

Technical Information

General Description

3-Way, 2 Position Manual Spool Valve. Designed to operate single acting cylinders, pilot circuits and uni-directional motors.

Features

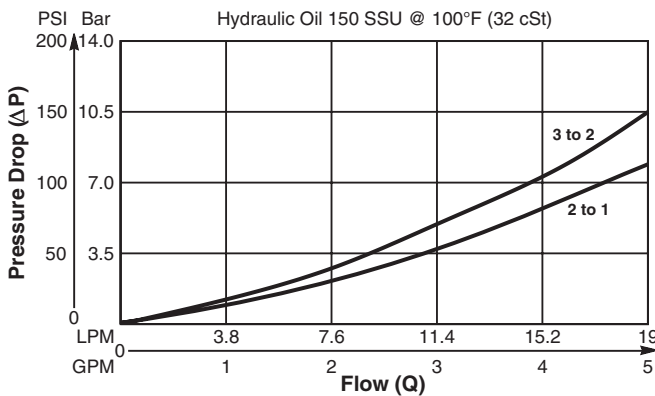
- High flow capacity with reduced space requirements
- One piece cartridge housing ensures internal concentricity
- Low mechanical operating force required
- Detented option available
- All external parts zinc plated

Operation

Neutral flow is 2 to 1. Pull to shift for flow from 3 to 2.

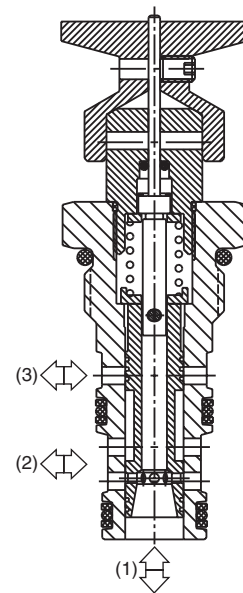
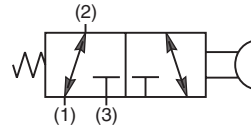
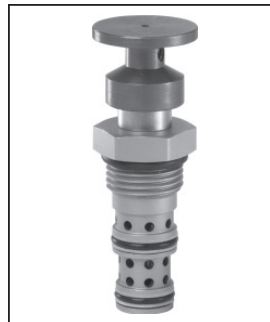
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

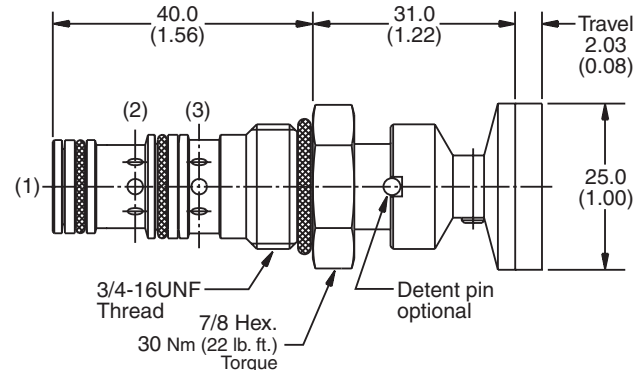


Specifications

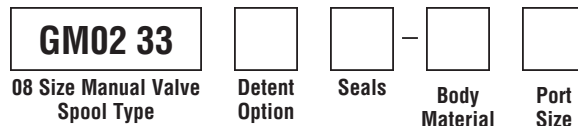
Rated Flow	19 LPM (5 GPM)
Operating Pressure	Side Ports - 350 Bar (5000 PSI) Bottom Port - 35 Bar (500 PSI)
Max. Operating Pushing or Pulling Force Required	5 kg (11 lbs.)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.10 kg (.20 lbs.)
Cavity	C08-3 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information



Code	Detent Option
Omit	Non-Detented (Std.)
1	Detented

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30077N-1)
V	Fluorocarbon / (SK30077V-1)

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

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

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

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

General Description

3-Way Rotary Spool Valve. The DM103 Series Valves are suited for any 3-way application (such as a selector function) where manual operation is desired. For additional information see Technical Tips pages MV1-MV2.

