## Manual Valves

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<td>Manual Valve, 4-Way, 2-Pos. Spool Type</td>
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<td>C1020</td>
<td>2-202.0</td>
</tr>
</tbody>
</table>
MANUAL RELEASE VALVE
PULL TO OPEN

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-012.1

MRPV-10-X-X-X

<table>
<thead>
<tr>
<th>SIZE</th>
<th>7/8&quot;-14 UNF</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SEALS</th>
<th>N = BUNA &quot;N&quot;</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>ADJUSTMENT</th>
<th>H = METAL HANDKNOB</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>K = HANDKNOB</td>
</tr>
<tr>
<td></td>
<td>O = NO KNOB</td>
</tr>
</tbody>
</table>

PORTS = CARTRIDGE ONLY
0 = G 1/4" BSPP
G2BX = G 3/8" BSPP
G39X = SAE - #6
G6TX = SAE - #8
08TX "A" = ALUM. HOUSING
"S" = STEEL HOUSING

PRESSURE DROP (ΔP)

G.P.M. (135 SUS)

L/M (28.5 cSt)

PSI

BAR

Reference: 520-P-120120-EN-00/09.2015
MANUAL RELEASE VALVE
PULL TO OPEN

DESCRIPTION
This unit is a SCREW IN, cartridge type, guided poppet, spring biased closed, pull to open, hydraulic manual release valve.

OPERATIONS
This valve allows free flow from port 1 to port 2 at 175 PSI [12,0 BAR] and blocks flow from port 2 to port 1 or holding a load.

FEATURES AND BENEFITS
Low effort leakproof valve stem; knob is optional. Pull to open mechanical effort at rated pressure is 17.5 LBS [8,0 KG.]
All external carbon steel parts are plated for longer life against the elements. All cartridge valves are 100% functionally tested. Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 18.0 GPM [70 l/m] nominal. See performance chart.
INTERNAL LEAKAGE: 5 drops per minute maximum @ 5,000 PSI (350 Bar)
  5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: −40° to +250° F. [−40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL−H−5606, SAE−#10, SAE−#20, etc.
INSTALATION: No restrictions.
SEAL KIT: SKN−1021 Buna “N”.
  SKV−1021 Viton.
WEIGHT: .31 lb [.14 kg] cartridge only.
VALVE CAVITY: #C1020, See Page 0−012.0.
MPTC-10

MANUAL VALVE
PUSH TO CLOSE

TORQUE:
Steel = 55/60 Ft-Lb. [74/81 Nm]
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-012.1

MPTC-10-X-X

BASIC

SIZE
10 = 7/8"-14UNF

SEALS
N = BUNA "N"
V = VITON

PORTS = CARTRIDGE ONLY
0 = G 1/4" BSPP
02BX = G 3/8" BSPP
03BX = SAE - #6
06TX = SAE - #8
08TX = "A" = ALUM HOUSING
T = "S" = STEEL HOUSING

PRESSURE DROP (ΔP) vs. G.P.M.(135 SUS)

Reference: 520-P-120320-EN-00/09.2015
## FEATURES AND BENEFITS

Low effort leakproof valve stem. Push to close mechanical effort at rated pressure is 17.5 LBS [8.0 KG.]
All external carbon steel parts are plated for longer life against the elements. All cartridge valves are 100% functionally tested. Industry common cavity.

## SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure</td>
<td>5,000 PSI [350 Bar]</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>10,000 PSI [700 Bar]</td>
</tr>
<tr>
<td>Flow</td>
<td>6.0 GPM [22.7 l/m] nominal. See performance chart.</td>
</tr>
<tr>
<td>Internal Leakage</td>
<td>5 cu.in/min [82 cc/min] @ 5,000 PSI (350 Bar)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° to +250° F. [−40° to +120° C.]</td>
</tr>
<tr>
<td>Operating Media</td>
<td>All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.</td>
</tr>
<tr>
<td>Installation</td>
<td>No restrictions.</td>
</tr>
<tr>
<td>Filtration</td>
<td>25 microns or better.</td>
</tr>
<tr>
<td>Seal Kit</td>
<td>SKN-1021 Buna &quot;N&quot;. SKV-1021 Viton.</td>
</tr>
<tr>
<td>Weight</td>
<td>.31 lb [.14 kg] cartridge only.</td>
</tr>
<tr>
<td>Valve Cavity</td>
<td>#C1020, See Page 0-012.0.</td>
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MPPV-08-4J

MANUAL VALVE, 4–WAY, 3–POSITION.
DIRECT ACTING SPOOL

1/4–20 UNC–2A THD.

