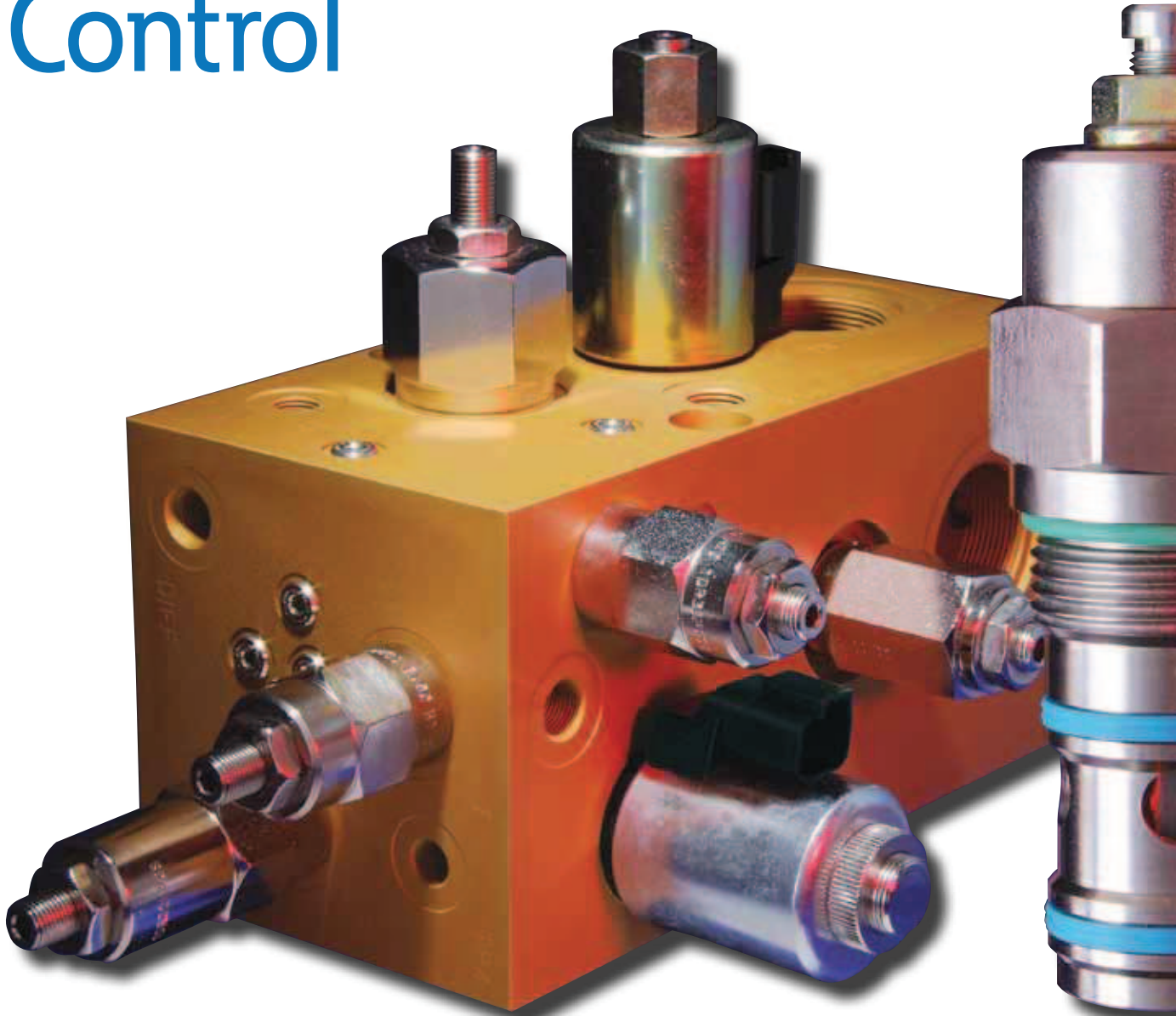


Eaton® , Integrated Hydraulics™
Hydraulic Screw-in Cartridge Valves (SiCV)

World-Class Control



EATON
Powering Business Worldwide

 **Integrated
Hydraulics**
An Eaton Brand



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Introduction/
Valve Locator

Ø

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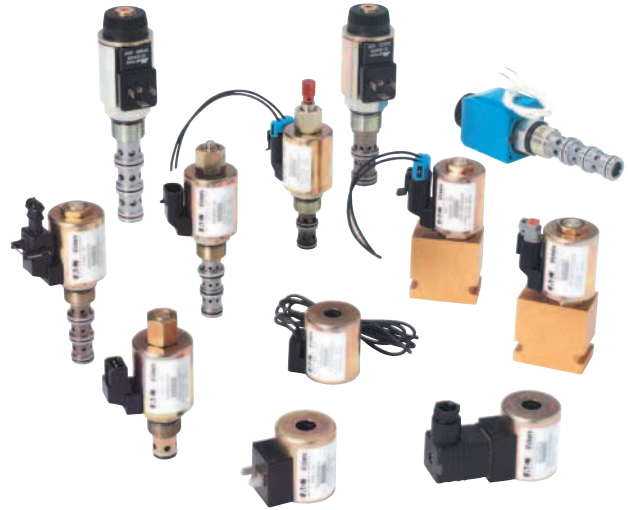
Appendix

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Screw-in Cartridge Valves (SiCVs)

Introduction

For over seventy years, the Vickers and Integrated Hydraulics brands have provided its customers with quality products and innovative solutions for all their power and motion control needs. The products featured in this catalog represent the very best in screw-in cartridge valve technology. Eaton is committed to maintaining this position by offering the most comprehensive range of cartridge valves for stationary and on/off highway equipment. This catalog gives detailed specifications for the entire line of Eaton's screw-in cartridge valves. Its purpose is to provide a quick, convenient reference tool when choosing cartridge valves or designing a system using these components. It is divided into sections according to valve function.



Hydraulic Integrated Circuits

Hydraulic Integrated Circuits (HICs) are valve packages containing combinations of screw-in cartridge valves in a manifold block. The package is dedicated to the hydraulic control of a particular application. HICs can be as extensive as necessary to meet the most complex applications or as simple as two or three cartridges in a basic single manifold.

All HIC packages are designed and manufactured by Eaton to customer specifications. Manifolds can be designed to hold the requisite cartridges, pilot pistons, orifice discs, or any other components needed for individual applications and integrated with other Eaton components. Standard cavity tooling provides precision machining of standard cartridge cavities.