Features

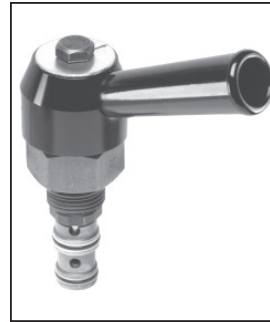
- Several lever and knob options available
- Detented versions available
- Serviceable cartridge design
- All external parts zinc plated

Operation

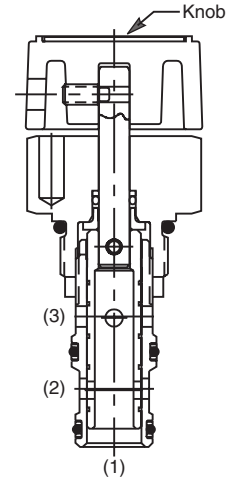
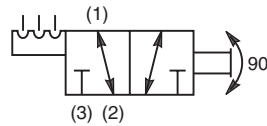
The K, LD, and FKD options require a full 90° rotation to shift the spool from one offset position to the other. The LN and FKN options require a full 45° rotation from center to either offset position. The knob (or lever) position indicator can be positioned anywhere within the 360° circle.

Specifications

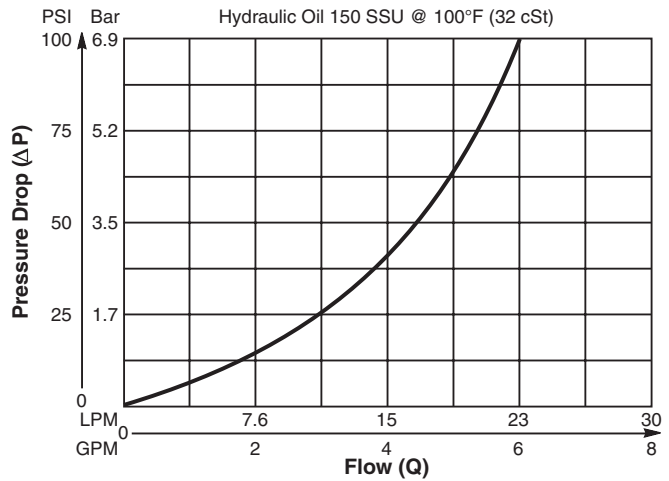
Nominal Flow	22.5 LPM (6 GPM)
Maximum Inlet Pressure	240 Bar (3500 PSI)
Degrees of Rotation	K, LD, and FKD Styles: 90° from Offset to Offset (2 positions) LN, FKN Style: 45° from center to either Offset (3 positions)
Leakage at 150 SSU (32 cSt)	164 cc/min. at 240 Bar (3500 PSI)
Cartridge Material	Stem, stainless steel. All other parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	0.11 kg (.30 lbs.)
Cavity	C10-3 (See BC Section for more details)
Form Tool	Rougher NFT10-3R Finisher NFT10-3F



