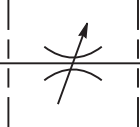
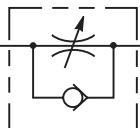
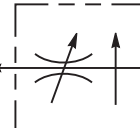
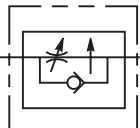
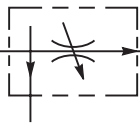
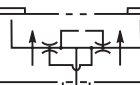


	SERIES	CAVITY	DESCRIPTION	FLOW LPM/GPM	PRESSURE BAR/PSI	PAGE NO.
	Technical Tips .....					FC2-FC5
	<b>NEEDLE VALVES</b>					
	NVH081	C08-2	Needle Valve, Cartridge Type	38/10	380/5500	FC6-FC7
	NVH101	C10-2	Needle Valve, Cartridge Type	60/16	380/5500	FC8-FC9
	FV101	C10-2	Needle Valve with Reverse Check, to 2 Free Flow	45/12	210/3000	FC10-FC11
	FV102	C10-2	Needle Valve with Reverse Check, 1 to 2 Free Flow	23/6	210/3000	FC10-FC11
	<b>PRESSURE COMPENSATED FLOW CONTROLS</b>					
	J02E2	C08-2	Restrictive Flow Control, Adjustable	20/5.3	420/6000	FC12-FC13
	J04E2	C10-2	Restrictive Flow Control, Adjustable	40/10	420/6000	FC14-FC15
	FA101	C10-2	Restrictive Flow Control, Reverse Check, Adjustable	21/5.5	210/3000	FC16-FC17
	FC101	C10-2	Restrictive Flow Control, Reverse Check, Tuneable	56/15	210/3000	FC18-FC19
	<b>PRESSURE COMPENSATED PRIORITY FLOW CONTROLS</b>					
	J02D3	C08-3	Priority Type, with Bypass	15/4	420/6000	FC20-FC21
	J04D3	C10-3	Priority Type, with Bypass	70/18	420/6000	FC22-FC23
	J1A125	3A	Priority Type, with Bypass	150/40	420/6000	FC24-FC25
	<b>FLOW DIVIDERS/COMBINERS</b>					
	L04A3	C10-4	Flow Divider/Combiner	60/16	420/6000	FC26-FC27
	L06A3	C16-4	Flow Divider/Combiner	180/47	420/6000	FC28-FC29

<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**INTRODUCTION**

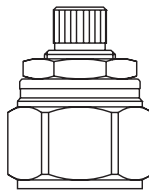
This technical tips section is designed to help familiarize you with the Parker line of Flow Control Valves. In this section we present common options available as well as a brief synopsis of the operation and applications of the various product offered in this section. The intent of this section is to help you in selecting the best products for your application.

**COMMON OPTIONS**

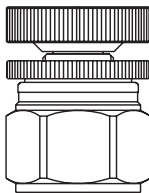
As you will see, Parker offers a variety of Flow Control products. As such, some of the options mentioned below may not be available on all valve models. Consult the model coding and dimensions of each valve for specifics. Here are some of the common options available.

**Adjustment Types:** Parker offers four primary types of adjustments for most of the flow control products. Samples of these types are shown below. Please note all options may not be available for all valves. Consult the individual catalog pages for more details.

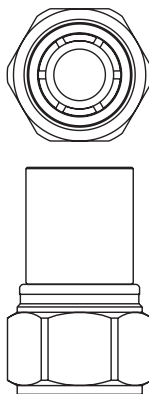
**Screw Adjustment** - Valve can be adjusted with an allen wrench. Lock nut included to maintain desired setting after adjustment. This is the most common adjustment option available on most Parker products.



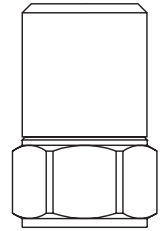
**Knob Adjustment** - An aluminum knob is added to the standard screw adjustment. A lock knob is provided to help maintain the desired setting after adjustment. Parker offers knob conversion kits for most flow control valves. For kit numbers consult the individual valve pages.



**Fixed Style** - In most cases, the Fixed Style product is a screw adjustable product with a steel collet threaded over the adjustment. These valves are preset at the factory. Should the valve need to be adjusted, the star washer and aluminum plate can be removed from the top of the assembly exposing the adjustment.



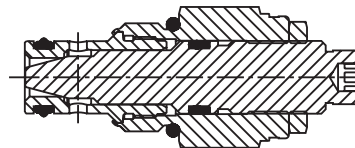
**Tamper Resistant** - The tamper resistant option is a screw adjustable valve with a steel cap installed to conceal the adjustment. The cap is designed so the internal edges clamp into the groove of the valve adapter. Once the cap is installed, it cannot be removed without damaging the cap and the valve. When a valve is ordered with the tamper resistant option, it will be preset at the factory, and the cap will be included in a separate plastic bag to allow for fine tuning at the customer site. Parker offers tamper resistant cap conversion kits for most flow control valves. For kit numbers consult the individual valve pages.



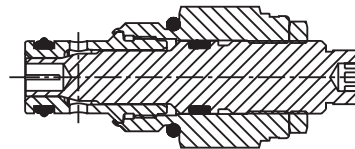
**Seals:** Valves feature either a 4301 Polyurethane “D”-Ring. The “D”-Ring eliminates the need for backup rings. The majority of the products are also available in Nitrile or Fluorocarbon seals. Contact factory for availability. You should match the seal compatibility to the temperature and fluid being used in your application.

**Fine Meter Options:** Fine meter needles are offered on some needle valve series. When this option is specified, the standard needle is replaced by a slotted needle. The slotted needle restricts substantially more flow giving you finer control in the small flow ranges. Obviously, the maximum flow capacity of the needle valve is decreased with the fine meter option.

*Coarse Needle*



*Fine Needle*



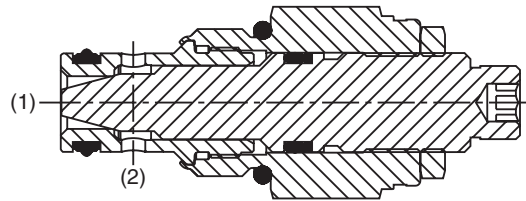
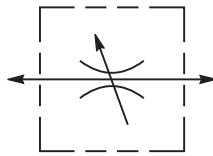
CV	Check Valves
SH	Shuttle Valves
LM	Load/Motor Controls
FC	Flow Controls
PC	Pressure Controls
LE	Logic Elements
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**PRODUCT TYPES / APPLICATIONS**

**Needle Valve**

Needle valves provide uncompensated adjustable flow control of a desired function. They are ideal for applications where general control of hydraulic flow is needed, like in a bleed off circuit.

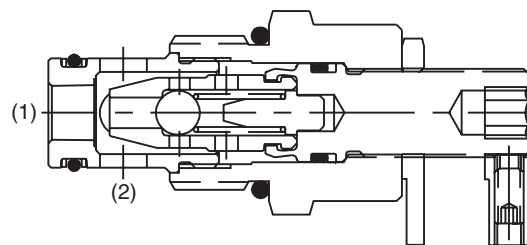
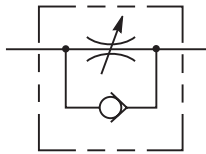
When used with a compensator spool, a pressure compensated system can be obtained.



**OPERATION** - The valve acts as a fixed orifice in a hydraulic circuit. The effective size of the orifice increases as the tapered needle is opened. Shutoff is provided when fully closed. While a needle valve will meter flow regardless of the flow path, flow from port 2 to 1 is preferred. When you flow in the reverse direction (1 to 2), pressure forces work on the nose of the needle in an effort to drive it off of its seat. As such, all leakage conditions found in the catalog are based on flow from side to nose (port 2 to port 1). In addition, the adjustment will be harder to turn due to the added force.

**Needle with a Reverse Check**

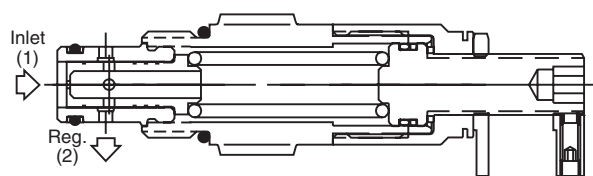
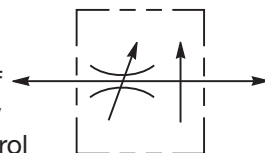
Needle valves with reverse check functions are sometimes also referred to as flow control valves. As the name implies, these valves provide uncompensated adjustable speed control in one direction and allow free flow in the opposite direction. When used with a compensator spool, a pressure compensated system can be obtained.



**OPERATION** - With flow entering the side of the cartridge (port 2), the needle acts as a fixed orifice. The effective size of this orifice is increased as the needle is opened controlling the output flow to port 1. With flow entering the nose (port 1), the check ball inside the needle is unseated allowing free flow to port 2.

**P.C. Flow Regulator**

Pressure compensated flow regulators maintain a regulated flow regardless of changes in load or inlet pressure. They are commonly used to accurately control an actuator function. They can be used in meter-in or meter-out applications.

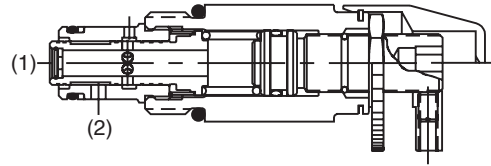
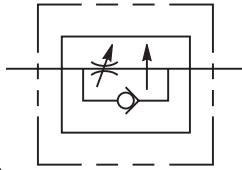


**OPERATION** - The valve consists of a control orifice within a normally open, spring biased compensator spool. Flow through the control orifice produces a pressure drop across the compensator spool. When inlet flow exceeds the flow setting of the valve, the force produced by the pressure differential across the spool exceeds the spring force and shifts the compensator spool to throttle or restrict flow; thus maintaining consistent flow through the valve. In the reverse direction, flow is metered, but not pressure compensated.

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Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

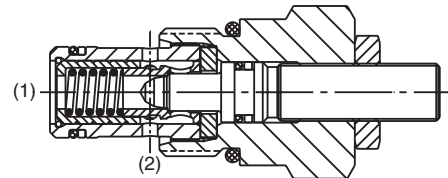
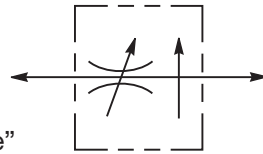
**P.C. Flow Control**

Pressure compensated flow controls are pressure compensated regulators with a reverse flow check valve. They provide constant regulated flow in the one direction regardless of changes in load pressure. Flow in the reverse direction is non-regulated, free flow. They can be used in meter-in or meter-out applications.



