Settings Established at	4 gpm
Maximum Operating Pressure	5000 psi
Maximum Valve Leakage at 110 SUS (24 cSt)	5 in <sup>3</sup> /min.@1000 psi
Response Time - Typical	10 ms
Adjustment - No. of CW Turns from Min. to Max. setting	5
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990019007
Seal kit - Cartridge	EPDM: 990019014
Seal kit - Cartridge	Polyurethane: 990019002
Seal kit - Cartridge	Viton: 990019006

**CONFIGURATION OPTIONS**
**Model Code Example: RVIBLAN**

CONTROL	(L)	ADJUSTMENT RANGE	(A)	SEAL MATERIAL	(N)
L Standard Screw Adjustment	A	100 - 3000 psi (7 - 210 bar), 1000 psi (70 bar) Standard Setting	N	Buna-N	
C Tamper Resistant - Factory Set	B	50 - 1500 psi (3,5 - 105 bar), 1000 psi (70 bar) Standard Setting	E	EPDM	
K Handknob	C	150 - 6000 psi (10,5 - 420 bar), 1000 psi (70 bar) Standard Setting	V	Viton	



in (mm)

Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. The flow range is specified by the user and is set at the factory.

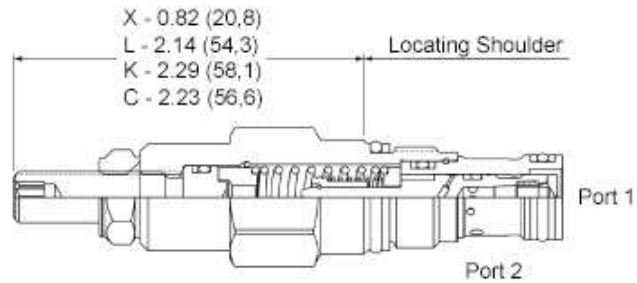
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.
Seal kit - Cartridge	Buna: 990162007
Seal kit - Cartridge	Polyurethane: 990162002
Seal kit - Cartridge	Viton: 990162006

**CONFIGURATION OPTIONS**
**Model Code Example: FCBCLCN**

<b>CONTROL</b>	<b>(L) FLOW RATE</b>	<b>(C) SEAL MATERIAL</b>	<b>(N)</b>
<b>L</b> Tuning Adjustment	<b>C</b> .106 gpm (.4 L/min.)	<b>N</b> Buna-N	
<b>C</b> Tamper Resistant - Factory Set	<b>D</b> .132 gpm (.49 L/min.)	<b>V</b> Viton	
<b>K</b> Handknob	<b>F</b> .198 gpm (.75 L/min.)		
<b>X</b> Not Adjustable	<b>G</b> .291 gpm (1.10 L/min.)		
	<b>H</b> .41 gpm (1.55 L/min.)		
	<b>J</b> .528 gpm (2.0 L/min.)		
	<b>K</b> .661 gpm (2.50 L/min.)		
	<b>L</b> .819 gpm (3.10 L/min.)		
	<b>M</b> 1.057 gpm (4.00 L/min.)		
	<b>N</b> 1.321 gpm (5.00 L/min.)		
	<b>P</b> 1.585 gpm (6.0 L/min.)		
	<b>R</b> 2.008 gpm (7.6 L/min.)		
	<b>S</b> 2.378 gpm (9.0 L/min.)		
	<b>T</b> 2.642 gpm (10.0 L/min.)		
	<b>V</b> 3.012 gpm (11.40 L/min.)		



in (mm)

Fixed-orifice, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. The flow range is specified by the user and is set at the factory.

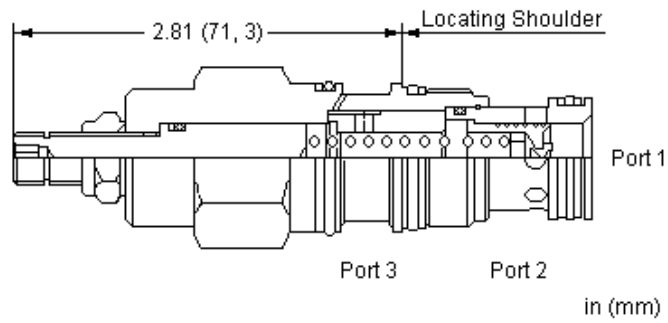
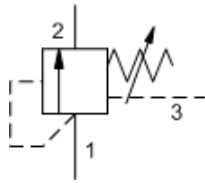
**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Locknut Hex Size	9/16 in.
Locknut Torque	80 - 90 lbf in.

**CONFIGURATION OPTIONS**
**Model Code Example: FXBCLCN**

<b>CONTROL</b>	<b>(L) FLOW RATE</b>	<b>(C) SEAL MATERIAL</b>	<b>(N)</b>
<b>L</b> Tuning Adjustment	<b>C</b> .106 gpm (.4 L/min.)	<b>N</b> Buna-N	
<b>C</b> Tamper Resistant - Factory Set	<b>D</b> .132 gpm (.49 L/min.)	<b>V</b> Viton	
<b>K</b> Handknob	<b>F</b> .198 gpm (.75 L/min.)		
<b>X</b> Not Adjustable	<b>G</b> .291 gpm (1.10 L/min.)		
	<b>H</b> .41 gpm (1.55 L/min.)		
	<b>J</b> .528 gpm (2.0 L/min.)		
	<b>K</b> .661 gpm (2.50 L/min.)		
	<b>L</b> .819 gpm (3.10 L/min.)		
	<b>M</b> 1.057 gpm (4.00 L/min.)		
	<b>N</b> 1.321 gpm (5.00 L/min.)		
	<b>P</b> 1.585 gpm (6.0 L/min.)		
	<b>R</b> 2.008 gpm (7.6 L/min.)		
	<b>S</b> 2.378 gpm (9.0 L/min.)		
	<b>T</b> 2.642 gpm (10.0 L/min.)		
	<b>V</b> 3.012 gpm (11.40 L/min.)		



Normally closed modulating elements without an internal orifice act as a bypass compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

**TECHNICAL DATA**

NOTE: DATA MAY VARY BY CONFIGURATION. SEE CONFIGURATION SECTION.

Maximum Operating Pressure	5000 psi
Seal kit - Cartridge	Buna: 990202007
Seal kit - Cartridge	Polyurethane: 990002002
Seal kit - Cartridge	Viton: 990202006

**CONFIGURATION OPTIONS**

**Model Code Example: LRFCLDN**

DIFFERENTIAL PRESSURE	(D)	SEAL MATERIAL	(N)	MATERIAL/COATING
<b>D</b> 50 psi (3,5 bar)		<b>N</b> Buna-N		Standard Material/Coating
<b>F</b> 100 psi (7 bar)		<b>E</b> EPDM		/AP Stainless Steel, Passivated
		<b>V</b> Viton		/LH Mild Steel, Zinc-Nickel

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