

A growing range of solenoid, directional, flow and pressure control valves is available for use with subplate-type valves in the ISO, CETOP and NFPA standard format.

The product range will reflect HydraForce's broad cartridge product offerings. They are available in standard formats for fit to common specifications/interchanges, or may be custom designed for multi-function OEM applications.

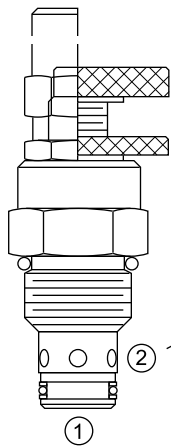
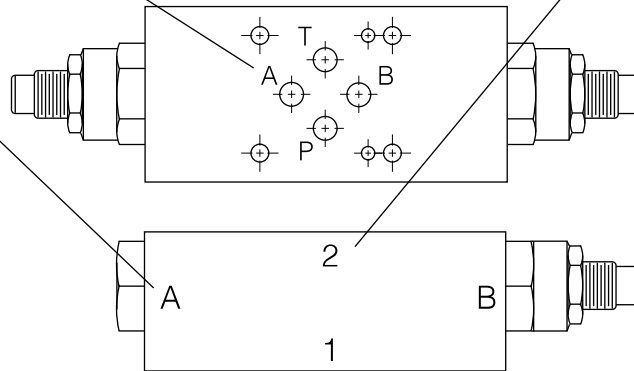
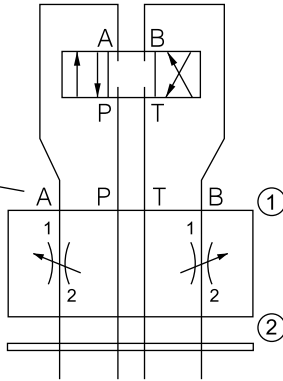
- High-strength aluminum alloy, rated to 240 bar (3500 psi) maximum
- Conformance to ISO size/format requirements
- Use standard HydraForce high-performance cartridges in industry common cavities
- Accessory hardware available

D03 SANDWICH VALVES

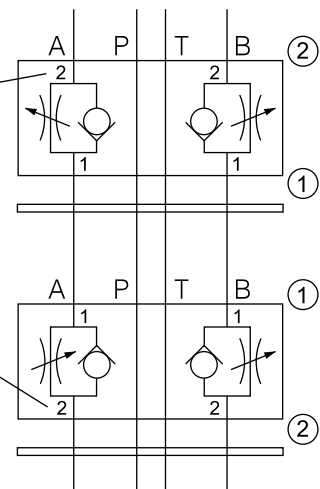
Sandwich Valve Labels & Symbols

The letters A and B stamped on the manifold indicate the side of the manifold which serves as port A and port B, relative to the valve symbol and the ISO/CETOP mounting surface.

Numbers ① and ② stamped on the manifold indicate the surface to be positioned toward the sub-base manifold surface vs. the four-way valve surface.



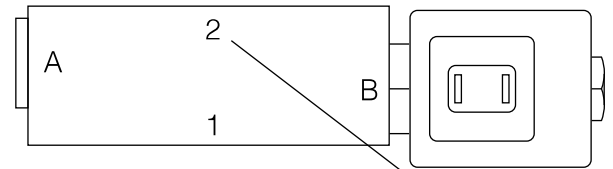
Small uncircled numbers in the valve symbol indicate the port logic of the cavity used. Individual cartridge product pages explain this port logic and labeling.



Reversible & Non-Reversible Sandwich Valves

REVERSIBLE SANDWICHES

Some sandwich valves may be flipped to reverse function direction. These require the installation of a seal plate, as no O-ring counterbores are provided on the sandwich body. When sandwich valves are ordered complete, required seal plates are automatically provided. These are indicated in the description adjacent to the symbol.