Global Support

Eaton's world-wide distribution and service network is quick, reliable, and responsive to the customer's needs. Our customers can rest assured that no matter where they're located, Eaton will be there with unrivaled products and technical expertise.

Technical Support

Quality products are only part of Eaton's commitment to our customers. We also provide advisory, planning and design services specifically geared to your application and backed by on-time delivery.

Features and Benefits

Eaton's screw-in cartridge valves provide many advantages over traditional hydraulic valves. While offering the same control functions as traditional hydraulic valves, screw-in cartridge valves are compact, reliable, and economical.

The concept of combining multiple cartridge valves in a common manifold offers both the mobile and industrial user substantial cost-saving advantages that cannot be achieved with traditional valving. Here are some of the advantages of Eaton cartridge valves:

- Response times and efficiency gains, by eliminating many of the hoses, tubes and fittings necessary in traditional installations
- Fewer potential leakage points than with conventional valves ensuring cleaner, safer application environments
- Compact and neat assemblies for economy of space and weight
- Increased ability to withstand vibration, giving optimum machine reliability and performance
- Multiple mounting configurations offers maximum design flexibility
- Greater contamination tolerance
- Faster cycle times
- Lower noise levels
- Faster on-site servicing and troubleshooting
- Resistance to fluid contamination
- Hardened ground steel operating parts

Materials

Cartridge bodies are manufactured from high grade cold drawn steel bar, with the internal working parts hardened and ground for maximum performance and durability. Our line bodies, Hydraulic Integrated Circuit blocks and special bodies are manufactured from high strength, wrought aluminum bar and mild steel or stainless steel, dependant upon the exact requirements of individual applications. Various specialized coatings/finishes are obtainable for when environmentally unfriendly conditions are a consideration. For complete specifications and compatibilities, please consult our technical department.

It is recommended that for pressures above 210 bar (3000 psi) steel bodies are used. Whilst in most cases the aluminum bodies are strong enough, if transient peak pressures are encountered frequently, there is a possibility of fatigue.

Ports

The ports on all our bodies are BSP (parallel) and SAE O-ring and range in size from 1/4" to 1-1/4". NPT ports are available on request.

Seals

We use Nitrile as standard for temperatures of -30° C to +90° C (unless otherwise stated). Viton seals are available on request. Polyurethane seals are also available on some valves but care must be taken in their application with regard to fluid compatibility.

Temperature Ranges

Temperature ranges quoted throughout this catalog relate to the seal material only. The viscosity index of the fluid should also be taken into account when selecting a valve. If in doubt please contact our technical department.

Fluids

Recommended fluid is mineral oil.

Note: All our test performances are carried out by using hydraulic oil with a viscosity of 21.8 or 32 cSt at 40°C. For water based fluids, i.e., 95/5 and 60/40 emulsion consult factory.

Filtration

Our valves utilize precision hydraulic components and we recommend a filtration level of between 15 and 25 microns, to produce a cleanliness level of BS5540/4 Class 18/16/13, dependent on the type of valve used. Replace filter elements regularly, try to avoid filter bypass condition - special attention should also be paid to filtration when first commissioning the system or machine, when contamination levels are high.

Tamperproof Devices

Various tamperproofing methods are available upon request for our range of cartridges and valves.

Cartridge Valve Installation

The correct machining of cavities to suit our range of cartridges is critical. Cavity tools are available for sale or hire and certified drawings are available upon request. All drawings and information contained within this catalog are for guidance only. Where dimensions and actual valve usage is critical, please consult our technical department for full specifications and compatibilities. We reserve the right to alter specifications without notice or incurring obligation.

Note: It is important that each designer analyses all aspects of their application including consequences of any failure and review the information concerning the product or system in the current product catalog. The responsibility for final selection rests with the customer.

Torque Figures

The torque values stated in this catalog are for testing purposes only. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. Contact main office for further information.

Adjustment

The adjustment range and Max setting figures shown throughout this catalog give the design range for each valve, higher or lower values may be attainable but should not be used without first contacting our Engineering department. Setting must ALWAYS be carried out using an appropriate gauge and it must NOT be assumed that screwing an adjuster to its maximum or minimum position will yield the maximum or minimum stated design setting for that valve.

Pressure Equipment Directive

All our pressure control valves are designed to be "Pressure Accessories" in accordance with article 3 section 3 of the Pressure Equipment Directive and Sound Engineering Practice and sold in good faith as such. For "Safety Accessories" as defined in article 3 section 1.4 of the Pressure Equipment Directive.

Note for products intended to be sold in European Economic Area

Please note that "safety devices" or other safety functions mentioned in any product literature are not necessarily "safety components" as defined by the Machinery Directive 2006/42/EC, unless otherwise state together with the CE mark and specific reference to said directive.

Limited Warranty

Please see our website for details.

In memory of Paul Hensman (1960-2009), Eaton Integrated Hydraulics Marketing Manager (2000-2009), whose dedication and hard work was instrumental in the design and completion of this catalogue.



Hydraulic Integrated Circuits

High Performance in One Compact, Efficient Package

Customized Solutions from a Single Source

Eaton is a major supplier of Hydraulic Integrated Circuits (HIC) manifold block systems. Application and use of HIC packages has spread across virtually every market and is a major growth area increasing at a rate 2 to 3 times the growth rate for the rest of the hydraulics industry.

Market trend forces are fueling growth away from line mounted valves to subplate

mounted valves to, ultimately, HIC Manifold Valve Systems. Operating costs - reduced complexity, elimination of leakage, and improved serviceability - as well as initial installed cost factors - compact size, lower purchase cost, reduced customer engineering, fewer component parts and a higher level of integration - are contributing to this trend.

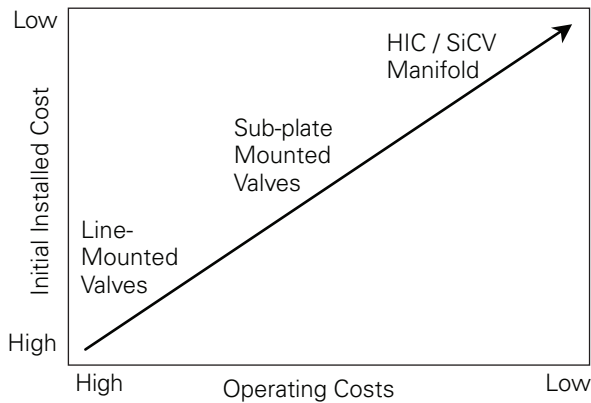
No Leaks, No Lines

HIC packages are created to meet specific circuit or installation requirements where two or more valves are required. The valves are packaged by hydraulic product suppliers, or OEMs, into either aluminum or steel blocks instead of using traditional cast iron individual in-line valve bodies. This permits the creation of compact, leak-free valve control system packages while eliminating the cost and time to connect the valves together with lines and fittings. This capability satisfies many application requirements where available space for hydraulic components is limited. HIC packages are ideally suited for a quick and easy, low cost hydraulic circuit which has repetitive applications. This requirement actually led to the development of the screw-in cartridge valve (SiCV) concept.

