

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

3-Way Pilot Operated Spool Valve. The DH103A/B/C Series Valves are used in normally closed or normally open directional control three way circuits requiring remote pilot actuation. The DH103-D/E Series Valves are used to direct flow alternately from either side of a closed loop transmission for cooling or filtering. All external parts are zinc plated.

Operation

DH103A (Normally Open)

- Neutral (Deactivated)
Port (3) open to port (2), inlet port (4) is blocked.
 - Activated with pilot pressure at port (1):
Port (4) open to port (3), port (2) blocked.
- Note: There is an air breather vent plug in the end cap to allow for air pressure equalization in the spring chamber

DH103B (Normally Closed)

- Neutral (Deactivated)
Port (4) open to port (3), inlet port (2) is blocked.
- Activated with pilot pressure at port (1):
Port (3) open to port (2), port (4) blocked.

DH103C (Normally Open)

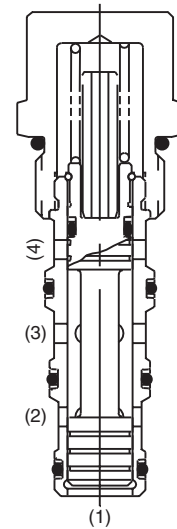
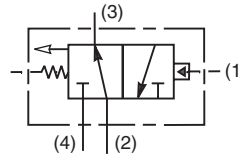
- Neutral (Deactivated)
Port (3) open to port (2), inlet port (4) is blocked.
- Activated with pilot pressure at port (1):
Port (4) open to port (3), port (2) blocked.

Specifications

Nominal Flow	38 LPM (10 GPM)
Maximum Inlet Pressure	240 Bar (3500 PSI)
Leakage at 150 SSU (32 cSt)	50 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	0.23 kg (0.5 lbs.)
Cavity	C10-4 (See BC Section for more details)
Form Tool	Rougher NFT10-4R Finisher NFT10-4F

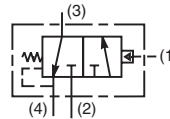
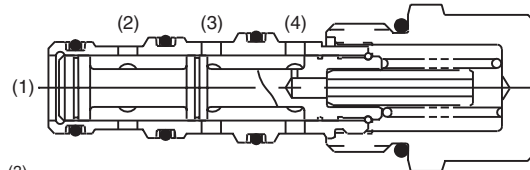


"A" SPOOL - DH103A

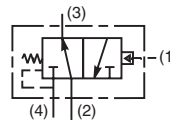
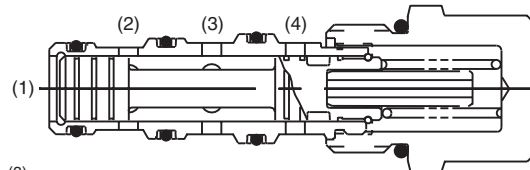


"A" SPOOL - DH103A

"B" SPOOL - DH103B

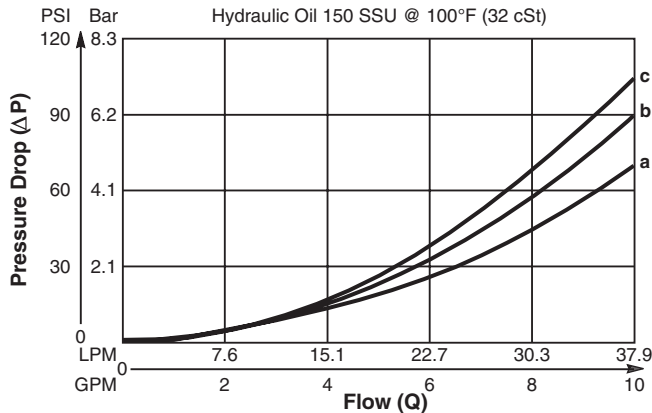


"C" SPOOL - DH103C



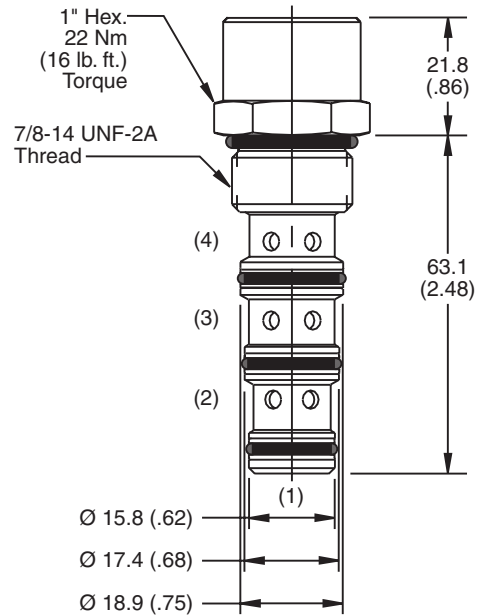
Performance Curve

Flow vs. Pressure Drop (Through cartridge only)



