



# Catalog PowrFlow™ Modular Stack Valves and Valve Bodies



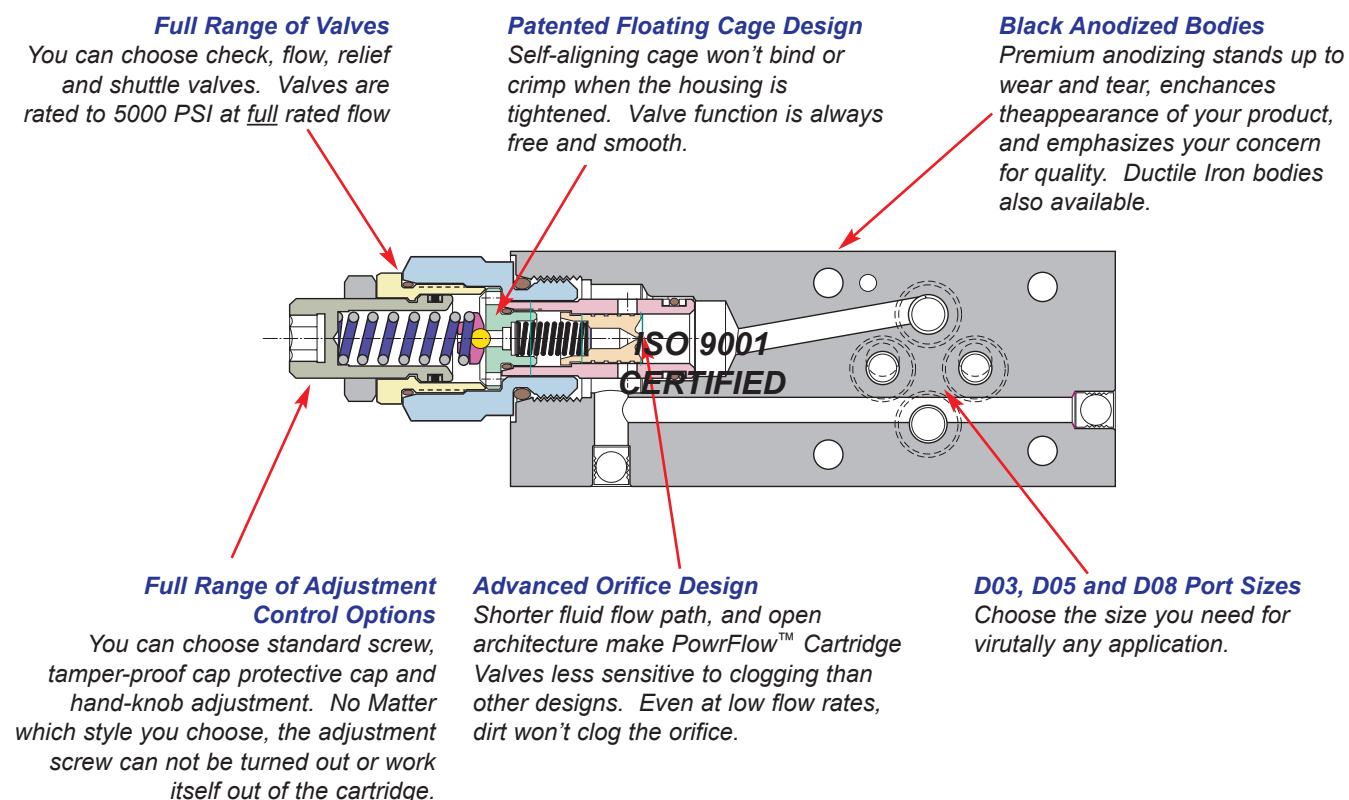
*Your source for modular stack  
valves and valve bodies for the  
most demanding applications.*

## ***What Makes PowrFlow™ Modular Stack Valves Your Best Buy?***

Continental Hydraulics PowrFlow™ Modular Valves deliver the performance, reliability and value you've come to expect in all our products. Here are just a few reasons to choose the PowrFlow™ line for your application.

- 5000 PSI Rated at Full Rated Flow
- Designed to Resist Working Loose
- 100% Tested
- Three Year Warranty

### ***PowrFlow™ Modular Stack Valves***



PowrFlow™ Modular Stack Valves are available in D03, D05 and D08 port sizes. You can choose:

- Check Valves
- Flow Controls
- Relief Valves
- Shuttle Valves
- Pressure Reducing Valves
- Pressure Sequence Valves
- Logic and Compensator Valves
- Load Holding Valves
- Pilot Operated Directional Control Valves
- Ductile Iron or Aluminum Bodies

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*DIRECT AND PILOT*

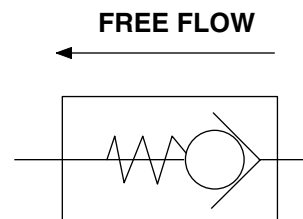
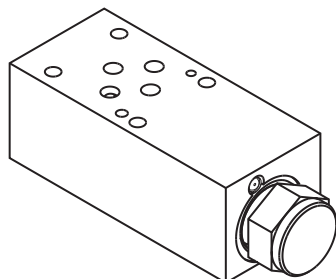
*OPERATED*

*MODULAR STACK*

*CHECK VALVES*

# C03MSV-DP / C03MSV-DT

POWRFLOW™  
**CHECK VALVE**  
Direct Operated



## DESCRIPTION

Utilizes a cartridge type guided poppet, and hydraulic check valve as a blocking or load holding device for high-pressure applications.

## OPERATIONS

This valve allows free flow in one direction and blocks flow in the opposite direction.

## FEATURES AND BENEFITS

- All external parts are zinc plated for longer life against elements.
- All aluminum bodies are anodized.
- All cartridges are 100% functionally tested.
- Industrial common cavities.

## SPECIFICATIONS

Flow: 10 GPM (38 L/M) nominal.  
See performance chart.

Internal Leakage: 5 drops per minute @ 5000 PSI.

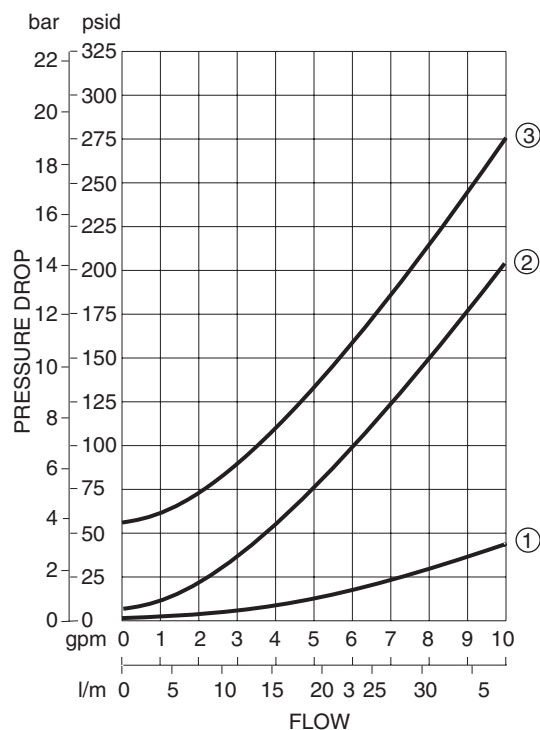
Valve Bodies : 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE#10, SAE #20, etc.

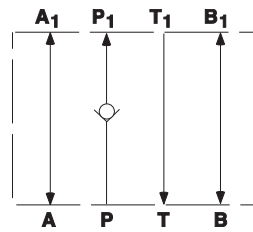
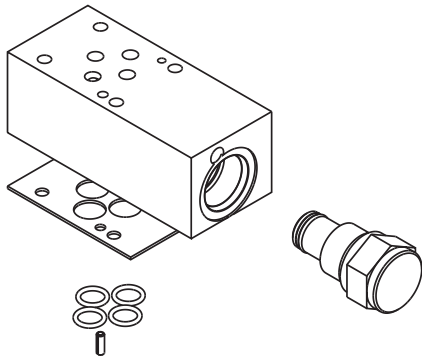
Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES

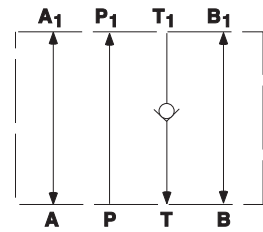


## FLOW PATH ?P CURVES

|           | A-A<br>B-B | P-P<br>T-T | P-P & T-T WITH<br>5 PSI CHECK | P-P WITH<br>60 PSI CHECK |
|-----------|------------|------------|-------------------------------|--------------------------|
| CODE      | OPEN       | OPEN       | FREE FLOW                     | FREE FLOW                |
| C03MSV-DP | 1          | 1          | 2                             | 3                        |
| C03MSV-DT | 1          | 1          | 2                             | 3                        |



**VALVE TYPE**  
CHECK VALVE  
P PORT

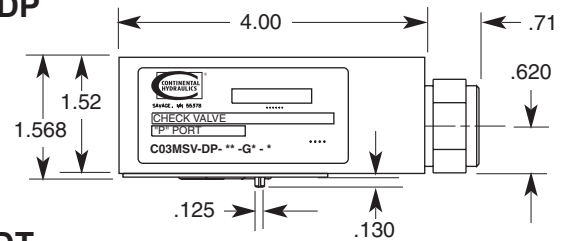


**VALVE TYPE**  
CHECK VALVE  
T PORT

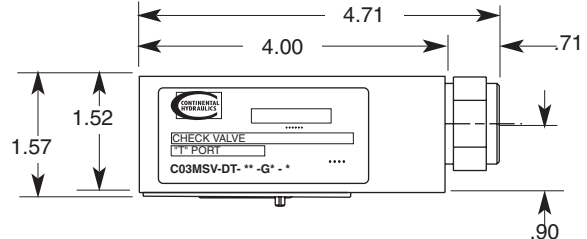
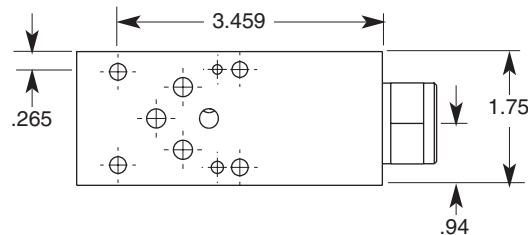
## DIMENSIONS



### C03MSV-DP



### C03MSV-DT



## ORDERING INFORMATION

| <b>C03MSV</b> |             | <b>D</b>                  |                  | <b>SELECT ONE</b> |          | <b>SELECT ONE</b> |          | <b>G</b> |  | <b>SELECT ONE</b> |          | <b>DESIGN</b> |  |
|---------------|-------------|---------------------------|------------------|-------------------|----------|-------------------|----------|----------|--|-------------------|----------|---------------|--|
|               |             |                           |                  |                   |          |                   |          |          |  |                   |          |               |  |
| FUNCTION      | SIZE        | STYLE                     | TYPE             | CONTROL PORT      |          | CRACKING PRESSURE |          | SEALS    |  | BODY MATERIAL     |          |               |  |
| CHECK VALVE   | NFPA<br>D03 | MODULAR<br>STACK<br>VALVE | DIRECT           | CODE              | LOCATION | CODE              | PRESSURE | VITON    |  | CODE              |          |               |  |
|               |             |                           | OPERATED         | P                 | P PORT   | 5                 | 5 PSI    |          |  | A                 | ALUMINUM |               |  |
|               |             |                           | GUIDED<br>POPPET | T                 | T PORT   | 60                | 60 PSI   |          |  | D                 | DUCTILE  |               |  |

### Body Only Assembly (DP or DT):

Aluminum (Part No.) — 552469K  
Ductile (Part No.) — 552550K

Includes Seal Retainer Plate, O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1020 with port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other crack pressure ratings, refer to CCVFP-10 cartridges in Cartridge Catalog.

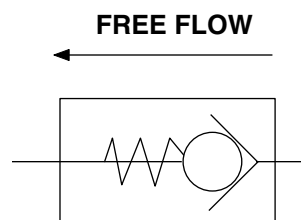
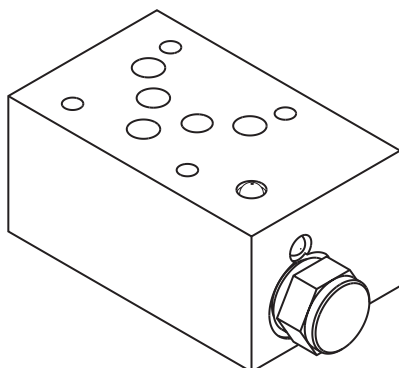
TYPICAL ORDERING CODE: **C03MSV-DP-30-GA**

# C05MSV-DP

POWRFLOW™

## CHECK VALVE

Direct Operated



### DESCRIPTION

Utilizes a cartridge-type, guided poppet and hydraulic check valve as a blocking or load holding device during high-pressure applications.

### OPERATIONS

This valve allows free flow in one direction and blocks flow in the opposite direction.

### FEATURES AND BENEFITS

- All external parts are zinc plated for longer life against elements.
- All aluminum bodies are anodized.
- All cartridges are 100% functionally tested.
- Industrial common cavities.

### SPECIFICATIONS

Flow: 20 GPM (76 L/M) nominal.  
See performance chart.

Internal Leakage: 5 drops per minute @ 5000 PSI.

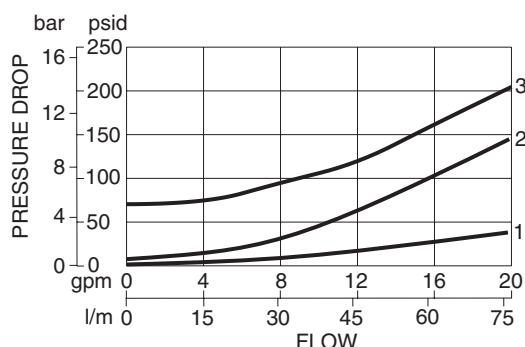
Valve Bodies : 3000 PSI (207 Bar) = Aluminum (2024-T-4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE#10, SAE #20, etc.

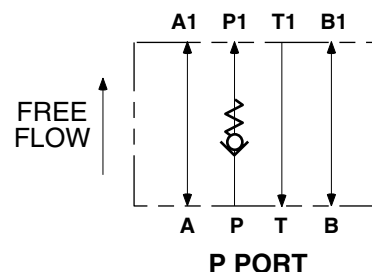
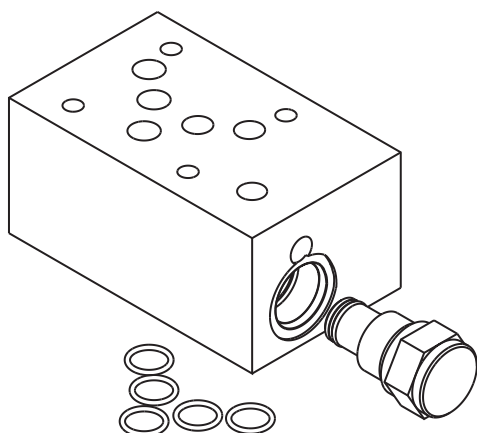
Filtration: 25 microns acceptable;  
10 microns preferred.

### TYPICAL PRESSURE DROP CURVES

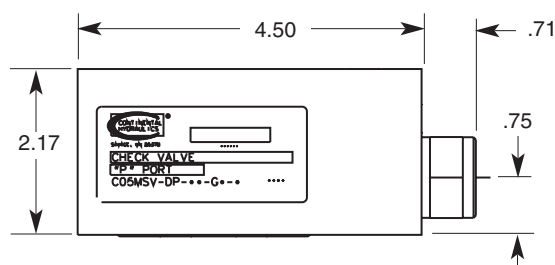
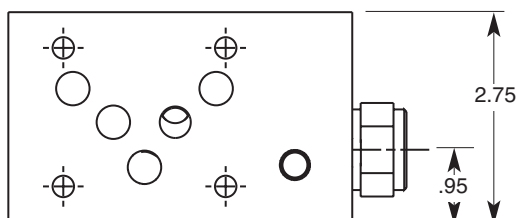


### FLOW PATH ?P CURVES

| CODE      | T-T<br>A-A<br>B-B | P-P<br>CHECK<br>OPEN |
|-----------|-------------------|----------------------|
| C05MSV-DP | 1                 | 2 (CODE 5)           |
|           |                   | 3 (CODE 60)          |



## DIMENSIONS



## ORDERING INFORMATION

|                   |             |                           |                  |                     |        |                          |        |              |                      |          |
|-------------------|-------------|---------------------------|------------------|---------------------|--------|--------------------------|--------|--------------|----------------------|----------|
| <b>C05MSV — D</b> |             | SELECT ONE                |                  | SELECT ONE          |        | SELECT ONE               |        | DESIGN       |                      |          |
|                   |             |                           |                  |                     |        |                          |        |              |                      |          |
| <b>FUNCTION</b>   | <b>SIZE</b> | <b>STYLE</b>              | <b>TYPE</b>      | <b>CONTROL PORT</b> |        | <b>CRACKING PRESSURE</b> |        | <b>SEALS</b> | <b>BODY MATERIAL</b> |          |
| CHECK VALVE       | NFPA<br>D05 | MODULAR<br>STACK<br>VALVE | DIRECT           | P                   | P PORT | 5                        | 5 PSI  | VITON        | A                    | ALUMINUM |
|                   |             |                           | OPERATED         |                     |        | 60                       | 60 PSI |              | D                    | DUCTILE  |
|                   |             |                           | GUIDED<br>POPPET |                     |        |                          |        |              |                      |          |

### Body Only Assembly:

Aluminum (Part No.) — 552476K  
Ductile (Part No.) — 552552K

Includes O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1020 with port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other crack pressure ratings, refer to CCVFP-10 cartridges in Cartridge Catalog.

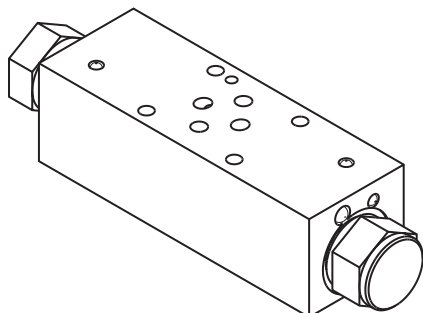
TYPICAL ORDERING CODE: **C05MSV-DP-5-GA**

# C03MSV-PA / C03MSV-PB / C03MSV-PC

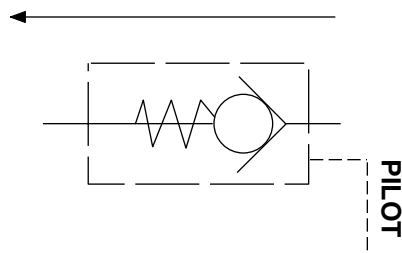
POWRFLOW™

## CHECK VALVE

Pilot Operated



FREE FLOW



### DESCRIPTION

Utilizes a cartridge-type, guided poppet, and hydraulic pilot operated check valve as a blocking or load-holding device for high pressure applications.

### OPERATIONS

This valve allows free flow from the work port to the outlet port and blocks flow in the opposite direction. Free flow will be allowed from the outlet port to the work port when at least one-third of the load induced pressure is sensed in the opposing work port.

### FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

### SPECIFICATIONS

Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).

5000 PSI (350 Bar) = Ductile (65-45-12).

Flow: 10 GPM (38 L/M) nominal.

Refer to performance chart.

Pilot Ratio: 3 to 1.

Internal Leakage: 5 drops per minute maximum at 5000 PSI.

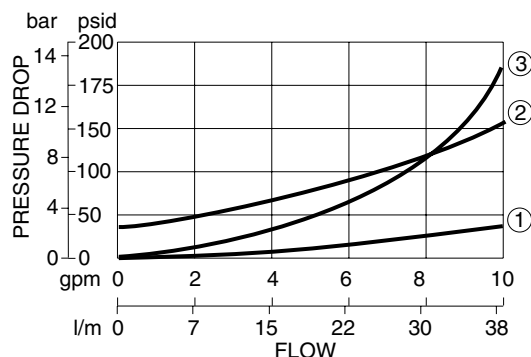
Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;

10 microns preferred.

### TYPICAL PRESSURE DROP CURVES

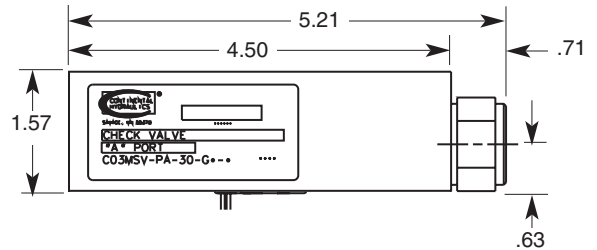
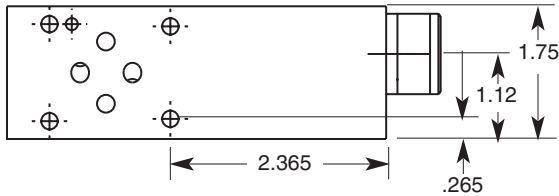


### FLOW PATH ?P CURVES

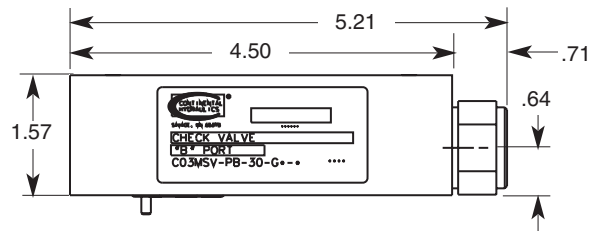
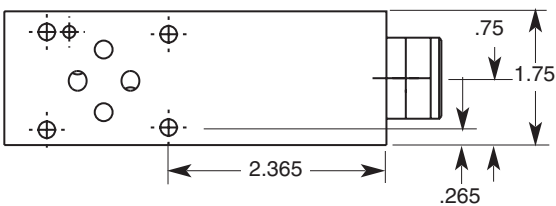
|           | P-P<br>T-T | A-A<br>B-B | A-A<br>WITH CHECK |                 | B-B<br>WITH CHECK |                 |
|-----------|------------|------------|-------------------|-----------------|-------------------|-----------------|
| CODE      | OPEN       | OPEN       | FREE<br>FLOW      | REVERSE<br>FLOW | FREE<br>FLOW      | REVERSE<br>FLOW |
| C03MSV-PA | 1          | 1          | 2                 | 3               | —                 | —               |
| C03MSV-PB | 1          | 1          | —                 | —               | 2                 | 3               |
| C03MSV-PC | 1          | —          | 2                 | 3               | 2                 | 3               |

**DIMENSIONS**

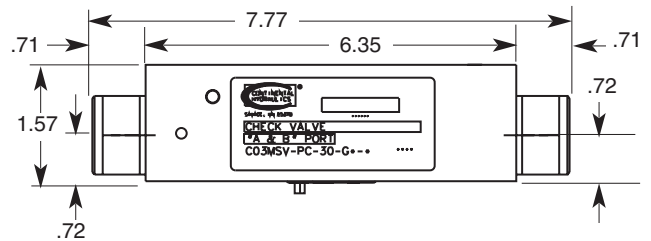
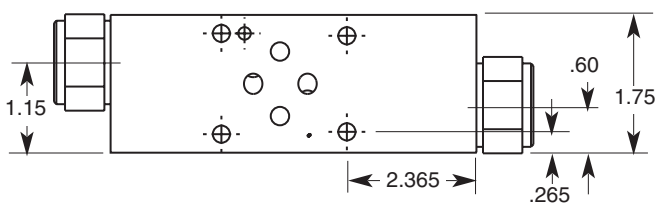
**C03MSV-PA**



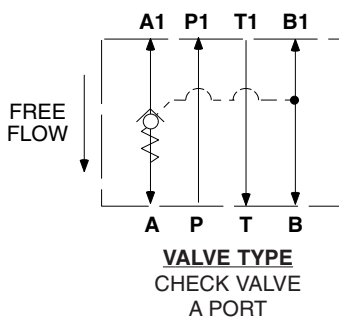
**C03MSV-PB**



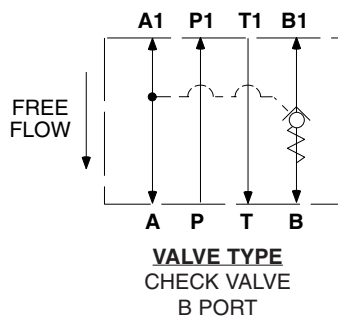
**C03MSV-PA**



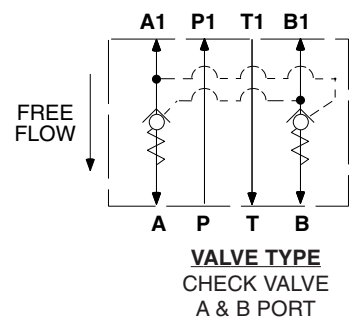
**C03MSV-PC**



**C03MSV-PB**



**C03MSV-PC**

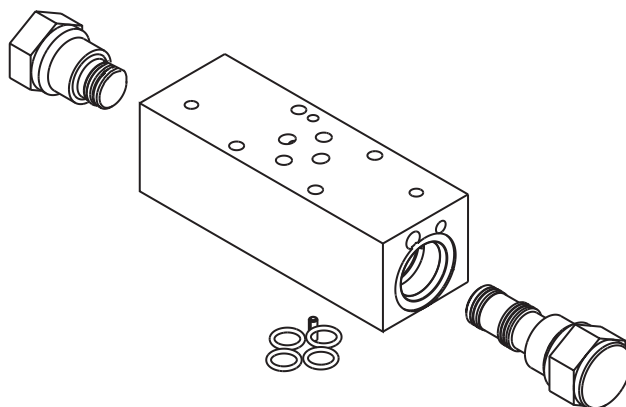


# C03MSV-PA / C03MSV-PB / C03MSV-PC

POWRFLOW™

## CHECK VALVE

Pilot Operated



### ORDERING INFORMATION

| C03MSV      |             | P                         | SELECT ONE | SELECT ONE   | G          | SELECT ONE        | DESIGN   |       |               |          |         |  |
|-------------|-------------|---------------------------|------------|--------------|------------|-------------------|----------|-------|---------------|----------|---------|--|
| FUNCTION    | SIZE        | STYLE                     | TYPE       | CONTROL PORT |            | CRACKING PRESSURE |          | SEALS | BODY MATERIAL |          |         |  |
| CHECK VALVE | NFPA<br>D03 | MODULAR<br>STACK<br>VALVE | PILOT      | CODE         | LOCATION   | CODE              | PRESSURE | VITON | CODE          |          |         |  |
|             |             |                           | OPERATED   | A            | A PORT     | 30                | 30 PSI   |       | A             | ALUMINUM |         |  |
|             |             |                           | GUIDED     | B            | B PORT     | 60                | 60 PSI   |       |               | D        | DUCTILE |  |
|             |             |                           | POPPET     | C            | A & B PORT |                   |          |       |               |          |         |  |

#### Body Only Assembly:

##### Code A Control Port:

Aluminum (Part No.) — 552497K

Ductile (Part No.) — 552557K

##### Code B Control Port:

Aluminum (Part No.) — 552474K

Ductile (Part No.) — 552558K

##### Code A & B Control Port:

Aluminum (Part No.) — 552608K

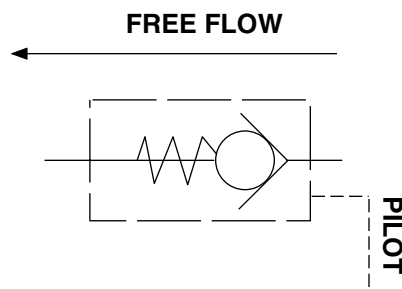
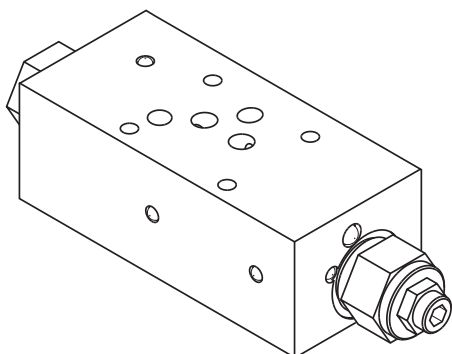
Ductile (Part No.) — 552609K

Includes O-rings & Locating Pin.

#### General Information:

- Cartridge cavity is C1025 with flow pattern set up for cartridges flowing from port 1 to port 2, with port 3 as the pilot signal.
- For other crack pressure ratings refer to CPOCI-10 cartridges in the Cartridge Catalog.

TYPICAL ORDERING CODE: **C03MSV-PA-30-GA**



## DESCRIPTION

Utilizes a cartridge-type, guided poppet, hydraulic pilot operated check valve as a blocking or load-holding device for high pressure applications.

## OPERATIONS

This valve allows free flow from the work port to the outlet port and blocks flow in the opposite direction. Free flow will be allowed from the outlet port to the valve work port when at least one-third of the load induced pressure is sensed in the opposing work port.

## FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.

Pilot Ratio: 3 to 1.

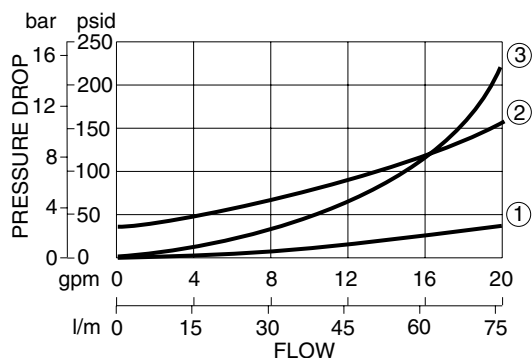
Internal Leakage: 5 drops per minute maximum at 5000 PSI.

Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES

|           | P-P<br>T-T | A-A<br>B-B | A-A<br>WITH CHECK |                 | B-B<br>WITH CHECK |                 |
|-----------|------------|------------|-------------------|-----------------|-------------------|-----------------|
| CODE      | OPEN       | OPEN       | FREE<br>FLOW      | REVERSE<br>FLOW | FREE<br>FLOW      | REVERSE<br>FLOW |
| C05MSV-PA | 1          | 1          | 2                 | 3               | —                 | —               |
| C05MSV-PB | 1          | 1          | —                 | —               | 2                 | 3               |
| C05MSV-PC | 1          | —          | 2                 | 3               | 2                 | 3               |

# C05MSV-PA / C05MSV-PB / C05MSV-PC

POWRFLOW™

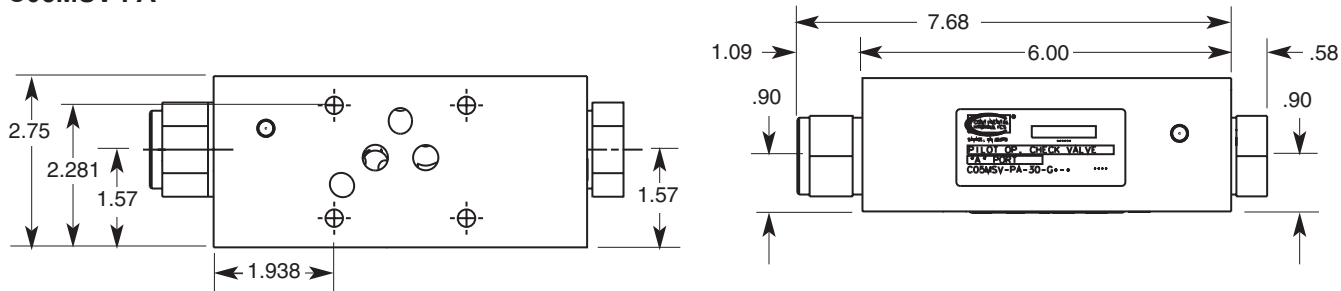
## CHECK VALVE

Pilot Operated

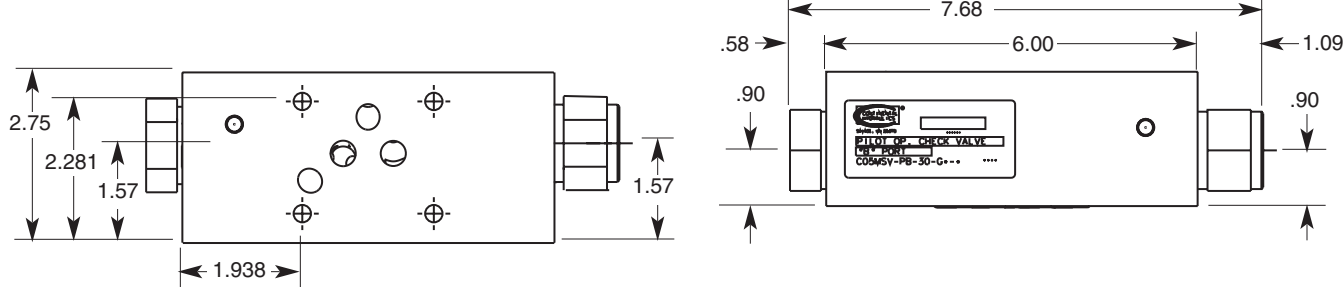


### DIMENSIONS

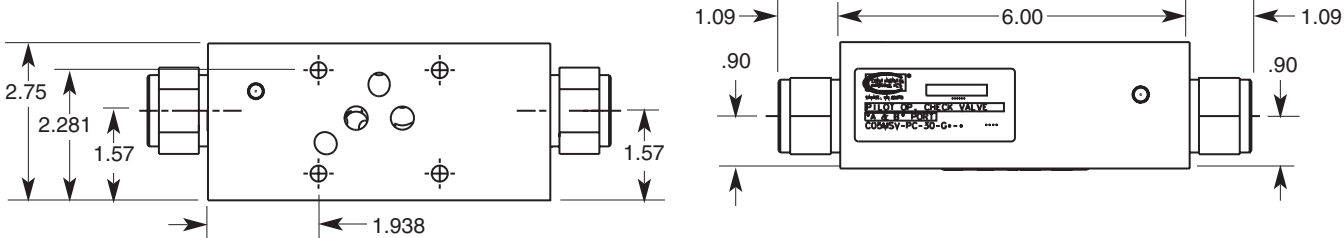
#### C05MSV-PA



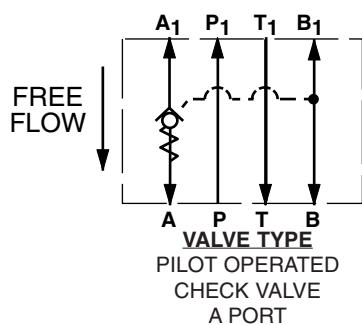
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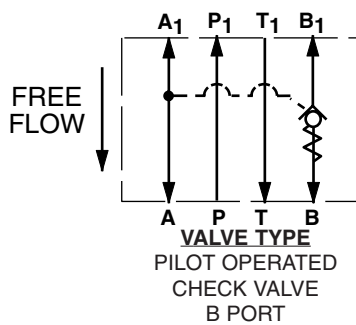
#### C05MSV-PC



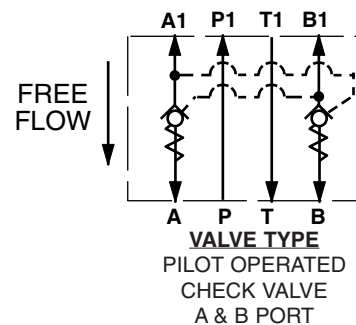
#### C05MSV-PA

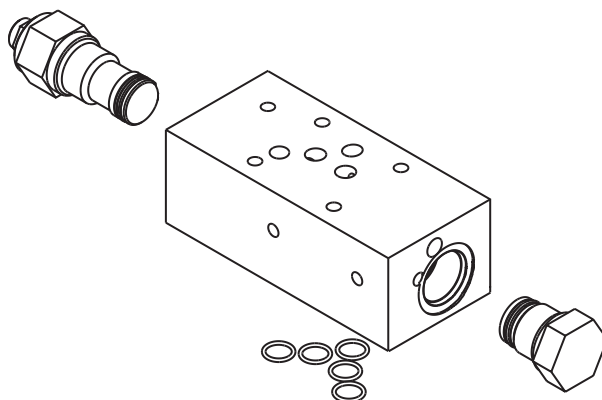


#### C05MSV-PB



#### C05MSV-PC





## ORDERING INFORMATION

| C05MSV      |             | —                         | P        | SELECT ONE   | —          | SELECT ONE        | —        | G     | SELECT ONE    | DESIGN   |  |
|-------------|-------------|---------------------------|----------|--------------|------------|-------------------|----------|-------|---------------|----------|--|
|             |             |                           |          |              |            |                   |          |       |               |          |  |
| FUNCTION    | SIZE        | STYLE                     | TYPE     | CONTROL PORT |            | CRACKING PRESSURE |          | SEALS | BODY MATERIAL |          |  |
| CHECK VALVE | NFPA<br>D05 | MODULAR<br>STACK<br>VALVE | PILOT    | CODE         | LOCATION   | CODE              | PRESSURE | VITON | CODE          |          |  |
|             |             |                           | OPERATED | A            | A PORT     | 30                | 30 PSI   |       | A             | ALUMINUM |  |
|             |             |                           |          | B            | B PORT     | 60                | 60 PSI   |       | D             | DUCTILE  |  |
|             |             |                           |          | C            | A & B PORT |                   |          |       |               |          |  |

### Body Only Assembly:

#### Code A, B, C Control Port:

Aluminum (Part No.) — 552473K  
Ductile (Part No.) — 552553K

Includes O-rings & Locating Pin.

**NOTE:** Cavity plug required  
for Code A & B.

### General Information:

- Cartridge cavity is C1225 with flow pattern set up for cartridge flowing port 1 to port 2, with port 3 as the pilot signal.
- For other crack pressure ratings refer to CPOCI-12 cartridges in the Cartridge Catalog.

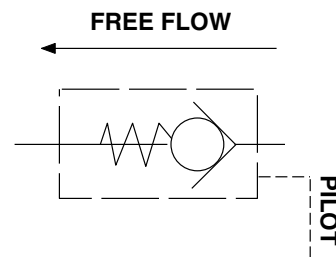
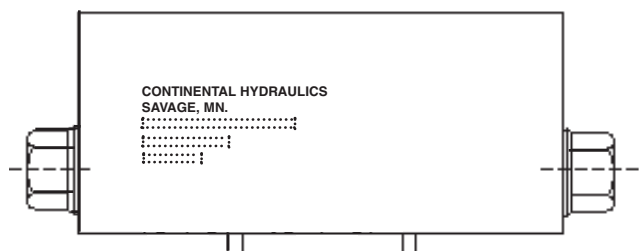
TYPICAL ORDERING CODE: **C05MSV-PA-30-GA**

# C08MSV-PC

## POWRFLOW™

### CHECK VALVE

Pilot Operated



### DESCRIPTION

Utilizes a cartridge-type, guided poppet, hydraulic pilot operated check valve as a blocking or load-holding device for high pressure applications.

### OPERATIONS

This valve allows free flow from the work port to the outlet port and blocks flow in the opposite direction. Free flow will be allowed from the outlet port to the work port when at least one-third of the load induced pressure is sensed in the opposite work port.

### FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Uses Sun T17A cavity.
- Anodized aluminum.

### SPECIFICATIONS

Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).

5000 PSI (350 Bar) = Ductile (65-45-12).

Flow: 60 GPM (228 L/M) nominal.

Refer to performance chart.

Pilot Ratio: 3 to 1.

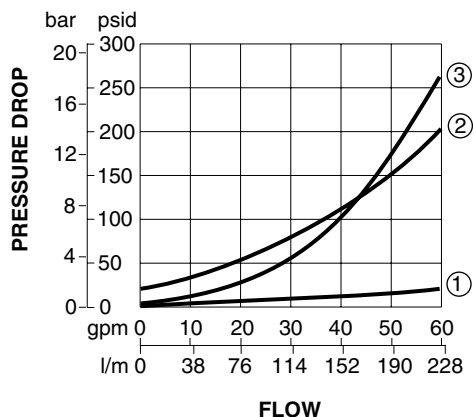
Internal Leakage: 5 drops per minute maximum at 5000 PSI.

Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred

### TYPICAL PRESSURE DROP CURVES

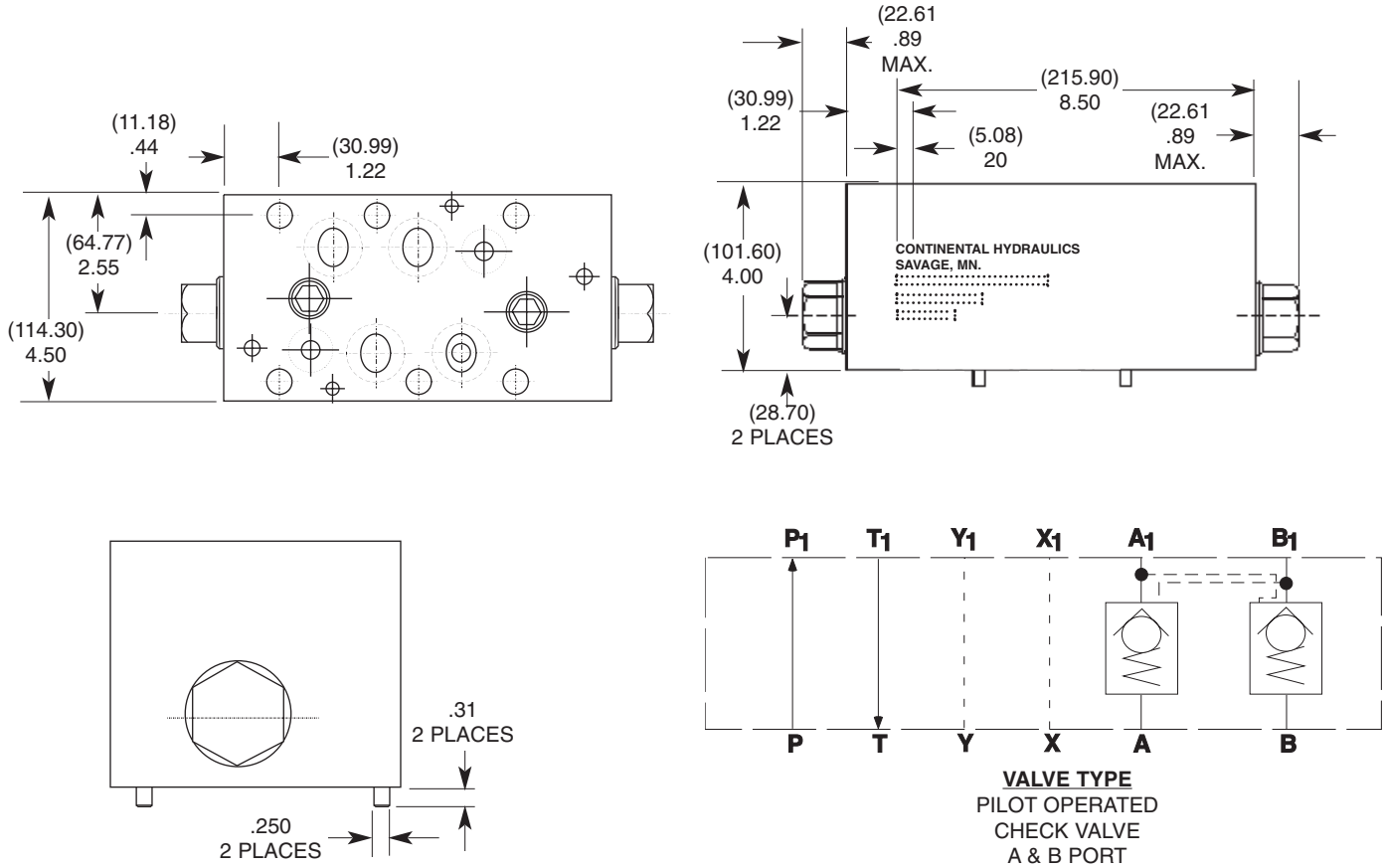


### FLOW PATH ?P CURVES

| CODE      | P-P<br>T-T | A-A<br>THRU CHECK |                 | B-B<br>THRU CHECK |                 |
|-----------|------------|-------------------|-----------------|-------------------|-----------------|
|           | OPEN       | FREE<br>FLOW      | PILOTED<br>FLOW | FREE<br>FLOW      | PILOTED<br>FLOW |
| C08MSV-PC | 1          | 3                 | 2               | 3                 | 2               |

## DIMENSIONS

DIMENSIONS IN PARENTHESES ARE  
(MILLIMETERS) . . . OTHERS ARE INCHES!



## ORDERING INFORMATION

| C08MSV — P  |             |                           | SELECT ONE        | —            | SELECT ONE | —                 | G        | —     | SELECT ONE    | DESIGN   |  |
|-------------|-------------|---------------------------|-------------------|--------------|------------|-------------------|----------|-------|---------------|----------|--|
|             |             |                           |                   |              |            |                   |          |       |               |          |  |
| FUNCTION    | SIZE        | STYLE                     | TYPE              | CONTROL PORT |            | CRACKING PRESSURE |          | SEALS | BODY MATERIAL |          |  |
| CHECK VALVE | NFPA<br>D08 | MODULAR<br>STACK<br>VALVE | PILOT<br>OPERATED | CODE         | LOCATION   | CODE              | PRESSURE | VITON | CODE          |          |  |
|             |             |                           |                   | C            | A & B PORT | 30                | 30 PSI   |       | A             | ALUMINUM |  |
|             |             |                           |                   |              |            |                   |          |       | D             | DUCTILE  |  |

### Body Only Assembly:

Code A, B, C Control Port:  
Aluminum (Part No.) — 552685.

Includes O-rings & Locating Pin.

### General Information:

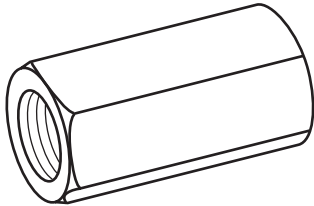
- Cartridge cavity is T-17A with flow pattern set up for cartridge flowing port 1 to port 2, with port 3 as the pilot signal.

TYPICAL ORDERING CODE: **C08MSV-PC**

*MODULAR*

*CARTRIDGE*

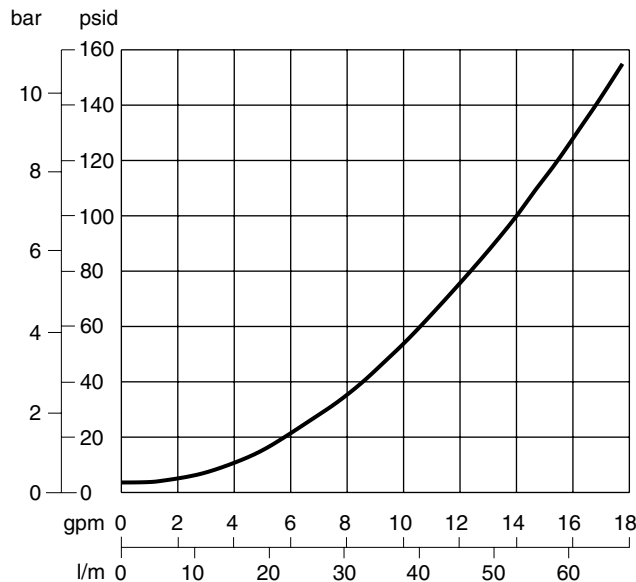
*CHECK VALVE*



## DESCRIPTION

The check valve is designed to be installed in a cavity in the subplate or manifold, and is held in place by the directional valve or manifold valve.

## TYPICAL PRESSURE DROP



All pressure drops shown on this data page are based on 100 SUS fluid viscosity and 0.87 specific gravity.

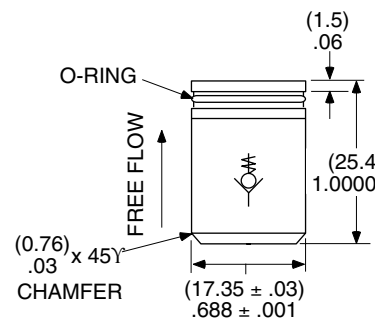
For any other specific gravity ( $G_1$ ), the pressure drop ( $\Delta P_1$ ) will be approximately  $\Delta P_1 = \Delta P (G_1/G)$ .

## TYPICAL PERFORMANCE SPECIFICATIONS

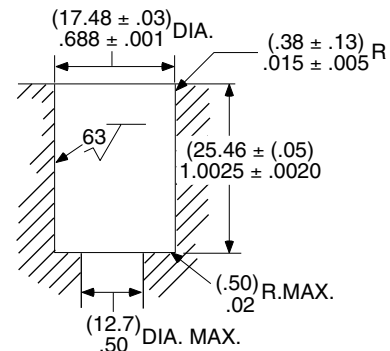
|                                                         |         |          |         |
|---------------------------------------------------------|---------|----------|---------|
| FLOW RATES                                              | Maximum | 18 gpm   | 68 l/m  |
| MAXIMUM OPERATING PRESSURE                              |         | 3500 psi | 241 bar |
| INTERNAL LEAKAGE<br>(Across Check)<br>3500 psi, 100 SUS |         | 2 cipm   | 33 ml/m |
| CRACK PRESSURE                                          | Minimum | 4 psi    | .28 bar |
|                                                         | Maximum | 8 psi    | .55 bar |
| SEALS                                                   |         | VITON    |         |
| WEIGHT                                                  |         | .25 lbs. | 0.1 kg  |

DIMENSIONS SHOWN IN:  
(MILLIMETERS)  
INCHES

### CARTRIDGE



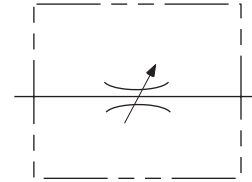
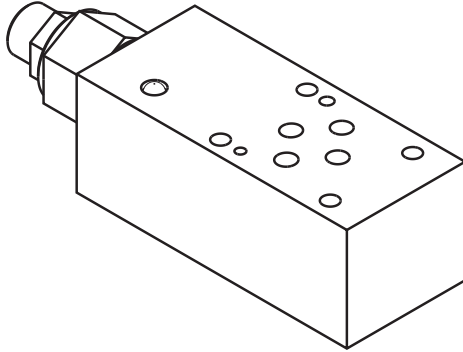
### CARTRIDGE CAVITY DETAIL



## ORDERING INFORMATION

# CDC— 12

*NON-  
COMPENSATED  
FLOW CONTROL  
MODULAR STACK  
VALVES*



## DESCRIPTION

Utilizes a screw-in cartridge type, adjustable poppet type, hydraulic flow control valve.

## OPERATIONS

This valve increases its orifice value from fully closed to fully open with counter-clockwise rotation.

## FEATURES & BENEFITS

- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

Flow: 10 GPM (38 L/M) nominal.  
Refer to performance chart.

Internal Leakage: 5 drops per minute maximum at 5000 PSI (350 Bar).

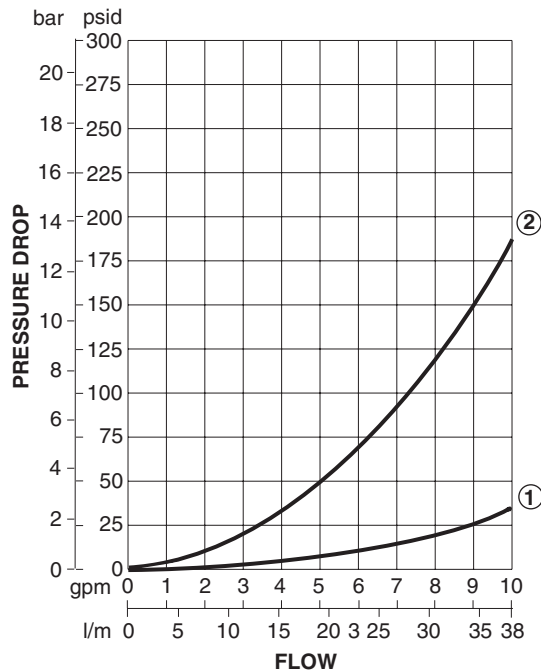
Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024- T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES

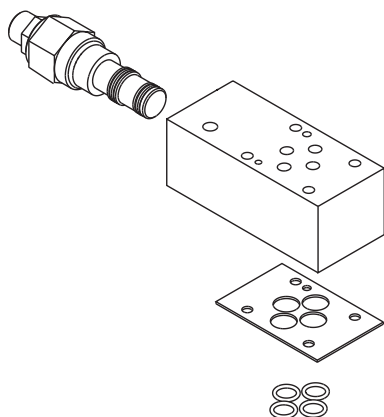
| CODE       | A - A B - B<br>P - P T - T<br>OPEN | P - P - A<br>RESTRICTED | T - T - A<br>RESTRICTED |
|------------|------------------------------------|-------------------------|-------------------------|
| F03MSV-NIP | 1                                  | 2                       | —                       |
| F03MSV-NOT | 1                                  | —                       | 2                       |

# F03MSV-NIP / F03MSV-NOT

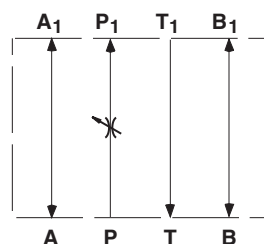
POWRFLOW™

## FLOW CONTROL VALVE

Non-Compensated

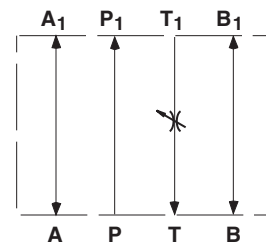


F03MSV-NIP



**VALVE TYPE**  
FLOW CONTROL VALVE  
P PORT

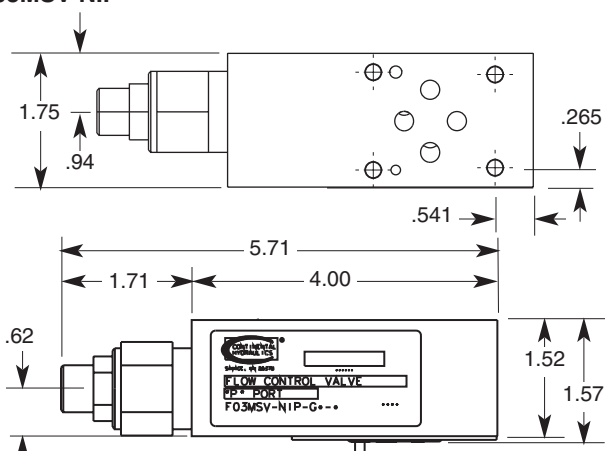
F03MSV-NOT



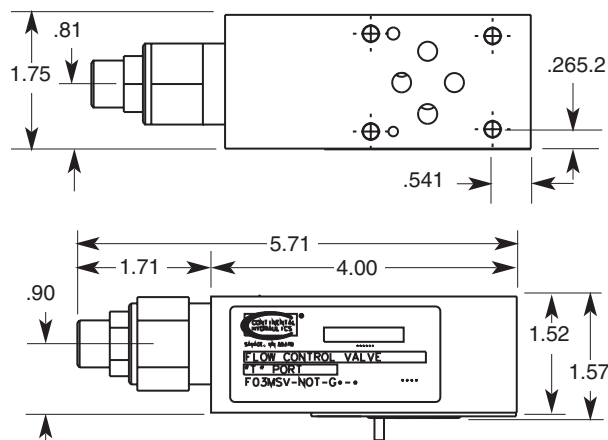
**VALVE TYPE**  
FLOW CONTROL VALVE  
T PORT

## DIMENSIONS

F03MSV-NIP



F03MSV-NOT



## ORDERING INFORMATION

| F03MSV — N               |             |                           |                     | SELECT ONE   | — G —                 |       | SELECT ONE    | DESIGN   |  |
|--------------------------|-------------|---------------------------|---------------------|--------------|-----------------------|-------|---------------|----------|--|
| FUNCTION                 | SIZE        | STYLE                     | TYPE                | CONTROL PORT |                       | SEALS | BODY MATERIAL |          |  |
| FLOW<br>CONTROL<br>VALVE | NFPA<br>D03 | MODULAR<br>STACK<br>VALVE | NON-<br>COMPENSATED | CODE         | LOCATION              | VITON | CODE          |          |  |
|                          |             |                           |                     | IP           | P PORT<br>(Meter-In)  |       | A             | ALUMINUM |  |
|                          |             |                           |                     | OT           | T PORT<br>(Meter-Out) |       | D             | DUCTILE  |  |

### Body Only Assembly:

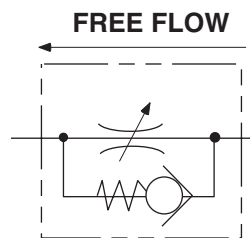
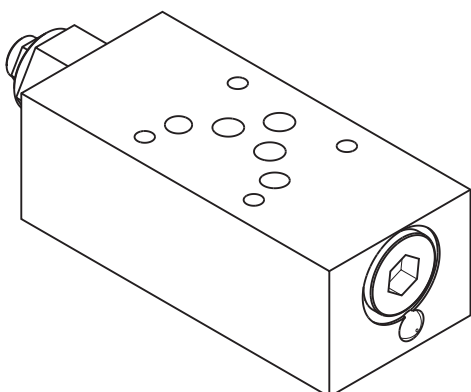
Aluminum (Part No.) — 552469K  
Ductile (Part No.) — 552550K

Includes Seal Retainer Plate, O-rings & Locating Pin.

### General Information:

• Cartridge cavity is C1020 with flow pattern set for cartridge flowing from port 1 to port 2

• For more information, refer to CFCVL cartridges in the Cartridge Catalog.



## DESCRIPTION

Utilizes a screw-in cartridge type, adjustable poppet-type, hydraulic flow control valve with free reverse flow check.

## OPERATIONS

This valve increases its orifice value from fully closed to fully open with counter-clockwise rotation.

## FEATURES & BENEFITS

- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

Flow: 18 GPM (70 L/M) nominal.  
Refer to performance chart.

Internal Leakage: 5 drops per minute maximum at 5000 PSI (350 Bar).

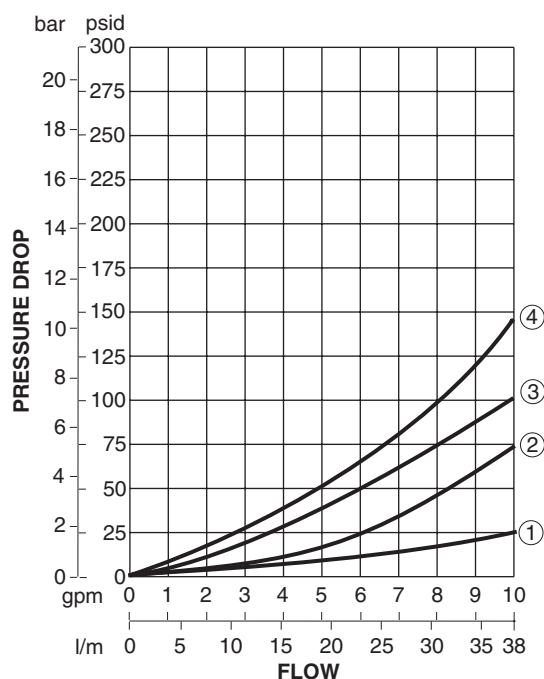
Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200 ° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES

| CODE       | P-P<br>T-T            | A-A<br>B-B            | A-A FREE FLOW<br>THRU CHECK |                    | B-B FREE FLOW<br>THRU CHECK |                    |
|------------|-----------------------|-----------------------|-----------------------------|--------------------|-----------------------------|--------------------|
|            | A-A<br>B-B RESTRICTOR | THRU A <sup>(A)</sup> | THROTTLE<br>OPEN            | THROTTLE<br>CLOSED | THROTTLE<br>OPEN            | THROTTLE<br>CLOSED |
| F03MSV-NDA | 1                     | 4                     | 2                           | 2                  | —                           | —                  |
| F03MSV-NDB | 1                     | 4                     | —                           | —                  | 3                           | 3                  |
| F03MSV-NDC | 1                     | 4                     | 2                           | 2                  | 3                           | 3                  |

<sup>(A)</sup> Restrictor in port & fully open.