EXAMPLES:

Blocking on B, Normally Closed

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-22-S03B-x-xx

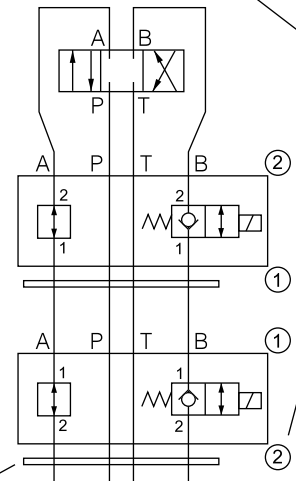
Seal Plate: Yes
Catalog Ref.: 1.050.1

Load Holding on B, Normally Closed

Side Up: 1 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-22-S03B-x-xx

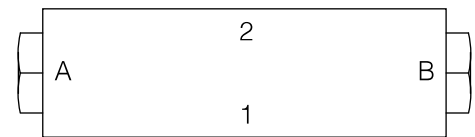
Seal Plate: Yes
Catalog Ref.: 1.050.1



Seal plate indicated under symbol

NON-REVERSIBLE SANDWICHES

Other sandwich valves include counterbores for O-ring seals and do not require seal plates. These are indicated on the symbol and description.



EXAMPLE:

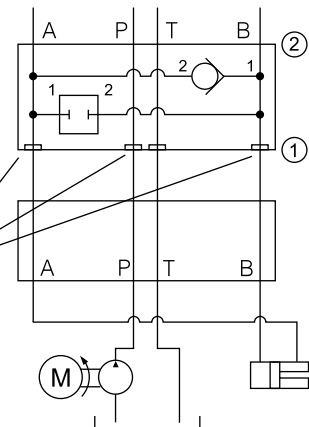
Flow Checked Out, A Freeflow from B

Side Up: 2 Plug: CP10-20-x
Block No.: 7170810 Plug Side: B

Model No. CV10-20-S03E-x-xx

Seal Plate: No
Catalog Ref.: 2.020.1

O-ring counterbores in sandwich indicated on symbol



D03 SANDWICH VALVES

Sandwich Valve Ordering Information

TO ORDER SANDWICH VALVES COMPLETE

First, review the products available on the forthcoming pages and select the BASE MODEL NUMBER as indicated in the examples below. Note that the sandwich body code substitutes for the standard in-line body code in the same model field.

Blocking on B, Normally Closed

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-22-S03B-x-xx

Seal Plate: Yes
Catalog Ref.: 1.050.1

Base Model No.

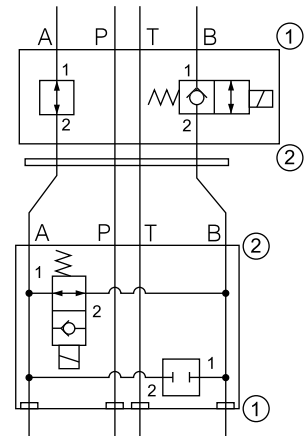
Catalog Ref. No.