From Screw-in Cartridge Valves to Complete Systems

SiCVs gained their initial market success and position in the agricultural equipment industry in the late 1960s. SiCV technology rapidly spread from the traditional basic valve control functions of flow pressure and direction to many specialty valve control functions that were not always practical or economical in the traditional cast iron housing configuration. From these modest but demanding beginnings in the agricultural vehicle and implement markets, the concept of packaging two or more valves to form a unique control system and/or subsystem quickly spread into other cost sensitive high volume markets. Examples include aerial work platforms, lift trucks, road pavers, road rollers, concrete pavers, small construct equipment vehicles, and mining equipment.

Market Trends



The Evolution of the HIC Package

This technology has evolved from labor intensive, costly line and subplate mounted components to compact leakfree HIC packages.

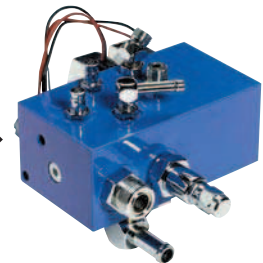
Line Mounted Valves



Mounted Sub-plate Mounted



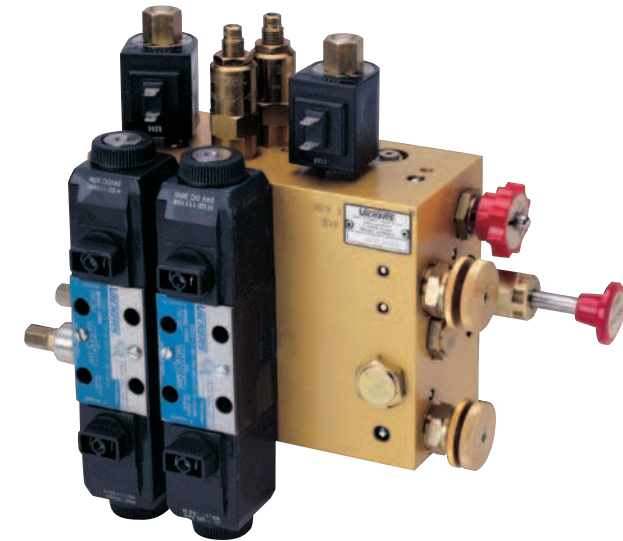
HIC Package



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Hydraulic Integrated Circuits

High Performance in
One Compact, Efficient Package



Better Results in Many Applications

More industries are becoming aware of the advantages of HIC packages:

- Low installed cost
- Leak-free packaging
- Reduced hydraulic line clutter
- Smaller package size

As awareness increases, usage of HIC packages is spreading to specialty

vehicles and machines including paper cutting machines, newspaper printing presses, tree removal/planting vehicles, and utility trucks.

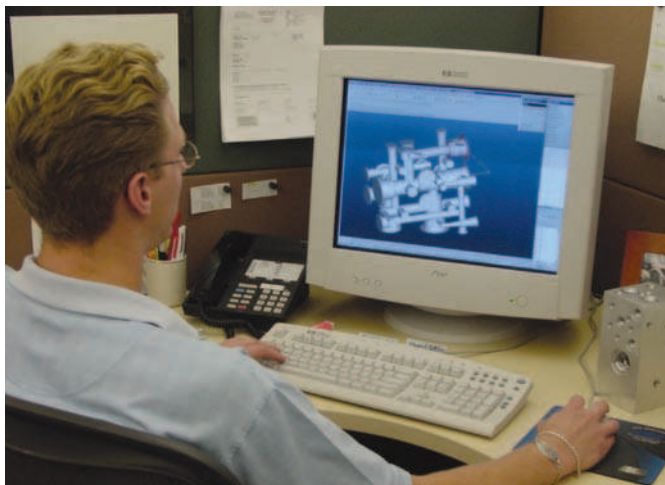
As more and more HIC packages continue to appear in the marketplace the use has spread to encompass virtually every conceivable market where hydraulic systems can be applied.

Trouble-free Installation and Troubleshooting

The HIC package may be designed by Eaton or customers to satisfy specific performance or installation requirements. The key design feature is the combination of two or more control functions into a compact manifold block where internal passages eliminate the need for interconnecting lines and fittings between valves. The construction eliminates not only potential leakage points, but also the procurement, storage, handling and installation costs associated with traditional line mounted valve systems. The only lines and fittings required are those for the system inlet and return and the connections to the actuators being controlled. In addition, the HIC is a complete package with no time or procurement problems to complete the installation of the circuit due to the possible shortage of one or more valves. Conveniently located SICVs in a single manifold block provide faster field servicing and troubleshooting, maximizing machine utilization.

Features and Benefits

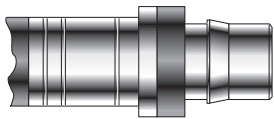
- An efficient low maintenance system - the cartridge concept facilitates improved productivity from customized circuits
- Compact, unitized design-maximum savings on lines and fittings costs plus faster installation and system start up
- Fewer potential leakage points - ensure a cleaner, safer application environment
- Increase ability to withstand vibration - gives optimum machine reliability
- Faster response time and enhance efficiency - response time and power transmission efficiency gains by eliminating many of the hoses, tubes and fittings necessary in traditional installations
- Compact, neat assembly - provides space and weight savings
- Ability to manifold other valves such as Vickers Directional Controls DG valves & CMX valves - provides increased systems flexibility to control multiple and diverse actuators
- Components sourced from a single supplier - simplifies procurement processing and reduces acquisition costs



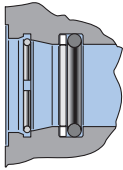
Aluminum and Steel Manifold Packages with Direct Port STC Connections



STC Ports in action



STC Hose/Connector



STC Port

Design Features

- Positive round-wire style latching mechanism
- Swivels for installation, (in absence of pressure)
- Low profile, compact design
- Elastomeric o-ring seal –available in many materials
- Dual purpose dust seal/ release sleeve
- Simple stamped release tool for disconnecting
- Zinc plated steel construction

