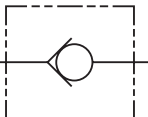
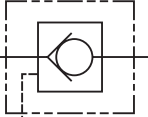
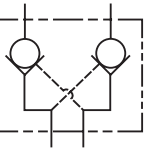
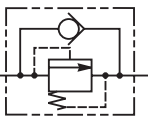


	SERIES	CAVITY	DESCRIPTION	FLOW LPM/GPM	PRESSURE BAR/PSI	PAGE NO.		
	<b>STANDARD CHECKS</b>							
		D1A060	2U	Check Valve Insert, Ball Type	145/38	420/6000	CV5	
		D1B125	2C	Check Valve Insert, Ball Type	500/132	420/6000	CV6	
		D0WB2	CAVOW-2	Cartridge Check, Ball Type	3.5/0.9	420/6000	CV7	
		D02B2	C08-2	Cartridge Check, Ball Type	45/12	420/6000	CV8	
	☆	CVH081P	C08-2	Cartridge Check, Poppet Type	38/10	350/5000	CV9	
	☆	CVH103P	C10-2	Cartridge Check, Poppet Type	60/16	350/5000	CV10	
		D04B2	C10-2	Cartridge Check, Ball Type	160/42	420/6000	CV11	
		CVH121P	C12-2	Cartridge Check, Poppet Type	121/32	350/5000	CV12	
		D06B2P	C16-2	Cartridge Check, Poppet Type	280/74	420/6000	CV13	
		CVH161P	C16-2	Cartridge Check, Poppet Type	226/60	350/5000	CV14	
		CVH201P	C20-2	Cartridge Check, Poppet Type	303/80	350/5000	CV15	
	☆	CVH104P	C10-2	Cartridge Check, Poppet Type 2 to 1 Flow Path	19/5	350/5000	CV16	
		D06C2	C16-2	Cartridge Check, Poppet Type 2 to 1 Flow Path	500/132	420/6000	CV17	
		<b>PILOT OPERATED CHECKS</b>						
			CP084P	C08-3	Single P.O. Check, Pilot on Port 1	19/5	207/3000	CV18
		☆	CPH104P	C10-3	Single P.O. Check, Pilot on Port 1	30/8	350/5000	CV19
			CPH124P	C12-3	Single P.O. Check, Pilot on Port 1	75/20	350/5000	CV20
☆		CSP(H)081		Single P.O. Check Package	38/10	350/5000	CV21-22	
☆		CSP(H)103		Single P.O. Check Package	60/16	350/5000	CV23-24	
		CSP(H)161		Single P.O. Check Package, Steel Body	226/60	350/5000	CV25-26	
		D4A020	53-1	Single P.O. Check, Pilot on Port 3	30/8	420/6000	CV27	
		D4A040	68-1	Single P.O. Check, Pilot on Port 3	60/16	420/6000	CV28	
		D3B125	3C	Single P.O. Check, Pilot on Port 3	150/40	420/6000	CV29	
		CPC101P	C10-3	Pilot to Close Check, Pilot on Port 3	20/5	420/6000	CV30	
	<b>DUAL PILOT OPERATED CHECKS</b>							
		CPD084P	C08-4	Dual P.O. Check Cartridge	19/5	207/3000	CV32	
	☆	CDP(H)081		Dual P.O. Check Package	38/10	350/5000	CV33-34	
	☆	CDP(H)103		Dual P.O. Check Package	60/16	350/5000	CV35-36	
	CDP(H)161		Dual P.O. Check Package, Steel Body	226/60	350/5000	CV37-38		
	<b>CHECK WITH RELIEF</b>							
		D04F2	C10-2	Check With Thermal Relief, Relieving Port 2 to 1	130/40	420/6000	CV39	

\*Rated to 207 Bar/3000 PSI with Aluminum Body.

☆ Denotes New Winner's Circle Product Line.



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

CV

Check Valves

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Technical Data

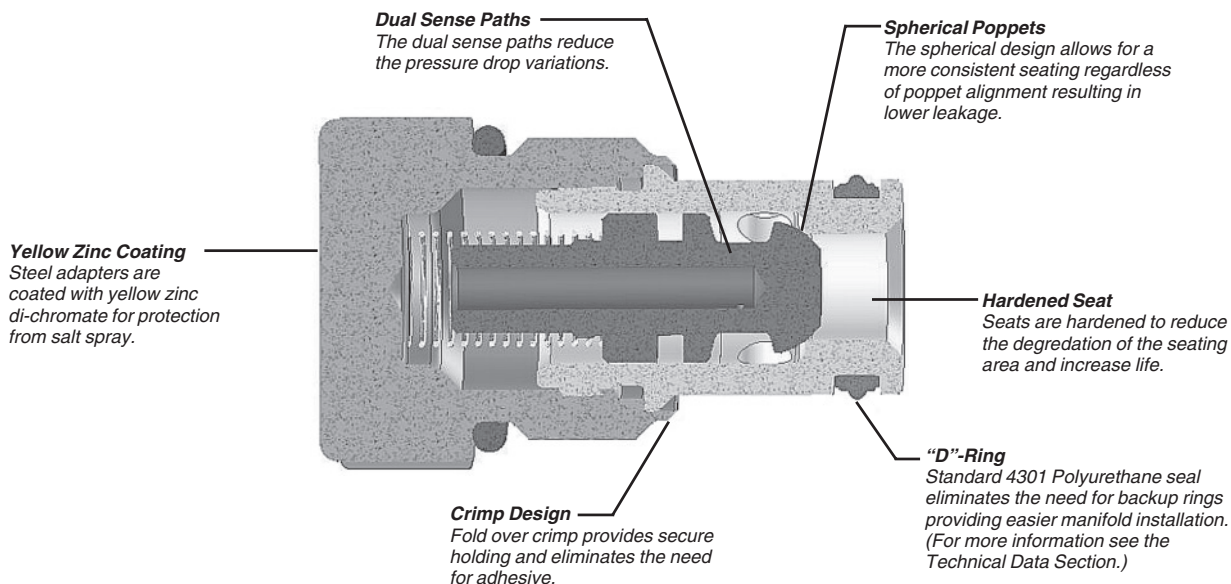
**INTRODUCTION:**

This technical tips section is designed to help familiarize you with the Parker line of Check Valves. In this section we present the products that are new to this catalog as well as some design features of our checks valves. In addition, we present common options available to help you in selecting products for your application. Finally we give a brief synopsis of the operation and applications of the various product offered in this section.

**NEW PRODUCTS:**

There are several new additions and product improvements to our Check Valve product line.

*Here are just some of the general design features and advantages to the "Winner's Circle" check valve.*



**COMMON OPTIONS:**

Since check valves and shuttles are fairly simple components, there are very few options. Here are the standard options you will find.

**Seals:** The Winner's Circle products feature a standard 4301 Polyurethane "D"-Ring. The "D"-Ring eliminates the need for backup rings. The majority of the products are available in Nitrile or Fluorocarbon Seals. You should match the seal compatibility to the temperature and fluid being used in your application.

**Crack Pressure:** Parker offers a number of standard crack pressure options for each valve. Check the model code pages for these options. The crack pressure is defined as the minimum amount of pressure that is needed to unseat the poppet. In pilot operated check applications, you may want to go with a slightly higher cracking pressure to keep the piston weight, friction, and drag from accidentally unseating the poppet.

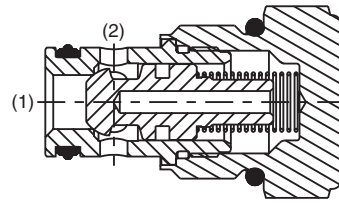
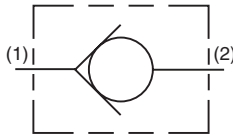
**Pilot Piston Seal:** On the pilot piston style pilot operated check valves, Parker offers the option to place a seal on the piston to reduce the leakage across the piston. **Note:** Sealing the pilot piston does not decrease the leakage across the poppet. In other words, if you are trying to reduce the leakage from the actuator port, sealing the piston will not help. While most applications do not require a seal on the piston, it can be advantageous in applications with very small pump flows where the lost fluid would have a high impact on actuator speed.

**PRODUCT TYPES / APPLICATIONS**

**Check Valve - Poppet Type**

Check valves are poppet style elements that allow free flow in one direction while preventing flow in the reverse direction.

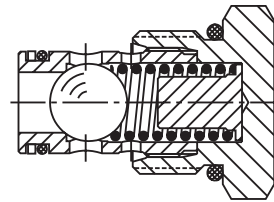
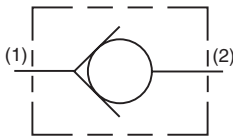
They can be used to isolate portions of a hydraulic circuit or to provide a free flow path around a restrictive valve.



**OPERATION** - Pressure on the inlet (port 1) of the check valve creates a force against the poppet, pushing it off its seat and permitting free flow to port 2. Reverse flow through the check is blocked by the poppet.

**Check Valve - Ball Type**

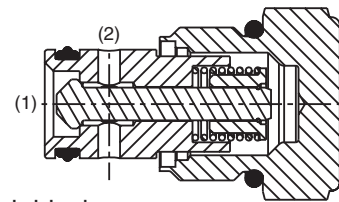
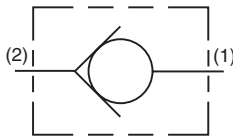
Ball type check valves are check valves that use a hardened steel ball to seal against the valve seat as opposed to a poppet. They are simple in their design and provide low leakage over the life of the system.



**OPERATION** - Pressure on the inlet (port 1) of the check valve creates a force on the steel ball pushing it off of its seat and permitting free flow to port 2. Reverse flow through the check is blocked by the steel ball on the seat.

**Side to Nose Check Valve**

Side to nose check valves are a special type of check valve where the free flow path is from the side of the cartridge valve to the nose. They functionally are the same as the standard check valve. Side to nose check valves are occasionally used by manifold designers to simply the flow path design of their blocks.



**OPERATION** - Pressure on the inlet (port 2) of the check valve creates a force against the poppet, pushing it off its seat and permitting free flow to port 1. Reverse flow through the check is blocked by the poppet.

<b>CV</b>
Check Valves
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Shuttle Valves
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Flow Controls
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Pressure Controls
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Logic Elements
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Load/Motor Controls

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Pressure Controls

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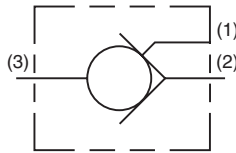
Bodies & Cavities

TD

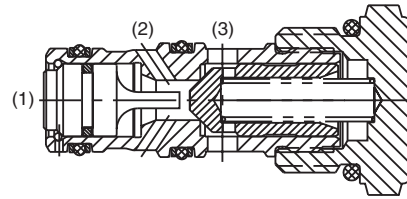
Technical Data

**Pilot Operated Check Valve**

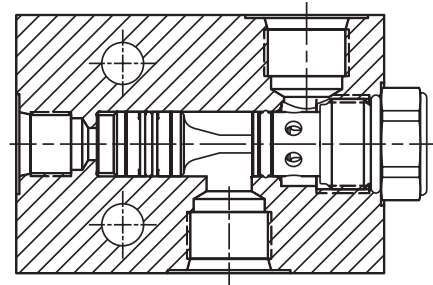
Pilot operated check valves (also referred to as P.O. check valves), are check valves which can be opened by an external pilot pressure. Thus, P.O. checks, block flow in one direction, like standard check valves, but can be released once an adequate pilot pressure is applied. Free flow is allowed in the reverse direction. P.O. checks are often used to positively lock a dual acting cylinder. There are two types of pilot operated check valves; threaded cartridge style and pilot piston style. These valves work best when used in conjunction with a control valve that vents the valve ports to tank when centered.



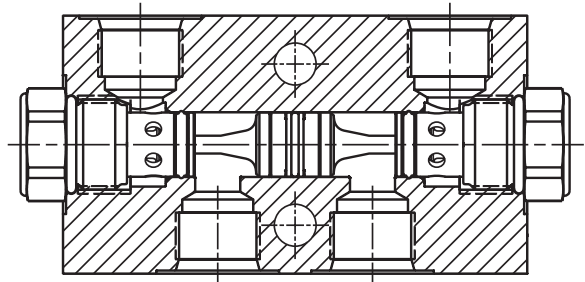
**Cartridge Style P.O. Check Valve**



**Single Pilot Piston Style P.O. Check Valve**



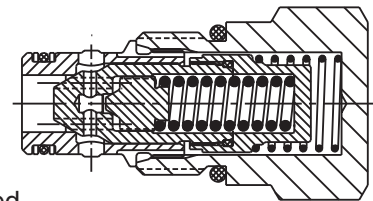
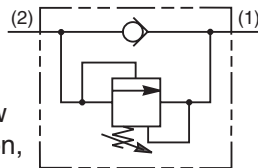
**Dual Pilot Piston Style P.O. Check Valve**



**OPERATION** - In the absence of adequate pilot pressure, the poppet remains seated preventing flow from the actuator port (port 3) to the valve port (port 2). Once adequate pilot pressure is applied at the pilot port (port 1), the internal pilot piston unseats the check poppet permitting flow from port 3 to port 2. The amount of pressure needed at port 1 to unseat the check valve is determined by the pilot ratio of the pilot piston to the poppet seat diameter. If you have a pilot operated check valve with a 3:1 ratio pilot piston, then you would need a pilot pressure at port 1 that is 1/3 of the pressure being checked at port 3 plus the spring. For example, if you had 3000 psi on port 3 and a 5 psi spring and a 3:1 pilot ratio, it would take 1002 psi  $[(3000 \text{ psi} + 5 \text{ psi}) / 3]$  to release the check valve. Free flow is permitted from the valve port (port 2) to the cylinder port (port 3).

**Check Valve With Thermal Relief**

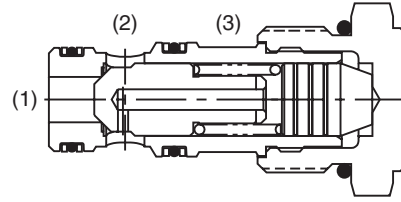
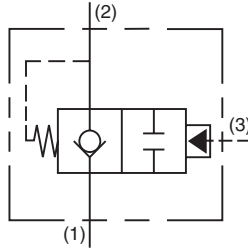
The check valve with thermal relief performs the same function as a standard check valve. It allows free flow in one direction. In the opposite direction, it performs as a normal check valve preventing flow, while also venting excess pressure caused by the thermal expansion of fluid. This type of valve can be used with an external pilot piston to provide a pilot operated valve that will vent trapped pressure due to thermal expansion. These valves work best when used in conjunction with a control valve that vents the valve ports to tank when centered.



**OPERATION** - The check valve is a guided poppet design. As the pressure on the inlet exceeds the spring rate, the poppet is pushed off of its seat allowing flow to pass. Once the pressure on the inlet side drops below the spring force, the spring then pushes the poppet back on its seat blocking flow from the outlet to the inlet of the check valve. If the pressure on the outlet side of the check valve (when it is in a load holding function) rises (through thermal expansion), the direct acting relief will vent the excess pressure caused by the thermal expansion to the inlet side of the check.

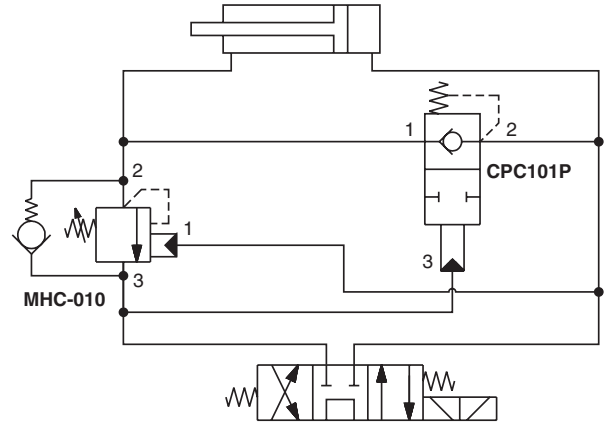
**Pilot to Close Check**

Pilot to close check valves are unique 2 way valves that act as a check valve, allowing free flow in one direction and blocking flow from the opposite direction. When an external pilot pressure is applied, flow is blocked from both directions.



These products are ideal for regeneration circuits. See sample diagram shown.

**OPERATION** - In the absence of adequate pilot pressure, the valve functions as a simple check valve, allowing free flow from port 1 to port 2. When adequate pilot pressure at port 3 is applied, the pilot piston holds the poppet closed, blocking flow in both directions.



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Technical Information

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

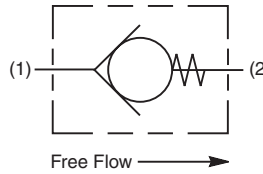
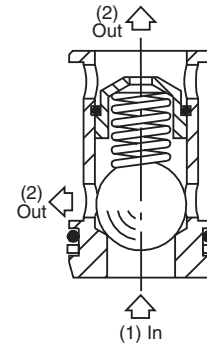
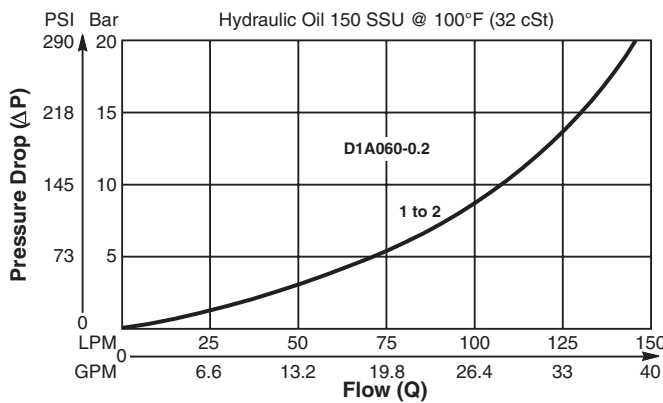
Ball Type, Check Valve Insert.