**Adjustable Flow Controls**

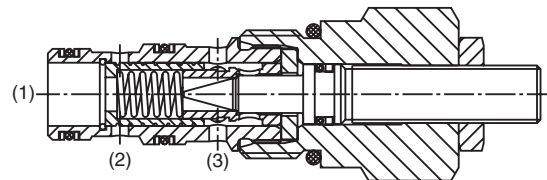
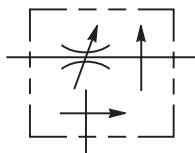
Most adjustable pressure compensated flow controls have a limited adjustment range. You will see in our catalog that we use the term “tuneable” for the FR101 and FC101 valves. This means they are only adjustable within a pre-set range. The FA101, J02E2, J04E2 and J04C2 are fully adjustable. Keep this adjustment capability in mind when you select a flow control.



**OPERATION** - When flow enters the nose (port 1) of the cartridge, it passes through a control orifice. This control orifice creates a pressure differential across the regulating spool. As the inlet flow increases, the pressure differential across the regulating spool increases, allowing the regulating spool to overcome its spring force and begin to shift. As it shifts, it throttles to maintain a constant flow. When used in conjunction with a fixed displacement pump, a relief valve between pump and valve is needed. Full flow is allowed in the reverse direction (port 2 to 1).

**Priority Style P.C. Flow Regulator**

Priority style pressure compensator regulators maintain constant priority flow to one leg of the circuit regardless of changes in load or inlet pressure. Once this priority flow requirement is satisfied, the excess flow is diverted and can be used in another leg of the circuit. These valves are usually used in meter-in applications.



**OPERATION** - The valve consists of a control orifice within a spring biased compensator spool. The priority port is normally open while the bypass port is normally closed. As flow enters the inlet of the cartridge and passes through the control orifice, a pressure differential is created across the compensator spool. When the inlet flow exceeds the setting of the valve, the force produced by this pressure differential exceeds the spring force and shifts the compensator spool; opening up the bypass port, and bypassing the excess flow. If load pressure at the bypass port is greater than the load pressure at the priority port, the compensator spool will further shift restricting the priority flow to that of the valve setting. **Caution:** If the priority line is blocked so that no flow can pass through the control orifice, the compensator spool will shift, blocking the bypass port and allowing inlet pressure to go to full system relief pressure. These valves do not provide a pressure relieving function, so it is common to place an external relief valve downstream of port 3 to prevent a no flow condition.

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Check Valves
SH
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Load/Motor Controls
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Coils & Electronics
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TD
Technical Data

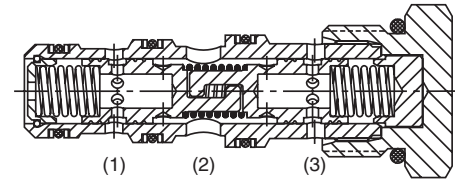
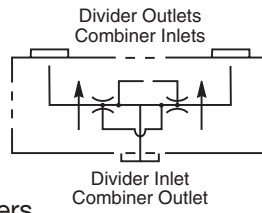
**Flow Divider / Combiner**

Flow divider / combiner valves are used to proportion the flow from a single source into two actuators. In the reverse mode, the valve takes the flow from the two sources and combines it into one flow.

When attempting to synchronize two cylinders

with a flow/divider combiner valve, please consider that the flow accuracy is +10%.

A crossover relief can be used to help re-synchronize the cylinders by bottoming them out after several cycles.



**OPERATION** - When flow enters the divider inlet port, it will pass through orifices in each of the interconnected spools. The flow passing through the orifices creates a pressure drop which pulls the two spools away from each other. The flow then passes to the two divider outlet ports. The division of flow (i.e. 50-50, 60-40, 66-33, etc.) is determined by the orifice sizes in the two spools. When flow is being combined, it enters the valve through two combiner inlets. The pressure drop across the orifices pulls the two spools together. The combined flow then passes through the combiner outlet.

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<b>TD</b>
Technical Data

**General Description**

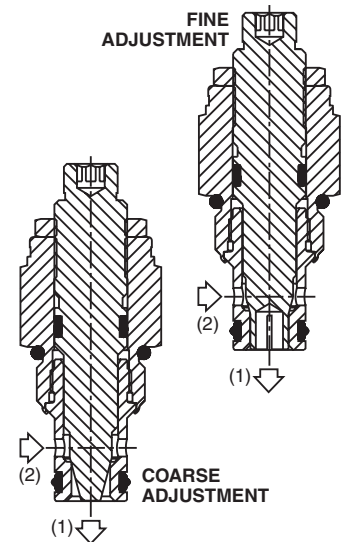
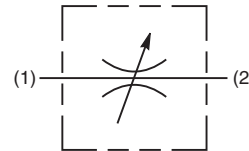
Cartridge Style Needle Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Hardened, precision ground parts for durability
- Compact size for reduced space requirements
- Fine adjustment needle option available for precise adjustment
- Polyurethane “D”-Ring eliminates backup rings and prevents hydrolysis
- Valve meters flow in either direction, but (2 to 1) is the preferred direction for lowest leakage at shut off
- All external parts zinc plated

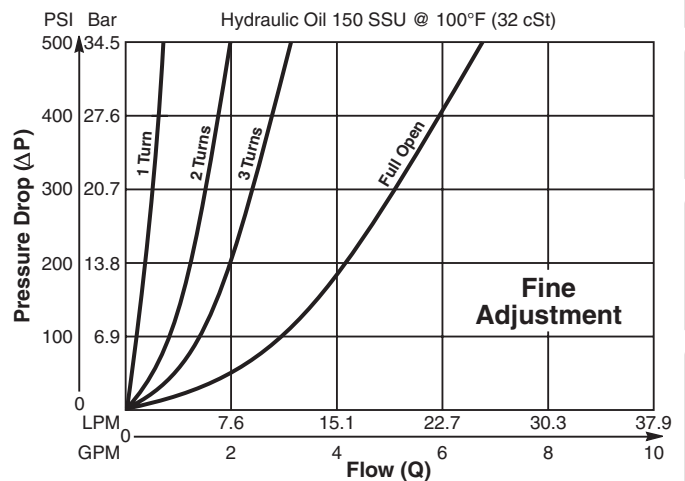
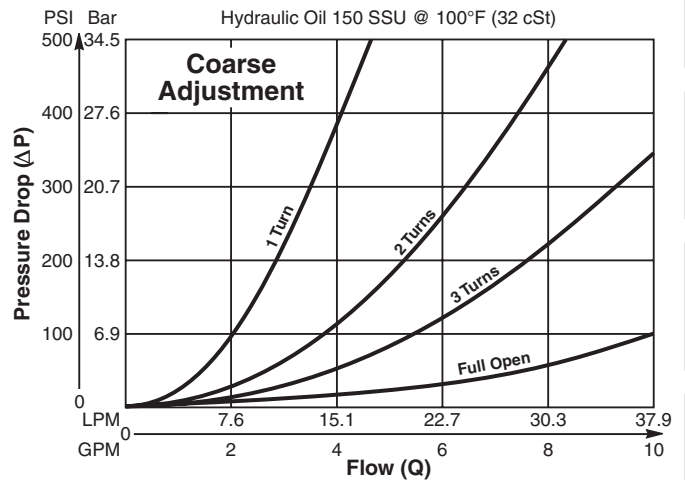
**Specifications**

Rated Flow	37.9 LPM (10 GPM)
Maximum Inlet Pressure	380 Bar (5500 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-37°C to +93°C (“D”-Ring) (-35°F to +200°F) -34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/ Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.10 kg (0.20 lbs.)
Cavity	C08-2 (See BC Section for more details)



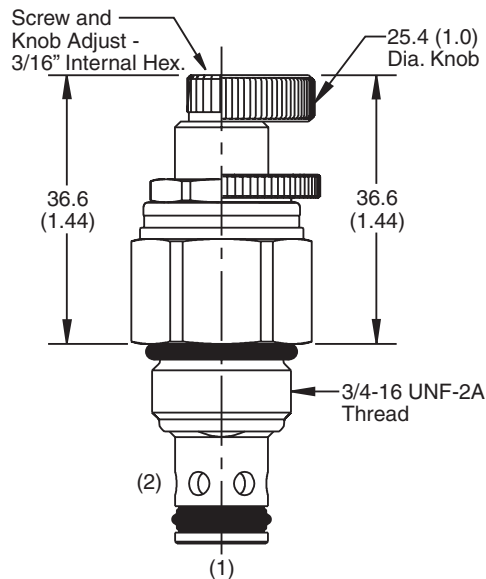
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

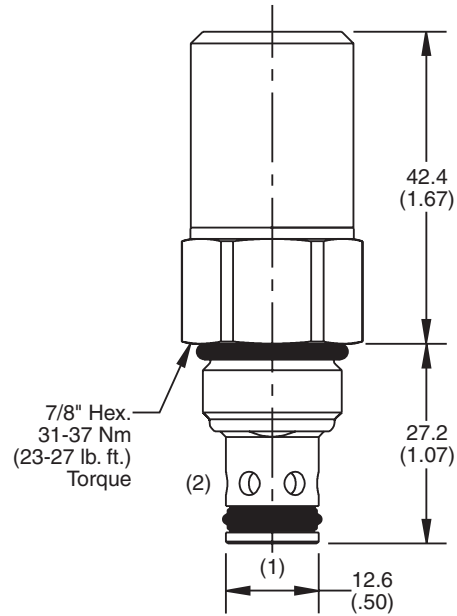


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Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**Dimensions** Millimeters (Inches)



**Screw/Knob Version**



**Tamper Resistant Version**

**Ordering Information**

<b>NVH081</b>		<b>S</b>
08 Size Needle Valve	Flow Needle	Adjustment Style

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Flow Needle
Omit	Coarse
F	Fine

Code	Adjustment Style
S	Screw Adjust

Code	Seals
Omit	"D"-Ring

Kit	Part Number
Knob	717784-10
Tamper Resistant Cap	717943
D-Ring Seal	SK08-2
Nitrile Seal	SK08-2
Fluorocarbon Seal	SK08-2V