# F03MSV-NDA / F03MSV-NDB / F03MSV-NDC

POWRFLOW™

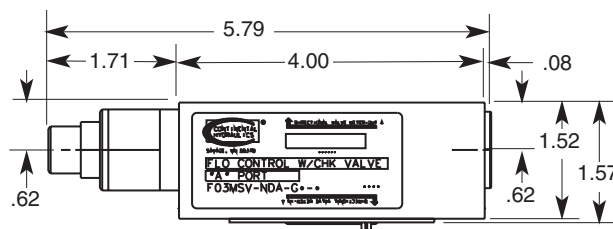
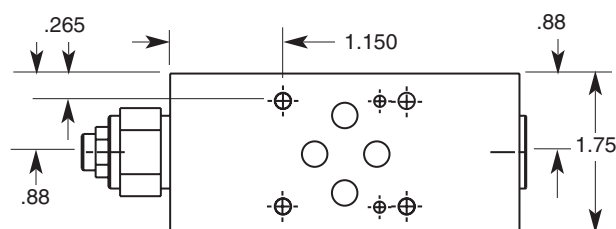
## FLOW CONTROL VALVE

Non-Compensated with Check

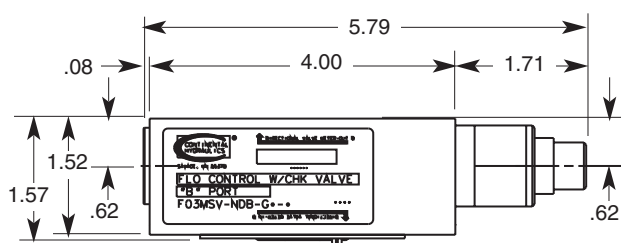
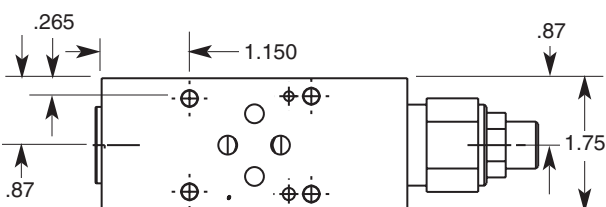


### DIMENSIONS

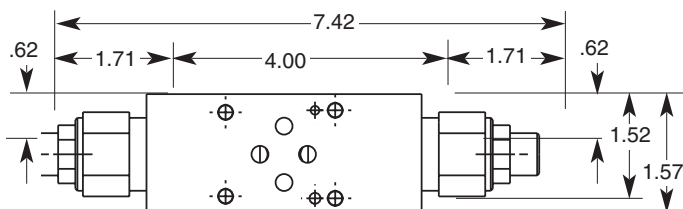
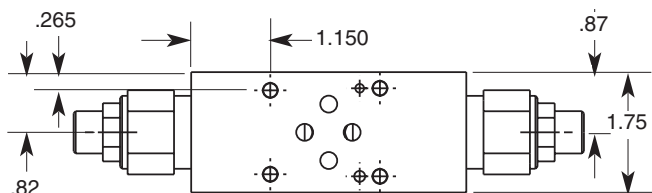
#### F03MSV-NDA



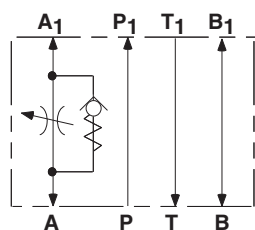
#### F03MSV-NDB



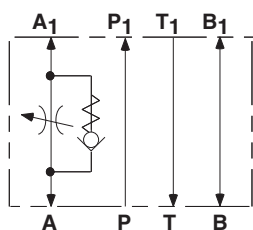
#### F03MSV-NDC



#### F03MSV-NDA

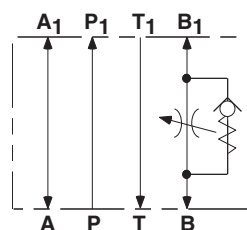


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
A PORT

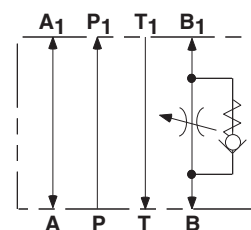


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
A PORT

#### F03MSV-NDB

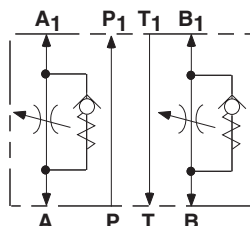


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
B PORT

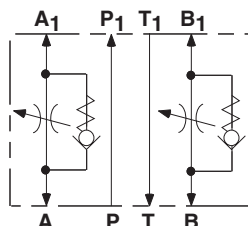


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
B PORT

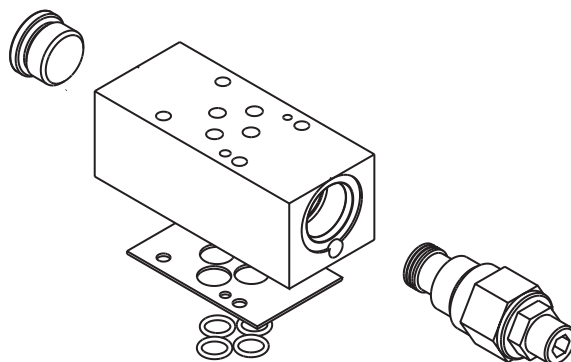
#### F03MSV-NDC



**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
A & B PORT



**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
A & B PORT



## ORDERING INFORMATION

| F03MSV             |          | ND                  |                                       | SELECT ONE   | G          |       | SELECT ONE    | DESIGN   |
|--------------------|----------|---------------------|---------------------------------------|--------------|------------|-------|---------------|----------|
| FUNCTION           | SIZE     | STYLE               | TYPE                                  | CONTROL PORT |            | SEALS | BODY MATERIAL |          |
| FLOW CONTROL VALVE | NFPA D03 | MODULAR STACK VALVE | NON-COMPENSATED METER-IN OR METER-OUT | CODE         | LOCATION   | VITON | CODE          |          |
|                    |          |                     |                                       | A            | A PORT     |       | A             | ALUMINUM |
|                    |          |                     |                                       | B            | B PORT     |       | D             | DUCTILE  |
|                    |          |                     |                                       | C            | A & B PORT |       |               |          |

### Body Only Assembly:

#### Code A,B, C

Aluminum (Part No.) — 552478K  
Ductile (Part No.) — 552554K

Includes Seal Retainer Plate, O-rings,  
Locating Pin & Plug on A-B code.

### General Information:

- Cartridge cavity is C1020. Port flow pattern is set up for cartridge flowing from port 1 to port 2.
- For more information, refer to CFCVL-10 cartridges in Cartridge Catalog.

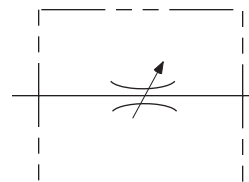
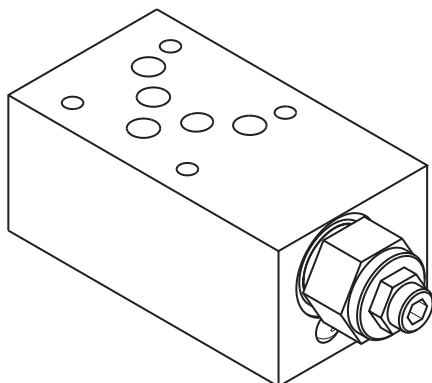
TYPICAL ORDERING CODE: **F03MSV-NDA-GA**

# F05MSV-NIP

POWRFLOW™

## FLOW CONTROL VALVE

NON-COMPENSATED



### DESCRIPTION

Utilizes a screw-in cartridge type, adjustable poppet type, hydraulic flow control valve.

### OPERATIONS

This valve increases its orifice value from fully closed to fully open with counter-clockwise rotation.

### FEATURES & BENEFITS

- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

### SPECIFICATIONS

Flow: 20 GPM (76 L/M) nominal.

Refer to performance chart.

Internal Leakage: 5 drops per minute maximum at 5000 PSI (350 Bar).

Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T6).

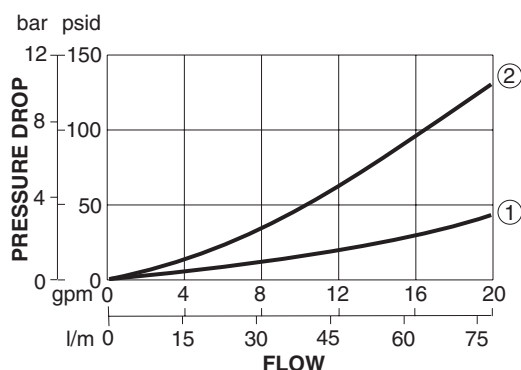
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200 ° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

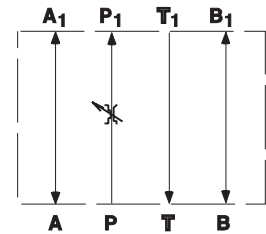
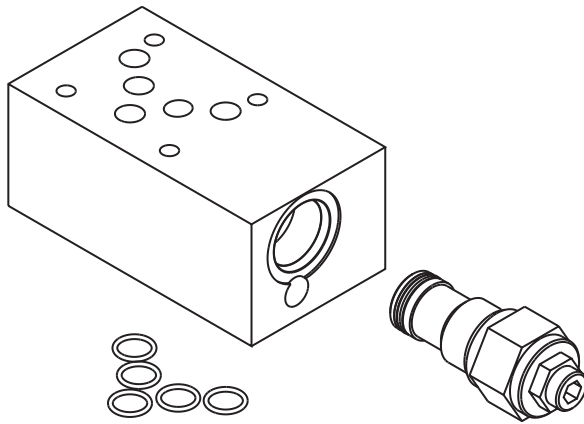
### TYPICAL PRESSURE DROP CURVES



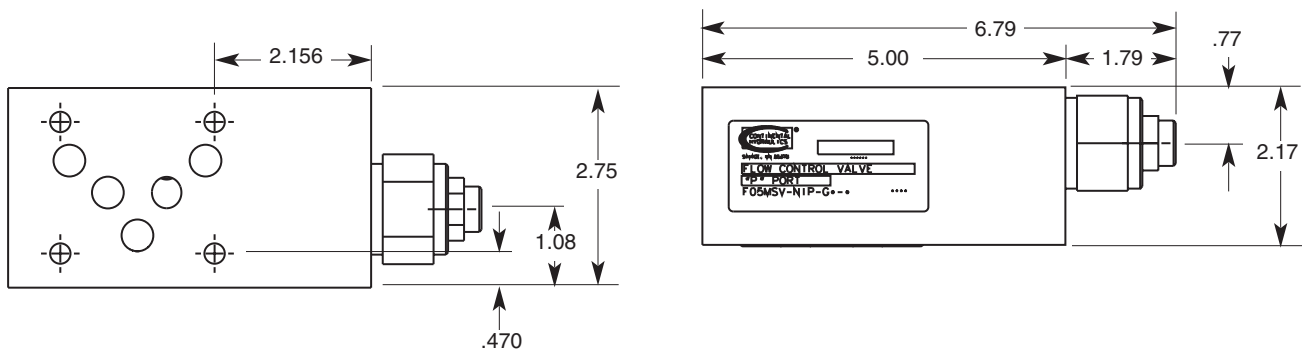
### FLOW PATH ?P CURVES

|            | A-A<br>B-B<br>T-T | P-P (A)    |
|------------|-------------------|------------|
| CODE       | OPEN              | RESTRICTED |
| F05MSV-NIP | 1                 | 2          |

(A) Throttle full open.



## DIMENSIONS



## ORDERING INFORMATION

| F05MSV                   |      | — NI           |                     | SELECT ONE<br>P |          | — G — |               | SELECT ONE |  | DESIGN |  |
|--------------------------|------|----------------|---------------------|-----------------|----------|-------|---------------|------------|--|--------|--|
|                          |      |                |                     |                 |          |       |               |            |  |        |  |
| FUNCTION                 | SIZE | STYLE          | TYPE                | CONTROL PORT    |          | SEALS | BODY MATERIAL |            |  |        |  |
| FLOW<br>CONTROL<br>VALVE | NFPA | MODULAR        | NON-<br>COMPENSATED | CODE            | LOCATION | VITON | CODE          |            |  |        |  |
|                          | D05  | STACK<br>VALVE |                     | P               | P PORT   |       | A             | ALUMINUM   |  |        |  |
|                          |      |                |                     |                 |          |       | D             | DUCTILE    |  |        |  |

### Body Only Assembly:

Aluminum (Part No.) — 552480K  
Ductile (Part No.) — 552556K

Includes O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1220 with port flow pattern set up for flow from port 1 to port 2.
- For more information, refer to CFCVL-12 cartridges in the Cartridge Catalog.

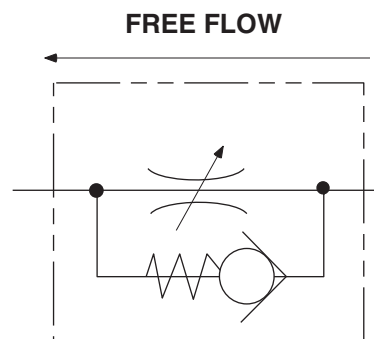
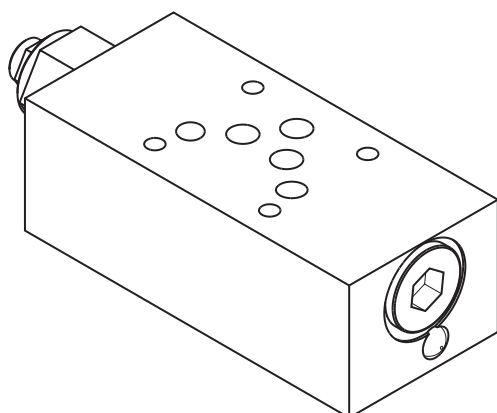
TYPICAL ORDERING CODE: **F05MSV-NIP-GA**

# F05MSV-NDA / F05MSV-NDB / F05MSV-NDC

POWRFLOW™

## FLOW CONTROL VALVE

Non-Compensated with Check



### DESCRIPTION

Utilizes a screw-in cartridge type, adjustable poppet type, hydraulic flow control valve with free reverse flow check.

### OPERATIONS

This valve increases its orifice value from fully closed to fully open with counter-clockwise rotation.

### FEATURES & BENEFITS

- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

### SPECIFICATIONS

Flow: 20 GPM (76 L/M) nominal.

Refer to performance chart.

Internal Leakage: 5 drops per minute maximum at 5000 PSI (350 Bar).

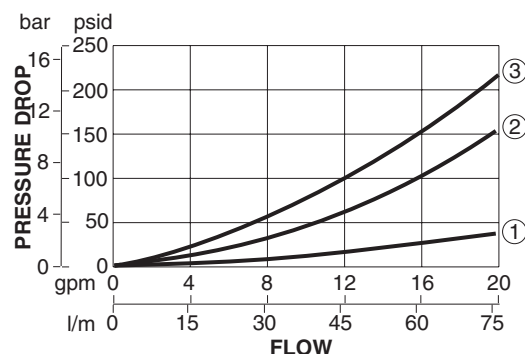
Valve Bodies: 3000 PSI (207 Bar) = Aluminum (20224-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

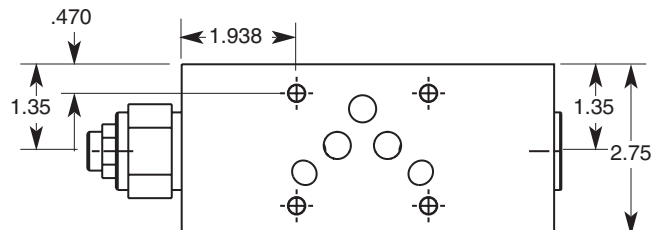
| CODE       | P-P<br>T-T B-B<br>OPEN | A-A FLOW<br>THRU CHECK<br>THROTTLE |        | B-B FLOW<br>THRU CHECK<br>THROTTLE |        |
|------------|------------------------|------------------------------------|--------|------------------------------------|--------|
|            |                        | OPEN                               | CLOSED | OPEN                               | CLOSED |
| F05MSV-NDA | 1                      | 2                                  | 3      | —                                  | —      |
| F05MSV-NDB | 1                      | —                                  | —      | 2                                  | 3      |
| F05MSV-NDC | 1                      | 2                                  | 3      | 2                                  | 3      |

#### NOTE:

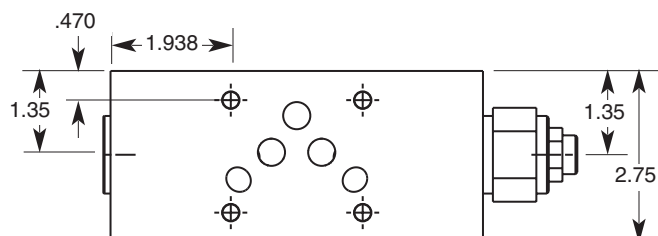
Pressure drops are based on 100 SUS fluid viscosity & 0.87 specific gravity.

**DIMENSIONS**

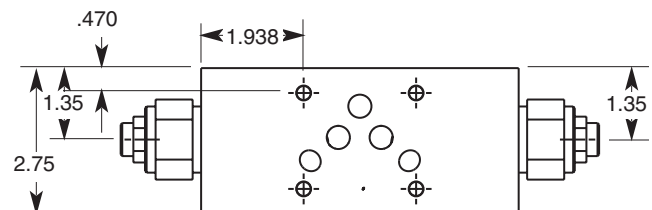
**F05MSV-NDA**



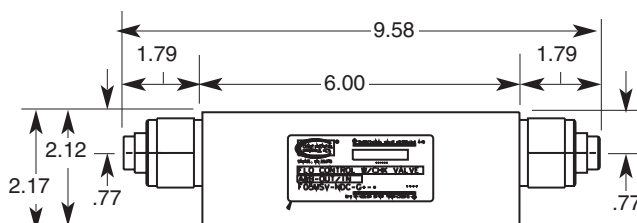
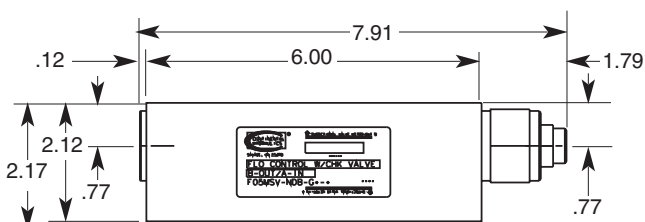
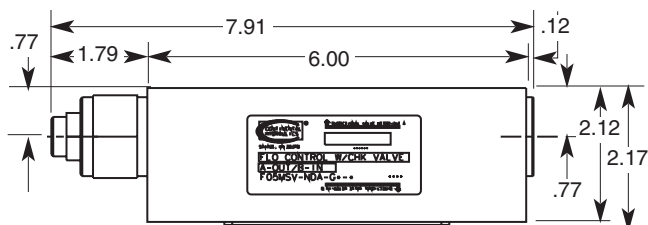
**F05MSV-NDB**



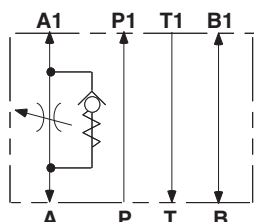
**F05MSV-NDC**



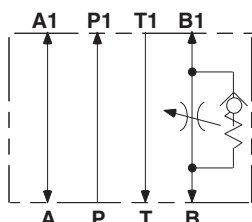
**DIMENSIONS SHOWN IN (MILLIMETERS)  
INCHES**



**F05MSV-NDA**

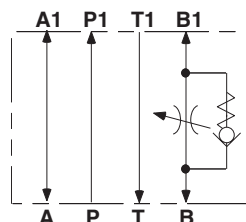


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
A PORT

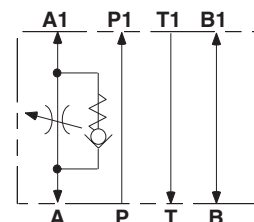


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
B PORT

**F05MSV-NDB**

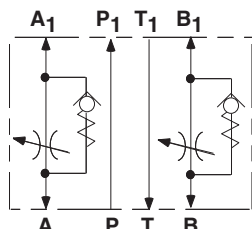


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
B PORT

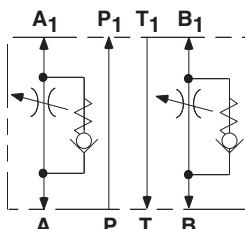


**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
A PORT

**F05MSV-NDC**



**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-OUT  
A & B PORTS



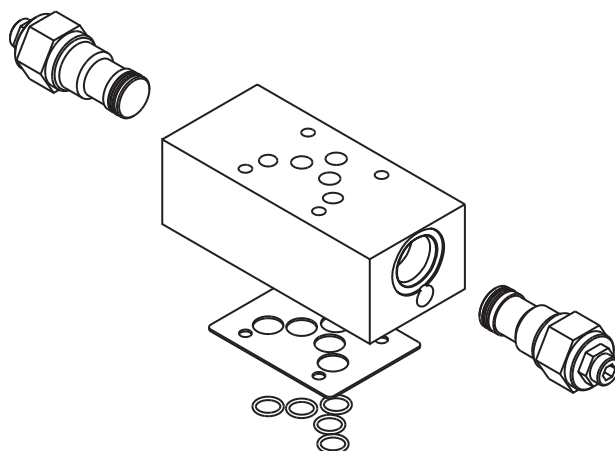
**VALVE TYPE**  
FLOW CONTROL VALVE  
WITH CHECK  
METER-IN  
A & B PORTS

# F05MSV-NDA / F05MSV-NDB / F05MSV-NDC

POWRFLOW™

## FLOW CONTROL VALVE

Non-Compensated with Check



### ORDERING INFORMATION

| F05MSV                   |             | — ND                      |                                                    | SELECT ONE<br><div></div> |            | — G   |               | SELECT ONE<br><div></div> |  | DESIGN<br><div></div> |  |
|--------------------------|-------------|---------------------------|----------------------------------------------------|---------------------------|------------|-------|---------------|---------------------------|--|-----------------------|--|
| FUNCTION                 | SIZE        | STYLE                     | TYPE                                               | CONTROL PORT              |            | SEALS | BODY MATERIAL |                           |  |                       |  |
| FLOW<br>CONTROL<br>VALVE | NFPA<br>D05 | MODULAR<br>STACK<br>VALVE | NON-<br>COMPENSATED<br>Meter-In<br>or<br>Meter-Out | CODE                      |            | VITON | CODE          |                           |  |                       |  |
|                          |             |                           |                                                    | A                         | A PORT     |       | A             | ALUMINUM                  |  |                       |  |
|                          |             |                           |                                                    | B                         | B PORT     |       | D             | DUCTILE                   |  |                       |  |
|                          |             |                           |                                                    | C                         | A & B PORT |       |               |                           |  |                       |  |

#### Body Only Assembly:

##### Code A, B, & C

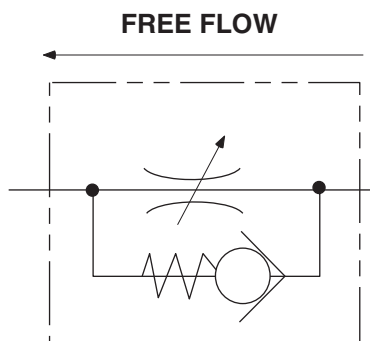
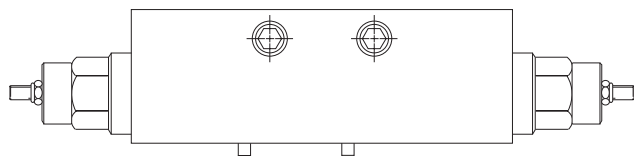
Aluminum (Part No.) — 552469K  
Ductile (Part No.) — 552550K

Includes Seal Retainer Plate, O-rings,  
Locating Pin. Plug for Code A & B will  
be required.

#### General Information:

- Cartridge cavity is C1220. Port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other crack pressure ratings, refer to CPCVL-12 cartridges in Cartridge Catalog.

TYPICAL ORDERING CODE: **F05MSV-NDA-GA**



## DESCRIPTION

Utilizes a screw-in cartridge type, adjustable poppet type, hydraulic flow control valve with free reverse flow check.

## OPERATIONS

This valve increases its orifice value from fully closed to fully open with counter-clockwise rotation.

## FEATURES & BENEFITS

- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

Flow: 60 GPM (225 L/M) nominal.  
Refer to performance chart.

Internal Leakage: 5 drops per minute maximum at 5000 PSI (350 Bar)

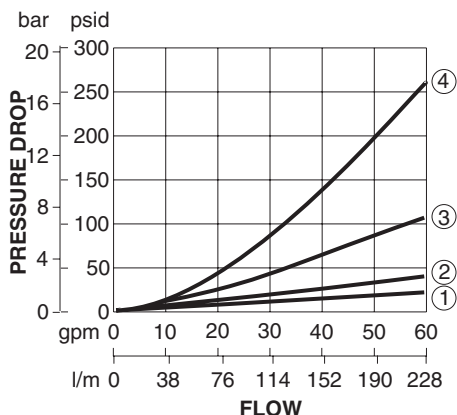
Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).

Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.

Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.

Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES

| CODE       | P-P OPEN | T-T OPEN | A-A THRU NEEDLE VALVE FULL OPEN |         | B-B THRU NEEDLE VALVE FULL OPEN |         |
|------------|----------|----------|---------------------------------|---------|---------------------------------|---------|
|            |          |          | FREE FLOW                       | REVERSE | FREE FLOW                       | REVERSE |
| F08MSV-NOC | 1        | 2        | 3                               | 4       | 3                               | 4       |

**NOTE:**  
Pressure drops shown are based on 100 SUS fluid viscosity & 0.87 specific gravity.

# F08MSV-NOC

POWRFLOW™

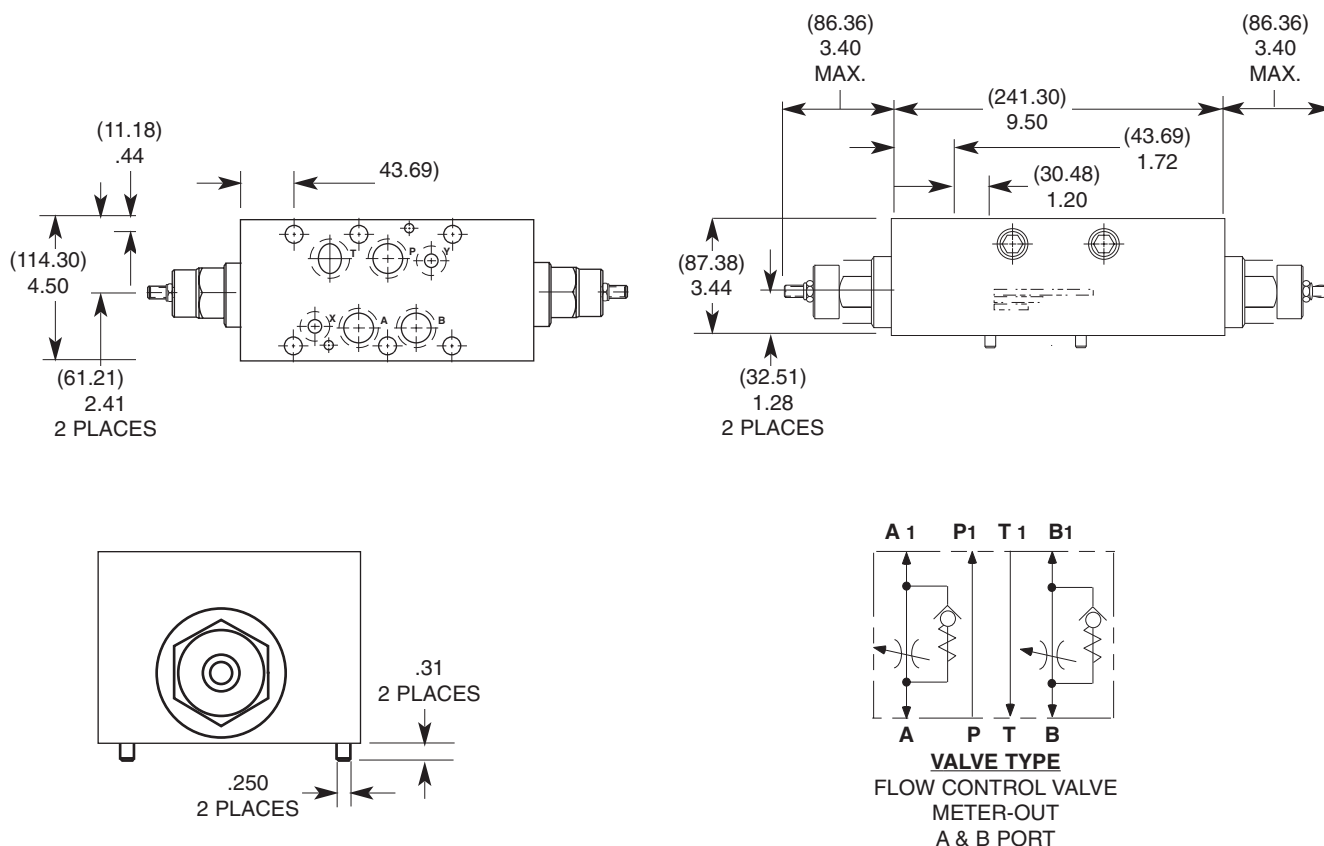
## FLOW CONTROL VALVE

Non-Compensated with Check



### DIMENSIONS

DIMENSIONS SHOWN IN: (MILLIMETERS)  
INCHES



### ORDERING INFORMATION

| F08MSV                   |             | — NO                      |                                                  | SELECT ONE   | — G        |       | SELECT ONE    | — DESIGN |  |
|--------------------------|-------------|---------------------------|--------------------------------------------------|--------------|------------|-------|---------------|----------|--|
|                          |             |                           |                                                  |              |            |       |               |          |  |
| FUNCTION                 | SIZE        | STYLE                     | TYPE                                             | CONTROL PORT |            | SEALS | BODY MATERIAL |          |  |
| FLOW<br>CONTROL<br>VALVE | NFPA<br>D08 | MODULAR<br>STACK<br>VALVE | NON-<br>COMPENSATED<br>WITH CHECK<br>(Meter-Out) | CODE         | LOCATION   | VITON | CODE          |          |  |
|                          |             |                           |                                                  | C            | A & B PORT |       | A             | ALUMINUM |  |
|                          |             |                           |                                                  |              |            |       | D             | DUCTILE  |  |

#### Body Only Assembly

Aluminum (Part No.) — 552695K  
Ductile (Part No.) — 552719K

Includes O-rings & Locating Pin.

#### General Information

- Cartridge cavity is SUN T-18A with flow pattern from port 1 to port 2.

*PRESSURE*

*COMPENSATED*

*MODULAR STACK*

*FLOW CONTROL*

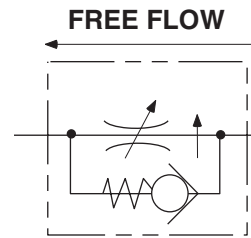
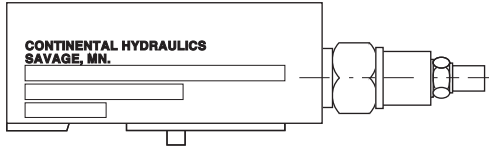
*VALVES*

# F03MSV-CIP

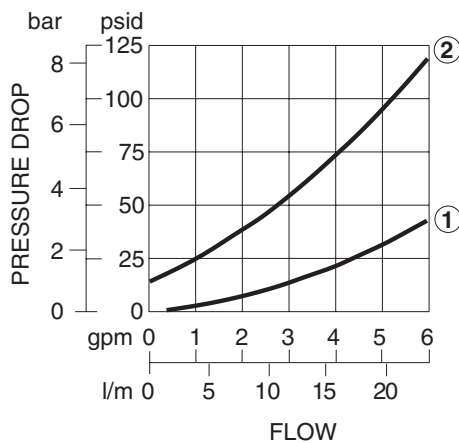
POWRFLOW™

## FLOW CONTROL VALVE

Pressure Compensated with Check



### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

| CODE       | T-T<br>A-A<br>B-B | P<br>THROTTLE OPEN |
|------------|-------------------|--------------------|
| F03MSV-CIP | 1                 | 2                  |

### DESCRIPTION

This unit is a pressure compensated, fully adjustable flow control valve with reverse freeflow check.

### OPERATION

This valve maintains a constant flow rate regardless of system pressure or load changes. Reverse flow will open the check at 10 PSI.

### FEATURES & BENEFITS

- Sharp edge orifice design to minimize floor variation.
- Viton seals.
- All external parts are zinc plated for longer life against elements.
- All cartridges valves are 100% functionally tested.
- Sun T-13A.
- Anodized aluminum body.
- 5 turns of adjustment.
- 10 PSI free flow check cracking pressure.
- 18 cu.in./min. leakage at shut-off.