Normally Open, Block B to A

Side Up: 2 Plug: CP10-20-x
Block No.: 7170810 Plug Side: B

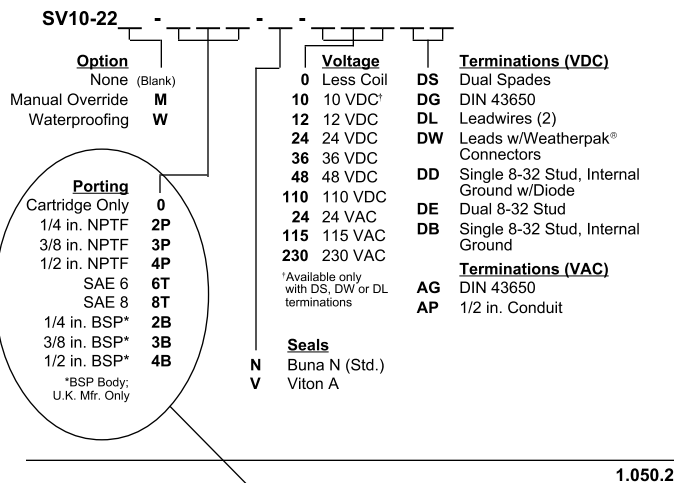
Model No. SV10-23-S03F-x-xx

Seal Plate: No
Catalog Ref.: 1.060.1

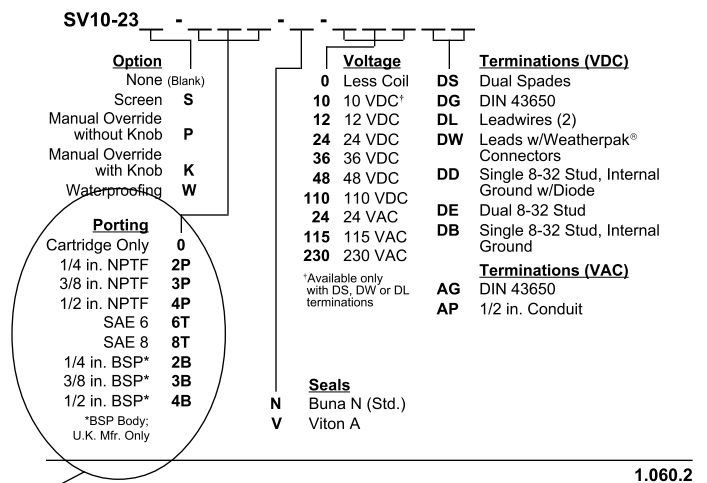


Second, once you know your BASE MODEL NO., go to the CATALOG REF. page indicated to complete the balance of the model number. Note that all fields indicated by the lower case x's must be filled in.

TO ORDER



TO ORDER



Sandwich Valve Body Code Substitutes for Porting Field

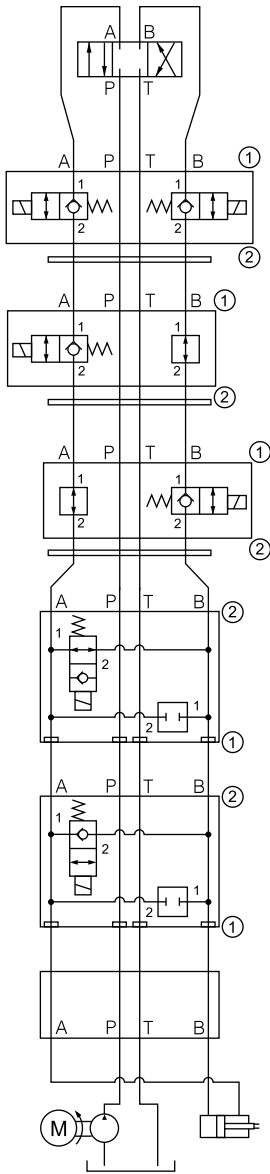
Ordering Examples (Complete Valve):

SV10-22-S03B-N-115AG
SV10-23-S03F-V-230AP
CV10-20-S03E-N-5
FC10-20A-S03A-N
RV10-22H-S03C-NC-25/14

Sandwich Valve Ordering Information

TO ORDER SANDWICH VALVE PARTS

Standard HydraForce sandwich valves may be ordered in parts format. The base model tables indicate the parts required to complete a unit.



Dual Load Holding, Normally Closed

Side Up: 1
 Block No.: 7170820 Plug: None
 Plug Side: n/a

Model No. SV10-22-S03D-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.