*Order Bodies Separately  
 See section BC*

<b>B08</b>	—	<b>2</b>	—	<b>6T</b>
08 size		2-Way Cavity		Port Size

Code	Porting / Body Material
6T	SAE-6 / Steel (5000 PSI)

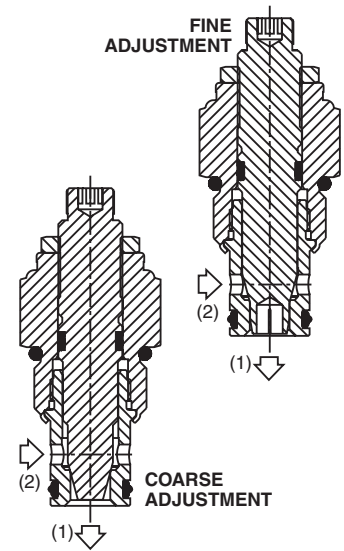
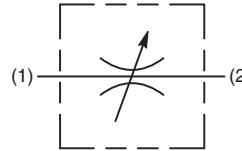
<b>CV</b>
Check Valves
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Shuttle Valves
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**General Description**

Cartridge Style Needle Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Hardened, precision ground parts for durability
- Compact size for reduced space requirements
- Fine adjustment needle option available for precise adjustment
- Polyurethane “D”-Ring eliminates backup rings and prevents hydrolysis
- Valve meters flow in either direction, but (2 to 1) is the preferred direction for lowest leakage at shut off
- All external parts zinc plated

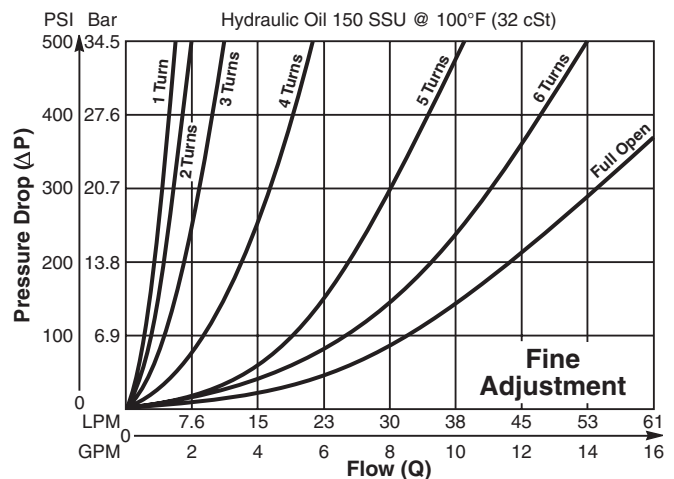
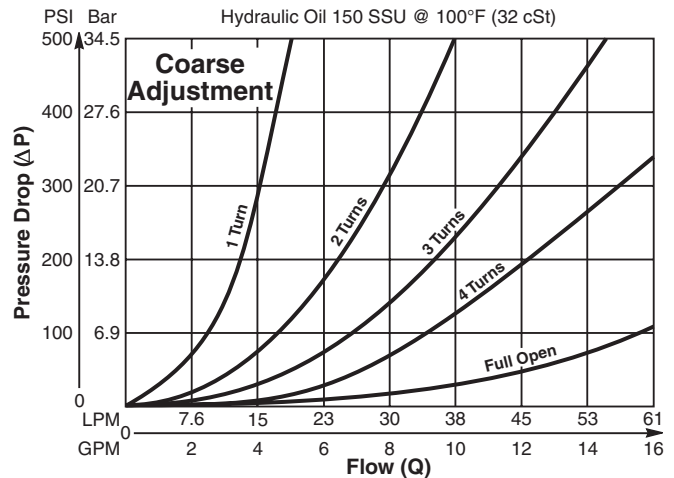


**Specifications**

Rated Flow	60 LPM (16 GPM)
Maximum Inlet Pressure	380 Bar (5500 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-37°C to +93°C (“D”-Ring) (-35°F to +200°F) -34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.18 kg (0.40 lbs.)
Cavity	C10-2 (See BC Section for more details)

**Performance Curves**

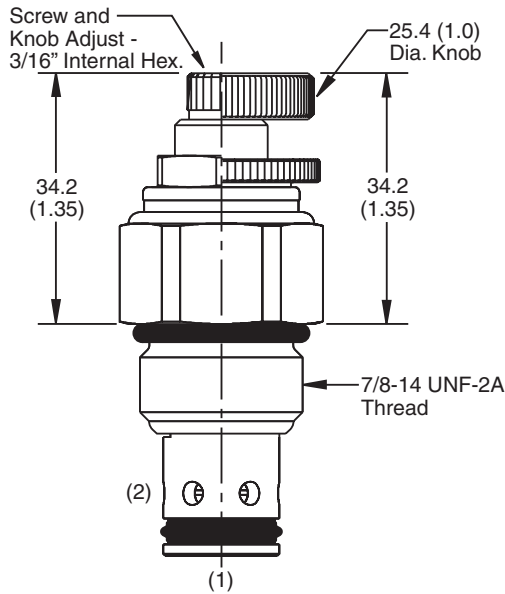
**Flow vs. Inlet Pressure (Through cartridge only)**



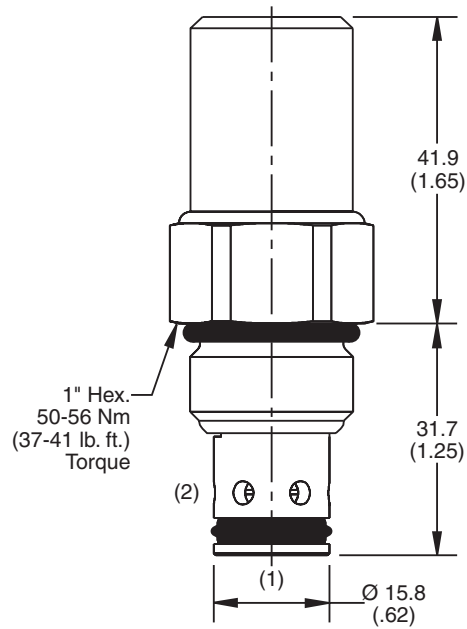
<b>CV</b>
Check Valves
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Technical Data



**Dimensions** Millimeters (Inches)



**Screw/Knob Version**



**Tamper Resistant Version**

**Ordering Information**

<b>NVH101</b>		<b>S</b>
10 Size Needle Valve	Flow Needle	Adjustment Style

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Flow Needle
Omit	Coarse
F	Fine

Code	Adjustment Style
S	Screw Adjust

Code	Seals
Omit	"D"-Ring

Kit	Part Number
Knob	717784-10
Tamper Resistant Cap	717943
D-Ring Seal	SK10-2
Nitrile Seal	SK10-2
Fluorocarbon Seal	SK10-2V

*Order Bodies Separately  
 See section BC*

<b>B10</b>	—	<b>2</b>	—	<b>8T</b>
10 size		2-Way Cavity		Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

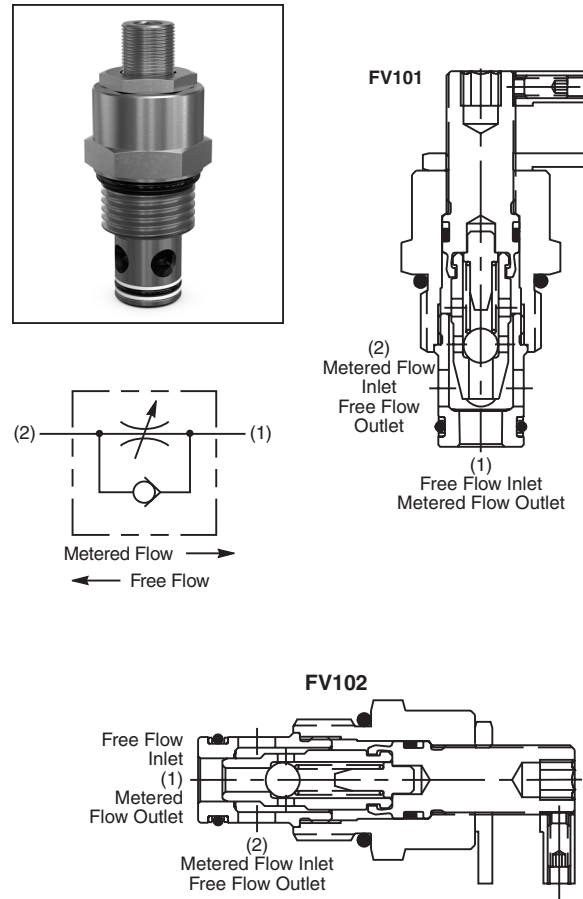
- CV**  
Check Valves
- SH**  
Shuttle Valves
- LM**  
Load/Motor Controls
- FC**  
Flow Controls
- PC**  
Pressure Controls
- LE**  
Logic Elements
- DC**  
Directional Controls
- SV**  
Solenoid Valves
- PV**  
Proportional Valves
- CE**  
Coils & Electronics
- BC**  
Bodies & Cavities
- TD**  
Technical Data

**General Description**

Needle Valve with a Reverse Check. Also known as a Flow Control Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

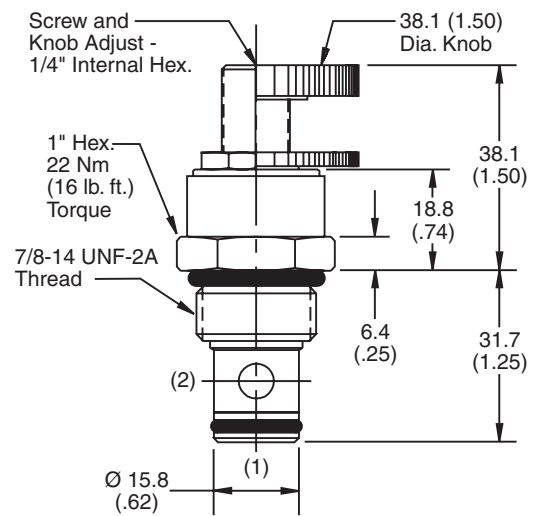
- Hardened, precision ground parts for durability
- Compact size for reduced space requirements
- Fine thread needle option available for precise adjustment
- All external parts zinc plated