3.00" [76.2]

2.25" [57.2]

3 TO 1
PORTS
0 = CARTRIDGE ONLY
06TX = SAE – #6
08TX = SAE – #8
02BX = 1/4" BSPP
03BX = 3/8" BSPP

"A" – ALUM. HOUSING
"S" – STEEL HOUSING

MPPV–08–X–4J–X
BASIC
SIZE
SEALS
V = VITON
08 = 3/4"–16UNF
N = BUNA “N”

TYPE
4J = “J” SPOOL
4-WAY, 3-POSITION

SHOWN IN NEUTRAL POSITION
TRAVELS +/- 0.083" [2,11]

1.70” [43.2]

1.00” [25.4] HEX

2.13” [54,1]

TORQUE:
Steel = 35/40 Ft–Lb. [47/54 Nm]
Aluminum = 25/30 Ft–Lb. [34/41 Nm]

L/M (28.5 cSt)

G.P.M. (135 SUS)

PSI
BAR

3 TO 2
3 TO 4
3 TO 1

3,8
11.4
19

20,6
17.2
13.7

10,3
6,9
3,4

Reference: 520-P-120410-EN-00/09.2015

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0–041.1
MANUAL VALVE 4-WAY, 3-POSITION, SPOOL TYPE

DESCRIPTION
This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, tandem center directional valve.

OPERATIONS
At the initial position, this valve allows flow between ports 3 & 1 and blocks ports 2 & 4.
When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 2 and 3 and ports 1 and 4.
When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 3 and 4 and ports 2 and 1.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
The valve has a balanced spool for the actuator to travel easier.
Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 4.0 GPM [15 l/m] max. See performance chart.
INTERNAL LEAKAGE: 20cu.in/min [328 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: –40° to +250° F. [–40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE–#10, SAE–#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN–0842 Buna "N"
SKV–0842 Viton
WEIGHT: 0.30 lb [0.14 kg] cartridge only.
VALVE CAVITY: #C0840, See Page 0–041.0.

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Reference: 520-P-120410-EN-00/09.2015
MANUAL VALVE, 4-WAY, 3-POSITION.
DIRECT ACTING SPOOL

MPPV-10-X-4J-X

- BASIC
- SIZE
- 10 = 7/8"-14 UNF
- SEALS
- N = BUNA "N"
- V = VITON
- TYPE
- 4J = "J" SPOOL
- 4-WAY, 3-POSITION

PORTS
- 0 = CARTRIDGE ONLY
- 06TX = SAE - #6
- 08TX = SAE - #8
- 02BX = 1/4" BSPP
- 03BX = 3/8" BSPP

"A" = ALUM. HOUSING
"S" = STEEL HOUSING

For Aluminum or Steel Valve Housing Configurations see Page 0-042.1

TORQUE:
- Steel = 55/60 Ft.-Lb. [74/81 Nm]
- Aluminum = 35/40 Ft.-Lb. [47/54 Nm]

Pressure Drop (A p)

L/M (28,5 cST)

Reference: 520-P-120420-EN-00/09.2015
MANUAL VALVE, 4-WAY, 3-POSITION,
DIRECT ACTING SPOOL

DESCRIPTION
This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, tandem center directional valve.

OPERATIONS
At the initial position, this valve allows flow between ports 3 & 1 and blocks ports 2 & 4.
When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 2 and 3 and ports 1 and 4.
When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 3 and 4 and ports 2 and 1.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
The valve has a balanced spool for the actuator to travel easier. Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 9.0 GPM [34.1 l/m] max. (SEE PERFORMANCE CHART)
INTERNAL LEAKAGE: 20cu.in/min [328 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN-1042 Buna "N"
SKV-1042 Viton
WEIGHT: 0.38 lb [0.18 kg] cartridge only.
VALVE CAVITY: #C1040, See Page 0-042.0.
MPPV-08-4K

MANUAL VALVE, 4-WAY, 3-POSITION.
DIRECT ACTING SPOOL

TORQUE:
Steel = 35/40 Ft-Lb. [47/54 Nm]
Aluminum = 25/30 Ft-Lb. [34/41 Nm]

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-041.1
MANUAL VALVE 4-WAY, 3-POSITION, SPOOL TYPE.