Features

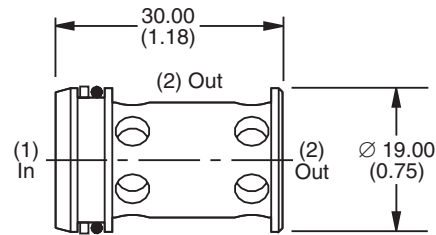
- For inserting inside manifold blocks
- High flow capacity
- Minimal leakage - less than 3 drops/min.
- Simple construction - extremely cost effective
- Range of cracking pressures available
- Good contamination tolerance
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



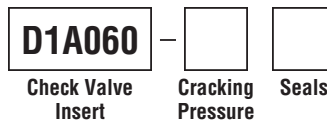
Dimensions Millimeters (Inches)



Specifications

Rated Flow	145 LPM (38 GPM)
Nominal Flow @ 7 Bar (100 PSI)	90 LPM (24 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	Less than 3 drops/min.
Cartridge Material	Steel operating parts, hardened steel ball.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.085 kg (.19 lbs.)
Cavity	2U (See BC Section for more details)

Ordering Information



Code	Cracking Pressure
0.2	0.2 Bar (3 PSI) Std.
1.0	1.0 Bar (15 PSI)
2.0	2.0 Bar (30 PSI)
3.0	3.0 Bar (45 PSI)
5.0	5.0 Bar (72 PSI)
7.0	7.0 Bar (100 PSI)
10.0	10.0 Bar (145 PSI)

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30019N-1)
V	Fluorocarbon / (SK30019V-1)

Order Bodies Separately



Code	Porting
205	1/2" BSP
220	1/2" SAE

Code	Body Material
S	Steel



Technical Information

General Description

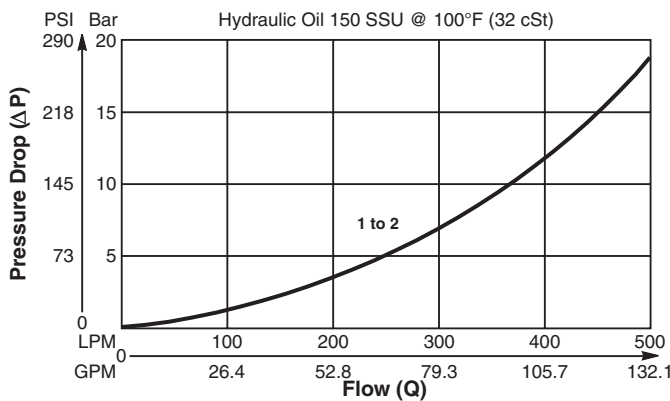
Poppet Type, Check Valve Insert.

Features

- For inserting inside manifold blocks
- High flow capacity
- Minimal leakage - less than 3 drops/min.
- Simple construction - extremely cost effective
- Range of cracking pressures available
- Good contamination tolerance
- All external parts zinc plated

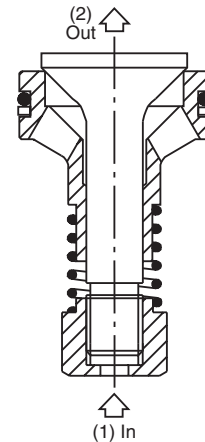
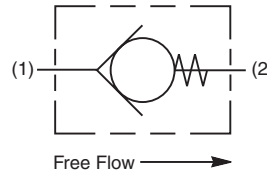
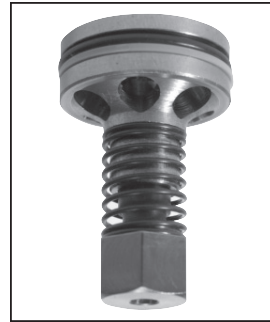
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

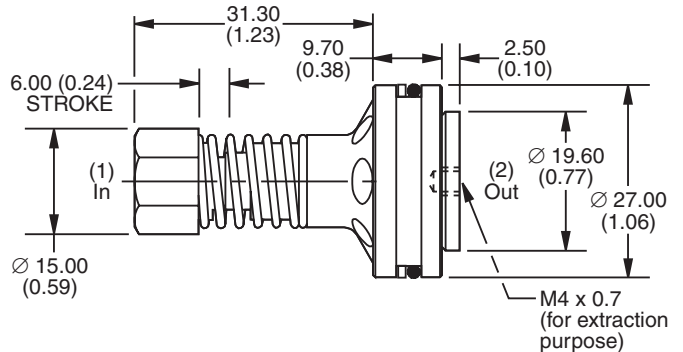


Specifications

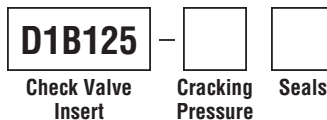
<b>Rated Flow</b>	500 LPM (132 GPM)
<b>Nominal Flow @ 7 Bar (100 PSI)</b>	300 LPM (79 GPM)
<b>Maximum Inlet Pressure</b>	420 Bar (6000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	Less than 3 drops/min.
<b>Cartridge Material</b>	Steel operating parts, hardened steel poppet.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.06 kg (.13 lbs.)
<b>Cavity</b>	2C (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information



Code	Cracking Pressure
0.0	0 Bar (0 PSI)
0.1	0.1 Bar (1.5 PSI)
0.2	0.2 Bar (3 PSI)
1.0	1.0 Bar (15 PSI) Std.
2.0	2.0 Bar (30 PSI)
3.0	3.0 Bar (45 PSI)
5.0	5.0 Bar (72 PSI)

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30014N-1)
V	Fluorocarbon / (SK30014V-1)

Order Bodies Separately



Code	Porting
210	1" BSP
212	1" SAE

Code	Body Material
S	Steel

CV

Check Valves

SH

Shuttle Valves

LM

Load/Motor Controls

FC

Flow Controls

PC

Pressure Controls

LE

Logic Elements

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Directional Controls

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Manual Valves

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Solenoid Valves

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Technical Information

- CV Check Valves
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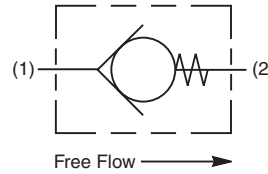
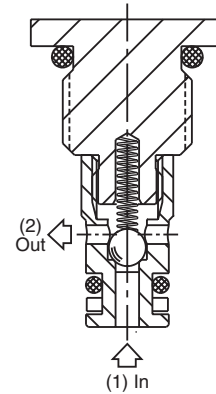
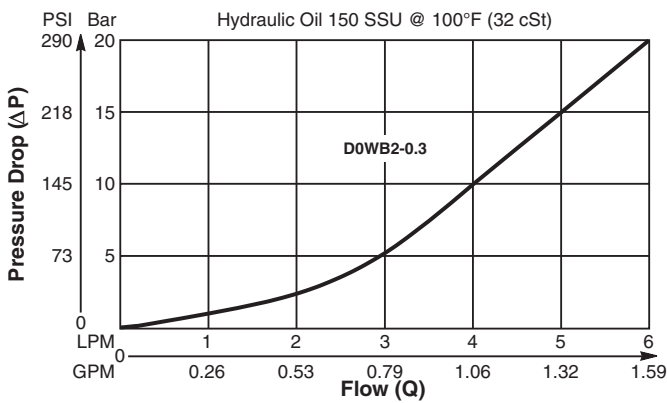
Miniature Ball Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

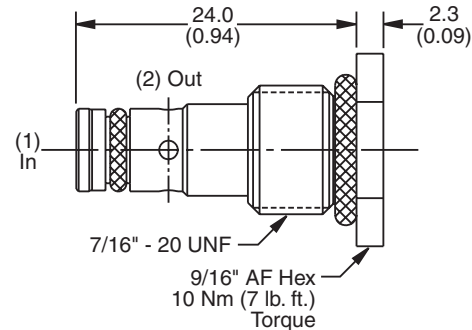
- Low leakage - less than 3 drops/min.
- Ball type construction for cost effective design
- Extremely compact
- Good contamination tolerance
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



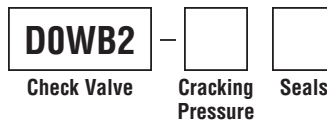
Dimensions Millimeters (Inches)



Specifications

Rated Flow	6 LPM (1.6 GPM)
Nominal Flow @ 7 Bar (100 PSI)	3.5 LPM (0.9 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	Less than 3 drops/min.
Cartridge Material	Steel operating parts, hardened steel ball.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.012 kg (.026 lbs.)
Cavity	CAV0W-2 (See BC Section for more details)

Ordering Information



Code	Cracking Pressure
0.3	0.3 Bar (4 PSI)

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30519N-1)
V	Fluorocarbon / (SK30519V-1)

Order Bodies Separately



Code	Porting
795	1/4" SAE
796	1/4" BSP

Code	Body Material
A	Aluminum
S	Steel



Technical Information

General Description

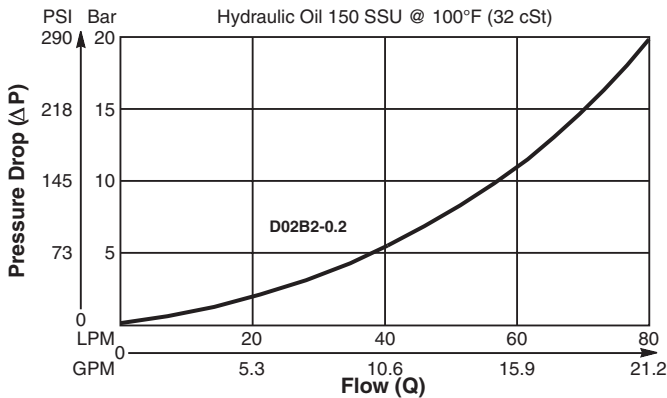
Ball Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

- Low leakage - less than 3 drops/min.
- Ball type construction for cost effective design
- Single and dual pilot pistons available to create pilot to open check
- Range of cracking pressures available - up to 25 Bar (362 PSI)
- Good contamination tolerance
- All external parts zinc plated

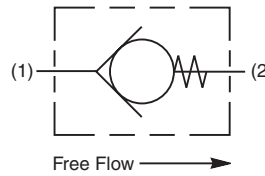
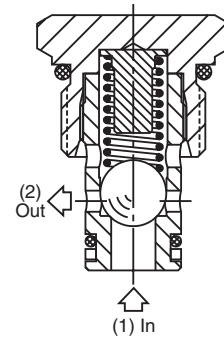
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

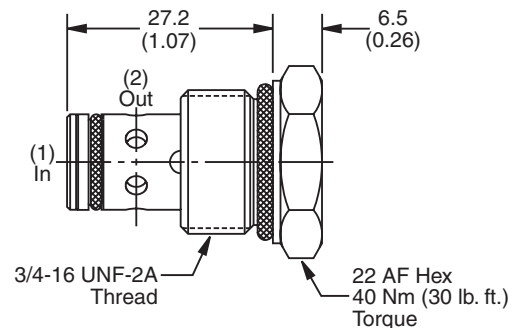


Specifications

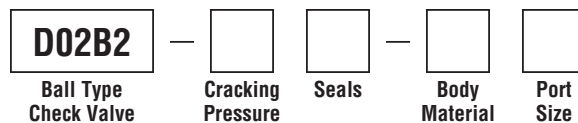
<b>Rated Flow</b>	80 LPM (21 GPM)
<b>Nominal Flow @ 7 Bar (100 PSI)</b>	45 LPM (12 GPM)
<b>Maximum Inlet Pressure</b>	420 Bar (6000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	Less than 3 drops/min.
<b>Cartridge Material</b>	Steel operating parts, hardened steel ball.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.05 kg (.11 lbs.)
<b>Cavity</b>	C08-2 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information



Code	Cracking Pressure
0.0	0.0 Bar (0 PSI)
0.2	0.2 Bar (3 PSI) Std.
1.0	1.0 Bar (15 PSI)
1.5	1.5 Bar (22 PSI)
2.1	2.1 Bar (30 PSI)
2.5	2.5 Bar (36 PSI)
3.4	3.4 Bar (50 PSI)
4.0	4.0 Bar (58 PSI)
6.0	6.0 Bar (87 PSI)
6.9	6.9 Bar (100 PSI)
10.0	10.0 Bar (145 PSI)
17.0	17.0 Bar (247 PSI)
20.0	20.0 Bar (290 PSI)
25.0	25.0 Bar (362 PSI)

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30515N-1)
V	Fluorocarbon / (SK30515V-1)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B08-2-*4P)
6P	3/8" NPTF	(B08-2-*6P)
4T	SAE-4	(B08-2-*4T)
6T	SAE-6	(B08-2-*6T)
6B	3/8" BSPG	(B08-2-*6B)

\* Add "A" for aluminum, omit for steel.

Technical Information

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

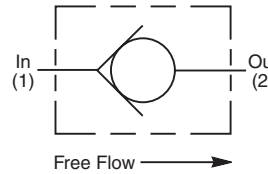
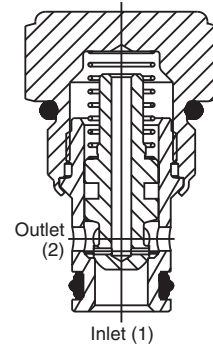
General Description

Cartridge Style Check Valve. For additional information see Technical Tips on pages CV1-CV4.



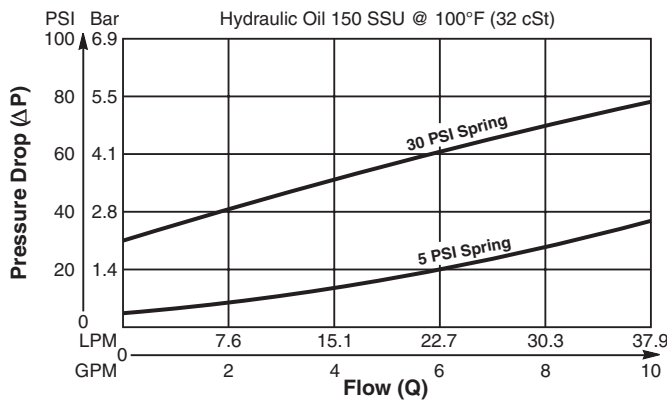
Features

- Spherical poppet for low leakage
- "D"-Ring eliminates back-up rings
- Dual sense paths for reduced ΔP
- All external parts zinc plated

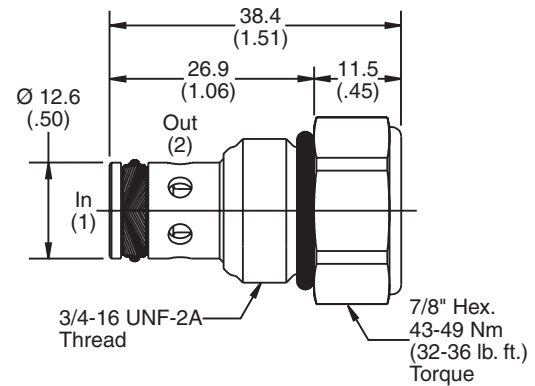


Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



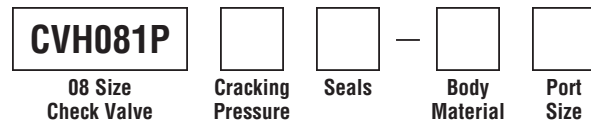
Dimensions Millimeters (Inches)



Specifications

<b>Rated Flow</b>	38 LPM (10 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-45°C to +93.3°C ("D" Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.10 kg (0.2 lbs.)
<b>Cavity</b>	C08-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT08-2F

Ordering Information



Code	Cracking Pressure
Omit	0.3 Bar (5 PSI)
10	0.7 Bar (10 PSI)
30	2.1 Bar (30 PSI)
65	4.5 Bar (65 PSI)
100	6.9 Bar (100 PSI)
150	10.4 Bar (150 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	"D"-Ring / (SK08-2)
N	Nitrile / (SK08-2N)
V	Fluorocarbon / (SK08-2V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B08-2-*4P)
6P	3/8" NPTF	(B08-2-*6P)
4T	SAE-4	(B08-2-*4T)
6T	SAE-6	(B08-2-*6T)
6B	3/8" BSPG	(B08-2-*6B)

\* Add "A" for aluminum, omit for steel.

**General Description**

Cartridge Style Check Valve. For additional information see Technical Tips on pages CV1-CV4.