**Specifications**

Rated Flow	<b>FV101</b> 45 LPM (12 GPM) <b>FV102</b> 23 LPM (6 GPM)
Maximum Inlet Pressure	210 Bar (3000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.23 kg (0.50 lbs.)
Cavity	C10-2 (See BC Section for more details)

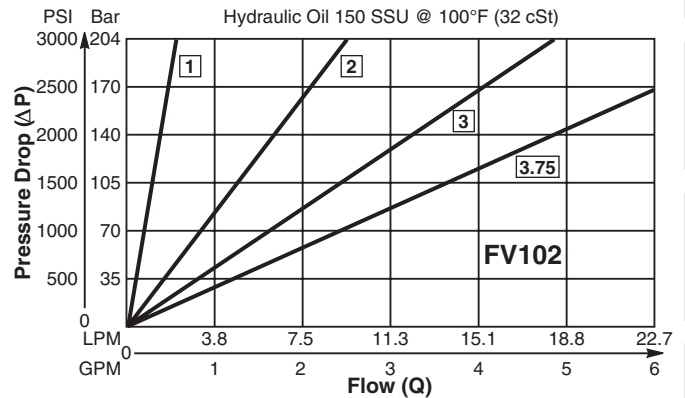
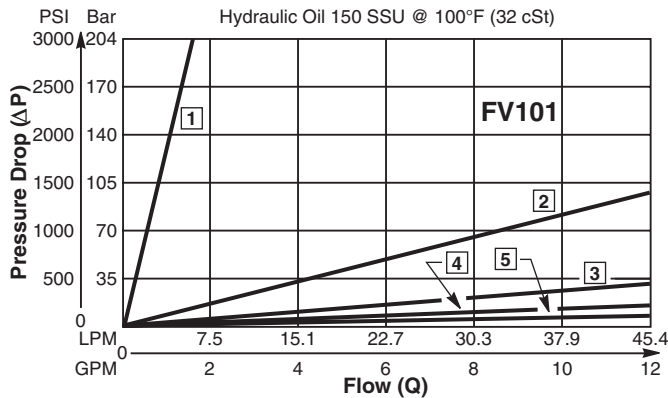
**Dimensions** Millimeters (Inches)



<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**Performance Curves**

**Metered Flow vs. Pressure Drop (Through cartridge only)**



**□ = No. of Turns CCW From Fully Closed.**  
 The number on each curve indicates the number of complete turns of the knob or screw adjustment from fully closed. When the metered flow is 22.5 LPM (6 GPM) and the adjustment is two complete turns from closed, the pressure drop will be 13.8 Bar (200 PSI). When the metered flow is 22.5 LPM (6 GPM) and the adjustment is five complete turns from closed, the pressure drop will be 3.5 Bar (50 PSI).

**□ = No. of Turns CCW From Fully Closed.**  
 The number on each curve indicates the number of complete turns of the knob or screw adjustment from fully closed (non-metered flow). When the metered flow is 7.5 LPM (2 GPM) and the adjustment is two complete turns from closed, the pressure drop will be 156.9 Bar (2275 PSI). When the metered flow is 7.5 LPM (2 GPM) and the adjustment is 3.75 turns from closed, the pressure drop will be 56.6 Bar (820 PSI).

**Ordering Information**

<b>FV10</b>	□	<b>S</b>
10 Size Flow Control Valve	Style	Adjustment Style

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Style
1	Coarse Flow
2	Fine Flow

Code	Adjustment Style
S	Screw Adjust

Code	Seals
Omit	Nitrile

Kit	Part Number
Knob	840208K
Nitrile Seal	SK10-2
Fluorocarbon Seal	SK10-2V

*Order Bodies Separately  
 See section BC*

<b>B10</b>	-	<b>2</b>	-	<b>8T</b>
10 size		2-Way Cavity		Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

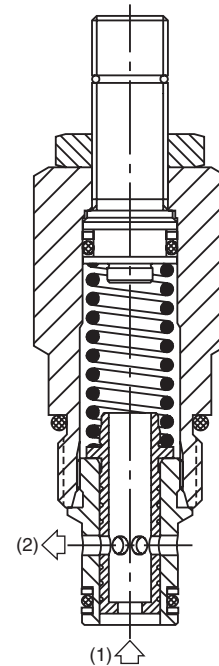
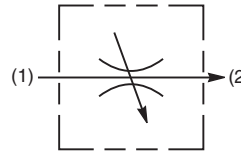
- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data

**General Description**

Restrictive Style, Pressure Compensated Flow Control Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Minimal flow change with pressure variation
- Reverse flow function
- Full adjustment from 1-20 LPM (0.3-5.3 GPM)
- Hardened working parts for maximum durability
- All external parts zinc plated



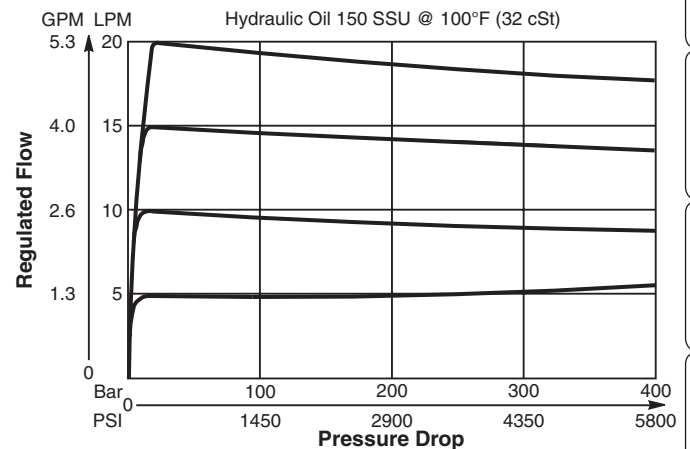
**Specifications**

Rated Flow	20 LPM (5.3 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/ Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.13 kg (0.29 lbs.)
Cavity	C08-2 (See BC Section for more details)

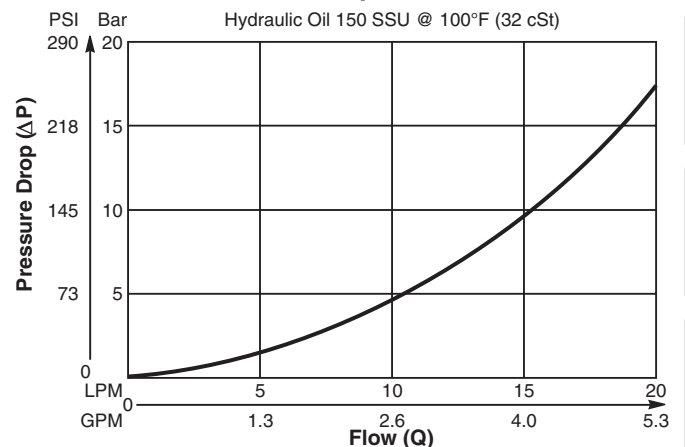
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

**Flow Regulating Performance**

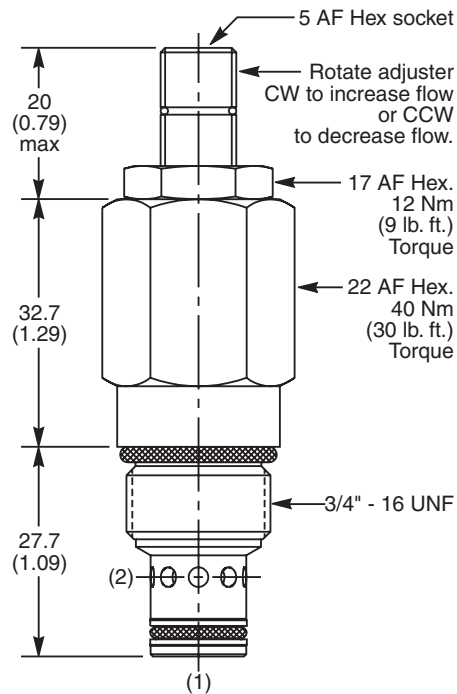


**Reverse Flow Pressure Drop vs. Flow**



- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC**
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>J02E2</b>	<b>Z</b>	<b>N</b>
08 Size Pressure Compensated Flow Control Valve	Adjustment Style	Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
Z	Screw Adjust

Code	Seals
N	Nitrile

**Standard valve has a flow setting of 10 LPM.**

Kit	Part Number
Knob	ASV014975
Tamper Resistant Cap	TC1130
Nitrile Seal	SK30501N-1
Fluorocarbon Seal	SK30501V-1

*Order Bodies Separately  
 See section BC*

<b>B08</b>	—	<b>2</b>	—	<b>6T</b>
08 size		2-Way Cavity		Port Size

Code	Porting / Body Material
6T	SAE-6 / Steel (5000 PSI)

<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**General Description**

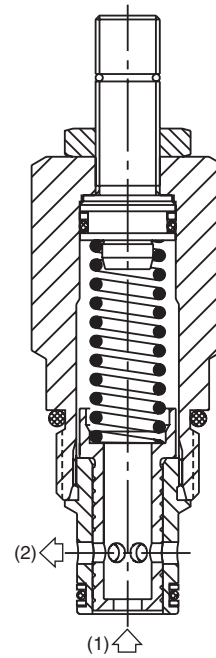
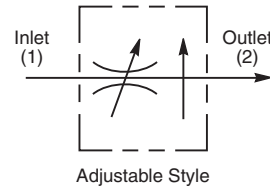
Restrictive Style, Pressure Compensated Flow Control Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Minimal flow change with pressure variation
- Reverse flow function
- Full adjustment from 1-40 LPM (0.3-10.6 GPM)
- Hardened working parts for maximum durability
- All external parts zinc plated

**Specifications**

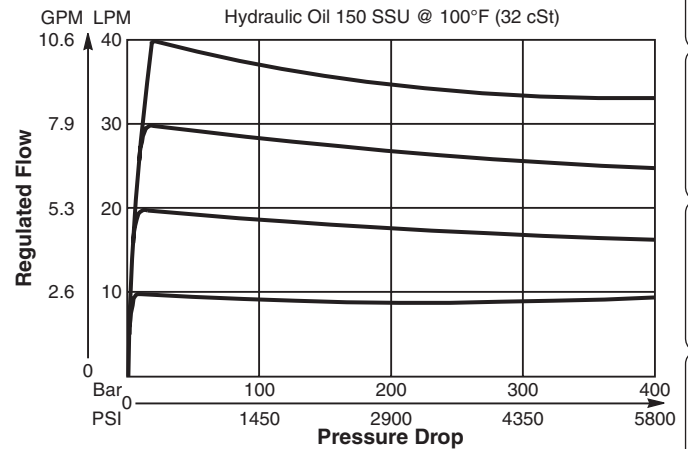
Rated Flow	40 LPM (10.6 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/ Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.20 kg (0.44 lbs.)
Cavity	C10-2 (See BC Section for more details)