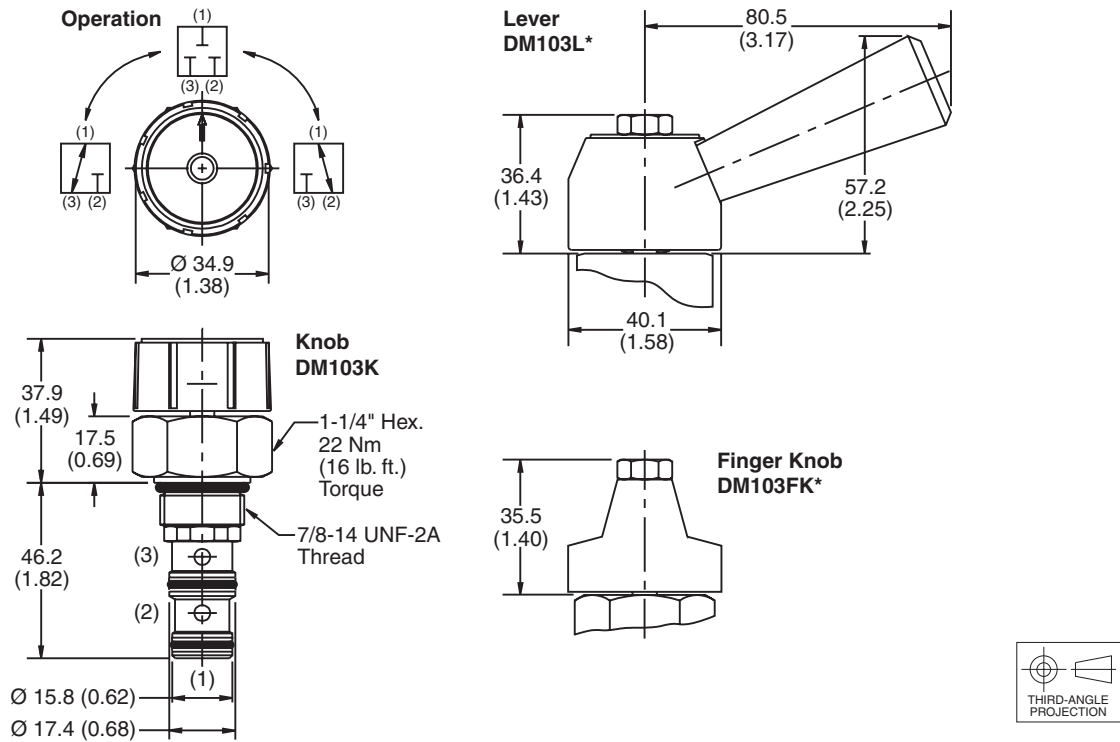
DM103LD



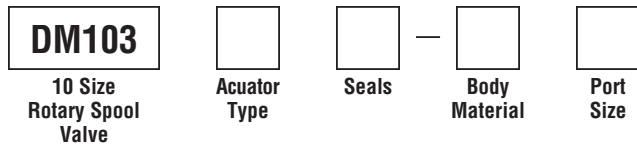
**Performance Curve
Flow vs. Pressure Drop
(Through cartridge only)**



Dimensions Millimeters (Inches)



Ordering Information



Code / Actuator Type	
K Knob	
LD Lever with 2 position detent	
LN Lever with 3 position detent	
FKD Finger Knob with 2 position detent	
FKN Finger Knob with 3 position detent	

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

Code	Body Material
Omit	Steel
A	Aluminum

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

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

Technical Information

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

General Description

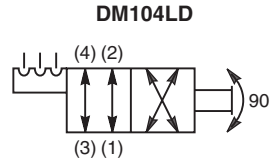
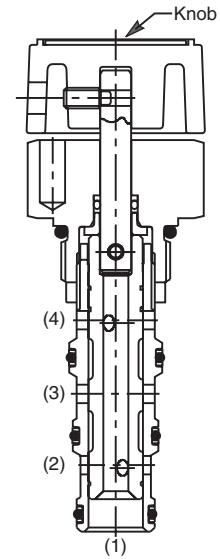
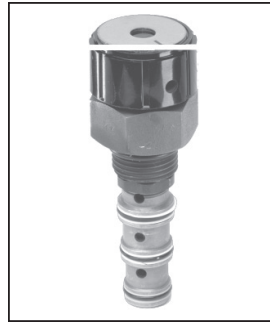
4-Way Rotary Spool Valve. The DM104 Series Valves are suited for all 4-way directional control applications where manual operation is desired.

Features

- Several lever and knob options available
- Detented versions available
- Serviceable cartridge design
- All external parts zinc plated

Operation

The K, LD, and FKD options require a full 90° rotation to shift the spool from one offset position to the other. The LN and FKN options require a full 45° rotation from center to either offset position. The knob (or lever) position indicator can be positioned anywhere within the 360° circle.