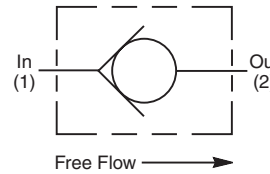
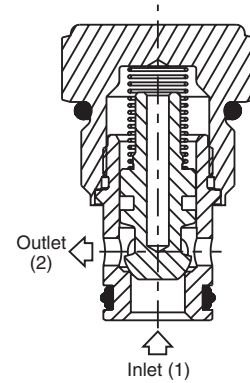
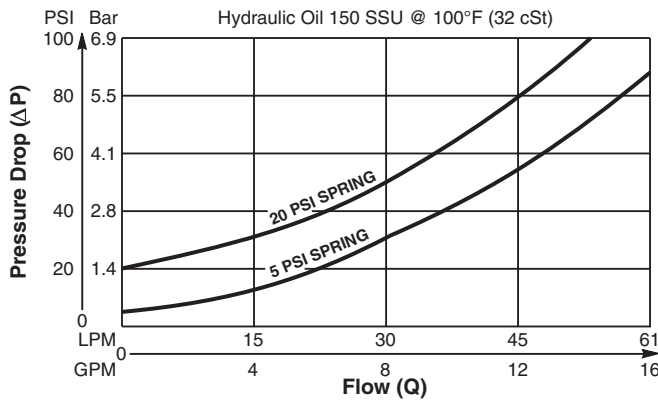


**Features**

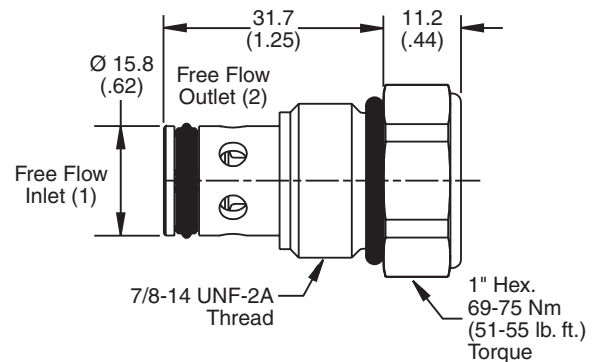
- Spherical poppet for low leakage
- “D”-Ring eliminates back-up rings
- Dual sense paths for reduced ΔP
- All external parts zinc plated

**Performance Curve**

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



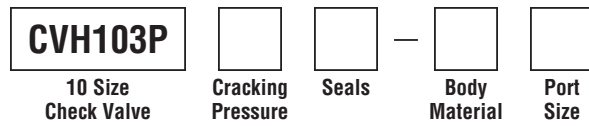
**Dimensions** Millimeters (Inches)



**Specifications**

<b>Rated Flow</b>	60 LPM (16 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-45°C to +93.3°C (“D” Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.09 kg (0.2 lbs.)
<b>Cavity</b>	C10-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT10-2F

**Ordering Information**



Code	Cracking Pressure
Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
50	3.5 Bar (50 PSI)
65	4.5 Bar (65 PSI)
80	5.5 Bar (80 PSI)
100	6.9 Bar (100 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	“D”-Ring / (SK10-2)
N	Nitrile / (SK10-2N)
V	Fluorocarbon / (SK10-2V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4” NPTF	(B10-2-*4P)
6P	3/8” NPTF	(B10-2-*6P)
8P	1/2” NPTF	(B10-2-*8P)
6T	SAE-6	(B10-2-*6T)
8T	SAE-8	(B10-2-*8T)
T8T	SAE-8	(B10-2-T8T)†
6B	3/8” BSPG	(B10-2-6B)†

\* Add “A” for aluminum, omit for steel.  
† Steel body only.

**CV** Check Valves

**SH** Shuttle Valves

**LM** Load/Motor Controls

**FC** Flow Controls

**PC** Pressure Controls

**LE** Logic Elements

**DC** Directional Controls

**MV** Manual Valves

**SV** Solenoid Valves

**PV** Proportional Valves

**CE** Coils & Electronics

**BC** Bodies & Cavities

**TD** Technical Data

Technical Information

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

General Description

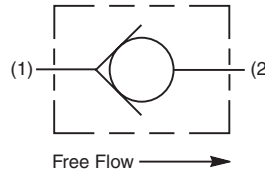
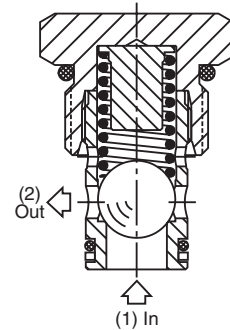
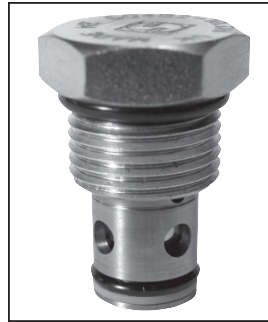
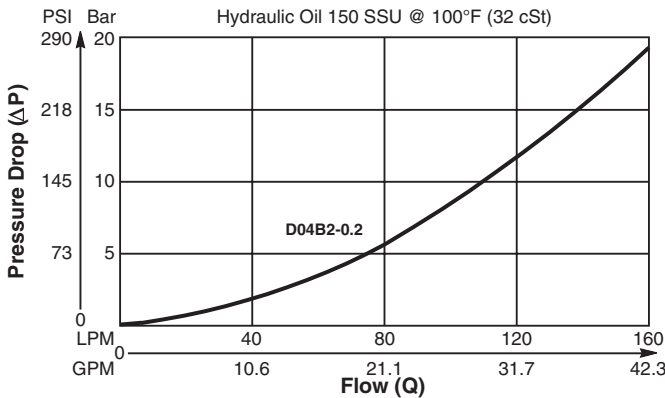
Ball Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

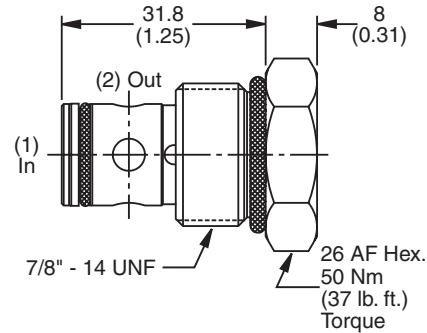
- Low leakage - less than 3 drops/min.
- Ball type construction for cost effective design
- Single and dual pilot pistons available to create pilot to open check
- Range of cracking pressures available
- Good contamination tolerance
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



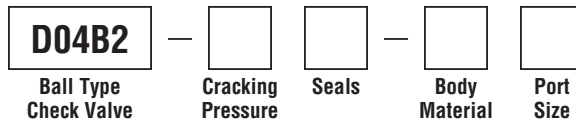
Dimensions Millimeters (Inches)



Specifications

Rated Flow	160 LPM (42 GPM)
Nominal Flow @ 7 Bar (100 PSI)	90 LPM (24 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	3 drops/min.
Cartridge Material	Steel operating parts, hardened steel ball.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.08 kg (.18 lbs.)
Cavity	C10-2 (See BC Section for more details)

Ordering Information



Code	Cracking Pressure
0.0	0.0 Bar (0 PSI)
0.2	0.2 Bar (3 PSI) Std.
1.0	1.0 Bar (15 PSI)
2.1	2.1 Bar (30 PSI)
3.4	3.4 Bar (50 PSI)
6.9	6.9 Bar (100 PSI)
10.0	10.0 Bar (145 PSI)
15.0	15.0 Bar (217 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B10-2-*4P)
6P	3/8" NPTF	(B10-2-*6P)
8P	1/2" NPTF	(B10-2-*8P)
6T	SAE-6	(B10-2-*6T)
8T	SAE-8	(B10-2-*8T)
T8T	SAE-8	(B10-2-T8T)†
6B	3/8" BSPG	(B10-2-6B)†

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30516N-1)
V	Fluorocarbon / (SK30516V-1)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

Technical Information

General Description

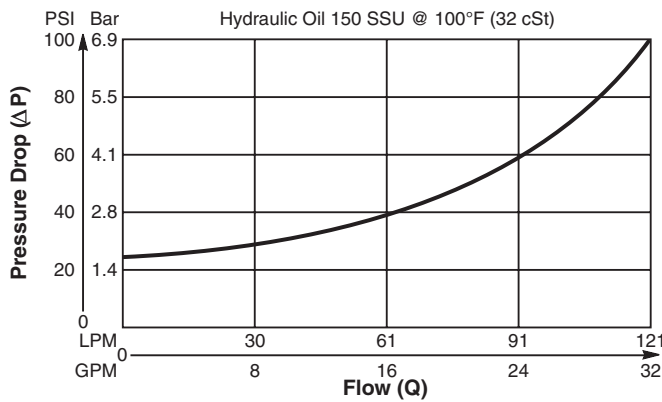
Cartridge Style Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

- Hardened, precision ground parts for durability
- Fully guided poppet for smooth operation
- All external parts zinc plated

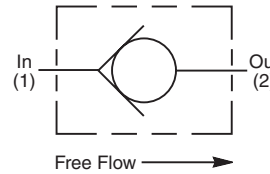
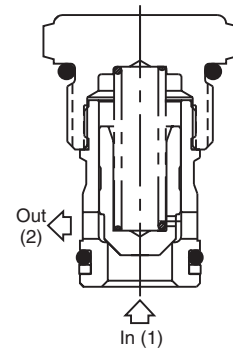
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

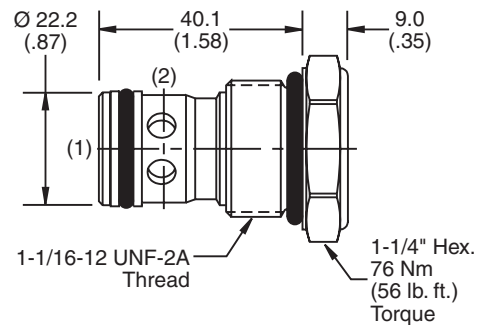


Specifications

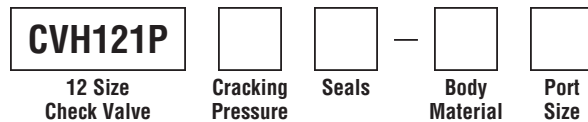
<b>Rated Flow</b>	121 LPM (32 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.14 kg (.30 lbs.)
<b>Cavity</b>	C12-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT12-2F



Dimensions Millimeters (Inches)



Ordering Information



Code	Cracking Pressure
Omit	1.7 Bar (25 PSI)
65	4.5 Bar (65 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	Nitrile / (SK12-2)
V	Fluorocarbon / (SK12-2V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
12P	3/4" NPTF	(B12-2-*12P)
8T	SAE-8	(B12-2-*8T)
12T	SAE-12	(B12-2-*12T)
12B	3/4" BSPG	(B12-2-*12B)

\*Add "A" for aluminum, omit for steel.



CV  
Check Valves

SH  
Shuttle Valves

LM  
Load/Motor Controls

FC  
Flow Controls

PC  
Pressure Controls

LE  
Logic Elements

DC  
Directional Controls

MV  
Manual Valves

SV  
Solenoid Valves

PV  
Proportional Valves

CE  
Coils & Electronics

BC  
Bodies & Cavities

TD  
Technical Data



Technical Information

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

General Description

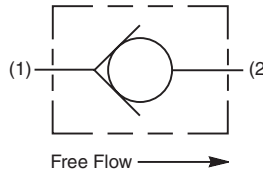
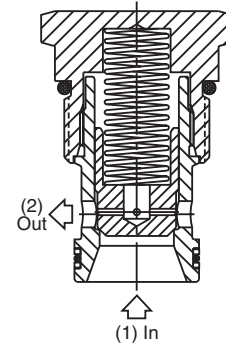
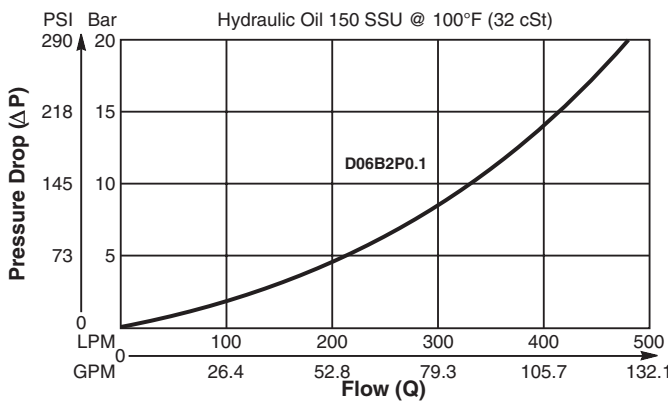
Poppet Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

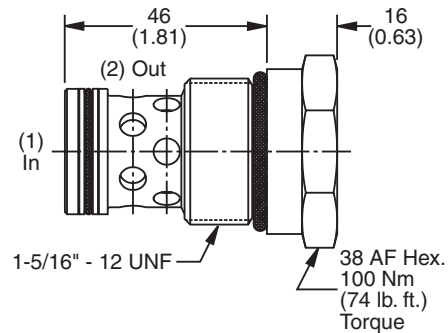
- Extra low pressure drop capability for systems up to 250 Bar
- Poppet type construction for minimal leakage - less than 3 drops/min.
- Hardened poppet for maximum durability
- Good contamination tolerance
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



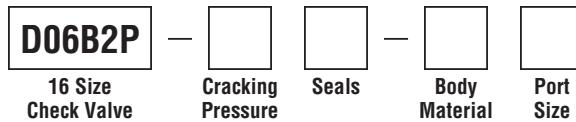
Dimensions Millimeters (Inches)



Specifications

Rated Flow	500 LPM (132 GPM)
Nominal Flow @ 7 Bar (100 PSI)	280 LPM (74 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	Less than 3 drops/min.
Cartridge Material	Steel operating parts, hardened steel poppet.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.27 kg (.60 lbs.)
Cavity	C16-2 (See BC Section for more details)

Ordering Information



Code	Cracking Pressure
0.0	0.0 Bar (0 PSI)
0.1	0.1 Bar (1.5 PSI) Std.
1.0	1.0 Bar (15 PSI)
2.1	2.1 Bar (30 PSI)
3.4	3.4 Bar (50 PSI)
4.1	4.1 Bar (60 PSI)
7.5	7.5 Bar (109 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
12P	3/4" NPTF	(B16-2-*12P)
16P	1" NPTF	(B16-2-*16P)
8T	SAE-8	(B16-2-*8T)
12T	SAE-12	(B16-2-*12T)
16T	SAE-16	(B16-2-*16T)
12B	3/4" BSPG	(B16-2-12B)†
16B	1" BSPG	(B16-2-*16B)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30507N-1)
V	Fluorocarbon / (SK30507V-1)



Technical Information

General Description

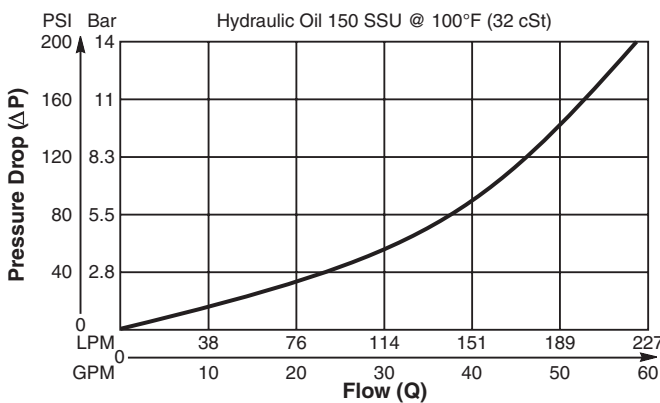
Cartridge Style Check Valve.  
For additional information see Technical Tips on pages CV1-CV4.

Features

- Hardened, precision ground parts for durability
- Fully guided poppet for smooth operation
- All external parts zinc plated

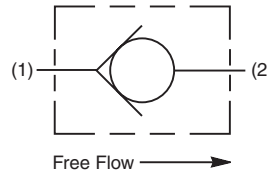
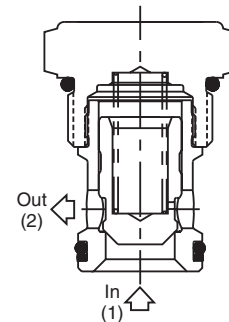
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

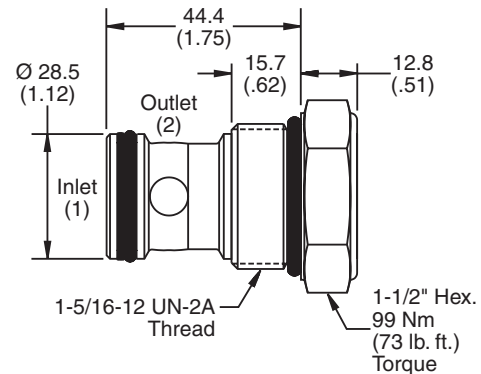


Specifications

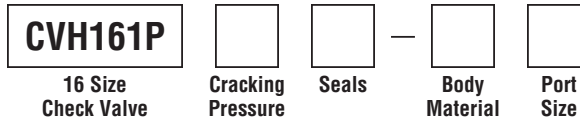
<b>Rated Flow</b>	225 LPM (60 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.27 kg (0.6 lbs.)
<b>Cavity</b>	C16-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT16-2F



Dimensions



Ordering Information



Code	Cracking Pressure
Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
65	4.5 Bar (65 PSI)
125	8.6 Bar (125 PSI)
175	12.1 Bar (175 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	Nitrile / (SK16-2)
V	Fluorocarbon / (SK16-2V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
12P	3/4" NPTF	(B16-2-*12P)
16P	1" NPTF	(B16-2-*16P)
8T	SAE-8	(B16-2-*8T)
12T	SAE-12	(B16-2-*12T)
16T	SAE-16	(B16-2-*16T)
12B	3/4" BSPG	(B16-2-12B)†
16B	1" BSPG	(B16-2-*16B)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

Technical Information

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

**General Description**

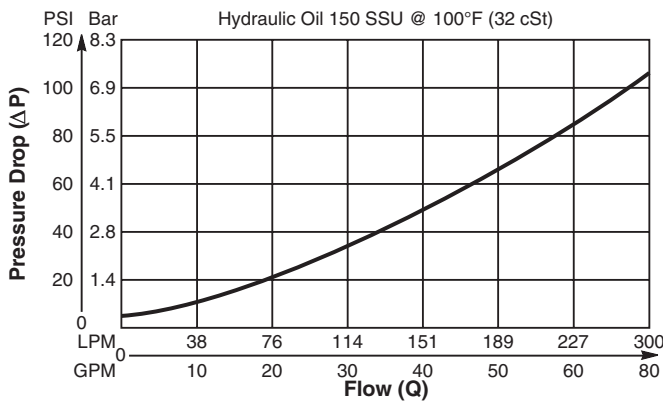
Cartridge Style Check Valve.  
For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened, precision ground parts for durability
- Fully guided poppet for smooth operation
- All external parts zinc plated

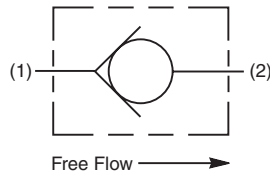
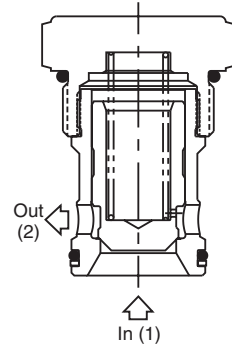
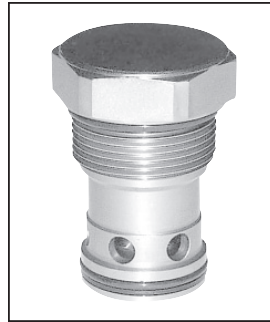
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

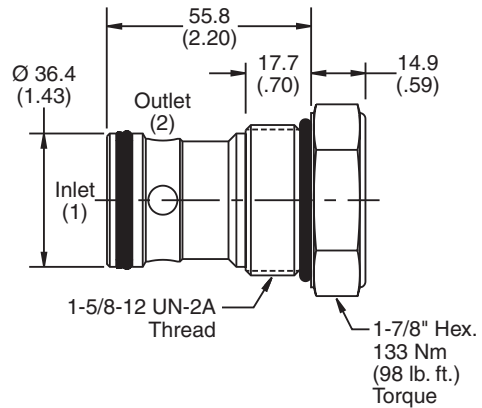


**Specifications**

<b>Rated Flow</b>	303 LPM (80 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.27 kg (0.6 lbs.)
<b>Cavity</b>	C20-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT20-2F



**Dimensions** Millimeters (Inches)



**Ordering Information**

**CVH201P**

**20 Size** **Cracking Pressure** **Seals** **Body Material** **Port Size**  
Check Valve

Code	Cracking Pressure
Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
65	4.5 Bar (65 PSI)

Code	Body Material
Omit	Steel

Code	Seals / Kit No.
Omit	Nitrile / (SK20-2)
V	Fluorocarbon / (SK20-2V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
20T	SAE-20	(B20-2-20T)
20B	1-1/4" BSPG	(B20-2-20B)

Technical Information

General Description

Side to Nose Style Check Valve. For additional information see Technical Tips on pages CV1-CV4.