FLOW DIRECTION \ SPOOL NO.	A	B	C
SPOOL SHIFTED	3 → 4 c	2 → 3 d	3 → 4 c
SPOOL NEUTRAL	2 → 3 a	3 → 4 b	2 → 3 a

Dimensions Millimeters (Inches)



Ordering Information

DH103

10 Size Pilot Operated Spool Valve

Spool Type Pressure Differential Seals Body Material Port Size

Code / Spool Type	Diagram
A Normally open 2 position, vent to atmosphere.	
B Normally closed 2 position, internally drain.	
C Normally open, 2 position, internally drain.	

Code	Pressure Differential
Omit	5.5 Bar (80 PSI)
04	2.8 Bar (40 PSI)
16	11 Bar (160 PSI)

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	
4P	1/4" NPTF	(B10-4-*4P)
6P	3/8" NPTF	(B10-4-*6P)
8P	1/2" NPTF	(B10-4-*6P)
6T	SAE - 6	(B10-4-*6T)
8T	SAE - 8	(B10-4-*8T)
6B	3/8" BSPG	(B10-4-6B)†
8B	1/2" BSPG	(B10-4-*8B)

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

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General Description

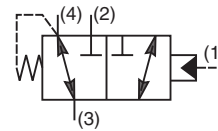
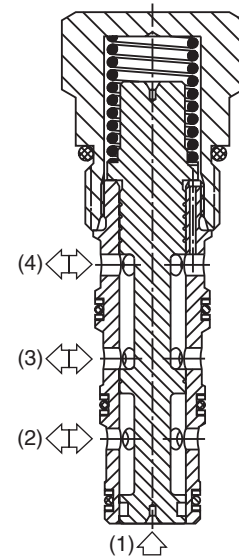
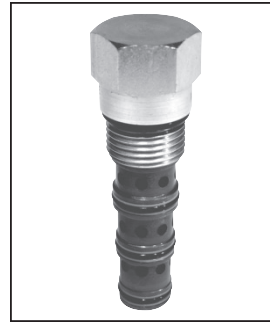
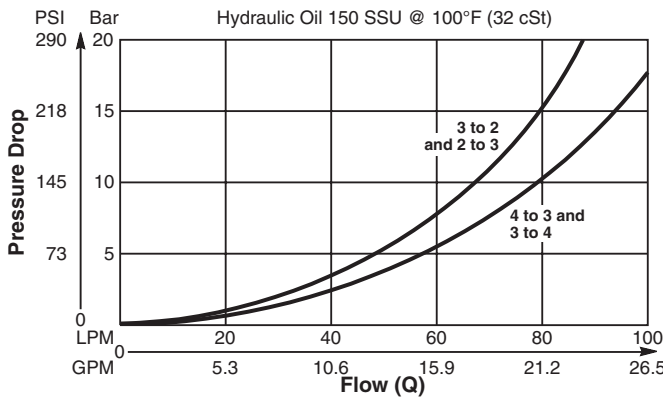
Pilot Operated Directional Valve, 3-Way External Pilot, Internal Vent.

Features

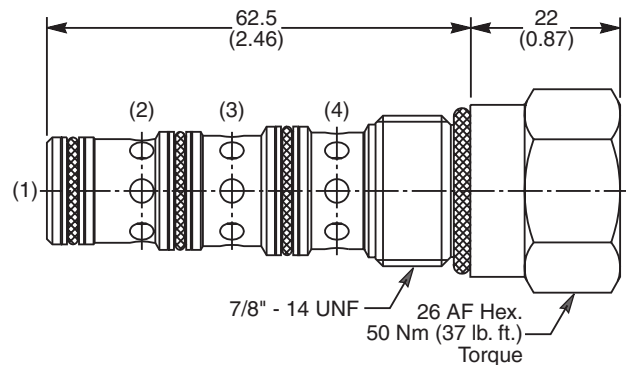
- High flow capacity
- Two switching pressures available
- Sealed pilot option available
- Hardened working parts for maximum durability
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