Load Holding on A, Normally Closed

Side Up: 1 Plug: 6103010
 Block No.: 7170820 Plug Side: B

Model No. SV10-22-S03A-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Load Holding on B, Normally Closed

Side Up: 1 Plug: 6103010
 Block No.: 7170820 Plug Side: A

Model No. SV10-22-S03B-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Normally Open, Block B to A **Model No. SV10-23-S03F-x-xx**

Side Up: 2 Plug: CP10-20-x
 Block No.: 7170810 Plug Side: B

Seal Plate: No

Catalog Ref.: 1.060.1

Normally Closed, Block B to A **Model No. SV10-22-S03F-x-xx**

Side Up: 2 Plug: CP10-20-x
 Block No.: 7170810 Plug Side: B

Seal Plate: No

Catalog Ref.: 1.050.1

- The (plain) **BLOCK NO.** is referenced on each table. Note that no seals, plugs, etc. are included.
- Any **PLUG** required in the block to yield the function is indicated. These might be simple SAE hex plugs (see Manifold Accessories, page 7.150.1), cavity plugs (see page 7.010.1), or special closure plugs as indicated. These plugs are offered with Buna or Viton o-rings.
- SEAL PLATES** may be required. See table on page 5.005.5. If seal plates are not used, an **O-RING KIT** must be ordered. See table below.

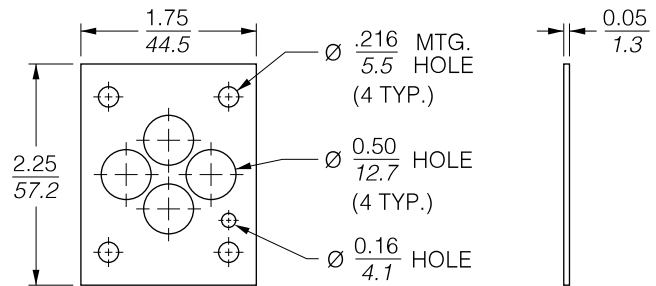
O-RING SERVICE KITS		
Kit Part No.	O-Ring Part No.	Qty.
6299001	6001012 (Buna)	4
6299003	6003012 (Viton)	4

D03 SANDWICH VALVES

Sandwich Valve Accessories

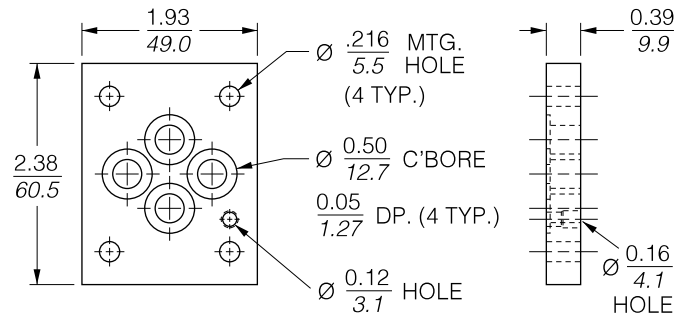
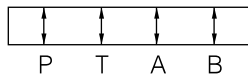
SEAL PLATE KITS

Kit Part No.	Plate Part No.	O-Ring Part No.	Qty.
6299011	7018716	6001012 (Buna)	4
6299013	7018716	6003012 (Viton)	4



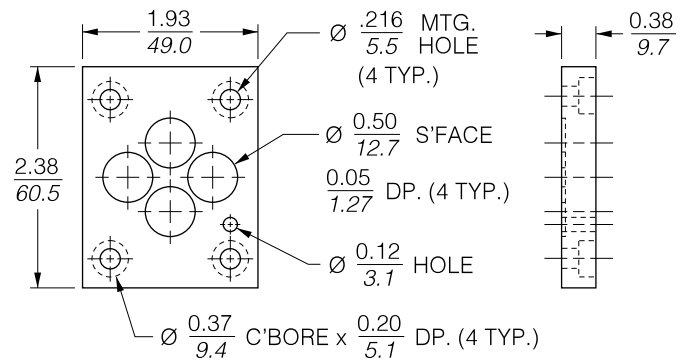
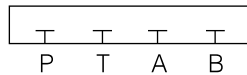
SPACER PLATE KITS

Kit Part No.	Plate Part No.	O-Ring Part No.	Qty.
6299021	7018721	6001012 (Buna)	4
6299023	7018721	6003012 (Viton)	4



