Cartridge Valves & Integrated Circuit Manifolds

Valve Specialists to the Fluid Power Industry.

Please visit us at www.deltrolfluid.com for information on these other Deltrol product lines:

- Hydraulic Integrated Circuit Manifolds
- In-Line Flow Control, Needle, Check and Accessory Valves
- Custom Solutions for Your Fluid Power and Fluid Control Demands

Or Contact Us and Request a Free Catalog
Committed to TOTAL Customer Satisfaction

Deltrol Fluid Products strives for **World Class Performance** standards in product design, quality, competitive prices and quick response. Whether manufacturing an extensive range of fluid power components, or assisting in the design and building of the complete package, our goal remains...

**TOTAL Customer Satisfaction**

At Deltrol Fluid Products, our mission is to create and maintain an image of leadership, quality and integrity with our customers, employees and suppliers. We continually strive to be a world-class manufacturer of cartridge valves, custom manifold systems, and in-line valves.

**History**

Located in Bellwood, Illinois, just outside of Chicago, and founded in 1963, Deltrol Fluid Products designed and manufactured in-line accessory hydraulic and pneumatic flow, needle, and check valves. When screw-in style cartridge valve technology developed, our product offering expanded to include cartridge valves.

Now, nearly fifty years since our founding, we have expanded our product line to include a full line of solenoid and manual operated, directional control, flow control, and pressure control screw-in and slip-in style cartridge valves.

We offer a comprehensive line of standard products and thrive on providing custom valves and integrated circuits that meet our customers' needs.

**Integrated Manufacturing**

Our vertically integrated manufacturing facility enables us to produce high quality, cost effective parts on site. Our state-of-the-art assembly and test equipment ensure efficient through-put that meets our demanding quality standards.

**Quality**

Our ISO 9001-2008 certified quality system ensures that our designs are produced to our customers’ expectations. Our robust design verification and vendor qualification systems insure smooth transition from concept to production. 100% of the products we produce are functionally tested with automated computer-driven test systems.

**Design**

Our design group is divided into two cross-functional teams, which allows us to focus on product designs that meet our customers’ requirements. The valve design group can develop valves independently or integrate with our systems design group based on customers’ special applications and needs. Our three-dimensional modeling software enables us to create the most compact and efficient solutions for our customers.

**Delivery**

Our MRP based manufacturing system gives us the flexibility to meet our customers’ delivery system requirements. We are experienced in working with various customer implementations of pull order systems. We work closely to understand our customers’ ERP systems and have the flexibility to integrate our packaging and delivery with their requirements.

We take pride in our ability to provide high quality, cost effective customer solutions. We offer a wide range of standard products and excel at the opportunity to modify our current designs or develop unique products that meet our customers’ special needs.

If the solution you need is not available in our catalog or you have a special application, please contact us so we can develop a component or system that meets your specific demands. Whether it’s a unique environment, flow media, fit, or application, we are eager to work with you to provide products and services that make you most competitive in your marketplace.
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### Two-Way, Two-Position

#### Solenoid, Two-Way, Two-Position, Normally-Closed, Poppet

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### 1.30.0 SOLENOID

#### Four-Way, Two-Position

**Solenoid, Four-Way, Two-Position, Normally-Closed, Spool**

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#### 1.40.0 SOLENOID

### Four-Way, Three-Position

#### Solenoid, Four-Way, Three-Position, Motor Center, Spool

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Solenoid, Four-Way, Three-Position, Closed Center, Spool

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Solenoid, Four-Way, Three-Position, Open Center, Spool

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1.80.0 SOLENOID

Electro-Proportional

Proportional Flow Control, Normally-Closed

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2.00.0 CHECK

Check, Direct-Acting

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3.00.0 MOTION CONTROL

Check, Pilot-To-Open

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### 4.00.0 FLOW CONTROL

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Flow Control, Free Reverse Flow, Fixed

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Flow Control, Free Reverse Flow, Adjustable

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Flow Regulator, Free Reverse Flow, Pressure-Compensated, Fixed

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Flow Regulator, Free Reverse Flow, Pressure-Compensated, Fixed

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Flow Regulator, Restrictive, Pressure-Compensated, Fixed

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Flow Regulator, Restrictive, Pressure-Compensated, Adjustable

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Flow Regulator, Bypass-Type, Pressure-Compensated, Fixed

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Relief, Direct-Acting, Adjustable, Poppet

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Relief, Direct-Acting, Differential-Area, Adjustable, Poppet

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### Pressure-Reducing/Relieving, Pilot-Operated, Adjustable, Spool

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**7.00.0 SEQUENCE**

**Sequence, Direct-Acting, Externally-Drained, Adjustable, Spool**

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**Sequence, Direct-Acting, Adjustable, Spool**

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**Sequence, Pilot-Operated, Adjustable, Spool**

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**Kick-Down, Sequence, Pilot-Operated, Adjustable, Spool**

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0.03.1
DSV-080-2NCP
Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

DESCRIPTION
A cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION
When de-energized, the DSV-080-2NCP acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①. When energized, the poppet lifts to open the ② to ① flow path.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, the valve will remain open. To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position. Note: Pull only to override and release to return option available. See page 1.01.3

FEATURES and BENEFITS
• 4000 PSI (276 Bar) rating.
• Continuous-duty solenoid.
• Hardened poppet and plunger for long life and low leakage.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Filter screen standard.
• Low leak option available.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 4000 PSI (276 Bar)
Flow: See PRESSURE DROP VS. FLOW graph
Internal Leakage: 5 drops/min. max. at 4000 PSI (276 Bar)
Low leakage available- Less than 2 drops/min. max. at 4000 PSI (276 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 4000 PSI (276 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 16 m. sec. Drop-Out: 12 VDC 18 m. sec.
Recommended Filtration: Critical Application-ISO 17/15/13 Non-Critical Application-ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV-080-2NCP
Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 080 - 2 NC P - * - ** - * * - **

Solenoid Valve
Cavity/Seal
Flow Path
Normally Closed
Poppet
Seals
N = Buna N
V = Viton
M = Manual Override
( omit for standard)
See page 1.01.3 for additional options.

Porting
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Coil Connection
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

L = Low Leak Option
( omit for standard)
D = DC
A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

1.01.2

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DSV-080-2NCP-*-M* (Pull-Type Manual Override)

Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 080 - 2 NC P - * - M* - **** - **

Solenoid Valve

Porting

2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Piping Style

DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage

1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Thread Style

F = Female
M = Male
P = Knob

D = DC
A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

See page 1.01.1 for additional options.
DSV-080-2NCP-*-M* (Pull-Type Manual Override)

Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

DESCRIPTION

A cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION

When de-energized, the DSV-080-2NCP-*-M* acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.

When energized, the poppet lifts to open the ② to ① flow path.

Operation of Manual Override Option: To override, pull spring-loaded knob/adapter on top of valve. Release to return to normal operation.

Note: Push, twist and release (detented in both positions) option available. See page 1.01.1

FEATURES and BENEFITS

- 4000 PSI (276 Bar) rating.
- Continuous-duty solenoid.
- Hardened poppet and plunger for long life and low leakage.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Filter screen standard.
- Industry common cavity.
- Compact size.
- Low leak option available.

SPECIFICATIONS

- Operating Pressure: 4000 PSI (276 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph
- Internal Leakage: 5 drops/min. max. at 4000 PSI (276 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.3 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 4000 PSI (276 Bar)
- Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- Pull-In: 12 VDC 16 m. sec. Drop-Out: 12 VDC 18 m. sec.
- Recommended Filtration: Critical Application-ISO 17/15/13 Non-Critical Application-ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-2NCP
Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

DESCRIPTION
A cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION
When de-energized, the DSV2-100-2NCP acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ①.

When energized, the poppet lifts to open the ② to ① flow path.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain open in a detented condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened poppet and plunger for long life and low leakage.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Filter screen standard.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 100 m. sec. Drop-Out: 12 VDC 180 m. sec.
Recommended Filtration: Critical Application-ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-2NCP
Normally-Closed, Two-Way, Two-Position, Pilot-Operated Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 100 - 2 NC P - * - * - * - * - * - **

SOLENOID VALVE

CAVITY/SEAL

FLOW PATH

NORMALLY CLOSED

POPPET

SEALS
N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

D = DC
A = AC

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-080-2NOP

Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

DESCRIPTION

A cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION

When de-energized, the DSV2-080-2NOP poppet is open to allow flow from ② to ①.

When energized, the poppet closes to block flow from ② to ①. In this condition, the cartridge allows reverse flow from ① to ② after overcoming the solenoid force of 75 PSI (5 Bar).

FEATURES and BENEFITS

• Continuous-duty solenoid.
• Hardened poppet and plunger for long life and low leakage.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Filter screen standard.
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 25 m. sec. Drop-Out: 12 VDC 30 m. sec.
Recommended Filtration: Critical Application-ISO 17/15/13
Non-Critical Application-ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-2NOP
Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080 - 2 NO P - * - * * - **

Solenoid Valve
Cavity/Seal
Flow Path
Normally Open
Poppet
Seals
N = Buna N
V = Viton

D = DC
A = AC

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

COIL CONNECTION
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-080-2NOP-*-M (Push-Type Manual Override) Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

**DESCRIPTION**

A cartridge valve designed with positive shut off to be used in load holding applications.

**OPERATION**

When de-energized, the DSV2-080-2NOP-*-M poppet is open to allow flow from ② to ①.

When energized, the poppet closes to block flow from ② to ①. In this condition, the cartridge allows reverse flow from ① to ② after overcoming the solenoid force of 75 PSI (5 Bar).

**Operation of Manual Override Option:** To override, push knob in, twist clockwise and release. In this position, the valve will remain closed. To return to normal operation, push knob in, twist counterclockwise and release. Override will be detented in this position.

**FEATURES and BENEFITS**

- Continuous-duty solenoid.
- Hardened poppet and plunger for long life and low leakage.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Filter screen standard.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Nominal flow:** 5 gpm (18.9 L/min.)
- **Internal Leakage:** 5 drops/min. max. at 3000 PSI (207 Bar)
- **Temperature:** -30° F to +250° F (-35°C to +120° C)
- **Coil Rating:** Continuous from 85% to 110% of rated voltage.
- **Current Draw:** 12 VDC is 1.3 amps.
- **Minimum Pull-In Voltage:** 85% of rated voltage at 3000 PSI (207 Bar)
- **Response Time:** 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- **Pull-In:** 12 VDC 25 m. sec. **Drop-Out:** 12 VDC 30 m. sec.
- **Recommended Filtration:** Critical Application-ISO 17/15/13
- **Fluids:** Mineral-based fluids. For other fluid compatibility consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-2NOP-*-M (Push-Type Manual Override)

Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080 - 2 NO P - * - M - **** - **

Solenoid Valve
Cavity/Seal
Flow Path
Normally Open
Poppet
Seals
N = Buna N
V = Viton

Coil Connection
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Porting
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Voltage
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

SHOP ONLINE at www.airlinehyd.com
800-999-7378
DSV2-100-2NOP
Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION
When de-energized, the DSV2-100-2NOP poppet is open to allow flow from ② to ①.

When energized, the poppet closes to block flow from ② to ①. In this condition, the cartridge allows reverse flow from ① to ② after overcoming the solenoid force - 50 PSI (3 Bar).

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened poppet and plunger for long life and low leakage.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Filter screen standard.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 25 m. sec. Drop-Out: 12 VDC 30 m. sec.
Recommended Filtration: Critical Application-ISO 17/15/13
Non-Critical Application-ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-2NOP
Normally-Open, Two-Way, Two-Position, Poppet-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV2 - 100 - 2 NO P - * - * * - **

- SOLENOID VALVE
- CAVITY/SEAL
- FLOW PATH
- NORMALLY OPEN
- POPPET
- SEALS
  - N = Buna N
  - V = Viton

- D = DC
- A = AC

- PORTING
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only

- COIL CONNECTION
  - D = Double Lead
  - S = Single Lead
  - H = Hirschmann®
  - C = Conduit
  - B = Double Spade
  - E = Single Stud

- VOLTAGE
  - 1 = 12 Volt
  - 2 = 24 Volt
  - 5 = 120 Volt
  - 6 = 240 Volt
  - 9 = 20 Volt
  - 10 = 10 Volt

( ) Parentheses = Millimeters

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV-080-2NCSP
Normally-Closed, Two-Way, Two-Position, Bi-Directional Solenoid Valve

DESCRIPTION
A cartridge valve designed with positive shut off, blocking in both directions, to be used in load holding applications.

OPERATION
When de-energized, the DSV-080-2NCSP blocks flow in both directions.

When energized, the poppet shifts to allow flow in either direction.

Operation of Manual Override Option: To override, push button in to activate. To return to normal valve function, release button.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened poppet and seat for long life and low leakage.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Low leak valve available.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
- Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
  Low leak available-
  Less than 2 drops/min. max. at 3000 PSI (207 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- Pull-In: 12 VDC 41 m. sec. Drop-Out: 12 VDC 30 m. sec.
- Recommended Filtration: Critical Application – ISO 17/15/13
  Non-Critical Application – ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV-080-2NCSP
Normally-Closed, Two-Way, Two-Position, Bi-Directional Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 080 - 2 NC SP - * - ** - * - * - * - * - * - **

<table>
<thead>
<tr>
<th>SOLENOID VALVE</th>
<th>2 NC SP</th>
<th>CAVITY/SEAL</th>
<th>FLOW PATH</th>
<th>NORMALLY CLOSED</th>
<th>BI-DIRECTIONAL</th>
<th>SEALS</th>
<th>COIL CONNECTION</th>
<th>VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N = Buna V = Viton</td>
<td>D = Double Lead S = Single Lead H = Hirschmann® C = Conduit B = Double Spade E = Single Stud U = Deutsch</td>
<td></td>
</tr>
<tr>
<td>Manual Override</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Manual Override</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M = Push and Twist MB = Push (Omit for standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>L = Low Leak Option (Omit for standard)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omit coil for cartridge only with nut. Other porting and coil options available – consult factory.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

PORTING
2N = 1/4 PTF 3N = 3/8 PTF 4T = SAE 4 6T = SAE 6 (Omit for Cartridge Only)

COIL CONNECTION
D = Double Lead S = Single Lead H = Hirschmann® C = Conduit B = Double Spade E = Single Stud U = Deutsch

VOLTAGE
1 = 12 Volt 6 = 240 Volt 2 = 24 Volt 9 = 20 Volt 5 = 120 Volt 10 = 10 Volt

D = DC A = AC
DSV2-080-2NCS
Normally-Closed, Two-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed to operate as a bi-directional blocking valve.

OPERATION
When de-energized, the DSV2-080-2NCS blocks flow in both directions.

When energized, the cartridge’s spool shifts to allow flow in either direction.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain open in a detented condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
• Both ports may be fully pressurized.
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 in. ³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 85 m. sec. Drop-Out: 12 VDC 95 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DSV2-080-2NCS**

Normally-Closed, Two-Way, Two-Position, Spool-Type Solenoid Valve

#### INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

**HOW TO ORDER**

DSV2 - 080 - 2 NC S - * - * - * - * - * - **

- **SOLENOID VALVE**
- **CAVITY/SEAL**
- **FLOW PATH**
- **NORMALLY CLOSED**
- **SPOOL**
- **SEALS**
  - N = Buna N
  - V = Viton
- **M = Manual Override**
  - (Omit for standard)
- **D = DC**
- **A = AC**

**PORTING**

- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 4T = SAE 4
- 6T = SAE 6
  - Omit for Cartridge Only

**COIL CONNECTION**

- DE = Double Lead
- SE = Single Lead
- HS = Hirschmann®
- CS = Conduit
- BE = Double Spade
- EE = Single Stud
- UE = Deutsch

**VOLTAGE**

- 1 = 12 Volt
- 2 = 24 Volt
- 5 = 120 Volt
- 6 = 240 Volt
- 9 = 20 Volt
- 10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-100-2NCS
Normally-Closed, Two-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed to operate as a bi-directional blocking valve.

OPERATION
When de-energized, the DSV2-100-2NCS blocks flow in both directions.

When energized, the cartridge’s spool shifts to allow flow in either direction.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain open in a detented condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
- Both ports may be fully pressurized.
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PERFORMANCE CHARACTERISTIC graph.
- Internal Leakage: 5 in. 3/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Temperature: -30° F to +250° F (-35°C to +120° C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
- Cavity/Cavity Tool: 100-2, see page 11.10.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-2NCS
Normally-Closed, Two-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

 HOW TO ORDER

DSV2 - 100 - 2 NC S - * - * - * * * - **

Solenoid Valve

Cavity/Seal

Flow Path

Normally Closed

Spool

Seals

N = Buna N

V = Viton

M = Manual Override

(Omit for standard)

D = DC

A = AC

Porting

2N = 1/4 PTF

3N = 3/8 PTF

6T = SAE 6

8T = SAE 8

Omit for Cartridge Only

Coil Connection

D = Double Lead

S = Single Lead

H = Hirschmann®

C = Conduit

B = Double Spade

E = Single Stud

Voltage

1 = 12 Volt

2 = 24 Volt

5 = 120 Volt

6 = 240 Volt

9 = 20 Volt

10 = 10 Volt

( ) Parentheses = Millimeters

Omit coil for cartridge only with nut.

Other porting and coil options available – consult factory.
DSV2-080-2NOS
Normally-Open, Two-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION

A cartridge valve designed to operate as a bi-directional blocking valve.

OPERATION

When de-energized, the DSV2-080-2NOS allows flow in both directions.

When energized, the cartridge’s spool shifts to block flow in either direction.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain closed in a detented condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS

- Both ports may be fully pressurized.
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 in. ³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 85 m. sec. Drop-Out: 12 VDC 95m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

<table>
<thead>
<tr>
<th>PRESSURE DROP (psi)</th>
<th>FLOW (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (5.5)</td>
<td>0.2</td>
</tr>
<tr>
<td>80 (4.1)</td>
<td>0.5</td>
</tr>
<tr>
<td>60 (2.8)</td>
<td>1.0</td>
</tr>
<tr>
<td>40 (1.4)</td>
<td>2.0</td>
</tr>
</tbody>
</table>

FLOW (L/min.)

PRESSES 1 TO 2 OR 2 TO 1 — (DE-ENERGIZED)
150 ssu/32 cSt OIL @ 100°F/38°C
DSV2-080-2NOS
Normally-Open, Two-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV2 - 080 - 2 NO S - * - * - * - **

SOLENOID VALVE
CAVITY/SEAL
FLOW PATH
NORMALLY OPEN
SPOOL
SEALS
N = Buna N
V = Viton
M = Manual Override
(DC = DC
AC = AC

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

COIL CONNECTION
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

( ) Parentheses = Millimeters

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-100-2NOS
Normally-Open, Two-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed to operate as a bi-directional blocking valve.

OPERATION
When de-energized, the DSV2-100-2NOS allows flow in both directions.
When energized, the cartridge’s spool shifts to block flow in either direction.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain closed in a detented condition.
To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
- Both ports may be fully pressurized.
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PERFORMANCE CHARACTERISTIC graph.
- Internal Leakage: 5 in./min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
- Cavity/Cavity Tool: 100-2, see page 11.10.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-2NOS
Normally-Open, Two-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 100 - 2 NO S - * - * - * - * - **

- SOLENOID VALVE
- CAVITY/SEAL
- FLOW PATH
- NORMALLY OPEN
- SPOOL
- SEALS
  - N = Buna N
  - V = Viton
- M = Manual Override
  (Omit for standard)
- D = DC
  - A = AC

PORTING
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  (Omit for Cartridge Only)

COIL CONNECTION
  - D = Double Lead
  - S = Single Lead
  - H = Hirschmann®
  - C = Conduit
  - B = Double Spade
  - E = Single Stud

VOLTAGE
  - 1 = 12 Volt
  - 2 = 24 Volt
  - 5 = 120 Volt
  - 6 = 240 Volt
  - 9 = 20 Volt
  - 10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
**DESCRIPTION**

A cartridge valve designed with positive shut off, low leakage, to be used in load holding applications where system requires redundant methods of operation.

**OPERATION**

When de-energized, the DDSV-080-2NCP acts as a check valve, allowing flow from \( 1 \) to \( 2 \), while blocking flow from \( 2 \) to \( 1 \).

When either the top primary or bottom redundant coil is energized, the poppet lifts to open the \( 2 \) to \( 1 \) flow path.

**FEATURES and BENEFITS**

- 4000 PSI rating (276 Bar).
- Continuous-duty solenoid.
- Efficient wet-armature construction.
- Hardened poppet and seat for long life.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Filter screen standard.
- Low leak valve available.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 4000 PSI (276 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 drops/min. max. at 4000 PSI (276 Bar)
  - Low leakage available - Less than 2 drops/min. max. at 4000 PSI (276 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Coil Rating:** Continuous from 85% to 110% of rated voltage.
- **Current Draw:** 12 VDC is 1.3 amps.
- **Minimum Pull-In Voltage:** 85% of rated voltage at 4000 PSI (276 Bar)
- **Response Time:** 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- **Pull-In:** 12 VDC 16 m. sec. **Drop-Out:** 12 VDC 18 m. sec.
- **Recommended Filtration:** Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DDSV-080-2NCP
Normally-Closed, Two-Way, Two-Position, Dual-Coil, Pilot Operated Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DDSV - 080 - 2 NC P - * - ** - *** - **** - **

Solenoid Valve

Cavity/Seal

Flow Path

Normally Closed

Poppet

Seals

N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

L = Low Leak Option
(Omit for standard)

Porting

2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

Coil Connection

DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage

1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

(D) Parentheses = Millimeters

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-080-3
Three-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION

A cartridge valve designed as a three-way, spool-type, directional control valve.

OPERATION

When de-energized, the DSV2-080-3 allows flow between 2 and 1, while blocking flow at 3.

When energized, the cartridge’s spool shifts to allow flow between 1 and 3 while blocking flow at 2.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PERFORMANCE CHARACTERISTIC graph.
Internal Leakage: (Per land) 5 in. 3/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 40 m. sec. Drop-Out: 12 VDC 8 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 080-3, see page 11.08.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-3
Three-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080 - 3 - * - * - * - * - * - * - * - * - **

Solenoid Valve

Cavity/Seal

Flow Path

Seals
N = Buna N
V = Viton
M = Manual Override
(Omit for standard)

D = DC
A = AC

Porting
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
(Omit for Cartridge Only)

Coil Connection
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

SHOP ONLINE at www.airlinehyd.com
800-999-7378
DSV2-100-3
Three-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three-way, spool-type, directional control valve.

OPERATION
When de-energized, the DSV2-100-3 allows flow between ② and ①, while blocking flow at ③.
When energized, the cartridge's spool shifts to allow flow between ① and ③ while blocking flow at ②.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.
To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PERFORMANCE CHARACTERISTIC graph.
- Internal Leakage: (Per land) 5 in. 3/min. (82 cc/min.) max.
at 3000 PSI (207 Bar)
- Temperature: -30° F to +250° F (-35°C to +120° C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Response Time: 80% of final change of state with 100% voltage supplied at 80% of nominal flow rating.
- Pull-In: 12 VDC 95 m. sec. Drop-Out: 12 VDC 80 m. sec.
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
- Cavity/Cavity Tool: 100-3, see page 11.10.3
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-3
Three-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 100 - 3 - * - * - * - * - **

SOLENOID VALVE

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton
M = Manual Override
(Omit for standard)

D = DC
A = AC

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-080-3B
Three-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three-way, spool-type, directional control valve.

OPERATION
When de-energized, the DSV-080-3B allows flow from ② to ①, while blocking flow at ③.

When energized, the cartridge's spool shifts to allow flow between ② and ③ while blocking flow at ①.

Operation of Manual Override Option: To override, push button in to activate. To return to normal valve function, release button.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PERFORMANCE CHARACTERISTIC graph.
Internal Leakage: (Per land) 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 45 m. sec. Drop-Out: 12 VDC 57 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-3, see page 11.08.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-3B
Three-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080 - 3B - * - * - * - * - * - * - **

Solenoid Valve

Cavity/Seal

Flow Path

Seals
N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

D = DC
A = AC

Porting
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
(Omit for Cartridge Only)

Coil Connection
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DSV2-100-3B
Three-Way, Two-Position,
Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three-way, spool-type, directional control valve.

OPERATION
When de-energized, the DSV2-100-3B allows flow from ② to ①, while blocking flow at ③.
When energized, the cartridge’s spool shifts to allow flow between ② and ③ while blocking flow at ①.

Operation of Manual Override Option: To override, push button in to activate. To return to normal valve function, release button. To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PERFORMANCE CHARACTERISTIC graph.
- Internal Leakage: (Per land) 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- Pull-In: 12 VDC 95 m. sec. Drop-Out: 12 VDC 85 m. sec.
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 100-3, see page 11.10.3
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-3B
Three-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV2 - 100 - 3B - * - * - * - * - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

M = Manual Override
(Omit for standard)

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

HOW TO ORDER

DSV2 - 100 - 3B - * - * - * - * - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

M = Manual Override
(Omit for standard)

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-100-3D
Three-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three-way, spool-type, directional control valve.

OPERATION
When de-energized, the DSV2-100-3D allows flow from ① to ③, while blocking flow at ②.
When energized, the cartridge’s spool shifts to allow flow from ② and ① while blocking flow at ③.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.
To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PERFORMANCE CHARACTERISTIC graph.
Internal Leakage: (Per land) 5 in.^3/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 100 m. sec. Drop-Out: 12 VDC 85 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-3, see page 11.10.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-3D
Three-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV2 - 100 - 3D - * - * - * - * - * - **

SOLENOID VALVE

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton

M = Manual Override (Omit for standard)

D = DC
A = AC

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-080-4NC
Four-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a four-way, spool-type, directional control valve with all ports normally-closed. This valve is commonly used in a circuit to allow flow to and from a double-acting cylinder or motor.