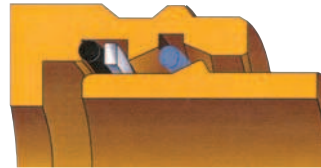
Benefits

- Fast reliable one-hand STC connections requiring no assembly tools
- Easy installation in confined areas
- Eliminates cross-threading, over-or under-torquing, and hose twisting
- Resists loosening when vibration is present
- Zero leak performance per SAE J1176
- Repairable seals for increased useful life
- Direct porting eliminates adapters to maximize cost savings
- Resists external contamination
- Design allows easy disconnection with release tool
- Ease of assembly for HICs with multiple ports in tight spaces

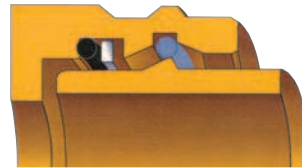
How to Use STC

STC Assembly Action

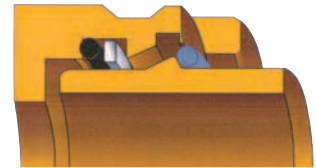
Note: Always remember to verify that your STC connection has been made successfully by pulling the connection.



Male connector is inserted into the female connector. The male shoulder spreads the latch ring open.



Latch ring is in its open position which allows the male shoulder to slide past the latch ring.

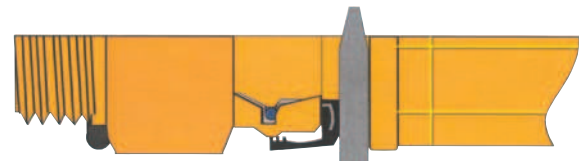
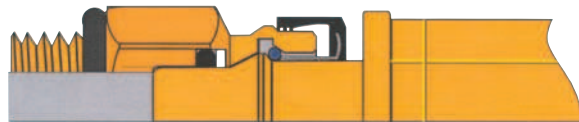


Male and female are locked into place. As fluid pressure is applied, the latch ring is wedged between the male shoulder and the female angle.

The proper connection and disconnection of STC is outlined in Bulletin JA535E.



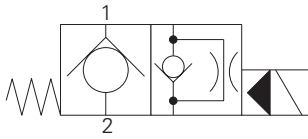
As the STC tool is inserted behind the release sleeve, the steel insert pushes the latching ring forward into a groove in the female half I.D., thus allowing the two halves to be pulled apart. The thickness of the tool moves the sleeve forward far enough to disconnect, so prying sideways with the tool is unnecessary.



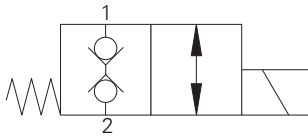
Solenoid Valves

Valve Locator

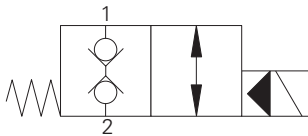
Functional Symbol



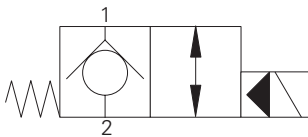
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NC, poppet</i>				
SV5-8-C	C-12-3	23 (6)	210 (3000)	A-100
SV15-8-C	C-8-2	37 (10)	350 (5000)	A-110
SV1-10-C	C-10-2	45 (12)	210 (3000)	A-146
SV11-10-C	C-10-2	45 (12)	350 (5000)	A-150
SV12-10-C	C-10-2	23 (6)	350 (5000)	A-160



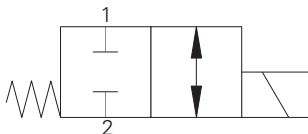
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NC, bi-directional, poppet</i>				
SBV2-8-C	C-8-2	1 (0.25)	210 (3000)	A-116
SBV12-8-C	C-8-2	1 (0.25)	350 (5000)	A-120
S217A	A879	10 (2.6)	210 (3000)	A-130



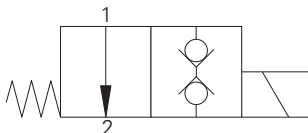
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NC, bi-directional, poppet</i>				
SBV1-8-C	C-8-2	60 (15)	210 (3000)	A-136
SBV11-8-C	C-8-2	60 (15)	350 (5000)	A-140
SBV1-10-C	C-10-2	76 (20)	210 (3000)	A-176
SBV11-10-C	C-10-2	76 (20)	350 (5000)	A-180
SBV1-12-C	C-12-2/2U	114 (30)	210 (3000)	A-206
SBV11-12-C	C-12-2/2U	114 (30)	350 (5000)	A-210



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NC, poppet</i>				
SV3-10-C	C-10-2	45 (12)	210 (3000)	A-170
SV13-10-C	C-10-2	45 (12)	350 (5000)	A-172
SV3-12-C	C-12-2	114 (30)	210 (3000)	A-190
SV13-12-C	C-12-2	114 (30)	350 (5000)	A-200
SV1-16-C	C-16-2	132 (35)	210 (3000)	A-220
SV13-16-C	C-16-2	132 (35)	350 (5000)	A-230
SV2-20-C	C-20-2	227 (60)	210 (3000)	A-240
SV13-20-C	C-20-2	227 (60)	350 (5000)	A-244



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NC, spool</i>				
SV4-8-C	C-8-2	11 (3)	210 (3000)	A-250
SV14-8-C	C-8-2	11 (3)	350 (5000)	A-260
SV4-10-C	C-10-2	23 (6)	210 (3000)	A-270
SV14-10-C	C-10-2	23 (6)	210 (3000)	A-276



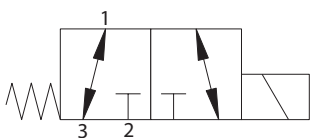
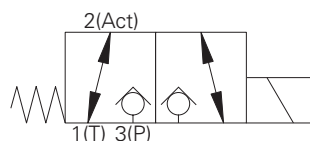
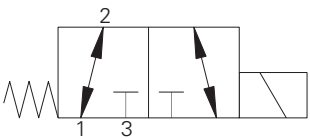
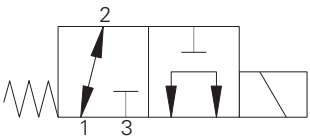
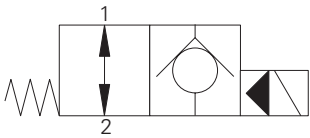
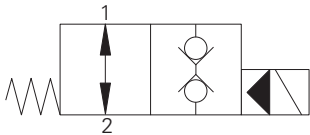
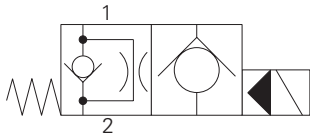
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NO, poppet</i>				
S207	A879	1 (.25)	350 (5000)	A-280