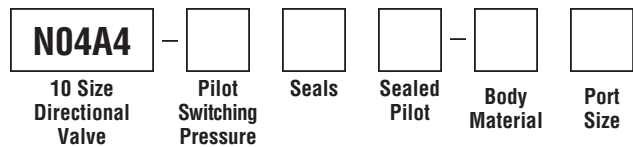
Dimensions Millimeters (Inches)



Specifications

Rated Flow	90 LPM (24 GPM)
Nominal Flow @ 7 Bar (100 PSI)	50 LPM (13 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Pilot Switching Pressure	See ordering information
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	.17 kg (.37 lbs.)
Cavity	C10-4 (See BC Section for more details)

Ordering Information



Code	Switching Pressure
5.0	5.0 Bar (73 PSI) Std.
10.0	10.0 Bar (145 PSI)

If no switching pressure is specified, valve will be supplied as N04A4-5.0N

Code	Body Material
Omit	Steel
A	Aluminum

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30506N-1)
V	Fluorocarbon / (SK30506V-1)

Code	Port Size	Body Part No.
Omit	Cartridge Only	
6P	3/8" NTPF	(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 bodies only

Code	Sealed Pilot
Omit	If not required
S	Sealed Pilot

General Description

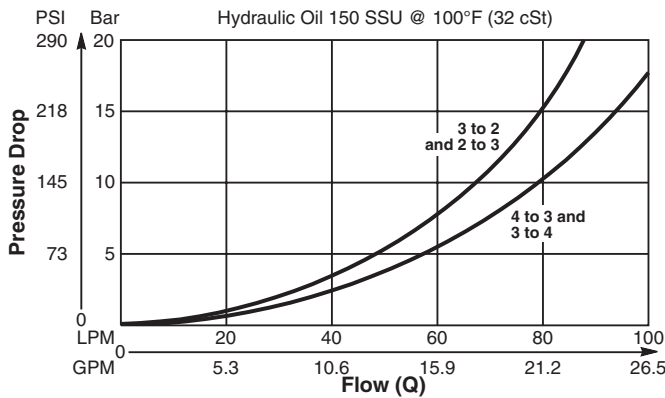
Pilot Operated Directional Valve, 3-Way External Pilot, Internal Vent.

Features

- High flow capacity
- Two switching pressures available
- Sealed pilot option available
- Hardened working parts for maximum durability
- All external parts zinc plated

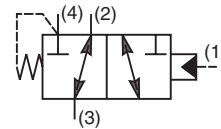
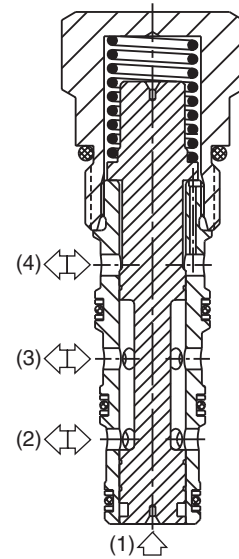
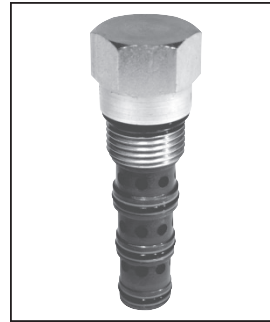
Performance Curve

Pressure Drop vs. Flow (Through cartridge only)