OPERATION
When de-energized, the DSV2-080-4NC flow paths are blocked. When energized, the cartridge’s spool shifts and allows flow from ① to ④ and from ② to ③.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.
To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: (Per land) 5 in.3/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 35 m. sec. Drop-Out: 12 VDC 20 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DSV2-080-4NC**

Four-Way, Two-Position, Spool-Type Solenoid Valve

**INSTALLATION DIMENSIONS**

( ) Parentheses = Millimeters

**HOW TO ORDER**

DSV2 - 080 - 4 NC - * - * - * - * - **

- **SOLENOID VALVE**
- **CAVITY/SEAL**
- **FLOW PATH**
- **NORMALLY CLOSED**
- **SEALS**
  - N = Buna N
  - V = Viton
- **M = Manual Override**
  (Omit for standard)
- **D = DC**
- **A = AC**

**PORTING**
- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 4T = SAE 4
- 6T = SAE 6
  - Omit for Cartridge Only.

**COIL CONNECTION**
- DE = Double Lead
- SE = Single Lead
- HS = Hirschmann®
- CS = Conduit
- BE = Double Spade
- EE = Single Stud
- UE = Deutsch

**VOLTAGE**
- 1 = 12 Volt
- 2 = 24 Volt
- 3 = 120 Volt
- 5 = 240 Volt
- 6 = 240 Volt
- 9 = 20 Volt
- 10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-100-4NC
Four-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a four-way, spool-type, directional control valve with all ports normally-closed. This valve is commonly used in a circuit to allow flow to and from a double-acting cylinder or motor.

OPERATION
When de-energized, the DSV2-100-4NC flow paths are blocked. When energized, the cartridge’s spool shifts and allows flow from ③ to ④ and from ② to ①.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition. To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
- Internal Leakage: (Per land) 5 in^3/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.8 amps.
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
- Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- Pull-In: 12 VDC 100 m. sec. Drop-Out: 12 VDC 85 m. sec.
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 100-4, see page 11.10.4
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-100-4NC

Four-Way, Two-Position, Spool-Type Solenoid Valve

**INSTALLATION DIMENSIONS**

![Diagram of installation dimensions]

( ) Parentheses = Millimeters

**HOW TO ORDER**

DSV2 - 100 - 4 NC - * - * - * - * - * - **

- **Solenoid Valve**
- **Cavity/Seal**
- **Flow Path**
- **Normally Closed**
- **Seals**
  - N = Buna N
  - V = Viton
- **Manual Override**
  - M = Manual Override
    - (Omit for standard)
- **Coil Connection**
  - D = Double Lead
  - S = Single Lead
  - H = Hirschmann®
  - C = Conduit
  - B = Double Spade
  - E = Single Stud
- **Porting**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only.
- **Voltage**
  - 1 = 12 Volt
  - 2 = 24 Volt
  - 5 = 120 Volt
  - 6 = 240 Volt
  - 9 = 20 Volt
  - 10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
**DSV2-080-4CO**

Four-Way, Two-Position, Spool-Type Solenoid Valve

**DESCRIPTION**

A cartridge valve designed as a four-way, spool-type, directional control valve with all ports normally-open. This valve is commonly used in a circuit to allow flow to and from a double-acting cylinder or motor.

**OPERATION**

When de-energized, the DSV2-080-4CO allows flow from ① to ② and from ④ to ③.

When energized, the cartridge’s spool shifts and allows flow from ③ to ④ and from ② to ①.

**Operation of Manual Override Option:** To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.

To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

**FEATURES and BENEFITS**

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

**Operating Pressure:** 3000 PSI (207 Bar)

**Flow:** See PRESSURE DROP VS. FLOW graph.

**Internal Leakage:** (Per land) 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)

**Temperature:** -30°F to +250°F (-35°C to +120°C)

**Coil Rating:** Continuous from 85% to 110% of rated voltage.

**Current Draw:** 12 VDC is 1.3 amps.

**Minimum Pull-In Voltage:** 85% of rated voltage at 3000 PSI (207 Bar)

**Response Time:** 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.

**Pull-In:** 12 VDC 12 m. sec.  **Drop-Out:** 12 VDC 7 m. sec.

**Recommended Filtration:** ISO 17/15/13

**Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.

**Cavity/Cavity Tool:** 080-4, see page 11.08.4

**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-4CO
Four-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080 - 4 CO - * - * - * - * - * - * - *

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

COIL CONNECTION
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

SOLENOID
CAVITY/SEAL
FLOW PATH
CROSSOVER
SEALS
N = Buna N
V = Viton
M = Manual Override
(Omit for standard)

D = DC
A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV2-100-4CO
Four-Way, Two-Position, Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a four-way, spool-type, directional control valve with all ports normally-open. This valve is commonly used in a circuit to allow flow to and from a double-acting cylinder or motor.

OPERATION
When de-energized, the DSV2-100-4CO allows flow from ③ to ② and from ④ to ①.
When energized, the cartridge’s spool shifts and allows flow from ③ to ④ and from ② to ①.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition.
To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Manual override option.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: (Per land)5 in. ³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 30 m. sec. Drop-Out: 12 VDC 120 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DIAGRAM**

**DSV2-100-4CO**

Four-Way, Two-Position, Spool-Type Solenoid Valve

**INSTALLATION DIMENSIONS**

- **Manual Override Option**
- **.88 (22.4) HEX Torque 40 IN-LBS, (4.5 Nm) MAX.**
- **1.00 (25.4) HEX Torque 30 FT-LBS, (40.7 Nm) MAX.**

( ) Parentheses = Millimeters

**HOW TO ORDER**

- **DSV2 - 100 - 4 CO**
- **SOLENOID VALVE**
- **CAVITY/SEAL**
- **FLOW PATH**
- **CROSSOVER**
- **SEALS**
  - N = Buna N
  - V = Viton
  - M = Manual Override (Omit for standard)

**PORTING**
- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 6T = SAE 6
- 8T = SAE 8
  - Omit for Cartridge Only.

**COIL CONNECTION**
- D = Double Lead
- S = Single Lead
- H = Hirschmann®
- C = Conduit
- B = Double Spade
- E = Single Stud

**VOLTAGE**
- 1 = 12 Volt
- 2 = 24 Volt
- 5 = 120 Volt
- 6 = 240 Volt
- 9 = 20 Volt
- 10 = 10 Volt

**Omit coil for cartridge only with nut.**
**Other porting and coil options available – consult factory.**

**VOLTS**

D = DC
A = AC
DESCRIPTION

A cartridge valve designed as a four-way, spool-type, directional control valve, with two ports normally-closed and two ports normally-open. This valve is commonly used in a series circuit to allow flow to and from a double-acting cylinder or motor.

OPERATION

When de-energized, the DSV2-080-4TC allows flow from ④ to ① and is blocked at ② and ③. When energized, the cartridge's spool shifts and allows flow from ④ to ③ and from ② to ①.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition. To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: (Per land) 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 45 m. sec. Drop-Out: 12 VDC 11 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-4TC
Four-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV2 - 080 - 4 TC - * - * - * - * - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

COIL CONNECTION
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

SEALs
N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

D = DC
A = AC

( ) Parentheses = Millimeters

SHOP ONLINE at www.airlinehyd.com
800-999-7378
DESCRIPTION

A cartridge valve designed as a four-way, spool-type, directional control valve with all ports normally-open. This valve is commonly used in a circuit to allow flow to and from a double-acting cylinder or motor.

OPERATION

When energized, the spool shifts and all flow paths are blocked. When de-energized, the cartridge’s spool allows flow from ① to ④ and from ② and ③.

Operation of Manual Override Option: To override, push button in, twist counterclockwise and release. In this position, valve will remain detented in the shifted condition. To return to normal operation, push button in, twist clockwise and release. Override will be detented in this position.

FEATURES and BENEFITS

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Manual override option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: (Per land) 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
Pull-In: 12 VDC 35 m. sec. Drop-Out: 12 VDC 20 m. sec.
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV2-080-4NO
Four-Way, Two-Position, Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV2 - 080  -  4  NO  -  *  -  *  -  *  -  *  -  *  -  *  -  **

Solenoid Valve

Cavity/Seal

Flow Path

Normally Open

Seals
N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

Porting
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.

Coil Connection
DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
D = DC
A = AC

For Cartridge Only.

Other porting and coil options available – consult factory.
DSV-080-34M
Four-Way, Three-Position, Motor Center
Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION
When de-energized, the valve allows flow between the ①, ②, and ④ ports with the ③ port blocked. When the upper solenoid (S1) is energized, the valve allows flow between ② and ① ports and the ③ and ④ ports. When the lower solenoid (S2) is energized, the valve allows flow between the ④ and ① ports and the ③ and ② ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE. Nominal flow 3 gpm (11.4 L/min.)
Internal Leakage: (Per land) 10 cu. in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
**DSV-080-34M**

Four-Way, Three-Position, Motor Center Spool-Type Solenoid Valve

**INSTALLATION DIMENSIONS**

( ) Parentheses = Millimeters

**HOW TO ORDER**

- **DSV - 080** - 34 M - * - * - * - * - * - **

**SOLENOID VALVE**

**CAVITY/SEAL**

**POSITION/FLOW PATH**

**MOTOR CENTER**

**SEALS**

- N = Buna N
- V = Viton

**COIL CONNECTION**

- DE = Double Lead
- SE = Single Lead
- HS = Hirschmann®
- CS = Conduit
- BE = Double Spade
- EE = Single Stud
- UE = Deutsch

**PORTING**

- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 4T = SAE 4
- 6T = SAE 6

Omit for Cartridge Only

**VOLTAGE**

- 1 = 12 Volt
- 2 = 24 Volt
- 5 = 120 Volt
- 6 = 240 Volt
- 9 = 20 Volt
- 10 = 10 Volt

D = DC
A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

**SERIES 8**
DSV-100-34M
Four-Way, Three-Position, Motor Center
Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION
When de-energized, the valve allows flow between the 1, 2, and 4 ports with the 3 port blocked. When the upper solenoid (S1) is energized, the valve allows flow between 2 and 1 ports and the 3 and 4 ports. When the lower solenoid (S2) is energized, the valve allows flow between the 4 and 1 ports and the 3 and 2 ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS
• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE. Nominal flow 6 gpm (22.7 l/min.)
Internal Leakage: (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-100-34M
Four-Way, Three-Position, Motor Center Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 100 - 34 M - * - * - * - * - * - **

- SOLENOID VALVE
- CAVITY/SEAL
- POSITION/FLOW PATH
- MOTOR CENTER
- SEALS
  N = Buna N
  V = Viton
- M = Manual Override
  (Omit for standard)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

D = DC
A = AC
DSV-080-34T
Four-Way, Three-Position, Tandem Center Spool-Type Solenoid Valve

DESCRIPTION

A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION

When de-energized, the valve allows flow between the ③ and ① ports with ports ② and ④ blocked. When the lower solenoid (S2) is energized, the valve allows flow between the ③ and ② ports and the ① and ④ ports. When the upper (S1) solenoid is energized, the valve allows flow between the ① and ④ ports and the ② and ③ ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS

• Continuous-duty solenoid.
• Hardened precision spool and sleeve for long life.
• Efficient wet-armature construction.
• Cartridges are voltage interchangeable.
• Optional coil voltages and terminations.
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE.
Nominal flow 3 gpm (11.4 L/min.)
Internal Leakage: (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-080-34T
Four-Way, Three-Position, Tandem Center
Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>B</td>
<td>P</td>
<td>A</td>
<td>2.15 (54.6)</td>
<td>.75 (19.0) HEX, TORQUE 40 IN-LBS, (4.5 Nm) MAX.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>3.40 (66.4)</td>
<td>6.63 (168.4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>3.25 (82.6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 080 - 34T - * - * - * - * - * - * - * - * - *

Solenoid Valve

DSV - 080

Cavity/Seal

Position/Flow Path

Tandem Center

Seals

N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

D = DC
A = AC

Porting

2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Coil Connection

DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage

1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
**DESCRIPTION**

A cartridge valve designed as a three position, four-way solenoid valve.

**OPERATION**

When de-energized, the valve allows flow between the \( ³ \) and \( ¹ \) ports with the \( Œ \) and \( ² \) ports blocked. When the lower solenoid (S2) is energized, the valve allows flow between \( Œ \) and \( ¹ \) ports and the \( ³ \) and \( ² \) ports. When the upper solenoid (S1) is energized, the valve allows flow between the \( ² \) and \( ¹ \) ports and the \( ³ \) and \( Œ \) ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

**FEATURES and BENEFITS**

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW CURVE. Nominal flow 4 gpm (15.1 L/min.)
- **Internal Leakage:** (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Coil Rating:** Continuous from 85% to 110% of rated voltage.
- **Current Draw:** 12 VDC is 1.8 amps.
- **Minimum Pull-In Voltage:** 85% of rated voltage at 3000 PSI (207 Bar)
- **Recommended Filtration:** ISO 17/15/13
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-4, see page 11.10.4
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-100-34T
Four-Way, Three-Position, Tandem Center Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV - 100 - 34T - * - * - * - * - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

SEALS
N = Buna N
V = Viton

M = Manual Override
(Omit for standard)

D = DC
A = AC

Parentheses = Millimeters

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DSV-100-34TR
Four-Way, Three-Position, Regen Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three position, four-way solenoid valve with regen function.

OPERATION
When de-energized, the valve allows flow between the ① and ③ ports with ports ② and ④ blocked. When the upper solenoid (S1) is energized, the valve allows flow between the ① and ④ ports and the ② and ③ ports. When the lower solenoid (S2) is energized, the valve allows flow between the ① and ② and ③ ports with the ④ port blocked.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges and voltage interchangeable.
- Optional coil voltages and termination.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Max. Flow: 1.5 GPM (5.75 l/min)
- Internal Leakage: 5 in³/min (82 cc/min) at 3000 PSI (207 Bar)
- Coil Rating: Continuous from 85% to 110% of rated voltage.
- Current Draw: 12 VDC is 1.3 amps
- Temperature: -30°F to +250°F (-35°C to +120°C).
- Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar).
- Response Time: 80% of final change of state with 100% voltage supplied at 100% of nominal flow rating.
- Pull-In: 12 VDC 35 m.sec. Drop-Out: 12 VDC 20 m.sec.
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids.
- Cavity/Cavity Tool: 100-4, see page 11.08.3
- Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DSV-100-34TR
Four-Way, Three-Position, Regen
Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 (25.4) HEX</td>
<td>.75 (19.0)</td>
</tr>
<tr>
<td>.88 (22.4) HEX</td>
<td>2.00 (50.8)</td>
</tr>
<tr>
<td>TORQUE</td>
<td>2.88 (73.0)</td>
</tr>
<tr>
<td>30 FT-LBS</td>
<td>1.25(31.7)</td>
</tr>
<tr>
<td>(40.7 Nm) MAX.</td>
<td>.63 (15.88)</td>
</tr>
<tr>
<td>2.48 (63.03)</td>
<td>1.25 (31.75)</td>
</tr>
<tr>
<td>.75 (19.0)</td>
<td>2.48 (63.03)</td>
</tr>
<tr>
<td>.48 (12.2)</td>
<td>3.13 (79.4)</td>
</tr>
<tr>
<td>(113.8)</td>
<td>3.38 (85.9)</td>
</tr>
<tr>
<td>(25.4)</td>
<td>4.15 (105.4)</td>
</tr>
<tr>
<td>.28 (7.1) TYP</td>
<td>1.38 (34.93)</td>
</tr>
<tr>
<td>.25 (6.3)</td>
<td>3.25 (82.55)</td>
</tr>
<tr>
<td>.20 (.50)</td>
<td>7.70 (195.58)</td>
</tr>
<tr>
<td>(113.8)</td>
<td></td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

HOW TO ORDER

DSV - 100 - 34TR - * - * * * - **

SOLENOID VALVE

CAVITY/SEAL

FLOW PATH

TANDEM CENTER
With Regen Function

SEALS
N = Buna-N
V = Viton

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

PORTING
2N = 1/4
3N = 3/8
4T = SAE 4
6T = SAE 6

Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud
U = Deutsch

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
**DSV-080-34C**

Four-Way, Three-Position, Closed Center
Spool-Type Solenoid Valve

**DESCRIPTION**

A cartridge valve designed as a three position, four-way solenoid valve.

**OPERATION**

When de-energized, the valve prevents flow at all ports. When the upper solenoid (S1) is energized, the valve allows flow between the \( \text{②} \) and \( \text{①} \) ports and the \( \text{③} \) and \( \text{④} \) ports. When the lower solenoid (S2) is energized, the valve allows flow between the \( \text{③} \) and \( \text{①} \) ports and the \( \text{④} \) and \( \text{②} \) ports.

**Operation of Manual Override Option:** To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

**FEATURES and BENEFITS**

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Nominal Flow:** 3 gpm (11.4 L/min.)
- **Internal Leakage:** (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Coil Rating:** Continuous from 85% to 110% of rated voltage.
- **Current Draw:** 12 VDC is 1.3 amps.
- **Minimum Pull-In Voltage:** 85% of rated voltage at 3000 PSI (207 Bar)
- **Recommended Filtration:** ISO 17/15/13
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-4, see page 11.08.4
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-080-34C
Four-Way, Three-Position, Closed Center
Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Manual Override</td>
<td>2.50 (63.5)</td>
</tr>
<tr>
<td>B</td>
<td>.75 (19.1) HEX, TOQUE 40 IN-LBS, (4.5 Nm) MAX.</td>
<td>2.15 (54.6)</td>
</tr>
<tr>
<td>P</td>
<td># (#22.6) HEX, TORQUE 20 FT-LBS, (27.1 Nm) MAX.</td>
<td>3.40 (86.4)</td>
</tr>
<tr>
<td>S1</td>
<td></td>
<td>5.212 (132.3)</td>
</tr>
<tr>
<td>S2</td>
<td></td>
<td>3.04 (77.2)</td>
</tr>
</tbody>
</table>

 Parentheses = Millimeters

HOW TO ORDER

DSV - 080 - 34 C - * - * - * - * - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

COIL CONNECTION
DE = Double Lead
SE = Single Lead
HS = Hirschmann*
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

SOLENOID
N = Buna N
V = Viton

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.

M = Manual Override
(omit for standard)

D = DC
A = AC

1.44.2
DSV-100-34C
Four-Way, Three-Position, Closed Center Spool-Type Solenoid Valve

DESCRIPTION
A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION
When de-energized, the valve prevents flow at all ports. When the upper solenoid (S1) is energized, the valve allows flow between ② and ④ ports and the ③ and ① ports. When the lower solenoid (S2) is energized, the valve allows flow between the ④ and ① ports and the ③ and ② ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS
- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE.
Nominal flow 6 gpm (22.7 L/min.)
Internal Leakage: (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-100-34C
Four-Way, Three-Position, Closed Center
Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DSV - 100 - 34 C - * - * - * - * - * - **

Solenoid Valve

Cavity/Seal

Position/Flow Path

Closed Center

Seals
N = Buna N
V = Viton

Manual Override Option

.88 (22.4) Hex.
Torque 40 Inch-Lbs.
(4.5 Nm) Max.

1.00 (25.4) Hex.
Torque 30 Ft.-Lbs.
(40.7 Nm) Max.

.28 TYP. (7.1)

.25 (6.4)

2.00 (50.8)

1.25 (31.8)

1.38 (35.1)

1.25 (31.8)

.63 (16.0)

.63 (16.0)

.72 (18.3)

7.72 (196.1)

6.22 (158.0)

4.50 (114.3)

2.48 (63.0)

2.48 (63.0)

.5 (12.7)

( ) Parentheses = Millimeters

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only

COIL CONNECTION
D = Double Lead
S = Single Lead
H = Hirschmann®
C = Conduit
B = Double Spade
E = Single Stud

VOLTAGE
1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

M = Manual Override
(Omit for standard)

D = DC
A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DSV-080-34O

Four-Way, Three-Position, Open Center
Spool-Type Solenoid Valve

DESCRIPTION

A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION

When de-energized, the valve allows flow at all ports. When the upper solenoid (S1) is energized, the valve allows flow between the ① and ③ ports and the ④ and ② ports. When the lower solenoid (S2) is energized, the valve allows flow between the ① and ④ ports and the ② and ③ ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE. Nominal flow 1.5 gpm (5.7 L/min.)
Internal Leakage: (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.3 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
DSV-080-34O
Four-Way, Three-Position, Open Center Spool-Type Solenoid Valve

INSTALLATION DIMENSIONS

Diagram showing installation dimensions with notes on manual override option and porting options.

HOW TO ORDER

DSV - 080 - 34 O - ** - ** - ** - **

Solenoid Valve

Porting

2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Coil Connection

DE = Double Lead
SE = Single Lead
HS = Hirschmann®
CS = Conduit
BE = Double Spade
EE = Single Stud
UE = Deutsch

Voltage

1 = 12 Volt
2 = 24 Volt
5 = 120 Volt
6 = 240 Volt
9 = 20 Volt
10 = 10 Volt

Seals

N = Buna N
V = Viton

Open Center

Manual Override

(Omit for standard)

Other porting and coil options available – consult factory.
DESCRIPTION

A cartridge valve designed as a three position, four-way solenoid valve.

OPERATION

When de-energized, the valve allows flow at all ports. When the upper solenoid (S1) is energized, the valve allows flow between the ② and ① ports and the ③ and ④ ports. When the lower solenoid (S2) is energized, the valve allows flow between the ⑤ and ⑥ ports and the ⑦ and ⑧ ports.

Operation of Manual Override Option: To override, pull the knurled knob to activate the coil “S1” function, or push the knurled knob to activate the coil “S2” function. Release the knurled knob to return the center position.

FEATURES and BENEFITS

- Continuous-duty solenoid.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW CURVE.
Nominal flow 3 gpm (11.4L/min.)
Internal Leakage: (Per land) 10 cu in./min. max. (164 cc/min.) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Current Draw: 12 VDC is 1.8 amps.
Minimum Pull-In Voltage: 85% of rated voltage at 3000 PSI (207 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar)
**DSV-100-34O**
Four-Way, Three-Position, Open Center
Spool-Type Solenoid Valve

**INSTALLATION DIMENSIONS**

- **Manual Override Option**
  - .08 (2.24) HEX.
  - **(21.42) HEX.
  - Torque 40 IN-LBS.
  - (4.5 Nm) MAX.

- **Installation Dimensions**
  - ( ) Parentheses = Millimeters

**HOW TO ORDER**

- **DSV - 100 - 34 O**
- **Porting**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only

- **Coil Connection**
  - D = Double Lead
  - S = Single Lead
  - H = Hirschmann®
  - C = Conduit
  - B = Double Spade
  - E = Single Stud

- **Voltage**
  - 1 = 12 Volt
  - 2 = 24 Volt
  - 5 = 120 Volt
  - 6 = 240 Volt
  - 9 = 20 Volt
  - 10 = 10 Volt

- **Seals**
  - N = Buna N
  - V = Viton

- **Open Center**
  - M = Manual Override
  - (Omit for standard)

- **Ordering Information**
  - D = DC
  - A = AC

Omit coil for cartridge only with nut.
Other porting and coil options available – consult factory.
DPV-100-2NC
Normally-Closed, Proportional, Flow Control Valve

DESCRIPTION

A cartridge valve designed as a normally closed, spool-type, proportional valve for use with a compensating element to provide an electrically variable pressure-compensated flow control.

OPERATION

As electrical current is applied to the coil, the spool will gradually shift from closed to open as current increases to 2 amps maximum. Flow will pass from port ③ to port ② up to 300 psi differential.

Port ① is plugged.

The valve can also function as a differential control for load sense applications.

The valve functions with industry-common controllers which provide PWM current input to 2 amps @ 12 VDC.

OPERATION OF MANUAL OVERRIDE:

To override, push button in to activate.

To return to normal function, release button.

FEATURES and BENEFITS

- Valve controllers along with portable controller programming devices to vary PWM Duty Cycle, Ramp Time, Current Limit, Dither Frequency and Amplitude, can be provided by consulting the factory.
- Hardened precision spool and sleeve for long life.
- Efficient wet-armature construction.
- Cartridges are voltage interchangeable.
- Optional coil voltages and terminations.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Coil Specifications:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Resistance</th>
<th>Threshold Current</th>
<th>Max. Control Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 Volt System</td>
<td>4.0 ohms @ 20°C</td>
<td>300 ± 70mA</td>
<td>1500 ± 200mA</td>
</tr>
<tr>
<td>24 Volt System</td>
<td>16.0 ohms @ 20°C</td>
<td>150 ± 35mA</td>
<td>750 ± 100mA</td>
</tr>
</tbody>
</table>

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PERFORMANCE DROP VS. FLOW graph.
Internal Leakage: (per land) 10 in³/min. (164 cc/min) at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Coil Rating: Continuous from 85% to 110% of rated voltage.
Recommended Filtration: ISO 16/12
 Fluids: Mineral-based fluids.
Cavity/Cavity Tool: 100-3, see page 11.10.3
DPV-100-2NC

Normally-Closed, Proportional, Flow Control Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DPV - 100 - 2 NC * - * - * * - **

PROPORTIONAL FLOW CONTROL VALVE

CAVITY/SEAL

FLOW PATH

NORMALLY CLOSED

FLOW RANGE GPM Max
3 = 3 GPM (11.4 L/min)
7 = 7 GPM (26.5 L/min)
14 = 14 GPM (53.0 L/min)

SEALS
N = Buna N
V = Viton

D = DC
A = AC

BODY PORTING
6T = SAE 6
8T = SAE 8
Omit for cartridge only.

COIL CONNECTION
H = Hirschmann®
B = Double Spade

VOLTAGE
1 = 12 Volt
2 = 24 Volt

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800-999-7378
**ZCO-42**
Direct-Acting, Ball-Type Check Valve

**DESCRIPTION**
A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

**OPERATION**
Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

**FEATURES and BENEFITS**
- Chrome alloy ball for long life.
- Low leak.
- Compact size.

**SPECIFICATIONS**
- **Operating Pressure:** 3500 PSI (241 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 2 drops/min. max. at 3000 PSI (207 Bar)
- **Crack Pressure:** 5 PSI (0.3 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:**
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids.
  - For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** ZP42, see page 11.04.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

**PRESSURE DROP VS. FLOW**

![Graph showing pressure drop vs. flow for ZCO-42](image-url)
ZCO-42
Direct-Acting, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

ZCO - 42 - U - **

CHECK VALVE
CAVITY
SEALS
U = Urethane

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
**ZCP6**

Direct-Acting, Poppet-Type Check Valve

**DESCRIPTION**

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

**OPERATION**

Pressure at ① overcomes the spring-bias poppet and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the poppet.