DESCRIPTION
This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, open center directional valve.

OPERATIONS
At the initial position, this valve allows flow between all ports.
When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 1 and 2 and ports 3 and 4.
When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 1 and 4 and ports 2 and 3.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
The valve has a balanced spool for the actuator to travel easier.
Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 5.0 GPM [19 l/m] max. See performance chart.
INTERNAL LEAKAGE: 10cu.in/min [164 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN-0842 Buna “N”
SKV-0842 Viton
WEIGHT: 0.30 lb [0.14 kg] cartridge only.
VALVE CAVITY: #C0840, See Page 0-041.0.

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MANUAL VALVE, 4-WAY, 3-POSITION, DIRECT ACTING SPOOL

MPPV-10-4K-X

- BASIC
- SIZE 10 = 7/8"-14 UNF
- SEALS N = BUNA "N" V = VITON
- TYPE 4K = "K" SPOOL 4-WAY, 3-POSITION

PORTS
0 = CARTRIDGE ONLY
06TX = SAE - #6
08TX = SAE - #8
02BX = 1/4" BSPP
03BX = 3/8" BSPP

STEEL = 55/60 Ft-Lb. [74/81 Nm]
ALUMINUM = 35/40 Ft-Lb. [47/54 Nm]

TORQUE:

 SHOWN IN NEUTRAL POSITION TRAVELS +/- 0.083" [2,11]

1/4-20 UNC-2A THD.

1.06" [27.0] HEX

3.50" [88.9]

2.50" [63.5]

2.49" [63.2]

1.74" [44.2]

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-042.1

Reference: 520-P-120520-EN-00/09.2015
MANUAL VALVE, 4-WAY, 3-POSITION, DIRECT ACTING SPOOL

DESCRIPTION

This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, open center directional valve.

OPERATIONS

At the initial position, this valve allows flow between all ports. When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 1 and 2 and ports 3 and 4. When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 1 and 4 and ports 2 and 3.

FEATURES AND BENEFITS

Hardened precision fit spool & sleeve provides reliable, long life. All external carbon steel parts are plated for longer life against the elements. All cartridge valves are 100% functionally tested. The valve has a balanced spool for the actuator to travel easier. Industry common cavity.

SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 7.0 GPM [26.5 l/m] max. (SEE PERFORMANCE CHART)
INTERNAL LEAKAGE: 10 cu.in/min [164 cc/m] @ 5,000 PSI [350 Bar]
           5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: –40° to +250° F. [–40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL–H–5606, SAE–#10, SAE–#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT:  SKN–1042 Buna “N”
           SKV–1042 Viton
WEIGHT: 0.38 lb [0.18 kg] cartridge only.
VALVE CAVITY: #C1040, See Page 0–042.0.

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Reference: 520-P-120520-EN-00/09.2015
MANUAL VALVE, 4-WAY, 3-POSITION.
DIRECT ACTING SPOOL

TORQUE:
Steel = 35/40 Ft-Lb. [47/54 Nm]
Aluminum = 25/30 Ft-Lb. [34/41 Nm]

MPPV-08-X-4L-X

BASIC
SIZE
08 = 3/4”-16UNF
SEALS
N = BUNA "N"
V = VITON

PORTS
0 = CARTRIDGE ONLY
06TX = SAE - #6
08TX = SAE - #8
02BX = 1/4" BSPP
03BX = 3/8" BSPP

"A" - ALUM. HOUSING
"S" - STEEL HOUSING

L/M (28,5 cSt)

PRESSURE DROP (ΔP)

G.P.M.(135 SUS)

PSI
BAR

Reference: 520-P-120610-EN-00/09.2015
MANUAL VALVE 4–WAY, 3–POSITION, SPOOL TYPE

DESCRIPTION
This unit is a FOUR–WAY, THREE POSITION, screw–in cartridge type, spool type, direct acting, manually operated, bidirectional, closed center directional valve.