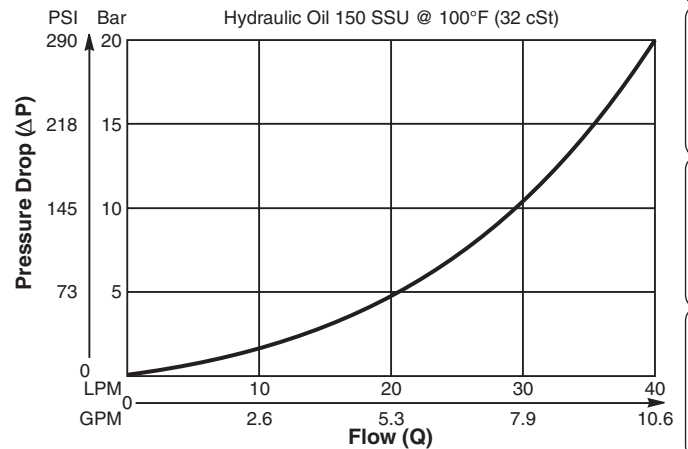
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

**Flow Regulating Performance**

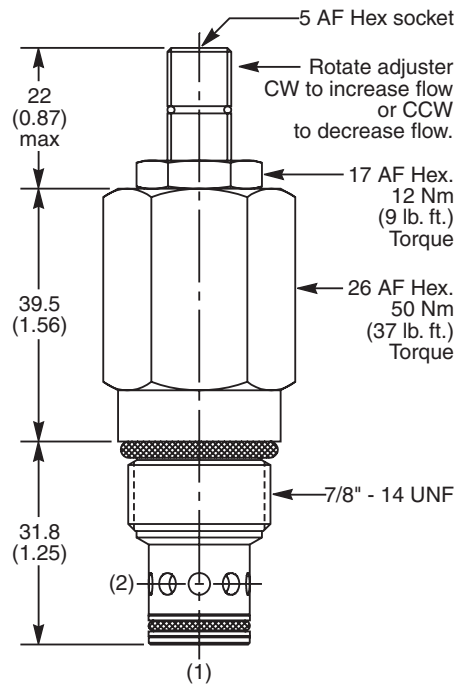


**Reverse Flow Pressure Drop vs. Flow**



CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
<b>FC</b>
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>J04E2</b>	<b>Z</b>	<b>N</b>
10 Size Pressure Compensated Flow Control Valve	Adjustment Style	Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
Z	Screw Adjust

Code	Seals
N	Nitrile

Standard valve has a flow setting of 20 LPM.

Kit	Part Number
Knob	ASV014975
Tamper Resistant Cap	TC1130
Nitrile Seal	SK30503N-1
Fluorocarbon Seal	SK30503V-1

Order Bodies Separately  
 See section BC

<b>B10</b>	—	<b>2</b>	—	<b>8T</b>
10 size		2-Way Cavity		Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

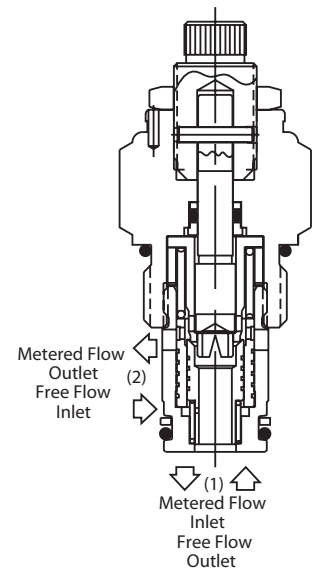
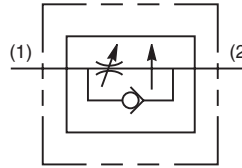
CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
<b>FC</b>
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**General Description**

Fully Adjustable, Pressure Compensated Flow Control Valve. For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Fully adjustable from 0.75 LPM (0.2 GPM) to 20.6 LPM (5.5 GPM)
- Hardened, precision ground parts for durability
- All external parts are zinc plated
- Compact size for reduced space requirements

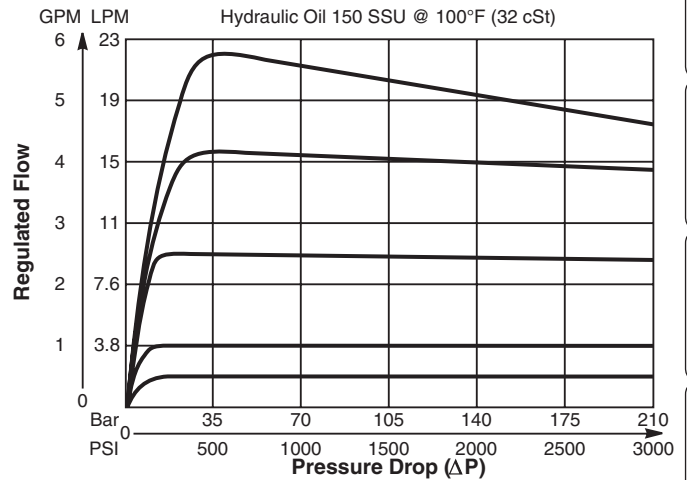


**Specifications**

Rated Flow	20.6 LPM (5.5 GPM)
Maximum Inlet Pressure	210 Bar (3000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.23 kg (0.50 lbs.)
Cavity	C10-2 (See BC Section for more details)

**Performance Curves**

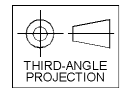
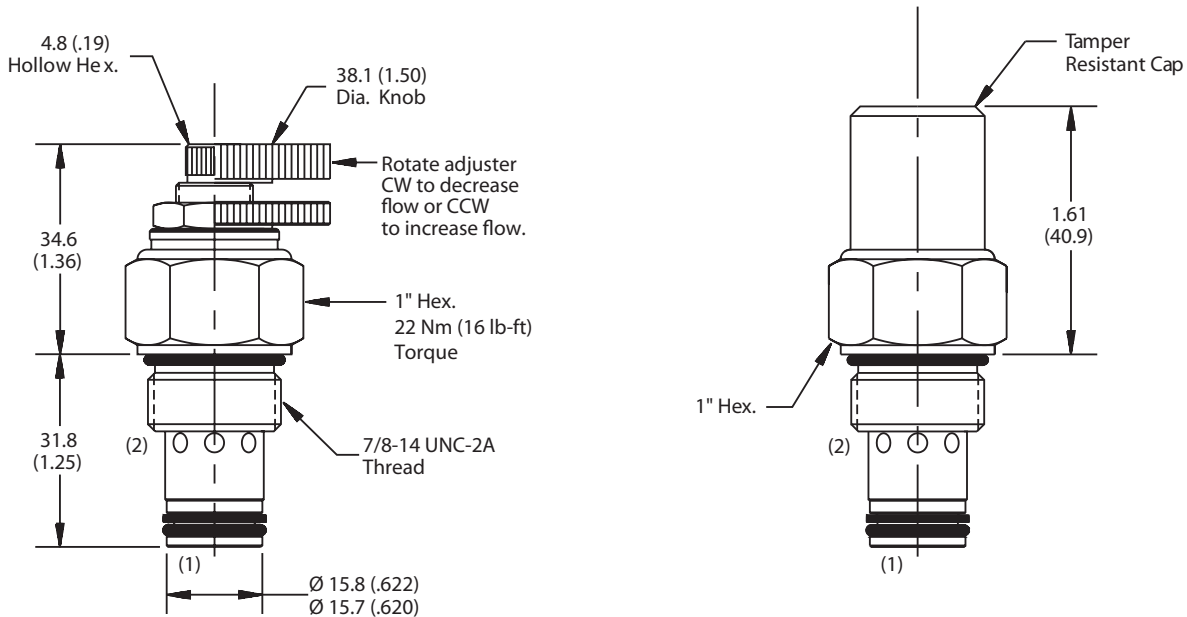
**Regulated Flow vs. Pressure Drop**  
 (Through cartridge only)



- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC**
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data



**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>FA101</b>	<b>S</b>
10 Size Pressure Compensated Flow Control Valve	Adjustment Style

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
<b>S</b>	Screw Adjust

Code	Seals
<b>Omit</b>	Nitrile

*Order Bodies Separately  
 See section BC*

<b>B10</b>	—	<b>2</b>	—	<b>8T</b>
10 size		2-Way Cavity		Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

Kit	Part Number
Knob	717784-10
Tamper Resistant Cap	717785
Nitrile Seal	SK10-2
Fluorocarbon Seal	SK10-2V

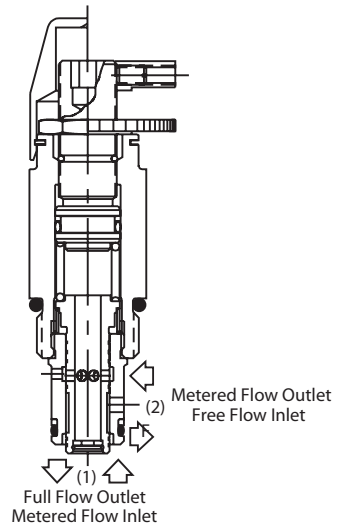
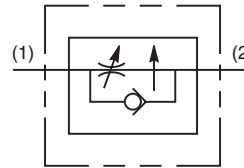
CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
<b>FC</b>
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**General Description**

Pressure Compensated Flow Control.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Hardened, precision ground parts for durability
- Compact size for reduced space requirements
- Free flow in reverse condition
- All external parts zinc plated