**FEATURES and BENEFITS**

- Hardened poppet and seat for long life.
- Low leak.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3500 PSI (241 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
  - Nominal Flow 5 gpm (18.9 L/min).
- **Internal Leakage:** 2 drops/min. max. at 3000 PSI (207 Bar)
- **Crack Pressure:** 5 PSI (0.5 Bar)
  - 10 PSI (0.7 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:**
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids.
  - For other fluid compatibility, consult factory.
- **Cavity:** ZCP6, see page 2.03.2
- **Installation/Removal Tool:** Consult factory

**PRESSURE DROP VS. FLOW**

![Pressure Drop vs. Flow Graph](chart.png)

**PORT ① TO ② (FREE FLOW)**

150 ssu/32 cSt OL @ 100°F, 98°C

<table>
<thead>
<tr>
<th>FLOW gpm (L/min.)</th>
<th>PRESSURE DROP (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 (6.8)</td>
<td>10 (0.7)</td>
</tr>
<tr>
<td>2.0 (9.0)</td>
<td>15 (1.0)</td>
</tr>
<tr>
<td>2.5 (11.4)</td>
<td>20 (1.38)</td>
</tr>
<tr>
<td>3.0 (14.1)</td>
<td>25 (1.72)</td>
</tr>
<tr>
<td>4.0 (15.2)</td>
<td></td>
</tr>
<tr>
<td>5.0 (19.0)</td>
<td></td>
</tr>
</tbody>
</table>

10205-12(B) 02/11
ZCP6 - Direct-Acting, Poppet-Type Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

ZCP6 - * - **

CHECK VALVE/CAVITY

SEALS
N = Buna
V = Viton

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
10 = 10 PSI (0.7 Bar)
ZC-62
Direct-Acting, Ball-Type
Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

FEATURES and BENEFITS

- Slip in style.
- Torlon® ball for positive shut-off.
- Low leak.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 4 GPM (15.1 L/min).
Internal Leakage: 2 drops/min. max. at 3000PSI (207 Bar)
Crack Pressure:  5 PSI (0.3 Bar)
30 PSI (2.1 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration:  Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool:  ZP62, see page 11.06.2
In-Line Body Material:  Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

PORT ① TO ② (FREE FLOW)
150 ass/32 cSt OIL @ 100°F/38°C

FLOW gpm (L/min.)
0 1.0 (3.8)
2.0 (7.6)
3.0 (11.4)
4.0 (15.2)
5.0 (19.0)

PRESSURE DROP psi (bar)
0 (0.0)
40 (2.76)
80 (5.52)
120 (8.25)
160 (11.04)
200 (13.80)
240 (16.56)
ZC-62
Direct-Acting, Ball-Type Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

ZC - 62 - U - ** - **

CHECK VALVE

CAVITY

SEALS
U = Urethane

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
30 = 30 PSI (2.1 Bar)
(Other Options Available – Consult Factory)

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

#6 SAE PLUG

Installation Dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 0.48</td>
<td>12.2</td>
</tr>
<tr>
<td>0.25</td>
<td>6.4</td>
</tr>
<tr>
<td>0.50</td>
<td>12.7</td>
</tr>
<tr>
<td>1.00</td>
<td>25.4</td>
</tr>
<tr>
<td>1.50</td>
<td>38.1</td>
</tr>
<tr>
<td>2.00</td>
<td>50.8</td>
</tr>
<tr>
<td>2.11</td>
<td>53.6</td>
</tr>
<tr>
<td>0.75</td>
<td>19.0</td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

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800-999-7378
DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ① overcomes the spring-bias poppet and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the poppet.

FEATURES and BENEFITS

- Slip in style.
- Zero leak.
- Compact size.

SPECIFICATIONS

Operating Pressure: 1500 PSI (103 Bar)
Flow: See PRESSURE DROP VS. FLOW graph. Nominal Flow 2 GPM (7.6 L/min).
Internal Leakage: 0 drops/min. max. at 1500PSI (103 Bar)
Crack Pressure: 1 - 2 PSI (0.67-0.14 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP62, see page 11.06.2
Installation/Removal Tool: Consult factory
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
ZCO-62
Zero Leak, Direct-Acting, Poppet-Type Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

ZCO - 62 - U - ** - **
CHECK VALVE
CAVITY
SEALS
U = Urethane
CRACK PRESSURE
1 = 1 - 2 PSI (0.67 - 0.14 Bar)

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

( ) Parentheses = Millimeters
**DCV-080-B**

Direct-Acting, Ball-Type Check Valve

### DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

### OPERATION

Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

### FEATURES and BENEFITS

- Guide ball assembly.
- Chrome alloy ball for long life.
- Low leak.
- Industry common cavity.
- Compact size.

### SPECIFICATIONS

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 2 drops/min. max. at 3000 PSI (207 Bar)
- **Crack Pressure:**
  - 2 PSI (0.1 Bar)
  - 5 PSI (0.3 Bar)
  - 10 PSI (1.0 Bar)
  - 25 PSI (1.7 Bar)
- **Temperature:** -30°F to +220°F (-35°C to +104°C)
- **Recommended Filtration:**
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

### PRESSURE DROP VS. FLOW

![Pressure Drop vs. Flow Graph](image)
DCV-080-B
Direct-Acting, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DCV - 080 - B - * - ** - **

CHECK VALVE

CAVITY/SEAL

B = Ball

SEAL
N = Buna N
V = Viton

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available – consult factory.)

CRACK PRESSURE
2 = 2 PSI (0.1 Bar)
5 = 5 PSI (0.3 Bar)
10 = 10 PSI (1.0 Bar)
25 = 25 PSI (1.7 Bar)
DCV-100-B
Direct-Acting, Ball-Type Check Valve

DESCRIPTION
A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

OPERATION
Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

FEATURES and BENEFITS
- Chrome alloy ball for long life.
- Low leak.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph. Nominal Flow 20 GPM (75.7 L/min).
- Internal Leakage: 2 drops/min. max. at 3000 PSI (207 Bar)
- Crack Pressure: 5 PSI (0.3 Bar)
  15 PSI (1.0 Bar)
  30 PSI (2.1 Bar)
  65 PSI (4.5 Bar)
  100 PSI (6.9 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: Critical Application – ISO 17/15/13
  Non-Critical Application – ISO 20/18/14
- Fluids: Mineral-based fluids.
  For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 100-2, see page 11.10.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

FOR YOUR INFORMATION

TECHNICAL DATA
ACCESSORIES
SHUTTLE DIRECTIONAL VALVES
PRESSURE CONTROL
SEQUENCE
FLOW CONTROL
MOTION CONTROL
CHECK
SOLENOID

2.10.1
DCV-100-B
Direct-Acting, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DCV - 100 - B - * - *** - **

CHECK VALVE

CAVITY/SEAL

BALL

SEAL
N = Buna N
V = Viton

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
15 = 15 PSI (1.0 Bar)
30 = 30 PSI (2.1 Bar)
65 = 65 PSI (4.5 Bar)
100 = 100 PSI (6.9 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)
DCV-080-PB
Direct-Acting, Ball-Type Check Valve

**DESCRIPTION**
A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

**OPERATION**
Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

**FEATURES and BENEFITS**
- Guide ball assembly
- Torlon® ball for positive shut-off.
- Low leak.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
  Nominal Flow 5 GPM (18.9 L/min).
- Internal Leakage: Less than 2 drops/min. max. at 3000 PSI (207 Bar)
- Crack Pressure: 5 PSI (0.3 Bar)
  10 PSI (0.7 Bar)
  30 PSI (2.1 Bar)
  60 PSI (4.1 Bar)
  100 PSI (6.9 Bar)
- Temperature: -30°F to +220°F (-35°C to +104°C)
- Recommended Filtration:
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- Fluids: Mineral-based fluids.
  For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DCV-080-PB
Direct-Acting, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DCV - 080 - PB - * - *** - **
CHECK VALVE
CAVITY/SEAL
BALL
SEAL
N = Buna N
V = Viton

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
10 = 10 PSI (1.0 Bar)
30 = 30 PSI (2.1 Bar)
60 = 60 PSI (4.5 Bar)
100 = 100 PSI (6.9 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)
DCV-100-PB
Direct-Acting, Ball-Type
Check Valve

DESCRIPTION
A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

OPERATION
Pressure at ① overcomes the spring-bias ball and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the ball.

FEATURES and BENEFITS
• Guide ball assembly
• Torlon® ball for positive shut-off.
• Low leak.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal flow 20 GPM (75.7 L/min).
Internal Leakage: Less than 2 drops/min. max. at 3000 PSI (207 Bar)
Crack Pressure: 5 PSI (0.3 Bar)
10 PSI (0.7 Bar)
30 PSI (2.1 Bar)
60 PSI (4.1 Bar)
100 PSI (6.9 Bar)
Temperature: -30°F to +220°F (-35°C to +104°C)
Recommended Filtration:
Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DCV-100-PB
Direct-Acting, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DCV - 100 - PB - * - *** - **

CHECK VALVE

CAVITY/SEAL

BALL

SEALS
N = Buna N
V = Viton

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
10 = 10 PSI (0.7 Bar)
30 = 30 PSI (2.1 Bar)
60 = 60 PSI (4.1 Bar)
100 = 100 PSI (6.9 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)
## DCV-100-P

Direct-Acting, Poppet-Type
Cartridge Check Valve

### PRESSURE DROP VS. FLOW

<table>
<thead>
<tr>
<th>FLOW gpm (L/min.)</th>
<th>PRESSURE DROP psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1.7</td>
<td>25</td>
</tr>
<tr>
<td>3.4</td>
<td>50</td>
</tr>
<tr>
<td>5.2</td>
<td>75</td>
</tr>
<tr>
<td>6.9</td>
<td>100</td>
</tr>
<tr>
<td>8.6</td>
<td>125</td>
</tr>
<tr>
<td>10.3</td>
<td>150</td>
</tr>
</tbody>
</table>

**DESCRIPTION**

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. This valve is commonly used as a load-holding or blocking valve.

### OPERATION

Pressure at \( \text{①} \) overcomes the spring-bias poppet and allows free flow to \( \text{②} \). Flow in the opposite direction, from \( \text{②} \) to \( \text{①} \), is blocked by the poppet.

### FEATURES and BENEFITS

- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

### SPECIFICATIONS

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 drops/min. max. at 3000 PSI (207 Bar)
- **Crack Pressure:**
  - 5 PSI (0.3 Bar)
  - 15 PSI (1.0 Bar)
  - 30 PSI (2.1 Bar)
  - 65 PSI (4.5 Bar)
  - 100 PSI (6.9 Bar)
  - 300 PSI (20.7 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:**
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids.
  - For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-2, see page 11.10.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DCV-100-P
Direct-Acting, Poppet-Type
Cartridge Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DCV - 100 - P - * - *** - **

CHECK VALVE

CAVITY/SEAL

POPPET

SEAL
N = Buna N
V = Viton

CRACK PRESSURE
5 = 5 PSI (0.3 Bar)
15 = 15 PSI (1.0 Bar)
30 = 30 PSI (2.1 Bar)
65 = 65 PSI (4.5 Bar)
100 = 100 PSI (6.9 Bar)
300 = 300 PSI (20.7 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)
ZPC-63
Pilot To Open, Ball-Type
Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ② overcomes the spring-bias ball and allows free flow to ③. Flow in the opposite direction, from ③ to ②, is blocked by the ball. When the required pilot pressure is achieved at ①, the ball unseats and allows flow between ① and ②. The pilot piston area to poppet seat area ratio is 3 to 1.

FEATURES and BENEFITS

- Slip in style.
- Torlon® ball for positive shut-off.
- Low leak.
- Compact size.
- Sealed pilot piston.

SPECIFICATIONS

Operating Pressure: 1500 PSI (103 Bar)
Flow: See PRESSURE DROP VS. FLOW graph. Nominal Flow 3 GPM (11.4 L/min).
Internal Leakage: 2 drops/min. max. at 1500 PSI (103 Bar)
Crack Pressure: 30 PSI (2.1 Bar)
Pilot Ratio: 3 to 1
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP63, see page 11.06.3
Installation/Removal Tool: Consult factory
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
ZPC-63
Pilot To Open, Ball-Type Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

ZPC - 63 - U - ** - **

PILOT-OPERATED CHECK VALVE

CAVITY

SEALS
U = Urethane

CRACK PRESSURE
30 = 30 PSI (2.1 Bar)

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

( ) Parentheses = Millimeters
ZPC2-63
Pilot To Open, Ball-Type
Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at 2 overcomes the spring-bias ball and allows free flow to 3. Flow in the opposite direction, from 3 to 2, is blocked by the ball. When the required pilot pressure is achieved at 1, the ball unseats and allows flow between 3 and 2. The pilot piston area to poppet seat area ratio is 3 to 1.

FEATURES and BENEFITS

• Slip in style
• Compact size.

SPECIFICATIONS

Operating Pressure: 4000 PSI (276 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 3 GPM (11.4 L/min).
Internal Leakage: 5 drops/min. max.
Crack Pressure: 30 PSI (2.1 Bar)
Pilot Ratio: 3 to 1
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration:
Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14

Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.

Cavity/Cavity Tool: ZP63, see page 11.06.3
Installation/Removal Tool: Consult factory
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
ZPC2-63
Pilot To Open, Ball-Type
Check Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

ZPC2 - 63 - U - ** - **

PILOT-OPERATED CHECK VALVE

CAVITY

SEALS
U = Urethane

CRACK PRESSURE
30 = 30 PSI (2.1 Bar)

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

SHOP ONLINE at www.airlinehyd.com
800-999-7378
**DESCRIPTION**

A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

---

**OPERATION**

Pressure at ② overcomes the spring-bias poppet and allows free flow to ③. Flow in the opposite direction, from ① to ②, is blocked by the poppet. When the required pilot pressure is achieved at ①, the poppet unseats and allows flow between ① and ③. The pilot piston area to poppet seat area ratio is 3.0 to 1.

---

**FEATURES and BENEFITS**

- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

---

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
  - Nominal flow 5 gpm (18.9 L/min.)
- **Internal Leakage:** 5 drops/min. max. at 3000 PSI (207 Bar)
- **Crack Pressure:**
  - 25 PSI (1.7 Bar)
  - 50 PSI (3.4 Bar)
  - 100 PSI (6.9 Bar)
- **Pilot Ratio:** 3.0 to 1
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:**
  - Critical Application – ISO 17/15/13
  - Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids.
  - For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-3, see page 11.08.3
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPC-080-P
Pilot To Open, Poppet-Type
Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPC - 080 - P - ** - *** - **

PILOT-OPERATED CHECK VALVE

CAVITY/SEAL

P = Poppet

SEALS
N = Buna N
V = Viton

CRACK PRESSURE
25 = 25 PSI (1.7 Bar)
50 = 50 PSI (3.4 Bar)
100 = 100 PSI (6.9 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6

Omit for Cartridge Only.
(Other porting options available – consult factory.)

( ) Parentheses = Millimeters
DPC-100-P
Pilot To Open, Poppet-Type
Check Valve

DESCRIPTION
A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION
Pressure at ② overcomes the spring-bias poppet and allows free flow to ③. Flow in the opposite direction, from ③ to ②, is blocked by the poppet. When the required pilot pressure is achieved at ①, the poppet unseats and allows flow between ③ and ②. The pilot piston area to poppet seat area ratio is 3.5 to 1.

FEATURES and BENEFITS
- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Crack Pressure:
- 25 PSI (1.7 Bar)
- 50 PSI (3.4 Bar)
- 100 PSI (6.9 Bar)
Pilot Ratio: 3.5 to 1
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-3, see page 11.10.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

FLOW gpm (L/min.)
0 1.0 2.0 3.0 4.0 5.0 6.0

PRESSURE DROP Ps (bar)
0 (3.8) 40 (2.8) 80 (5.5) 120 (8.3) 200 (13.8) 240 (16.8)

① TO ② (FREE FLOW)
② TO ③ (PILOATED OPEN TYP.)
150 ssu/32 cSt OIL @ 100°F/38°C
INSTRUCTIONS DIMENSIONS

HOW TO ORDER

DPC - 100 - P - * - *** - **

PILOT-OPERATED CHECK VALVE

CAVITY/SEAL

P = Poppet

SEALS

N = Buna N
V = Viton

CRACK PRESSURE

25 = 25 PSI (1.7 Bar)
50 = 50 PSI (3.4 Bar)
100 = 100 PSI (6.9 Bar)

PORTING

2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

Omit for Cartridge Only.

Parentheses = Millimeters

( ) Parentheses = Millimeters
DESCRIPTION

A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ② or ④ overcomes the spring-bias poppet and allows free flow to ① or ③ respectively. Flow in the opposite direction, from ① to ② or ④ to ③, is blocked by the poppet. When the required pilot pressure is achieved at ③, the poppet unseats and allows flow between ④ and ③. When the required pilot pressure is achieved at ⑥, the poppet unseats and allows flow between ② and ⑥. The pilot piston area to poppet seat area ratio is 2.4 to 1.

FEATURES and BENEFITS

- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
   Nominal flow 2 gpm (7.6 L/min.)
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Crack Pressure: 25 PSI (1.7 Bar)
Pilot Ratio: 2.4 to 1
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
   Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
   For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-4, see page 11.08.4
In-Line Body Material: Anodized 6061 T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

[Graph depicting pressure drop vs. flow]
DDPC-080-P
Dual Pilot To Open, Poppet-Type
Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DDPC - 080 - P - * - *** - **

DUAL PILOT-OPERATED
CHECK VALVE

CAVITY/SEAL

P = Poppet

SEALS

U = Urethane

CRACK PRESSURE

25 = 25 PSI (1.7 Bar)

PORTING

2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6

Omit for Cartridge Only.
(Other porting options available – consult factory.)

( ) Parentheses = Millimeters
DDPC-100-P
Dual Pilot To Open, Poppet-Type Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ② or ③ overcomes the spring-bias poppet and allows free flow to ① or ④ respectively. Flow in the opposite direction, from ① to ② or ④ to ③, is blocked by the poppet. When the required pilot pressure is achieved at ②, the poppet unseats and allows flow between ③ and ④. When the required pilot pressure is achieved at ③, the poppet unseats and allows flow between ① and ②. The pilot piston area to poppet seat area is ④ to ①.

FEATURES and BENEFITS

- Hardened seat for long life and low leakage.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

- Operating Pressure: 4000 PSI (276 Bar)
- Flow: Nominal Flow 6 gpm (22.8 l/min)
- Internal Leakage: 5 drops/min (0.25 cc/min) aty 3000 PSI (207 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C).
- Crack Pressure: 25 PSI (1.7 Bar)
- Pilot Ratio: 4 to 1
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids.
- Cavity/Cavity Tool: 100-4, see page 11.10.4
- In-Line Body Material: Anodized 6061T6 aluminum allow rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

![Graph showing pressure drop vs. flow](image-url)
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DDPC - 100 - P - * - ** - **

- Dual Pilot-Operated Check Valve
- Cavity/Seal
- Poppet
- Seals
  - N = Buna N
  - V = Viton
  - U = Urethane
- Porting
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 4T = SAE 4
  - 6T = SAE 6
  - Omit for Cartridge Only
- Crack Pressure
  - 25 = 25 PSI (1.7 Bar)
ZPTC-63
Pilot to Close Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction, while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ② overcomes the spring-bias ball and allows free flow to ③. Flow in the opposite direction, from ③ to ②, is blocked by the ball. When the required pilot pressure is achieved at ①, the ball unseats and allows flow between ③ and ②. The pilot piston area to poppet seat area ratio is 3:1.

FEATURES and BENEFITS

• Slip-in style.
• Compact size.

SPECIFICATIONS

Operating Pressure: 4000 PSI (276 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min max.
Crack Pressure: 30 PSI (2.1 Bar)
Pilot Ratio: 3:1
Temperature: -30°F to +250°F (-35°C to +120°C).
Recommended Filtration: Critical Application — ISO 17/15/13
Non-critical Application — ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP63, see page 11.06.3
Installation/Removal Tool: Consult factory.
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

(Cartridge Only)

FREE FLOW
150 ssu/32 cSt OIL @ 100°F/38°C

FLOW (gpm /L/min.)

PRESSURE DROP (psi)
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

ZPTC - 63 - U - ** - **

PILOT TO CLOSE
CHECK VALVE

CAVITY

SEALS
V = Viton
U = Urethane

PORTING
4T = SAE 4
6T = SAE 6
Omit for cartridge only.

CRACK PRESSURE
30 = 30 PSI (2.1 Bar)
DESCRIPTION

A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Free flow can be blocked by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ① overcomes the spring-bias poppet and allows free flow to ②. Flow in the opposite direction, from ② to ①, is blocked by the poppet. When the required pilot pressure is achieved at ③, the poppet is held closed to block flow between ① and ②. The pilot piston area to poppet seat area ratio is 3 to 1.

FEATURES and BENEFITS

- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

| Operating Pressure: 3000 PSI (207 Bar) |
| Flow: See PRESSURE DROP VS. FLOW graph. |
| Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar) |
| Crack Pressure: 25 PSI (1.7 Bar)  |
| 50 PSI (3.4 Bar) |
| 100 PSI (6.9 Bar) |
| Pilot Ratio: 3 to 1 |
| Temperature: -30°F to +250°F (-35°C to +120°C) |
| Recommended Filtration: Critical Application – ISO 17/15/13 |
| Non-Critical Application – ISO 20/18/14 |
| Fluids: Mineral-based fluids. |
| For other fluid compatibility, consult factory. |
| Cavity/Cavity Tool: 100-3, see page 11.10.3 |
| In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar). |
DPTC-100-P
(Formerly DPC2-100-P)
Pilot To Close, Poppet-Type Check Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPTC - 100 - P - **

PILOT-OPERATED CHECK VALVE

CAVITY/SEAL

P = Poppet

SEALS
N = Buna N
V = Viton

CRACK PRESSURE
25 = 25 PSI (1.7 Bar)
50 = 50 PSI (3.4 Bar)
100 = 100 PSI (6.9 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

Omit for Cartridge Only.
(Other porting options available – consult factory.)

Parentheses = Millimeters

SHOP ONLINE at www.airlinehyd.com
800-999-7378
DPCV-100-P
Vented, Pilot To Open, Popen-Type Check Valve

DESCRIPTION

A cartridge valve designed to allow free flow in one direction while preventing flow in the opposite direction. Reverse flow can be achieved by reaching the required pilot pressure. This valve is commonly used as a load-holding or blocking valve.

OPERATION

Pressure at ② overcomes the spring-bias poppet and allows free flow to ①. Flow in the opposite direction, from ① to ②, is blocked by the poppet. When the required pilot pressure is achieved at ④, the poppet unseats and allows flow between ① and ②. Port ③ is vented to tank to keep one side of the pilot piston low pressure and isolated from back pressure at port ④. The pilot piston area to poppet seat area ratio is 3 to 1.

FEATURES and BENEFITS

- Vented pilot design.
- Hardened poppet and seat for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min, max. at 3000 PSI (207 Bar)
Crack Pressure: 15 PSI (1.0 Bar)
Pilot Ratio: 3 to 1
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility, contact factory.
Cavity/Cavity Tool: 100-4L, see page 11.10.4L

PRESSURE DROP VS. FLOW

![Pressure Drop Graph]

FLOW gpm (L/min.)
PRESURE DROP psi (bar)
0 (0.0)
40 (2.8)
80 (5.5)
120 (8.0)
160 (11.0)
200 (13.8)
(7.1)
(10.1)
(13.1)
(16.0)
(19.0)
(22.7)
(26.3)
(30.0)
(33.7)

10153-96 02/11
DPCV-100-P
Vented, Pilot To Open, Poppet-Type Check Valve

INSTALLATION DIMENSIONS

HOLE DIAMETERS & TORQUE

DPCV - 100 - P - * - 15
VENTED PILOT-OPERATED CHECK VALVE

SEALS
N = Buna N
V = Viton

CRACK PRESSURE
15 = 15 PSI (1.0 Bar)

( ) Parentheses = Millimeters

HOW TO ORDER

SHOP ONLINE at www.airlinehyd.com 800-999-7378
**DNV-080**
Adjustable, Needle Valve

**DESCRIPTION**
A cartridge valve designed to provide a variable flow restriction with positive shut-off.

**OPERATION**
The DNV-080 varies flow restriction by adjusting needle in or out and will shut off when fully closed. This valve will meter flow in either direction.

**FEATURES and BENEFITS**
- Zero leakage at shut-off.
- Aluminum knob.
- Full range of adjustments.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
  Nominal flow 11 GPM (41.6 L/min).
- **Cv Flow Factor:** (Full Open) .47
- **Internal Leakage:** 0 drops/min. at shut-off.
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** Critical Application-ISO 17/15/13
  Non-Critical Application-ISO 20/18/14
- **Fluids:** Mineral-based fluids.
  For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

**PRESSURE DROP VS. FLOW**

![Graph of Pressure Drop vs. Flow](image-url)
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DVNO-080 - * - K - **

NEEDLE VALVE
CAVITY/SEAL
SEALS
N = Buna N
V = Viton
K = Knob

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

**DNV-100**
Adjustable,
Needle Valve

### DESCRIPTION
A cartridge valve designed to provide a variable flow restriction with positive shut-off.

### OPERATION
The DNV-100 varies flow restriction by adjusting needle in or out and will shut off when fully closed. This valve will meter flow in either direction.

### FEATURES and BENEFITS
- Hardened seat for long life.
- Low leakage at shut-off.
- Aluminum knob and disc nut.
- Full range of adjustments.
- Adjustment may be locked in place.
- Positive shut-off.
- Industry common cavity.
- Compact size.

### SPECIFICATIONS
- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** 12 gpm (45.4 L/min.) Max. recommended input.
- **Internal Leakage:** 2 drops/min. max. at 3000 PSI (207 Bar) at shut-off.
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-2, see page 11.10.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

**FLOW IN GPM**

\[
\text{Flow in GPM} = \frac{C_v \sqrt{P_1 - P_2}}{\sqrt{G_f}}
\]

- \(C_v\) = Flow Coefficient
- \(P_1\) = Inlet Pressure (psi)
- \(P_2\) = Outlet Pressure (psi)
- \(G_f\) = Specific gravity of medium at operating temperature in °F.
DNV-100
Adjustable, Needle Valve

INSTALLATION DIMENSIONS

1.50 (38.1) DIA. KNOB
1.00 (25.4) HEX. TORQUE 30 FT.-LBS. (40.7 Nm) MAX.
.28 TYP. (7.1)
.13 (3.3)
1.63 (41.4)
2.00 (50.8)

( ) Parentheses = Millimeters

HOW TO ORDER

DNV - 100 - * - K - **

NEEDLE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

K = Knob

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

Omit for Cartridge Only.
(Other porting options available – consult factory.)
NC-**-S
Adjustable, Needle Valve

DESCRIPTION
A non-self-contained cartridge valve designed to provide a variable flow restriction with positive shut-off. Valve sizes range from 1/8" to 3/4".