### SPECIFICATIONS

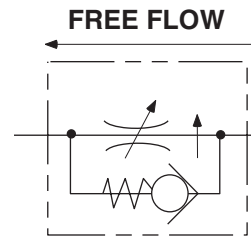
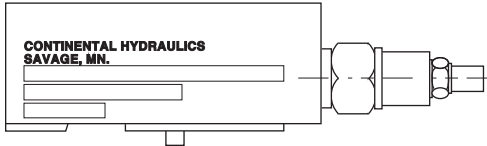
- Flow: .1-6 GPM (23 lpm) nominal.  
See performance chart.
- Flow Accuracy: Less than  $\pm 5\%$  with a minimum of 200 PSI pressure differential.
- Valve Bodies: 3000 PSI (207 bar) = Aluminum (2024-T4).  
5000 PSI (350 bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

# F03MSV-CIP

POWRFLOW™

## FLOW CONTROL VALVE

Pressure Compensated with Check



### DESCRIPTION

This unit is a pressure compensated, fully adjustable flow control valve with reverse freeflow check.

### OPERATION

This valve maintains a constant flow rate regardless of system pressure or load changes. Reverse flow will open the check at 10 PSI.

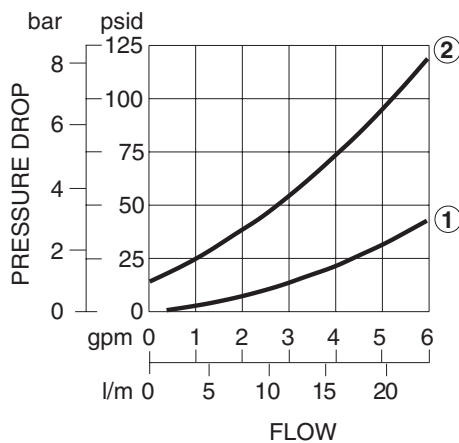
### FEATURES & BENEFITS

- Sharp edge orifice design to minimize floor variation.
- Viton seals.
- All external parts are zinc plated for longer life against elements.
- All cartridges valves are 100% functionally tested.
- Sun T-13A.
- Anodized aluminum body.
- 5 turns of adjustment.
- 10 PSI free flow check cracking pressure.
- 18 cu.in./min. leakage at shut-off.

### SPECIFICATIONS

- Flow: .1-6 GPM (23 lpm) nominal.  
See performance chart.
- Flow Accuracy: Less than  $\pm 5\%$  with a minimum of 200 PSI pressure differential.
- Valve Bodies: 3000 PSI (207 bar) = Aluminum (2024-T4).  
5000 PSI (350 bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

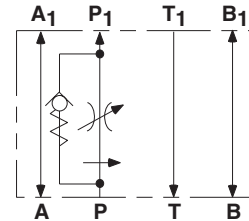
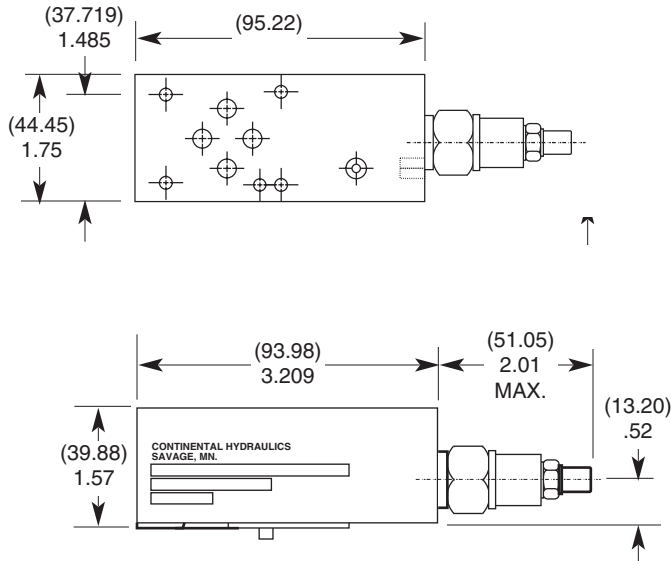
### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

| CODE       | T-T<br>A-A<br>B-B | P<br>THROTTLE OPEN |
|------------|-------------------|--------------------|
| F03MSV-CIP | 1                 | 2                  |

## VALVE DIMENSIONS



**VALVE SYMBOL**  
COMPENSATED FLOW  
CONTROL VALVE  
(Meter-In)  
P PORT

### NOTES:

1. A,P,T,B = Subplate Side.
2. A<sub>1</sub>,P<sub>1</sub>,T<sub>1</sub>,B<sub>1</sub> = Valve Side.

## ORDERING INFORMATION

F03MSV

C

SELECT ONE

SELECT ONE

G

SELECT ONE

DESIGN

B

| FUNCTION           | SIZE     | STYLE               | TYPE                 | VALVE FUNCTION |            | PORT |          | SEALS | BODY MATERIAL |          |
|--------------------|----------|---------------------|----------------------|----------------|------------|------|----------|-------|---------------|----------|
|                    |          |                     |                      | CODE           | STYLE      | CODE | LOCATION |       | CODE          |          |
| FLOW CONTROL VALVE | NFPA DO3 | MODULAR STACK VALVE | PRESSURE COMPENSATED | I              | (Meter-In) | P    | P PORT   | VITON | A             | ALUMINUM |
|                    |          |                     |                      |                |            |      |          |       | D             | DUCTILE  |

### Body Only Assembly:

Aluminum (Part No.) — 552692K  
Ductile (Part No.) — 552715K

Includes Seal Retainer Plate, O-rings & Locating Pin.

### General Information:

- Cartridge is SUN T-13A. Port flow pattern is set up for cartridge flowing from port 1 to port 2.

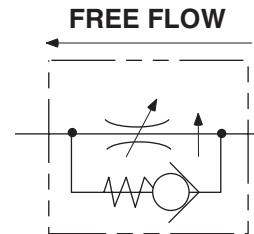
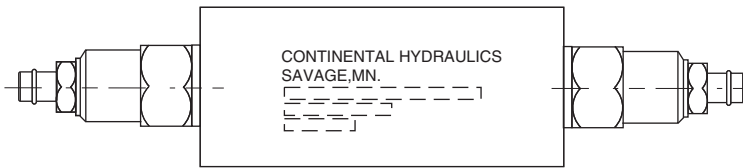
TYPICAL ORDERING CODE: **F03MSV-CIP**

# F03MSV-CDA / F03MSV-CDB / F03MSV-CDC

POWRFLOW™

## FLOW CONTROL VALVE

Pressure Compensated with Check



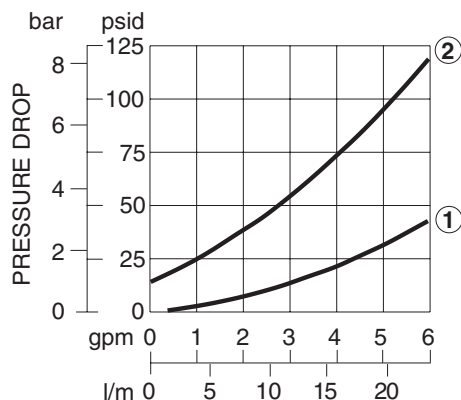
### DESCRIPTION

This is a pressure compensated, fully adjustable flow control valve with reverse flow check.

### OPERATION

This valve maintains a constant flow rate regardless of system pressure or load changes. Reverse flow will open the check at 10 PSI.

### TYPICAL PRESSURE DROP CURVES



### FEATURES & BENEFITS

- Sharp edge orifice to minimize flow variation.
- Viton seals.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- SUN T-13A cavity.
- 5 turns of adjustment.
- 10 PSI reverse free flow check cracking pressure.
- Minimum 18 cu. in./min. leakage at shutoff.

### SPECIFICATIONS

- Flow: .1 to 6 GPM (46 L/M) nominal. Refer to performance chart.
- Flow Accuracy: Less than  $\pm 5\%$  with a minimum of 200 PSI pressure differential.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

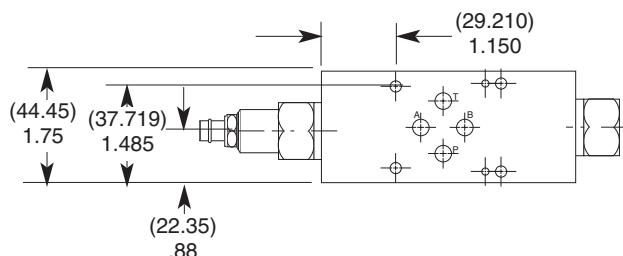
### FLOW PATH ?P CURVES

| CODE       | P-P<br>T-T<br>A-A<br>B-B | A-A<br>FREE FLOW<br>THRU CHECK<br>THROTTLE OPEN | B-B<br>FREE FLOW<br>THRU CHECK<br>THROTTLE OPEN |
|------------|--------------------------|-------------------------------------------------|-------------------------------------------------|
| F03MSV-CDA | 1                        | 2                                               | —                                               |
| F03MSV-CDB | 1                        | —                                               | 2                                               |
| F03MSV-CDC | 1                        | 2                                               | 2                                               |

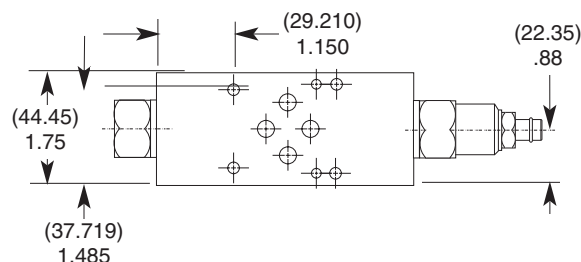
**DIMENSIONS**

DIMENSIONS SHOWN IN (MILLIMETERS)  
INCHES

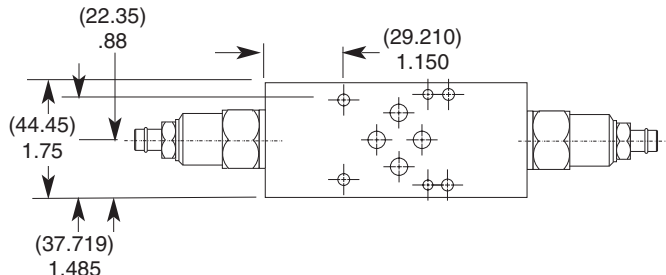
**F03MSV-CDA**



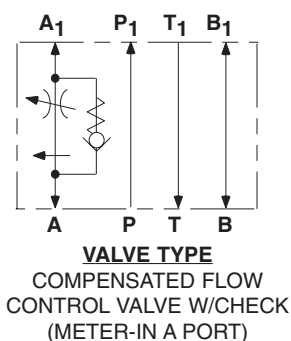
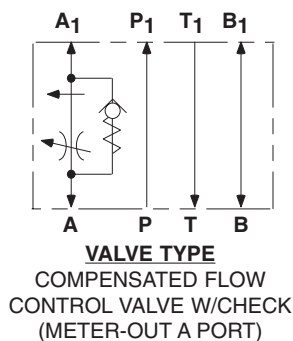
**F03MSV-CDB**



**F03MSV-CDC**

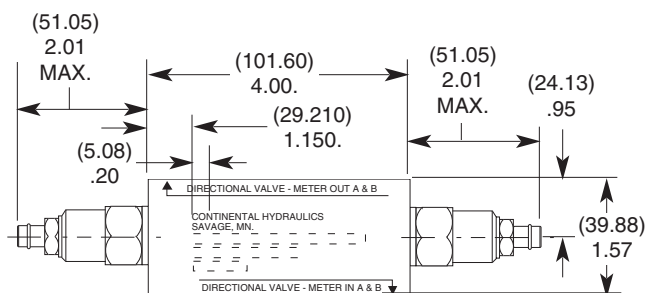
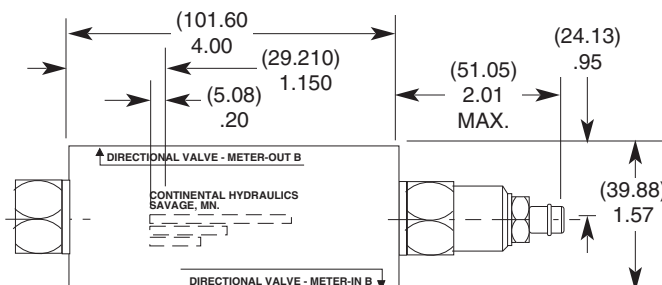
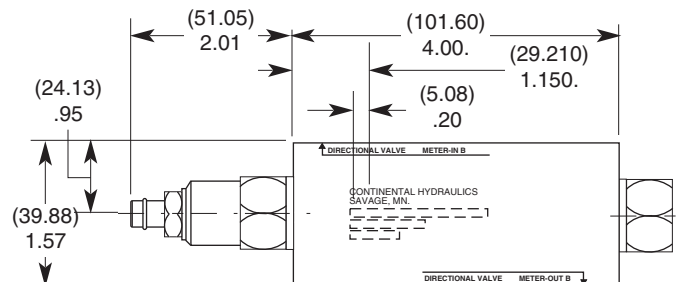


**F03MSV-CDA (See Notes Below)**

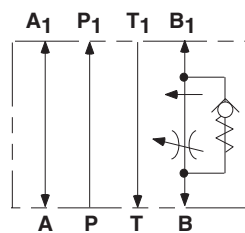


**NOTES:**

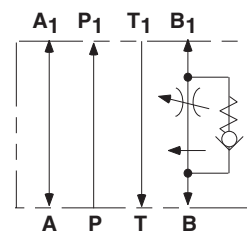
A,P,T,B = Subplate Side.  
A<sub>1</sub>,P<sub>1</sub>,T<sub>1</sub>,B<sub>1</sub> = Valve Side.



**F03MSV-CDB (See Notes Below)**

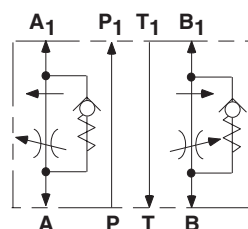


**VALVE TYPE**  
COMPENSATED FLOW  
CONTROL VALVE W/CHECK  
(METER-OUT B PORT)

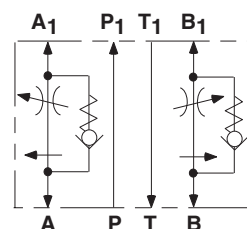


**VALVE TYPE**  
COMPENSATED FLOW  
CONTROL VALVE W/CHECK  
(METER-IN B PORT)

**F03MSV-CDC (See Notes At Left)**



**VALVE TYPE**  
COMPENSATED FLOW  
CONTROL VALVE W/CHECK  
(METER-OUT A & B PORTS)



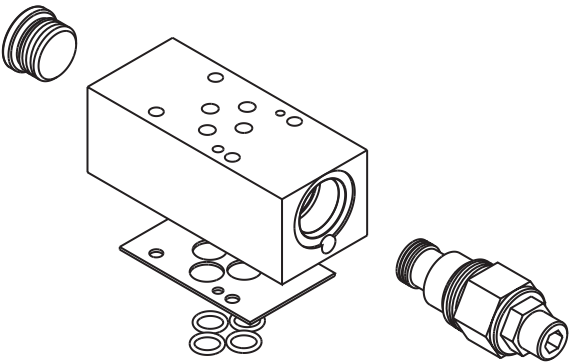
**VALVE TYPE**  
COMPENSATED FLOW  
CONTROL VALVE W/CHECK  
(METER-IN A & B PORTS)

# F03MSV-CDA / F03MSV-CDB / F03MSV-CDC

POWRFLOW™

## FLOW CONTROL VALVE

Pressure Compensated with Check



### ORDERING INFORMATION

| F03MSV — C         |          |                     |                      | SELECT ONE     |                                          | SELECT ONE |            | SELECT ONE |               | DESIGN   |  |
|--------------------|----------|---------------------|----------------------|----------------|------------------------------------------|------------|------------|------------|---------------|----------|--|
|                    |          |                     |                      |                |                                          | — G        |            |            |               |          |  |
| FUNCTION           | SIZE     | STYLE               | TYPE                 | VALVE FUNCTION |                                          | PORT       |            | SEALS      | BODY MATERIAL |          |  |
|                    |          |                     |                      | CODE           | FUNCTION                                 | CODE       | LOCATION   |            | CODE          |          |  |
| FLOW CONTROL VALVE | NFPA DO3 | MODULAR STACK VALVE | PRESSURE COMPENSATED | D              | METER-IN OR METER-OUT WITH REVERSE CHUCK | A          | A PORT     | VITON      | A             | ALUMINUM |  |
|                    |          |                     |                      |                |                                          | B          | B PORT     |            | D             | DUCTILE  |  |
|                    |          |                     |                      |                |                                          | C          | A & B PORT |            |               |          |  |

**Body Only Assembly (Code A & B):**

Code A & B

Aluminum (Part No.) — 552690K

Ductile (Part No.) — 552715K

Code C

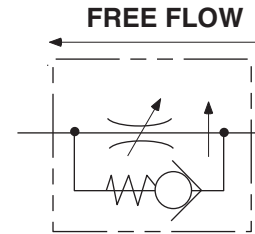
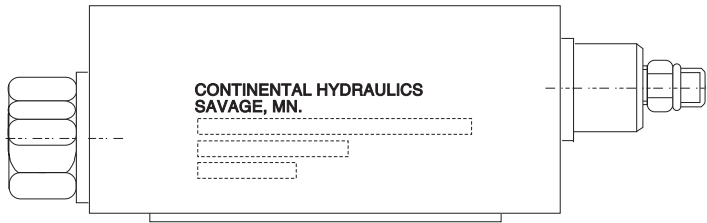
Aluminum (Part No.) — 552691K

Ductile (Part No.) — 552716K

Includes Seal Retainer Plate, O-rings & Locating Pin.

**General Information:**

- Cartridge cavity is SUN T-13A with port flow pattern set up for cartridge flowing from port 1 to port 2.



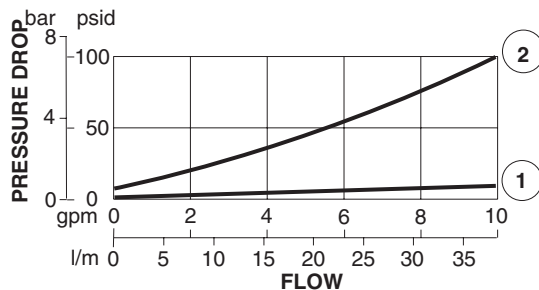
## DESCRIPTION

This is a pressure compensated, fully adjustable flow control valve with reverse flow check.

## OPERATION

This valve maintains a constant flow rate regardless of system pressure or load changes. Reverse flow will open the check at 10 PSI.

## TYPICAL PRESSURE DROP CURVES



## FEATURES & BENEFITS

- Sharp edge orifice to minimize flow variation.
- Viton seals.
- All external parts are zinc-plated for long life against elements.
- 10 PSI reverse free flow check cracking pressure.
- Minimum 18 cu. in./min. leakage at shutoff.
- All cartridges are 100% tested functionally.
- SUN T-5A anodized aluminum body.
- 5 turns of adjustment.

## SPECIFICATIONS

- Flow: .1 to 12 GPM (46 L/M) nominal.  
Refer to performance chart.
- Flow Accuracy: Less than  $\pm 5\%$  with a minimum of 200 PSI pressure differential.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

## FLOW PATH ?P CURVES

| CODE       | P-P<br>T-T<br>A-A<br>B-B | A-A<br>FREE FLOW<br>THRU CHECK<br>THROTTLE OPEN | B-B<br>FREE FLOW<br>THRU CHECK<br>THROTTLE OPEN |
|------------|--------------------------|-------------------------------------------------|-------------------------------------------------|
| F05MSV-CDA | 1                        | 2                                               | —                                               |
| F05MSV-CDB | 1                        | —                                               | 2                                               |
| F05MSV-CDC | 1                        | 2                                               | 2                                               |

# F05MSV-CDA / F05MSV-CDB / F05MSV-CDC

POWRFLOW™

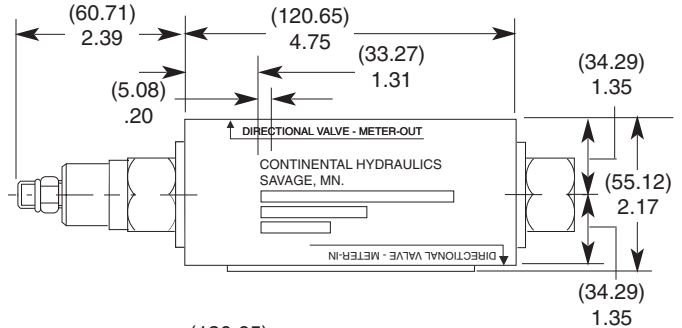
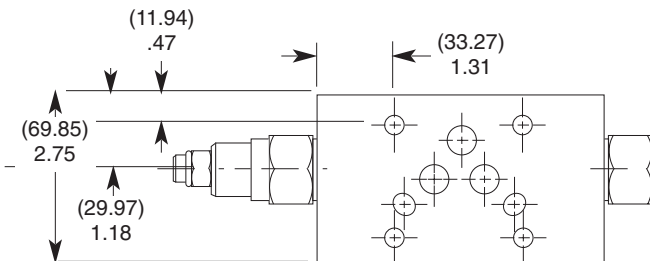
## FLOW CONTROL VALVE

Pressure Compensated with Check

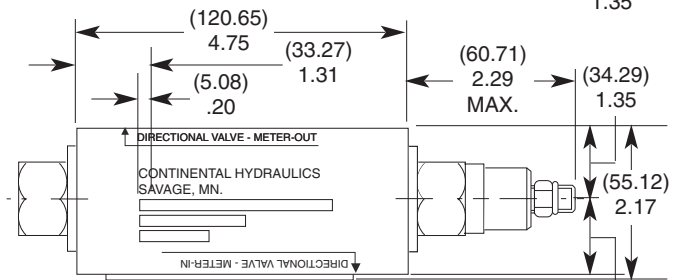
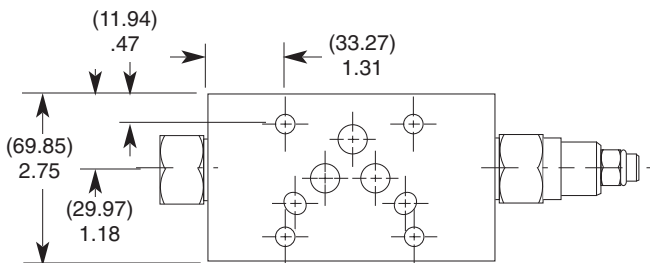


DIMENSIONS ARE SHOWN IN (MILLIMETERS)  
INCHES

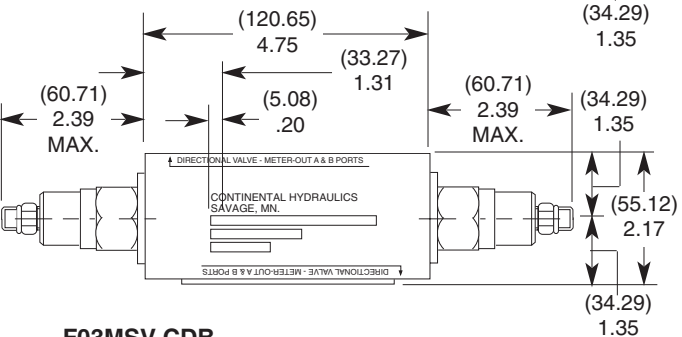
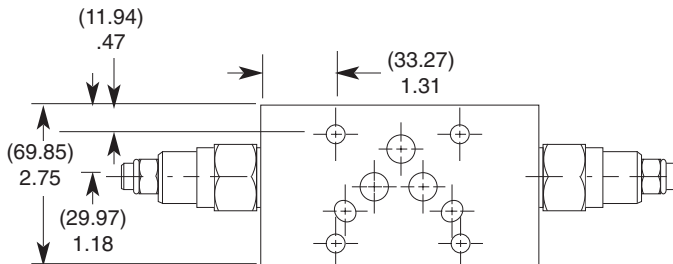
### F03MSV-CDA



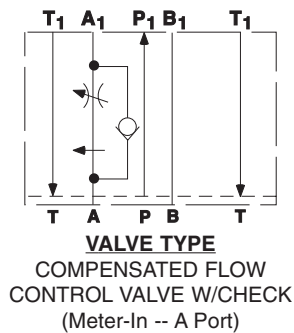
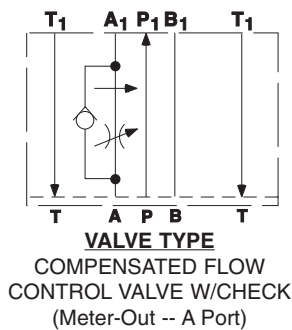
### F03MSV-CDB



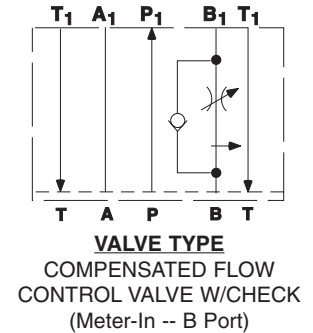
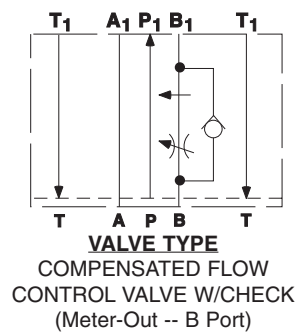
### F03MSV-CDC



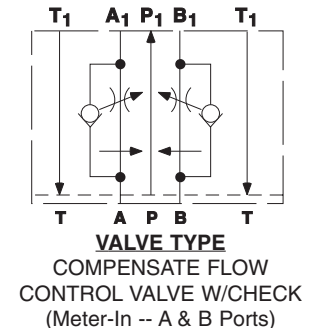
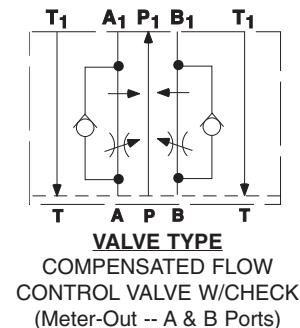
### F03MSV-CDA



### F03MSV-CDB

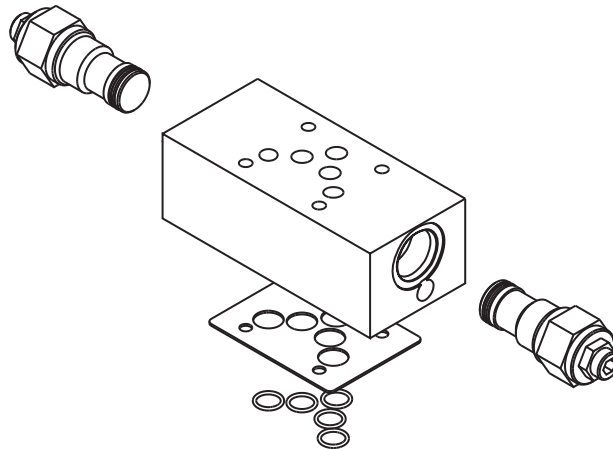


### F03MSV-CDC



### NOTES:

A,P,T,B = Subplate Side.  
A<sub>1</sub>,P<sub>1</sub>,T<sub>1</sub>,B<sub>1</sub> = Valve Side.



## ORDERING INFORMATION

| F05MSV — C               |             |                           |                         | SELECT ONE     |                                                   | SELECT ONE |            | SELECT ONE |               | DESIGN   |  |
|--------------------------|-------------|---------------------------|-------------------------|----------------|---------------------------------------------------|------------|------------|------------|---------------|----------|--|
|                          |             |                           |                         |                |                                                   |            |            |            |               |          |  |
| FUNCTION                 | SIZE        | STYLE                     | TYPE                    | VALVE FUNCTION |                                                   | PORT       |            | SEALS      | BODY MATERIAL |          |  |
|                          |             |                           |                         | CODE           | FUNCTION                                          | CODE       | LOCATION   |            | CODE          |          |  |
| FLOW<br>CONTROL<br>VALVE | NFPA<br>DO5 | MODULAR<br>STACK<br>VALVE | PRESSURE<br>COMPENSATED | D              | METER-IN<br>OR<br>METER-OUT<br>W/REVERSE<br>CHECK | A          | A PORT     | VITON      | A             | ALUMINUM |  |
|                          |             |                           |                         |                |                                                   | B          | B PORT     |            | D             | DUCTILE  |  |
|                          |             |                           |                         |                |                                                   | C          | A & B PORT |            |               |          |  |

### Body Only Assembly:

#### Code A & B

Aluminum (Part No.) — 552693K

Ductile (Part No.) — 552717K

#### Code C

Aluminum (Part No.) — 552694K

Ductile (Part No.) — 552718K

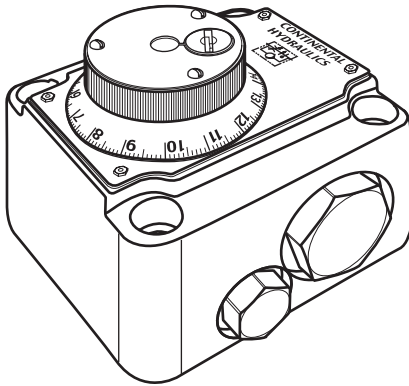
Includes Seal Retainer Plate, & O-rings.

### General Information:

- Cartridge cavity is SUN T-5A with port flow pattern set up for cartridge flowing from port 1 to port 2.

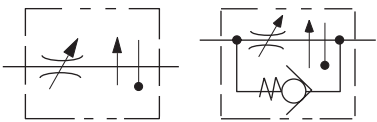
TYPICAL ORDERING CODE: **F05MSV-CDA**

*SUB-PLATE MOUNT  
PRESSURE &  
TEMPERATURE  
COMPENSATED  
MODULAR STACK  
FLOW CONTROL  
VALVE*



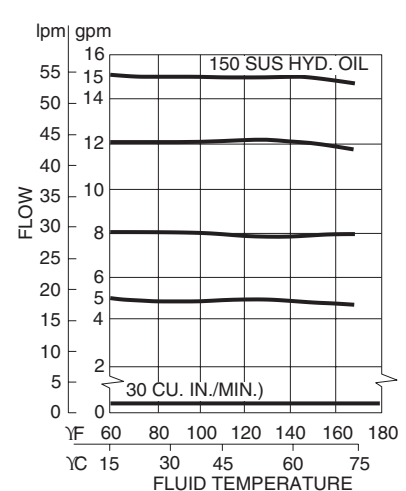
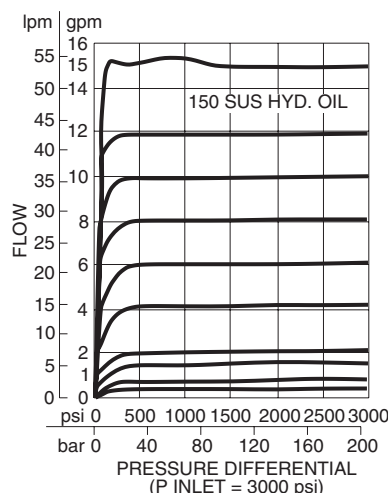
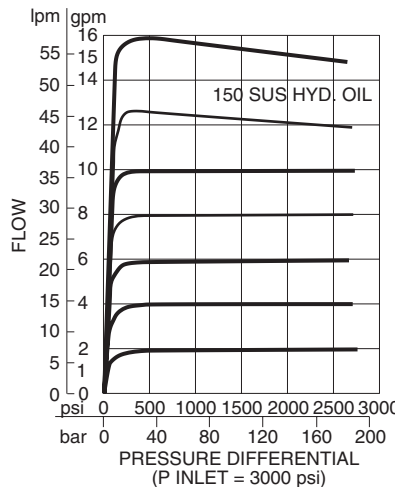
## DESCRIPTION

The Flow Control Valve is pressure compensated to maintain constant flow out of the valve regardless of pressure changing to the inlet or outlet port. Exclusive internal pressure balancing allows easy adjustment of flow setting under pressure. Pressure compensation will maintain preset flow with 1 to 5%, depending on the basic flow range, as long as there is 150 psi pressure differential between the inlet and outlet ports. The dial is calibrated for easy and repeatable flow settings. Continental Hydraulics' unique sharp edged orifice design means that the valve is immune to temperature or fluid viscosity changes. This valve is internally drained, therefore, eliminating the drain piping.