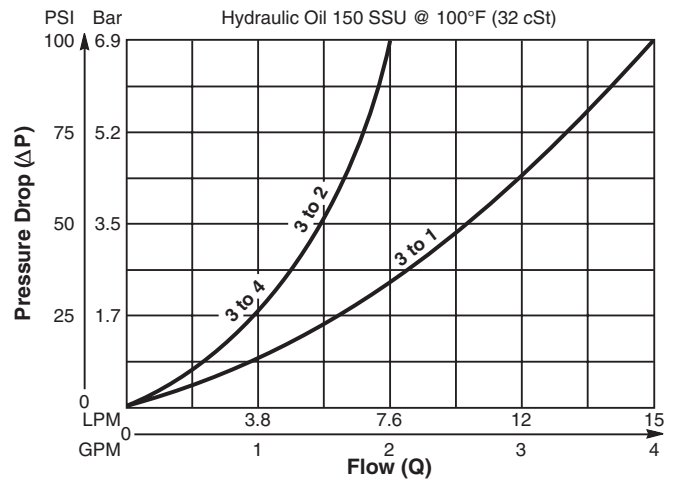


Specifications

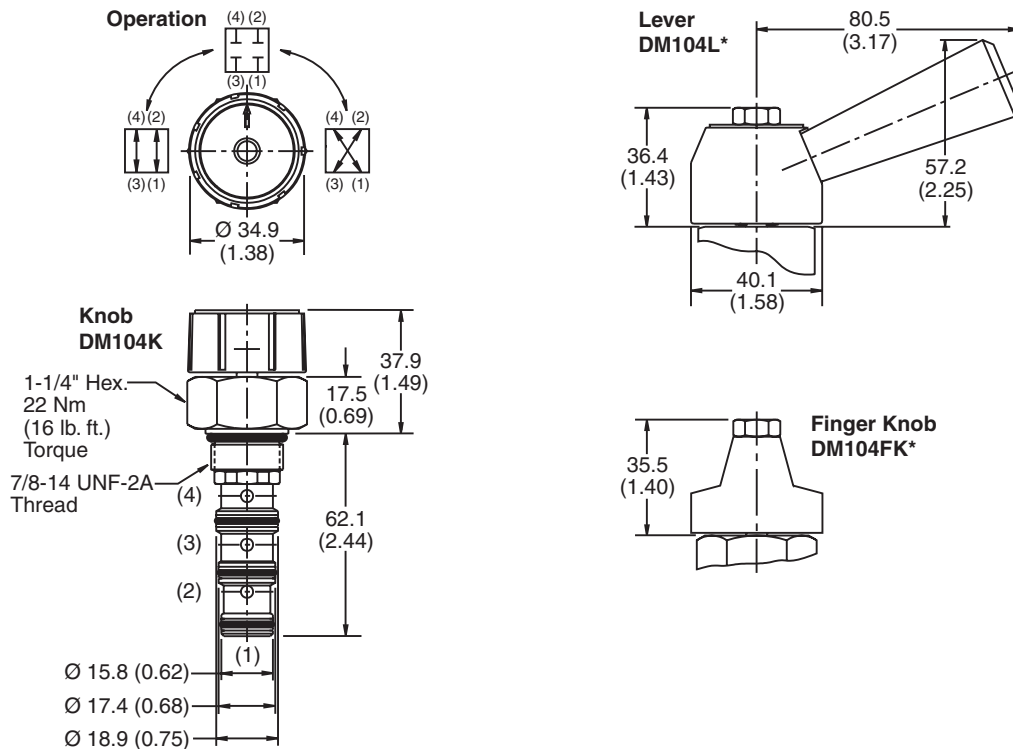
Nominal Flow	7.5 LPM (2 GPM)
Maximum Inlet Pressure	240 Bar (3500 PSI)
Degrees of Rotation	K, LD, and FKD Styles: 90° from Offset to Offset (2 positions) LN and FKN Styles: 45° from center to either Offset (3 positions)
Leakage at 150 SSU (32 cSt)	164 cc/min. at 240 Bar (3500 PSI)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	0.11 kg (.30 lbs.)
Cavity	C10-4 (See BC Section for more details)
Form Tool	Rougher NFT10-4R Finisher NFT10-4F

Performance Curve

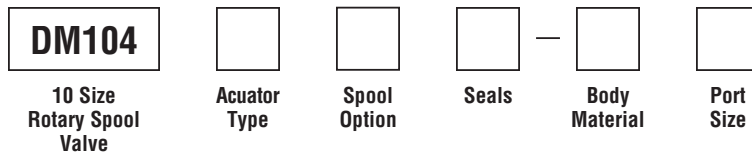
Flow vs. Pressure Drop
(Through cartridge only)



Dimensions Millimeters (Inches)



Ordering Information



Code / Actuator Type	Diagram
K Knob	
LD Lever with 2 position detent	
LN Lever with 3 position detent	
FKD Finger Knob with 2 position detent	
FKN Finger Knob with 3 position detent	

Code / Spool Option	Diagram
1 Closed Center	
8 Tandem Center	

Code	Seals / Kit. No.
Omit	Nitrile / (SK10-4N)
V	Fluorocarbon / (SK10-4V)

Code	Body Material
Omit	Steel
A	Aluminum

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

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

Technical Information

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

General Description

4-Way, 2 Position, Reversing Manual Spool Valve. Designed to operate double acting cylinders, pilot circuits and bi-directional motors.