BLOCKING PLATE KITS

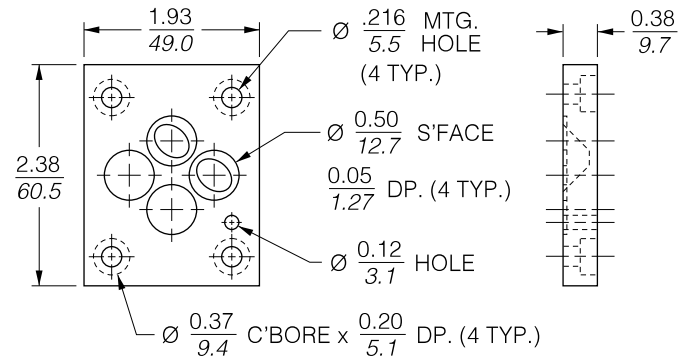
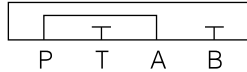
Kit Part No.	Plate Part No.	O-Ring Part No.	Qty.
6299031	7018731	6001012 (Buna)	4
6299033	7018731	6003012 (Viton)	4



Sandwich Valve Accessories

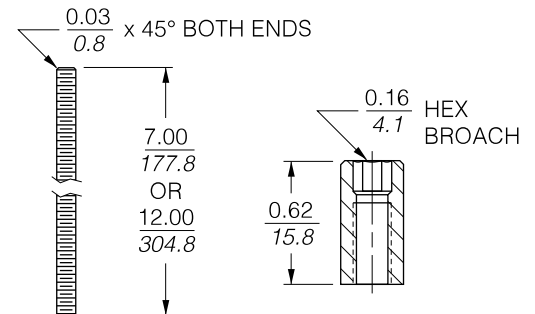
P-A LINKING PLATE KITS

Kit Part No.	Plate Part No.	O-Ring Part No.	Qty.
6299060	7018760	6001012 (Buna)	4
6299061	7018760	6003012 (Viton)	4



BOLT KITS – Four Bolts & Nuts Supplied

Kit Part No.	Description
6299040	High Tensile Threaded Rod; 7 in. long; 10-24 Thread
6299041	High Tensile Threaded Rod; 12 in. long; 10-24 Thread
6299042	High Tensile Threaded Rod; 178 mm long; M5 Thread
6299043	High Tensile Threaded Rod; 305 mm long; M5 Thread



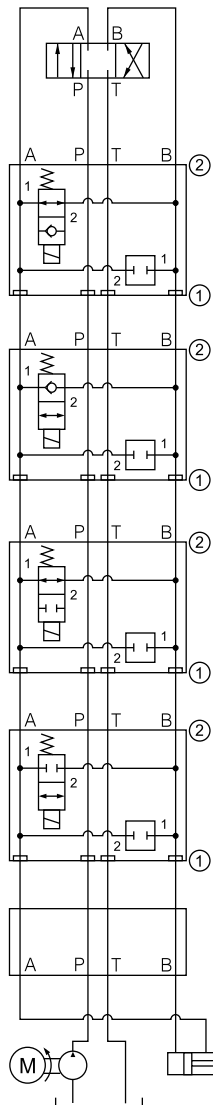
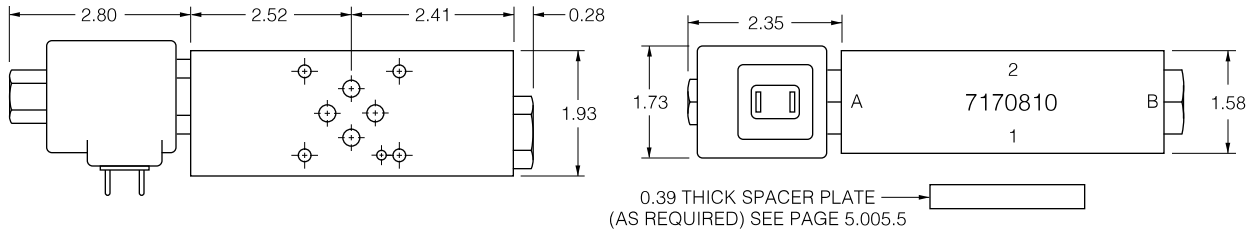
D03 SANDWICH VALVES

Solenoid Sandwich Valves

HydraForce solenoid-operated cartridge valves offer designers increased flexibility with new methods of load holding, regeneration, system unloading, etc.