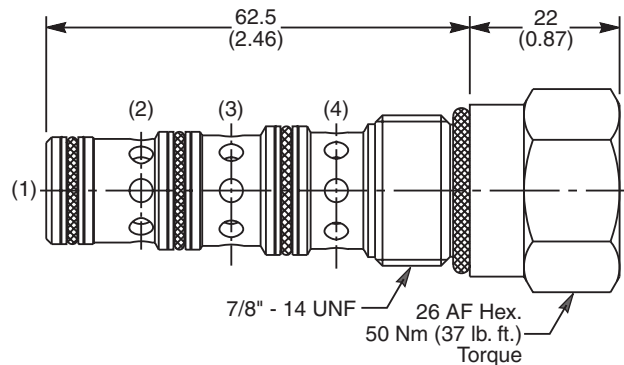


Specifications

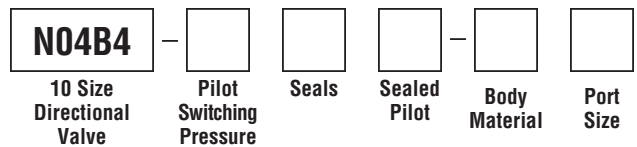
Rated Flow	90 LPM (24 GPM)
Nominal Flow @ 7 Bar (100 PSI)	50 LPM (13 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Pilot Switching Pressure	See ordering information
Cartridge Material	All parts steel. All operating parts hardened steel.
Operating Temp. Range/Seals	-40°C to +93.3°C (Nitrile, Buna-N) (-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	.17 kg (.37 lbs.)
Cavity	C10-4 (See BC Section for more details)



Dimensions Millimeters (Inches)



Ordering Information



Code	Switching Pressure
5.0	5.0 Bar (73 PSI) Std.
10.0	10.0 Bar (145 PSI)

If no switching pressure is specified, valve will be supplied as N04B4-5.0N

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30506N-1)
V	Fluorocarbon / (SK30506V-1)

Code	Sealed Pilot
Omit	If not required
S	Sealed Pilot

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
6P	3/8" NTPF	(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 bodies only

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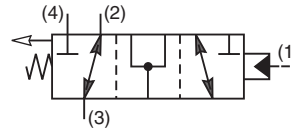
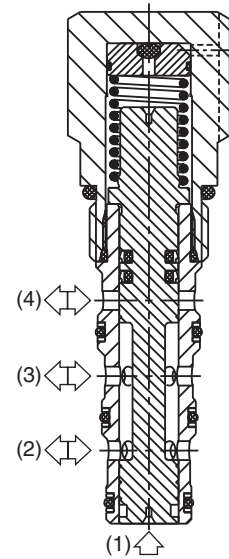
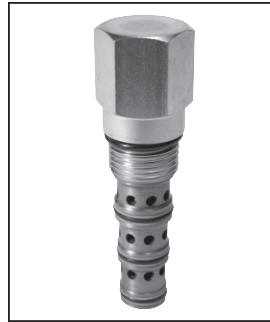
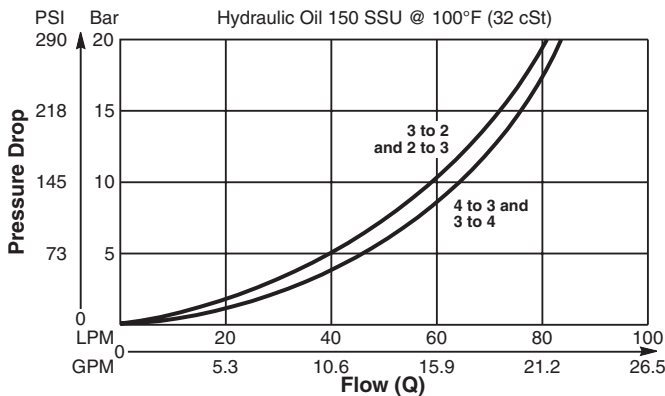
Pilot Operated Directional Valve, 3-Way External Pilot Vented to Atmosphere. Open Transition Feature.

Features

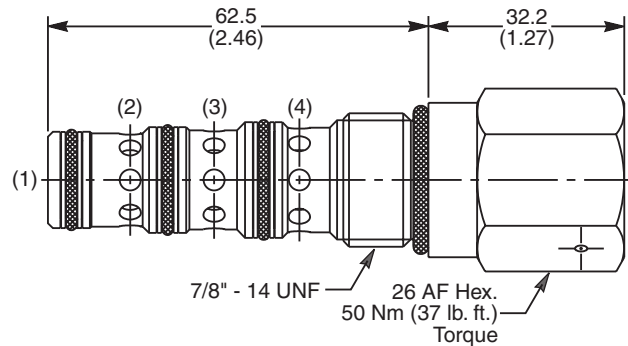
- High flow capacity
- Two switching pressures available
- Sealed pilot option available
- Hardened working parts for maximum durability
- All external parts zinc plated

Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



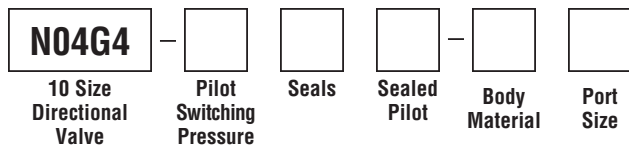
Dimensions Millimeters (Inches)