OPERATION
The NC series of valves vary flow restriction by adjusting needle in or out and will shut off when fully closed. These valves will meter flow in either direction.

FEATURES and BENEFITS
- Aluminum knob.
- Full range of adjustments.
- Adjustment may be locked in place.
- Positive shut-off.
- Viton seals.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See FLOW CHARACTERISTICS chart.
Temperature: -15°F to +400°F (-26°C to +204°C)
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavities/Cavity Tools: NC**, see page 11.21.1

FLOW CHARACTERISTICS

<table>
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<th>MAX. RECOMMENDED FLOW GPM (L/min.)</th>
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<td>7.0 (26.5)</td>
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<td>13.5 (51.1)</td>
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<td>22.5 (85.2)</td>
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<td>34.0 (128.7)</td>
<td>1.78</td>
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</tbody>
</table>
INSTALLATION DIMENSIONS

MALE THREAD SUPPLIED WITH PRE-APPLIED THREAD LOCKER FOR POSITIVE SEAL.

( ) Parentheses = Millimeters

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A (WIDTH ACROSS HEX FLATS)</th>
<th>B (WIDTH ACROSS HEX FLATS)</th>
<th>C (DIA.)</th>
<th>D (CLOSED)</th>
<th>E (FULL OPEN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC-10-S</td>
<td>.38 (.97)</td>
<td>.38 (.97)</td>
<td>.78 (19.8)</td>
<td>.75 (19.1)</td>
<td>.88 (22.4)</td>
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<tr>
<td>NC-20-S</td>
<td>.44 (11.2)</td>
<td>.50 (12.7)</td>
<td>.78 (19.8)</td>
<td>.86 (21.8)</td>
<td>1.00 (25.4)</td>
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<tr>
<td>NC-25-S</td>
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<td>.50 (12.7)</td>
<td>1.03 (26.2)</td>
<td>.97 (24.6)</td>
<td>1.19 (30.2)</td>
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<td>NC-30-S</td>
<td>.56 (14.2)</td>
<td>.56 (14.2)</td>
<td>1.03 (26.2)</td>
<td>1.19 (30.2)</td>
<td>1.44 (36.6)</td>
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<tr>
<td>NC-35-S</td>
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<td>.75 (19.1)</td>
<td>1.03 (26.2)</td>
<td>1.31 (33.3)</td>
<td>1.63 (41.4)</td>
</tr>
</tbody>
</table>

HOW TO ORDER

**NC-**-S
Adjustable, Needle Valve

NEEDLE VALVE

S = Carbon Steel

SIZE
10 = 1/8"
20 = 1/4"
25 = 3/8"
30 = 1/2"
35 = 3/4"
S-210, S-310 and S-410
Adjustable, High Pressure, Needle Valve

**DESCRIPTION**

A cartridge valve designed as a shut-off. The optional SM needle provides fine metering characteristics.

**OPERATION**

The S-210, S-310, and S-410 series of valves will allow flow in either direction.

**FEATURES and BENEFITS**

- High pressure range.
- High flow capabilities.
- Fine metering option.
- Positive shut-off.
- Compact size.

**SPECIFICATIONS**

* Operating Pressure: 5000 PSI (345 Bar)
* Flow: See FLOW CHARACTERISTICS chart.
* Temperature: -30°F to +250°F (-34°C to +121°C)
* Recommended Filtration: ISO 20/18/14
* Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
* Cavities / Cavity Tools: NC**, see page 11.22.1

*Installed in body of adequate size and strength.*

**FLOW CHARACTERISTICS**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FLOW MAX. RECOMMENDED GPM (L/min.)</th>
<th>CV FLOW FACTOR (FULL OPEN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-210-S-*</td>
<td>13.5 (51.1)</td>
<td>.85</td>
</tr>
<tr>
<td>S-310-S-*</td>
<td>25.0 (94.6)</td>
<td>1.67</td>
</tr>
<tr>
<td>S-410-S-*</td>
<td>40.0 (151.4)</td>
<td>1.89</td>
</tr>
<tr>
<td>SM-210-S-*</td>
<td>13.5 (51.1)</td>
<td>.85</td>
</tr>
<tr>
<td>SM-310-S-*</td>
<td>25.0 (94.6)</td>
<td>1.67</td>
</tr>
<tr>
<td>SM-410-S-*</td>
<td>40.0 (151.4)</td>
<td>1.89</td>
</tr>
</tbody>
</table>
S-210, S-310 and S-410
Adjustable, High Pressure, Needle Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

SHUT-OFF VALVE
M = Fine Metering Needle Valve (Omit for standard)
SIZE
210 = 1/4"
310 = 3/8"
410 = 1/2"
S = Carbon Steel

S * - *** - S - *

SEALS
3 = Urethane

MODEL  WIDTH ACROSS HEX. FLATS  MAX. TORQUE FT.-LBS. (Nm)  B (CLOSED)  C (FULL OPEN)  D
S-210-S-* .88 (22.4) 20 (27.1) 2.25 (57.2) 2.69 (68.3) 1.00 (25.4)
S-310-S-* 1.00 (25.4) 30 (40.7) 2.75 (69.9) 3.25 (82.6) 1.19 (30.2)
S-410-S-* 1.25 (31.8) 40 (54.2) 2.38 (60.5) 2.88 (73.2) 1.56 (39.6)
SM-210-S-* .88 (22.4) 20 (27.1) 2.25 (57.2) 2.69 (68.3) 1.00 (25.4)
SM-310-S-* 1.00 (25.4) 30 (40.7) 2.75 (69.9) 3.25 (82.6) 1.19 (30.2)
SM-410-S-* 1.25 (31.8) 40 (54.2) 2.38 (60.5) 2.88 (73.2) 1.56 (39.6)
DESCRIPTION

A cartridge valve designed to provide variable flow restriction in both directions.

OPERATION

The DRNV-100 varies flow restriction by adjusting spool open or closed. Flow is metered from ① to ② and ② to ①.

FEATURES and BENEFITS

• Hardened spool and sleeve for long life.
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Max. Flow: 6 gpm (23 l/min)
9 gpm (34 l/min)
12 gpm (45 l/min)
Internal Leakage: 82 cc/min at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C).
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

[Graph showing pressure drop vs. flow]
DRNV-100
Rotary, Flow Control

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DRNV - 100 - * - ** - **

- ROTARY NEEDLE VALVE
- CAVITY/SEAL
- PORTING
  4T = SAE 4
  6T = SAE 6
  Omit for cartridge only
- FLOW RATE
  6 = 6 GPM (23 L/min)
  9 = 9 GPM (34 L/min)
  12 = 12 GPM (45 L/min)
- SEALS
  N = Buna-N
  V = Viton
ZFC-62
Flow Control, Check Valve
With Fixed Orifice

DESCRIPTION
A cartridge valve designed to allow restricted flow in one direction with free flow in the opposite direction.

OPERATION
Pressure at ① overcomes the spring-bias poppet and allows free flow to ②. Flow in the opposite direction, from ② to ①, is metered by an orifice.

FEATURES and BENEFITS
• Slip in style.
• Compact size.

SPECIFICATIONS

- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
- Bias-Spring: 5 PSI (0.3 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: Critical Application – ISO 17/15/13
  Non-Critical Application – ISO 20/18/14
- Fluids: Mineral-based fluids.
  For other fluid compatibility, consult factory.
- Installation/Removal Tool: Consult factory.
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

PORT ① TO ② FULL - (FREE FLOW)
150 ssu/32 cSt OIL @ 100°F/38°C

FLOW gpm (L/min.)
0 1.0 1.5 2.0 2.5 3.0 3.5 4.0
0 (1.8) (3.8) (5.7) (7.6) (9.5) (11.4) (13.3) (15.2)

PRESSURE DROP psi (bar)
0 20 (1.4) 40 (2.8) 60 (4.1) 80 (5.5) 100 (6.9) 120 (8.3) 140 (9.7)

(1.8) (3.8) (5.7) (7.6) (9.5) (11.4) (13.3) (15.2)

SHOP ONLINE at www.airlinehyd.com 800-999-7378
ZFC-62
Flow Control, Check Valve
With Fixed Orifice

INSTALLATION DIMENSIONS

HOW TO ORDER

FLOW CONTROL VALVE

CAVITY

SEALS
U = URETHANE

ORIFICE DIAMETER
015 = .015 (.38)
031 = .031 (.79)
062 = .062 (1.57)
094 = .094 (2.39)
MAX .109 = .109 (2.77)
(Other options available consult factory.)
DFC-080
Adjustable, Flow Control Valve

DESCRIPTION
A cartridge valve designed to provide variable flow restriction in one direction with free flow in the opposite direction.

OPERATION
The DFC-080 varies flow restriction by adjusting needle in or out. Flow is metered from 2 to 1. Free reverse flow is from 1 to 2.

FEATURES and BENEFITS
- Hardened poppet and seat for long life.
- Aluminum knob and disc nut.
- Full range of adjustments.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: 10 gpm (37.9 L/min.) max recommended input.
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 20/18/14
- Fluids: Mineral-based fluids.
  For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

FLOW IN GPM = \( \frac{C_v \sqrt{P_1 - P_2}}{\sqrt{G_f}} \)

- \( C_v \) = Flow Coefficient
- \( P_1 \) = Inlet Pressure (psi)
- \( P_2 \) = Outlet Pressure (psi)
- \( G_f \) = specific gravity of medium at operating temperature in °F.
DFC-080
Adjustable, Flow Control Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DFC - 080 - * - K - **

NEEDLE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

K = Knob

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

Omit for Cartridge Only.
(Other porting options available – consult factory.)
DFC-100
Adjustable, Flow Control Valve

DESCRIPTION
A cartridge valve designed to provide variable flow restriction in one direction with free flow in the opposite direction.

OPERATION
The DFC-100 varies flow restriction by adjusting needle in or out. Flow is metered from ② to ①. Free reverse flow is from ① to ②.

FEATURES and BENEFITS
- Hardened poppet and seat for long life.
- Aluminum knob and disc nut.
- Full range of adjustments.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: 20 gpm (75.7 L/min.) Max. recommended input.
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids.
For other fluid compatibility consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

CV FACTOR VS. TURNS

FLOW IN GPM = $C_v \sqrt{\frac{P_1 - P_2}{\sqrt{G_f}}}$

$C_v =$ Flow Coefficient
$P_1 =$ Inlet Pressure (psi)
$P_2 =$ Outlet Pressure (psi)
$G_f =$ specific gravity of medium at operating temperature in °F.
DFC-100
Adjustable, Flow Control Valve

INSTALLATION DIMENSIONS

FLOW CONTROL VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton
K = Knob

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only
(Other porting options available - consult factory).

HOW TO ORDER

DFC - 100 - * - K - **

( ) Parentheses = Millimeters
PCM 88
Fixed, Free Reverse, Externally Ported
Pressure-Compensated Flow Regulator Valve

DESCRIPTION
A fixed cartridge valve designed to regulate flow regardless of load pressure. This valve is a restrictive-type flow regulator designed for a wide variety of flow applications.

The male outlet port allows for quick installation into existing manifolds for meter-in control with free flow in the opposite direction.

OPERATION
The PCM 88 maintains a constant flow within specified accuracies from inlet to outlet regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. In the reverse direction the spool shifts to permit free flow.

FEATURES and BENEFITS
- Pressure-compensated.
- Quiet response.
- Free-reverse.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: Ranges from 1 gpm to 10 gpm (3.8 to 37.9 L/min.)
(See ordering table)
Flow Tolerances: Flows up to and including 1.5 gpm (5.7 L/min.) ±15% Flows over 1.5 gpm (5.7 L/min.) ±10%
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
  For other fluid compatibility, consult factory.
Cavity: #8 SAE, see page 4.13.2
Optional Cavity/Cavity Tool: 080-2, see page 11.08.02
In-Line Body Material: Anodized 6061 T6 aluminum alloy rated at 3000 PSI (207 Bar).
PCM 88
Fixed, Free Reverse, Externally Ported
Pressure-Compensated Flow Regulator Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

PCM 88 - * - **** - **

FLOW REGULATOR VALVE

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6

Nominal Flow Setting
100 = 1.00 GPM (3.78 L/min.)
200 = 2.00 GPM (7.57 L/min.)
300 = 3.00 GPM (11.36 L/min.)
400 = 4.00 GPM (15.14 L/min.)
500 = 5.00 GPM (18.93 L/min.)
600 = 6.00 GPM (22.71 L/min.)
700 = 7.00 GPM (26.50 L/min.)
800 = 8.00 GPM (30.28 L/min.)
900 = 9.00 GPM (34.07 L/min.)
1000 = 10.00 GPM (37.85 L/min.)

Seals
N = Buna N
V = Viton

(Other porting options available – consult factory.)

(Other flow settings available – consult factory.)

( ) Parentheses = Millimeters
LLPC
Fixed, Free Reverse, Externally Ported Pressure-Compensated Flow Regulator Valve

DESCRIPTION
A fixed cartridge valve designed to regulate flow regardless of load pressure. This valve is a restrictive-type flow regulator designed for low flow applications.

The male outlet port allows for quick installation into existing manifolds for meter-in control with free flow in the opposite direction.

OPERATION
The LLPC maintains a constant flow within specified accuracies from inlet to outlet regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. In the reverse direction the spool shifts to permit free flow.

FEATURES and BENEFITS
- Pressure-compensated.
- Quiet response.
- Free-reverse.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Available Flow: 8 gpm (30.3 L/min.)
12 gpm (45.4 L/min.)
17 gpm (64.3 L/min.)
24 gpm (90.8 L/min.)
Flow Tolerances: All valves +5%-15%
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity: See page 4.14.2
**LLPC**

Fixed, Free Reverse, Externally Ported Pressure-Compensated Flow Regulator Valve

### INSTALLATION DIMENSIONS

![Diagram of LLPC flow regulator valve with dimensions and notes.](image)

( ) Parentheses = Millimeters

### HOW TO ORDER

**LLPC - **- **

LOAD LOWERING FLOW REGULATOR VALVE

SEALS
N = Buna N
V = Viton

NOMINAL FLOW SETTING
8 = 8.00 GPM (30.3 L/min.)
12 = 12.00 GPM (45.4 L/min.)
17 = 17.00 GPM (64.3 L/min.)
24 = 24.00 GPM (90.8 L/min.)
DFR-080-2
Fixed, Pressure-Compensated
Flow Regulator Valve

DESCRIPTION
A fixed cartridge valve designed to regulate flow regardless of load pressure. This valve is a restrictive-type flow regulator designed for low flow applications.

OPERATION
The DFR-080-2 maintains constant flow within specified accuracies from ① to ② regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. Reverse flow is not regulated.

FEATURES and BENEFITS
- Pressure-compensated.
- Quiet response.
- Low flow capabilities.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar) A minimum pressure differential of 75 PSID is required to operate valve.
Flow: Ranges from 0.1 gpm to 2.0 gpm (0.4 to 7.6 L/min.) (See ordering table)
Flow Tolerances: Flows 0.1 gpm to 1.5 gpm (0.4 to 5.7 L/min.) ±15% Flows over 1.5 gpm (5.7 L/min.) ±10%
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DFR-080-2
Fixed, Pressure-Compensated
Flow Regulator Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

FLOW REGULATOR VALVE (FIXED)

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only. (Other porting options available – consult factory.)

NOMINAL FLOW SETTING
010 = .10 GPM (.38 L/min.)
015 = .15 GPM (.57 L/min.)
020 = .20 GPM (.76 L/min.)
025 = .25 GPM (.95 L/min.)
030 = .30 GPM (1.14 L/min.)
040 = .40 GPM (1.51 L/min.)
050 = .50 GPM (1.89 L/min.)
060 = .60 GPM (2.27 L/min.)
075 = .75 GPM (2.84 L/min.)
100 = 1.00 GPM (3.79 L/min.)
125 = 1.25 GPM (4.73 L/min.)
150 = 1.50 GPM (5.68 L/min.)
200 = 2.00 GPM (7.57 L/min.)

( ) Parentheses = Millimeters
DFRA-080-2
Adjustable, Pressure-Compensated Flow Regulator Valve

DESCRIPTION

An adjustable cartridge valve designed to regulate flow regardless of load pressure. This valve is a restrictive-type flow regulator designed for low flow applications.

OPERATION

The DFRA-080-2 maintains a constant flow within specified accuracies from ① to ② regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. The cartridge’s flow may be adjusted -50% of maximum setting. Reverse flow is not regulated.

FEATURES and BENEFITS

- Pressure-compensated.
- Quiet response.
- Low flow capabilities.
- Aluminum knob and disc nut.
- Adjustable flow -50% of maximum setting.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

- Operating Pressure: 3000 PSI (207 Bar)
- Flow: Ranges from .15 to 2 gpm (0.6 to 7.6 L/min.) A minimum pressure differential of 75 PSID is required to operate valve. (See ordering table)
- Flow may be adjusted -50% of maximum setting.
- Flow Tolerances: Flows .15 gpm to 1.5 gpm (0.6 to 5.7 L/min.) ±15% Flows over 1.5 gpm (5.7 L/min.) ±10%
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DFRA-080-2
Adjustable, Pressure-Compensated
Flow Regulator Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DFRA - 080 - 2 - * - *** - **
FLOW REGULATOR VALVE (ADJUSTABLE)
CAVITY/SEAL
FLOW PATH
SEALS
N = Buna N
V = Viton

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available – consult factory)

MAXIMUM FLOW SETTING
015 = .15 GPM (.57 L/min.)
020 = .20 GPM (.76 L/min.)
045 = .45 GPM (1.70 L/min.)
065 = .65 GPM (2.46 L/min.)
100 = 1.00 GPM (3.79 L/min.)
150 = 1.50 GPM (5.68 L/min.)
200 = 2.00 GPM (7.57 L/min.)
DFRA-100-2
Adjustable, Pressure-Compensated Flow Regulator Valve

DESCRIPTION

An adjustable cartridge valve designed to regulate flow regardless of load pressure. This valve is a restrictive-type flow regulator designed for a wide variety of flow applications.

OPERATION

The DFRA-100-2 maintains a constant flow within specified accuracies from 1 to 2 regarding of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. The cartridge’s flow may be adjusted - 50% of maximum setting. Reverse flow is not regulated.

FEATURES and BENEFITS

• Pressure-compensated.
• Quiet response.
• Hidden adjustment (tamper resistant) option.
• Aluminum knob and disc nut option.
• Adjustable flow - 50% of maximum setting.
• Adjustment may be locked in place.
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar).
Flow: Ranges from 1 to 10 gpm (3.8 to 37.9 L/min.)
(See ordering table)
Flow may be adjusted -50% of maximum setting.
Flow Tolerances: Flows up to and including 1.5 gpm (5.7 L/min.) ±15%
Flows over 1.5 gpm (5.7 L/min.) ±10%
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
For other fluid compatibility consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DFRA-100-2**
Adjustable, Pressure-Compensated Flow Regulator Valve

**INSTALLATION DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.19</td>
<td>(81.0) MAX</td>
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<tr>
<td>1.30</td>
<td>(33.0)</td>
</tr>
<tr>
<td>1.00 (25.4) HEX. TORQUE</td>
<td>20 FT.-LBS. (40.7 Nm) MAX</td>
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<tr>
<td>1.50 (38.1)</td>
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<tr>
<td>1.25 (31.8)</td>
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<tr>
<td>.28 TYP. (7.1)</td>
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<td>.13 (3.3)</td>
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<tr>
<td>1.63 (41.4)</td>
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<tr>
<td>2.00 (50.8)</td>
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</tr>
<tr>
<td>2.32 (58.9)</td>
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</tr>
<tr>
<td>5.19 (131.8) MAX</td>
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</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

**HOW TO ORDER**

**DFRA - 100 - 2 - * - * **** - **

FLOW REGULATOR VALVE (ADJUSTABLE)

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

MAXIMUM FLOW SETTING

100 = 1.00 GPM (3.79 L/min.)
150 = 1.50 GPM (5.68 L/min.)
200 = 2.00 GPM (7.57 L/min.)
300 = 3.00 GPM (11.36 L/min.)
500 = 5.00 GPM (18.93 L/min.)
750 = 7.50 GPM (28.39 L/min.)
1000 = 10.00 GPM (37.85 L/min.)
DFR-100-3
Fixed, Bypass-Type, Pressure-Compensated
Flow Regulator Valve

DESCRIPTION
A fixed bypass-type cartridge valve designed to regulate priority flow while bypassing excess flow regardless of load pressure.

OPERATION
The DFR-100-3 maintains a constant flow within specified accuracies from 1 to 3 regardless of downstream load pressure at 3 or bypass leg 2. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the priority flow setting. Reserve flow is not regulated.

FEATURES and BENEFITS
- Pressure-compensated.
- Quiet response.
- Bypass port 2 may be fully pressurized.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar). A minimum pressure differential of 100 PSID is required to operate valve.
Flow: Ranges from 1 to 6 gpm (3.8 to 22.7 L/min.)
10 gpm (37.9 L/min.) max. input.
(See ordering table)
Flow Tolerances:
- Flows up to and including 1.5 gpm (5.7 L/min.) ±15%
- Flows over 1.5 gpm (5.7 L/min.) ±10%
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tool: 100-3, see page 11.10.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DFR-100-3
Fixed, Bypass-Type, Pressure-Compensated Flow Regulator Valve

INSTALLATION DIMENSIONS

FLOW REGULATOR VALVE
(FIXED)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

Omit for Cartridge Only.
(Other porting options available – consult factory.)

SEALS
N = Buna N
V = Viton

FLOW PATH

( ) Parentheses = Millimeters

HOW TO ORDER

DFR - 100 - 3 - * - **** - ** PORTINGS

NOMINAL FLOW SETTING
100 = 1.00 GPM (3.78 L/min.)
150 = 1.50 GPM (5.68 L/min.)
200 = 2.00 GPM (7.57 L/min.)
250 = 2.50 GPM (9.46 L/min.)
300 = 3.00 GPM (11.36 L/min.)
350 = 3.50 GPM (13.25 L/min.)
400 = 4.00 GPM (15.14 L/min.)
450 = 4.50 GPM (17.03 L/min.)
500 = 5.00 GPM (18.93 L/min.)
600 = 6.00 GPM (22.71 L/min.)

(Other flow settings available – consult factory)
**DFRA-100-3**

Adjustable, Bypass-Type, Pressure-Compensated Flow Regulator Valve

**DESCRIPTION**

An adjustable bypass-type cartridge valve designed to regulate priority flow while bypassing excess flow regardless of load pressure.

**OPERATION**

The DFRA-100-3 maintains a constant flow within specified accuracies from ① to ③ regardless of downstream load pressure at ③ or bypass leg ②. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the priority flow setting. The cartridge's flow may be adjusted -40% of maximum setting. Reverse flow is not regulated.

**FEATURES and BENEFITS**

- Pressure-compensated.
- Quiet response.
- Bypass port ② may be fully pressurized.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

**Operating Pressure:** 3000 PSI (207 Bar).

**Flow:** Ranges from 1 to 10 gpm (3.8 to 37.9 L/min.)

10 gpm (37.9 L/min.) max. input.

(See ordering table)

Flow may be adjusted - 40% of maximum setting.

**Flow Tolerances:** Flows up to and including 1.5 gpm (5.7 L/min.) ±15%

Flows over 1.5 gpm (5.7 L/min.) ±10%

**Temperature:** -30°F to +250°F (-35°C to +120°C)

**Recommended Filtration:** ISO 17/15/13

**Fluids:** Mineral-based fluids.

For other fluid compatibility consult factory.

**Cavity/Cavity Tool:** 100-3, see page 11.10.3

**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DFRA-100-3
Adjustable, Bypass-Type, Pressure-Compensated Flow Regulator Valve

INSTALLATION DIMENSIONS

FLOW REGULATOR VALVE (ADJUSTABLE)
CAVITY/SEAL
FLOW PATH
SEALS
N = Buna N
V = Viton
ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

MAXIMUM FLOW SETTING
100 = 1.00 GPM (3.79 L/min.)
150 = 1.50 GPM (5.68 L/min.)
200 = 2.00 GPM (7.57 L/min.)
300 = 3.00 GPM (11.36 L/min.)
500 = 5.00 GPM (18.93 L/min.)
750 = 7.50 GPM (28.39 L/min.)
1000 = 10.00 GPM (37.85 L/min.)

HOW TO ORDER

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

MAXIMUM FLOW SETTING

( ) Parentheses = Millimeters

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DFR-120-3
Fixed, Bypass-Type, Pressure-Compensated
Flow Regulator Valve

DESCRIPTION
A fixed bypass-type cartridge valve designed to regulate priority flow while bypassing excess flow regardless of load pressure.

OPERATION
The DFR-120-3 maintains a constant flow within specified accuracies from 1 to 3 regardless of downstream load pressure at 3 or bypass leg 2. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the priority flow setting. Reverse flow is not regulated.

FEATURES and BENEFITS
• Pressure-compensated.
• Quiet response.
• Bypass port 2 may be fully pressurized.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: Ranges from 2 to 13 gpm (7.6 to 49.2 L/min.)
25 gpm (94.6 L/min.) max. input.
(See ordering table)
Flow Tolerances: Flows up to and including
3.0 gpm (11.4 L/min.) ±15%
Flows over 3.0 gpm (11.4 L/min.) ±10%
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
For other fluid compatibility consult factory.
Cavity/Cavity Tool: 120-3, see page 11.12.3
DFR-120-3
Fixed, Bypass-Type, Pressure-Compensated
Flow Regulator Valve

INSTALLATION DIMENSIONS

FLOW REGULATOR VALVE
(FIXED)

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton

HOW TO ORDER

DFR - 120 - 3 - * - ****

FLOW REGULATOR VALVE (FIXED)

MAXIMUM FLOW SETTING

200 = 2.00 GPM (7.57 L/min.)
225 = 2.25 GPM (8.52 L/min.)
250 = 2.50 GPM (9.46 L/min.)
300 = 3.00 GPM (11.36 L/min.)
360 = 3.60 GPM (13.63 L/min.)
400 = 4.00 GPM (15.14 L/min.)
500 = 5.00 GPM (18.93 L/min.)
1000 = 10.00 GPM (37.85 L/min.)
1300 = 13.00 GPM (49.21 L/min.)
DFD-100
Pressure-Compensated, Flow Divider/Combiner Valve

SERIES 10

DESCRIPTION

A cartridge valve designed to divide or combine flow at designated ratios regardless of load pressures.