Features

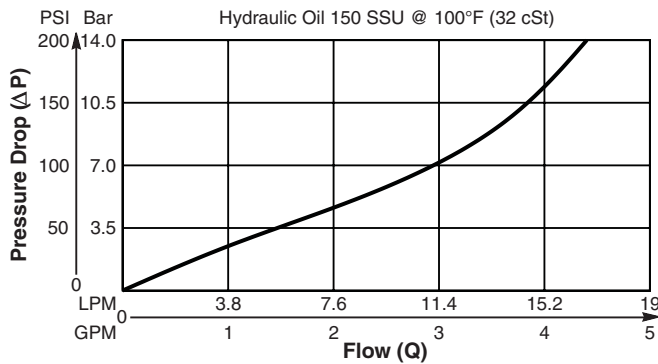
- High flow capacity with reduced space requirements
- One piece cartridge housing ensures internal concentricity
- Low mechanical operating force required
- Detented option available
- All external parts zinc plated

Operation

Neutral, flow is 3 to 4 and 2 to 1. Push to shift for flow 3 to 2 and 4 to 1

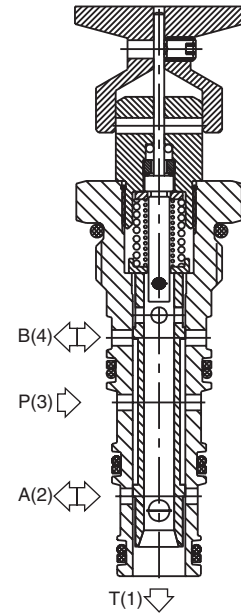
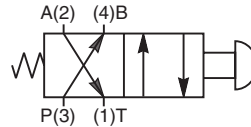
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

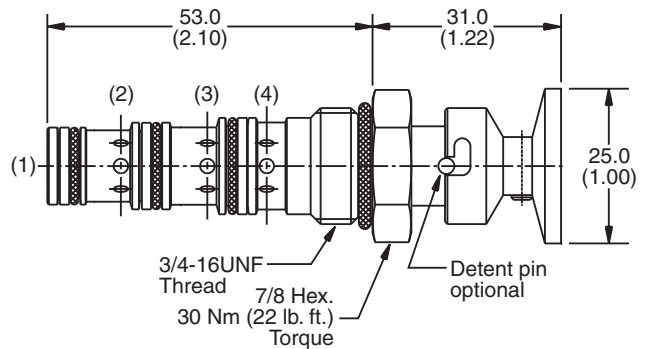


Specifications

Rated Flow	15 LPM (4 GPM)
Operating Pressure	Side Ports - 350 Bar (5000 PSI) Bottom Port - 35 Bar (500 PSI)
Max. Operating Pushing or Pulling Force Required	5 kg (11 lbs.)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.10 kg (.20 lbs.)
Cavity	C08-4 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information

GM02 40XS

08 Size Manual Valve Detent Option Seals Body Material Port Size
Spool Type Reversing

Code	Detent Option
Omit	Non-Detented (Std.)
1	Detented

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30078N-1)
V	Fluorocarbon / (SK30078V-1)

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

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

Technical Information

General Description

4-Way, 2 Position, Normally Closed Manual Spool Valve. Designed to operate double acting cylinders, pilot circuits and bi-directional motors.