Solenoid Valves

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NO, poppet</i>				
SV5-8-0	C-8-2	23 (6)	210 (3000)	A-290
SV15-8-0	C-8-2	37 (10)	350 (5000)	A-300
SV5-10-0	C-10-2	45 (12)	210 (3000)	A-326
SV15-10-0	C-10-2	45 (12)	350 (5000)	A-330

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NO, bi-directional, poppet</i>				
SBV11-8-0	C-8-2	60 (15)	350 (5000)	A-310
SBV11-10-0	C-10-2	76 (20)	350 (5000)	A-350
SBV11-12-0	C-12-2/2U	114 (30)	350 (5000)	A-380

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NO, poppet</i>				
SV3-10-0	C-10-2	45 (12)	210 (3000)	A-320
SV13-10-0	C-10-2	45 (12)	350 (5000)	A-340
SV3-12-0	C-12-2/2U	114 (30)	210 (3000)	A-360
SV13-12-0	C-12-2/2U	114 (30)	350 (5000)	A-370
SV3-16-0	C-16-2	132 (35)	210 (3000)	A-390
SV13-16-0	C-16-2	132 (35)	350 (5000)	A-400
SV3-20-0	C-20-2	227 (60)	210 (3000)	A-410
SV13-20-0	C-20-2	227 (60)	350 (5000)	A-420

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 2/2, NO, spool</i>				
SV4-8-0	C-8-2	13 (4)	210 (3000)	A-430
SV14-8-0	C-8-2	13 (4)	350 (5000)	A-440
SV4-10-0	C-10-2	23 (6)	210 (3000)	A-450
SV14-10-0	C-10-2	23 (6)	350 (5000)	A-460

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 3/2, spool</i>				
SV4-8-3	C-8-3	13 (4)	210 (3000)	A-490
SV4-10-3	C-10-3	23 (6)	210 (3000)	A-580
S521N	C-10-3	44 (11)	210 (3000)	A-520
SV4A/B-12-3	C-12-3	42 (11)	210 (3000)	A-630
SV14A/B-12-3	C-12-3	42 (11)	350 (5000)	A-640

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 3/2, poppet</i>				
S229	A3531	12 (3)	210 (3000)	A-500

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Solenoid 3/2, spool</i>				
S520N	C-10-3	40 (10)	210 (3000)	A-510

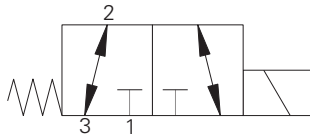
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Solenoid Valves

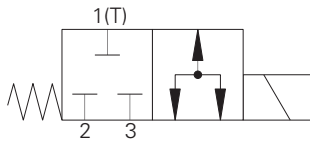
Valve Locator



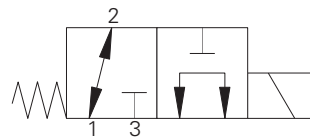
Functional Symbol



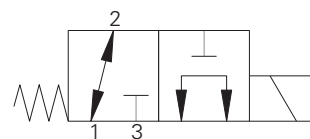
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 3/2, spool</i>				
S525N	C-10-3	30 (8)	210 (3000)	A-530



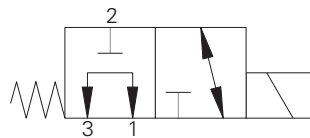
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 3/2, spool</i>				
S526N-2	C-10-3	35 (9)	210 (3000)	A-540



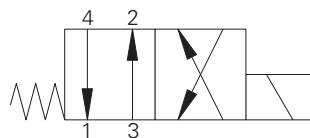
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 3/2, spool</i>				
SV1-8-3	C-8-3	11 (3)	210 (3000)	A-470
SV11-8-3	C-8-3	11 (3)	350 (5000)	A-480
SV1-10-3	C-10-3	23 (6)	210 (3000)	A-550
SV11-10-3	C-10-3	23 (6)	350 (5000)	A-560



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 3/2, spool</i>				
SV11A/B-10-3	C-10-3	23 (6)	350 (5000)	A-570
SV1A/B-12-3	C-12-3	38-42 (10-11)	210 (3000)	A-590
SV11A/B-12-3	C-12-3	38 (10)	350 (5000)	A-600



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 3/2, spool</i>				
SV2A/B-12-3	C-12-3	30-38 (8-10)	210 (3000)	A-610
SV12A/B-12-3	C-12-3	30 (8)	350 (5000)	A-620



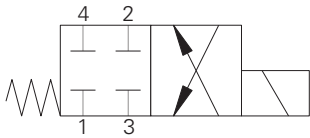
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Solenoid 4/2, spool</i>				
SV1-8-4	C-8-4	11 (3)	210 (3000)	A-650
SV11-8-4	C-8-4	11 (3)	350 (5000)	A-660
SV1-10-4	C-10-4	23 (6)	210 (3000)	A-690
SV11-10-4	C-10-4	23 (6)	350 (5000)	A-710
S542	C-10-4	25 (9)	210 (3000)	A-700



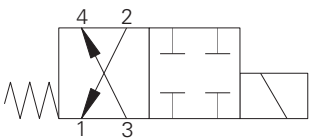
Solenoid Valves

Valve Locator

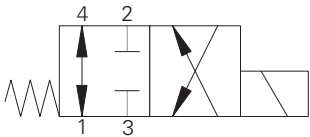
Functional Symbol



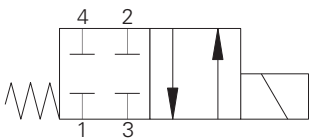
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV2-8-4	C-8-4	13 (4)	210 (3000)	A-670
SV12-8-4	C-8-4	13 (4)	350 (5000)	A-680
SV2-10-4	C-10-4	23 (6)	210 (3000)	A-730
SV2A/B-12-4	C-12-4	42 (11)	210 (3000)	A-790
SV12A/B-12-4	C-12-4	42 (11)	350 (5000)	A-800
S541	C-10-4	30 (8)	210 (3000)	A-720