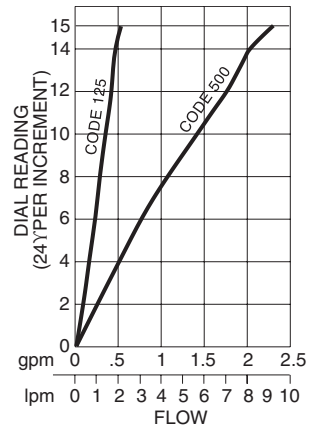
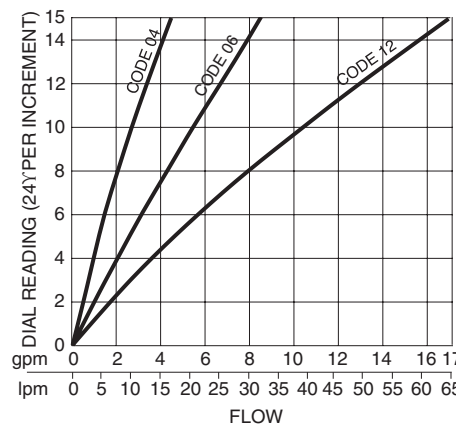
NO CHECK

WITH CHECK



## TYPICAL PERFORMANCE SPECIFICATIONS

|                                               |                      |                  |                    |
|-----------------------------------------------|----------------------|------------------|--------------------|
| FLOW RATES                                    | Maximum              | 16.5 gpm         | 68 l/m             |
| MINIMUM CONTROLLED FLOW                       |                      | 20 cipm          | 330 cc/m           |
| MAXIMUM INTERNAL LEAKAGE & SHUTOFF @ 3000 psi | w/check<br>w/o check | 5 cipm<br>3 cipm | 80 ml/m<br>50 ml/m |
| MAXIMUM PRESSURE                              |                      | 3000 psi         | 207 bar            |
| MINIMUM PRESSURE COMPENSATION                 |                      | 150 psi          | 10.3 bar           |
| MOUNTING INTERFACE                            |                      | NFDPA 2F06       |                    |
| WEIGHT                                        |                      | 8.5 lbs          | 3.8 kg             |



# F12M

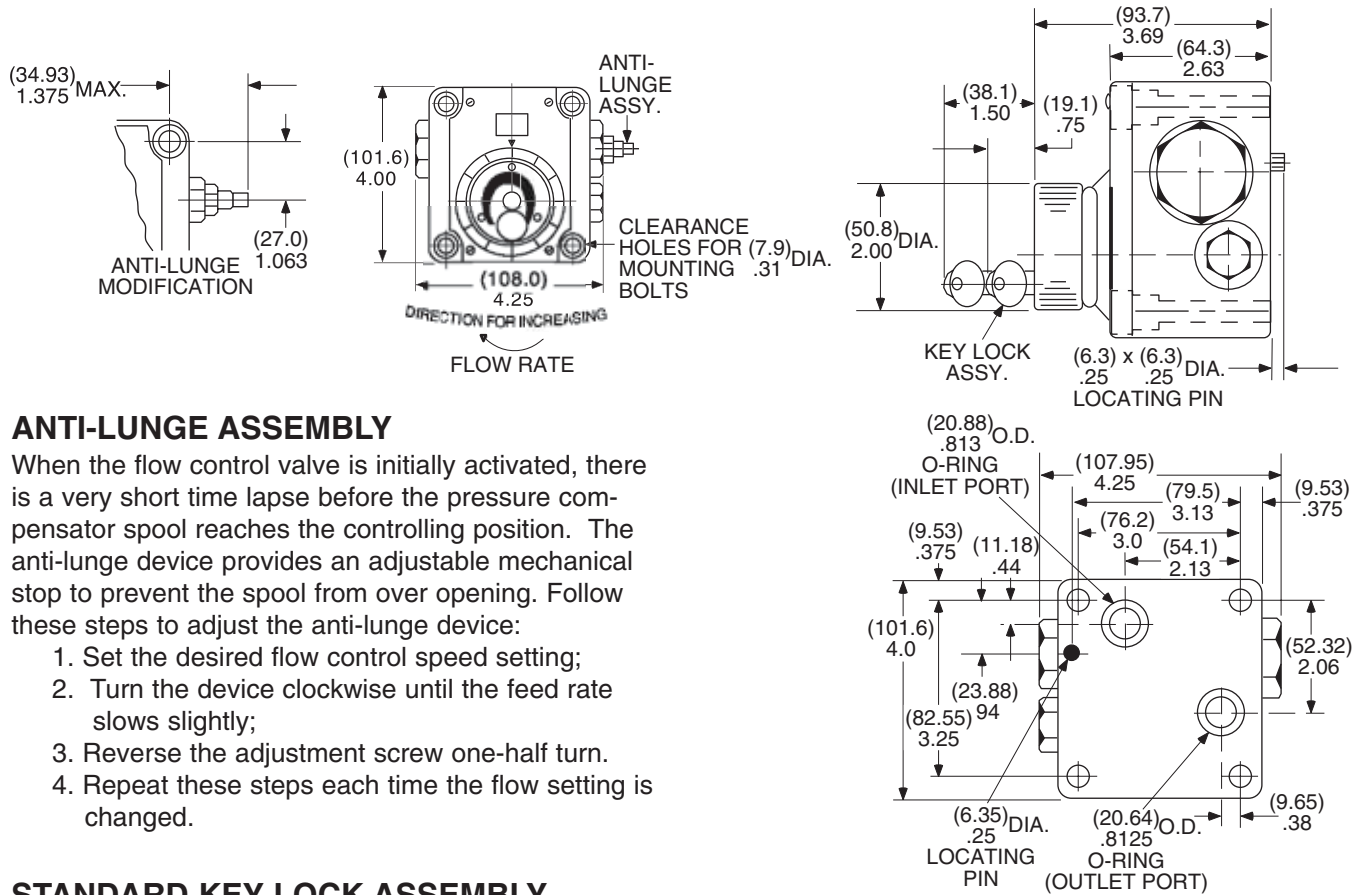
## LOCKABLE FLOW CONTROL VALVE

### PRESSURE COMPENSATED



#### STANDARD DIMENSIONS

DIMENSIONS SHOWN IN: (MILLIMETERS)  
INCHES



#### ANTI-LUNGE ASSEMBLY

When the flow control valve is initially activated, there is a very short time lapse before the pressure compensator spool reaches the controlling position. The anti-lunge device provides an adjustable mechanical stop to prevent the spool from over opening. Follow these steps to adjust the anti-lunge device:

1. Set the desired flow control speed setting;
2. Turn the device clockwise until the feed rate slows slightly;
3. Reverse the adjustment screw one-half turn.
4. Repeat these steps each time the flow setting is changed.

#### STANDARD KEY LOCK ASSEMBLY

This lock prevents tampering with the valve setting. Place the supplied allen head inch into the screw head and turn clockwise to lock the setting. Two keys are supplied and all locks will use the same key.

APPROXIMATE  
FLOW CHANGE  
PER DIAL  
INCREMENT

| SPOOL CODE | GPM  |
|------------|------|
| 125        | .03  |
| 500        | .15  |
| 04         | .25  |
| 08         | .60  |
| 12         | 1.00 |

#### ORDERING INFORMATION

F12M —  SELECT ONE —  SELECT ONE — G —  SELECT ONE

FLOW PATTERN      FLOW RANGE      SEALS      MECHANICAL OPTIONS

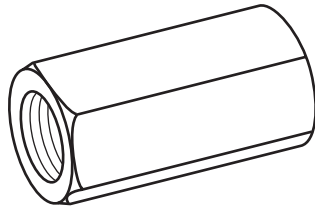
#### BASIC VALVE

- FLOW CONTROL
- PRESSURE/TEMP. COMPENSATED
- 2F06 MOUNTING
- 12 GPM NOMINAL FLOW
- 3000 PSI MAXIMUM OPERATING PRESSURE

| CODE | OPTION          | CODE | MAX.     |                            | CODE | DESCRIPTION                      |
|------|-----------------|------|----------|----------------------------|------|----------------------------------|
| A    | w/o             | 125  | 125 cipm | VITON<br>SEALS<br>STANDARD | OMIT | STANDARD<br>KEY<br>LOCK          |
|      | Return          | 500  | 500 cipm |                            |      |                                  |
|      | Check           | 04   | 4 gpm    |                            |      |                                  |
| B    | With            | 08   | 8 gpm    |                            | F    | ANTI-LUNGE &<br>STD. KEY<br>LOCK |
|      | Return<br>Check | 12   | 12 gpm   |                            |      |                                  |

#### NOTES:

- Use subplate No. S2F06-C50-B.
- 1/2" NPT, Bottom ported.
- Bolt kit B2F06-225.

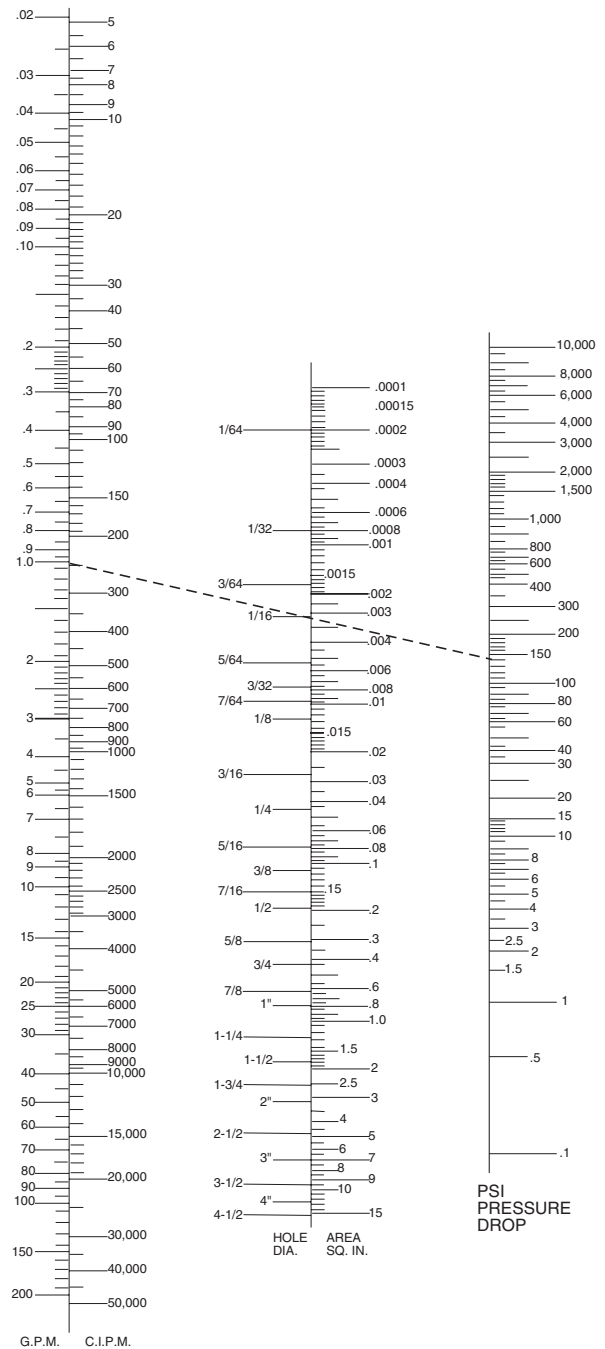


1/4" NPTF  
BODY STEEL  
3000 psi RATED

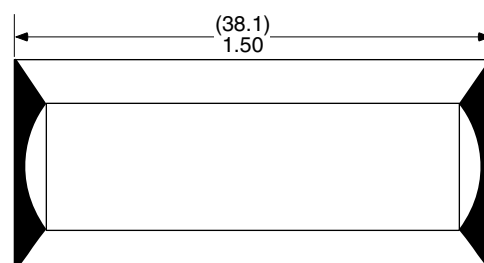
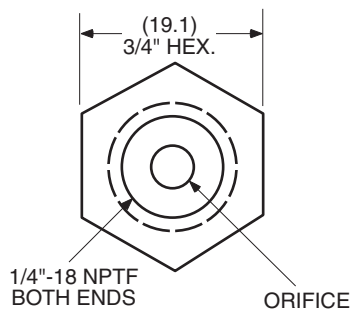
## ORDERING INFORMATION

SELECT ONE  
FO —

| CODE NO. | ORIFICE DIA. (IN.)   | APPROX. ORIFICE AREA(SQ. IN.) |
|----------|----------------------|-------------------------------|
| 1        | No orifice...Blocked | None                          |
| 2        | .0135                | .00015                        |
| 3        | .020                 | .0003                         |
| 4        | .025                 | .0005                         |
| 5        | .028                 | .0006                         |
| 6        | .031                 | .0007                         |
| 7        | .033                 | .0008                         |
| 8        | .036                 | .0010                         |
| 9        | .038                 | .0011                         |
| 10       | .0465                | .0017                         |
| 11       | .0625                | .0030                         |
| 12       | .0781                | .0048                         |
| 13       | .0937                | .0071                         |
| 14       | .125                 | .0122                         |



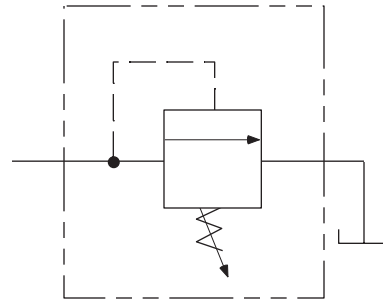
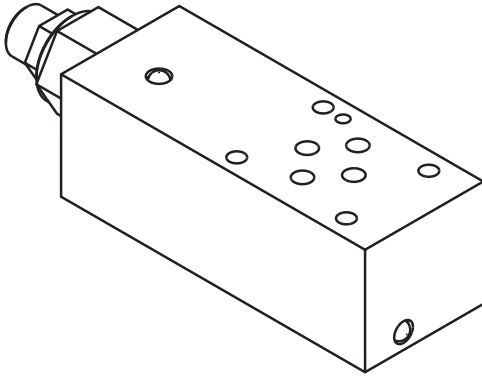
DIMENSIONS SHOWN IN (MILLIMETERS)  
INCHES



# *MODULAR STACK*

# *PRESSURE*

# *CONTROL VALVES*



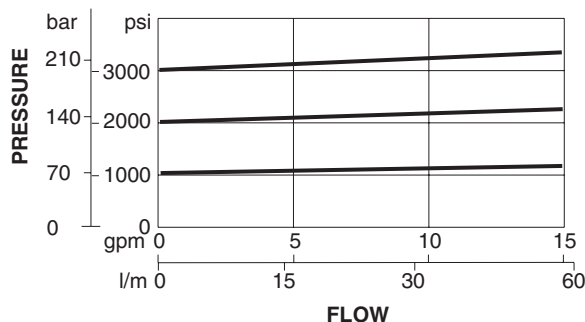
## DESCRIPTION

This pilot-operated pressure relief cartridge valve with balanced sliding spool provides accurate, smooth pressure regulation.

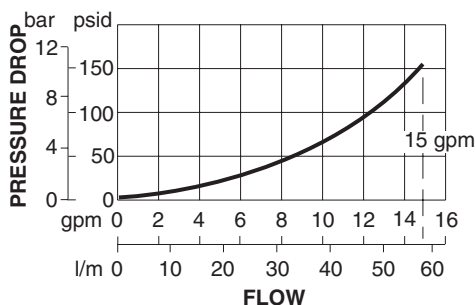
## OPERATIONS

The valve blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to force the pilot poppet from its seat, thus opening the valve. This cartridge relief valve offers a smooth transition in response to a load change in a hydraulic circuit.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH $\Delta P$ CURVES



## FEATURES & BENEFITS

- Leakproof screw adjustment cannot be backed out of valve.
- Overset protection pilot spring cannot go solid.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

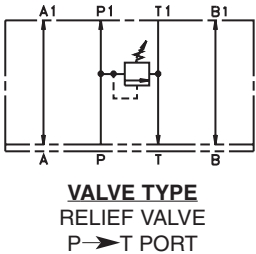
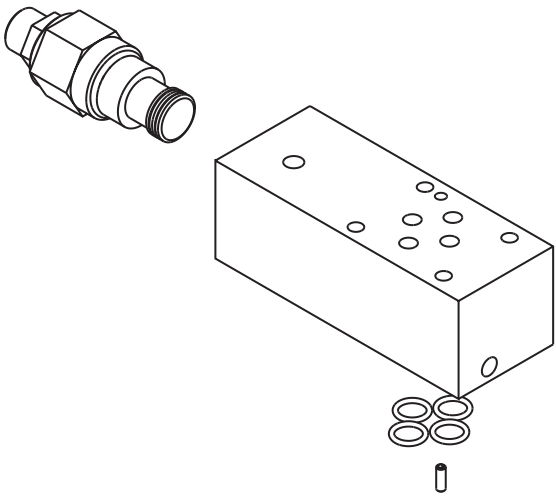
- Flow: 15 GPM (57 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 cu. in/min. (.82 cc/m) at 95% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

# P03MSV-RP

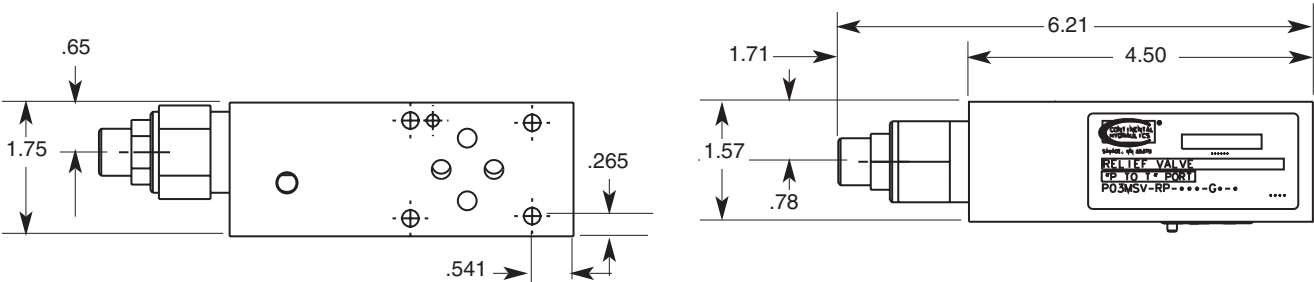
POWRFLOW™

## PRESSURE RELIEF VALVE

Pilot Operated/Balanced Spool



### DIMENSIONS



### ORDERING INFORMATION

| P03MSV                       |             | —                         | R               | SELECT ONE<br><b>P</b> |          | —              | SELECT ONE<br><b>G</b> |       | SELECT ONE<br><b>DESIGN</b> |          |
|------------------------------|-------------|---------------------------|-----------------|------------------------|----------|----------------|------------------------|-------|-----------------------------|----------|
| FUNCTION                     | SIZE        | STYLE                     | TYPE            | CONTROL PORT           |          | PRESSURE RANGE |                        | SEALS | BODY MATERIAL               |          |
| PRESSURE<br>CONTROL<br>VALVE | NFPA<br>D03 | MODULAR<br>STACK<br>VALVE | RELIEF<br>VALVE | CODE                   | LOCATION | CODE           | PRESSURE               | VITON | CODE                        |          |
|                              |             |                           |                 | <b>P</b>               | P PORT   | <b>150</b>     | 50-1500 PSI            |       | <b>A</b>                    | ALUMINUM |
|                              |             |                           |                 |                        |          | <b>300</b>     | 100-3000 PSI           |       | <b>D</b>                    | DUCTILE  |

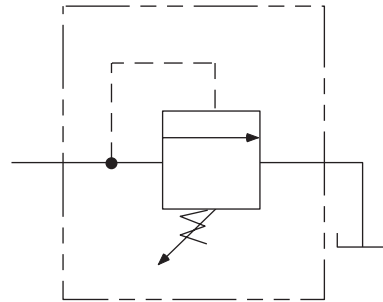
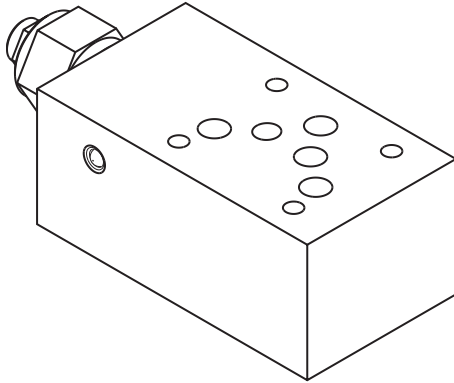
#### Body Only Assembly:

Aluminum(Part No.) — 552481K  
Ductile (Part No.) — 552562K

Includes O-rings & Locating Pin.

#### General Information:

- Cartridge cavity is C1020 with port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other pressure ratings, refer to CRVPS-10 cartridges in the Cartridge Catalog.



## DESCRIPTION

This pilot-operated pressure relief cartridge valve with balanced sliding spool provides accurate, smooth pressure regulation.

## OPERATIONS

The valve blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to force the pilot poppet from its seat, thus opening the valve. This cartridge relief valve offers a smooth transition in response to a load change in a hydraulic circuit.

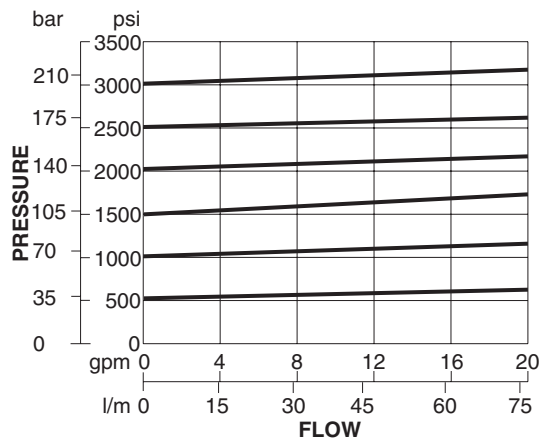
## FEATURES & BENEFITS

- Leakproof screw adjustment cannot be backed out of valve.
- Overset protection pilot spring cannot go solid.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

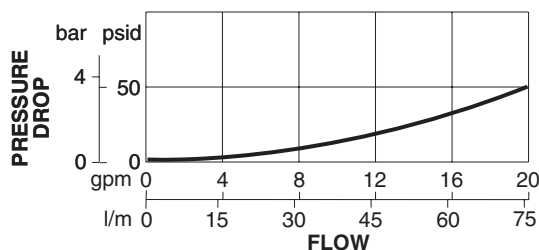
## SPECIFICATIONS

- Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 cu. in./min. (.82 cc/m) at 95% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES

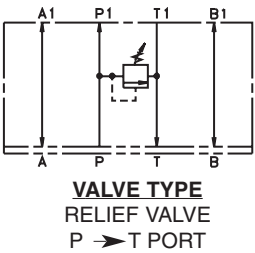
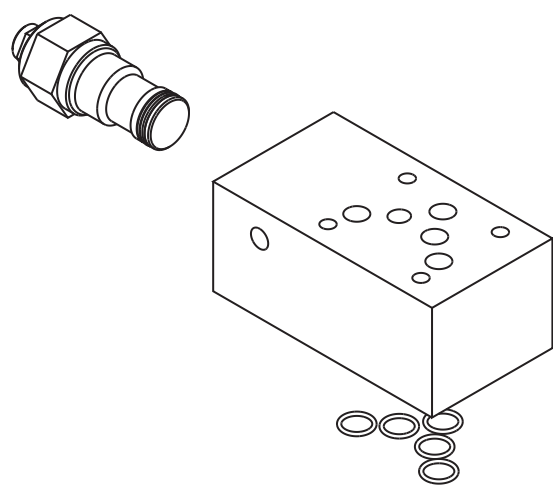


## FLOW PATH ΔP CURVES

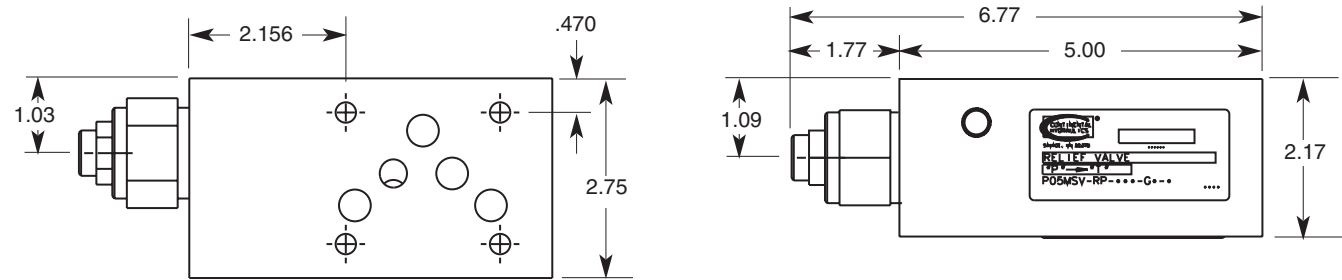


# P05MSV-RP

POWRFLOW™  
**PRESSURE RELIEF VALVE**  
Pilot Operated

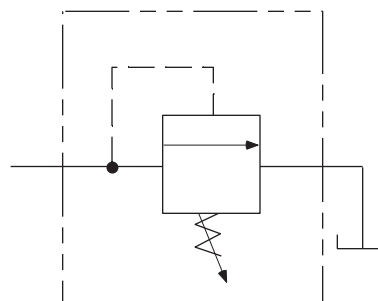
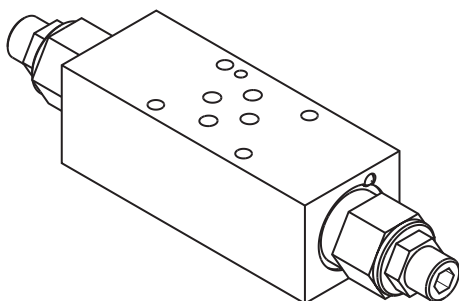


## DIMENSIONS



## ORDERING INFORMATION

|          |      |         |        |              |          |                |              |       |               |          |
|----------|------|---------|--------|--------------|----------|----------------|--------------|-------|---------------|----------|
| P05MSV   |      | —       | R      | SELECT ONE   | —        | SELECT ONE     | —            | G     | SELECT ONE    | DESIGN   |
| FUNCTION | SIZE | STYLE   | TYPE   | CONTROL PORT |          | PRESSURE RANGE |              | SEALS | BODY MATERIAL |          |
| PRESSURE | NFPA | MODULAR | RELIEF | CODE         | LOCATION | CODE           | PRESSURE     | VITON | CODE          |          |
| CONTROL  | D05  | STACK   | VALVE  | P            | P PORT   | 150            | 50-1500 PSI  |       | A             | ALUMINUM |
| VALVE    |      | VALVE   |        |              |          | 300            | 100-3000 PSI |       | D             | DUCTILE  |



## DESCRIPTION

Utilizes a cartridge type, guided poppet, hydraulic operated check valve as a blocking or load-holding device for high pressure applications.

## OPERATIONS

The valve allows free flow from the work port to the outlet port and blocks flow in the opposite direction. Free flow will be allowed from the outlet port to the work port when at least one-third of the load induced pressure is sensed in the opposing work port.

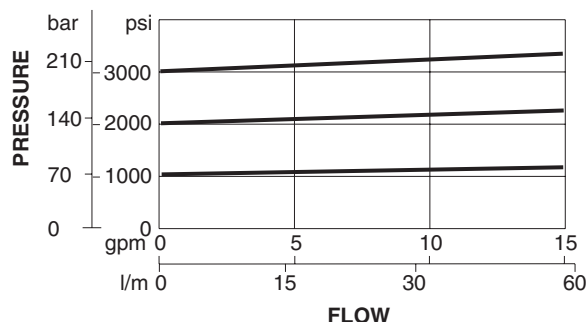
## FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

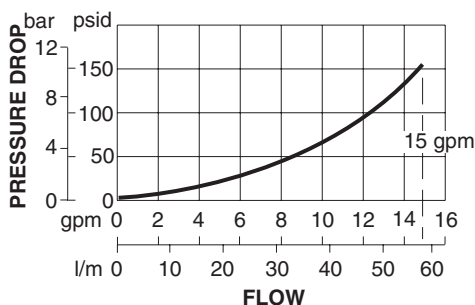
## SPECIFICATIONS

- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).
- 5000 PSI (350 Bar) = Ductile (65-45-12).
- Flow: 10 GPM (38 L/M) nominal.  
Refer to performance chart.
- Pilot Ratio: 3 to 1.
- Internal Leakage: 5 drops per minute maximum at 5000 PSI.
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES

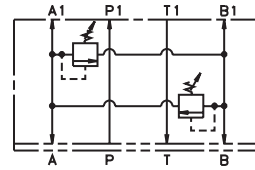
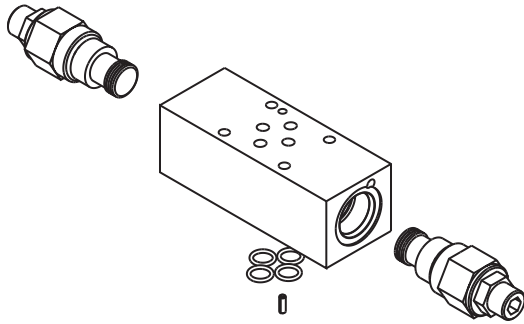


# P03MSV-XC

POWRFLOW™

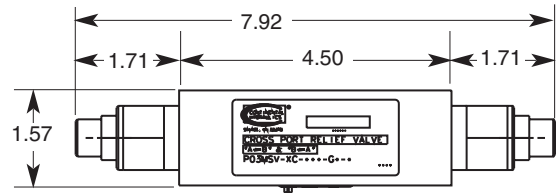
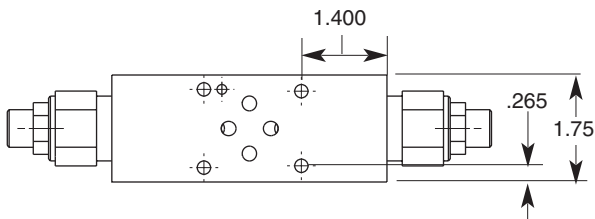
## CROSS PORT VALVE

Pilot Operated/Balanced Spool



VALVE TYPE  
CROSS PORT  
RELIEF VALVE  
A → B &  
B → A  
PORT.