Features

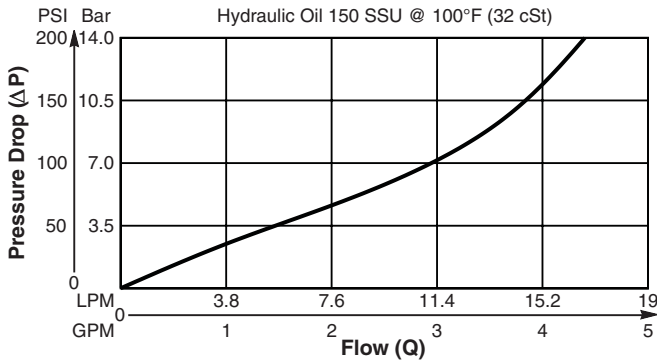
- High flow capacity with reduced space requirements
- One piece cartridge housing ensures internal concentricity
- Low mechanical operating force required
- Detented option available
- All external parts zinc plated

Operation

Neutral, all ports blocked. Push to shift for flow 3 to 2 and 4 to 1.

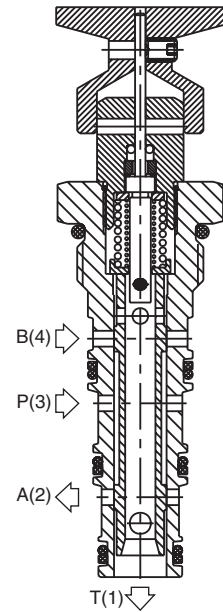
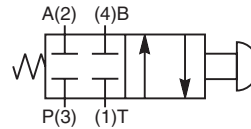
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

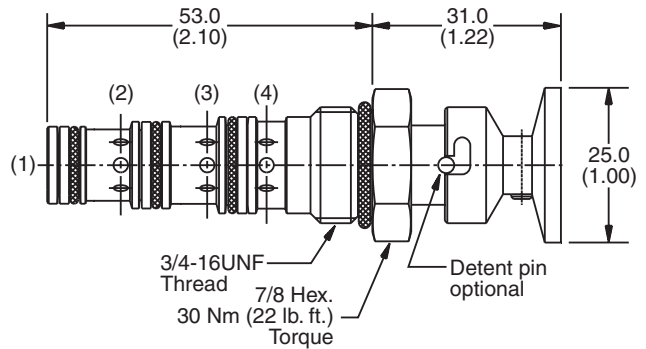


Specifications

Rated Flow	15 LPM (4 GPM)
Operating Pressure	Side Ports - 350 Bar (5000 PSI) Bottom Port - 35 Bar (500 PSI)
Max. Operating Pushing or Pulling Force Required	5 kg (11 lbs.)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-40°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.12 kg (.25 lbs.)
Cavity	C08-4 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information

GM02 40CS

08 Size Manual Valve Detent Option Seals Body Material Port Size
Spool Type Normally Closed

Code	Detent Option
Omit	Non-Detented (Std.)
1	Detented

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30078N-1)
V	Fluorocarbon / (SK30078V-1)

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

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

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

Technical Information

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

General Description

4-Way, 3 Position, Closed Center Manual Spool Valve. Designed to operate double acting cylinders, pilot circuits and bi-directional motors.

Features

- High flow capacity with reduced space requirements
- One piece cartridge housing ensures internal concentricity
- Low mechanical operating force required
- Detented option available
- All external parts zinc plated

Operation

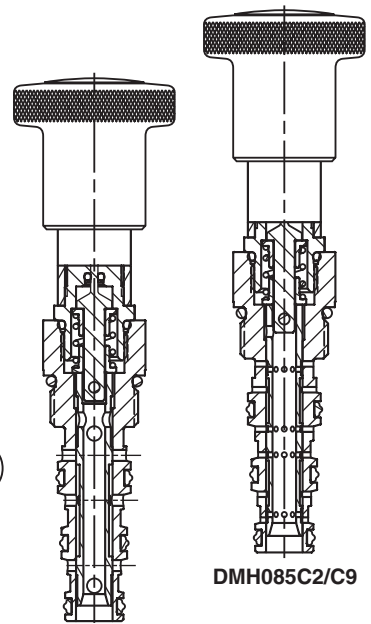
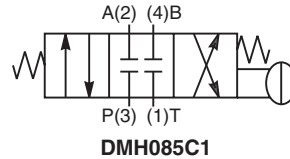
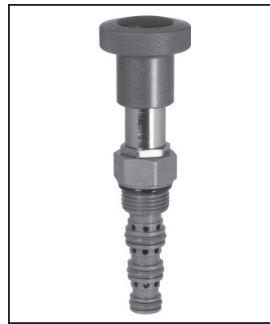
Push to shift for flow 3 to 2 and 4 to 1. Pull to shift for flow 3 to 4 and 2 to 1.