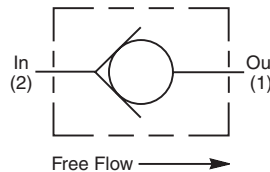
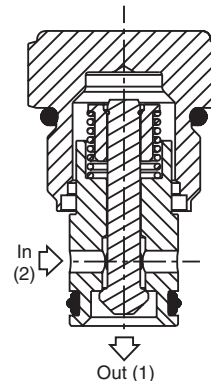
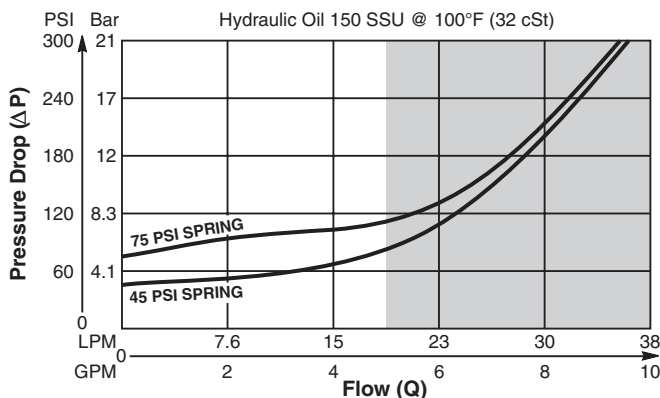


Features

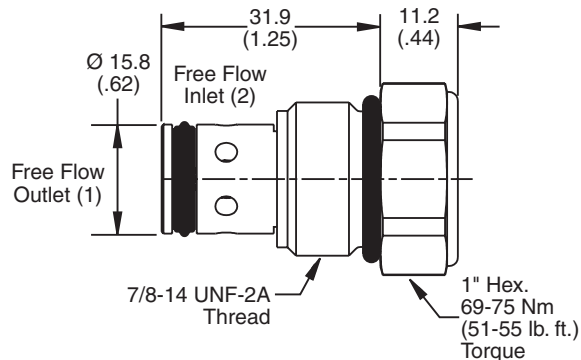
- Hardened, precision ground parts for durability
- Fully guided poppet for smooth operation
- Size to nose design for ease in manifold design
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



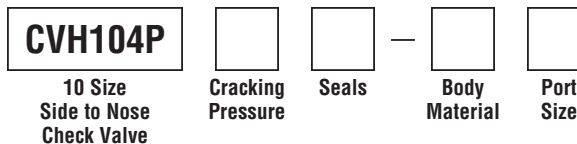
Dimensions



Specifications

<b>Rated Flow</b>	34 LPM (5 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.) at 350 Bar (5000 PSI)
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-45°C to +93.3°C ("D"-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.08 kg (.18 lbs.)
<b>Cavity</b>	C10-2 (See BC Section for more details)
<b>Form Tool</b>	Rougher None Finisher NFT10-2F

Ordering Information



Code	Cracking Pressure	Code	Body Material
Omit	3.1 Bar (45 PSI)	Omit	Steel
75	5.2 Bar (75 PSI)	A	Aluminum

Code	Seals / Kit No.	Code	Port Size	Body Part No.
Omit	"D"-Ring / (SK10-2)	Omit	Cartridge Only	
N	Nitrile / (SK10-2N)	4P	1/4" NPTF	(B10-2-*4P)
V	Fluorocarbon / (SK10-2V)	6P	3/8" NPTF	(B10-2-*6P)
		8P	1/2" NPTF	(B10-2-*8P)
		T8P	1/2" NPTF	(B10-2-T8P)†
		6T	SAE-6	(B10-2-*6T)
		8T	SAE-8	(B10-2-*8T)
		T8T	SAE-8	(B10-2-T8T)†
		6B	3/8" BSPG	(B10-2-6B)†

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

CV

Check Valves

SH

Shuttle Valves

LM

Load/Motor Controls

FC

Flow Controls

PC

Pressure Controls

LE

Logic Elements

DC

Directional Controls

MV

Manual Valves

SV

Solenoid Valves

PV

Proportional Valves

CE

Coils & Electronics

BC

Bodies & Cavities

TD

Technical Data

Technical Information

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

General Description

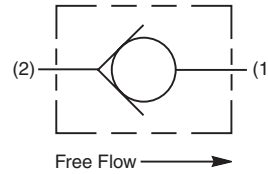
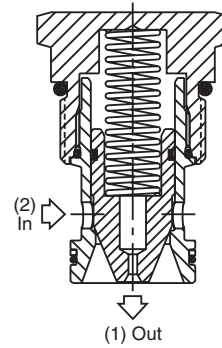
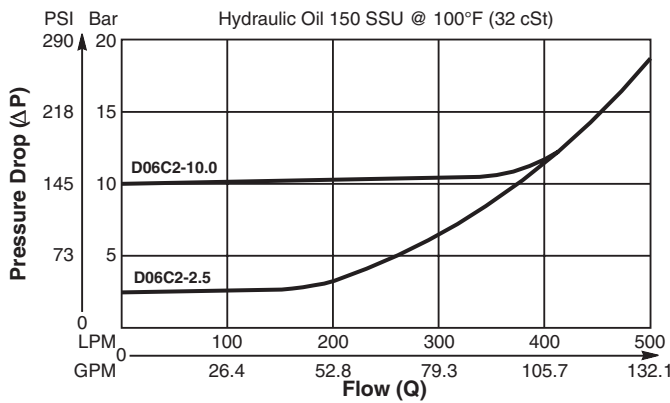
Poppet Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

Features

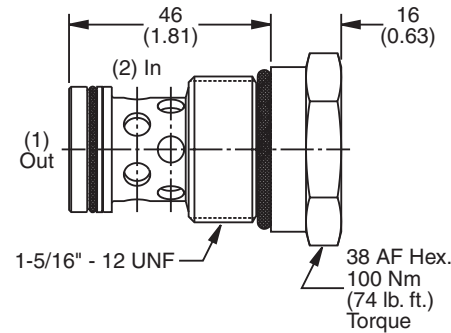
- High flow capacity
- Poppet type construction for minimal leakage - less than 3 drops/min.
- Hardened poppet for maximum durability
- Good contamination tolerance
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



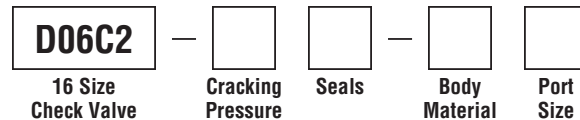
Dimensions Millimeters (Inches)



Specifications

Rated Flow	500 LPM (132 GPM)
Nominal Flow @ 7 Bar (100 PSI)	300 LPM (79 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	Less than 3 drops/min.
Cartridge Material	Steel operating parts, hardened steel poppet.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.26 kg (.57 lbs.)
Cavity	C16-2 (See BC Section for more details)

Ordering Information



Code	Cracking Pressure
2.5	2.5 Bar (36 PSI) Std.
3.4	3.4 Bar (50 PSI)
6.9	6.9 Bar (100 PSI)
10.0	10.0 Bar (145 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30514N-1)
V	Fluorocarbon / (SK30514V-1)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
12P	3/4" NPTF	(B16-2-*12P)
16P	1" NPTF	(B16-2-*16P)
8T	SAE-8	(B16-2-*8T)
12T	SAE-12	(B16-2-*12T)
16T	SAE-16	(B16-2-*16T)
12B	3/4" BSPG	(B16-2-12B)†
16B	1" BSPG	(B16-2-*16B)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

**Technical Information**

**General Description**

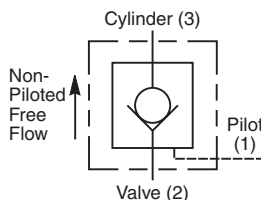
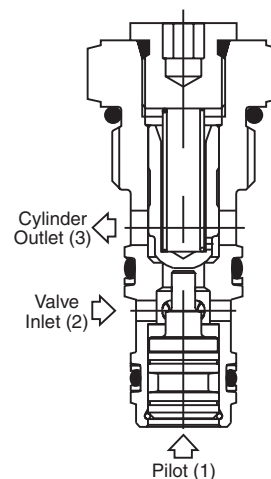
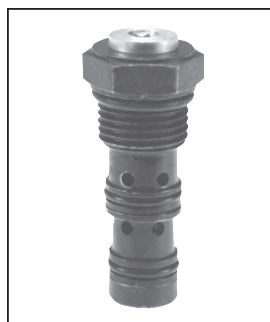
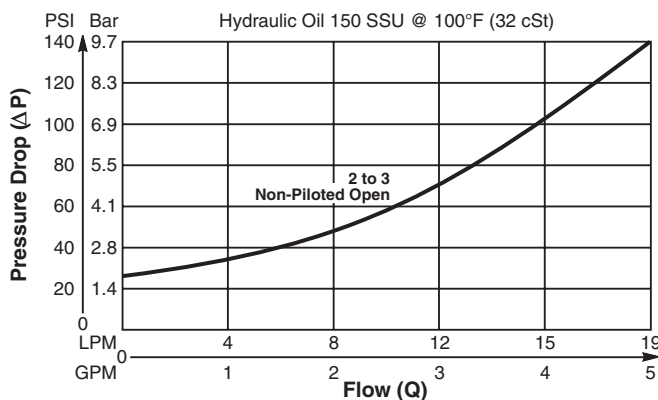
Cartridge Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

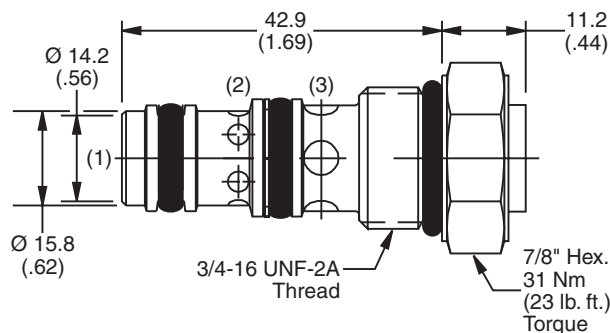
- Hardened, precision ground parts for durability
- Internal pilot position simplifies manifold design
- All external parts zinc plated

**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)



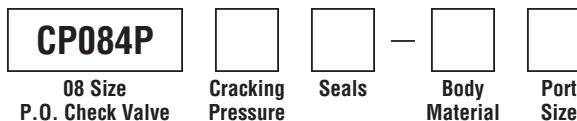
**Dimensions** Millimeters (Inches)



**Specifications**

<b>Rated Flow</b>	19 LPM (5 GPM)
<b>Maximum Inlet Pressure</b>	207 Bar (3000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 207 Bar (3000 PSI)
<b>Pilot Ratio</b>	3:1
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.05 kg (.11 lbs.)
<b>Cavity</b>	C08-3 (See BC Section for more details)
<b>Form Tool</b>	Rougher NFT08-3R Finisher NFT08-3F

**Ordering Information**



Code	Cracking Pressure
Omit	1.7 Bar (25 PSI)
85	5.9 Bar (85 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	Nitrile / (SK08-3N)
V	Fluorocarbon / (SK08-3V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B08-3-*4P)
4T	SAE-4	(B08-3-*4T)
6T	SAE-6	(B08-3-*6T)
6B	3/8" BSPG	(B08-3-*6B)

\* Add "A" for aluminum, omit for steel.



**CV**  
Check Valves

**SH**  
Shuttle Valves

**LM**  
Load/Motor Controls

**FC**  
Flow Controls

**PC**  
Pressure Controls

**LE**  
Logic Elements

**DC**  
Directional Controls

**MV**  
Manual Valves

**SV**  
Solenoid Valves

**PV**  
Proportional Valves

**CE**  
Coils & Electronics

**BC**  
Bodies & Cavities

**TD**  
Technical Data



Technical Information

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

General Description

Cartridge Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

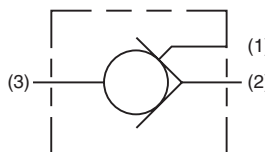
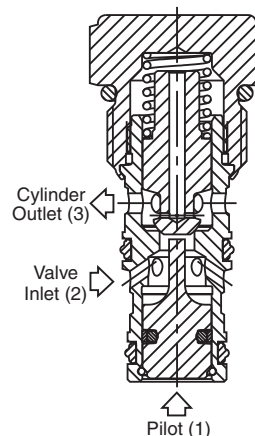
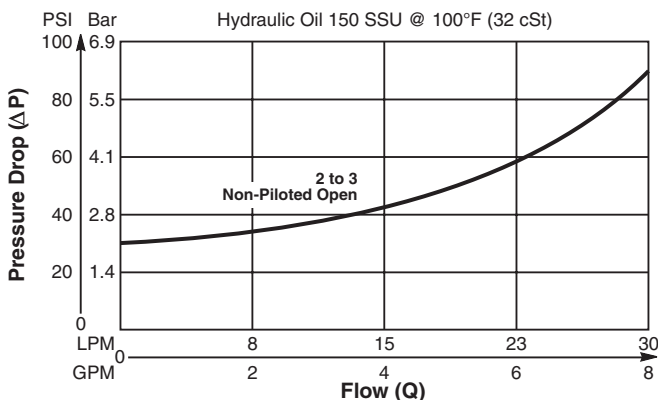


Features

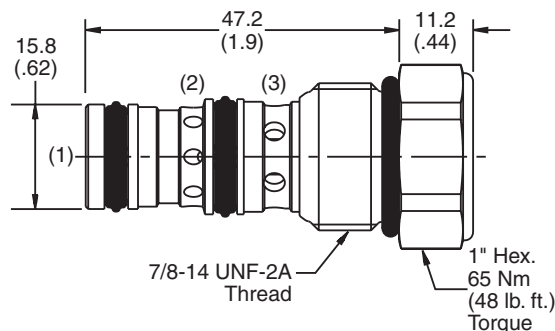
- Hardened, precision ground parts for durability
- Internal pilot position simplifies manifold design
- All external parts have yellow zinc dichromate. This coating is ideal for salt spray applications.

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



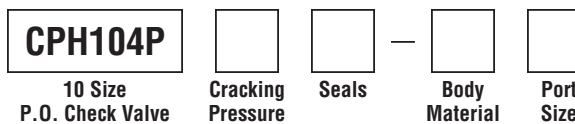
Dimensions Millimeters (Inches)



Specifications

Rated Flow	30 LPM (8 GPM)
Maximum Inlet Pressure	350 Bar (5000 PSI)
Leakage at 150 SSU (32 cSt)	2 drops/min. (0.13 cc/min.) at 350 Bar (5000 PSI)
Pilot Ratio	4:1
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-45°C to +93.3°C ("D"-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.09 kg (0.2 lbs.)
Cavity	C10-3 (See BC Section for more details)
Form Tool	Rougher NFT10-3R Finisher NFT10-3F

Ordering Information



Code	Cracking Pressure
15	1.0 Bar (15 PSI)
Omit	2.1 Bar (31 PSI)
50	3.5 Bar (50 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	"D"-Ring / (SK10-3)
N	Nitrile / (SK10-3N)
V	Fluorocarbon / (SK10-3V)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B10-3-*4P)
6P	3/8" NPTF	(B10-3-*6P)
8P	1/2" NPTF	(B10-3-*8P)
6T	SAE-6	(B10-3-*6T)
8T	SAE-8	(B10-3-*8T)
6B	3/8" BSPG	(B10-3-6B)†
8B	1/2" BSPG	(B10-3-*8B)



**Technical Information**

**General Description**

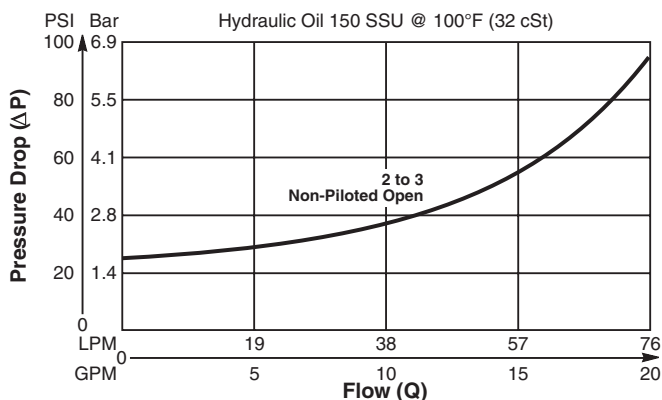
Cartridge Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened, precision ground parts for durability
- Internal pilot position simplifies manifold design
- All external parts have yellow zinc dichromate. This coating is ideal for salt spray applications.