OPERATIONS
At the initial position, flow is totally restricted in all ports.
When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 2 and 1 and ports 3 and 4.
When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 3 and 2 and ports 4 and 1.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
The valve has a balanced spool for the actuator to travel easier.
Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 5.0 GPM [19 l/m] max. See performance chart.
INTERNAL LEAKAGE: 5cu.in/min [82 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: –40° to +250° F. [−40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL–H–5606, SAE–#10, SAE–#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN–0842 Buna "N"
SKV–0842 Viton
WEIGHT: 0.30 lb [0.14 kg] cartridge only.
VALVE CAVITY: #C0840, See Page 0–041.0.
MPPV-10-4L

MANUAL VALVE, 4-WAY, 3-POSITION, DIRECT ACTING SPOOL

1/4-20 UNC-2A THD.

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-042.1

TORQUE:
- Steel = 55/60 Ft-Lb. [74/81 Nm]
- Aluminum = 35/40 Ft-Lb. [47/54 Nm]

PORTS
- 0 = CARTRIDGE ONLY
- 06TX = SAE - #6
- 08TX = SAE - #8
- 02BX = 1/4" BSPP
- 03BX = 3/8" BSPP

SEALS
- N = BUNA "N"
- V = VITON

TYPE
- 4L = "L" SPOOL
- 4 = 4-WAY, 3-POSITION

SHOWN IN NEUTRAL POSITION TRAVELS +/- 0.083" [2,11]

1.06" [27.0] HEX

MPPV-10-X-4L-X

BASIC

SIZE
- 10 = 7/8"-14 UNF

SEALS
- N = BUNA "N"
- V = VITON

TYPE
- 4L = "L" SPOOL
- 4 = 4-WAY, 3-POSITION

"A" - ALUM. HOUSING
"S" - STEEL HOUSING

PRESSURE DROP (ΔP)

G.P.M. (135 SUS) vs. PRESSURE DROP (ΔP) in PSI

L/M (28,5 cSt) vs. PRESSURE DROP (ΔP) in BAR

Reference: 520-P-120620-EN-00/09.2015
## MANUAL VALVE, 4—WAY, 3—POSITION, DIRECT ACTING SPOOL

### DESCRIPTION
This unit is a FOUR—WAY, THREE POSITION, screw—in cartridge type, spool type, direct acting, manually operated, bidirectional, closed center directional valve.

### OPERATIONS
At the initial position, flow is totally restricted in all ports.
When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 2 and 1 and ports 3 and 4.
When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 3 and 2 and ports 4 and 1.

### FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
The valve has a balanced spool for the actuator to travel easier.
Industry common cavity.

### SPECIFICATIONS
**OPERATING PRESSURE**: 5,000 PSI [350 Bar]
**PROOF PRESSURE**: 10,000 PSI [700 Bar]
**FLOW**: 10.0 GPM [37.9 l/m] max. (SEE PERFORMANCE CHART)
**INTERNAL LEAKAGE**: 20 cu.in/min [328 cc/m] @ 5,000 PSI [350 Bar]
**VALVE HOUSINGS**: 2500 PSI [175 Bar] = Aluminum — Anodized.
5000 PSI [350 Bar] = Steel — Unplated.
**OPERATING TEMPERATURE**: −40° to +250° F. [−40° to +120° C.]
**OPERATING MEDIA**: All general purpose hydraulic fluids such as MIL-H-5606, SAE—#10, SAE—#20, etc.
**ACTUATION FORCE**: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
**SEAL KIT**: SKN—1042 Buna "N"
SKV—1042 Viton
**WEIGHT**: 0.38 lb [0.18 kg] cartridge only.
**VALVE CAVITY**: #C1040, See Page 0–042.0.

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The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.

Reference: 520-P-120620-EN-00/09.2015
**MPPV-08-4M**

**MANUAL VALVE, 4-WAY, 3-POSITION.**
**DIRECT ACTING SPOOL**

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1. **1/4-20 UNC-2A THD.**
2. **3.00" [76.2]**
3. **2.25" [57.2]**
4. **1.70" [43.2]**
5. **2.13" [54.1]**

**PORTS**
- 0 = CARTRIDGE ONLY
- 06TX = SAE - #6
- 08TX = SAE - #8
- 02BX = 1/4" BSPP
- 03BX = 3/8" BSPP

**SEALS**
- N = BUNA "N"
- V = VITON

**TYPE**
- 4M = "M" SPOOL
- 3/4"-16UNF

**TORQUE:**
- **Steel** = 35/40 Ft-Lb. [47/54 Nm]
- **Aluminum** = 25/30 Ft-Lb. [34/41 Nm]

**REFERENCE:** 520-P-120710-EN-00/09.2015

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**FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-041.1**
MANUAL VALVE 4-WAY, 3-POSITION, SPOOL TYPE.