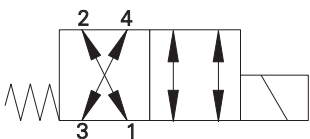
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV3-10-4	C-10-4	23 (6)	210 (3000)	A-740
SV3A/B-12-4	C-12-4	53 (14)	210 (3000)	A-810
SV13A/B-12-4	C-12-4	35 (14)	350 (5000)	A-820



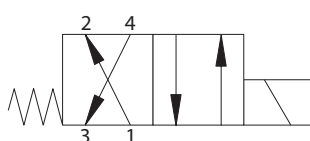
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV4-10-4	C-10-4	23 (6)	210 (3000)	A-750



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV5-10-4	C-10-4	23 (6)	210 (3000)	A-760
SV5A/B-12-4	C-12-4	46 (12)	210 (3000)	A-830
SV15A/B-12-4	C-12-4	53 (14)	350 (5000)	A-840



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV17A/B-10-4	C-10-4	23 (6)	350 (5000)	A-780



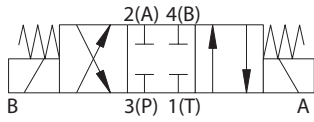
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
Solenoid 4/2, spool				
SV7-10-4	C-10-4	17 (5)	210 (3000)	A-770
SV7A/B-12-4	C-12-4	46 (12)	210 (3000)	A-850
SV17A/B-12-4	C-12-4	46 (12)	350 (5000)	A-860

Where measurements are critical request certified drawings. we reserve the right to change specifications without notice.

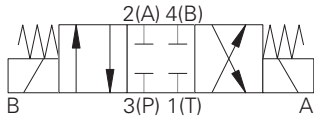
Solenoid Valves

Valve Locator

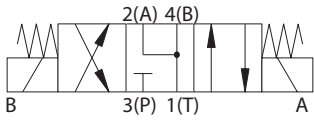
Functional Symbol



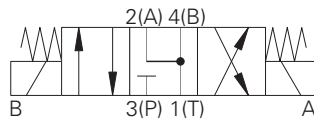
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9-8-E	C-8-4	13 (4)	210 (3000)	A-870



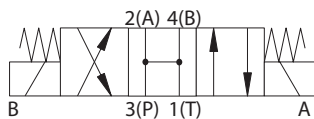
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9A-10-E	C-10-4	22 (5.8)	210 (3000)	A-910



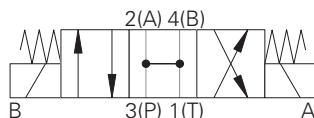
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9-8-F	C-8-4	13 (4)	210 (3000)	A-871



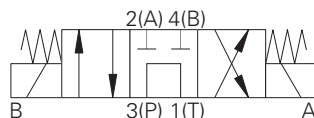
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9A-10-F	C-10-4	25 (6.5)	210 (3000)	A-911



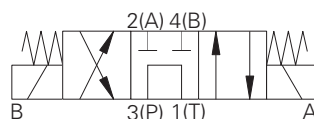
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9-8-B	C-8-4	13.2 (3.5)	210 (3000)	A-872



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9A-10-B	C-10-4	34 (8.9)	210 (3000)	A-913



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9-8-A	C-8-4	11.0 (3.0)	210 (3000)	A-873



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		L/min (USgpm)	bar (psi)	
SV9A-10-A	C-10-4	25 (6.5)	210 (3000)	A-914



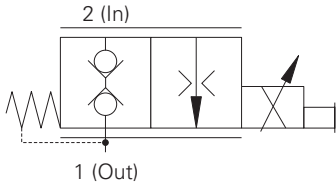
Proportional Valves

Valve Locator/Section Contents

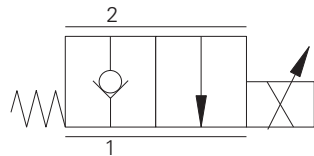
Note:

Proportional valve solenoid coils and electronic valve drivers are covered in section C of this Catalog.

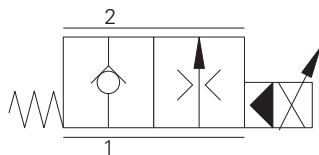
Functional Symbol



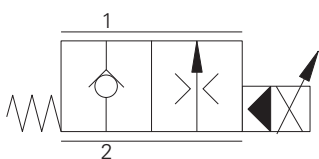
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional bi-directional poppet</i>		L/min (USgpm)	bar (psi)	
PFR21H	A879	18 (5)	210 (3000)	B-100



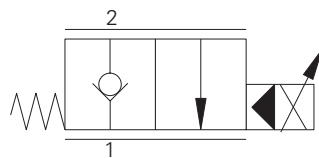
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional bi-directional poppet</i>		L/min (USgpm)	bar (psi)	
EPV10	C-10-2	0-30 (0-8)	350 (5000)	B-110



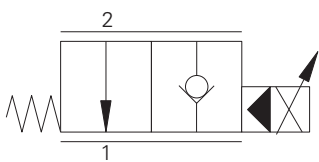
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NC, poppet</i>		L/min (USgpm)	bar (psi)	
EPV16A	C-16-35 (undercut)	0-160	280 (4000)	B-120



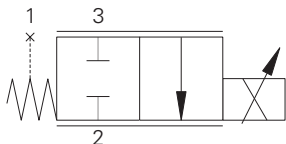
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NC, poppet</i>		L/min (USgpm)	bar (psi)	
EPV16B	C-16-35 (undercut)	0-160	280 (4000)	B-120



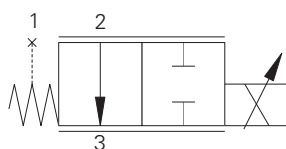
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NC, poppet</i>		L/min (USgpm)	bar (psi)	
ESV1-8-C	C-8-2	31 (9)	210 (3000)	B-130
ESV1-10-C	C-10-2	70 (19)	210 (3000)	B-140
ESV1-12-C	C-12-2	104 (27)	210 (3000)	B-150



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NO, poppet</i>		L/min (USgpm)	bar (psi)	
ESV1-8-0	C-8-2	31 (9)	210 (3000)	B-160
ESV1-10-0	C-10-2	70 (19)	210 (3000)	B-170
ESV1-12-0	C-12-2	104 (27)	210 (3000)	B-180



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NC, spool</i>		L/min (USgpm)	bar (psi)	
EFV1-10-C	C-10-3	38 (10)	210 (3000)	B-190
EFV1-12-C	C-12-3	77 (20)	210 (3000)	B-200



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow control, NO, spool</i>		L/min (USgpm)	bar (psi)	
EFV1-10-0	C-10-3	30 (10)	210 (3000)	B-210
EFV1-12-0	C-12-3	104 (28)	210 (3000)	B-220