OPERATION

In the dividing mode, the DFD-100 will split the input flow from port ① to ports ② and ④ per the ratio specified.

The DFD-100 will combine input flows from ports ② and ④ to a common port ③.

This valve has no port ① function.

FEATURES and BENEFITS

- Pressure-compensated.
- Quiet response.
- Optional dividing/combing ratios.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar) A minimum pressure differential of 40 psid is required to operate valve.
Flow: See max. rated input flow in ordering table.
Flow Tolerances: ±10% from 30-100% of rated flow for all 5/5 models except 16.0-5/5 which is ±10% from 40-100% of rated flow. (Consult factory for all other models.)
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.

For other fluid compatibility consult factory.

Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DFD-100
Pressure-Compensated, Flow Divider/Combiner Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DFD - 100 - * - **** - */* - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8

(Use special flow divider bodies with no port.)

(Other options available – consult factory)

FLOW DIVIDER/COMBINER VALVE
CAVITY/SEAL
SEALS
N = Buna N
V = Viton

MAX RATED - DIVIDING OR COMBINING
INPUT FLOW
RATIO(PORT 2 / PORT 4)

1.6 - 5/5 = 1.6 GPM (6.1 L/min.) - 50:50
2.5 - 7/3 = 2.5 GPM (9.5 L/min.) - 67:33
3.0 - 5/5 = 3.0 GPM (11.4 L/min.) - 50:50
4.5 - 7/3 = 4.5 GPM (17.0 L/min.) - 67:33
6.0 - 5/5 = 6.0 GPM (22.7 L/min.) - 50:50
7.5 - 6/4 = 7.5 GPM (28.4 L/min.) - 60:40
9.0 - 5/5 = 9.0 GPM (34.1 L/min.) - 50:50
9.0 - 7/3 = 9.0 GPM (34.1 L/min.) - 67:33
12.0 - 5/5 = 12.0 GPM (45.4 L/min.) - 50:50
12.5 - 7/3 = 12.5 GPM (47.3 L/min.) - 67:33
14.0 - 5/5 = 14.0 GPM (53.0 L/min.) - 50:50
14.0 - 6/4 = 14.0 GPM (53.0 L/min.) - 60:40
16.0 - 5/5 = 16.0 GPM (60.6 L/min.) - 50:50

SHOP ONLINE at www.airlinehyd.com 800-999-7378
ZRV-63
Adjustable, Direct-Acting Relief Valve

DESCRIPTION
An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The ZRV-63 prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseats allowing flow from ① to ② protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Hardened poppet and seat for long life.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal flow 2 gpm (11.4 L/min.)
Internal Leakage: 20 drops/min. at 80% set.
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
Reseat Pressure: Nominal 80% of crack pressure.
Spring Range: 100 to 1000 PSI (7 to 69 Bar)
  Preset: 500 PSI (34 Bar)
  900 to 2000 PSI (62 to 138 Bar)
  Preset: 1500 PSI (103 Bar)
  1900 to 3000 PSI (131 to 207 Bar)
  Preset: 2000 PSI (138 Bar)
Temperature: -30°F to +220°F (-35°C to +104°C).
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP63, see page 11.06.3
Installation/Removal Tool: Consult factory.
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
ZRV-63
Adjustable, Direct-Acting Relief Valve

INSTALLATION DIMENSIONS

5/64” Wide Adjustment Stabilizer Slots
1/8” Hex Broached Adjustment Screw (not available on Tamper-Resistant option)
9/16-18 THREAD TORQUE 10 FT.-LBS. (13.6 Nm) MAX.

HOW TO ORDER

ZRV - 63 - U - ** / **** - **

RELIEF VALVE
CAVITY
SEALS
U = Urethane
ADJUSTMENT OPTION
(Omit for Standard)
H = Tamper-Resistant

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

SPRING RANGE
10 = 100 to 1000 PSI (7 to 69 Bar)
Preset: 500 PSI (34 Bar)
20 = 900 to 2000 PSI (62 to 138 Bar)
Preset: 1500 PSI (103 Bar)
30 = 1900 to 3000 PSI (131 to 207 Bar)
Preset: 2000 PSI (138 Bar)

FACTORY PRESET PSI
(Omit for standard)

( ) Parentheses = Millimeters
DRV2-080
Adjustable, Direct-Acting Relief Valve

DESCRIPTION
An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The DRV2-080 prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseats allowing flow from ① to ② protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Quiet operation.
- Rapid response to pressure surges.
- Hardened poppet and seat for long life.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 10 GPM (37.9 L/min).
Internal Leakage: 20 drops/min. max. at reseat.
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
Reseat Pressure: Nominal 80% of crack pressure.
Spring Range:
- 100 to 400 PSI (7 to 28 Bar)
  - Preset: 300 PSI (21 Bar)
  - 300 to 2000 PSI (21 to 138 Bar)
  - Preset: 1500 PSI (103 Bar)
  - 1500 to 3000 PSI (103 to 207 Bar)
  - Preset: 2500 PSI (172 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C).
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

<table>
<thead>
<tr>
<th>FLOW (gpm/L/min.)</th>
<th>PRESSURE DROP (psi/bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>150 ssu/32 cSt OIL @ 100°F/38°C</td>
</tr>
<tr>
<td>1</td>
<td>1000 (306.9)</td>
</tr>
<tr>
<td>2</td>
<td>1500 (462.4)</td>
</tr>
<tr>
<td>3</td>
<td>2000 (618.3)</td>
</tr>
<tr>
<td>4</td>
<td>2500 (774.1)</td>
</tr>
<tr>
<td>5</td>
<td>3000 (930.0)</td>
</tr>
</tbody>
</table>

10136-50 02/11
**DRV2-080**
Adjustable, Direct-Acting Relief Valve

**INSTALLATION DIMENSIONS**

- **Screw Adjustment**: 0.19 (4.8) hex. socket
- **Knob Adjustment**: 1.50 (38.1) dia. knob
- **Porting Options**:
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 4T = SAE 4
  - 6T = SAE 6
  Omit for Cartridge Only. (Other porting options available – consult factory.)

**SPRING RANGE**
- 4 = 100 to 400 PSI (7 to 28 Bar)
  Preset: 300 PSI (21 Bar)
- 20 = 300 to 2000 PSI (21 to 138 Bar)
  Preset: 1500 PSI (103 Bar)
- 30 = 1500 to 3000 PSI (103 to 207 Bar)
  Preset: 2500 PSI (172 Bar)

**HOW TO ORDER**

- **DRV2-080** - * - * - *** / **** - **
- **Relief Valve**
- **Cavity/Seal**
- **Seals**
  - N = Buna-N
  - V = Viton
- **Adjustment Style**
  - K = Knob
  - S = Screw
- **Porting**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 4T = SAE 4
  - 6T = SAE 6
- **Factory Preset PSI**
  Omit for standard

( ) Parentheses = Millimeters
**DESCRIPTION**

An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

**OPERATION**

The DRV-080-*-H prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseats allowing flow from ① to ② protecting the circuit from over pressurization.

**FEATURES and BENEFITS**

- Quiet operation.
- Rapid response to pressure surges.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant).
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph. Nominal Flow 10 GPM (37.9 L/min).
- **Internal Leakage:** 20 drops/min. max. at reseat.
- **Crack Pressure Defined:** Determined at .25 gpm (0.9 L/min.)
- **Reseat Pressure:** Nominal 80% of crack pressure.
- **Spring Range:** 50 to 3000 PSI (3 to 207 Bar)
  - Preset: 1500 PSI (103 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C).
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DRV-080-*-H
Tamper-Resistant, Direct-Acting Relief Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DRV - 080 - * - H - 30/ **** - **
RELIEF VALVE
CAVITY/SEAL
SEALS
N = Buna-N
V = Viton
HIDDEN
ADJUSTMENT STYLE
PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only. (Other porting options available – consult factory.)
FACTORY PRESET PSI
50 psi Increments
element: 2550 = 2550 PSI
(Omit for standard)
SPRING RANGE
30 = 50 to 3000 PSI (3 to 207 Bar)
Preset: 1500 PSI (103 Bar)

( ) Parentheses = Millimeters
**DRV-100**

Adjustable, Direct-Acting Relief Valve

---

**DESCRIPTION**

An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

---

**OPERATION**

The DRV-100 prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseats allowing flow from ① to ② protecting the circuit from over pressurization.

---

**FEATURES and BENEFITS**

- Rapid response to pressure surges.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.

---

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph. Nominal Flow 10 GPM (37.9 L/min).
- **Internal Leakage:** 20 drops/min. max. at reseat.
- **Crack Pressure Defined:** Determined at .25 gpm (0.9 L/min.)
- **Reseat Pressure:** Nominal 80% of crack pressure.
- **Spring Range:**
  - 100 to 400 PSI (7 to 28 Bar)
  - Preset: 300 PSI (21 Bar)
  - 300 to 1000 PSI (21 to 69 Bar)
  - Preset: 500 PSI (34 Bar)
  - 300 to 2000 PSI (21 to 138 Bar)
  - Preset: 1500 PSI (103 Bar)
  - 1500 to 3000 PSI (103 to 207 Bar)
  - Preset: 2000 PSI (138 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C).
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-2, see page 11.10.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DRV-100**
Adjustable, Direct-Acting Relief Valve

**INSTALLATION DIMENSIONS**

- **Screw Adjustment**: .25 (6.4) Hex Socket
- **Knob Adjustment**: 1.50 (38.1) Dia. Knob
- **Hidden Adjustment**: .31 (7.9) Hex Socket

- **Spring Range**
  - 4 = 100 to 400 PSI (7 to 28 Bar)
  - Preset: 300 PSI (21 Bar)
  - 10 = 300 to 1000 PSI (21 to 69 Bar)
  - Preset: 500 PSI (34 Bar)
  - 20 = 300 to 2000 PSI (21 to 138 Bar)
  - Preset: 1500 PSI (103 Bar)
  - 30 = 1500 to 3000 PSI (103 to 207 Bar)
  - Preset: 2000 PSI (138 Bar)

- **Factory Preset PSI**
  - (Omit for standard)

- **Porting**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only.
  - (Other porting options available – consult factory.)

- **How to Order**

  **DRV - 100**
  
  RELIEF VALVE
  CAVITY/SEAL
  SEALS
  N = Buna N
  V = Viton
  
  ADJUSTMENT STYLE
  
  - H = Hidden
  - K = Knob
  - S = Screw
  
  PRTING
  2N = 1/4 PTF
  3N = 3/8 PTF
  6T = SAE 6
  8T = SAE 8
  Omit for Cartridge Only.
  (Other porting options available – consult factory.)

- **Spring Range**
  - 4 = 100 to 400 PSI (7 to 28 Bar)
  - Preset: 300 PSI (21 Bar)
  - 10 = 300 to 1000 PSI (21 to 69 Bar)
  - Preset: 500 PSI (34 Bar)
  - 20 = 300 to 2000 PSI (21 to 138 Bar)
  - Preset: 1500 PSI (103 Bar)
  - 30 = 1500 to 3000 PSI (103 to 207 Bar)
  - Preset: 2000 PSI (138 Bar)

5.04.2
ZDRV-63
Adjustable, Direct-Acting, Differential Area Relief Valve

DESCRIPTION
An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The ZDRV-63 prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats allowing flow from ② to ① protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Hardened poppet and seat for long life.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: Nominal flow 5 gpm (18.9 L/min.)
Internal Leakage: 20 drops/min. at 80% set.
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
Reseat Pressure: Nominal 80% of crack pressure.
Spring Range:
- 100 to 600 PSI (7 to 41 Bar)
  - Preset: 300 PSI (21 Bar)
  - 500 to 1000 PSI (34 to 69 Bar)
  - Preset: 750 PSI (52 Bar)
  - 900 to 2000 PSI (62 to 138 Bar)
  - Preset: 1500 PSI (103 Bar)
  - 1900 to 3000 PSI (131 to 207 Bar)
  - Preset: 2000 PSI (138 Bar)
Temperature: -30°F to +220°F (-35°C to +104°C).
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP63, see page 11.06.3
Installation/Removal Tool: Consult factory.
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
INSTALLATION DIMENSIONS

5/64" Wide Adjustment Stabilizer Slots

1/8" Hex Broached Adjustment Screw (not available on Tamper-Resistant option)

#6 SAE Plug

9/16-18 Thread
TORQUE 10 FT.-LBS. (13.6 Nm) MAX.

1.00 (25.4)

1.50 (38.1)

2.00 (50.8)

.28 TYP. (7.1)

1.56 (39.6)

( ) Parentheses = Millimeters

HOW TO ORDER

ZDRV - 63 - U - * - ** / **** - **

RELIEF VALVE
CAVITY
SEALS
U = Urethane

ADJUSTMENT OPTION
(Omit for Standard)
H = Tamper-Resistant

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
06 = 100 to 600 PSI (7 to 41 Bar)
   Preset: 300 PSI (21 Bar)
10 = 500 to 1000 PSI (34 to 69 Bar)
   Preset: 750 PSI (52 Bar)
20 = 900 to 2000 PSI (62 to 138 Bar)
   Preset: 1500 PSI (103 Bar)
30 = 1900 to 3000 PSI (131 to 207 Bar)
   Preset: 2000 PSI (138 Bar)

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DDRV-080
Adjustable, Direct-Acting, Differential Area Relief Valve

DESCRIPTION
An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The DDRV-080 prevents flow from \( \boxed{2} \) to \( \boxed{1} \) until the set crack pressure at \( \boxed{2} \) is achieved. The poppet then unseats allowing flow from \( \boxed{2} \) to \( \boxed{1} \) protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Low pressure rise.
- Hardened poppet and seat for long life.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph. Nominal Flow 10 GPM (37.9 L/min).
- Internal Leakage: 10 drops/min. max. at reseat.
- Crack Pressure Defined: Determined at .25 gpm (0.9L/min.)
- Reseat Pressure: Nominal 80% of crack pressure
- Spring Ranges: 100 PSI to 400 PSI (7 to 28 Bar) Preset: 300 PSI (21 Bar)
300 PSI to 2000 PSI (21 to 138 Bar) Preset: 1500 PSI (103 Bar)
1500 PSI to 3000 PSI (103 to 207 Bar) Preset: 2500 PSI (172 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 080-2, see page 11.08.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DDRV-080**

Adjustable, Direct-Acting, Differential Area Relief Valve

**INSTALLATION DIMENSIONS**

Screw Adjustment

.19 (4.8) Hex. Socket

Knob Adjustment

1.50 (38.1) Dia. Knob

2.08 (73.2) Max.

1.09 (27.7)

.58 (22.4) Hex.

Torque 20 ft.-lbs.

(27.1 Nm) Max.

28 TYP. (7.1)

1.25 (31.8)

1.63 (41.4)

2.00 (50.8)

.13 (3.3)

1.13 (28.7)

.56 (14.2)

4.88 (124.0) Max.

.59 (15.0)

2.00 (50.8)

( ) Parentheses = Millimeters

**HOW TO ORDER**

DDRV - 080 - **/**** - **

Differential Area Relief Valve

Cavity/Seal

Seals

N = Buna N

V = Viton

Knob Adjustment

K = Knob

S = Screw

Porting

2N = 1/4 PTF

3N = 3/8 PTF

4T = SAE 4

6T = SAE 6

Factory Preset PSI

(Omit for standard)

Spring Range

4 = 100 to 400 PSI (7 to 28 Bar)

20 = 300 to 2000 PSI (21 to 138 Bar)

30 = 1500 to 3000 PSI (103 to 207 Bar)

Preset: 300 PSI (21 Bar)

Preset: 1500 PSI (103 Bar)

Preset: 2500 PSI (172 Bar)
**DDRV-080-*-H**

*Tamper-Resistant, Direct-Acting, Differential Area Relief Valve*

---

### DESCRIPTION

An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

---

### OPERATION

The DDRV-080-*-H prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats allowing flow from ② to ① protecting the circuit from over pressurization.

---

### FEATURES and BENEFITS

- Quiet operation.
- Rapid response to pressure surges.
- Low pressure rise.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant).
- Industry common cavity.
- Compact size.

---

### SPECIFICATIONS

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
  Nominal Flow 10 GPM (37.9 L/min).
- **Internal Leakage:** 10 drops/min. max. at reseat.
- **Crack Pressure Defined:** Determined at .25 gpm (0.9 L/min.)
- **Reseat Pressure:** Nominal 80% of crack pressure.
- **Spring Range:** 50 to 3000 PSI (3 to 207 Bar)
  - Preset: 1500 PSI (103 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C).
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

---

### PRESSURE DROP VS. FLOW

![Pressure Drop vs Flow Graph]

---

**SHOP ONLINE at www.airlinehyd.com**  
800-999-7378
**DIFFERENTIAL AREA RELIEF VALVE**

**CAVITY/SEAL**

**SEALS**

N = Buna-N

V = Viton

**HIDDEN ADJUSTMENT STYLE**

**HOW TO ORDER**

**DDRV - 080 - * - H - 30/**** - **

PORTING

2N = 1/4 PTF

3N = 3/8 PTF

4T = SAE 4

6T = SAE 6

Omit for Cartridge Only.

(Other porting options available – consult factory.)

FACTORY PRESET PSI

50 PSI Increments (3.4 Bar)

example: 2550 = 2550 PSI (176 Bar)

(Omit for standard)

SPRING RANGE

30 = 50 to 3000 PSI (3 to 207 Bar)

Preset: 1500 PSI (103 Bar)

**INSTALLATION DIMENSIONS**

( ) Parentheses = Millimeters

**DDRV-080-**-H

Tamper-Resistant, Direct-Acting, Differential Area Relief Valve

**SERIES 8**

**SOLENOID**

**CHECK DATA**

**CONTROL**

**FLOW**

**PRESSURE CONTROL**

**SEQUENCE**

**SHUTTLE VALVES**

**ACCESSORIES**

**TECHNICAL DATA**

SHOP ONLINE at www.airlinehyd.com

800-999-7378
**DDRV-100**

Adjustable, Direct-Acting, Differential Area Relief Valve

---

**DESCRIPTION**

An adjustable, direct-acting poppet cartridge valve designed to limit pressure in hydraulic circuits.

---

**OPERATION**

The DDRV-100 prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats allowing flow from ② to ① protecting the circuit from over pressurization.

---

**FEATURES and BENEFITS**

- Rapid response to pressure surges.
- Low pressure rise.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant).
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

---

**SPECIFICATIONS**

- **Operating Pressure:** 3600 PSI (248 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph. Nominal Flow 20 GPM (75.7 L/min).
- **Internal Leakage:** 20 drops/min. max. at reseat.
- **Crack Pressure Defined:** Determined at .25 gpm (0.9L/min.)
- **Reseat Pressure:** Nominal 80% of crack pressure
- **Spring Range:**
  - 100 to 600 PSI (7 to 41 Bar)  
  - Preset: 300 PSI (21 Bar)  
  - 250 to 2000 PSI (17 to 138 Bar)  
  - Preset: 1000 PSI (69 Bar)  
  - 600 to 3600 PSI (41 to 248 Bar)  
  - Preset: 2000 PSI (138 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-2, see page 11.10.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DDRV-100**
Adjustable, Direct-Acting, Differential Area Relief Valve

**INSTALLATION DIMENSIONS**

- **SCREW ADJUSTMENT**
  - 0.25 (6.4) HEX SOCKET

- **KNOB ADJUSTMENT**
  - 1.50 (38.1) DIA. KNOB

- **HIDDEN ADJUSTMENT**
  - 0.31 (7.9) HEX SOCKET

- **PORTING**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8

Omit for Cartridge Only.

(Other porting options available – consult factory.)

- **SPRING RANGE**
  - 6 = 100 to 600 PSI (7 to 41 Bar)
  - Preset: 300 PSI (21 Bar)
  - 20 = 250 to 2000 PSI (17 to 138 Bar)
  - Preset: 1000 PSI (69 Bar)
  - 36 = 600 to 3600 PSI (41 to 248 Bar)
  - Preset: 2000 PSI (138 Bar)

**HOW TO ORDER**

DDRV - 100 - * - * - **/ **** - **

- **DIFFERENTIAL AREA RELIEF VALVE**
- **CAVITY/SEAL**
- **SEALS**
  - N = Buna N
  - V = Viton
- **ADJUSTMENT STYLE**
  - K = Knob
  - S = Screw
- **PORTING**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only.
  - (Other porting options available – consult factory)
- **FACTORY PRESET PSI**
  - (Omit for standard)

( ) Parentheses = Millimeters

**5.08.2**

**SHOP ONLINE at www.airlinehyd.com**

**800-999-7378**
**DPOR-080**

Adjustable, Pilot-Operated Relief Valve

**DESCRIPTION**

An adjustable, pilot-operated spool cartridge valve designed to limit flow in hydraulic circuits.

**OPERATION**

The DPOR-100 prevents flow from ① to ② until pressure at ① exceeds the set crack pressure and opens the pilot section. The pilot flow creates a pressure differential across the spool which causes the valve to open allowing flow from ① to ② and thus protecting the circuit from over pressurization.

**FEATURES and BENEFITS**

- Rapid response to pressure surges.
- Quiet operation.
- Low pressure rise.
- High accuracy of pilot operated design.
- Hardened parts for long life.
- Adjustment may be locked in place.
- Tamper resistant option.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.
- High flow capacity.

**SPECIFICATIONS**

- **Operating Pressure:** 5000 PSI (345 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph
- **Internal Leakage:** 5 in.³/min (82 cc/min.) max. at 80% of crack pressure
- **Crack Pressure Defined:** Determined at .25 GPM (1.0 L/min.)
- **Re-Set Pressure:** Nominal 80% of crack pressure.
- **Spring Range:** 300 to 5000 PSI (20 to 345 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C).
- **Recommended Filtration:** ISO 17/15/13
- **Fluids:** Mineral-based fluids.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPOR-080
Adjustable, Pilot-Operated Relief Valve

INSTALLATION DIMENSIONS

SCREW ADJUSTMENT
3/16 (4.8) HEX. SOCKET

.88 (22.4) HEX. TORQUE
20 FT.-LBS.
(27.1 Nm) MAX.

1.50 (38.1)
28 TYP. (7.1)
1.25 (31.8)
1.63 (41.4)
2.00 (50.8)

1.09 (27.8)
1.75 (44.5)

( ) Parentheses = Millimeters

HOW TO ORDER

DPOR - 080 - * - * - ** / **** - **

Pilot Operated Relief Valve
Cavity/Seal

SEALS
N = Buna N
V = Viton
U = Urethane

ADJUSTMENT STYLE
S = SCREW
H = HIDDEN (TAMPER RESISTANT)

BODY PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
(Omit for cartridge only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
50 PSI increments
(Omit for Std.)

SPRING RANGE
20 = 300 to 2000 PSI (20 to 138 Bar)
Preset 1500 PSI (103 Bar)
40 = 1800 to 4000 PSI (124 to 276 Bar)
Preset 3000 PSI (207 Bar)
50 = 2000 to 5000 PSI (138 to 345 Bar)
Preset 4000 PSI (276 Bar)
"U" Urethane option required for pressures above 3000 PSI (207 Bar)
DPOR-100
Adjustable, Pilot-Operated Relief Valve

DESCRIPTION
An adjustable, pilot-operated spool type cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The DPOR-100 prevents flow from ① to ② until pressure at ① exceeds the set crack pressure and opens the pilot section. The pilot flow creates a pressure differential across the spool which causes the valve to open allowing flow from ① or ② protecting the circuit from over pressurization.

FEATURES and BENEFITS
• Rapid response to pressure surges.
• Low pressure rise.
• Accurate pilot-operated design.
• Hardened poppet and seat for long life.
• Hidden adjustment (tamper resistant) option.
• Aluminum knob and disc nut option.
• Adjustment may be locked in place.
• Industry common cavity.
• Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 30 GPM (113.6 L/min).
Internal Leakage: 5 in.²/min. (82cc/min.) max. at reseat.
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
Reseat Pressure: Nominal 80% of crack pressure.
Spring Range: 100 to 400 PSI (7 to 28 Bar)
Preset: 300 PSI (21 Bar)
300 to 2000 PSI (21 to 138 Bar)
Preset: 1000 PSI (69 Bar)
400 to 3000 PSI (28 to 207 Bar)
Preset: 2000 PSI (138 Bar)
600 to 4000 PSI (41 to 276 Bar)
Preset: 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C).
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPOR-100
Adjustable, Pilot-Operated Relief Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPOR-100 - * - * - ** / **** - **

PILOT-OPERATED RELIEF VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
4 = 100 to 400 PSI (7 to 28 Bar)
Preset: 300 PSI (21 Bar)

20 = 300 to 2000 PSI (21 to 138 Bar)
Preset: 1000 PSI (69 Bar)

30 = 400 to 3000 PSI (28 to 207 Bar)
Preset: 2000 PSI (138 Bar)

40 = 600 to 4000 PSI (41 to 276 Bar)
Preset: 3000 PSI (207 Bar)

( ) Parentheses = Millimeters

SHOP ONLINE at www.airlinehyd.com

800-999-7378
RV-050
Relief Valve, Anti-Cavitation Check

DESCRIPTION
A cartridge valve designed to combine a shock relief valve, (direct acting) and anti-cavitation function through the check valve.

OPERATION
The RV-050 prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats, allowing flow from ② to ①, protecting the circuit from over pressurization.

The RV-050 allows free flow from ① to ②. As pressure at ① exceeds pressure at ②, the valve unseats from the cavity, allowing flow from ① to ②. This provides anti-cavitation function through the check valve.