NOTE:

This series will be available January 1, 2011.

Specifications

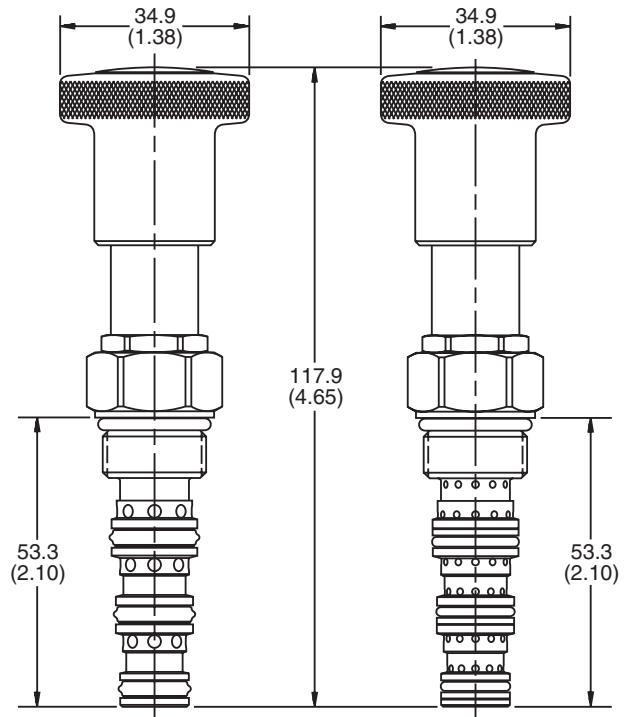
Rated Flow	C1 17 LPM (4.5 GPM) C2 15 LPM (4.0 GPM) C4 19 LPM (5.0 GPM) C9 15 LPM (4.0 GPM)
Operating Pressure	Side Ports - 350 Bar (5000 PSI) Bottom Port - 35 Bar (500 PSI)
Max. Operating Pushing or Pulling Force Required	5 kg (11 lbs.)
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-45°C to +93.3°C ("D"-Ring) (-50°F to +200°F) -31.7°C to +121.1°C (Fluorocarbon) (-25°F to +250°F)
Fluid Compatibility/Viscosity	Mineral-based or synthetic with lubricating properties at viscosities of 45 to 2000 SSU (6 to 420 cSt)
Filtration	ISO code 16/13, SAE Class 4 or better
Approx. Weight	.12 kg (.25 lbs.)
Cavity	C08-4 (See BC Section for more details)



DMH085C1/C4

DMH085C2/C9

Dimensions Millimeters (Inches)