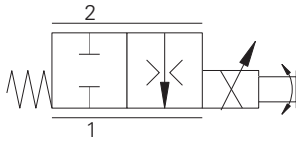
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Proportional Valves

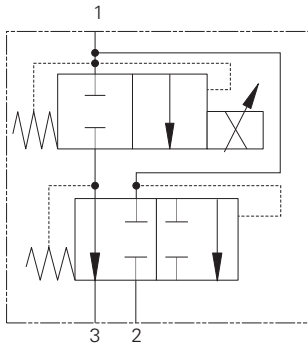
Valve Locator/Section Contents



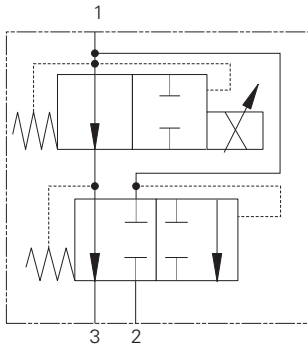
Functional Symbol



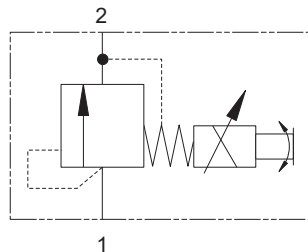
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow</i>		L/min (USgpm)	bar (psi)	
PFR24A	A6701	18 (5)	210 (3000)	B-230



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow, NC, spool</i>		L/min (USgpm)	bar (psi)	
EFV2-12-C	C-12-3	114 (30)	210 (3000)	B-250



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional flow, NO, spool</i>		L/min (USgpm)	bar (psi)	
EFV2-12-O	C-12-3	114 (30)	210 (3000)	B-260



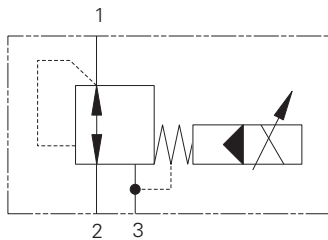
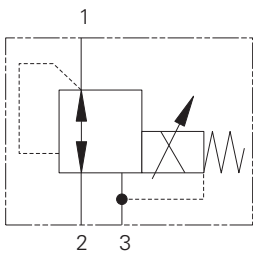
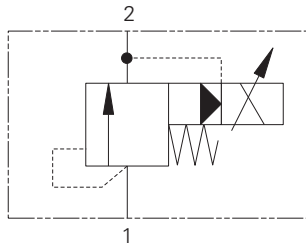
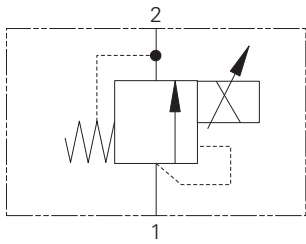
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Proportional relief</i>		L/min (USgpm)	bar (psi)	
PDR21A	A879	1.5 (.3)	350 (5000)	B-270



Proportional Valves

Valve Locator/Section Contents

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
IRV1-10	C-10-2	1 (.25)	210 (3000)	B-280

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
ERV1-10	C-10-2	60 (15)	210 (3000)	B-290
ERV1-16	C-16-2	132 (39)	210 (3000)	B-300

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
PPD22A	A879	20 (5)	210 (3000)	B-310
EPRV2-8	C-8-3	7.6 (2)	35 (500)	B-320

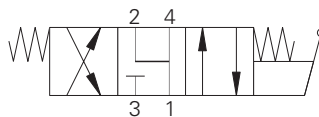
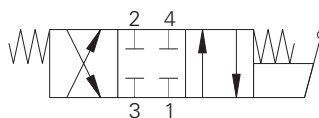
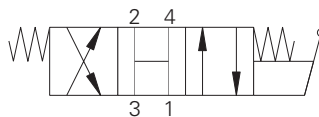
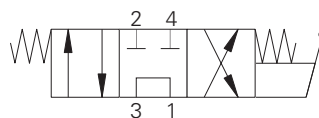
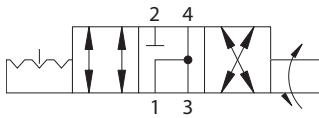
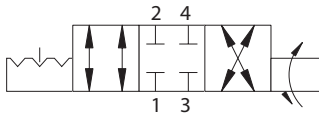
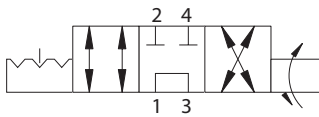
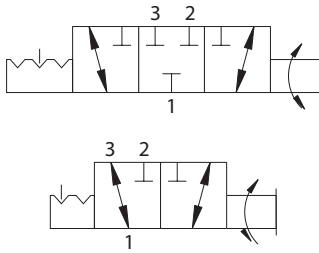
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
EPRV1-16	C-16-3	7.6 (2)	35 (500)	B-330

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Directional Controls

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual rotary valve</i>				
MRV3-10	C-10-3	23 (6)	210 (3000)	D-100
MRV13-10	C-10-3	23 (6)	350 (5000)	D-110
MRV13-12	C-12-3	46 (12)	350 (5000)	D-120
MRV3-16	C-16-3	64 (17)	210 (3000)	D-130
MRV13-16	C-16-3	64 (17)	350 (5000)	D-140

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual rotary valve</i>				
MRV4-10	C-10-4	11 (3)	210 (3000)	D-150
MRV14-10	C-10-4	11 (3)	350 (5000)	D-160
MRV14-12	C-12-4	23 (6)	350 (5000)	D-170
MRV4-16	C-16-4	45 (12)	210 (3000)	D-180
MRV14-16	C-16-4	45 (12)	350 (5000)	D-190

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual rotary valve</i>				
MRV5-10	C-10-4	11 (3)	210 (3000)	D-200
MRV15-10	C-10-4	11 (3)	350 (5000)	D-210
MRV15-12	C-12-4	23 (6)	350 (5000)	D-220
MRV5-16	C-16-4	45 (12)	210 (3000)	D-230
MRV15-16	C-16-4	45 (12)	350 (5000)	D-240

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual rotary valve</i>				
MRV6-10	C-10-4	11 (3)	210 (3000)	D-250
MRV6-16	C-16-4	11 (3)	300 (5000)	D-256

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual lever valve, spool</i>				
MLV9-12-A	C-12-4	60 (13.9)	210 (3000)	D-292

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual lever valve, spool</i>				
MLV9-12-B	C-12-4	60 (15.9)	210 (3000)	D-293