HydraForce solenoids are available with many termination/voltage combinations, all of which are continuous duty rated.

Due to the size of HydraForce -10 size coils, use with standard sub-bases and sub-plate type valves will likely require the use of a spacer plate to prevent an interference fit.



Normally Open, Block B to A Model No. SV10-23-S03F-x-xx

Side Up: 2 Plug: CP10-20-x Seal Plate: No Catalog Ref.: 1.060.1
Block No.: 7170810 Plug Side: B

Normally Closed, Block B to A Model No. SV10-22-S03F-x-xx

Side Up: 2 Plug: CP10-20-x Seal Plate: No Catalog Ref.: 1.050.1
Block No.: 7170810 Plug Side: B

Normally Open, Block B to A, A to B Model No. SV10-25-S03F-x-xx

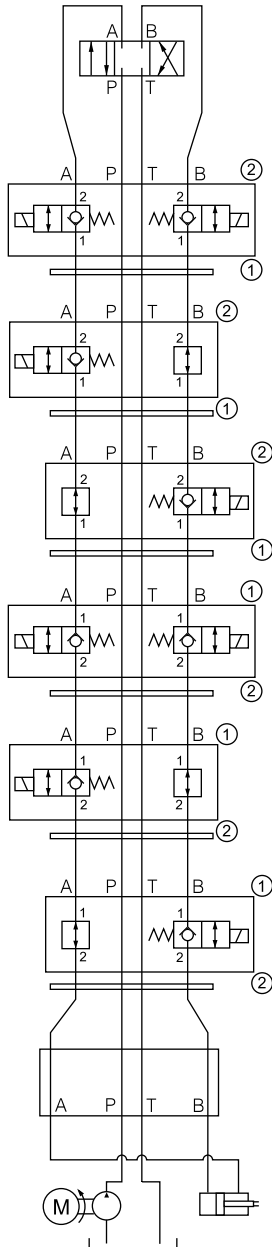
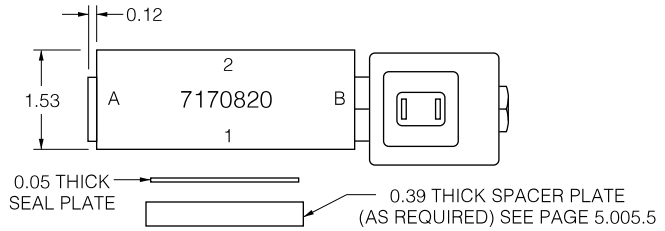
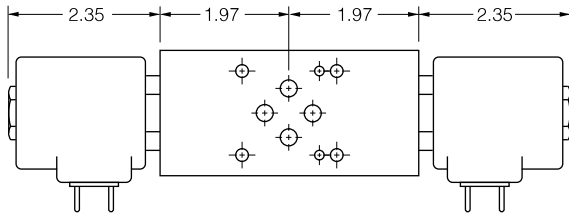
Side Up: 2 Plug: CP10-20-x Seal Plate: No Catalog Ref.: 1.077.1
Block No.: 7170810 Plug Side: B Max. Flow: 6 gpm

Normally Closed, Block B to A, A to B Model No. SV10-24-S03F-x-xx

Side Up: 2 Plug: CP10-20-x Seal Plate: No Catalog Ref.: 1.070.1
Block No.: 7170810 Plug Side: B

ISO/CETOP 3 Manifold

Solenoid Sandwich Valves



Dual Blocking, Normally Closed

Side Up: 2 Plug: None
Block No.: 7170820 Plug Side: n/a

Model No. SV10-22-S03D-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Blocking on A, Normally Closed