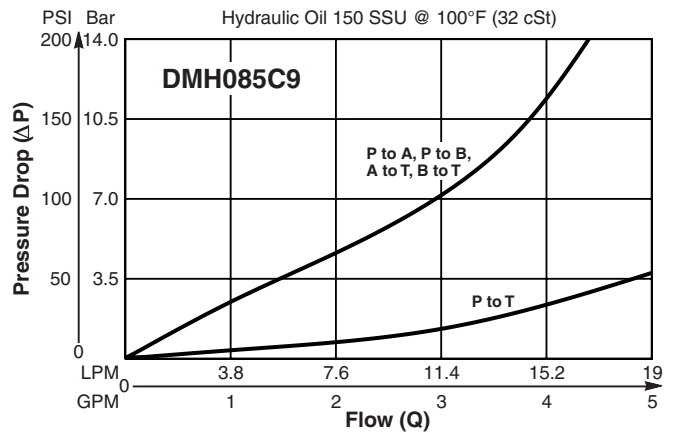
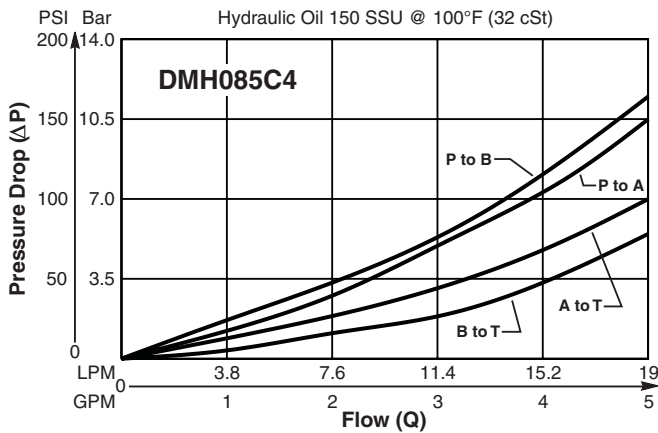
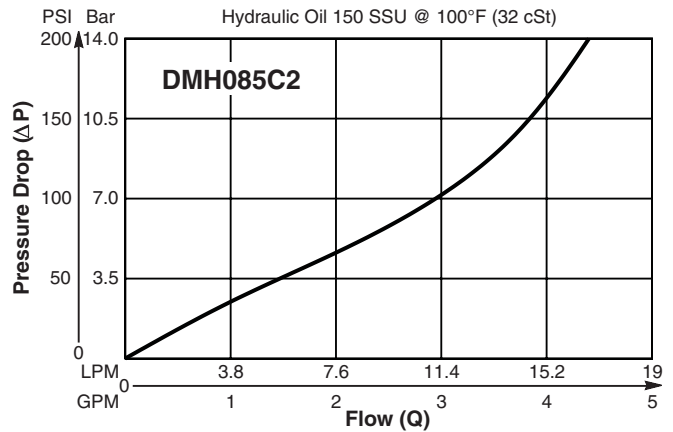
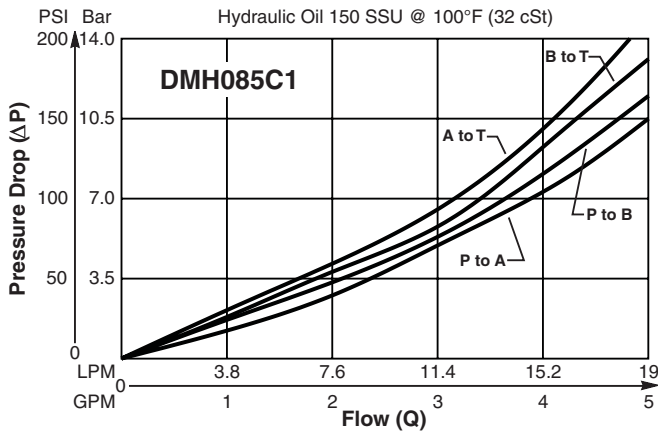
DMH085C1/C4

DMH085C2/C9

Note: "D"-Rings are standard on all spool configurations, but optional Buna/Fluorocarbon configurations as shown on the C2/C9 drawing are also available.

Performance Curves

Pressure Drop vs. Flow (Through cartridge only)

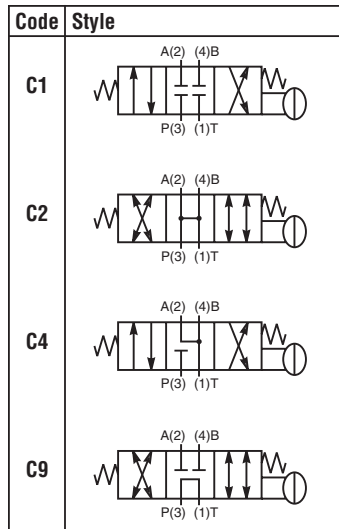


Ordering Information

DMH085

08 Size, 4-Way Spool Type Manual Valve Style Detent Option Seals Body Material Port Size

NOTE:
 This series will be available
 January 1, 2011.



Code	Detent Option
Omit	Non-Detented (Std.)
D	Detented

Code	Body Material
Omit	Steel
A	Aluminum

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

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

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

- CV** Check Valves
- SH** Shuttle Valves
- LM** Load/Motor Controls
- FC** Flow Controls
- PC** Pressure Controls
- LE** Logic Elements
- DC** Directional Controls
- MV** Manual Valves
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