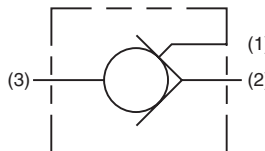
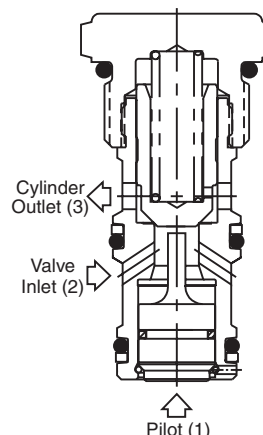
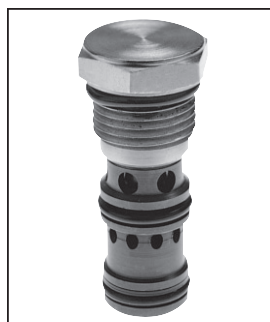
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

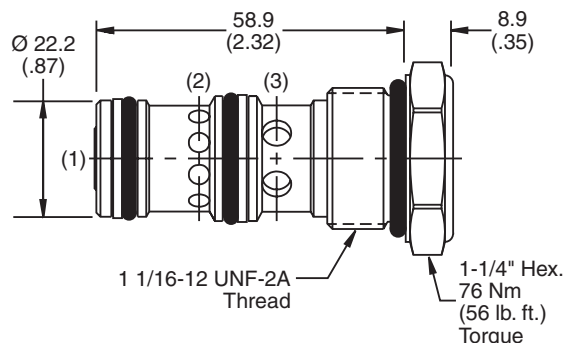


**Specifications**

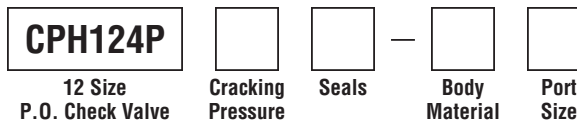
<b>Rated Flow</b>	75 LPM (20 GPM)
<b>Maximum Inlet Pressure</b>	350 Bar (5000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 350 Bar (5000 PSI)
<b>Pilot Ratio</b>	3:1
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	0.2 kg (.44 lbs.)
<b>Cavity</b>	C12-3 (See BC Section for more details)
<b>Form Tool</b>	Rougher NFT12-3R Finisher NFT12-3F



**Dimensions** Millimeters (Inches)



**Ordering Information**



<b>Code</b>	<b>Cracking Pressure</b>
Omit	1.7 Bar (25 PSI)

<b>Code</b>	<b>Body Material</b>
Omit	Steel
A	Aluminum

<b>Code</b>	<b>Seals / Kit No.</b>
Omit	Nitrile / (SK12-3)
V	Fluorocarbon / (SK12-3V)

<b>Code</b>	<b>Port Size</b>	<b>Body Part No.</b>
Omit	Cartridge Only	
8T	SAE-8	(B12-3-*8T)
12T	SAE-12	(B12-3-*12T)
8B	1/2" BSPG	(B12-3-8B)†

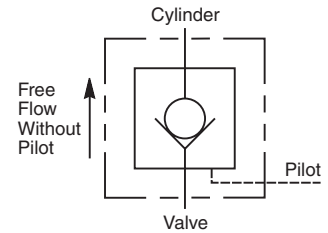
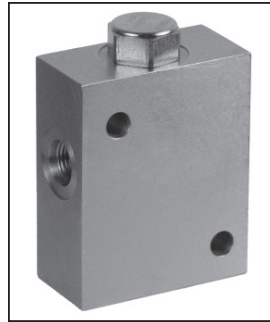
\* Add "A" for aluminum, omit for steel.  
† Steel body only.

**Technical Information**

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

**General Description**

Pilot Piston Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

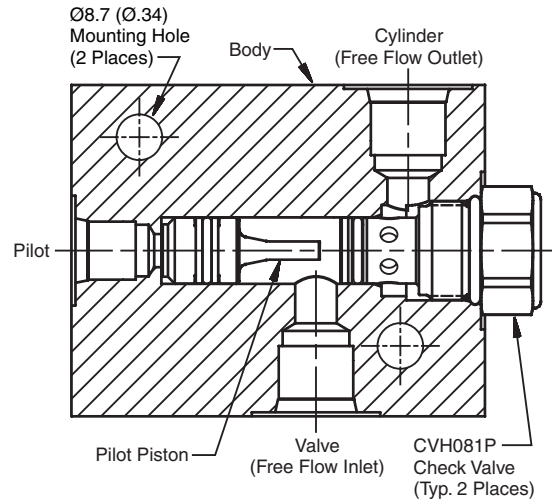


**Features**

- Spherical poppet for low leakage
- "D"-Ring eliminates back-up rings
- Optional sealed pilot piston

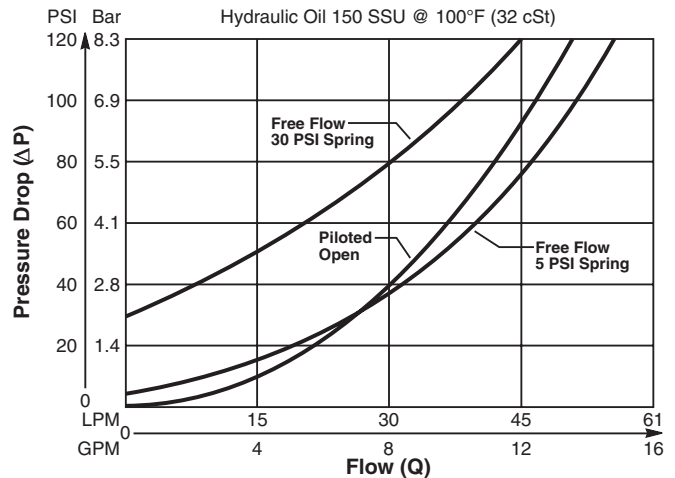
**Specifications**

<b>Maximum Flow</b>	56 LPM (15 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CSP081 350 Bar (5000 PSI) - CSPH081
<b>Leakage Across Check 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	4:1
<b>Pilot Piston Part Numbers</b>	No Seal - 718237 Nitrile Seal - 718237N Fluorocarbon Seal - 718237V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CSP081 Steel - CSPH081
<b>Operating Temp. Range (Ambient)</b>	-45°C to +93.3°C ("D"-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	

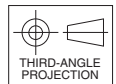
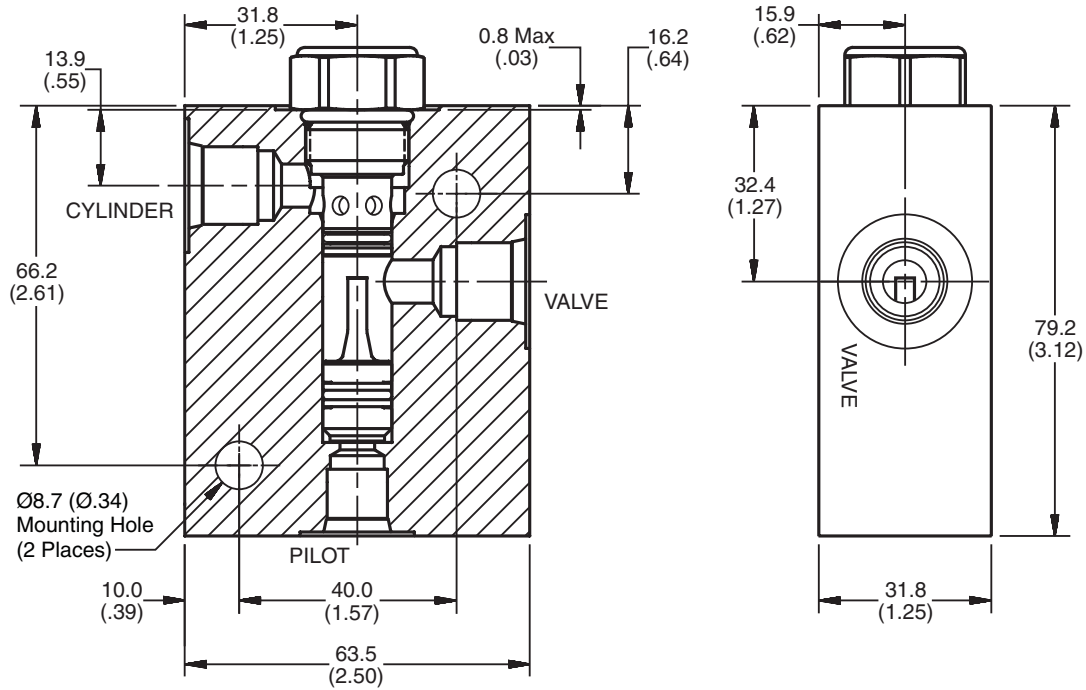


**Performance Curve**

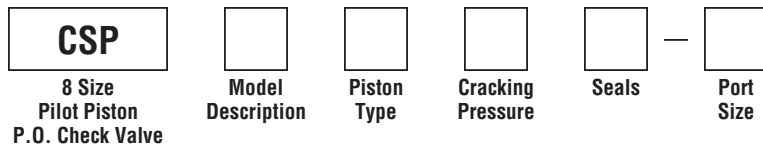
**Pressure Drop vs. Flow (Through cartridge only)**



**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Model Description
081	3000 PSI Series
H081	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
10	0.7 Bar (10 PSI)
30	2.1 Bar (30 PSI)
65	4.5 Bar (65 PSI)
100	6.9 Bar (100 PSI)
150	10.4 Bar (150 PSI)

Code	Seals / Kit No.
Omit	"D"-Ring / (SK08-2)
N	Nitrile / (SK08-2N)
V	Fluorocarbon / (SK08-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A6T	SAE-6	Aluminum (CSP081 Only)
6T	SAE-6	Steel (CSPH081 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

\*Not available with "A" option.

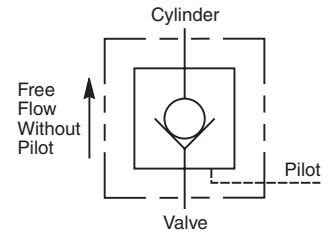
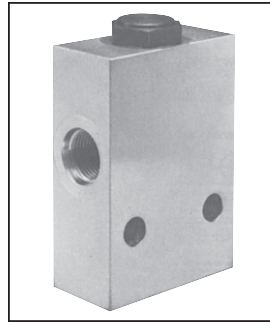
- CV Check Valves
- SH Shuttle Valves
- LM Load/Motor Controls
- FC Flow Controls
- PC Pressure Controls
- LE Logic Elements
- DC Directional Controls
- MV Manual Valves
- SV Solenoid Valves
- PV Proportional Valves
- CE Coils & Electronics
- BC Bodies & Cavities
- TD Technical Data

**Technical Information**

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

**General Description**

Pilot Piston Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

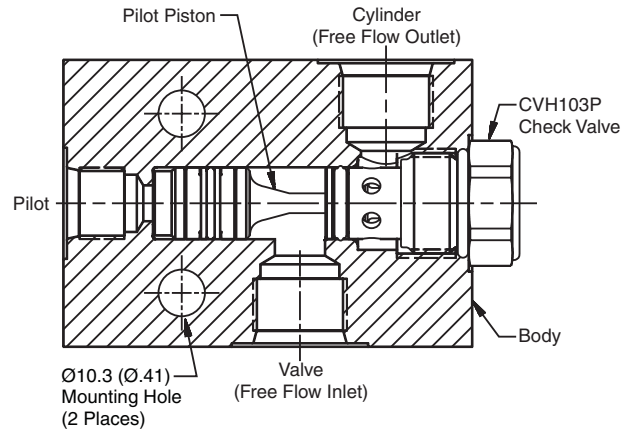


**Features**

- Spherical poppet for low leakage
- "D"-Ring eliminates back-up rings
- Optional sealed pilot piston
- Steel or aluminum body construction

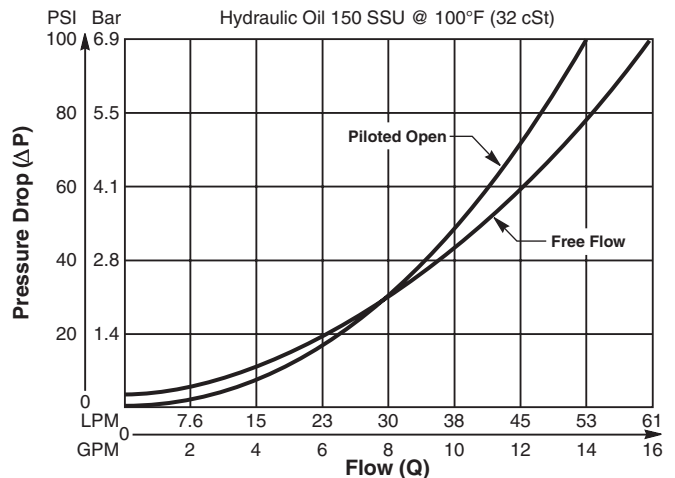
**Specifications**

<b>Maximum Flow</b>	56 LPM (15 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CSP103 350 Bar (5000 PSI) - CSPH103
<b>Leakage Across Check 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	4:1
<b>Pilot Piston Part Numbers</b>	No Seal - 717909 Nitrile Seal - 717909N Fluorocarbon Seal - 717909V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CSP103 Steel - CSPH103
<b>Operating Temp. Range (Ambient)</b>	-45°C to +93.3°C ("D"-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	

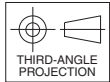
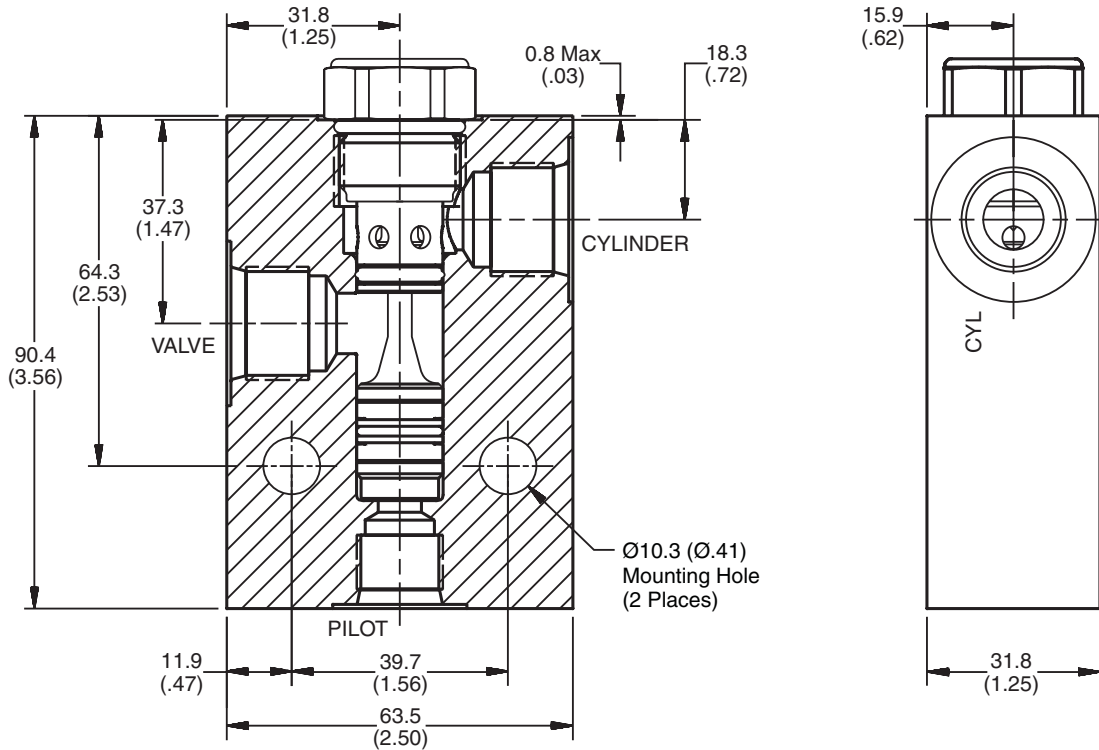


**Performance Curve**

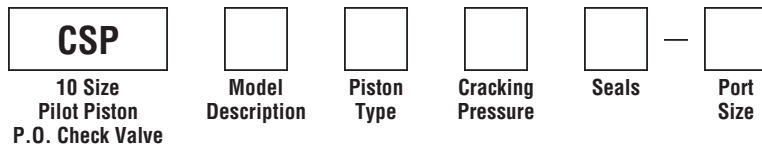
Pressure Drop vs. Flow (Through cartridge only)



**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Model Description
103	3000 PSI Series
H103	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
50	3.5 Bar (50 PSI)
65	4.5 Bar (65 PSI)
80	5.5 Bar (80 PSI)
100	6.9 Bar (100 PSI)

Code	Seals / Kit No.
Omit	"D"-Ring / (SK10-2)
N	Nitrile / (SK10-2N)
V	Fluorocarbon / (SK10-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A8T	SAE-8	Aluminum (CSP103 Only)
8T	SAE-8	Steel (CSPH103 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

\*Not available with "A" option.