FEATURES and BENEFITS
• Rapid response to pressure surges.
• Anticavitation function through the check valve.
• Hardened precision poppet and seat for long life.
• Fast opening and closing.
• Low hysteresis.
• Compact size.

SPECIFICATIONS
Operating Pressure: 5500 PSI (380 Bar)
Max. Flow: 16 gpm (60 l/min)
Internal Leakage: 1.0 cc/min at 80% set
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min)
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -30°F to +220°F (-35°C to +104°C)
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids.
Cavity/Cavity Tool: R05-2, see page 11.25.2
In-Line Body Material: Anodized 6061 T6 aluminum alloy rated at 3000 PSI (207 Bar).
RELIEF VALVE

CaVITY

SEALS
N = Buna N
V = Viton

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Factory Preset PSI (Omit for Standard)

SPRING RANGE
10 = 500 to 1700 PSI (35 to 117 Bar)
   Preset: 1000 PSI (69 Bar)
20 = 1700 to 3000 PSI (117 to 207 Bar)
   Preset: 2500 PSI (172 Bar)
30 = 3000 to 3900 PSI (207 to 269 Bar)
   Preset: 3500 PSI (241 Bar)
40 = 4000 to 4200 PSI (276 to 290 Bar)
   Preset: 4100 PSI (283 Bar)
50 = 4200 to 5000 PSI (290 to 345 Bar)
   Preset: 4500 PSI (310 Bar)

HOW TO ORDER

RV - 050 - * - ** / *** - **

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

RV-060
Relief Valve, Anti-Cavitation Check

DESCRIPTION
A cartridge valve designed to combine a shock relief valve, (direct acting) and anti-cavitation function through the check valve.

OPERATION
The RV-060 prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats allowing flow from ② to ①, protecting the circuit from over pressurization.

The RV-060 allows free flow from ① to ②. As pressure at ① exceeds pressure at ②, the valve unseats from the cavity allowing flow from ① to ②. This provides anti-cavitation function through the check valve.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Anticavitation function through the check valve.
- Hardened precision poppet and seat for long life.
- Fast opening and closing.
- Low hysteresis.
- Compact size.

SPECIFICATIONS
Operating Pressure: 5000 PSI (345 Bar)
Max. Flow: 20 gpm (77 l/min)
Internal Leakage: 1.0 cc/min at 80% set
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min)
Reseat Pressure: Nominal 80% of crack pressure
Temperature: -30°F to +220°F (-35°C to +104°C)
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids.
Cavity/Cavity Tool: R06-2, see page 11.26.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

RV - 060 - * - ** / *** - **

RELIEF VALVE

CAVITY

SEALS
N = Buna N
V = Viton

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Factory Preset PSI (Omit for Standard)

SPRING RANGE
10 = 500 to 1700 PSI (35 to 117 Bar)
Preset: 1000 PSI (69 Bar)
20 = 1700 to 3000 PSI (117 to 207 Bar)
Preset: 2500 PSI (172 Bar)
30 = 3000 to 3900 PSI (207 to 269 Bar)
Preset: 3500 PSI (241 Bar)
40 = 4000 to 4200 PSI (276 to 290 Bar)
Preset: 4100 PSI (283 Bar)
50 = 4200 to 5000 PSI (290 to 345 Bar)
Preset: 4500 PSI (310 Bar)
**DESCRIPTION**

A cartridge valve designed to combine a shock relief valve, (direct acting) and anti-cavitation function through the check valve.

**OPERATION**

The RV-080 prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseats allowing flow from ② to ①, protecting the circuit from over pressurization.

The RV-080 allows free flow from ① to ②. As pressure at ① exceeds pressure at ②, the valve unseats from the cavity allowing flow from ① to ②. This provides anti-cavitation function through the check valve.

**FEATURES and BENEFITS**

- Rapid response to pressure surges.
- Anticavitation function through the check valve.
- Hardened precision poppet and seat for long life.
- Fast opening and closing.
- Low hysteresis.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 5000 PSI (345 Bar)
- **Max. Flow:** 24 gpm (91 l/min)
- **Internal Leakage:** 2.0 cc/min at 80% set
- **Crack Pressure Defined:** Determined at .25 gpm (0.9 L/min)
- **Reseat Pressure:** Nominal 80% of crack pressure
- **Temperature:** -30°F to +220°F (-35°C to +104°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids.
- **Cavity/Cavity Tool:** R08-2, see page 11.28.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

RV - 080 - * - ** / *** - **

RELIEF VALVE
CAVITY
SEALS
N = Buna N
V = Viton

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only

Factory Preset PSI (Omit for Standard)

SPRING RANGE
10 = 500 to 1700 PSI (35 to 117 Bar)
Preset: 1000 PSI (69 Bar)
20 = 1700 to 3000 PSI (117 to 207 Bar)
Preset: 2500 PSI (172 Bar)
30 = 3000 to 3900 PSI (207 to 269 Bar)
Preset: 3500 PSI (241 Bar)
40 = 4000 to 4200 PSI (276 to 290 Bar)
Preset: 4100 PSI (283 Bar)
50 = 4200 to 5000 PSI (290 to 345 Bar)
Preset: 4500 PSI (310 Bar)
DBRV-100
Adjustable, Bi-Directional Relief Valve

DESCRIPTION
An adjustable, bi-directional poppet type cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The DBRV-100 is comprised of two relief valves which prevent flow from ① to ② or ② to ① until the set crack pressure is achieved at either port ① or ②. When the set crack pressure is reached, the poppet unseats allowing flow from ① to ② or ② to ① protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Low pressure rise.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3600 PSI (248 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow: 15 GPM (56.8 L/min).
Internal Leakage: 5 in.³/min. (82cc/min.) max. at reseat.
Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
Reseat Pressure: Nominal 80% of crack pressure.
Spring Range:
- Preset: 300 PSI (21 Bar)
- Preset: 1000 PSI (69 Bar)
- Preset: 2000 PSI (138 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C).
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

FLOW gpm (L/min.)
- 0
- 5.0
- 10.0
- 15.0
- 18.9
- 37.9
- 56.8

PRESSURE DROP (Bar)
- 150 ssu/32 cSt OIL @ 100°F/38°C

4000 (275.9)
3000 (206.9)
2000 (137.9)
1500 (99.0)
1000 (69.0)
0

10144-10 02/11
INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DBRV-100 - * - * - ** / **** - **

BI-DIRECTIONAL RELIEF VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

FACTOR PRESET PSI
(Omit for standard)

SPRING RANGE
6 = 100 to 600 PSI (7 to 41 Bar)
Preset: 300 PSI (21 Bar)
20 = 250 to 2000 PSI (17 to 138 Bar)
Preset: 1000 PSI (69 Bar)
36 = 900 to 3600 PSI (62 to 248 Bar)
Preset: 2000 PSI (138 Bar)
DBRVS-100-*-H
Tamper-Resistant, Direct-Acting, Bi-Directional Relief Valve

DESCRIPTION
An adjustable, bi-directional poppet type cartridge valve designed to limit pressure in hydraulic circuits.

OPERATION
The DBRVS-100-*-H is comprised of two relief valves which prevent flow from ① to ② or ② to ① until the set crack pressure is achieved at either port ① or ②. When the set crack pressure is reached, the poppet unseats allowing flow from ① to ② or ② to ① protecting the circuit from over pressurization.

FEATURES and BENEFITS
- Rapid response to pressure surges.
- Low pressure rise.
- Hardened poppet and seat for long life.
- Hidden adjustment (tamper resistant).
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 5000 PSI (345 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph. Nominal Flow 20 GPM (75.7 L/min).
- Internal Leakage: 5 in.³/min. (82cc/min.) max. at reseat.
- Crack Pressure Defined: Determined at .25 gpm (0.9 L/min.)
- Reseat Pressure: Nominal 80% of crack pressure.
- Spring Range: 100 to 5000 PSI (7 to 345 Bar)
  Preset: 2500 PSI (172 Bar)
- Temperature: -30° F to +250° F (-35°C to +120° C)
- Recommended Filtration: ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
- Cavity/Cavity Tool: 100-2, see page 11.10.2
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DBRVS-100-*-H
Tamper-Resistant, Direct, Bi-Directional Relief Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DBRVS - 100 - * - H - 50 / **** - **

BI-DIRECTIONAL RELIEF VALVE (SHORT)

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

HIDDEN ADJUSTMENT STYLE

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available-consult factory.)

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
50 = 100 to 5000 PSI (7 to 345 Bar)
Preset: 2500 PSI (172 Bar)
**DESCRIPTION**

An adjustable, pilot-operated spool cartridge valve designed to allow flow to actuator circuits until a predetermined pressure is attained, then to discharge flow back to tank at a low pressure.

---

**OPERATION**

Flow is blocked from ① to ② until system pressure exceeds the valve setting allowing flow through the pilot section to pass out of the vent port. As flow passes through the pilot section, the resulting differential pressure shifts the main spool to unload the system to a predetermined low pressure. When the system pressure is reduced below 50 psi (3.4 bar), the valve will reset itself and again block flow from port ① to ②.

Flow is blocked from port ② to ①. Pressure at port ② is added to valve setting.

---

**FEATURES and BENEFITS**

- Quiet operation.
- High accuracy of pilot operated design.
- Hardened parts for long life.
- Adjustment may be locked in place.
- Tamper resistant option.
- Adjustment prevents spring from going solid.
- Industry common cavity.
- Compact size.
- High flow capacity.

---

**SPECIFICATIONS**

- **Operating Pressure:** 4000 PSI (276 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph
- **Internal Leakage:** 5 in.³/min (82 cc/min.) max. at 80% of crack pressure
- **Crack Pressure Defined:** Determined at .25 GPM (1.0 L/min.)
- **Reset Pressure:** When port ① pressure is below 50 PSI (3.4 Bar), valve will be reset to original pressure setting.
- **Spring Range:** 300 to 4000 PSI (20 to 276 Bar)
- **Preset** (See HOW TO ORDER)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 17/15/13
- **Fluids:** Mineral-based fluids.
  - For other fluid compatibility, consult factory
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
INSTALLATION DIMENSIONS

- Screw adjustment: 3/16 (4.8) hex. socket
- 88 (22.4) hex torque: 20 ft-lbs (27.1 Nm) max.

Parentheses = Millimeters

HOW TO ORDER

DRVK - 080 - * - * - ** / **** - **

Kick-Down Relief Valve
Cavity/Seal

SEALS
N = Buna N
V = Viton
U = Urethane

ADJUSTMENT STYLE
S = Screw
H = Hidden (Tamper Resistant)

BODY PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for cartridge only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
50 PSI increments
(Omit for Std.)

SPRING RANGE
20 = 300-2000 PSI (20 to 138 Bar)
Preset 1500 PSI (103 Bar)
40 = 1800 to 4000 PSI (124 to 276 Bar)
Preset 3000 PSI (207 Bar)
“U” Urethane option required for pressures above 3000 PSI (207 Bar)
ZTRV-62
Thermal, Relief Valve

DESCRIPTION
A directing poppet cartridge thermal relief valve designed to limit pressure in hydraulic circuits as a result of temperature induced pressure intensification.

OPERATION
The ZTRV-62 prevents flow from ➊ to ➋ until the set crack pressure at ➊ is achieved. The poppet then unseats, allowing flow from ➊ to ➋, limiting system pressure.

FEATURES and BENEFITS
• Hardened parts for long life.
• Hidden adjustment (tamper resistant).
• Zero profile style cavity.
• Compact size.

SPECIFICATIONS
- Operating Pressure: 5000 PSI (345 Bar)
- Internal Leakage: 5 drop/minute @ reseat pressure.
- Re-Set Pressure: Nominal 80% of crack pressure.
- Spring Range: 2000 to 5000 PSI (138 to 345 bar)
  - Preset 2000 PSI (138 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C).
- Recommended Filtration: ISO 17/15/13
- Fluids: Mineral-based fluids.
  - For other fluid compatibility, consult factory
- Cavity/Cavity Tool: ZP62, see page 11.06.2
ZTRV-62
Thermal, Relief Valve

INSTALLATION DIMENSIONS

UTILIZING .062 (1.6) WIDE SLOTS

TAMPER RESISTANT END PLATE WITH PRESSURE SETTING

9/16-18 THREAD TORQUE 10 FT-LBS (13.6 Nm) MAX.

.84 (21.4)

( ) Parentheses = Millimeters

HOW TO ORDER

ZTRV - 62 - U - ****

THERMAL RELIEF VALVE

CAVITY

SEALS
U = Urethane

SET PRESSURE 2000 PSI (138 Bar)
RANGE 2000 to 5000 PSI (138 to 345 Bar)
**DPR-100**
Adjustable, Direct-Acting, Pressure Reducing/Relieving Valve

**DESCRIPTION**
An adjustable, direct-acting spool cartridge valve designed to regulate pressure in secondary circuits.

**OPERATION**
The DPR-100 in the steady state will allow bi-directional flow between ① and ② with spring chamber ③ vented. When the preset pressure at ① is achieved, the spool throttles to regulate pressure at ① by restricting flow at ②.

**FEATURES and BENEFITS**
- Variety of pressure ranges.
- Hardened precision spool and sleeve for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- **Spring Range:** 50 PSI to 200 PSI (3 to 14 Bar)
  - Preset: 150 PSI (10 Bar)
  - 100 PSI to 900 PSI (7 to 62 Bar)
  - Preset: 450 PSI (31 Bar)
  - 700 PSI to 2400 PSI (48 to 166 Bar)
  - Preset: 1800 PSI (124 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-3 see page 11.10.3
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DPR-100**

Adjustable, Direct-Acting, Pressure Reducing/Relieving Valve

**INSTALLATION DIMENSIONS**

<table>
<thead>
<tr>
<th>Adjustment Style</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>H = Hidden</td>
<td>1.50 (38.1) Dia. Knob</td>
</tr>
<tr>
<td>K = Knob</td>
<td>.31 (7.9) Hex Socket</td>
</tr>
<tr>
<td>S = Screw</td>
<td>.25 (6.4) HEX SOCKET</td>
</tr>
</tbody>
</table>

**SPRING RANGE**

- **2** = 50 to 200 PSI (3 to 14 Bar)
- **9** = 100 to 900 PSI (7 to 62 Bar)
- **24** = 700 to 2400 PSI (48 to 166 Bar)

**PORTING**

- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 6T = SAE 6
- 8T = SAE 8

(Omit for Cartridge Only.

(Other porting options available – consult factory.)

**FACTORY PRESET PSI**

(Omit for standard)

**HOW TO ORDER**

**DPR - 100 - * - * - ** / **** - **

PRESSURE REDUCING VALVE

CAVITY/SEAL

SEALS

N = Buna N

V = Viton

ADJUSTMENT STYLE

H = Hidden

K = Knob

S = Screw

SHOP ONLINE at www.airlinehyd.com 800-999-7378
DPRR-080
Adjustable, Pilot-Operated, Pressure Reducing/Relieving Valve

SERIES 8

DESCRIPTION
An adjustable, direct-acting spool cartridge valve designed to regulate pressure in secondary circuits.

OPERATION
The DPRR-080 in steady state will allow bi-directional flow between ① and ② with spring chamber ③ vented. When the preset pressure at ① is achieved, the spool throttles to regulate pressure at ① by restricting flow at ②.

The valve will relieve ① to ③.

FEATURES and BENEFITS
- Hardened precision spool and sleeve for long life.
- Variety of pressure ranges.
- High accuracy of pilot operated design.
- Adjustment prevents spring from going solid.
- Adjustment may be locked in place.
- Tamper resistant option.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 5000 PSI (345 Bar)
Flow: See PRESSURE DROP VS. FLOW graph
Nominal flow 5 GPM (19.0 l/min)
Internal Leakage: 5 in³/min (82 cc/min) max. at 3000 PSI (207 Bar)
Spring Range: 300 to 5000 PSI (20 to 345 Bar)
Preset (See HOW TO ORDER)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 19/15
Fluids: Mineral-based fluids.
For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-3, see page 11.08.3
In-Line Body Material: Anodized 6061T6 aluminum
allow rated at 3000 PSI (207 Bar).
DPRR-080
Adjustable, Pilot-Operated, Pressure Reducing/Relieving Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPRR-080 - * - * - ** / **** - **

REReducing/Relieving VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton
U = Urethane

ADJUSTMENT STYLE
S = SCREW
H = HIDDEN (TAMPER RESISTANT)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for cartridge only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
50 PSI increments
(Omit for Std.)

SPRING RANGE
20 = 300 to 2000 PSI (20 to 138 Bar)
Preset: 300 PSI (20 Bar)
40 = 1800 to 4000 PSI (124 to 276 Bar)
Preset: 3000 PSI (207 Bar)
50 = 2000 to 5000 PSI (138 to 345 Bar)
Preset: 4000 PSI (276 Bar)

"U" Urethane option required for pressures above 3000 PSI (207 Bar)
**DDPS-100-3NCS**

Differential Pressure Sensing Valve

**DESCRIPTION**

A fixed spool cartridge valve designed to direct oil to a circuit when a predetermined pressure differential has been reached.

**OPERATION**

The DDPS-100-3NCS in the steady state blocks flow from 1 to 2. When the predetermined pressure differential between 1 and 3 is achieved, the spool shifts to allow flow from 1 to 2.

**FEATURES and BENEFITS**

- Hardened precision spool and sleeve for long life.
- Pressure differential setting options.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- **Differential Pressure Setting:**
  - 40 PSI (2.8 Bar)
  - 75 PSI (5.2 Bar)
  - 100 PSI (6.9 Bar)
  - 150 PSI (10.3 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-3 see page 11.10.3
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

**PRESSURE DROP VS. FLOW**

[Graph showing pressure drop vs. flow]
**DESCRIPTION**

A fixed spool cartridge valve designed to direct oil to a circuit when a predetermined pressure differential has been reached.

**OPERATION**

The DDPS-160 in the steady state blocks flow from ① to ②.

When the predetermined pressure differential between ① and ③ is achieved, the spool shifts to allow flow from ① to ②.

**FEATURES and BENEFITS**

- High flow capabilities.
- Hardened precision spool and sleeve for long life.
- Pressure differential setting options.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure**: 3000 PSI (207 Bar)
- **Flow**: See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage**: 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- **Differential Pressure Setting**: 5 PSI (0.3 Bar), 20 PSI (1.4 Bar), 40 PSI (2.8 Bar), 80 PSI (5.5 Bar), 160 PSI (11.0 Bar)
- **Temperature**: -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration**: ISO 20/18/14
- **Fluids**: Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool**: 160-3S, see page 11.16.3S

**PRESSURE DROP VS. FLOW**

[Graph showing pressure drop vs. flow]
DDPS-160
Differential Pressure Sensing Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DDPS - 160 - * - ***

DIFFERENTIAL PRESSURE SENSING VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

DIFFERENTIAL PRESSURE SETTING
5 = 5 PSI (0.3 Bar)
20 = 20 PSI (1.4 Bar)
40 = 40 PSI (2.8 Bar)
80 = 80 PSI (5.5 Bar)
160 = 160 PSI (11.0 Bar)
**DESCRIPTION**

An adjustable, direct-acting spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

**OPERATION**

The DPS-100 in the steady state blocks flow at ① and ② with spring chamber ③ drained. When the preset pressure at ① is achieved, the spool shifts to allow flow from ① to ②.

**FEATURES and BENEFITS**

- Variety of pressure ranges.
- Hardened precision spool and sleeve for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- **Spring Range:**
  - 50 PSI to 200 PSI (3 to 14 Bar)
  - Preset: 150 PSI (10 Bar)
  - 100 PSI to 900 PSI (7 to 62 Bar)
  - Preset: 450 PSI (31 Bar)
  - 700 PSI to 2400 PSI (48 to 166 Bar)
  - Preset: 1800 PSI (124 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-3, see page 11.10.3
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPS-100
Adjustable, Direct-Acting
Externally-Drained Sequence Valve

INSTALLATION DIMENSIONS

DPS - 100 - * - * - ** / **** - **

PRESSURE SEQUENCE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
(Omit for Cartridge Only. Other porting options available – consult factory.)

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
2 = 50 to 200 PSI (3 to 14 Bar)
Preset: 150 PSI (10 Bar)
9 = 100 to 900 PSI (7 to 62 Bar)
Preset: 450 PSI (31 Bar)
24 = 700 to 2400 PSI (48 to 166 Bar)
Preset: 1800 PSI (124 Bar)
DESCRIPTION
An adjustable, internally-piloted spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

OPERATION
The DPS2-080 in steady state allows flow from ① to ③ with ② blocked. When the preset pressure at ② is achieved, the spool shifts to allow flow ① to ③.

FEATURES and BENEFITS
- Hardened spool and sleeve for long life.
- Industry common cavity.
- Compact size

SPECIFICATIONS
Operating Pressure: 4000 PSI (276 Bar)
Max. Flow: 6 GPM (22.7 l/min)
Internal Leakage: 82 cc/min at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C).
Spring Range: 50 to 400 PSI (3.5 to 27.5 Bar)
               300 to 2000 PSI (20 to 138 Bar)
               1500 to 4000 PSI (103 to 276 Bar)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids.
Cavity/Cavity Tool: 080-3, see page 11.08.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar).