### DIMENSIONS



### ORDERING INFORMATION

|          |      |         |                 |              |                |                |              |                |               |            |  |
|----------|------|---------|-----------------|--------------|----------------|----------------|--------------|----------------|---------------|------------|--|
| P03MSV   |      | X       | SELECT ONE<br>C |              | SELECT ONE<br> |                | G            | SELECT ONE<br> |               | DESIGN<br> |  |
| FUNCTION | SIZE | STYLE   | TYPE            | CONTROL PORT |                | PRESSURE RANGE |              | SEALS          | BODY MATERIAL |            |  |
| PRESSURE | NFPA | MODULAR | CROSSPORT       | CODE         | LOCATION       | CODE           | PRESSURE     | VITON          | CODE          |            |  |
| CONTROL  | D03  | STACK   | RELIEF          | C            | A & B<br>PORT  | 150            | 50-1500 PSI  |                | A             | ALUMINUM   |  |
| VALVE    |      | VALVE   | VALVE           |              |                | 300            | 100-3000 PSI |                | D             | DUCTILE    |  |

#### Body Only Assembly:

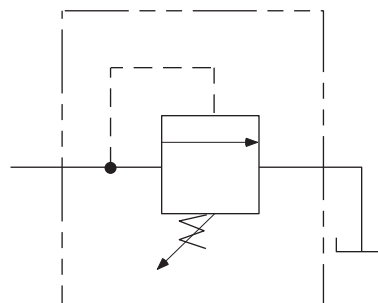
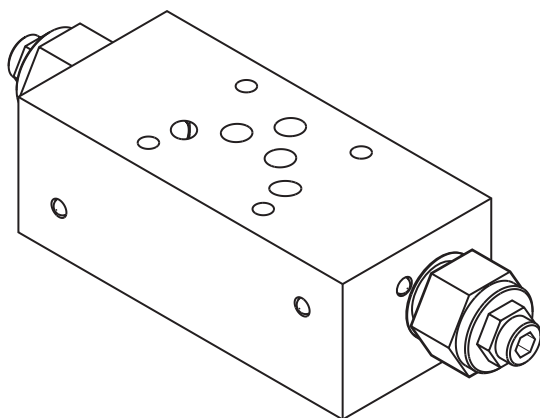
Aluminum (Part No.) — 552482K  
Ductile (Part No.) — 552564K

Includes O-rings & Locating Pin.

#### General Information:

- Cartridge cavity is C1020 with port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other crack pressure ratings, refer to CCVPS-10 cartridges in the Cartridge Catalog.

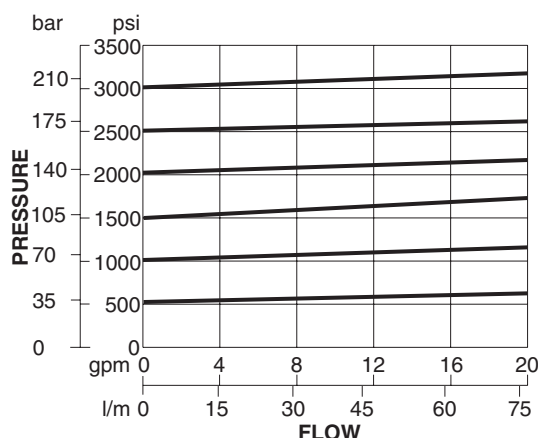
TYPICAL ORDERING CODE: **P03MSV-XC-150-GA**



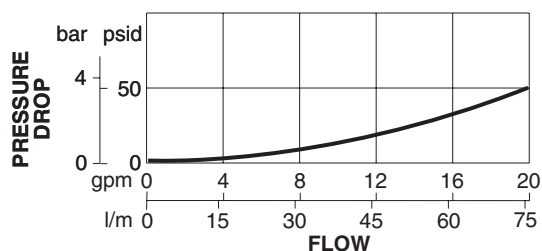
## DESCRIPTION

Utilizes a cartridge type, guided poppet, hydraulic operated check valve as a blocking or load-holding device for high pressure applications.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES



## OPERATIONS

The valve allows free flow from the work port to the outlet port and blocks flow in the opposite direction. Free flow will be allowed from the outlet port to the work port when at least one-third of the load induced pressure is sensed in the opposite work port.

## FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

## SPECIFICATIONS

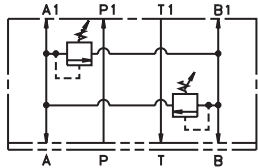
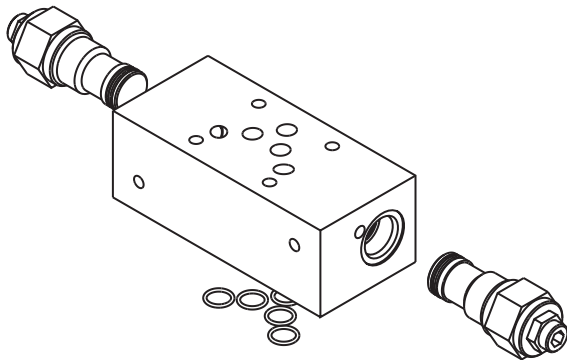
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Flow: 10 GPM (38 L/M) nominal.  
Refer to performance chart.
- Pilot Ratio: 3 to 1.
- Internal Leakage: 5 drops per minute maximum at 5000 PSI.
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;

# P05MSV-XC

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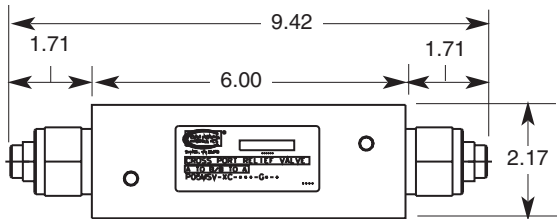
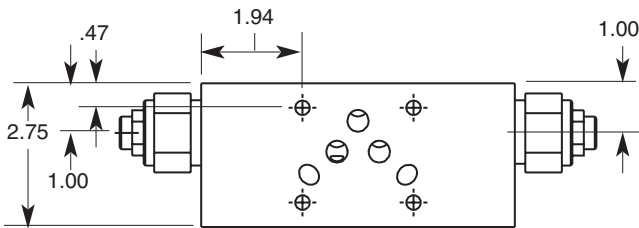
## CROSS PORT RELIEF VALVE

Pilot Operated



**VALVE TYPE**  
CROSS PORT  
RELIEF VALVE  
A TO B &  
B TO A PORT

### DIMENSIONS



### ORDERING INFORMATION

|               |      |             |              |                 |            |                   |                           |       |               |          |                           |  |                       |  |
|---------------|------|-------------|--------------|-----------------|------------|-------------------|---------------------------|-------|---------------|----------|---------------------------|--|-----------------------|--|
| P05MSV        |      | —           | X            | SELECT ONE<br>C |            | —                 | SELECT ONE<br><div></div> |       | —             | G        | SELECT ONE<br><div></div> |  | DESIGN<br><div></div> |  |
| FUNCTION      | SIZE | STYLE       | TYPE         | CONTROL PORT    |            | CRACKING PRESSURE |                           | SEALS | BODY MATERIAL |          |                           |  |                       |  |
| PRESSURE      | NFPA | MODULAR     | CROSSPORT    | CODE            | LOCATION   | CODE              | PRESSURE                  | VITON | CODE          |          |                           |  |                       |  |
| CONTROL VALVE | D05  | STACK VALVE | RELIEF VALVE | C               | A & B PORT | 150               | 50-1500 PSI               |       | A             | ALUMINUM |                           |  |                       |  |
|               |      |             |              |                 |            | 300               | 100-3000 PSI              |       | D             | DUCTILE  |                           |  |                       |  |

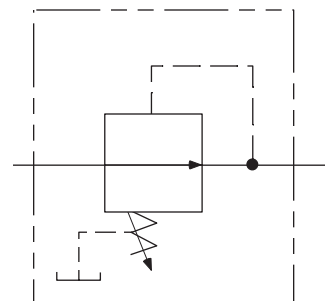
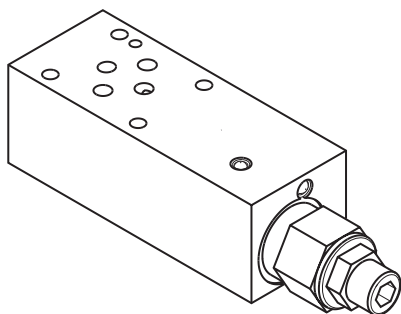
#### Body Only Assembly:

Aluminum (Part No.) — 552579K  
Ductile (Part No.) — 5525577K

Includes O-rings & Locating Pin.

#### General Information:

- Cartridge cavity is C1020 with port flow pattern set up for cartridge flowing from port 1 to port 2.
- For other crack pressure ratings, refer to CRVPS-10 cartridges in the Cartridge Catalog..



## DESCRIPTION

This pilot operated, hydraulic pressure reducing valve acts as a pressure regulating device for a secondary circuit. It utilizes a sliding spool and screw-in cartridge.

## OPERATIONS

The valve will allow flow from the inlet port to the controlled port until pressure exceeds the spring setting. Then the spool will start to restrict flow, causing reduced pressure in the controlled port.

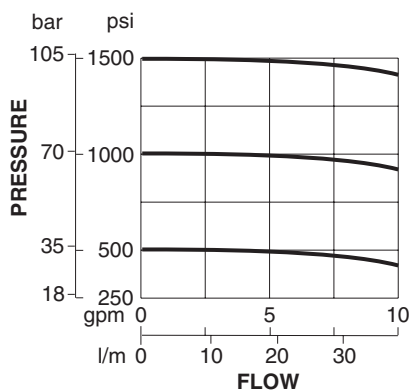
## FEATURES & BENEFITS

- Leakproof screw adjustment.
- Adjusting screw cannot be backed out of the valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.
- Back pressure will effect valve settings.

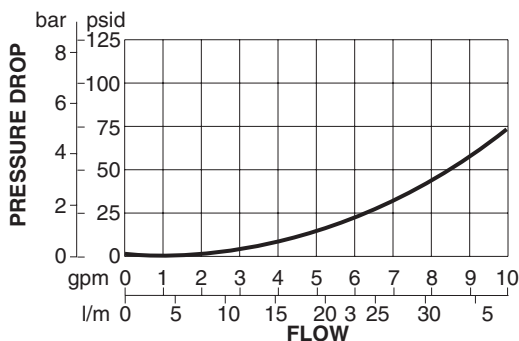
## SPECIFICATIONS

- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).
- 5000 PSI (350 Bar) = Ductile (65-45-12).
- Flow: 10 GPM (38 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 cu. in/min (85 cc/m) at 85% of crack pressure.
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred..

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ΔP CURVES



# P03MSV-PDA / P03MSV-PDB / P03MSV-PDP

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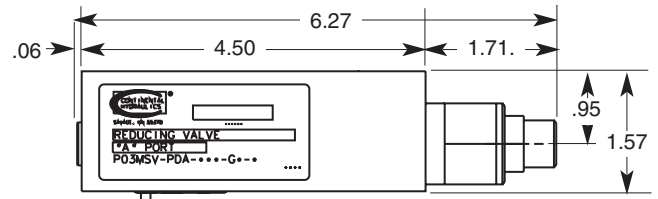
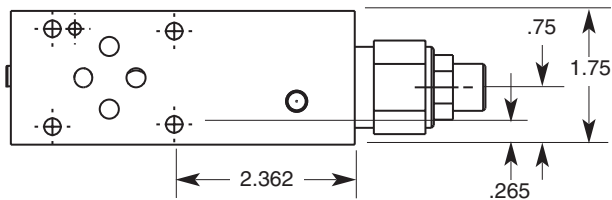
## PRESSURE REDUCING VALVE

Pilot Operated

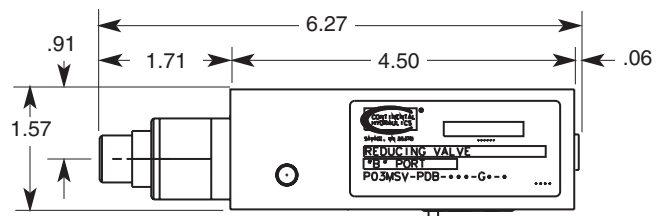
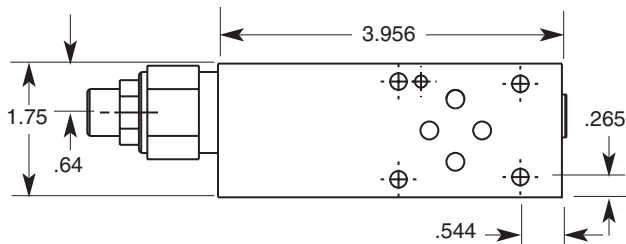


### DIMENSIONS

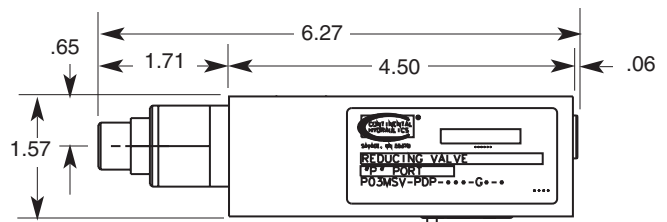
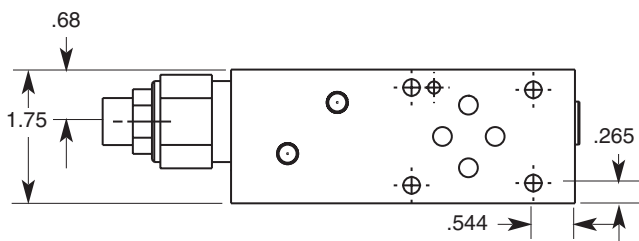
#### P03MSV-PDA



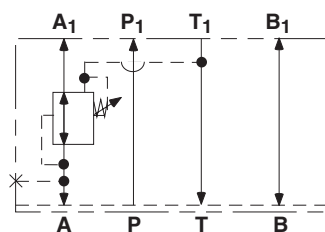
#### P03MSV-PDB



#### P03MSV-PDP

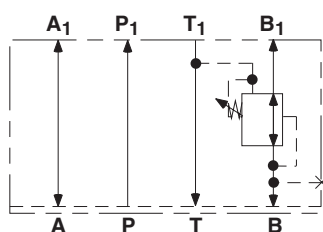


#### P03MSV-PDA



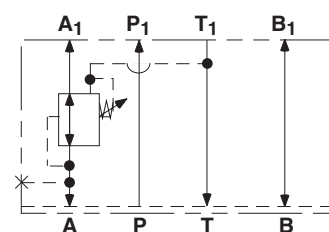
VALVE TYPE  
REDUCING VALVE  
A PORT

#### P03MSV-PDB

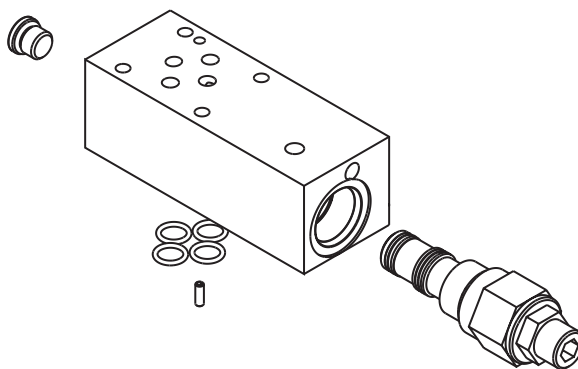


VALVE TYPE  
REDUCING VALVE  
B PORT

#### P03MSV-PDP



VALVE TYPE  
REDUCING VALVE  
P PORT



## ORDERING INFORMATION

|                              |             |                           |                               |                           |              |      |                |                           |       |               |  |                           |  |                       |  |
|------------------------------|-------------|---------------------------|-------------------------------|---------------------------|--------------|------|----------------|---------------------------|-------|---------------|--|---------------------------|--|-----------------------|--|
| P03MSV — PD                  |             |                           |                               | SELECT ONE<br><div></div> |              | —    |                | SELECT ONE<br><div></div> |       | — G           |  | SELECT ONE<br><div></div> |  | DESIGN<br><div></div> |  |
| FUNCTION                     |             | SIZE                      | STYLE                         | TYPE                      | CONTROL PORT |      | PRESSURE RANGE |                           | SEALS | BODY MATERIAL |  |                           |  |                       |  |
| PRESSURE<br>CONTROL<br>VALVE | NFPA<br>D03 | MODULAR<br>STACK<br>VALVE | PRESSURE<br>REDUCING<br>VALVE | CODE                      | LOCATION     | CODE | PRESSURE       | VITON                     | CODE  |               |  |                           |  |                       |  |
|                              |             |                           |                               | A                         | A PORT       | 150  | 50-1500 PSI    |                           | A     | ALUMINUM      |  |                           |  |                       |  |
|                              |             |                           |                               | B                         | B PORT       | 300  | 100-300 PSI    |                           | D     | DUCTILE       |  |                           |  |                       |  |
|                              |             |                           |                               | P                         | P PORT       |      |                |                           |       |               |  |                           |  |                       |  |

### Body Only Assembly:

#### Code A

Aluminum (Part No.) — 552493K  
Ductile (Part No.) — 552559K

#### Code B

Aluminum (Part No.) — 552483K  
Ductile (Part No.) — 552560K

#### Code P

Aluminum (Part No.) — 552484K  
Ductile (Part No.) — 552561K

Includes O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1030 with port flow pattern flowing from port 2 to port 1. Port 3 is drain.
- For other crack pressure ratings, refer to CPRPS-10 cartridges in the Cartridge Catalog.

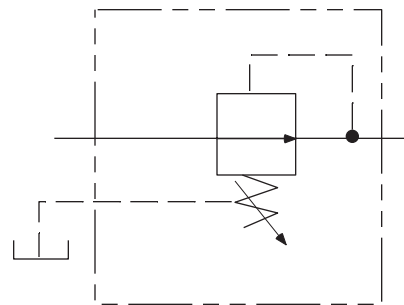
TYPICAL ORDERING CODE: **P03MSV-PDA-150-GA**

# P05MSV-PDA / P05MSV-PDB / P05MSV-PDP

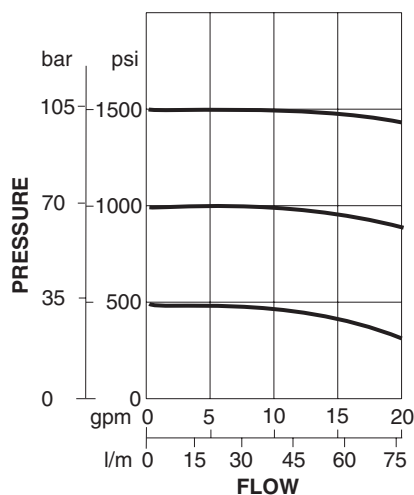
POWRFLOW™

## PRESSURE REDUCING VALVE

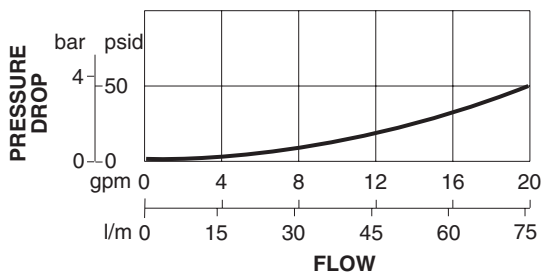
Pilot Operated



### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ΔP CURVES



### DESCRIPTION

Pilot operated hydraulic pressure reducing valve acts as a pressure-regulating device for a secondary circuit. The device has a screw in cartridge with sliding spool.

### OPERATIONS

The valve will allow flow from the inlet port to the controlled port until pressure exceeds the spring setting. Then the spool will start to restrict flow, causing reduced pressure in the controlled port.

### FEATURES AND BENEFITS

- Leak proof screw adjustment.
- Adjustment screw cannot be backed out of valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- SUN T-2A cavity.
- Anodized aluminum.
- Back pressure will effect valve settings.

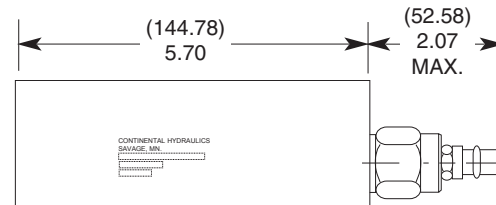
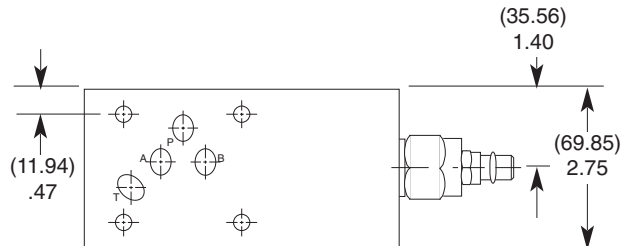
### SPECIFICATIONS

- Maximum Pressure Differential
  - Code 080 = 2000 PSI (138 Bar).
  - Code 300 = 3000 PSI (207 Bar).
- Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 10 cu. in/min (170 cc/m) at 85% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

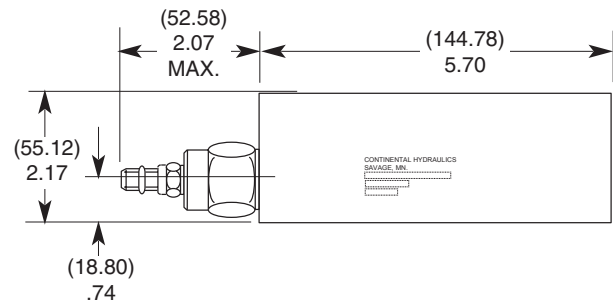
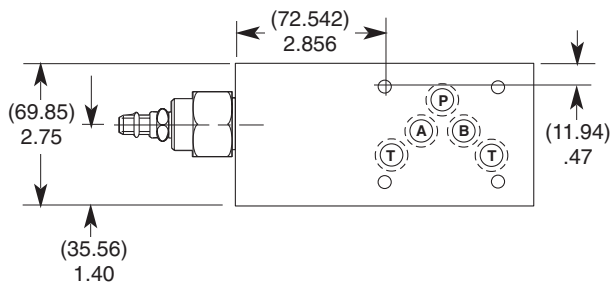
**DIMENSIONS**

DIMENSIONS SHOWN IN: (MILLIMETERS)  
INCHES

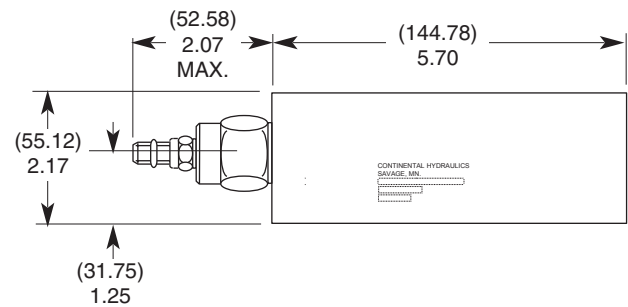
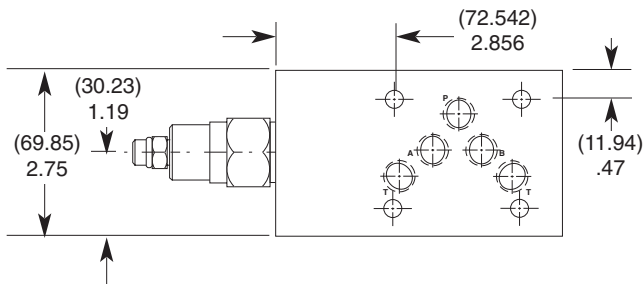
**P05MSV-PDA**



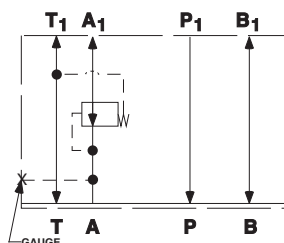
**P05MSV-PDB**



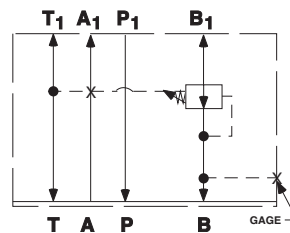
**P05MSV-PDP**



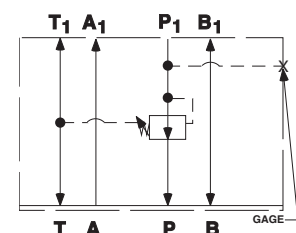
**P05MSV-PDA**



**P05MSV-PDB**



**P05MSV-PDP**

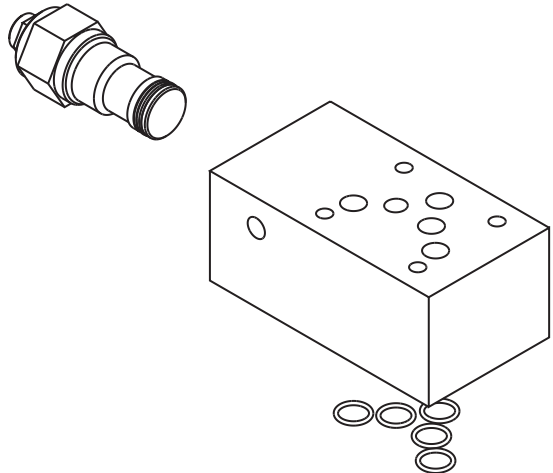


# P05MSV-PDA / P05MSV-PDB / P05MSV-PDP

POWRFLOW™

## PRESSURE REDUCING VALVE

Pilot Operated



### ORDERING INFORMATION

| P05MSV — PD |      |         |          | SELECT ONE   |          | SELECT ONE     |              | SELECT ONE |               | DESIGN   |  |
|-------------|------|---------|----------|--------------|----------|----------------|--------------|------------|---------------|----------|--|
|             |      |         |          |              |          |                |              |            |               |          |  |
| FUNCTION    | SIZE | STYLE   | TYPE     | CONTROL PORT |          | PRESSURE RANGE |              | SEALS      | BODY MATERIAL |          |  |
| PRESSURE    | NFPA | MODULAR | PRESSURE | CODE         | LOCATION | CODE           | PRESSURE     | VITON      | CODE          |          |  |
| CONTROL     | D05  | STACK   | REDUCING | A            | A PORT   | 80             | 25-800 PSI   |            | A             | ALUMINUM |  |
| VALVE       |      |         | VALVE    | B            | B PORT   | 300            | 100-3000 PSI |            | D             | DUCTILE  |  |
|             |      |         |          | P            | P PORT   |                |              |            |               |          |  |

**Body Only Assembly:**

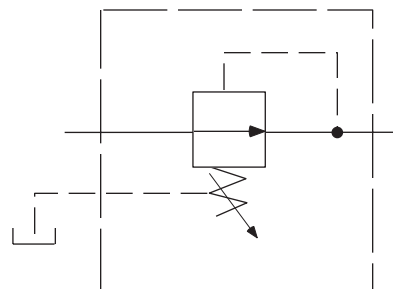
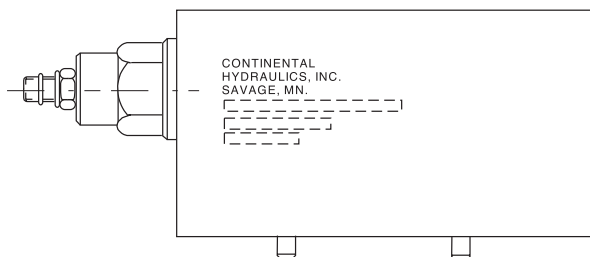
Code A  
Aluminum (Part No.) — 552686K  
Ductile (Part No.) — 552710K  
Code B  
Aluminum (Part No.) — 552687K  
Ductile (Part No.) — 552711K  
Code P  
Aluminum (Part No.) — 552688K  
Ductile (Part No.) — 552712K

Includes O-rings & Locating Pin.

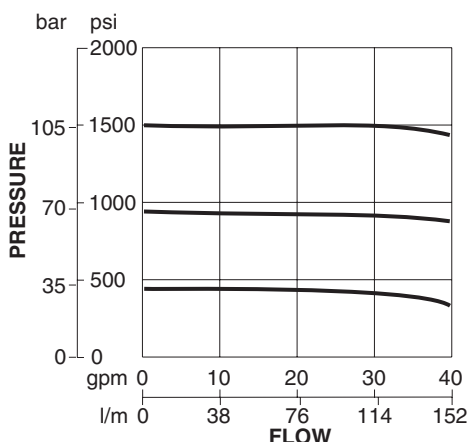
**General Information:**

- Cartridge cavity is SUN T-2A with port flow pattern for cartridge flowing from port 2 to port 1; port 3 is drain.

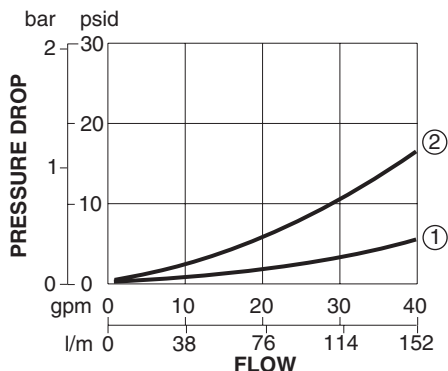
TYPICAL ORDERING CODE: **P05MSV-PDP-080-GA**



### TYPICAL CONTROLLED PRESSURE vs. FLOW



### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

| CODE       | A - A<br>OPEN | B - B<br>OPEN | T - T<br>OPEN |
|------------|---------------|---------------|---------------|
| P08MSV PDP | 1             | 2             |               |

### DESCRIPTION

This pilot operated, hydraulic pressure reducing valve acts as a pressure regulating device for a secondary circuit. It utilizes a sliding spool and screw-in cartridge.

### OPERATIONS

The valve will allow flow from the inlet port to the controlled port until pressure exceeds the spring setting. Then the spool will start to restrict flow, causing reduced pressure in the controlled port.