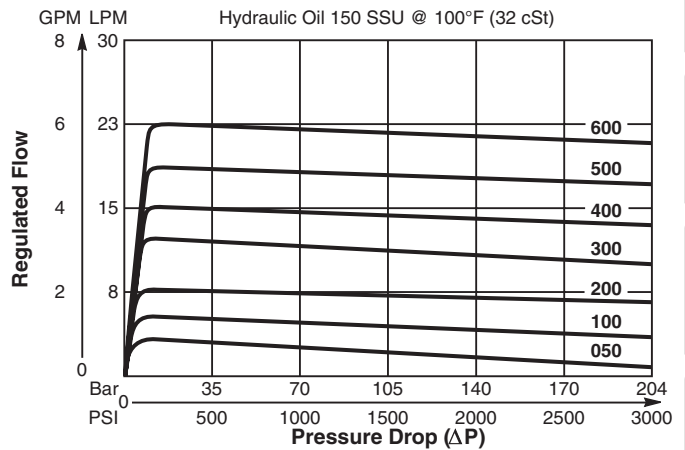


**Specifications**

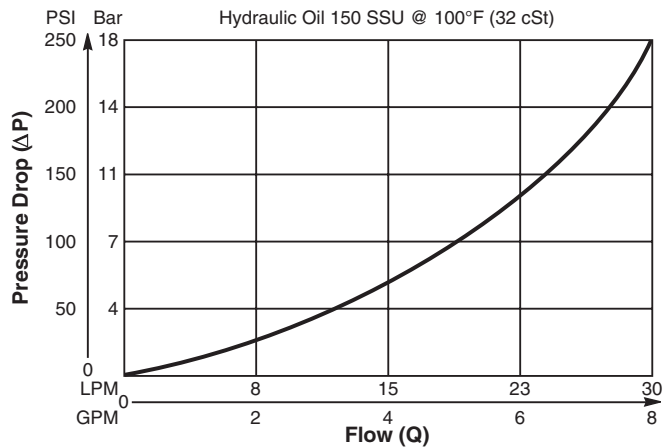
Rated Flow	56 LPM (15 GPM)
Maximum Inlet Pressure	210 Bar (3000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.23 kg (0.50 lbs.)
Cavity	C10-2 (See BC Section for more details)

**Performance Curves**

**Regulated Flow vs. Pressure Drop**  
 (Through cartridge only)

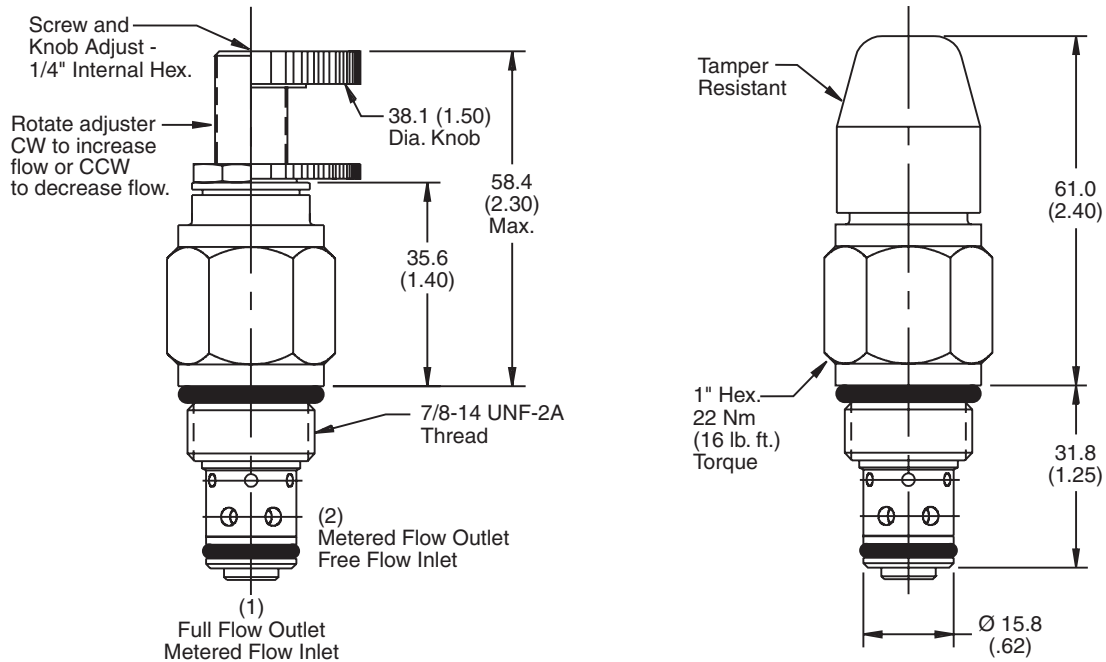


**Pressure Drop vs. Flow** (Through cartridge only)



- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC**
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>FC101</b>	<b>S</b>	
10 Size Pressure Compensated Flow Control	Adjustment Style	Flow Range

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
<b>S</b>	<b>Screw Adjust</b>

Code	Flow Range and Standard Setting
300	7.5-16.9 LPM (2.0-4.5 GPM) (11.3 LPM (3 GPM) @ 69 Bar (1000 PSI) ΔP)
600	15-30 LPM (4.0-8.0 GPM) (22.5 LPM (6 GPM) @ 69 Bar (1000 PSI) ΔP)

Code	Seals
<b>Omit</b>	<b>Nitrile</b>

Kit	Part Number
Knob	840208K
Tamper Resistant Cap	717783
Nitrile Seal	SK10-2
Fluorocarbon Seal	SK10-2V

*Order Bodies Separately  
 See section BC*

<b>B10</b>	<b>2</b>	<b>8T</b>
10 size	2-Way Cavity	Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**General Description**

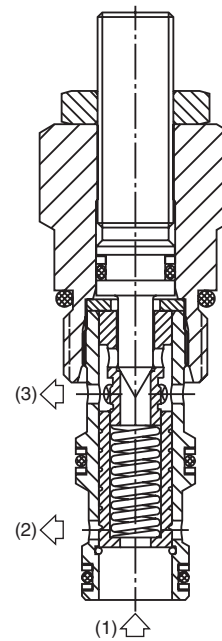
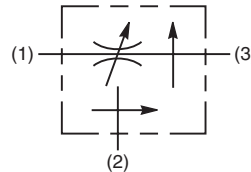
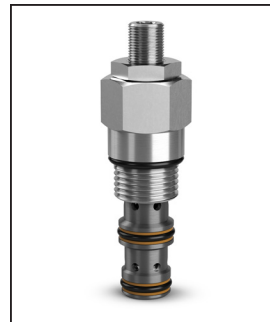
Priority Type, Pressure Compensated Flow Regulator Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Good adjustment from 1-15 LPM (0.3-4 GPM)
- Used for systems requiring priority flow such as steering systems
- Reverse flow function 3 to 1
- Hardened working parts for maximum durability
- All external parts zinc plated

**Specifications**

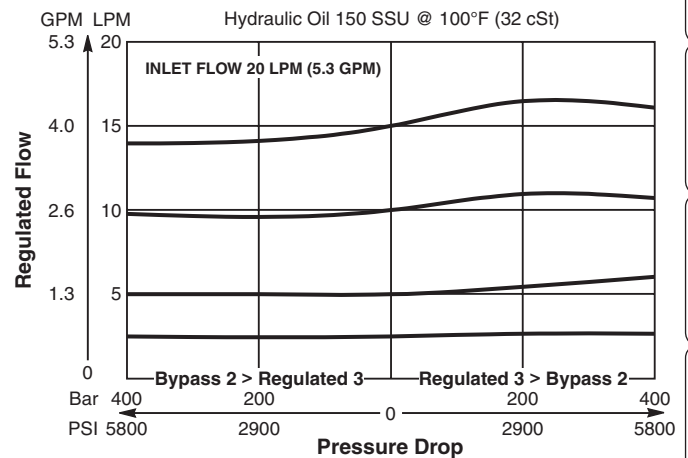
Rated Flow	15 LPM (4 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.08 kg (0.18 lbs.)
Cavity	C08-3 (See BC Section for more details)



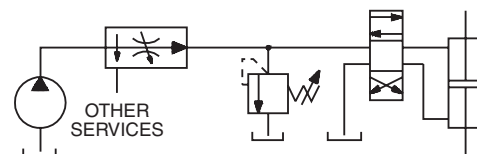
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

**Flow Regulating Performance**



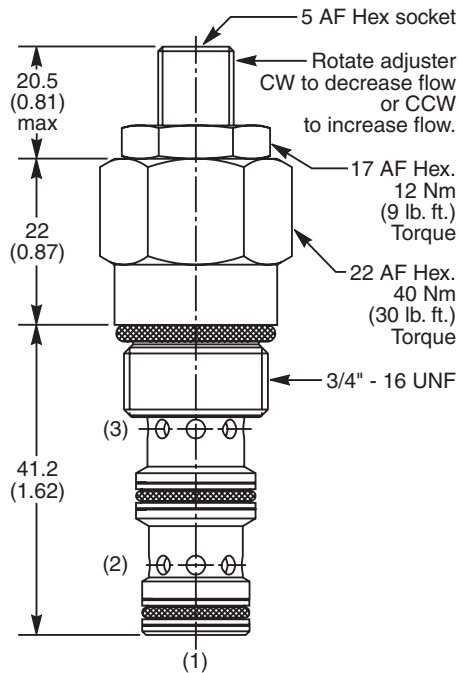
**Application**



Priority flow on steering circuit

<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>J02D3</b>	<b>Z</b>	<b>N</b>
Pressure Compensated Priority Flow Control Valve	Adjustment Style	Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
Z	Screw Adjust

Code	Seals
N	Nitrile

*Standard valve has a flow setting of 7 LPM.*

*Order Bodies Separately  
 See section BC*

<b>B08</b>	—	<b>3</b>	—	<b>6T</b>
08 size		3-Way Cavity		Port Size

Code	Porting / Body Material
6T	SAE-6 / Steel (5000 PSI)

Kit	Part Number
Knob	ASV014975
Tamper Resistant Cap	TC1130
Nitrile Seal	SK30501N-1
Fluorocarbon Seal	SK30501V-1

CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
<b>FC</b>
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**General Description**

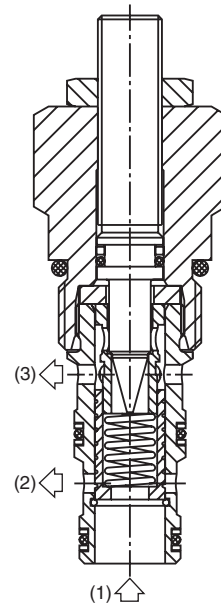
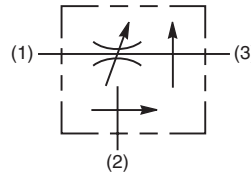
Priority Type, Pressure Compensated Flow Regulator Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- High flow capacity
- Good adjustment from 2-45 LPM (0.5-12 GPM)
- Used for systems requiring priority flow such as steering systems
- Reverse flow function 3 to 1
- Hardened working parts for maximum durability
- All external parts zinc plated