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

**Technical Information**

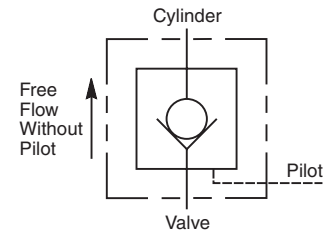
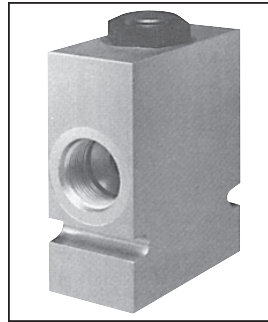
- CV** Check Valves
- SH** Shuttle Valves
- LM** Load/Motor Controls
- FC** Flow Controls
- PC** Pressure Controls
- LE** Logic Elements
- DC** Directional Controls
- MV** Manual Valves
- SV** Solenoid Valves
- PV** Proportional Valves
- CE** Coils & Electronics
- BC** Bodies & Cavities
- TD** Technical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

**General Description**

Pilot Piston Style Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

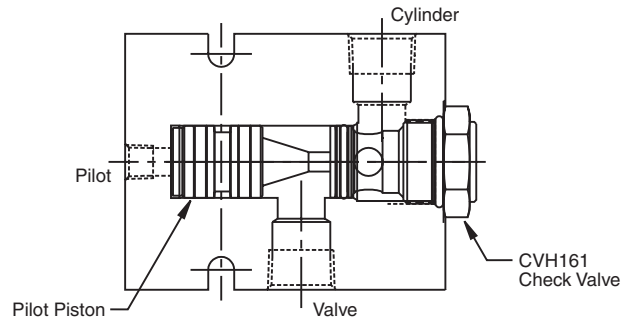
**Features**

- Hardened precision ground parts for durability
- Optional sealed pilot piston
- Steel or aluminum body construction



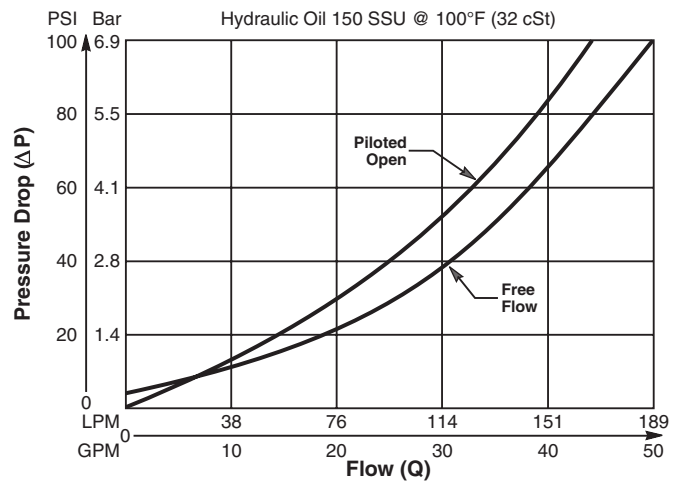
**Specifications**

<b>Maximum Flow</b>	187 LPM (50 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CSP161 350 Bar (5000 PSI) - CSPH161
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min (.33 cc/min) @ 350 Bar (5000 psi)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	3:1
<b>Pilot Piston Part Numbers</b>	No Seal - 717910 Nitrile Seal - 717910N Fluorocarbon - 717910V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CSP161 Steel - CSPH161
<b>Operating Temp. Range (Ambient)</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	



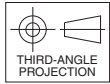
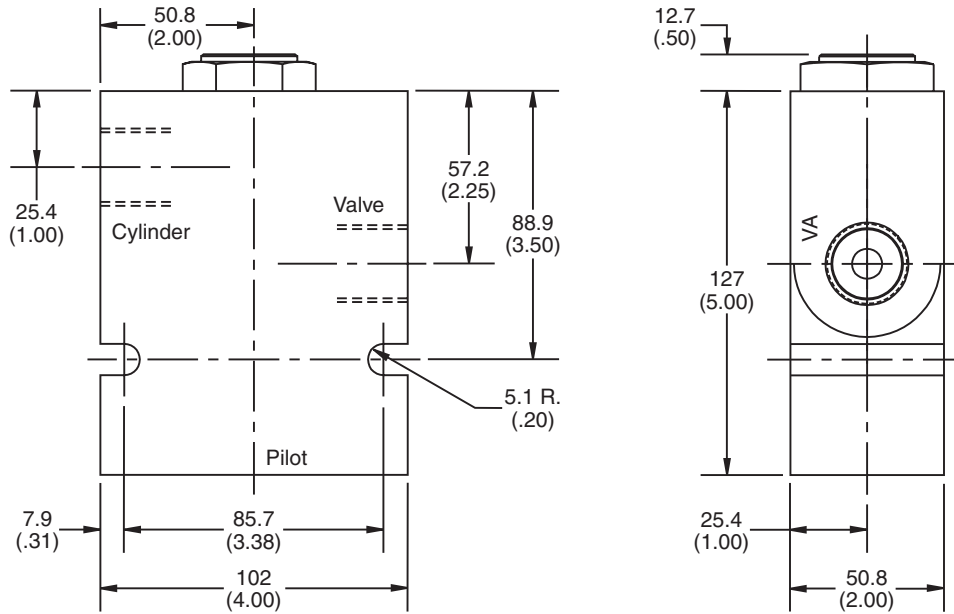
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)





**Dimensions** Millimeters (Inches)



**Ordering Information**

**CSP**                     —

**16 Size**    **Model**    **Piston**    **Cracking**    **Seals**    **Port**  
**Pilot Piston**    **Description**    **Type**    **Pressure**       **Size**  
**P.O. Check Valve**

Code	Model Description
161	3000 PSI Series
H161	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
65	4.5 Bar (65 PSI)
175	12.1 Bar (175 PSI)

Code	Seals / Kit No.
Omit	Nitrile / (SK16-2N)
V	Fluorocarbon / (SK16-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A16T	SAE-16	Aluminum
		(CSP161 Only)
16T	SAE-16	Steel
		(CSPH161 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

\*Not available with "A" option.

**CV** Check Valves

**SH** Shuttle Valves

**LM** Load/Motor Controls

**FC** Flow Controls

**PC** Pressure Controls

**LE** Logic Elements

**DC** Directional Controls

**MV** Manual Valves

**SV** Solenoid Valves

**PV** Proportional Valves

**CE** Coils & Electronics

**BC** Bodies & Cavities

**TD** Technical Data

**Technical Information**

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

**General Description**

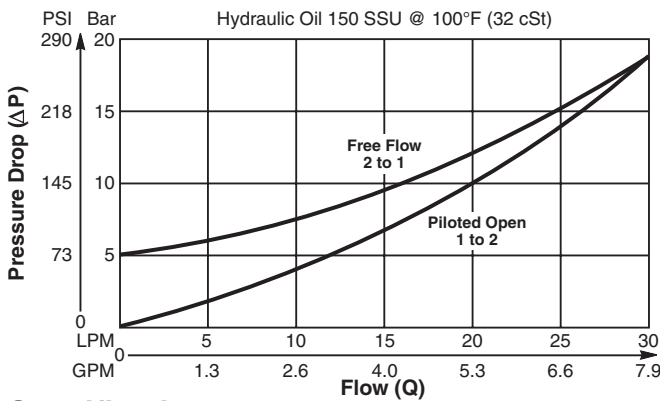
Miniature Pilot to Open, Poppet Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened poppet for maximum durability
- Low leakage - less than 3 drops/min.
- Sealed pilot
- Extremely compact construction - can be fitted directly into most cylinders
- Cavity commonality with load control valves
- Dual line blocks available
- All external parts zinc plated

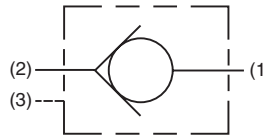
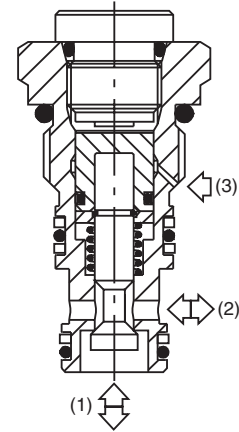
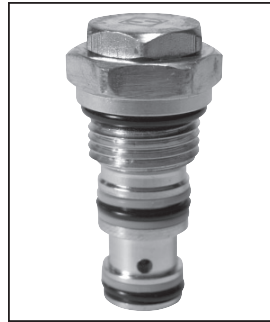
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

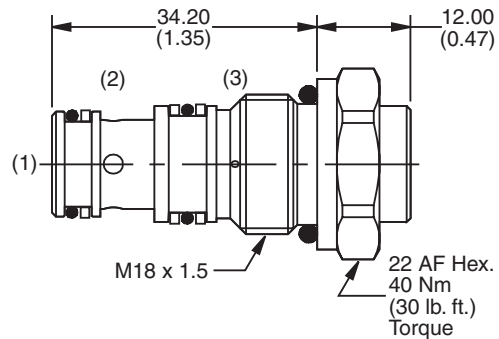


**Specifications**

<b>Rated Flow</b>	30 LPM (8 GPM)
<b>Nominal Flow @ 7 Bar (100 PSI)</b>	16 LPM (4.2 GPM) (Piloted Open)
<b>Maximum Inlet Pressure</b>	420 Bar (6000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	Less than 3 drops/min.
<b>Cracking Pressure</b>	5 Bar (72 PSI)
<b>Pilot Ratio</b>	4:1
<b>Cartridge Material</b>	Steel operating parts, hardened steel poppet.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.066 kg (.145 lbs.)
<b>Cavity</b>	53-1 (See BC Section for more details)



**Dimensions** Millimeters (Inches)



**Ordering Information**

**D4A020**  **Seals**  
Check Valve

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30090N-1)
V	Fluorocarbon / (SK30090V-1)

*Order Bodies Separately*

**LB10**    
Line Body Porting Body Material

Code	Porting
310	3/8" BSP (Main) 1/4" BSP (Aux.)
318	3/8" SAE (Main) 1/4" SAE (Aux.)
312	3/8" BSP Dual Cavity
319	3/8" SAE Dual Cavity

Code	Body Material
A	Aluminum
S	Steel

**Technical Information**

**General Description**

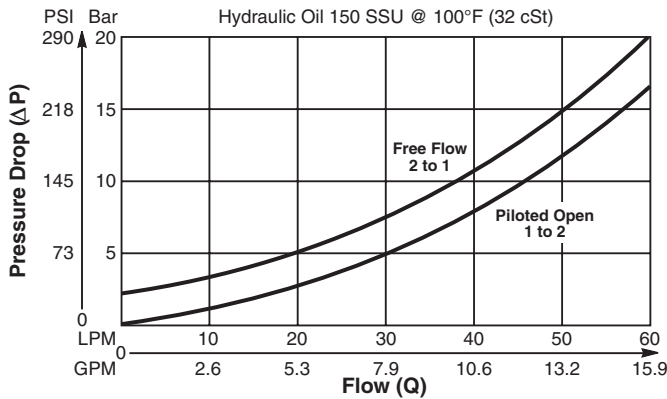
Pilot to Open, Poppet Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened poppet for maximum durability
- High flow capacity
- Low leakage - less than 3 drops/min.
- Sealed pilot
- Good contamination tolerance
- Cavity commonality with load control valves
- Dual line blocks available
- All external parts zinc plated

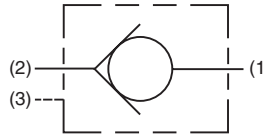
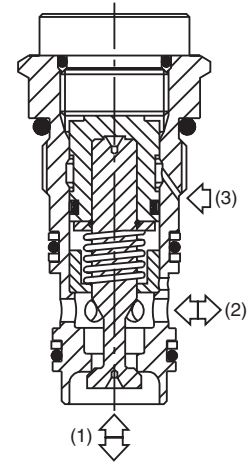
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

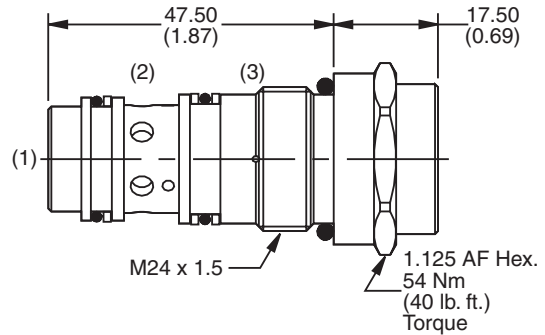


**Specifications**

<b>Rated Flow</b>	60 LPM (16 GPM)
<b>Nominal Flow @ 7 Bar (100 PSI)</b>	32 LPM (8.5 GPM) (Pilot Open)
<b>Maximum Inlet Pressure</b>	420 Bar (6000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	Less than 3 drops/min.
<b>Cracking Pressure</b>	3 Bar (43.5 PSI)
<b>Pilot Ratio</b>	4:1
<b>Cartridge Material</b>	Steel operating parts, hardened steel poppet.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.15 kg (.33 lbs.)
<b>Cavity</b>	68-1 (See BC Section for more details)



**Dimensions** Millimeters (Inches)



**Ordering Information**

**D4A040**  **Seals**  
Check Valve

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30059N-1)
V	Fluorocarbon / (SK30059V-1)

Order Bodies Separately

**LB10**    
Line Body Porting Body Material

Code	Porting
251	1/2" BSP (Main) 1/4" BSP (Aux.)
253	1/2" SAE (Main) 1/4" SAE (Aux.)
259	1/2" BSP Dual Cavity
261	1/2" SAE Dual Cavity

Code	Body Material
A	Aluminum
S	Steel

**CV** Check Valves

**SH** Shuttle Valves

**LM** Load/Motor Controls

**FC** Flow Controls

**PC** Pressure Controls

**LE** Logic Elements

**DC** Directional Controls

**MV** Manual Valves

**SV** Solenoid Valves

**PV** Proportional Valves

**CE** Coils & Electronics

**BC** Bodies & Cavities

**TD** Technical Data

**Technical Information**

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

**General Description**

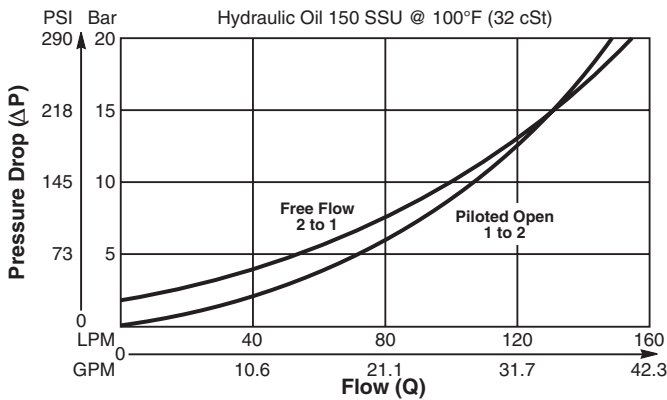
Pilot to Open, Poppet Type Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened poppet for maximum durability
- High flow capacity
- Low leakage - less than 3 drops/min.
- Sealed pilot
- Good contamination tolerance
- Cavity commonality with load control valves
- Dual line blocks available
- All external parts zinc plated

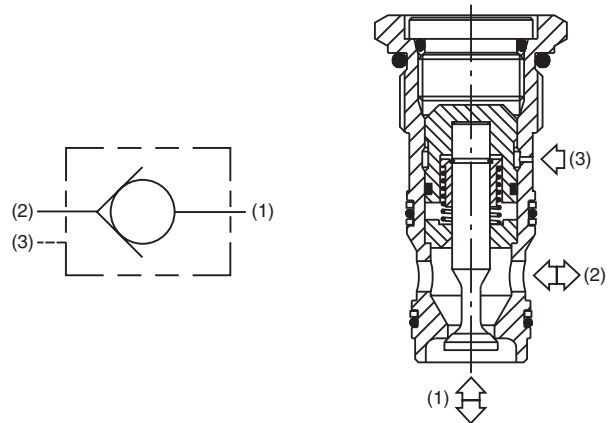
**Performance Curve**

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

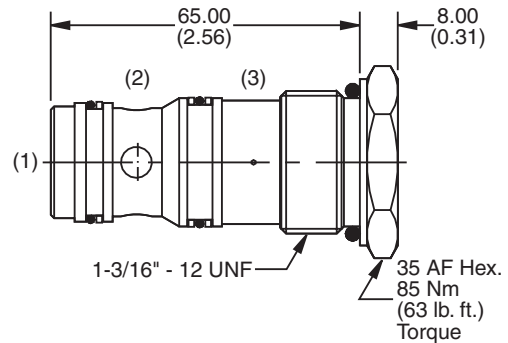


**Specifications**

<b>Rated Flow</b>	150 LPM (40 GPM)
<b>Nominal Flow @ 7 Bar (100 PSI)</b>	80 LPM (21 GPM) (Piloted Open)
<b>Maximum Inlet Pressure</b>	420 Bar (6000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	Less than 3 drops/min.
<b>Cracking Pressure</b>	2 Bar (30 PSI)
<b>Pilot Ratio</b>	4:1
<b>Cartridge Material</b>	Steel operating parts, hardened steel poppet.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.24 kg (.528 lbs.)
<b>Cavity</b>	3C (See BC Section for more details)



**Dimensions** Millimeters (Inches)



**Ordering Information**

**D3B125**    
Check Valve      Seals

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30008N-1)
V	Fluorocarbon / (SK30008V-1)

*Order Bodies Separately*

**LB10**    
Line Body    Porting    Body Material

Code	Porting
039	3/4" BSP (Main) 1/4" BSP (Aux.)
069	1" SAE (Main) 1/4" SAE (Aux.)
034	3/4" BSP Dual Cavity
234	3/4" SAE Dual Cavity

Code	Body Material
A	Aluminum
S	Steel



**Technical Information**

**General Description**

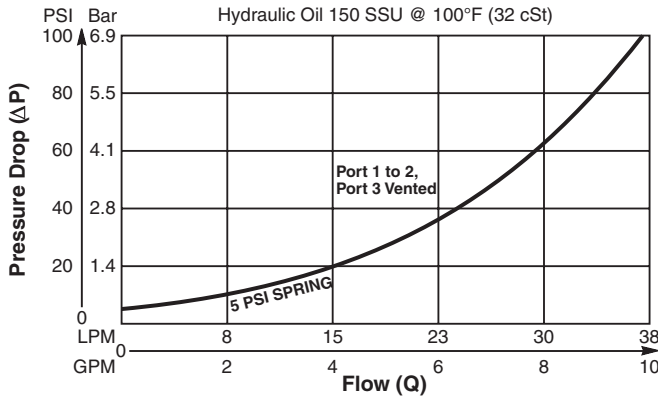
Pilot to Close Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened, precision ground parts for durability
- Fully guided poppet for smooth operation
- All external parts zinc plated