### FEATURES & BENEFITS

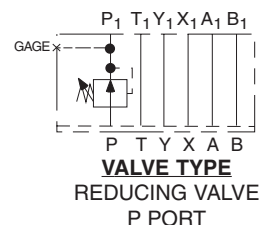
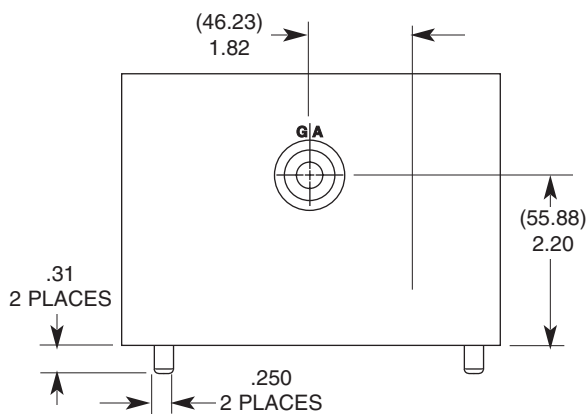
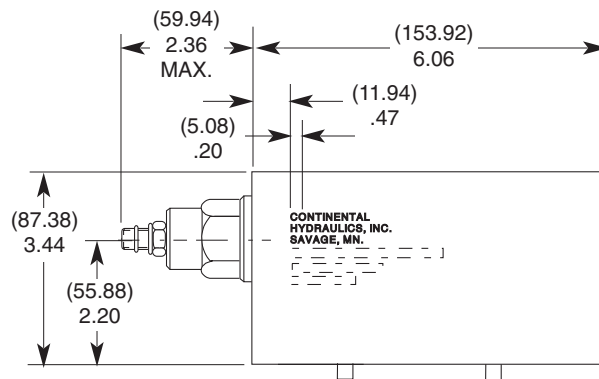
- Leakproof screw adjustment.
- Adjusting screw cannot be backed out of the valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- SUN 17A cavity.
- Anodized aluminum.
- Back pressure will effect valve settings.

### SPECIFICATIONS

- Maximum Pressure Differential: Code 300 = 3000 PSI.
- Flow: 40 GPM (151 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 30 cu. in/min (492 cc/m) at 85% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

**CONTINENTAL**  
**HYDRAULICS**

DIMENSIONS SHOWN IN: (MILLIMETERS)  
INCHES



**P08MSV — PD**

**SELECT ONE**

**SELECT ONE**

**SELECT ONE**

**DESIGN**

**P**

**P PORT**

**300**

**100-3000 PSI**

**VITON**

**A**

**ALUMINUM**

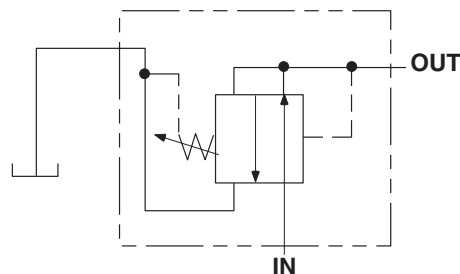
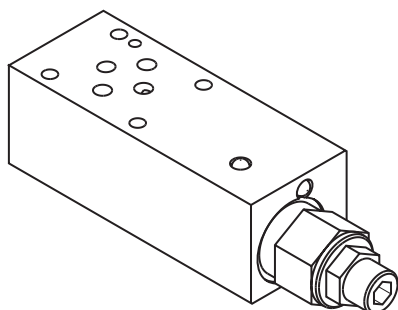
**D**

**DUCTILE**

**General Information:**

- Cartridge cavity is SUN T-17A with port flow pattern from port 2 to port 1; port 3 is drain.

TYPICAL ORDERING CODE: **P08MSV-PDP-300-GA**



## DESCRIPTION

This pilot operated hydraulic pressure reducing/relieving valve acts as a pressure-regulating device for a secondary circuit. It features a sliding spool and screw-in cartridge.

## OPERATIONS

This valve will allow flow from the inlet port to the controlled port until pressure in the controlled port exceeds the force of the spring bias. Then the spool will shift and restrict. This causes reduced pressure in the controlled port. The valve will maintain the same pressure as the force of the spring setting regardless of the pressure at the inlet port. In this mode, the valve will also relieve from the controlled port to the drain port, regulating pressure at the controlled port.

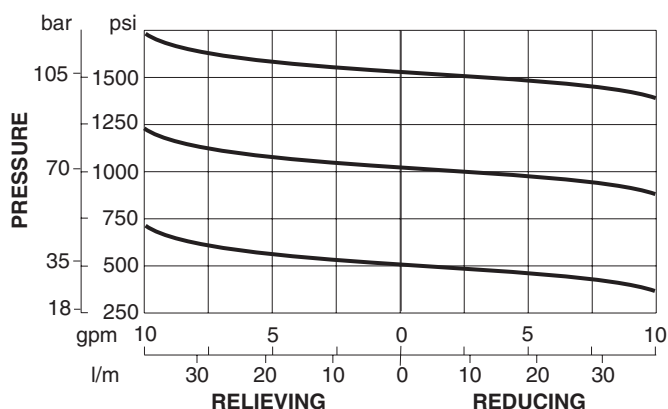
## FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

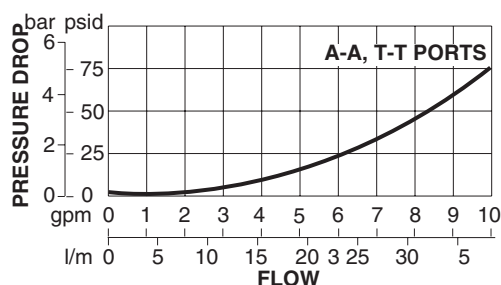
## SPECIFICATIONS

- Flow: 10 GPM (38 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 cu. in./min. (.82 cc/m) at 85% of crack pressure.
- Valve Bodies: 2500 PSI (175 Bar) = Aluminum (20224-T4)  
5000 PSI (350 Bar) = Ductile (65-45-12)
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP CURVES



## FLOW PATH ?P CURVES



# P03MSV-PDRA/P03MSV-PDRB/P03MSV-PDRP

POWRFLOW™

## PRESSURE REDUCING / RELIEVING VALVE

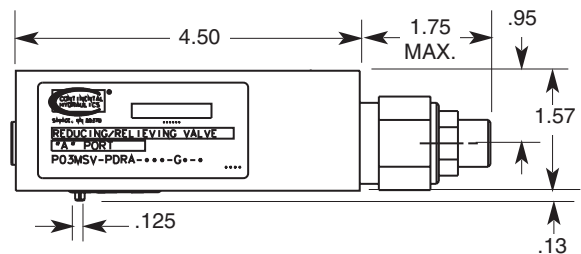
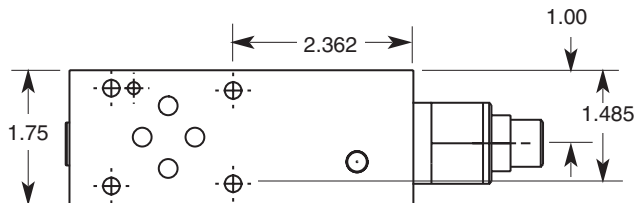
Pilot Operated, Sliding Spool



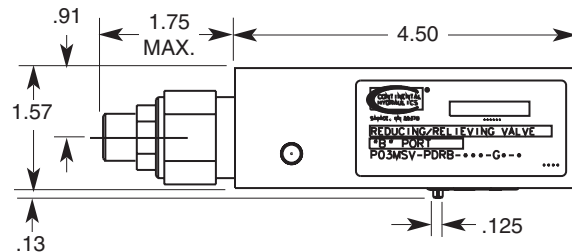
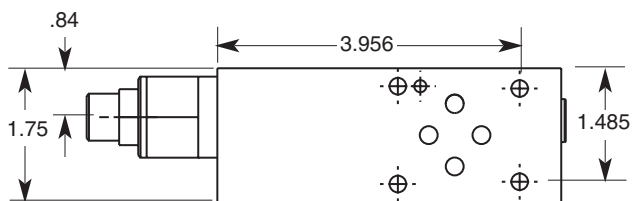
### DIMENSIONS

DIMENSIONS SHOWN IN: (MILLIMETERS)  
INCHES

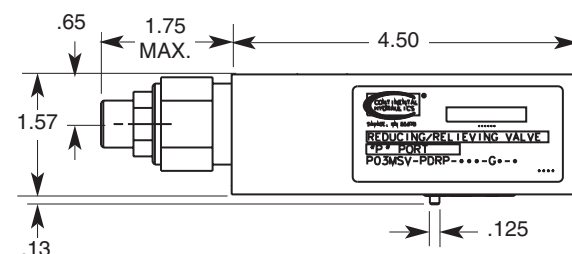
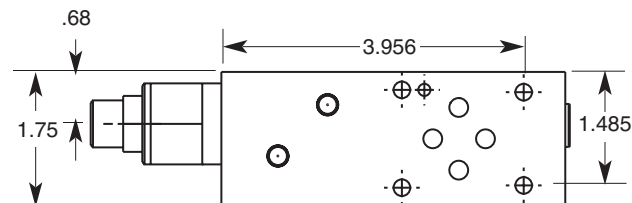
#### P03MSV-PDRA



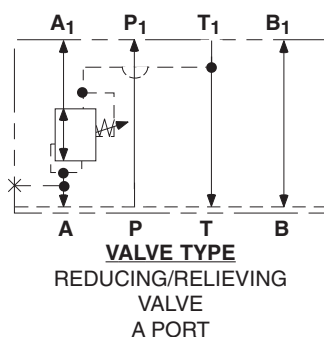
#### P03MSV-PDRB



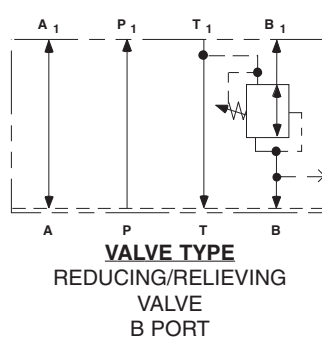
#### P03MSV-PDRP



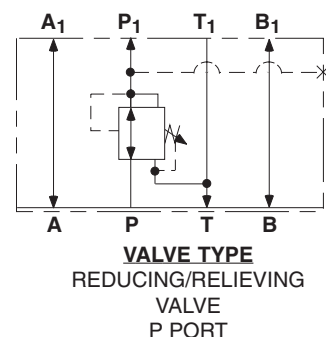
#### P03MSV-PDRA



#### P03MSV-PDRB

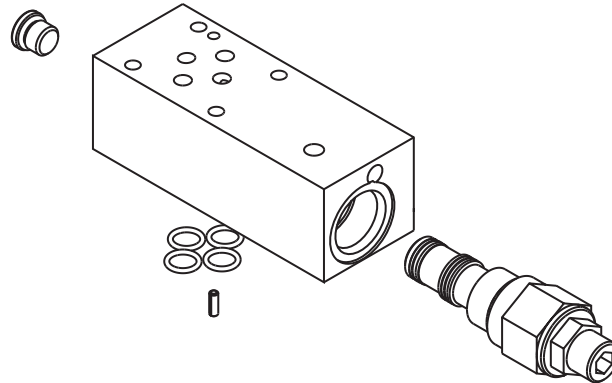


#### P03MSV-PDRP



# P03MSV-PDRA/P03MSV-PDRB/P03MSV-PDRP

POWRFLOW™  
**PRESSURE REDUCING / RELIEVING VALVE**  
Pilot Operated, Sliding Spool



## ORDERING INFORMATION

| P03MSV — PDR           |          |                     | SELECT ONE                        | —            | SELECT ONE | —                | G           | SELECT ONE | DESIGN        |
|------------------------|----------|---------------------|-----------------------------------|--------------|------------|------------------|-------------|------------|---------------|
| FUNCTION               | SIZE     | STYLE               | VALVE FUNCTION                    | CONTROL PORT |            | ADJUSTMENT RANGE |             | SEALS      | BODY MATERIAL |
| PRESSURE CONTROL VALVE | NFPA D03 | MODULAR STACK VALVE | REDUCING/RELIEVING PILOT OPERATED | CODE         | LOCATION   | CODE             | PRESSURE    | VITON      | CODE          |
|                        |          |                     |                                   | A            | A PORT     | 150              | 50-1500 PSI |            | A             |
|                        |          |                     |                                   | B            | B PORT     | 300              | 50-3000 PSI |            | D             |
|                        |          |                     |                                   | P            | P PORT     | 500              | 50-5000 PSI |            |               |
|                        |          |                     |                                   |              |            |                  |             |            | DUCTILE       |

### Body Only Assembly:

#### PDRA

Aluminum (Part No.) — 552439K

Ductile (Part No.) — 552559K

#### PDRB

Aluminum (Part No.) — 552483K

Ductile (Part No.) — 552560K

#### PDRP

Aluminum (Part No.) — 552484P

Ductile (Part No.) — 552561K

Includes O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1030 with port flow pattern for cartridge flowing from port 2 to port 1; port 3 is drain.

- For other pressure ratings, see CPRRS-10 in the Cartridge Catalog

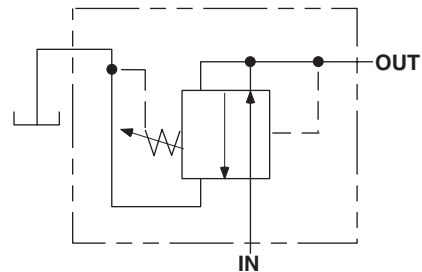
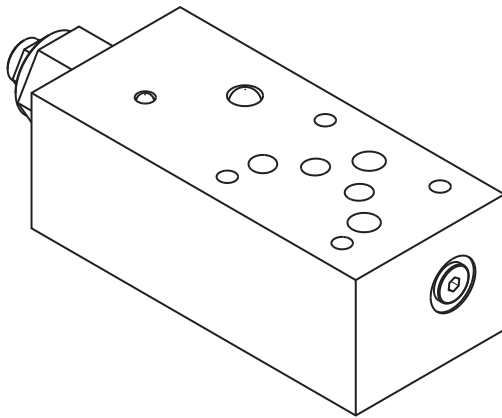
TYPICAL ORDERING CODE: **P03MSV-PDRA-150-GA**

# P05MSV-PDRA/P05MSV-PDRB/P05MSV-PDRP

POWRFLOW™

## PRESSURE REDUCING/RELIEVING VALVE

Pilot Operated



### DESCRIPTION

Utilizes a pilot-operated hydraulic pressure reducing/relieving valve sliding spool cartridge to as a pressure-regulating device for a secondary circuit.

### OPERATIONS

This valve will allow flow from the inlet port to the controlled port until pressure in the controlled port exceeds the force of the spring bias. Then the spool will shift and restrict. This causes a reduced pressure in the controlled port. The valve will maintain the same pressure as the force of the spring setting regardless of the pressure at the inlet port. In this mode, the valve will also relieve from the controlled port to the drain port, regulating pressure at the controlled port.

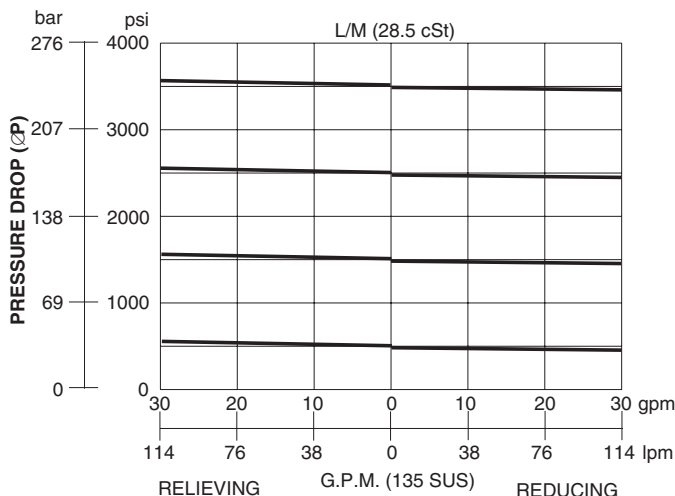
### FEATURES & BENEFITS

- Low friction seal on the pilot piston.
- Separate heavy spring assures fast pilot piston return.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

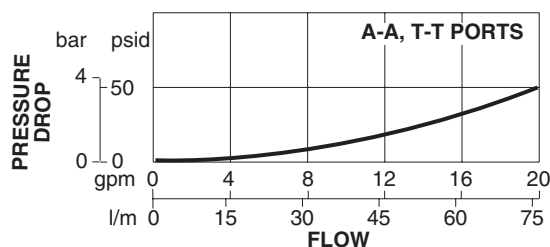
### SPECIFICATIONS

- Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 cu.in/min. (.82 cc/m) at 85% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

### TYPICAL PRESSURE DROP CURVES

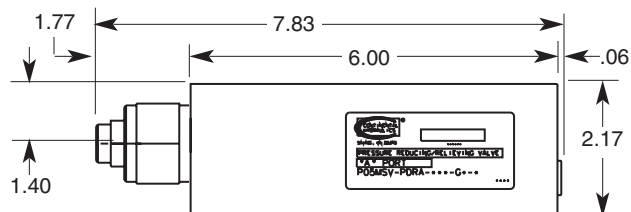
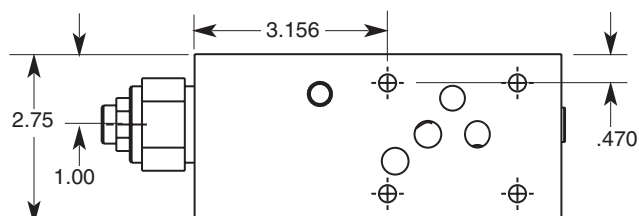


### FLOW PATH ΔP CURVES

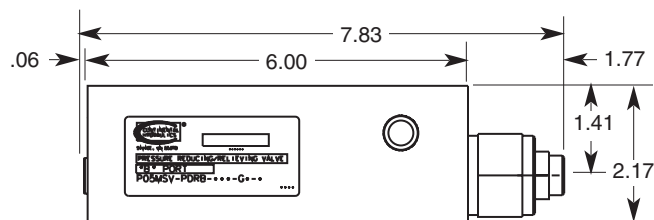
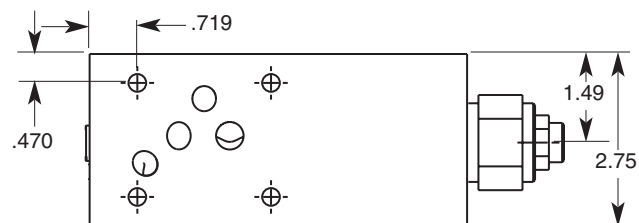


## DIMENSIONS

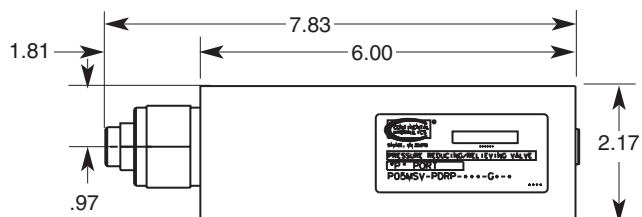
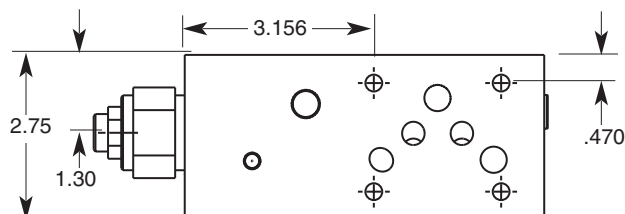
### P05MSV-PDRA



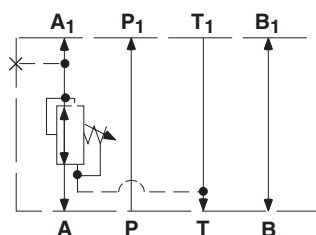
### P05MSV-PDRB



### P05MSV-PDRP

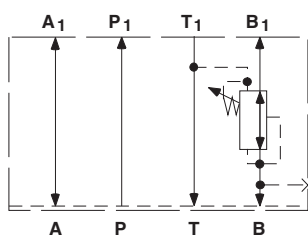


### P05MSV-PDRA



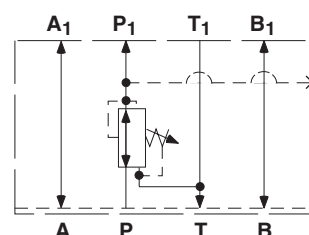
**VALVE TYPE**  
PRESSURE REDUCING/  
RELIEVING VALVE  
A PORT

### P05MSV-PDRB



**VALVE TYPE**  
PRESSURE REDUCING/  
RELIEVING VALVE  
B PORT

### P05MSV-PDRP



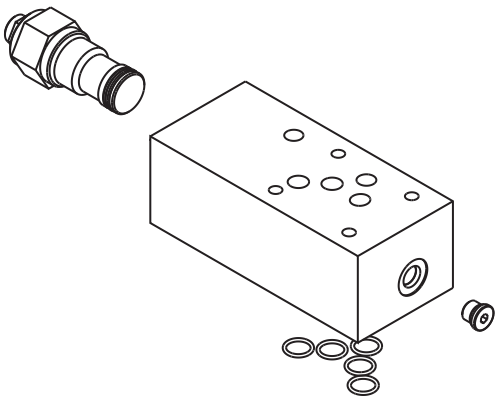
**VALVE TYPE**  
PRESSURE REDUCING/  
RELIEVING VALVE  
P PORT

# P05MSV-PDRA/P05MSV-PDRB/P05MSV-PDRP

POWRFLOW™

## PRESSURE REDUCING/RELIEVING VALVE

Pilot Operated



### ORDERING INFORMATION

| P05MSV — PDR           |          |                     |                                   | SELECT ONE   | —        | SELECT ONE      | —        | G     | SELECT ONE    | DESIGN   |
|------------------------|----------|---------------------|-----------------------------------|--------------|----------|-----------------|----------|-------|---------------|----------|
|                        |          |                     |                                   |              |          |                 |          |       |               |          |
| FUNCTION               | SIZE     | STYLE               | VALVE FUNCTION                    | CONTROL PORT |          | ADJUSTMENT RATE |          | SEALS | BODY MATERIAL |          |
|                        |          |                     |                                   | CODE         | LOCATION | CODE            | PRESSURE |       | CODE          |          |
|                        |          |                     |                                   | A            | A PORT   | 150             | 50-1500  |       | A             | ALUMINUM |
|                        |          |                     |                                   | B            | B PORT   | 300             | 50-3000  |       | D             | DUCTILE  |
| PRESSURE CONTROL VALVE | NFPA DO5 | MODULAR STACK VALVE | REDUCING/RELIEVING PILOT OPERATED | P            | P PORT   | 500             | 50-5000  |       |               |          |

#### Body Only Assembly:

PDRA  
Aluminum (Part No.) — 552518K  
Ductile (Part No.) — 552566K

PDRB  
Aluminum (Part No.) — 552490K  
Ductile (Part No.) — 552567K

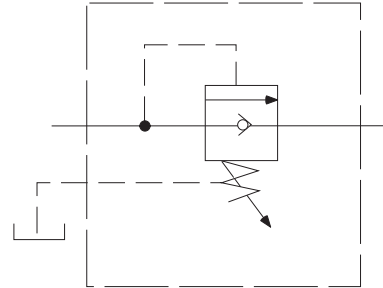
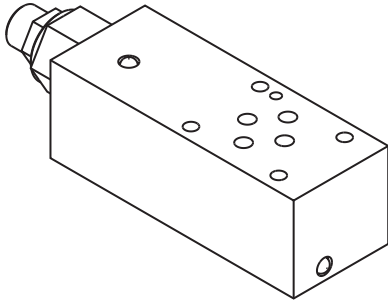
PDRP  
Aluminum (Part No.) — 552489P  
Ductile (Part No.) — 552568K

Includes O-rings & Locating Pin.

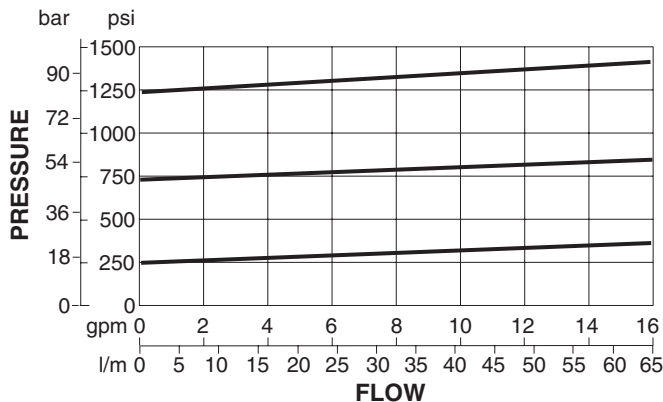
#### General Information:

- Cartridge cavity is C1230 with port flow pattern for cartridge flowing from port 2 to port 1. Port 3 is drain.
- For other crack pressure ratings, refer to CPRRS-12 cartridges in the Cartridge Catalog..

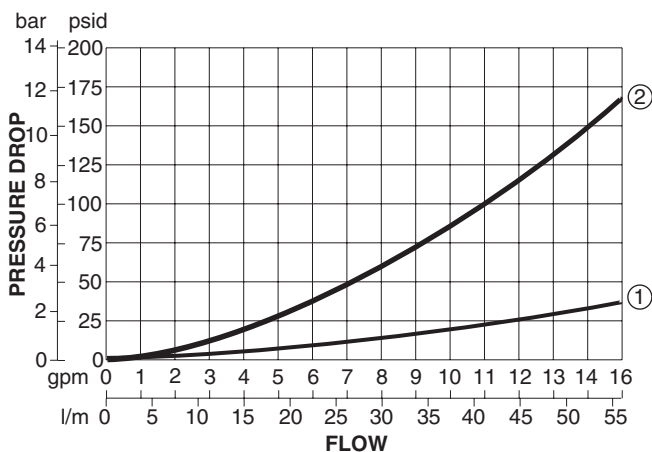
TYPICAL ORDERING CODE: **P05MSV-PDRA-150-GA**



### TYPICAL CONTROLLED PRESSURE vs. FLOW



### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

| CODE      | A - A<br>B - B<br>T - T1 | P - P EXCEEDS<br>PRESET PRESSURE |
|-----------|--------------------------|----------------------------------|
| P03MSV-SP | 1                        | 2                                |

### DESCRIPTION

This pilot-operated, pressure sequence valve uses a screw-in poppet type cartridge with built-in free reverse flow check.

### OPERATIONS

The valve blocks flow from the inlet port to the outlet port until sufficient pressure is present at the sense port to force the pilot poppet from its seat, thus opening the valve. This sequence valve offers free reverse flow from the outlet port to the inlet port.

### FEATURES & BENEFITS

- Leak proof screw adjustment.
- Adjustment screw cannot be backed out of the valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

### SPECIFICATIONS

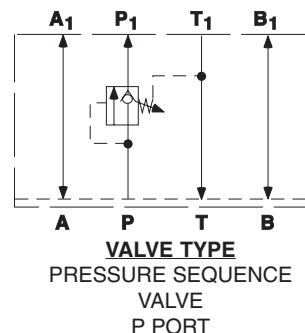
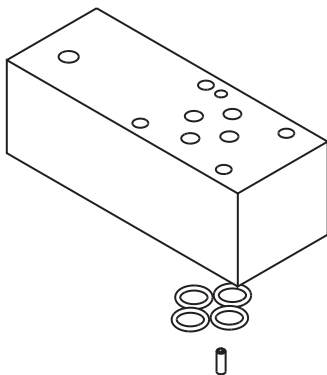
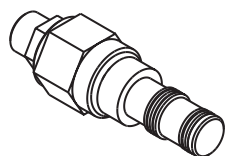
- Flow: 15 GPM (57 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 drops/min. (.25 cc/m) at 85% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

# P03MSV-SP

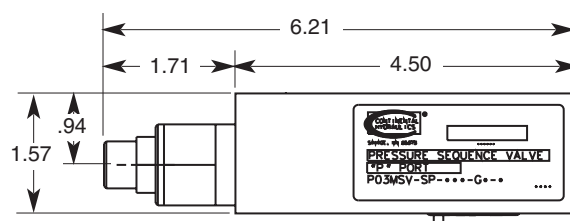
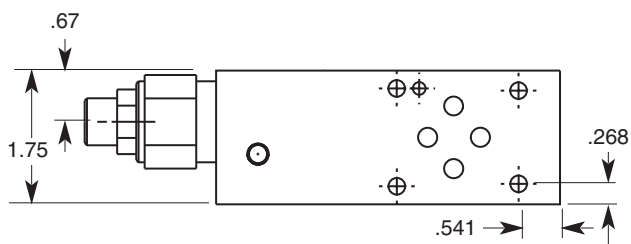
## POWRFLOW™

### SEQUENCE VALVE

Poppet Type with Free Reverse Flow



## DIMENSIONS



## ORDERING INFORMATION

| P03MSV — S |      |         |          | SELECT ONE   |          | SELECT ONE     |              | SELECT ONE |               | DESIGN   |  |
|------------|------|---------|----------|--------------|----------|----------------|--------------|------------|---------------|----------|--|
|            |      |         |          |              |          |                |              |            |               |          |  |
| FUNCTION   | SIZE | STYLE   | TYPE     | CONTROL PORT |          | PRESSURE RANGE |              | SEALS      | BODY MATERIAL |          |  |
|            |      |         |          | CODE         | LOCATION | CODE           | PRESSURE     |            | CODE          |          |  |
| PRESSURE   | NFPA | MODULAR | PRESSURE | P            | P PORT   | 150            | 50-1500 PSI  | VITON      | A             | ALUMINUM |  |
| CONTROL    | DO3  | STACK   | SEQUENCE |              |          | 300            | 100-3000 PSI |            | D             | DUCTILE  |  |
| VALVE      |      | VALVE   | VALVE    |              |          |                |              |            |               |          |  |

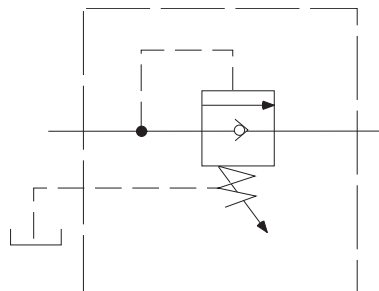
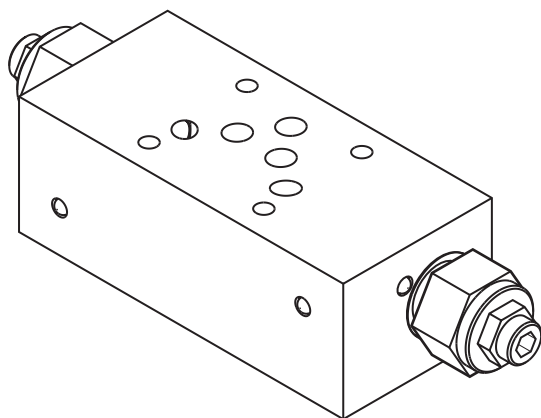
### Body Only Assembly:

Aluminum (Part No.) — 552472K  
Ductile (Part No.) — 552563K

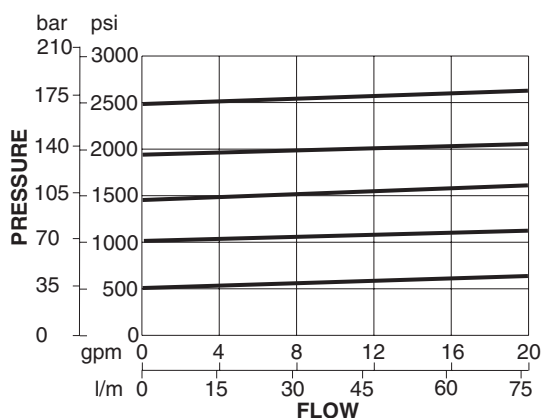
Includes O-rings & Locating Pin.