PRESSURE DROP VS. FLOW

```
<table>
<thead>
<tr>
<th>FLOW gpm (l/min.)</th>
<th>0.0</th>
<th>0.2</th>
<th>1.0</th>
<th>2.0</th>
<th>3.0</th>
<th>4.0</th>
<th>5.0</th>
<th>6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESSURE DROP psi (bar)</td>
<td>0</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

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150 ssu/32 cSt OIL @ 100°F/38°C
DPS2-080
Adjustable, Internally-Piloted,
Internally-Drained Sequence Valve

INSTALLATION DIMENSIONS

<table>
<thead>
<tr>
<th>Dimension (in mm)</th>
<th>Dimension (in inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.91</td>
<td>1.15</td>
</tr>
<tr>
<td>1.69</td>
<td>0.67</td>
</tr>
<tr>
<td>.61</td>
<td>0.02</td>
</tr>
<tr>
<td>2.13</td>
<td>0.84</td>
</tr>
<tr>
<td>.28 (7.1)</td>
<td>.011 (0.3)</td>
</tr>
<tr>
<td>.25 (6.3)</td>
<td>.01 (0.04)</td>
</tr>
<tr>
<td>2.00</td>
<td>0.79</td>
</tr>
<tr>
<td>2.50 (63.5)</td>
<td>0.99 (3.1)</td>
</tr>
<tr>
<td>5.54 (140.7)</td>
<td>2.19 (8.3)</td>
</tr>
<tr>
<td>.56 (14.2)</td>
<td>.022 (0.56)</td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

HOW TO ORDER

DPS2 - 080 - * - * - ** / **** - **

PRESSURE SEQUENCE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

SCREW ADJUSTMENT
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
4 = 50 to 400 PSI
20 = 300 to 2000 PSI
30 = 1500 to 4000 PSI

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800-999-7378
DPS2-100
Adjustable, Internally-Piloted, Internally-Drained Sequence Valve

DESCRIPTION
An adjustable, internally-piloted spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

OPERATION
The DPS2-100 in the steady state allows flow from \( \textcircled{2} \) to \( \textcircled{3} \) with \( \textcircled{1} \) blocked. When the preset pressure at \( \textcircled{1} \) is achieved, the spool shifts to allow flow from \( \textcircled{1} \) to \( \textcircled{2} \).

FEATURES and BENEFITS
- Variety of pressure ranges.
- Hardened precision spool and sleeve for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
- Internal Leakage: 5 in.\(^3\)/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Spring Range: 400 to 2400 PSI (28 to 166 Bar)  
  Preset: 2000 PSI (138 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 100-3, see page 11.10.3
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DPS2-100**
Adjustable, Internally-Piloted, Internally-Drained Sequence Valve

**INSTALLATION DIMENSIONS**

HOW TO ORDER

**DPS2 - 100** - * - * - 24 / **** - **

PRESSURE SEQUENCE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

SPRING RANGE
24 = 400 to 2400 PSI (28 to 166 Bar)
Preset: 2000 PSI (138 Bar)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory)

FACTORY PRESET PSI
(Omit for standard)

( ) Parentheses = Millimeters
DPS3-080
Adjustable, Pilot-Operated, Sequence Valve

**DESCRIPTION**
An adjustable, pilot operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

**OPERATION**
The DPS3-080 in steady state blocks flow at ① while allowing flow from ② to ③. When the preset pressure at ① is achieved the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from ① to ②.

**FEATURES and BENEFITS**
- Hardened precision spool and sleeve for long life.
- Variety of pressure ranges.
- High accuracy of pilot operated design.
- Adjustment prevents spring from going solid.
- Adjustment may be locked in place.
- Tamper resistant option.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
- Operating Pressure: 5000 PSI (345 Bar)
- Flow: 6 GPM (22.7 L/min.)
- Internal Leakage: 5 in³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Std. Spring Ranges: 300 to 5000 PSI (20 to 345 Bar)
  - Preset: (SEE HOW TO ORDER)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 19/15
- Fluids: Mineral-based fluids.
  - For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 080-3, see page 11.08.3
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPS3-080
Adjustable, Pilot-Operated, Sequence Valve

INSTALLATION DIMENSIONS

( ) Parentheses = Millimeters

HOW TO ORDER

DPS3 - 080 - U - * - ** / **** - **

PRESSURE SEQUENCE VALVE

CAVITY/SEAL

SEALS
U = Urethane
Other options available - Consult factory

ADJUSTMENT STYLE
S = Screw
H = Hidden (Tamper Resistant)

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for cartridge only.
(Other porting options available – consult factory.)

FACTORY PRESET PSI
50 PSI Increments
(Omit for Std.)

SPRING RANGE
15 = 300 to 1500 PSI (20 to 103 Bar)
Preset: 300 PSI (20 Bar)
50 = 1000 to 5000 PSI (69 to 345 Bar)
Preset: 3000 PSI (207 Bar)
**DPSK-080**
Adjustable, Pilot-Operated, Kick-Down Sequence Valve

**DESCRIPTION**
An adjustable, pilot-operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

**OPERATION**
The DPSK-080 in steady state blocks flow at ① while allowing flow from ② to ③. When the preset pressure at ① is achieved, the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from ① to ②.

The spool will not shift back (kick-down) until pressure at ② falls below a predetermined pressure.

**FEATURES and BENEFITS**
- Hardened precision spool and sleeve for long life.
- Variety of pressure ranges.
- High accuracy of pilot operated design.
- Adjustment prevents spring from going solid.
- Adjustment may be locked in place.
- Tamper resistant option.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**
**Operating Pressure:** 4000 PSI (276 Bar)
**Flow:** See PRESSURE DROP VS. FLOW graph
  Nominal flow 5 GPM (19.0 l/min)
**Internal Leakage:** 5 in³/min (82 cc/min) max. at 3000 PSI (207 Bar)
**Spring Range:** 300 to 4000 PSI (20 to 276 Bar)
  Preset: (See HOW TO ORDER)
**Reset Spring Pressure:** 100 PSI (7 Bar)
**Temperature:** -30°F to +250°F (-35°C to +120°C)
**Recommended Filtration:** ISO 19/15
**Fluids:** Mineral-based fluids.
  For other fluid compatibility, consult factory.
**Cavity/Cavity Tool:** 080-3, see page 11.08.3
**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 psi (207 Bar).

**PRESSURE DROP VS. FLOW**

<table>
<thead>
<tr>
<th>PRESSURE DROP (psi)</th>
<th>FLOW gpm (L/min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 (10.3)</td>
<td>150 ssu/32 cSt OIL @ 100°F/38°C</td>
</tr>
<tr>
<td>125 (8.6)</td>
<td>100 (6.9)</td>
</tr>
<tr>
<td>100 (6.9)</td>
<td>75 (5.2)</td>
</tr>
<tr>
<td>75 (5.2)</td>
<td>50 (3.4)</td>
</tr>
<tr>
<td>50 (3.4)</td>
<td>25 (1.7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOW gpm (L/min.)</th>
<th>0</th>
<th>1.0</th>
<th>2.0</th>
<th>3.0</th>
<th>4.0</th>
<th>5.0</th>
<th>6.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3.8)</td>
<td>25</td>
<td>50</td>
<td>75</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>(7.6)</td>
<td>15</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>75</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>(11.4)</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>(15.1)</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>(18.9)</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>(22.7)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
**DPSK-080**
Adjustable, Pilot-Operated, Kick-Down Sequence Valve

**INSTALLATION DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value (in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCREW ADJUSTMENT</td>
<td>3/16 (4.8) HEX SOCKET</td>
</tr>
<tr>
<td>HIDDEN ADJUSTMENT</td>
<td>1.75 (44.5)</td>
</tr>
<tr>
<td></td>
<td>1.25 (31.8)</td>
</tr>
<tr>
<td></td>
<td>1.552 (42.0)</td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

**HOW TO ORDER**

**DPSK - 080 - * - * - ** / **** - **

- KICK-DOWN SEQUENCE VALVE
- CAVITY/SEAL
- SEALS
  - N = Buna N
  - V = Viton
  - U = Urethane
- ADJUSTMENT STYLE
  - S = SCREW
  - H = HIDDEN (TAMPER RESISTANT)
- PORTING
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for cartridge only.
  - (Other porting options available – consult factory.)
- FACTORY PRESET PSI
  - 50 PSI increments
  - (Omit for Std.)
- SPRING RANGE
  - 20 = 300 to 2000 PSI (20 to 138 Bar)
  - Preset: 300 PSI (20 Bar)
  - 40 = 1800 to 4000 PSI (124 to 276 Bar)
  - Preset: 3000 PSI (207 Bar)
  - 50 = 2000 to 5000 PSI (138 to 345 Bar)
  - Preset: 4000 PSI (276 Bar)

*U* Urethane option required for pressures above 3000 PSI (207 Bar)
DPSK-100 (Reset 120 PSI)
Adjustable, Pilot-Operated
Kick-Down Sequence Valve

DESCRIPTION
An adjustable, pilot-operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

OPERATION
The DPSK-100 in the steady state blocks flow at 1 while allowing flow from 2 to 3. When the preset pressure at 1 is achieved, the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from 1 to 2. The spool will not shift back (kick-down) until pressure at 2 falls below a predetermined pressure.

FEATURES and BENEFITS
- Variety of pressure ranges.
- Hardened precision spool and sleeve for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
Spring Range: 300 to 500 PSI (21 to 34 Bar)
Preset: 400 PSI (28 Bar)
350 to 3000 PSI (24 to 207 Bar)
Preset: 2000 PSI (138 Bar)
Reset Spring Pressure: 120 PSI (8 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-3, see page 11.10.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPSK-100 (Reset 120 PSI)
Adjustable, Pilot-Operated Kick-Down Sequence Valve

INSTALLATION DIMENSIONS

HOw TO ORDER

DPSK - 100 - * - * - ** / **** - **

KICK-DOWN PRESSURE SEQUENCE VALVE

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

FACTORv PRESET PSI
(Omit for standard)

SPRING RANGE
5 = 300 to 500 PSI (21 to 34 Bar)
30 = 350 to 3000 PSI (24 to 207 Bar)
Preset: 400 PSI (28 Bar)
Preset: 2000 PSI (138 Bar)

ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

( ) Parentheses = Millimeters
DPSK2-100 (Reset 300 PSI)
Adjustable, Pilot-Operated
Kick-Down Sequence Valve

DESCRIPTION
An adjustable, pilot-operated spool cartridge valve designed to direct oil to a circuit when a predetermined pressure has been reached.

OPERATION
The DPSK2-100 in the steady state blocks flow at ① while allowing flow from ② to ③. When the preset pressure at ① is achieved, the pilot section opens. This pilot flow creates a pressure differential across the spool, which causes the spool to shift to allow flow from ① to ②. The spool will not shift back (kick-down) until pressure at ② falls below a predetermined pressure.

FEATURES and BENEFITS
- Higher kick-down pressure than DPSK-100 (see page 7.05.1).
- Variety of pressure ranges.
- Hardened precision spool and sleeve for long life.
- Hidden adjustment (tamper resistant) option.
- Aluminum knob and disc nut option.
- Adjustment may be locked in place.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
- Operating Pressure: 3000 PSI (207 Bar)
- Flow: See PRESSURE DROP VS. FLOW graph.
- Internal Leakage: 5 in.³/min. (82 cc/min.) max. at 3000 PSI (207 Bar)
- Spring Ranges: 350 to 3000 PSI (24 to 207 Bar)
  - Preset: 1200 PSI (83 Bar)
- Reset Spring Pressure: 300 PSI (21 Bar)
- Temperature: -30°F to +250°F (-35°C to +120°C)
- Recommended Filtration: ISO 20/18/14
- Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
- Cavity/Cavity Tool: 100-3, see page 11.10.3
- In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPSK2-100 (Reset 300 PSI)
Adjustable, Pilot-Operated Kick-Down Sequence Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPSK2 - 100 - * - * - ** / **** - **

KICK-DOWN PRESSURE SEQUENCE VALVE
CAVITY/SEAL
SEALS
N = Buna N
V = Viton
ADJUSTMENT STYLE
H = Hidden
K = Knob
S = Screw

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory)

FACTORY PRESET PSI
(Omit for standard)

SPRING RANGE
30 = 350 to 3000 PSI (24 to 207 Bar)
Preset: 1200 PSI (83 Bar)
ZSHB-63
Ball-Type
Shuttle Valve

DESCRIPTION
A cartridge valve designed to direct flow from either of the two inlet ports to a common outlet port.

OPERATION
The ZSHB-63 allows the check ball to move away from inlet port ① or ③ with the greatest differential pressure and seat against the other inlet port having the least differential pressure. This provides a flow path to outlet port ②.

FEATURES and BENEFITS
- Excellent response to pressure changes.
- Chrome alloy ball for long life.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 4 GPM (15.1 L/min).
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: ZP63, see page 11.06.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

![Graph of PRESSURE DROP VS. FLOW]
ZSHB-63
Ball-Type Shuttle Valve

INSTALLATION DIMENSIONS

ZSHB - 63 - U - **

SHUTTLE VALVE
CAVITY
SEALS
U = Urethane

PORTING
4T = SAE 4
Omit for Cartridge Only.

HOW TO ORDER

( ) Parentheses = Millimeters
**ZSH2-63**
Zero Leak, Spring-Bias Shuttle Valve

**DESCRIPTION**
A cartridge valve designed to direct flow from either of the two inlet ports to a common outlet port.

**OPERATION**
The ZSH2-63 allows the spring-bias poppet to move away from inlet port ① (biased closed) or ③ with the greatest differential pressure and seat against the other inlet port having the least differential pressure. This provides a flow path to outlet port ②.

**FEATURES and BENEFITS**
- Excellent response to pressure changes.
- Zero leak.
- Compact size.

**SPECIFICATIONS**
**Operating Pressure:** 3000 PSI (207 Bar)
**Flow:** See PRESSURE DROP VS. FLOW graph.
- Nominal flow 4 gpm (15.1 L/min.)
**Internal Leakage:** 0 drops/min. max. at 1500 PSI (103 Bar)
**Temperature:** -30°F to +250°F (-35°C to +120°C)
**Recommended Filtration:** Critical Application – ISO 17/15/13
- Non-Critical Application – ISO 20/18/14
**Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
**Cavity/Cavity Tool:** ZP63, see page 11.06.3
**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
ZSH2-63
Zero Leak, Spring-Bias
Shuttle Valve

INSTALLATION DIMENSIONS

#6 SAE PLUG

.25 (6.4) HEX SOCKET
9/16-18 THREAD
TORQUE 10 FT.-LBS
(13.8 Nm) MAX

.28 TYP.
(7.1)

.25 (6.4)

1.44
(36.5)

1.50
(38.1)

2.75
(69.9)

2.86
(72.6)

1.00
(25.4)

.50
(12.7)

( ) Parentheses = Millimeters

HOW TO ORDER

ZSH 2 - 63 - U - **

SHUTTLE VALVE
SPRING-BIASED
CAVITY
SEALS
U = Urethane

PORTING
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.

SHOP ONLINE at www.airlinehyd.com
800-999-7378
DSH-100
Ball-Type Shuttle Valve

DESCRIPTION
A cartridge valve designed to direct flow from either of the two inlet ports to a common outlet port.

OPERATION
The DSH-100 allows the check ball to move away from inlet port ① or ③ with the greatest differential pressure and seat against the other inlet port having the least differential pressure providing a flow path to outlet port ②.

FEATURES and BENEFITS
- Excellent response to pressure changes.
- Hardened working parts for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-3, see page 11.10.3
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

FLOW gpm (L/min.)

PRESSURE DROP psi (bar)

100 (8.9)
80 (5.5)
60 (4.1)
40 (2.8)
20 (1.4)
0
(3.8) (7.6) (11.4) (15.1) (18.9) (22.7)
DSH-100
Ball-Type Shuttle Valve

INSTALLATION DIMENSIONS

DSH - 100 - * - **
SHUTTLE VALVE
CAVITY/SEAL
SEALS
N = Buna N
V = Viton
PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only. (Other porting options available – consult factory.)

( ) Parentheses = Millimeters
DMP-080-2NCP
Manual Pull, Two-Way, Normally Closed Valve

DESCRIPTION
A manual operated pull style cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION
The DMP-080-2NCP blocks flow from ② to ①, or ① to ②. When the knob is pulled, fluid flows from ② to ①, or ① to ②. The cartridge allows flow from ① to ② after overcoming the spring force of 450 PSI (31 Bar).

FEATURES and BENEFITS
- Large red knob for easy identification and use.
- Chrome alloy ball for long life.
- Industry common cavity.
- Compact size.

SPECIFICATIONS
Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

PRESSURE DROP VS. FLOW

<table>
<thead>
<tr>
<th>FLOW gpm (L/min.)</th>
<th>PRESSURE DROP psi (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>0.5 (2.2)</td>
<td>200 (13.8)</td>
</tr>
<tr>
<td>1.0 (4.0)</td>
<td>160 (11.0)</td>
</tr>
<tr>
<td>1.5 (5.5)</td>
<td>120 (8.3)</td>
</tr>
<tr>
<td>2.0 (7.6)</td>
<td>80 (5.5)</td>
</tr>
<tr>
<td>2.5 (9.1)</td>
<td>40 (2.8)</td>
</tr>
</tbody>
</table>

150 ssu/32 cSt OIL @ 150°F/38°C


Deltrol Fluid Products Division of Deltrol Corp.
DMP-080-2NCP
Manual Pull, Two-Way, Normally Closed Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DMP - 080 - 2 NC P - * - **
MANUAL PULL
CAVITY/SEAL
FLOW PATH
NORMALLY CLOSED
PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available – consult factory.)
SEALS
N = Buna N
V = Viton

9.01.2
DESCRIPTION

A toggle-operated cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION

The DTV-080 blocks flow from ② to ①, or ① to ②. When the toggle handle is actuated, fluid flows from ② to ①, or ① to ②. The cartridge allows reverse flow from ① to ② after overcoming the spring force of 450 PSI (31 Bar).

The DTV-080 can be actuated by pushing or pulling the toggle handle and will over-center detent open.

FEATURES and BENEFITS

- Chrome alloy ball for long life.
- Push or pull actuator.
- Over-center detents open.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: Critical Application – ISO 17/15/13
Non-Critical Application – ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DTV-080**

**Normally Closed, Detent, Toggle-Operated Valve**

### INSTALLATION DIMENSIONS

![Diagram of DTV-080 installation dimensions]

( ) Parentheses = Millimeters

### HOW TO ORDER

**DTV - 080 - * - **

- **TOGGLE VALVE**
- **CAVITY/SEAL**
- **SEALS**
  - N = Buna N
  - V = Viton

**PORTING**
- 2N = 1/4 PTF
- 3N = 3/8 PTF
- 4T = SAE 4
- 6T = SAE 6

Omit for Cartridge Only.

(Other porting options available – consult factory.)
DESCRIPTION

A toggle-operated cartridge valve designed with positive shut off to be used in load holding applications.

OPERATION

The DTV2-080 blocks flow from ① to ②, or ② to ①. When the toggle handle is actuated, fluid flows from ① to ②, or ② to ①. The cartridge allows reverse flow from ① to ② after overcoming the spring force of 450 PSI (31 Bar).

The DTV2-080 can be actuated by pushing or pulling the toggle handle.

FEATURES and BENEFITS

• Chrome alloy ball for long life.
• Push or pull actuator.
• Cannot over-center detent open (Safety purposes).
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Temperature: -30° F to +250° F (-35°C to +120° C)
Recommended Filtration: Critical Application-ISO 17/15/13
Non-Critical Application-ISO 20/18/14
Fluids: Mineral-based fluids. For other fluid compatibility consult factory.
Cavity/Cavity Tools: 080-2, see page 11.08.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
Normally Closed, Toggle-Operated Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DTV2-080 - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only
(Other porting options available – consult factory)

TOGGLE VALVE

CAVITY/SEAL

SEALS
N = Buna N
V = Viton

SOLNOID CHECK
MOTION CONTROL
FLOW CONTROL
RELIEF CONTROL
SEQUENCE VALVES
SHUTTLE VALVES
ACCESSORIES
technical DATA
**DESCRIPTION**

A mechanically-operated cartridge valve designed with positive shut off to be used in load-holding applications.

**OPERATION**

The DMR2-080 blocks flow in both directions. When the plunger is actuated, the poppet opens, allowing flow in either direction.

The force required to depress the plunger is the summation of:
- Pressure psi at \( \Psi \) \( \times \) .066
- Pressure psi at \( \Psi \) \( \times \) .011
- 8-lb. spring constant

Note: Omit pressure at \( \Psi \) if no pressure exists.
Omit pressure at \( \Psi \) if no pressure exists.

**FEATURES and BENEFITS**

- Hardened poppet and seat for long life.
- Zero leak.
- Externally threaded for connecting a manual operator.
- Filter screen standard.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

**Operating Pressure:** 3000 PSI (207 Bar)

**Flow:** See PRESSURE DROP VS. FLOW graph.
- Nominal Flow 5 GPM (18.9 L/min).

**Internal Leakage:** 0 drops/min. max. at 3000 PSI (207 Bar)

**Temperature:** -30°F to +250°F (-35°C to +120°C)

**Actuation Force:** Force (lbs.) = \( (P \Psi \times .066) + (P \Psi \times .011) + 8 \)

**Recommended Filtration:**
- Critical Application – ISO 17/15/13
- Non-Critical Application – ISO 20/18/14

**Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.

**Cavity/Cavity Tool:** 080-2, see page 11.08.2

**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

---

**PRESSURE DROP VS. FLOW**

\( \Psi \) \( \rightarrow \) \( \Psi \) (FULL OPEN)

- 150 ssu/32 cSt OIL @ 100°F/38°C
- 60 (4.1)
- 50 (3.4)
- 40 (2.8)
- 30 (2.1)
- 20 (1.4)
- 10 (0.7)

**FLOW gpm (L/min.)**
- 0 (0)
- 1.0 (3.8)
- 2.0 (7.6)
- 3.0 (11.4)
- 4.0 (15.1)
- 5.0 (18.9)
DMR2-080
Normally Closed, Zero Leak
Mechanically-Operated Valve

INSTRUCTION DIMENSIONS

HOW TO ORDER

DMR2 - 080 - * - **
MANUAL RELEASE VALVE
CAVITY/SEAL
SEALS
N = Buna N
V = Viton

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available – consult factory.)
**DMO-080-2NCSP**

**Normally Closed, Bi-Directional Manual-Operated Valve**

**DESCRIPTION**

A manually-operated cartridge valve designed with positive shut off, low leakage and blocking in both directions, to be used in load holding applications.

**OPERATION**

In the closed position flow is blocked in both directions.

Opening is achieved by pushing down on knob, turning in a counterclockwise direction and releasing into a detented open position allowing flow from either ① to ② or ② to ①.

To return to the normally closed position, push down on knob, turn clockwise and release.

**FEATURES and BENEFITS**

- Hardened poppet and seat for long life and low leakage.
- Low leak valve available.
- Positive detent open.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
  Nominal Flow 5 GPM (18.9 L/min).
- **Internal Leakage:** 5 drops/min. max. at 3000 PSI (207 Bar)
  Low leakage available-
  Less than 2 drops/min. max. at 3000 PSI (207 Bar)
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:**
  Critical Application – ISO 17/15/13
  Non-Critical Application – ISO 20/18/14
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 080-2, see page 11.08.2
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DMO-080-2NCSP**

*Normally Closed, Bi-Directional Manual-Operated Valve*

### INSTALLATION DIMENSIONS

- **1.25 (31.8) DIA. KNOB**
- **2.30 (58.4) OPEN**
- **2.24 (56.9) CLOSED**
- **.88 (22.4) HEX. TORQUE 20 FT.-LBS. (27.1 Nm) MAX.**

( ) Parentheses = Millimeters

### HOW TO ORDER

**DMO - 080 - 2 NC SP - * - * - **

- **MANUAL PULL**
- **CAVITY/SEAL**
- **FLOW PATH**
- **NORMALLY CLOSED**
- **BI-DIRECTIONAL**

- **PORTING**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 4T = SAE 4
  - 6T = SAE 6
  - Omit for Cartridge Only.
  - (Other porting options available – consult factory)

- **L = Low Leak Option**
  - (Omit for Standard)

- **SEALS**
  - N = Buna N
  - V = Viton

---

**Shop Online at www.airlinehyd.com**

**800-999-7378**
Pilot To Open, Poppet-Type, Directional Control Valve

**DESCRIPTION**

A cartridge valve designed to block flow in both directions. Free flow can be achieved by reaching the required pilot pressure. This valve is commonly used in load holding or blocking applications.

**OPERATION**

In the steady state the poppet is held closed to block flow between ① and ② and ① and ③. When the required pilot pressure is achieved at ③, the poppet is held open to allow free flow between ② and ① or ② and ③. The pilot area ratio port ② to ① is 1.3 to 1 and the area ratio port ③ to ② is 1.8 to 1.

**FEATURES and BENEFITS**

- Hardened spool and sleeve for long life and low leakage.
- Industry common cavity.
- Compact size.

**SPECIFICATIONS**

- **Operating Pressure:** 3000 PSI (207 Bar)
- **Flow:** See PRESSURE DROP VS. FLOW graph.
- **Internal Leakage:** 5 drops/min. max. at 3000 PSI (207 Bar)
- **Pilot Pressure:** 125 PSI (8.6 Bar)
- **Pilot Ratio:** ③ to ① is 1.3 to 1 and ③ to ② is 1.8 to 1.
- **Temperature:** -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration:** ISO 17/15/13
- **Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool:** 100-3S, see page 11.10.3S
- **In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPOD-100-2NCP
Pilot To Open, Poppet-Type, Directional Control Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPOD - 100 - 2 NC P - * - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
4T = SAE 4
6T = SAE 6
Omit for Cartridge Only.
(Other porting options available — consult factory.)

SEALS
N = Buna N
V = Viton

FLOW PATH

CAVITY/SEAL

PILOT-OPERATED DIRECTIONAL CONTROL VALVE

NORMALLY CLOSED

POPPEET
DESCRIPTION

A cartridge valve designed to allow free flow in both directions. The valve can be piloted to block flow in both directions. This valve can be used as a load holding or blocking valve.

OPERATION

Pressure at ① or ② overcomes the spring-bias poppet and allows free flow between ② and ① or ① to ②. When required, the pilot pressure is achieved at ③, the poppet is held closed to block flow between ① and ② and ① and ②. The pilot area ratio port ① to ④ is 2.0 to 1 and the area ratio port ③ to ② is 2.8 to 1.

FEATURES and BENEFITS

- Hardened poppet and sleeve for long life and low leakage.
- Industry common cavity.
- Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Internal Leakage: 5 drops/min. max. at 3000 PSI (207 Bar)
Crack Pressure: 65 PSI (45 Bar) at port 1 (biased spring).
85 PSI (58.6 Bar) at port 2 (biased spring).
Pilot Pressure: 125 PSI (8.6 Bar)
Pilot Ratio: ① to ④ is 2.0 to 1 and ③ to ② is 2.8 to 1.
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-3S, see page 11.10.3S
Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
Pilot To Close, Poppet-Type, Directional Control Valve

**DPOD-100-2NOP**

Installation Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 (25.4) HEX. TORQUE</td>
<td>30 FT.-LBS. (40.7 Nm MAX.)</td>
</tr>
<tr>
<td>1.81 (46.1)</td>
<td></td>
</tr>
<tr>
<td>2.00 (50.8)</td>
<td></td>
</tr>
<tr>
<td>.25 (6.4)</td>
<td></td>
</tr>
<tr>
<td>1.25 (31.8)</td>
<td></td>
</tr>
<tr>
<td>2.50 (63.5)</td>
<td></td>
</tr>
<tr>
<td>2.13 (54.1)</td>
<td></td>
</tr>
<tr>
<td>.58 (14.9)</td>
<td></td>
</tr>
<tr>
<td>3.01 (76.5)</td>
<td></td>
</tr>
<tr>
<td>2.63 (66.8)</td>
<td></td>
</tr>
<tr>
<td>.63 (16.0)</td>
<td></td>
</tr>
<tr>
<td>1.25 (31.8)</td>
<td></td>
</tr>
</tbody>
</table>

( ) Parentheses = Millimeters

**HOW TO ORDER**

DPOD - 100 - 2 NO P - * - **

- **PILOT-OPERATED DIRECTIONAL CONTROL VALVE**
- **CAVITY/SEAL**
- **FLOW PATH**
- **NORMALLY OPEN**
- **PORTING**
  - 2N = 1/4 PTF
  - 3N = 3/8 PTF
  - 6T = SAE 6
  - 8T = SAE 8
  - Omit for Cartridge Only.
  - (Other porting options available – consult factory.)
- **SEALS**
  - N = Buna N
  - V = Viton
- **POPPET**
DPOD-100-3
Pilot-Operated, Three-Way, Two-Position, Directional Control Valve

DESCRIPTION

A cartridge valve designed as a pilot-operated, three-way, two-position, spool-type, directional valve.

OPERATION

With no pilot signal at port ①, port ② is blocked and flow is allowed between port ③ and ④. With the required pilot signal applied at port ①, the valve shifts to allow flow between ports ③ and ② while blocking flow at port ④.

The bias spring which is common to port ① returns the spool to its original position when the pilot signal is removed.

Pressure at port ① must be considered when determining the required pressure to shift.

FEATURES and BENEFITS

• Hardened spool and sleeve for long life.
• Industry common cavity.
• Compact size.

SPECIFICATIONS

Operating Pressure: 3000 PSI (207 Bar)
Flow: See PRESSURE DROP VS. FLOW graph.
Nominal Flow 10 GPM (37.9 L/min).
Internal Leakage: 5 in³/min. (82cc/min.) max. at 3000 PSI (207 Bar)
Pilot Pressure: 125 PSI (8.6 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-4, see page 11.10.4
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DPOD-100-3
Pilot-Operated, Three-Way, Two-Position, Directional Control Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPOD - 100 - 3 - * - 125 - **

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

PILOT PRESSURE (shift pressure)
125 = 125 PSI (8.6 Bar)

PILOT-OPERATED DIRECTIONAL CONTROL VALVE
CAVITY/SEAL
FLOW PATH
SEALS
N = Buna N
V = Viton

( ) Parentheses = Millimeters

9.20.2
**DPOD2-100-3**

Pilot-Operated, Externally Vented, Three-Way, Two-Position, Directional Control Valve

---

**DESCRIPTION**

A cartridge valve designed as a pilot-operated, three-way, two-position, spool-type, directional control valve.

---

**OPERATION**

With no pilot signal at port ①, port ② is blocked and flow is allowed between port ③ and ④. With the required pilot signal applied at port ①, the valve shifts to allow flow between ports ③ and ④ while blocking flow at port ④. The bias spring returns the spool to its original position when the pilot signal is removed.

---

**FEATURES and BENEFITS**

- Hardened spool and sleeve for long life.
- Industry common cavity.
- Compact size.

---

**SPECIFICATIONS**

**Operating Pressure:** 3000 PSI (207 Bar)

**Flow:** See PRESSURE DROP VS. FLOW graph.

Nominal Flow 10 GPM (37.9 L/min).

**Internal Leakage:** 5 in³/min. (82cc/min.) max. at 3000 PSI (207 Bar)

**Pilot Pressure:** 125 PSI (8.6 Bar)

**Temperature:** -30°F to +250°F (-35°C to +120°C)

**Recommended Filtration:** ISO 17/15/13

**Fluids:** Mineral-based fluids. For other fluid compatibility, consult factory.

**Cavity/Cavity Tool:** 100-4, see page 11.10.4

**In-Line Body Material:** Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).

---

**PRESSURE DROP VS. FLOW**

PORT ③ TO ④ • (FREE FLOW)

PORT ③ TO ④ • (PILOTED OPEN)

150 ssu/32 cSt OIL @ 100°F/38°C

---

SHOP ONLINE at www.airlinehyd.com

800-999-7378
DPOD2-100-3
Pilot-Operated, Externally Vented, Three-Way, Two-Position, Directional Control Valve

INSTALLATION DIMENSIONS

HOW TO ORDER

DPOD2 - 100 - 3 - * - 125 - **

PILOT-OPERATED DIRECTIONAL CONTROL VALVE

CAVITY/SEAL

FLOW PATH

SEALS
N = Buna N
V = Viton

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available – consult factory.)

PILOT PRESSURE (shift pressure)
125 = 125 PSI (8.6 Bar)
**DESCRIPTION**

A self-contained cartridge style hand pump designed to deliver flow when the operator is pushed. The inlet and outlet checks are integral to the cartridge.

**OPERATION**

When the operator is pushed, the DHP2-100 delivers nominal flow of .083 cu. in. to the ① port. When the operator is pulled, DHP2-100 draws fluid from the ② port.

**FEATURES and BENEFITS**

- Checks are integral to the cartridge.
- Hardened parts for long life.
- Industry common cavity.

**SPECIFICATIONS**

Maximum Pressure: 3000 PSI (207 Bar)
Operating Pressure: 2000 PSI (138 Bar)
Flow: .083 cu. in.
Internal Leakage: 2 drops/min. max. at 2000 PSI (138 Bar)
Temperature: -30°F to +250°F (-35°C to +120°C)
Recommended Filtration: ISO 17/15/13
Fluids: Mineral-based fluids. For other fluid compatibility, consult factory.
Cavity/Cavity Tool: 100-2, see page 11.10.2
In-Line Body Material: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
**DHP2-100**
Hand Pump

**INSTALLATION DIMENSIONS**

( ) Parentheses = Millimeters

**HOW TO ORDER**

**DHP2 - 100 - * - **

HAND PUMP

CAVITY/SEAL

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available- consult factory.)

SEALS
N = Buna N
V = Viton
**DHP-100**
Hand Pump

### DESCRIPTION
A self-contained cartridge style hand pump designed to deliver flow when the operator is pushed. The inlet and outlet checks are integral to the cartridge.

### OPERATION
When the operator is pushed, the DHP-100 delivers nominal flow of 0.5 cu. in. to the \(\text{①}\) port. When the operator is pulled, DHP-100 draws fluid from the \(\text{②}\) port.

### FEATURES and BENEFITS
- Cast Beam for heavy duty applications.
- Checks are integral to the cartridge.
- Hardened parts for long life.
- Beam rotates 360° for flexible installation and operation.
- Industry common cavity.

### SPECIFICATIONS
- **Maximum Pressure**: 3000 PSI (207 Bar)
- **Operating Pressure**: 2000 PSI (138 Bar)
- **Flow**: 0.5 cu. in. @ 45° rotation.
- **Hand Effort**: 80 lbs. @ 1500 PSI (103 Bar) - 6 in. (406.4) long handle.
- **Internal Leakage**: 2 drops/min. max. at 2000 PSI (138 Bar)
- **Temperature**: -30°F to +250°F (-35°C to +120°C)
- **Recommended Filtration**: ISO 17/15/13
- **Fluids**: Mineral-based fluids. For other fluid compatibility, consult factory.
- **Cavity/Cavity Tool**: 100-2, see page 11.10.2
- **In-Line Body Material**: Anodized 6061T6 aluminum alloy rated at 3000 PSI (207 Bar).
DHP-100
Hand Pump

INSTALLATION DIMENSIONS

HOW TO ORDER

DHP - 100 - * - **

HAND PUMP

CAVITY/SEAL

PORTING
2N = 1/4 PTF
3N = 3/8 PTF
6T = SAE 6
8T = SAE 8
Omit for Cartridge Only.
(Other porting options available - consult factory.)

SEALS
N = Buna N
V = Viton

( ) Parentheses = Millimeters

88 (22.2) NOMINAL BEAM INSIDE DIA.
7.00 (177.8)
7.5 (19.1)
2.00 (50.8)
63 (16.0)
1.25 (31.8)
1.25 (31.8)
1.63
2.00
.13
(3.3)
.13
(3.3)
2.00
(50.8)
1.50 (38.1)
.28 TYP. (7.1)
.28
1.25 (31.8)
1.83 (41.4)
1.83 (41.4)
4.98 (26.5)
1.27 (32.3)

Torque 30 ft.-lbs.
(40.7 Nm MAX.)

10.02.2
## Recommended Filtration

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>ISO CLEANLINESS CODE (PARTICLE SIZE CLASSIFICATION)</th>
<th>STANDARDS RATING ISO 4406:1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td>4µ(c) / 6µ(c) / 14µ(c)</td>
<td>17/15/13</td>
</tr>
<tr>
<td>Non-Critical</td>
<td>4µ(c) / 6µ(c) / 14µ(c)</td>
<td>20/18/14</td>
</tr>
</tbody>
</table>
ZP42 Cavity

ZERO PROFILE

7/16-20UNF-2B THD.
+0.002 M A M
-0.002 M A M

100
12°

Specifications subject to change, consult factory.
All dimensions in inches.

UNLESS OTHERWISE SPECIFIED
2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°

ZP42 Cavity
Rough Drill P/N – 10206-12
Finish Form Tool P/N – 10206-13
ZP43 Cavity
Rough Drill P/N 10201-56
Finish Form Tool P/N 10201-57

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
**ZP62 Cavity**

**ZERO PROFILE**

- **ZP62 Cavity**
  - Rough Drill P/N – 10202-02
  - Finish Form Tool P/N – 10202-03

**Technical Data**

- UNLESS OTHERWISE SPECIFIED
  - Specifications subject to change, consult factory
  - All dimensions in inches

**Accessories**

- SOLENOID
- CHECK
- MOTION
- FLOW
- RELIEF
- PRESSURE
- SEQUENCE
- SHUTTLE
- DIRECTIONAL
- UNLESS OTHERWISE SPECIFIED
  - 2 PLACE DIM ± .01
  - 3 PLACE DIM ± .005
  - ANGLE ± .5°
ZP63 Cavity
Rough Drill P/N – 10201-54
Finish Form Tool P/N – 10201-54

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5

Specifications subject to change, consult factory.
080-2 Cavity

Rough Drill  P/N – 10131-76
Finish Form Tool  P/N – 10131-77
080-2P Cavity

PILOT PISTON KITS FOR MANIFOLD DESIGNS

SERIES 8

DCV-080-B (pp 2.09.1)

PILOT PISTON AREA TO PILOT SEAT AREA RATIO IS 5:1. KIT IS NOT RECOMMENDED FOR USE WITH DCV-080-PB.

KIT PILOT PISTON/SPRING (INCLUDES SEALS)
P/N-10130-28

Specifications subject to change, consult factory. All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
**080-3 Cavity**

**Rough Drill**
P/N-10131-80

**Finish Form Tool**
P/N-10131-81

---

**UNLESS OTHERWISE SPECIFIED**
Specifications subject to change, consult factory.

- **2 PLACE DIM ± .01**
- **3 PLACE DIM ± .005**
- **All dimensions in inches.**
- **ANGLE ± .5°**

---

**TECHNICAL DATA**

**SOLENOID RELIEF PRESSURE CONTROL**

**SEQUENCE SHUTTLE DIRECTIONAL VALVES**

---

**ACCESSORIES**

---

**FLOW CONTROL**

---

**PRESSURE CONTROL**

---

**SEQUENCE**

---

**SHUTTLE DIRECTIONAL VALVES**

---

**CHECK**

---

**Cavity**

---

**SERIES 8**

---

**080-3 Cavity**

---

**SERIES 8**

---

**DEL TROL**

**fluid products**

**DIVISION OF DELTROL CORP**

---

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---

SHOP ONLINE at www.airlinehyd.com 800-999-7378
<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>080-4 Cavity</td>
<td>Rough Drill</td>
<td>P/N-10132-15</td>
</tr>
<tr>
<td></td>
<td>Finish Form Tool</td>
<td>P/N-10132-16</td>
</tr>
</tbody>
</table>

**UNLESS OTHERWISE SPECIFIED**

Specifications subject to change, consult factory.

1. All dimensions in inches.
2. 2 PLACE DIM ± .01
3. 3 PLACE DIM ± .005
4. ANGLE ± .5°

**11.08.4**

SHOP ONLINE at www.airlinehyd.com

800-999-7378
100-2 Cavity

Specifications subject to change, consult factory.

All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005

ANGLE ± .5°
PILOT PISTON KITS FOR MANIFOLD DESIGNS

SOLENOID TECHNICAL DATA SERIES 10

RELIEF PRESSURE CONTROL
SEQUENCE SHUTTLE DIRECTIONAL VALVES
ACCESSORIES CHECK MOTION CONTROL
FLOW CONTROL
PRESSURE CONTROL
SEQUENCE SHUTTLE VALVES
ACCESSORIES
TECHNICAL DATA

100-2P Cavity
PILOT PISTON KITS FOR MANIFOLD DESIGNS

DCV-100-P (pp 2.14.1)

PILOT PISTON AREA TO PILOT SEAT AREA RATIO IS 3.5:1. KIT WITH SPRING IS RECOMMENDED FOR CHECK VALVES 30 PSI CRACK OR LOWER.

KIT, PILOT PISTON/SPRING (INCLUDES SEALS)
P/N-10146-76
KIT, PILOT PISTON (INCLUDES SEALS)
P/N-10146-70

100-2P Cavity Rough Drill Finish Form Tool
P/N-10167-21 P/N-10167-22

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5

11.10.2P
100-3 Cavity

Rough Drill P/N-10131-84
Finish Form Tool P/N-10131-85

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory
All dimensions in inches.
100-3S Cavity

Rough Drill P/N 10194-27
Finish Form Tool P/N 10194-28

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory. All dimensions in inches.
2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
100-4 Cavity

Rough Drill P/N – 10131-86
Finish Form Tool P/N – 10131-87

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
**100-4L Cavity**

Rough Drill P/N – 10164-16
Finish Form Tool P/N – 10164-17

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
2 PLACE DIM ± .001
3 PLACE DIM ± .0005
All dimensions in inches.

ANGLE ± .5°
120-3 Cavity

Rough Drill P/N – 10144-91
Finish Form Tool P/N – 10144-92

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
160-3S Cavity

Rough Drill P/N – 10133-60
Finish Form Tool P/N – 10133-62

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory.
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5
NC** Cavity

### SERIES NC

#### NC10 Cavity
- Step Drill: P/N – 10131-90
- Tap – Steel: P/N – 10131-91
- Tap – Aluminum: P/N – 10131-92

#### NC20 Cavity
- Step Drill: P/N – 10131-93
- Tap – Steel: P/N – 10131-94
- Tap – Aluminum: P/N – 10131-95

#### NC25 Cavity
- Step Drill: P/N – 10131-96
- Tap – Steel: P/N – 10131-94
- Tap – Aluminum: P/N – 10131-95

#### NC30 Cavity
- Step Drill: P/N – 10131-99
- Tap – Steel: P/N – 10132-00
- Tap – Aluminum: P/N – 10132-01

#### NC35 Cavity
- Step Drill: P/N – 10132-02
- Tap – Steel: P/N – 10132-03
- Tap – Aluminum: P/N – 10132-04
**S10 Cavity**

**Series S**

**S210 Cavity**
- Rough Drill P/N – 10132-05
- Finish Form Tool P/N – 10132-06

**S310 Cavity**
- Rough Drill P/N – 10132-07
- Finish Form Tool P/N – 10132-08

**S410 Cavity**
- Rough Drill P/N – 10132-09
- Finish Form Tool P/N – 10132-10
R05-2
Cavity

R05-2 CAVITY

UNLESS OTHERWISE SPECIFIED
Specifications subject to change,
consult factory
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°
R08-2 Cavity

SERIES 080

R08-2 CAVITY

UNLESS OTHERWISE SPECIFIED
Specifications subject to change, consult factory
All dimensions in inches.

2 PLACE DIM ± .01
3 PLACE DIM ± .005
ANGLE ± .5°

SHOP ONLINE at www.airlinehyd.com 800-999-7378
Solenoid Coil
Features/Specifications

- **STANDARD VOLTAGE:** 10, 12, 20 AND 24 VOLTS D.C.
  120 AND 240 VOLTS A.C.

- **WATTAGE:**
  - SERIES 8: ALL COILS ARE NOMINALLY 16 WATTS AT 68˚F/20˚C.
  - SERIES 10: 10 VOLT COILS ARE NOMINALLY 19 WATTS AT 68˚F/23˚C.
  - 12, 20, 24, 120 AND 240 VOLT COILS ARE NOMINALLY 22 WATTS AT 68˚F/20˚C.

- **DUTY RATING:** SEE COIL PAGES.

- **AMBIENT OPERATING TEMPERATURE:** 212˚F/100˚C

- **MAGNET WIRE:** ALL 100 SERIES ARE THERMAL CLASS 200˚C., NEMA PUB, NO. MW1000

- **ENCAPSULATING MATERIAL:** THERMOPLASTIC POLYESTER (PET) (RYNITE 415 HP).

- **LEAD WIRES:** 18/20 GAUGE. MEETS SAE J1128 XLPE, TYPE SXL.

- **A.C. VOLTAGE COILS:** INTERNALLY FULL WAVE RECTIFIED TO SUPPLY THE COIL WINDING WITH D.C. CURRENT. THEREFORE THE COIL WINDING HAS NO “INRUSH” CURRENT MAKING IT SUITABLE FOR 50 OR 60 HERTZ (Hz) CYCLE APPLICATIONS. THE RECTIFIERS USED IN A.C. COILS MAY REQUIRE PROTECTION FROM TRANSIENT OVER VOLTAGES EXCEEDING 1000 VOLTS. PROTECT RECTIFIED A.C. COILS BY INSTALLING A COMMERCIALLY AVAILABLE NONPOLARIZED SELENIUM DIODE SUPPRESSOR OR METAL-OXIDE VARISTOR ACROSS THE A.C. COIL AS SHOWN.

![Diagram of A.C. Line, Suppressor, Rectified A.C. Coil]
specifications

- **Wattage**: Nominally 16 watt at 68°F/20°C.
- **Duty Rating**: Continuous up to 115% voltage.
- **Ambient Operating Temperature**: 212°F/100°C.
- **Encapsulating Material**: Thermoplastic Polyester (PET) (Rynite 415 HP).
- **Termination Options**: See below and on the following pages.
- **Environmental**: IP69K for Deutsch, Metri-Pack and Amp Junior timer-style coils.

### Double Leads
**Code - **DE**

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<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-40</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10244-28</td>
<td>RED</td>
</tr>
<tr>
<td>20 DC</td>
<td>10258-75</td>
<td>RED</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-41</td>
<td>BLUE</td>
</tr>
</tbody>
</table>

For internal diode – consult factory.

### Single Lead
**Code - **SE**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-44</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10244-29</td>
<td>RED</td>
</tr>
<tr>
<td>20 DC</td>
<td>10258-76</td>
<td>BLUE</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-45</td>
<td>BLUE</td>
</tr>
</tbody>
</table>
Dream Coil
Data (continued)

**SERIES 8**

**DOUBLE SPADE**
**CODE - **BE**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-46</td>
</tr>
<tr>
<td>12 DC</td>
<td>10244-27</td>
</tr>
<tr>
<td>20 DC</td>
<td>10257-47</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-48</td>
</tr>
</tbody>
</table>

**TERMINATION:**
1/4" MALE QUICK-CONNECT
PER SAE J858A (TYPE 1B)

FOR INTERNAL DIODE – CONSULT FACTORY

**SINGLE SPADE**
**CODE - **AE**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-51</td>
</tr>
<tr>
<td>12 DC</td>
<td>10252-18</td>
</tr>
<tr>
<td>20 DC</td>
<td>10258-77</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-52</td>
</tr>
</tbody>
</table>

**TERMINATION:**
1/4" MALE QUICK-CONNECT
PER SAE J858A (TYPE 1B)

**SINGLE STUD**
**CODE - **EE**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-53</td>
</tr>
<tr>
<td>12 DC</td>
<td>10252-19</td>
</tr>
<tr>
<td>20 DC</td>
<td>10258-78</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-54</td>
</tr>
</tbody>
</table>

**TERMINATION:**
8-32 MALE STUD
WITH BRASS NUTS

**Accessories**

**Dream Coil Data**

**Volts**

- 10 DC
- 12 DC
- 20 DC
- 24 DC

**Part No.**

- 10257-46
- 10244-27
- 10257-47
- 10257-48
- 10257-51
- 10252-18
- 10258-77
- 10257-52
- 10257-53
- 10252-19
- 10258-78
- 10257-54
DEUTSCH
CODE - **UE

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
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<tbody>
<tr>
<td>10 DC</td>
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<tr>
<td>12 DC</td>
<td>10244-24</td>
</tr>
<tr>
<td>20 DC</td>
<td>10257-56</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-57</td>
</tr>
</tbody>
</table>

FOR INTERNAL DIODE – CONSULT FACTORY

TERMINATION:
INTEGRAL DEUTSCH CONNECTOR
DT04-2P
MATING CONNECTOR
DT06-2S

METRI-PACK
CODE - **PE

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-58</td>
</tr>
<tr>
<td>12 DC</td>
<td>10244-25</td>
</tr>
<tr>
<td>20 DC</td>
<td>10257-59</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-60</td>
</tr>
</tbody>
</table>

FOR INTERNAL DIODE – CONSULT FACTORY

AMP JUNIOR TIMER
CODE - **JE

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10257-61</td>
</tr>
<tr>
<td>12 DC</td>
<td>10244-26</td>
</tr>
<tr>
<td>20 DC</td>
<td>10257-62</td>
</tr>
<tr>
<td>24 DC</td>
<td>10257-63</td>
</tr>
</tbody>
</table>

FOR INTERNAL DIODE – CONSULT FACTORY
Solenoid Coil Data

SERIES 8

SPECIFICATIONS

- **Wattage:** Nominally 16 watt at 68°F/20°C.
- **Duty Rating:** Continuous up to 115% voltage.
- **Ambient Operating Temperature:** 212°F/100°C
- **Encapsulating Material:** Thermoplastic Polyester (PET) (Rynite 415 HP).
- **A.C. Coils:** Internally rectified with a full wave bridge (no inrush current).
- **Termination Options:** See below and on the next page.

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>OHMS</th>
<th>INITIAL CURRENT DRAW (AMPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>6.2</td>
<td>1.60</td>
</tr>
<tr>
<td>12 DC</td>
<td>9.0</td>
<td>1.33</td>
</tr>
<tr>
<td>20 DC</td>
<td>25.0</td>
<td>0.80</td>
</tr>
<tr>
<td>24 DC</td>
<td>35.8</td>
<td>0.67</td>
</tr>
<tr>
<td>120 AC</td>
<td>827</td>
<td>0.15</td>
</tr>
<tr>
<td>240 AC</td>
<td>3306</td>
<td>0.07</td>
</tr>
</tbody>
</table>

DOUBLE LEADS

**CODE - **DS**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10205-94</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10184-42</td>
<td>RED</td>
</tr>
<tr>
<td>24 DC</td>
<td>10184-37</td>
<td>BLUE</td>
</tr>
<tr>
<td>120 AC</td>
<td>10184-49</td>
<td>BLACK</td>
</tr>
<tr>
<td>240 AC</td>
<td>10184-53</td>
<td>YELLOW</td>
</tr>
</tbody>
</table>

FOR INTERNAL DIODE – CONSULT FACTORY

SINGLE LEAD

**CODE - **SS**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10194-19</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10184-32</td>
<td>RED</td>
</tr>
<tr>
<td>24 DC</td>
<td>10190-44</td>
<td>BLUE</td>
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</tbody>
</table>

DOUBLE SPADE

**CODE - **BS**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10221-46</td>
</tr>
<tr>
<td>12 DC</td>
<td>10216-12</td>
</tr>
<tr>
<td>20 DC</td>
<td>10222-51</td>
</tr>
<tr>
<td>24 DC</td>
<td>10216-11</td>
</tr>
<tr>
<td>120 AC</td>
<td>10222-49</td>
</tr>
<tr>
<td>240 AC</td>
<td>10222-50</td>
</tr>
</tbody>
</table>

FOR INTERNAL DIODE – CONSULT FACTORY

TERMINATION:
1/4" MALE QUICK-CONNECT
PER SAE J858A (TYPE 1B)
### Solenoid Coil Data (continued)

#### SERIES 8

**SINGLE SPADE**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10222-46</td>
</tr>
<tr>
<td>12 DC</td>
<td>10221-30</td>
</tr>
<tr>
<td>24 DC</td>
<td>10221-47</td>
</tr>
</tbody>
</table>

**TERMINATION:**

1/4" MALE QUICK-CONNECT
PER SAE J858A (TYPE 1B)

**SINGLE STUD**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10196-60</td>
</tr>
<tr>
<td>12 DC</td>
<td>10196-61</td>
</tr>
<tr>
<td>24 DC</td>
<td>10196-62</td>
</tr>
</tbody>
</table>

**TERMINATION:**

8-32 MALE STUD
WITH BRASS NUTS

**DEUTSCH**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10210-13</td>
</tr>
<tr>
<td>12 DC</td>
<td>10222-09</td>
</tr>
<tr>
<td>20 DC</td>
<td>10222-85</td>
</tr>
<tr>
<td>24 DC</td>
<td>10222-52</td>
</tr>
</tbody>
</table>

**TERMINATION:**

INTEGRAL DEUTSCH CONNECTOR
DT04-2P
MATING CONNECTOR
DT06-2S

FOR INTERNAL DIODE – CONSULT FACTORY
## Solenoid Coil Data

### SERIES 10

#### SPECIFICATIONS
- **Wattage:** 10 volts: nominally 19 watts at 68°F./20°C. 12, 20, 24, 120 and 240 volts: nominally 22 watts at 68°F./20°C.
- **Duty Rating:** Continuous up to 100% voltage.
- **Ambient Operating Temperature:** 212°F./100°C.
- **Encapsulating Material:** Thermoplastic Polyester (PET).
- **A.C. Coils:** Internally rectified with a full wave bridge (no inrush current).
- **Termination Options:** See below and on the next page.

#### DOUBLE LEADS
**CODE - **D**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10163-99</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10162-76</td>
<td>RED</td>
</tr>
<tr>
<td>20 DC</td>
<td>10223-97</td>
<td></td>
</tr>
<tr>
<td>24 DC</td>
<td>10162-77</td>
<td>BLUE</td>
</tr>
<tr>
<td>120 AC</td>
<td>10162-82</td>
<td>BLACK</td>
</tr>
<tr>
<td>240 AC</td>
<td>10162-83</td>
<td>YELLOW</td>
</tr>
</tbody>
</table>

LEAD WIRES: 18/20 GAUGE MEETS SAE J1128 XLPE, TYPE SXL.

#### SINGLE LEAD
**CODE - **S**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
<th>LEAD COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10164-12</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10164-10</td>
<td>RED</td>
</tr>
<tr>
<td>24 DC</td>
<td>10164-11</td>
<td>BLUE</td>
</tr>
</tbody>
</table>

LEAD WIRES: 18/20 GAUGE MEETS SAE J1128 XLPE, TYPE SXL.

#### HIRSCHMANN®
**CODE - **H**

<table>
<thead>
<tr>
<th>VOLTS</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10164-02</td>
</tr>
<tr>
<td>12 DC</td>
<td>10162-78</td>
</tr>
<tr>
<td>24 DC</td>
<td>10162-79</td>
</tr>
<tr>
<td>120 AC</td>
<td>10162-84</td>
</tr>
<tr>
<td>240 AC</td>
<td>10162-85</td>
</tr>
</tbody>
</table>

**TERMINATION:**
HIRSCHMANN GSR 200 (2 POLE + GROUND APPLIANCE PLUG) MATING CONNECTOR 43650

---

### RESISTANCE CANNOT BE MEASURED ON AC COIL ASSEMBLIES
**Solenoid Coil Data (continued)**

### Series 10

#### Conduit (Female 1/2-14 NPT)
**Code - **C**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Part No.</th>
<th>Lead Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10164-05</td>
<td>GREEN</td>
</tr>
<tr>
<td>12 DC</td>
<td>10162-80</td>
<td>RED</td>
</tr>
<tr>
<td>24 DC</td>
<td>10162-81</td>
<td>BLUE</td>
</tr>
<tr>
<td>120 AC</td>
<td>10162-86</td>
<td>BLACK</td>
</tr>
<tr>
<td>240 AC</td>
<td>10164-15</td>
<td></td>
</tr>
</tbody>
</table>

*Lead wires: 18/20 gauge meets SAE J1128 XLPE, type SXL.*

#### Double Spade
**Code - **B**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10164-08</td>
</tr>
<tr>
<td>12 DC</td>
<td>10162-91</td>
</tr>
<tr>
<td>20 DC</td>
<td>10234-53</td>
</tr>
<tr>
<td>24 DC</td>
<td>10162-92</td>
</tr>
<tr>
<td>120 AC</td>
<td>10162-90</td>
</tr>
<tr>
<td>240 AC</td>
<td>10164-09</td>
</tr>
</tbody>
</table>

**Termination:**
1/4" male quick-connect per SAE J858A (Type 1B)

#### Single Stud
**Code - **E**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 DC</td>
<td>10164-15</td>
</tr>
<tr>
<td>12 DC</td>
<td>10164-13</td>
</tr>
<tr>
<td>24 DC</td>
<td>10164-14</td>
</tr>
</tbody>
</table>

**Termination:**
10-32 male stud with 2 brass nuts and 1 steel external tooth lockwasher

---

**Solenoid Check**

**Motion Control**

**Flow Control**

**Relief**

**Pressure Control**

**Sequence/Shuttle**

**Directional Valves**

**Accessories**

**Technical Data**

11.32.2

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