**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

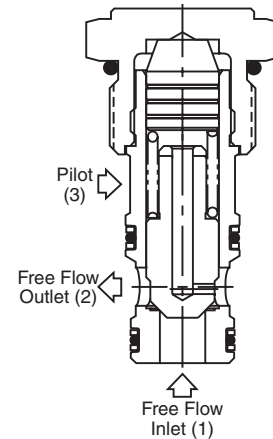
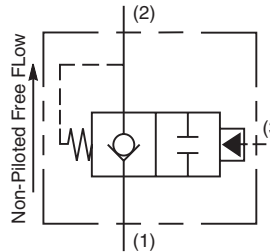
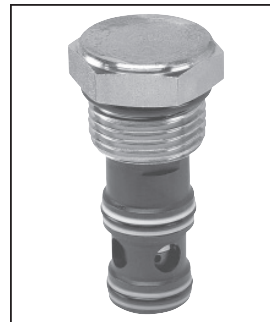
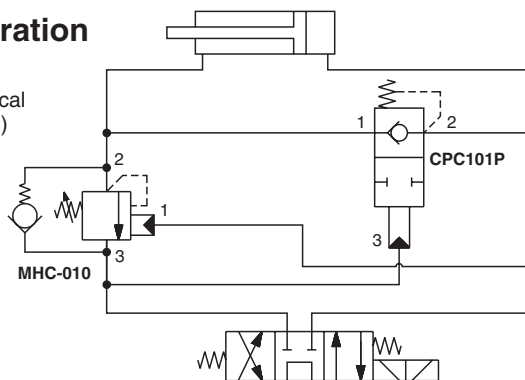


**Specifications**

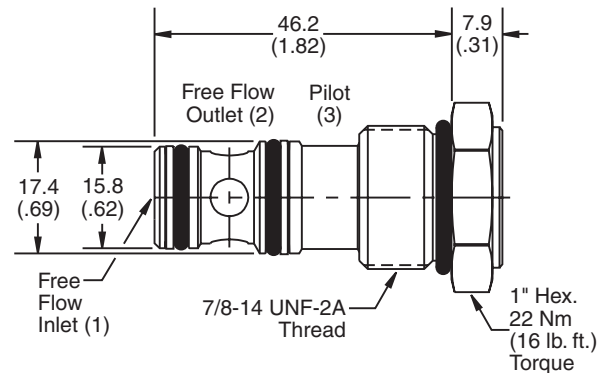
<b>Rated Flow</b>	38 LPM (10 GPM)
<b>Maximum Inlet Pressure</b>	240 Bar (3500 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	15 drops/min. (.99 cc/min.) at 240 Bar (3500 PSI)
<b>Pilot Ratio</b>	2:1
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Approx. Weight</b>	.14 kg (0.31 lbs.)
<b>Cavity</b>	C10-3 (See BC Section for more details)
<b>Form Tool</b>	Rougher NFT10-3R Finisher NFT10-3F

**Regeneration Circuit**

(See Technical Tips Section)



**Dimensions** Millimeters (Inches)



**Ordering Information**

<b>CPC101P</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>10 Size</b>	<b>Cracking Pressure</b>	<b>Seals</b>	<b>Body Material</b>	<b>Port Size</b>
<b>Pilot to Close Check Valve</b>				

Code	Cracking Pressure
Omit	0.3 Bar (5 PSI)
50	3.5 Bar (50 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
Omit	Nitrile / (SK10-3)
V	Fluorocarbon / (SK10-3V)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B10-3-*4P)
6P	3/8" NPTF	(B10-3-*6P)
8P	1/2" NPTF	(B10-3-*8P)
6T	SAE-6	(B10-3-*6T)
8T	SAE-8	(B10-3-*8T)
6B	3/8" BSPG	(B10-3-6B)†
8B	1/2" BSPG	(B10-3-*8B)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.





**General Description**

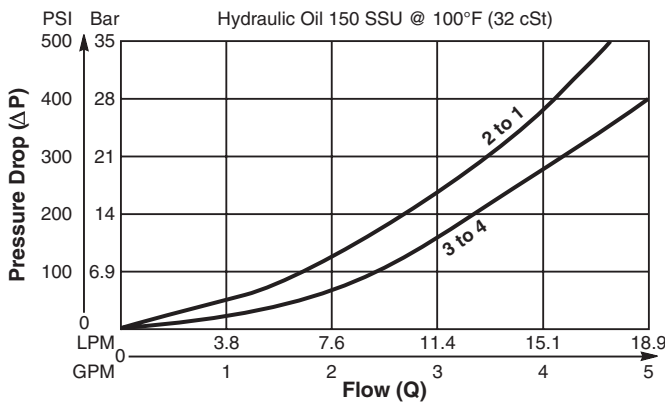
Cartridge Style Dual Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

**Features**

- Hardened, precision ground parts for durability
- Cost effective-replaces two cartridges
- Internal pilot position
- Common cavity
- All external parts zinc plated

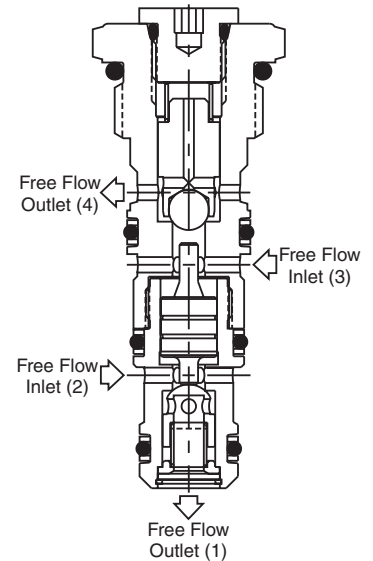
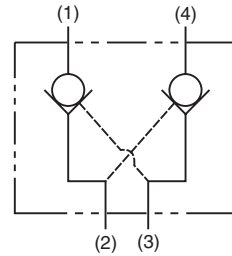
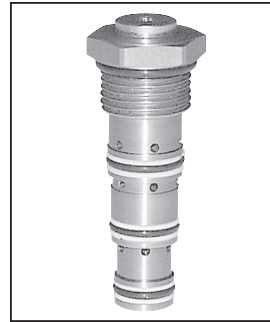
**Performance Curve**

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

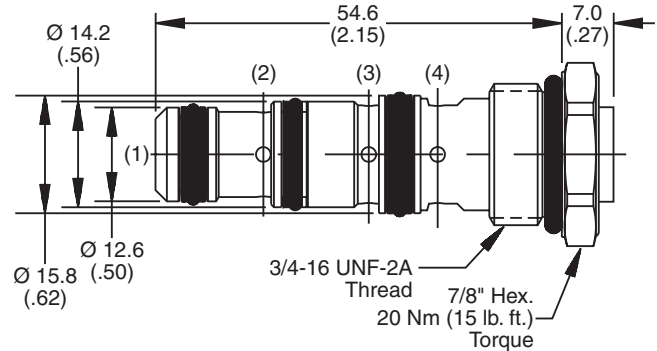


**Specifications**

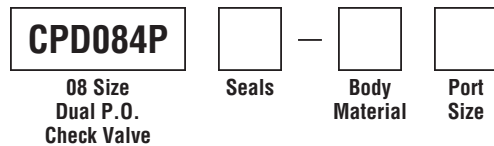
<b>Rated Flow</b>	19 LPM (5 GPM)
<b>Maximum Inlet Pressure</b>	207 Bar (3000 PSI)
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min. (.33 cc/min.) at 207 Bar (3000 PSI)
<b>Pilot Ratio</b>	3:1
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Operating Temp. Range/Seals</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Fluid Compatibility/Viscosity</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Approx. Weight</b>	.05 kg (.11 lbs.)
<b>Cavity</b>	C08-4 (See BC Section for more details)
<b>Form Tool</b>	Rougher NFT08-4R Finisher NFT08-4F



**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Seals / Kit No.
Omit	Nitrile / (SK08-4N)
V	Fluorocarbon / (SK08-4V)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4T	SAE-4	(B08-4-*4T)
6T	SAE-6	(B08-4-*6T)
6B	3/8" BSPG	(B08-4-*6B)

\* Add "A" for aluminum, omit for steel.



**CV**  
Check Valves

**SH**  
Shuttle Valves

**LM**  
Load/Motor Controls

**FC**  
Flow Controls

**PC**  
Pressure Controls

**LE**  
Logic Elements

**DC**  
Directional Controls

**MV**  
Manual Valves

**SV**  
Solenoid Valves

**PV**  
Proportional Valves

**CE**  
Coils & Electronics

**BC**  
Bodies & Cavities

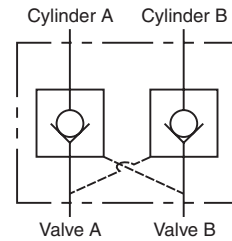
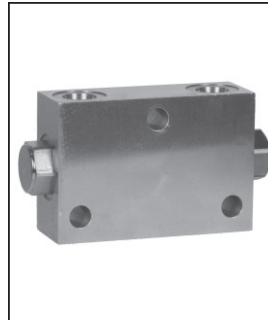
**TD**  
Technical Data

**Technical Information**

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

**General Description**

Pilot Piston Style Dual Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

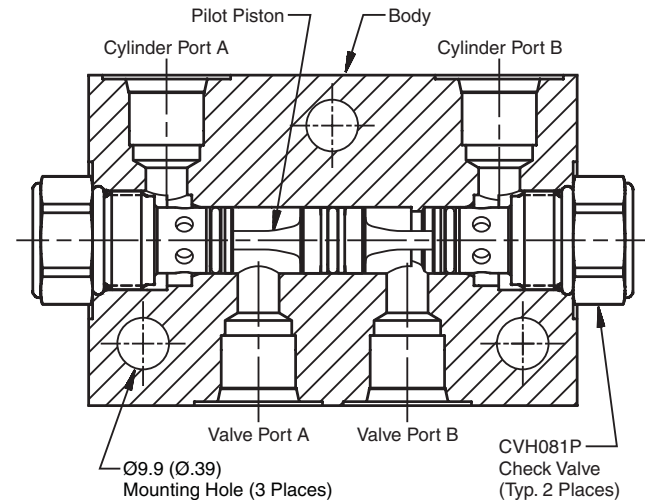


**Features**

- Spherical poppet for low leakage
- “D”-Ring eliminates back-up rings
- Optional sealed pilot piston

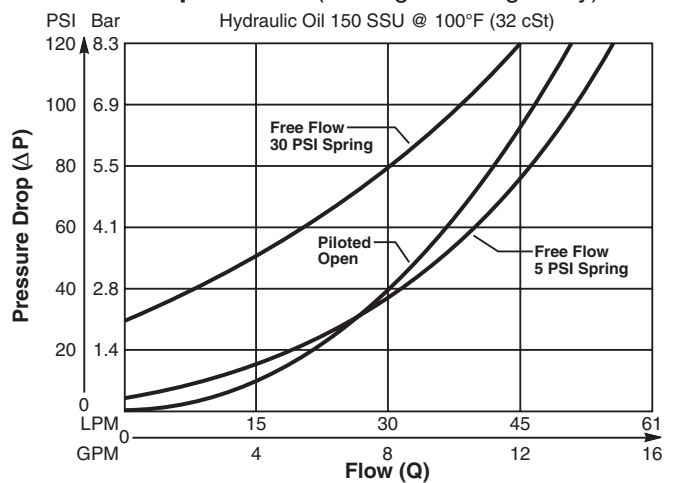
**Specifications**

<b>Maximum Flow</b>	56 LPM (15 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CDP081 350 Bar (5000 PSI) - CDPH081
<b>Leakage Across Check 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	4:1
<b>Pilot Piston Part Numbers</b>	No Seal - 718238 Nitrile Seal - 718238N Fluorocarbon Seal - 718238V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CDP081 Steel - CDPH081
<b>Operating Temp. Range (Ambient)</b>	-45°C to +93.3°C (“D”-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	

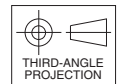
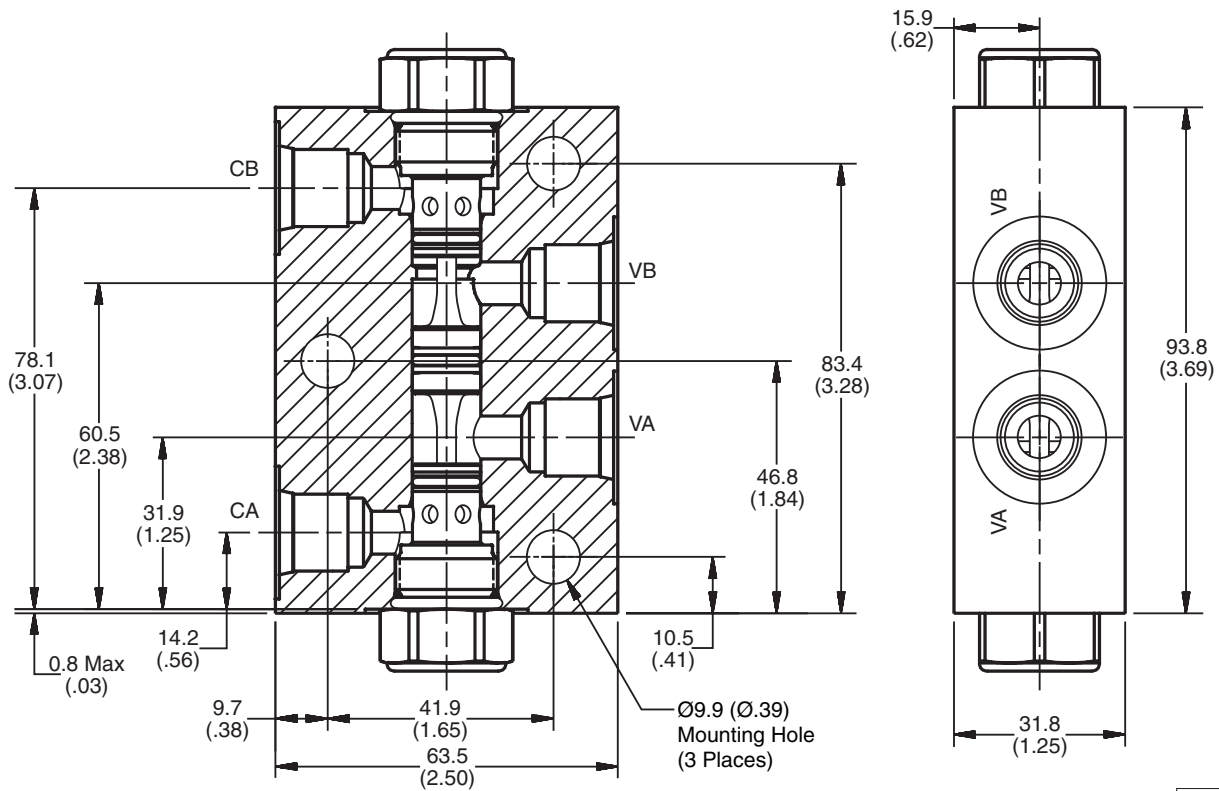


**Performance Curve**

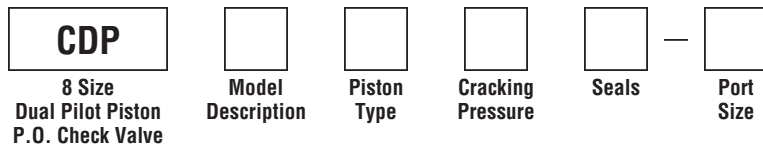
Pressure Drop vs. Flow (Through cartridge only)



**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Model Description
081	3000 PSI Series
H081	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
10	0.7 Bar (10 PSI)
30	2.1 Bar (30 PSI)
65	4.5 Bar (65 PSI)
100	6.9 Bar (100 PSI)
150	10.4 Bar (150 PSI)

Code	Seals / Kit No.
Omit	"D"-Ring / (SK08-2)
N	Nitrile / (SK08-2N)
V	Fluorocarbon / (SK08-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A6T	SAE-6	Aluminum (CDP081 Only)
6T	SAE-6	Steel (CDPH081 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

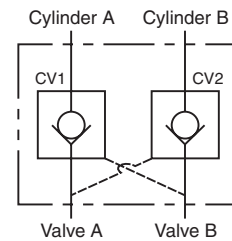
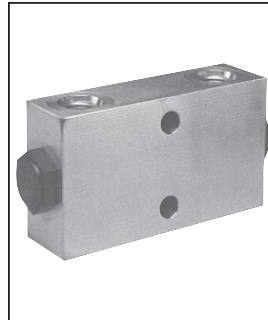
\*Not available with "A" option.