DESCRIPTION
This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, motor spool directional valve.

OPERATIONS
At the initial position, this valve allows flow between ports 4, 2 & 1. When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 1 and 2 and ports 3 and 4. When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 1 and 4 and ports 2 and 3.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life. All external carbon steel parts are plated for longer life against the elements. All cartridge valves are 100% functionally tested. The valve has a balanced spool for the actuator to travel easier. Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 5.0 GPM [19 l/m] max. See performance chart.
INTERNAL LEAKAGE: 5 cu.in/min [82 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel - Unplated.
OPERATING TEMPERATURE: -40° to +250° F. [-40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN-0842 Buna "N"
SKV-0842 Viton
WEIGHT: 0.30 lb [0.14 kg] cartridge only.
VALVE CAVITY: #C0840, See Page 0-041.0.
MPPV-10-4M

MANUAL VALVE, 4-WAY, 3-POSITION, DIRECT ACTING SPOOL

TORQUE:
Steel = 55/60 Ft-Lb. [74/81 Nm]
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-042.1

MPPV-10-X-4M-X

BASIC
SIZE
10 = 7/8"-14 UNF
SEALS
N = BUNA "N"
V = VITON
TYPE
4M = "M" SPOOL
4-WAY, 3-POSITION

PORTS
0 = CARTRIDGE ONLY
06TX = SAE - #6
08TX = SAE - #8
02BX = 1/4" BSPP
03BX = 3/8" BSPP

"A" - ALUM. HOUSING
"S" - STEEL HOUSING

SHOWN IN NEUTRAL POSITION
TRAVELS +/- 0.083" [2.11]

1.06" [27.0] HEX
1.74" [44,2]
2.49" [63,2]
3.50" [88,9]
2.50" [63,5]

1/4-20 UNC-2A THD.

Steel = 55/60 Ft-Lb. [74/81 Nm]
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

Reference: 520-P-120720-EN-00/09.2015
MANUAL VALVE, 4-WAY, 3-POSITION, DIRECT ACTING SPOOL

DESCRIPTION
This unit is a FOUR-WAY, THREE POSITION, screw-in cartridge type, spool type, direct acting, manually operated, bidirectional, motor spool directional valve.

OPERATIONS
At the initial position, this valve allows flow between ports 4, 2 & 1. When the actuator is pulled upwards, the spool in this valve is shifted and allows flow between ports 1 and 2 and ports 3 and 4. When the actuator is pushed downwards, the spool in this valve is shifted and allows flow between ports 1 and 4 and ports 2 and 3.

FEATURES AND BENEFITS
Hardened precision fit spool & sleeve provides reliable, long life. All external carbon steel parts are plated for longer life against the elements. All cartridge valves are 100% functionally tested. The valve has a balanced spool for the actuator to travel easier. Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 10.0 GPM [37.9 l/m] max. (SEE PERFORMANCE CHART)
INTERNAL LEAKAGE: 10 cu.in/min [164 cc/m] @ 5,000 PSI [350 Bar]
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: −40° to +250° F. [−40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE-#10, SAE-#20, etc.
ACTUATION FORCE: 11.9 LBS TO MOVE ACTUATOR, 15.7 LBS AT FULL STROKE
SEAL KIT: SKN-1042 Buna "N"
SKV-1042 Viton
WEIGHT: 0.38 lb [0.18 kg] cartridge only.
VALVE CAVITY: #C1040, See Page 0-042.0.
CMHP-10

CARTRIDGE MANUAL HAND PUMP
PUSH TO PRESSURIZE OR PULL TO PRESSURIZE

TORQUE:
Steel = 55/60 Ft-Lb. [74/81 Nm]
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

PUSH TO PRESSURIZE

HANDLE POSITION CAN BE ROTATED 360°.