**Specifications**

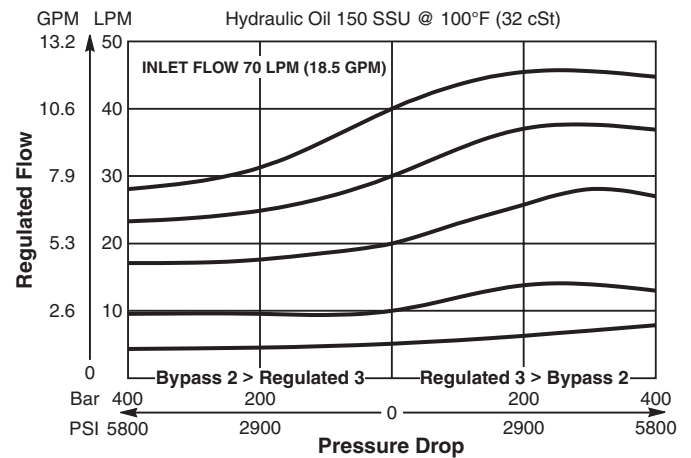
Rated Flow	70 LPM (18 GPM)
Maximum Regulated Flow	45 LPM (12 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.18 kg (0.40 lbs.)
Cavity	C10-3 (See BC Section for more details)



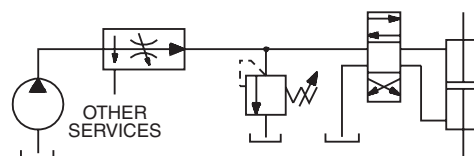
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

**Flow Regulating Performance**



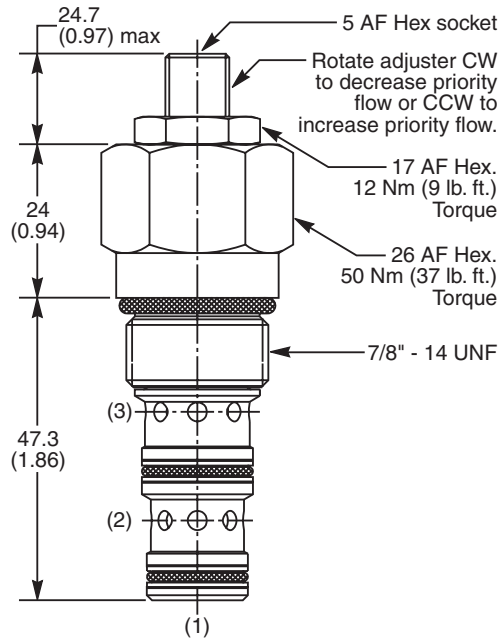
**Application**



Priority flow on steering circuit

CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
FC
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>J04D3</b>	<b>Z</b>	<b>N</b>
Pressure Compensated Priority Flow Control Valve	Adjustment Style	Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
Z	Screw Adjust

Code	Seals
N	Nitrile

Standard valve has a flow setting of 20 LPM.

Kit	Part Number
Knob	ASV014975
Tamper Resistant Cap	TC1130
Nitrile Seal	SK30505N-1
Fluorocarbon Seal	SK30505V-1

Order Bodies Separately  
 See section BC

<b>B10</b>	—	<b>3</b>	—	<b>8T</b>
10 size		3-Way Cavity		Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
<b>FC</b>
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**General Description**

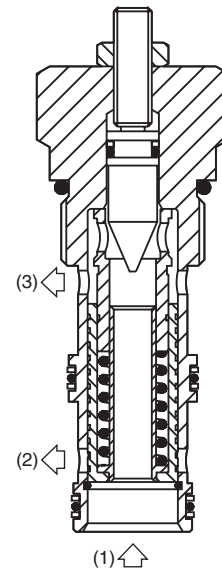
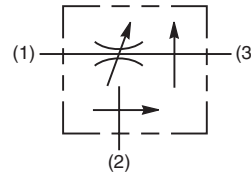
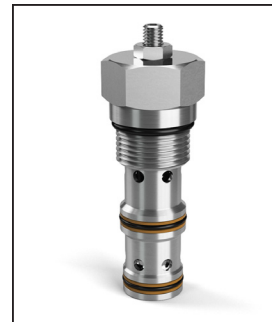
Priority Style, Pressure Compensated Flow Regulator Valve With Bypass.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Free reverse flow function
- High flow capacity
- Used for systems requiring priority flow such as steering systems
- Hardened working parts for maximum durability
- All external parts zinc plated

**Specifications**

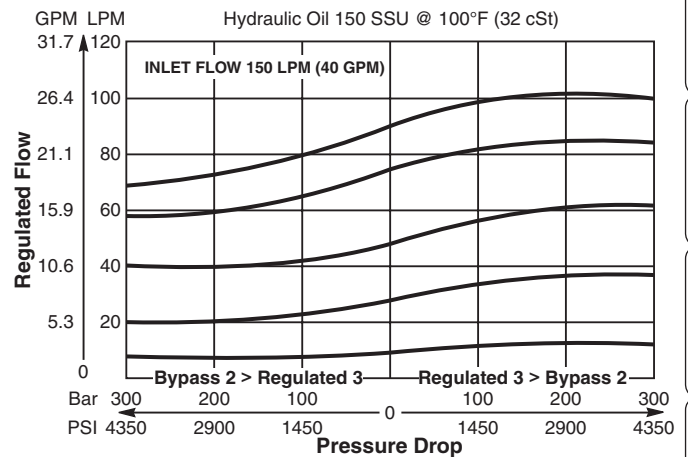
Rated Flow	150 LPM (40 GPM)
Maximum Regulated Flow	90 LPM (24 GPM)
Maximum Inlet Pressure	350 Bar (5000 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.45 kg (1.0 lbs.)
Cavity	3A (See BC Section for more details)



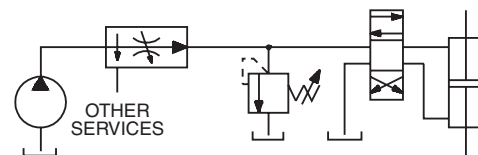
**Performance Curves**

**Flow vs. Inlet Pressure (Through cartridge only)**

**Flow Regulating Performance**



**Application**

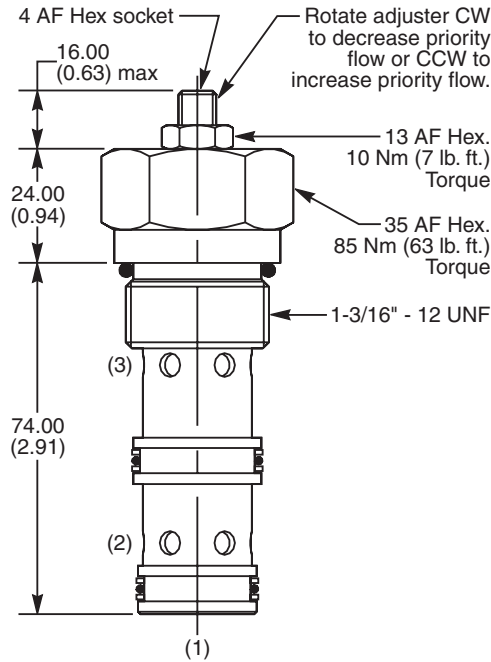


Priority flow on steering circuit

- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data



**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>J1A125</b>	<b>Z</b>	<b>N</b>
Pressure Compensated Priority Flow Control Valve	Adjustment Style	Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Adjustment Style
Z	Screw Adjust

Code	Seals
N	Nitrile

*Standard valve has a flow setting of 25 LPM and an Inlet flow setting of 45 LPM.*

*Order Bodies Separately See section BC*

<b>LB10</b>	<b>066</b>	<b>S</b>
Line Body	Porting	Body Material

Code	Porting
066	SAE16 /Steel (5000 PSI)

Kit	Part Number
Nitrile Seal	SK30011N-1
Fluorocarbon Seal	SK30011V-1

<b>CV</b>
Check Valves
<b>SH</b>
Shuttle Valves
<b>LM</b>
Load/Motor Controls
<b>FC</b>
Flow Controls
<b>PC</b>
Pressure Controls
<b>LE</b>
Logic Elements
<b>DC</b>
Directional Controls
<b>SV</b>
Solenoid Valves
<b>PV</b>
Proportional Valves
<b>CE</b>
Coils & Electronics
<b>BC</b>
Bodies & Cavities
<b>TD</b>
Technical Data

**General Description**

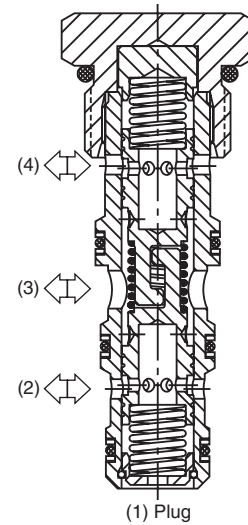
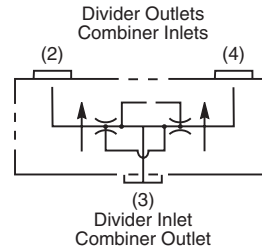
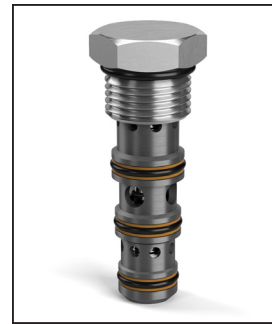
Spool Type, Flow Divider/Combiner Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

- Interlocking spools for equal control dividing or combining
- Range of flow settings available for optimising control
- Pressure compensated control in both directions
- 50/50 ratio standard, other ratios available on request
- Commonly used for differential lock in transmission applications
- Hardened working parts for maximum durability
- All external parts zinc plated