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: B

Model No. SV10-22-S03A-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Blocking on B, Normally Closed

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-22-S03B-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Dual Load Holding, Normally Closed

Side Up: 1 Plug: None
Block No.: 7170820 Plug Side: n/a

Model No. SV10-22-S03H-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Load Holding on A, Normally Closed

Side Up: 1 Plug: 6103010
Block No.: 7170820 Plug Side: B

Model No. SV10-22-S03G-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

Load Holding on B, Normally Closed

Side Up: 1 Plug: 6103010
Block No.: 7170820 Plug Side: A

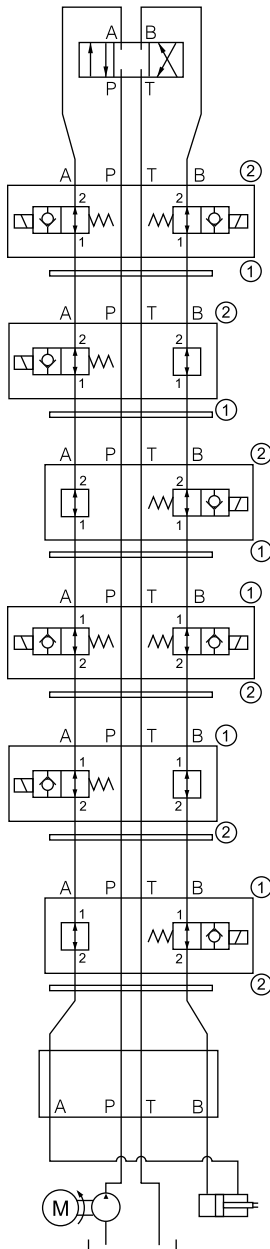
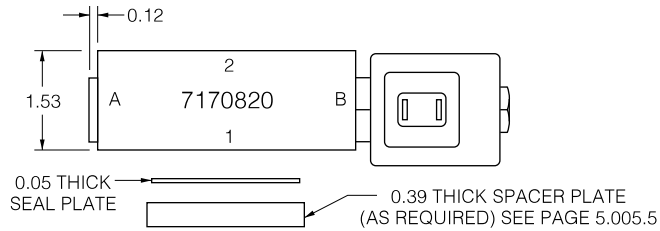
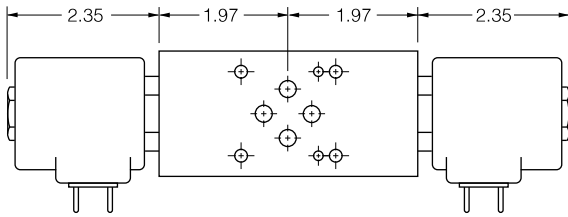
Model No. SV10-22-S03L-x-xx

Seal Plate: Yes Catalog Ref.: 1.050.1

ISO/CETOP 3 Manifold

D03 SANDWICH VALVES

Solenoid Sandwich Valves



Dual Blocking, Normally Open

Side Up: 2 Plug: None
Block No.: 7170820 Plug Side: n/a

Model No. SV10-23-S03D-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

Blocking on A, Normally Open

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: B

Model No. SV10-23-S03A-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

Blocking on B, Normally Open

Side Up: 2 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-23-S03B-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

Dual Load Holding, Normally Open

Side Up: 1 Plug: None
Block No.: 7170820 Plug Side: n/a

Model No. SV10-23-S03H-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

Load Holding on A, Normally Open

Side Up: 1 Plug: 6103010
Block No.: 7170820 Plug Side: B

Model No. SV10-23-S03G-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

Load Holding on B, Normally Open

Side Up: 1 Plug: 6103010
Block No.: 7170820 Plug Side: A

Model No. SV10-23-S03L-x-xx

Seal Plate: Yes Catalog Ref.: 1.060.1

ISO/CETOP 3 Manifold