Specifications

Rated Flow	85 LPM (22.5 GPM)
Nominal Flow @ 7 Bar (100 PSI)	50 LPM (13 GPM)
Maximum Inlet Pressure	420 Bar (6000 PSI)
Pilot Switching Pressure	See ordering information
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	.22 kg (.48 lbs.)
Cavity	C10-4 (See BC Section for more details)

Ordering Information



Code	Switching Pressure
10.0	10.0 Bar (145 PSI) Std.
15.0	15.0 Bar (218 PSI)

If no switching pressure is specified, valve will be supplied as N04G4-10.0N

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30506N-1)
V	Fluorocarbon / (SK30506V-1)

Code	Sealed Pilot
Omit	If not required
S	Sealed Pilot

Code	Body Material
Omit	Steel
A	Aluminum

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

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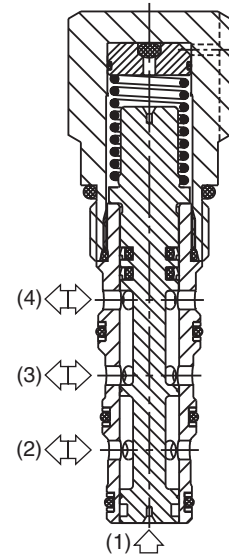
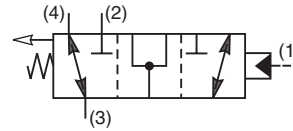
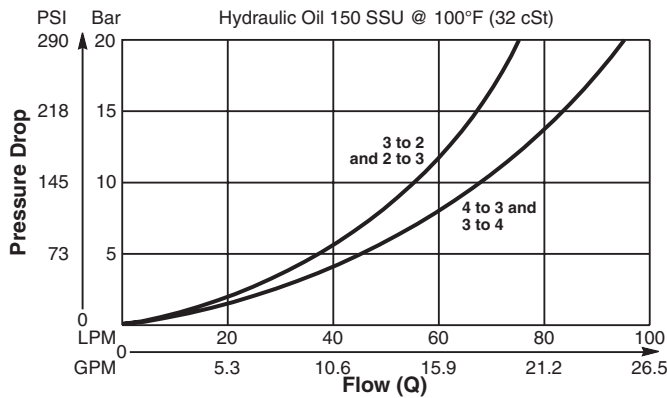
Pilot Operated Directional Valve, 3-Way External Pilot Vented to Atmosphere. Open Transition Feature.

Features

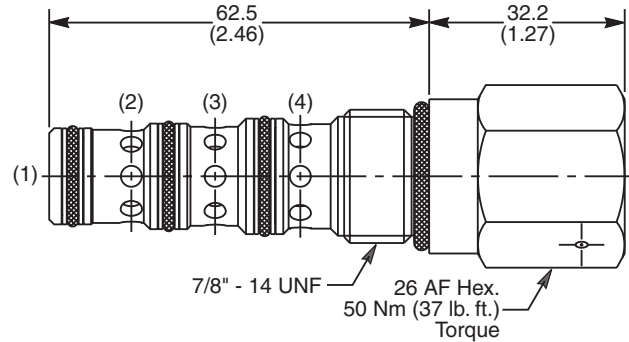
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- Hardened working parts for maximum durability
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Performance Curve

Pressure Drop vs. Flow (Through cartridge only)



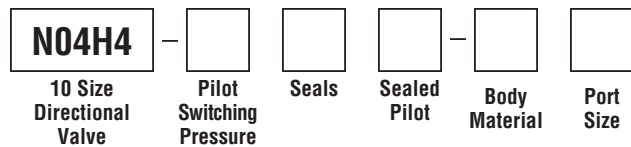
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Approx. Weight	.22 kg (.48 lbs.)
Cavity	C10-4 (See BC Section for more details)

Ordering Information



Code	Switching Pressure
10.0	10.0 Bar (145 PSI) Std.
15.0	15.0 Bar (218 PSI)

If no switching pressure is specified, valve will be supplied as N04H4-10.0N

Code	Seals / Kit No.
N	Nitrile, Buna-N / (SK30506N-1)
V	Fluorocarbon / (SK30506V-1)

Code	Sealed Pilot
Omit	If not required
S	Sealed Pilot

Code	Body Material
Omit	Steel
A	Aluminum

Code	Port Size	Body Part No.
Omit	Cartridge Only	
6P	3/8" NTPF	(B10-4-*6P)
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