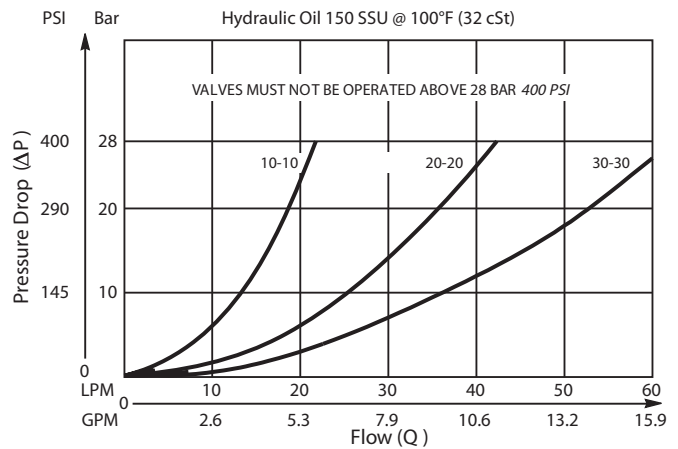
**Specifications**

Rated Flow	60 LPM (16 GPM)
Maximum Inlet Pressure	420 LPM (6000 PSI)
Flow Rating and Ratio	See Ordering Information
Accuracy Per Leg	±10%
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.12 kg (0.26 lbs.)
Cavity	C10-4 (See BC Section for more details)



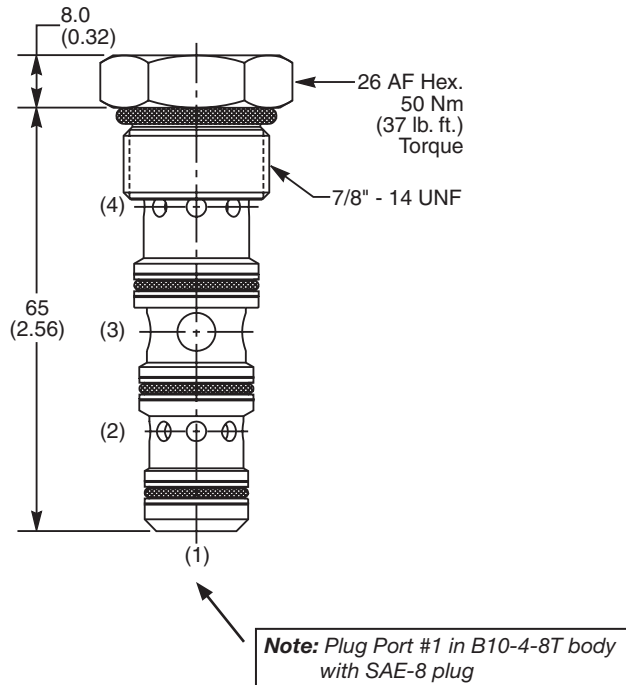
**Performance Curves**

Flow vs. Inlet Pressure (Through cartridge only)



CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
FC
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**Dimensions** Millimeters (Inches)



**Ordering Information**

**L04A3** —  — **N**

Size 10 Flow Divider Combiner Valve      Flow Rating and Ratio      Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Total Flow Rating - Port 3 (Flow Ratio)
10-10	8-20 LPM (2.1-5.3 GPM) (50/50 Ratio)
20-20	12-40 LPM (3.2-10.6 GPM) (50/50 Ratio)
30-30	14-60 LPM (3.7-15.9 GPM) (50/50 Ratio)

Code	Seals
N	Nitrile

Order Bodies Separately  
 See section BC

**B10** — **4** — **8T**

10 size      4-Way Cavity      Port Size

Code	Porting / Body Material
8T	SAE-8 / Steel (5000 PSI)

Kit	Part Number
Nitrile Seal	SK30506N-1
Fluorocarbon Seal	SK30506V-1

- CV
- Check Valves
- SH
- Shuttle Valves
- LM
- Load/Motor Controls
- FC**
- Flow Controls
- PC
- Pressure Controls
- LE
- Logic Elements
- DC
- Directional Controls
- SV
- Solenoid Valves
- PV
- Proportional Valves
- CE
- Coils & Electronics
- BC
- Bodies & Cavities
- TD
- Technical Data

**General Description**

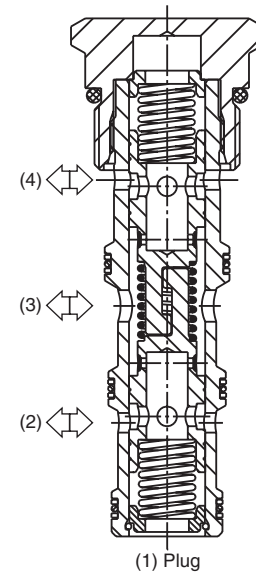
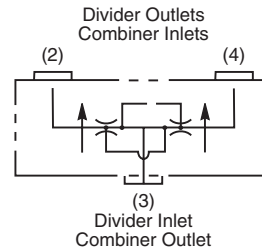
Spool Type, Flow Divider/Combiner Valve.  
 For additional information see Technical Tips on pages FC2-FC5.

**Features**

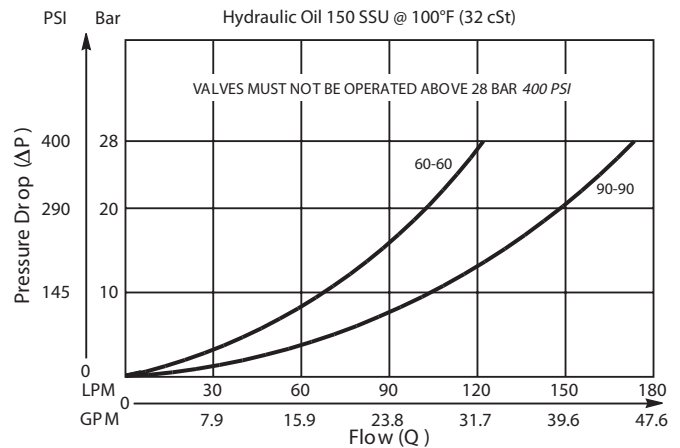
- Interlocking spools for equal control dividing or combining
- Range of flow settings available for optimising control
- Pressure compensated control in both directions
- 50/50 ratio standard, other ratios available on request
- Commonly used for differential lock in transmission applications
- Hardened working parts for maximum durability
- All external parts zinc plated

**Specifications**

Rated Flow	180 LPM (47 GPM)
Maximum Inlet Pressure	420 LPM (6000 PSI)
Flow Rating and Ratio	See Ordering Information
Accuracy Per Leg	±10%
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-34°C to +121°C (Nitrile) (-30°F to +250°F) -26°C to +204°C (Fluorocarbon) (-15°F to +400°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO-4406 18/16/13, SAE Class 4
Approx. Weight	0.40 kg (0.86 lbs.)
Cavity	C16-4 (See BC Section for more details)

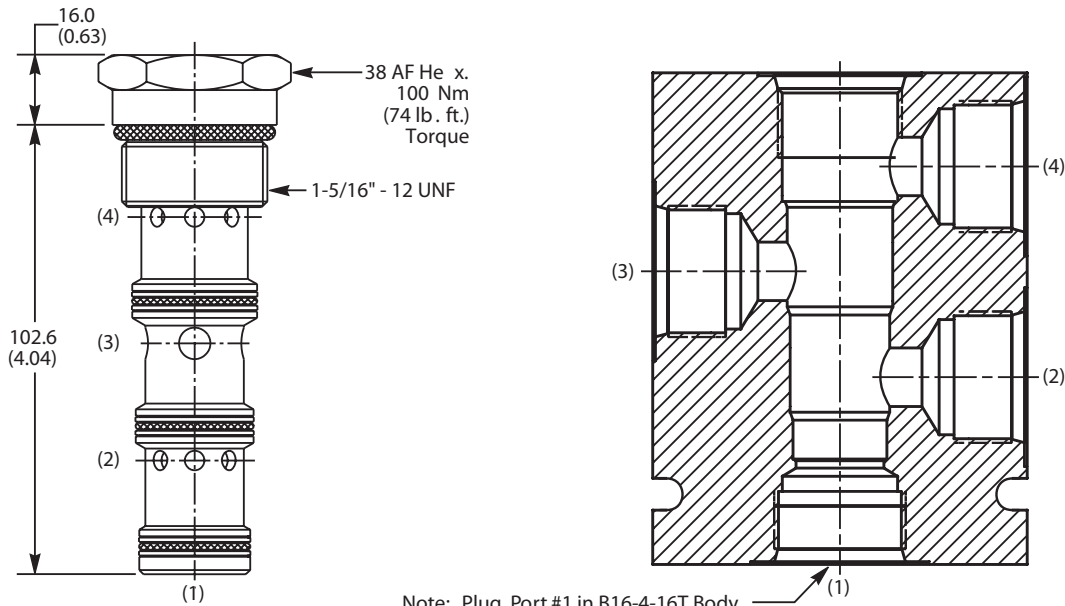


**Performance Curve**  
 Pressure Drop vs. Flow (Through cartridge only)



CV
Check Valves
SH
Shuttle Valves
LM
Load/Motor Controls
FC
Flow Controls
PC
Pressure Controls
LE
Logic Elements
DC
Directional Controls
SV
Solenoid Valves
PV
Proportional Valves
CE
Coils & Electronics
BC
Bodies & Cavities
TD
Technical Data

**Dimensions** Millimeters (Inches)



Note: Plug Port #1 in B16-4-16T Body with SAE-16 plug.

**Ordering Information**

**L06A3** —  — **N**

16 Size Flow Divider/Combiner Valve      Flow Rating and Ratio      Seals

**Highlighted** represents preferred options that offer the shortest lead times. Other options may be available, but at extended lead times.

Code	Total Flow Rating - Port 3 (Flow Ratio)
<b>60-60</b>	35-120 LPM (9.2-31.7 GPM) (50/50 Ratio)
<b>90-90</b>	65-180 LPM (17.2-47.8 GPM) (50/50 Ratio)

Code	Seals
<b>N</b>	Nitrile

Order Bodies Separately  
 See section BC

**B16** — **4** — **16T**

16 size      4-Way Cavity      Port Size

Code	Porting / Body Material
16T	SAE-16 / Steel (5000 PSI)

Kit	Part Number
Nitrile Seal	SK30510N-1
Fluorocarbon Seal	SK30510V-1

**CV**  
Check Valves

**SH**  
Shuttle Valves

**LM**  
Load/Motor Controls

**FC**  
Flow Controls

**PC**  
Pressure Controls

**LE**  
Logic Elements

**DC**  
Directional Controls

**SV**  
Solenoid Valves

**PV**  
Proportional Valves

**CE**  
Coils & Electronics

**BC**  
Bodies & Cavities

**TD**  
Technical Data