**Technical Information**

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

**General Description**

Pilot Piston Style Dual Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

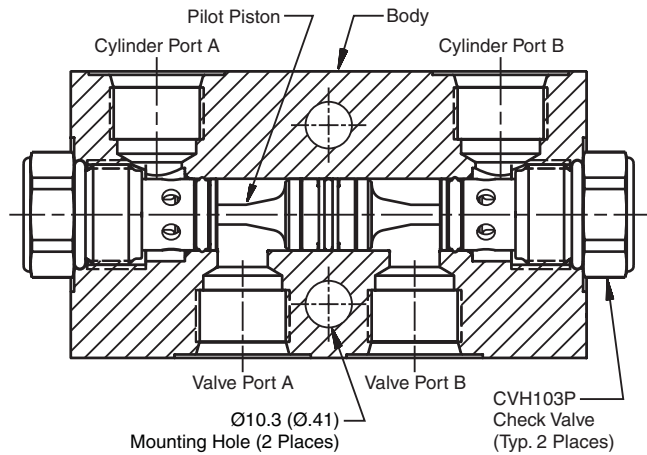


**Features**

- Spherical poppet for low leakage
- “D”-Ring eliminates back-up rings
- Optional sealed pilot piston

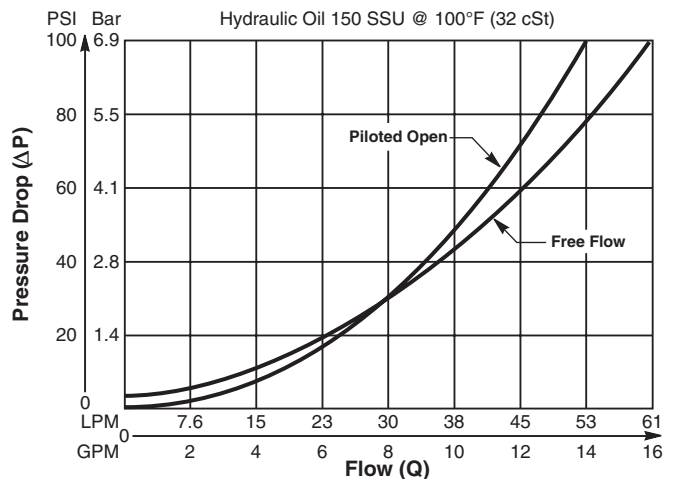
**Specifications**

<b>Maximum Flow</b>	56 LPM (15 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CDP103 350 Bar (5000 PSI) - CDPH103
<b>Leakage Across Check 150 SSU (32 cSt)</b>	2 drops/min. (.13 cc/min.)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	4:1
<b>Pilot Piston Part Numbers</b>	No Seal - 717917 Nitrile Seal - 717917N Fluorocarbon Seal - 717917V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CDP103 Steel - CDPH103
<b>Operating Temp. Range (Ambient)</b>	-45°C to +93.3°C (“D”-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	



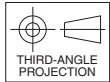
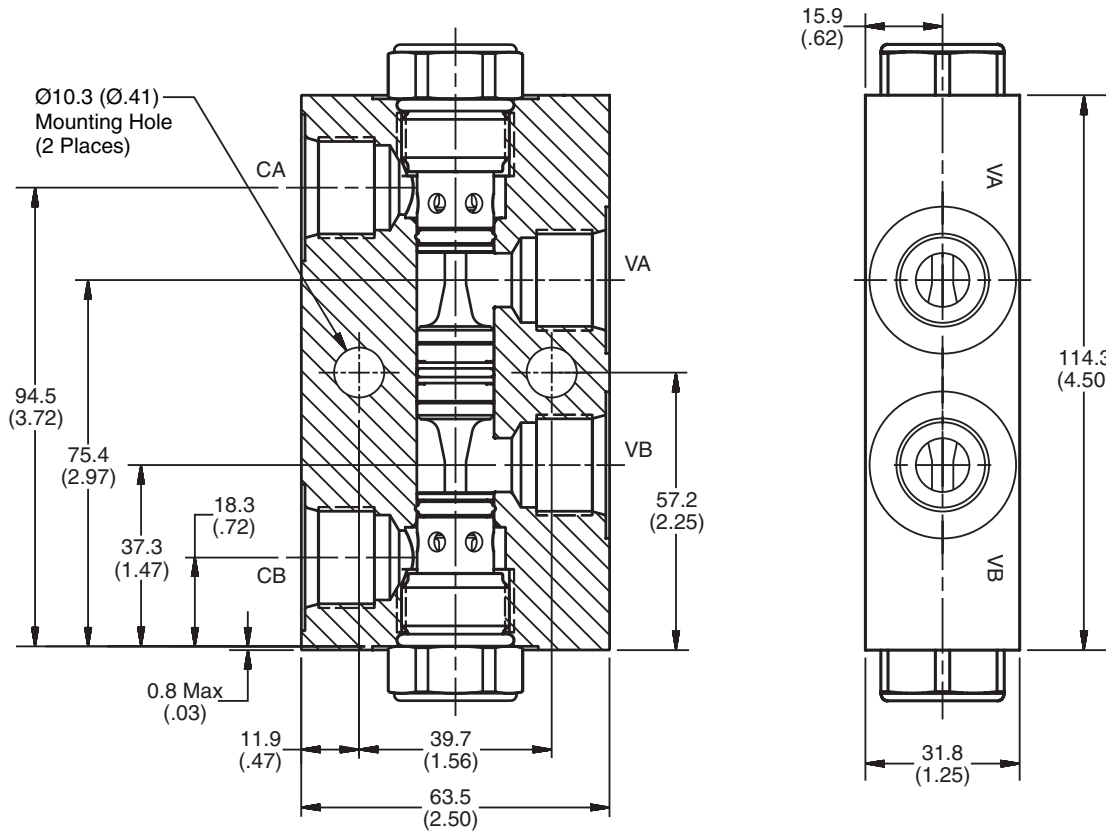
**Performance Curve**

Pressure Drop vs. Flow (Through cartridge only)

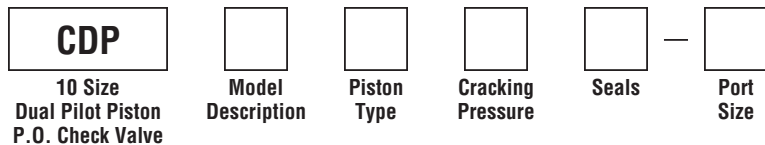


**Technical Information**

**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Model Description
103	3000 PSI Series
H103	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
50	3.5 Bar (50 PSI)
65	4.5 Bar (65 PSI)
80	5.5 Bar (80 PSI)
100	6.9 Bar (100 PSI)

Code	Seals / Kit No.
Omit	"D"-Ring / (SK10-2)
N	Nitrile / (SK10-2N)
V	Fluorocarbon / (SK10-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A8T	SAE-8	Aluminum (CDP103 Only)
8T	SAE-8	Steel (CDPH103 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

\*Not available with "A" option.

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

**Technical Information**

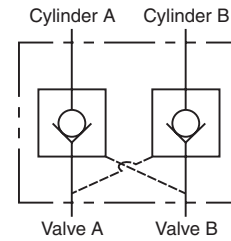
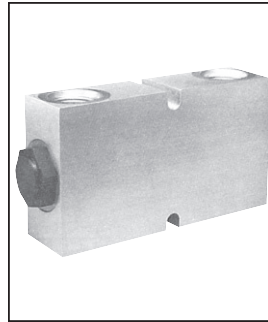
- CV Check Valves
- SH Shuttle Valves
- LM Load/Motor Controls
- FC Flow Controls
- PC Pressure Controls
- LE Logic Elements
- DC Directional Controls
- MV Manual Valves
- SV Solenoid Valves
- PV Proportional Valves
- CE Coils & Electronics
- BC Bodies & Cavities
- TD Technical Data

**General Description**

Pilot Piston Style Dual Pilot Operated Check Valve. For additional information see Technical Tips on pages CV1-CV4.

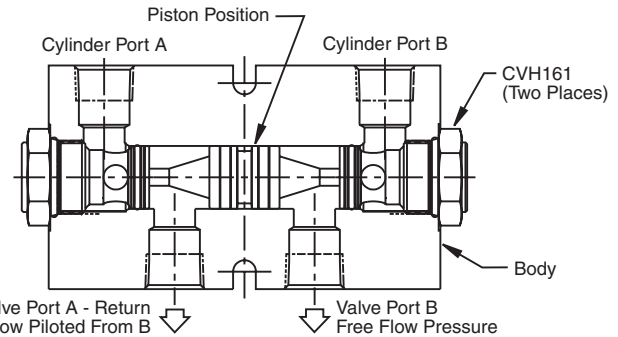
**Features**

- Hardened precision ground parts for durability
- Optional sealed pilot piston



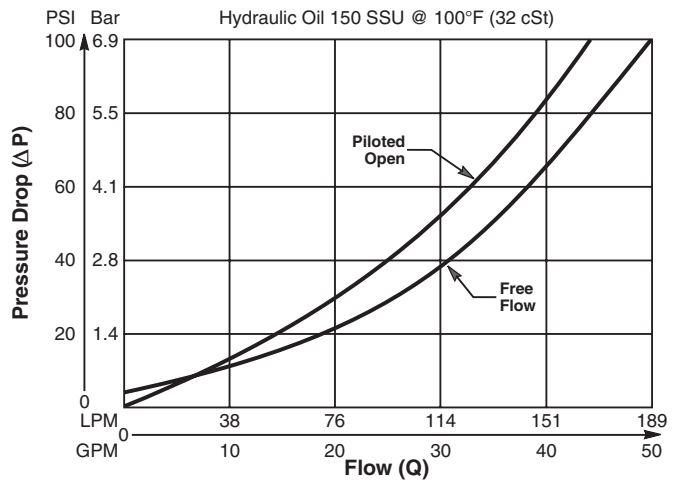
**Specifications**

<b>Maximum Flow</b>	187 LPM (50 GPM)
<b>Maximum Inlet Pressure</b>	210 Bar (3000 PSI) - CDP161 350 Bar (5000 PSI) - CDPH161
<b>Leakage at 150 SSU (32 cSt)</b>	5 drops/min (.33 cc/min) @ 350 Bar (5000 psi)
<b>Leakage Across Pilot Piston (No Seals)</b>	312 cc/min 0.3 LPM (.08 GPM)
<b>Pilot Ratio</b>	3:1
<b>Pilot Piston Part Numbers</b>	No Seal - 717918 Nitrile Seal - 717918N Fluorocarbon - 717918V
<b>Cartridge Material</b>	All parts steel. All operating parts hardened steel.
<b>Body Material</b>	Aluminum - CDP161 Steel - CDPH161
<b>Operating Temp. Range (Ambient)</b>	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
<b>Filtration</b>	ISO code 16/13, SAE Class 4 or better
<b>Fluids</b>	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
<b>Approx. Weight</b>	



**Performance Curve**

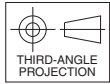
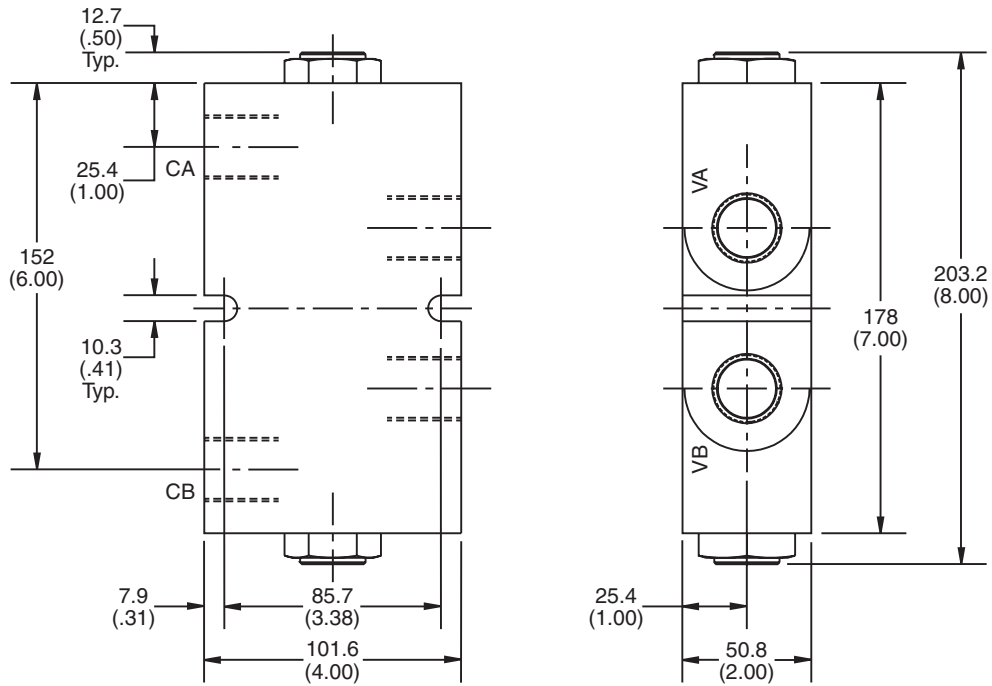
Pressure Drop vs. Flow (Through cartridge only)



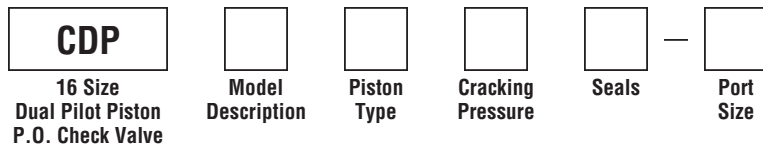


**Technical Information**

**Dimensions** Millimeters (Inches)



**Ordering Information**



Code	Model Description
161	3000 PSI Series
H161	5000 PSI Series

Code	Cracking Pressure
*Omit	0.3 Bar (5 PSI)
20	1.4 Bar (20 PSI)
65	4.5 Bar (65 PSI)
175	12.1 Bar (175 PSI)

Code	Seals / Kit No.
Omit	Nitrile / (SK16-2N)
V	Fluorocarbon / (SK16-2V)

Code	Port Size	Material
Omit	Cartridge Only	
A16T	SAE-16	Aluminum (CDP161 Only)
16T	SAE-16	Steel (CDPH161 Only)

Code	Piston Type
P	Pilot Piston without seal
A	Pilot Piston with seal Note: Requires 1.4 Bar (20 PSI) crack minimum.

\*Not available with "A" option.

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

Technical Information

CV

Check Valves

SH

Shuttle Valves

LM

Load/Motor Controls

FC

Flow Controls

PC

Pressure Controls

LE

Logic Elements

DC

Directional Controls

MV

Manual Valves

SV

Solenoid Valves

PV

Proportional Valves

CE

Coils & Electronics

BC

Bodies & Cavities

TD

Technical Data

General Description

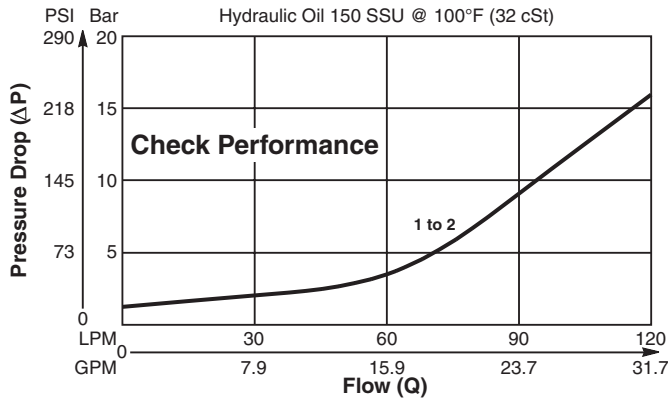
Poppet Type Check Valve with Relief Feature. For additional information see Technical Tips on pages CV1-CV4.

Features

- Poppet type for minimal leakage - less than 3 drops/min.
- Relief feature to give thermal and shock relief protection
- Compact space saving design
- Hardened working parts for maximum durability
- Single and dual pilot pistons available to create pilot to open check
- Good contamination tolerance
- All external parts zinc plated

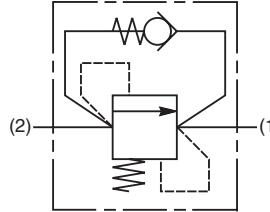
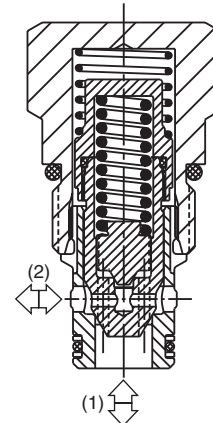
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

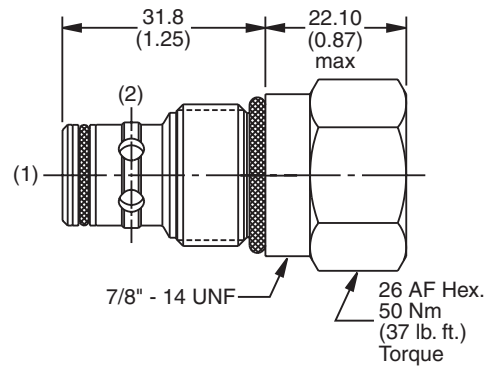


Specifications

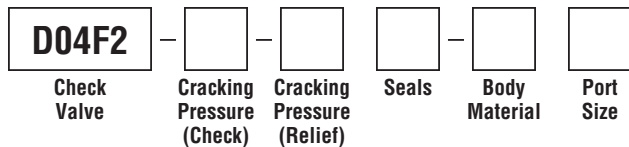
Rated Flow	130 LPM (40 GPM)
Nominal Flow @ 7 Bar (100 PSI)	72 LPM (19 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Leakage at 150 SSU (32 cSt)	Less than 3 drops/min.
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.13 kg (.29 lbs.)
Cavity	C10-2 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information



Code	Cracking Pressure (Check)
2.5	2.5 Bar (36 PSI)
7.0	7.0 Bar (102 PSI)

Code	Body Material
Omit	Steel
A	Aluminum

Code	Cracking Pressure (Relief)
35	35 Bar (507 PSI)
245	245 Bar (3553 PSI)
276	276 Bar (4000 PSI)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
4P	1/4" NPTF	(B10-2-*4P)
6P	3/8" NPTF	(B10-2-*6P)
8P	1/2" NPTF	(B10-2-*8P)
6T	SAE-6	(B10-2-*6T)
8T	SAE-8	(B10-2-*8T)
T8T	SAE-8	(B10-2-T8T)†
6B	3/8" BSPG	(B10-2-6B)†

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30503N-1)
V	Fluorocarbon / (SK30503V-1)

\* Add "A" for aluminum, omit for steel.  
† Steel body only.