1.06" [27.0] HEX

HANDLE SOLD SEPARATELY
PART #20591-16

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-012.1

CMHP-10-X-X-X

BASIC
SIZE 10 = 7/8"-14UNF
SEALS N = BUNA "N" V = VITON

TYPE 2 = .250 CUBIC INCHES (4.0 CC) DISPLACEMENT PER FULL STROKE

PORTS = CARTRIDGE ONLY
0 = G 1/4" BSPP
02BX = G 3/8" BSPP
03BX = SAE - #6
06TX = SAE - #8
08TX "A" = ALUM. HOUSING
"S" = STEEL HOUSING

REFERENCE: 520-P-121000-EN-00/09.2015

Operator Handle Force (Kgs)

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OPERATOR HANDLE FORCE (LBS)

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DESCRIPTION

This unit is a SCREW IN, cartridge type, plunger type, push to pressurize or pull to pressurize, hydraulic manual hand pump.

OPERATIONS

This hand pump allows free flow from port 1 to port 2 when plunger is pulled out and pressurize port 2 when plunger is pushed in. Handle position can be rotated 360° around the vertical axis.

FEATURES AND BENEFITS

Low effort leakproof pump plunger with 16” handle delivers .250 cu/in per one full stroke. Pull the plunger out to fill the cylinder, push the plunger in to pressurize. All external carbon steel parts are plated for longer life against the elements. All cartridge hand pumps are 100% functionally tested. Industry common cavity.

SPECIFICATIONS

OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: .250 cu/in [4.0 cc] per full stroke. See performance chart.
INTERNAL LEAKAGE: 5 drops per minute maximum @ 5,000 PSI (350 Bar)
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: −40° to +250° F. [−40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE−#10, SAE−#20, etc.
INSTALATION: No restrictions.
SEAL KIT: SKN−1021 Buna “N”.
SKV−1021 Viton.
WEIGHT: 2.9 lb [.85 kg] cartridge with handle.
VALVE CAVITY: #C 1020, See Page 0−012.0.
MANUAL ROTARY FLOW CONTROL VALVE

"D" & "L" ADJUSTMENTS

"K" ADJUSTMENT

FOR ALUMINUM OR STEEL VALVE HOUSING CONFIGURATIONS SEE PAGE 0-012.1

MRFC-10

02BX = G 1/4" BSPP
03BX = G 3/8" BSPP
06TX = SAE - #6
08TX = SAE - #8

PORTS
0 = CARTRIDGE ONLY
10 = 7/8"-14UNF

SEALS
N = BUNA “N” = VITON

ADJUSTMENT
K = HANDKNOB
H = METAL HANDKNOB
Q = NO KNOB
G = GRADUATED METAL KNOB
D = LEVER WITH DETENTS
L = LEVER WITH FRICTION LOCK

TORQUE:
Steel = 55/60 Ft-Lb. [74/81 Nm]
Aluminum = 35/40 Ft-Lb. [47/54 Nm]

FOR ADJUSTMENT CONTROL OPTIONS SEE PAGE 0-050.1

Reference: 520-P-022020-EN-00/09.2015
MANUAL ROTARY FLOW CONTROL VALVE

DESCRIPTION
This unit is a SCREW IN, cartridge type, non-compensated, adjustable, bi-directional rotary flow control valve.

OPERATIONS
This valve increases its orifice value from fully closed to fully open in 1/2 turn with counterclockwise rotation.

FEATURES AND BENEFITS
Fine and low effort leakproof adjustment; knob is optional.
All external carbon steel parts are plated for longer life against the elements.
All cartridge valves are 100% functionally tested.
Industry common cavity.

SPECIFICATIONS
OPERATING PRESSURE: 5,000 PSI [350 Bar]
PROOF PRESSURE: 10,000 PSI [700 Bar]
FLOW: 18.0 GPM [68 l/m] nominal. See performance chart.
SHAFT ROTATION IS 160° FROM FULL OPEN TO CLOSED
INTERNAL LEAKAGE: 5 cu.in./min.[82 cc/m] @ 5,000 PSI (350 Bar)
5000 PSI [350 Bar] = Steel – Unplated.
OPERATING TEMPERATURE: −40° to +250° F. [−40° to +120° C.]
OPERATING MEDIA: All general purpose hydraulic fluids such as MIL-H-5606, SAE−#10, SAE−#20, etc.
INSTALLATION: No restrictions.
SEAL KIT: SKN−1022 Buna “N”.
SKV−1022 Viton.
WEIGHT: .31 lb [.14 kg] cartridge only.
VALVE CAVITY: #C1020, See Page 0−012.0.

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Reference: S20-P-022020-EN-00/09.2015