### General Information:

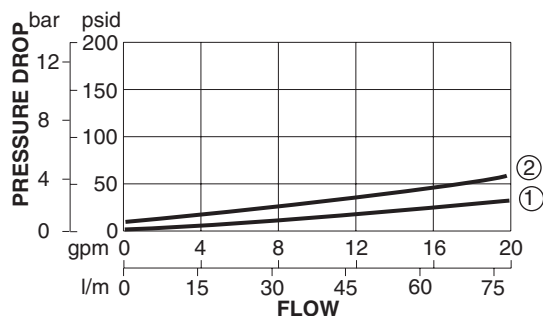
- Cartridge cavity is C1025 with port flow pattern set up for cartridge flowing from port 1 to port 2; port 3 is drain.
- For other crack pressure ratings, refer to CPSVP-10 cartridges in the Cartridge Catalog..



### TYPICAL CONTROLLED PRESSURE vs. FLOW



### TYPICAL PRESSURE DROP CURVES



### FLOW PATH ?P CURVES

| CODE      | A - A<br>B - B<br>T - T | P - P EXCEEDS<br>PRESET PRESSURE |
|-----------|-------------------------|----------------------------------|
| P05MSV-SP | 1                       | 2                                |

### DESCRIPTION

Pilot-operated, pressure sequence valve uses a screw-in poppet type cartridge with built-in free reverse flow check.

### OPERATIONS

The valve blocks flow from the inlet port to the outlet port until sufficient pressure is present at the sense port to force the pilot poppet from its seat, thus opening the valve. This sequence valve offers free reverse flow from the outlet port to the inlet port.

### FEATURES & BENEFITS

- Leak proof screw adjustment.
- Adjustment screw cannot be backed out of the valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.

### SPECIFICATIONS

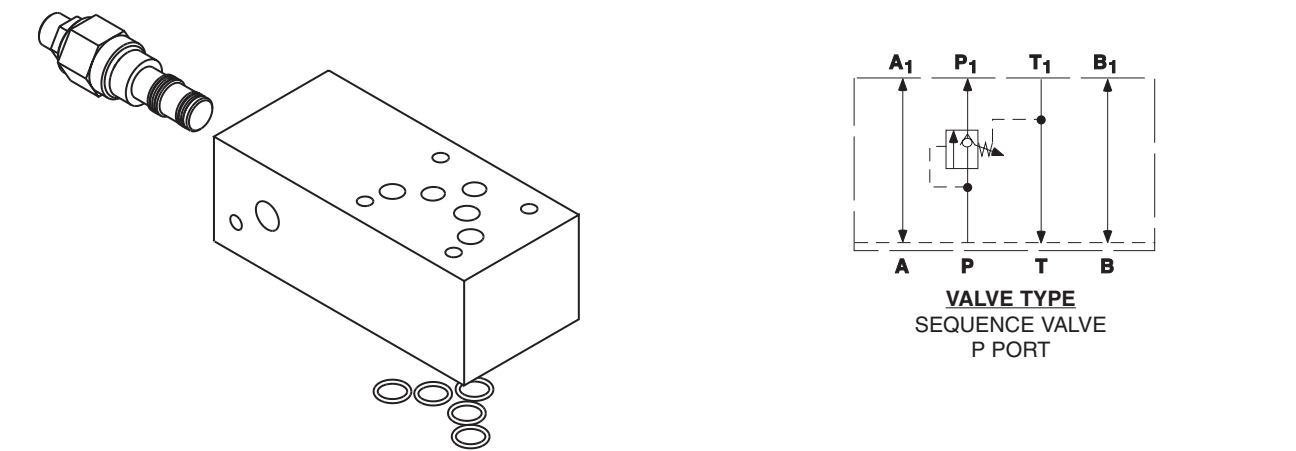
- Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.
- Internal Leakage: 5 drops min. (.25 cc/m) at 85% of crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperature up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

# P05MSV-SP

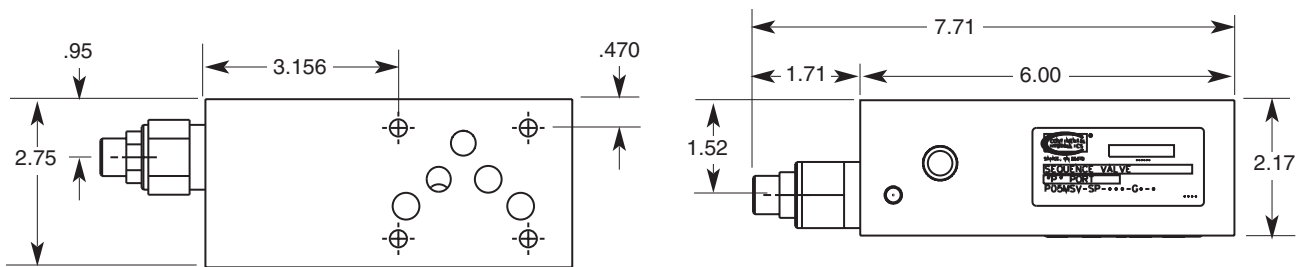
POWRFLOW™

## PRESSURE SEQUENCE VALVE

Poppet Type with Free Reverse Flow



### DIMENSIONS



### ORDERING INFORMATION

| P05MSV — S |      |         |          | SELECT ONE   |          | SELECT ONE        |              | SELECT ONE |               | DESIGN   |  |
|------------|------|---------|----------|--------------|----------|-------------------|--------------|------------|---------------|----------|--|
|            |      |         |          |              |          |                   |              |            |               |          |  |
| FUNCTION   | SIZE | STYLE   | TYPE     | CONTROL PORT |          | CRACKING PRESSURE |              | SEALS      | BODY MATERIAL |          |  |
|            |      |         |          | CODE         | LOCATION | CODE              | PRESSURE     |            | CODE          |          |  |
| PRESSURE   | NFPA | MODULAR | PRESSURE | P            | P PORT   | 150               | 50-1500 PSI  | VITON      | A             | ALUMINUM |  |
| CONTROL    | DO5  | STACK   | SEQUENCE |              |          | 300               | 100-3000 PSI |            | D             | DUCTILE  |  |
| VALVE      |      | VALVE   | VALVE    |              |          |                   |              |            |               |          |  |

**Body Only Assembly:**

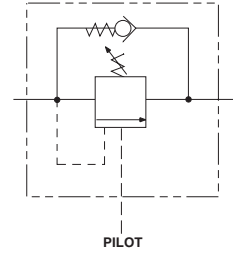
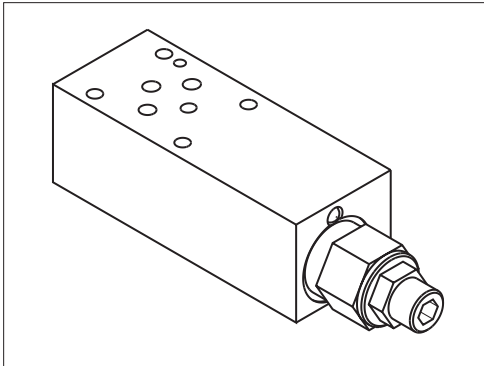
Aluminum (Part No.) — 552496K

Ductile (Part No.) — 552570K

Includes O-rings & Locating Pin.

**General Information:**

- Cartridge cavity is C1025 with port flow pattern set up for cartridge flowing fom port 1 to port 2; port 3 is drain.
- For other crack pressure ratings, refer to CPSVP-10 cartridges in the Cartridge Catalog..



## DESCRIPTION

Utilizes a cartridge type, guided poppet, hydraulic operated, pilot assisted, counterbalance valve as a blocking or load-holding device for high pressure applications.

## OPERATIONS

This valve controls moving load and prevents it from running ahead of the pump and locking the load in any position. It also provides static overload and thermal expansion protection.

This valve is a modulating device that allows free flow from the valve to the outlet port and then blocks reverse flow until pilot pressure inversely proportional to the load pressure is sensed at the opposite work port modulating out flow from the work port back to the valve.

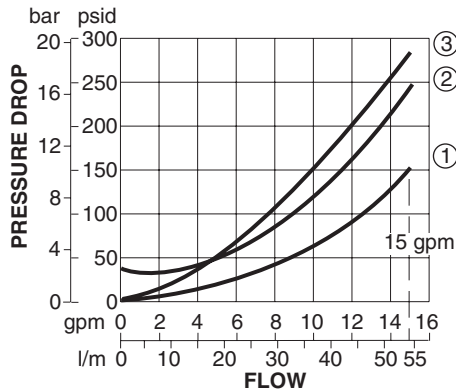
## FEATURES & BENEFITS

- Leak proof screw adjustment.
- Adjustment screw cannot be backed out of valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.
- Low hysteresis and reliable operation.

## SPECIFICATIONS

- Flow: 15 GPM (57 L/M) nominal.  
Refer to performance chart.
- Pilot Ratio: 4 to 1.
- Internal Leakage: 5 drops per minute maximum at 100 PSI below crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

## TYPICAL PRESSURE DROP



## FLOW PATH ?P CURVES

| CODE      | T - T | A - A<br>B - B | A - A<br>B - B |
|-----------|-------|----------------|----------------|
|           | P - P | FREE FLOW      | PILOTED OPEN   |
| P03MSV-CA | 1     | 2              | 3              |

# P03MSV-CA / P03MSV-CB / P03MSV-CC

POWRFLOW™

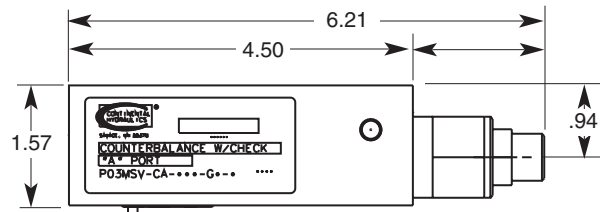
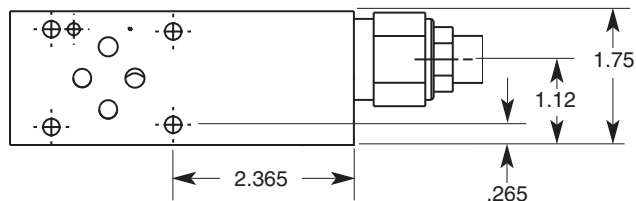
## COUNTERBALANCE VALVE

Pilot Operated

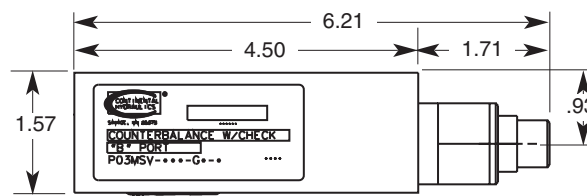
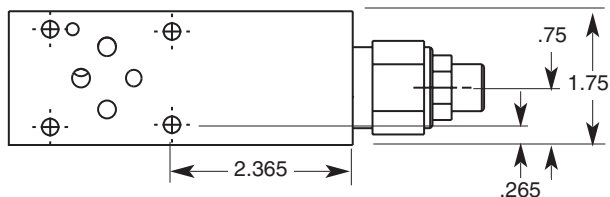


### DIMENSIONS

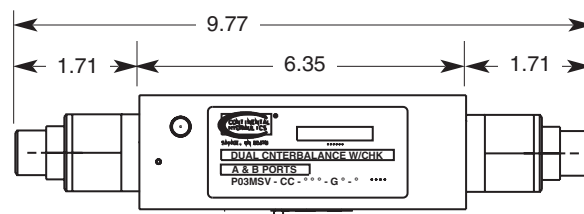
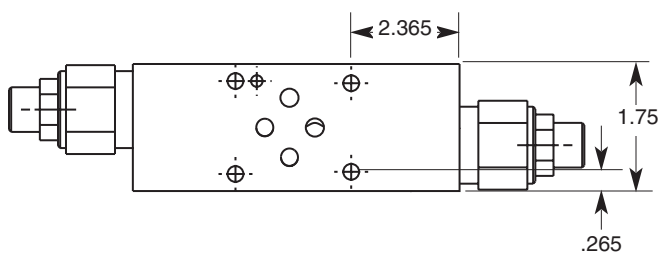
#### P03MSV-CA



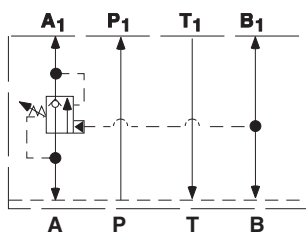
#### P03MSV-CB



#### P03MSV-CC

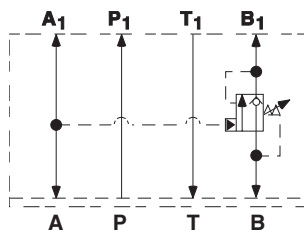


#### P03MSV-CA



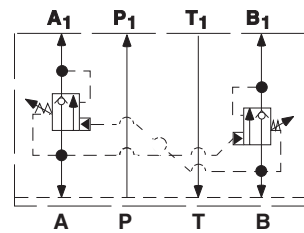
**VALVE TYPE**  
COUNTERBALANCE  
VALVE WITH CHECK  
A PORT

#### P03MSV-CB

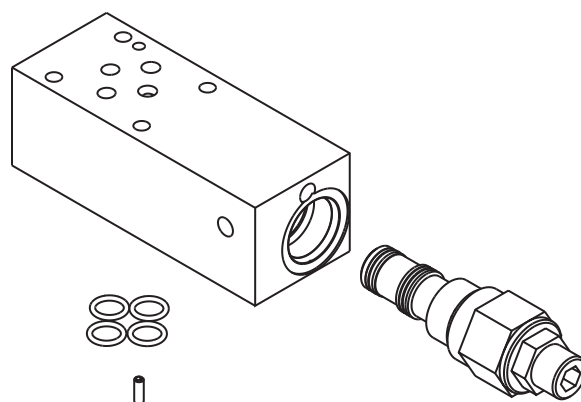


**VALVE TYPE**  
COUNTERBALANCE  
VALVE WITH CHECK  
B PORT

#### P03MSV-CC



**VALVE TYPE**  
DUAL COUNTERBALANCE  
VALVE WITH CHECK  
A & B PORT



## ORDERING INFORMATION

| P03MSV — C                   |             |                           |                              | SELECT ONE   |               | SELECT ONE        |              | SELECT ONE |               | DESIGN   |
|------------------------------|-------------|---------------------------|------------------------------|--------------|---------------|-------------------|--------------|------------|---------------|----------|
|                              |             |                           |                              |              |               |                   |              |            |               |          |
| FUNCTION                     | SIZE        | STYLE                     | TYPE                         | CONTROL PORT |               | CRACKING PRESSURE |              | SEALS      | BODY MATERIAL |          |
|                              |             |                           |                              | CODE         | LOCATION      | CODE              | PRESSURE     |            | CODE          |          |
| PRESSURE<br>CONTROL<br>VALVE | NFPA<br>DO3 | MODULAR<br>STACK<br>VALVE | COUNTER-<br>BALANCE<br>VALVE | A            | A PORT        | 150               | 50-1500 PSI  | VITON      | A             | ALUMINUM |
|                              |             |                           |                              | B            | B PORT        | 300               | 100-3000 PSI |            | D             | DUCTILE  |
|                              |             |                           |                              | C            | A & B<br>PORT |                   |              |            |               |          |

### Body Only Assembly:

#### CODE A

Aluminum (Part No.) — 552497K

Ductile (Part No.) — 552557K

#### CODE B

Aluminum (Part No.) — 552474K

Ductile (Part No.) — 552558K

#### CODE C

Aluminum (Part No.) — 552608K

Ductile (Part No.) — 552609K

### General Information:

- Cartridge cavity is C1025 with flow pattern for cartridge flowing from port 1 to port 2; port 3 is pilot.
- For other crack pressure ratings, refer to CCBPA-10 cartridges in the Cartridge Catalog.

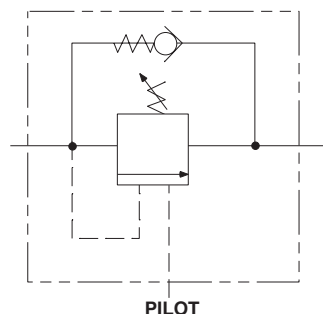
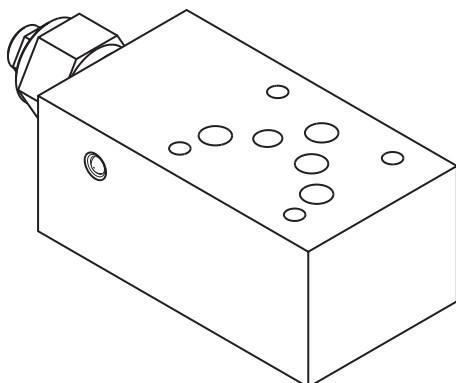
TYPICAL ORDERING CODE: **P03MSV-CA-150-GA**

# P05MSV-CB / P05MSV-CC

## POWRFLOW™

### COUNTERBALANCE VALVE

Pilot Operated



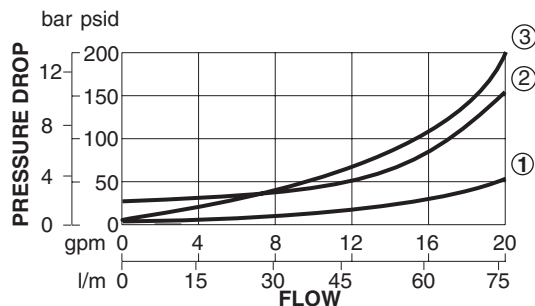
### DESCRIPTION

Utilizes a cartridge type, guided poppet, hydraulic operated, pilot assisted, counterbalance valve as a blocking or load-holding device for high pressure applications.

### OPERATIONS

The valve controls moving load and prevents it from running ahead of the pump and locking the load in any position. It also provides static overload and thermal expansion protection.

### TYPICAL PRESSURE DROP CURVES



This valve is a modulating device that allows free flow from port 2 to port 1 and then blocks reverse flow until pilot pressure inversely proportional to the load pressure is sensed at port 3, modulating out flow from port 1 to port 2.

### FEATURES & BENEFITS

- Leakproof screw adjustment.
- Adjustment screw cannot be backed out of valve.
- All external parts are zinc-plated for long life against elements.
- All cartridges are 100% tested functionally.
- Industry common cavity.
- Anodized aluminum.
- Low hysteresis and reliable operation.

### SPECIFICATIONS

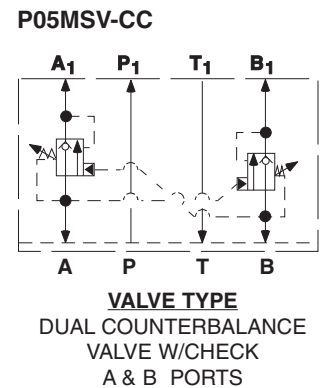
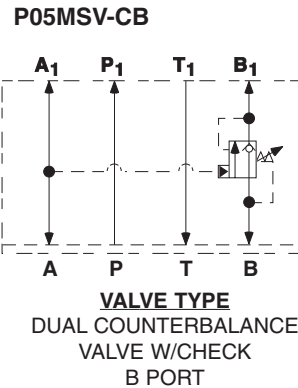
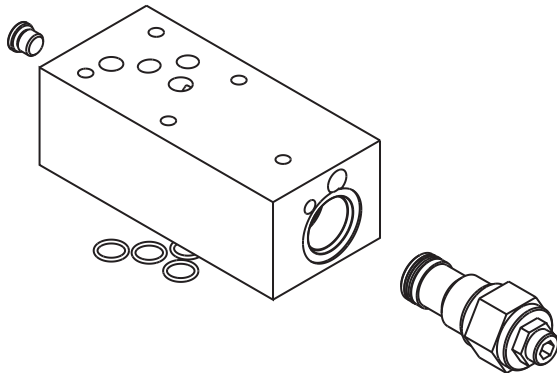
- Flow: 20 GPM (76 L/M) nominal.  
Refer to performance chart.
- Pilot Ratio: 4 to 1.
- Internal Leakage: 5 drops per minute maximum at 100 PSI below crack pressure.
- Valve Bodies: 3000 PSI (207 Bar) = Aluminum (2024-T4).  
5000 PSI (350 Bar) = Ductile (65-45-12).
- Operating Temperature: Fluid temperatures up to 200° F. will not appreciably effect valve performance, however, from a safety standpoint, temperatures above 130° F. are not recommended.
- Operating Media: All general purpose hydraulic fluids such as MIL-H-5606, SAE #10, SAE #20, etc.
- Filtration: 25 microns acceptable;  
10 microns preferred.

### FLOW PATH ?P CURVES

| T - T | A - A     | B - B        |
|-------|-----------|--------------|
| P - P | B - B     | B - B        |
| 1     | FREE FLOW | PILOTED OPEN |
|       | 2         | 3            |

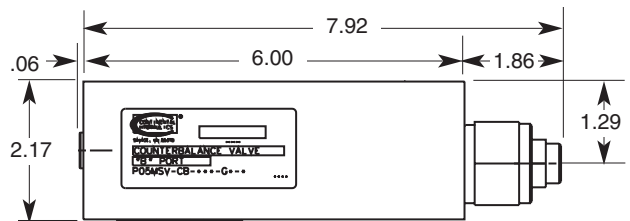
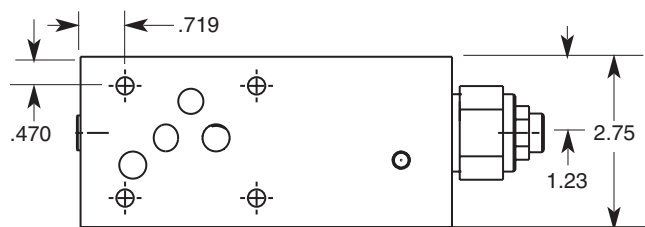
# P05MSV-CB / P05MSV-CC

POWRFLOW™  
**COUNTERBALANCE VALVE**  
Pilot Operated

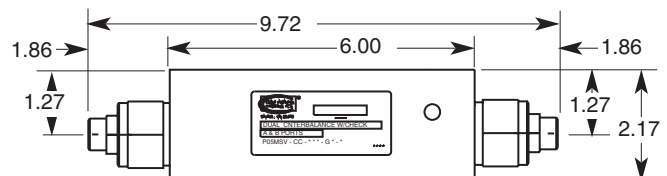
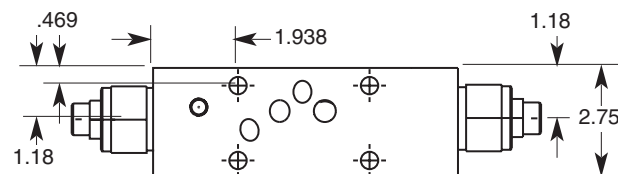


## DIMENSIONS

### P05MSV-CB



### P05MSV-CC



## ORDERING INFORMATION

|                              |             |                           |                              |                     |                 |                          |                 |              |                      |          |
|------------------------------|-------------|---------------------------|------------------------------|---------------------|-----------------|--------------------------|-----------------|--------------|----------------------|----------|
| <b>P05MSV</b>                |             | <b>C</b>                  | SELECT ONE                   |                     | SELECT ONE      |                          | <b>G</b>        | SELECT ONE   | DESIGN               |          |
| <b>FUNCTION</b>              | <b>SIZE</b> | <b>STYLE</b>              | <b>TYPE</b>                  | <b>CONTROL PORT</b> |                 | <b>CRACKING PRESSURE</b> |                 | <b>SEALS</b> | <b>BODY MATERIAL</b> |          |
| PRESSURE<br>CONTROL<br>VALVE | NFPA<br>D05 | MODULAR<br>STACK<br>VALVE | COUNTER-<br>BALANCE<br>VALVE | <b>CODE</b>         | <b>LOCATION</b> | <b>CODE</b>              | <b>PRESSURE</b> | VITON        | <b>CODE</b>          |          |
|                              |             |                           |                              | <b>B</b>            | B PORT          | <b>150</b>               | 50-1500 PSI     |              | <b>A</b>             | ALUMINUM |
|                              |             |                           |                              | <b>C</b>            | A & B PORT      | <b>300</b>               | 100-3000 PSI    |              | <b>D</b>             | DUCTILE  |

### Body Only Assembly:

#### CODE B

Aluminum (Part No.) — 552495K  
Ductile (Part No.) — 552565K

#### CODE C

Aluminum (Part No.) — 552473K  
Ductile (Part No.) — 552553K

Includes O-rings & Locating Pin.

### General Information:

- Cartridge cavity is C1025 with flow pattern for cartridge flowing from port 1 to port 2; port 3 is pilot.
- For other crack pressure ratings, refer to CCBPA-10 cartridges in the Cartridge Catalog.

TYPICAL ORDERING CODE: **P05MSV-CB-150-GA**

*MODULAR*  
*STACK*  
*VALVE BOLT*  
*KITS*

# VALVE BOLT KITS

| MODULAR STACK VALVE                                                                                                                         | VALVE STACK                                        | ORDER CODE | TYPE        | LENGTH           | WEIGHT lbs. (kg) |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------|-------------|------------------|------------------|
| <b>V5M / VD03M</b><br><b>NFPA D03</b><br><b>KIT:</b><br><b>(4) 10-24NC</b><br><b>FASTENERS</b><br><b>(4) #10</b><br><b>LOCKWASHERS</b>      | DIRECTIONAL VALVE ONLY                             | BD03-100   | <b>BOLT</b> | (25.5)<br>1.00   | 0.05<br>(0.02)   |
|                                                                                                                                             | VALVE + (1) (40.0)MODULAR<br>1.57 STACK            | BD03-250   | <b>BOLT</b> | (63.8)<br>2.50   | 0.08<br>(0.04)   |
|                                                                                                                                             | VALVE + (2) (40.0)MODULAR<br>1.57 STACK            | BD03-4125  | <b>BOLT</b> | (104.8)<br>4.125 | 0.18<br>(0.08)   |
|                                                                                                                                             | VALVE + (3) (40.0)MODULAR<br>1.57 STACK            | BD03-575   | <b>BOLT</b> | (146.0)<br>5.75  | 0.23<br>(0.10)   |
|                                                                                                                                             | VALVE+ (2) (40.0) MODULAR<br>1.57 STACK            | BD03-460   | <b>STUD</b> | (117.3)<br>4.60  | 0.18<br>(0.08)   |
|                                                                                                                                             | VALVE + (3) (40.0)MODULAR<br>1.57 STACK            | BD03-616   | <b>STUD</b> | (157.1)<br>6.16  | 0.23<br>(0.10)   |
| <b>V12M / VD0-5M</b><br><b>NFPA D05</b><br><b>KIT:</b><br><b>(4) 1/4-20NC</b><br><b>FASTENERS</b><br><b>(4) 1/4"</b><br><b>LOCKWASHERS</b>  | DIRECTIONAL VALVE ONLY                             | BD05-175   | <b>BOLT</b> | (44.6)<br>1.75   | 0.11<br>(0.05)   |
|                                                                                                                                             | VALVE + (1) (55.0)MODULAR<br>2.17 STACK            | BD05-400   | <b>BOLT</b> | (102.0)<br>4.00  | 0.24<br>(0.10)   |
|                                                                                                                                             | VALVE + (2) (55.0)MODULAR<br>2.17 STACK            | BD05-6125  | <b>BOLT</b> | (155.6)<br>6.125 | 0.44<br>(0.20)   |
|                                                                                                                                             | VALVE + (3) (55.0)MODULAR<br>2.17 STACK            | BD05-825   | <b>BOLT</b> | (209.6)<br>8.25  | 0.55<br>(0.25)   |
|                                                                                                                                             | VALVE + (2) (55.0)MODULAR<br>2.17 STACK            | BD05-667   | <b>STUD</b> | (170.1)<br>6.67  | 0.44<br>(0.20)   |
|                                                                                                                                             | VALVE + (3) (55.0)MODULAR<br>2.17 STACK            | BD05-884   | <b>STUD</b> | (225.4)<br>8.84  | 0.55<br>(0.25)   |
| <b>V50M / VD08M</b><br><b>DVS50M</b><br><b>NFPA D08</b><br><b>(6) 1/2-13NC</b><br><b>FASTENERS</b><br><b>(6) 1/2"</b><br><b>LOCKWASHERS</b> | DIRECTIONAL VALVE ONLY                             | BD08-275   | <b>BOLT</b> | (70.1)<br>2.75   | 1.25<br>(0.57)   |
|                                                                                                                                             | VALVE + (1) (88.9)MODULAR<br>3.44 STACK            | BD08-625   | <b>BOLT</b> | (159.4)<br>6.25  | 2.25<br>(1.02)   |
|                                                                                                                                             | VALVE + (1) (101.6)MODULAR<br>4.00 STACK           | BD08-675   | <b>BOLT</b> | (172.1)<br>6.75  | 2.40<br>(1.08)   |
|                                                                                                                                             | VALVE + (2) (88.9)MODULAR<br>3.44 STACK            | BD08-9625  | <b>BOLT</b> | (244.5)<br>9.625 | 3.75<br>(1.70)   |
|                                                                                                                                             | VALVE +(1) (88.9) +(1)(101.6)<br>MODULAR 3.44 4.00 | BD08-1020  | <b>BOLT</b> | (260.0)<br>10.25 | 4.00<br>(1.81)   |
|                                                                                                                                             | VALVE + (2) (88.9)MODULAR<br>3.44 STACK            | BD08-1080  | <b>BOLT</b> | (273.0)<br>10.75 | 4.13<br>(1.87)   |
|                                                                                                                                             | VALVE + (2) (88.9)MODULAR<br>3.44 STACK            | BD08-1025  | <b>STUD</b> | (261.4)<br>10.25 | 3.75<br>(1.70)   |
|                                                                                                                                             | VALVE +(1) (88.9) +(1)(101.6)<br>MODULAR 3.44 4.00 | BD08-1075  | <b>STUD</b> | (274.1)<br>10.75 | 4.00<br>(1.81)   |
|                                                                                                                                             | VALVE +(2)(101.6)MODULAR<br>4.00 STACK             | BD08-1125  | <b>STUD</b> | (286.9)<br>11.25 | 4.13<br>(1.87)   |
| <b>V100M / VD10M</b><br><b>NFPA D10</b><br><b>KIT:</b><br><b>(6) 3/4-10NC</b><br><b>FASTENERS</b><br><b>(6) 3/4"</b><br><b>LOCKWASHERS</b>  | DIRECTIONAL VALVE ONLY                             | BD10-250   | <b>BOLT</b> | (63.8)<br>2.50   | 2.63<br>(1.19)   |
| <b>VALVE</b>                                                                                                                                |                                                    |            |             |                  |                  |
| <b>F12M</b><br><b>NFPA 2F06</b><br><b>KIT:</b><br><b>(4) 5/16"-18NC</b><br><b>FASTENERS</b><br><b>(4) 5/16"</b><br><b>LOCKWASHERS</b>       | FLOW CONTROL                                       | B2F06-225  | <b>BOLT</b> | (57.8)<br>2.25   | 0.25<br>(0.11)   |