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual lever valve, spool</i>				
MLV9-12-E	C-12-4	60 (15.9)	210 (3000)	D-294

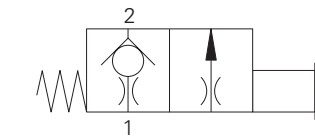
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Manual lever valve, spool</i>				
MLV9-12-F	C-12-4	60 (15.9)	210 (3000)	D-295



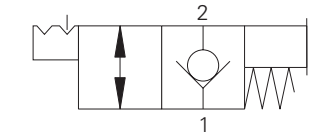
Directional Controls

Valve locator

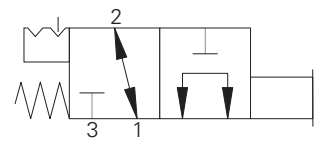
Functional Symbol



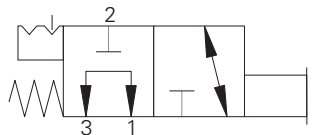
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Check MO</i>		L/min (USgpm)	bar (psi)	
3CP2	A879	5.5-15 (1.4-4)	210 (3000)	D-320



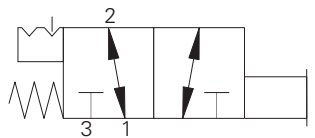
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual pull valve, NC</i>		L/min (USgpm)	bar (psi)	
MPV1-10	C-10-2	45 (12)	210 (3000)	D-330
MPV3-10	C-10-2	45 (12)	210 (3000)	D-340



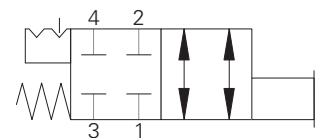
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV1-12	C-12-3	41.8 (11)	210 (3000)	D-350
MSV11-10	C-10-3	23 (6)	350 (5000)	D-360
MSV11-12	C-12-3	30 (8)	350 (5000)	D-370
MSV12-12	C-12-3	38 (10)	350 (5000)	D-390



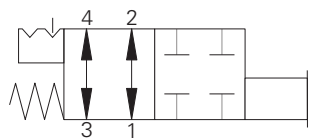
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV2-12	C-12-3	38 (10)	210 (3000)	D-380



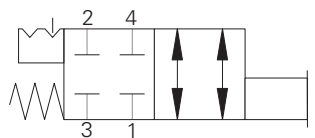
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV5-12	C-12-3	41.8 (11)	210 (3000)	D-400
MSV15-12	C-12-3	41.8 (11)	350 (5000)	D-410



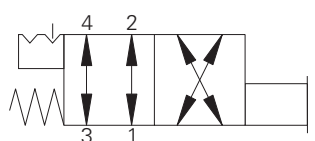
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV3-12	C-12-4	53.2 (14)	210 (3000)	D-420
MSV13-12	C-12-4	53.2 (14)	350 (5000)	D-430



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV4-12	C-12-4	53.2 (14)	210 (3000)	D-440
MSV14-12	C-12-4	53.2 (14)	350 (5000)	D-450



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV6-12	C-12-4	53.2 (14)	210 (3000)	D-460
MSV16-12	C-12-4	53.2 (14)	350 (5000)	D-470



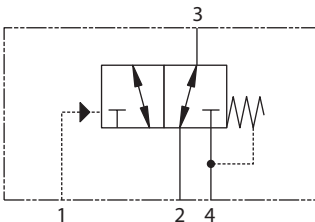
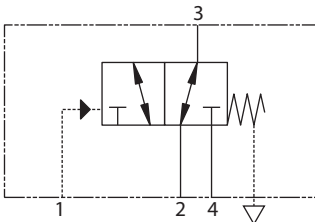
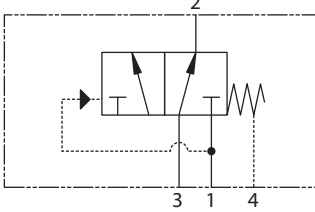
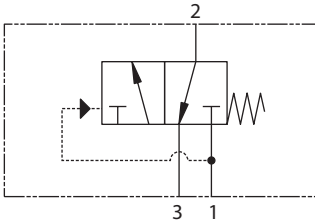
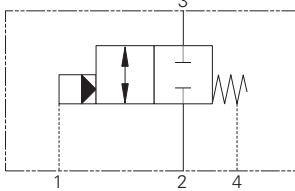
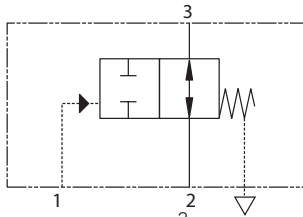
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual push valve</i>		L/min (USgpm)	bar (psi)	
MSV17-10	C-12-4	20 (5.3)	350 (5000)	D-480
MSV7-12	C-12-4	45 (11.9)	210 (3000)	D-490
MSV17-12	C-12-4	20 (5)	350 (5000)	D-500

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Directional Controls

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift 2/2 valve</i>				
PTS7-10	C-10-3	30 (8)	210 (3000)	D-510
PTS17-10	C-10-3	30 (8)	350 (5000)	D-520
PTS17-12	C-12-3	114 (30)	350 (5000)	D-530

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift 2/2 valve</i>				
1RDS702	A21145	80 (20)	420 (6090)	D-560

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Brake sequence</i>				
1SB10	A893	10 (2.5)	350 (5000)	D-540

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Brake release shuttle</i>				
1SB304	A5302	30 (8)	350 (5000)	D-550

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS1-10	C-10-4	30 (8)	210 (3000)	D-570
PTS11-12	C-12-4	76 (20)	350 (5000)	D-580
PTS11-10	C-10-4	30 (8)	350 (5000)	D-590
PTS1-16	C-16-4	132 (35)	210 (3000)	D-600
PTS11-16	C-16-4	132 (35)	350 (5000)	D-610
PTS1-20	C-20-4	265 (70)	210 (3000)	D-620

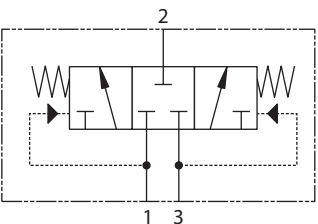
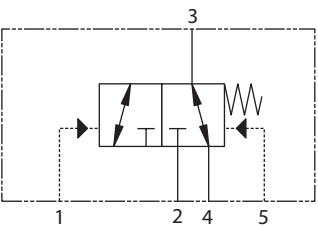
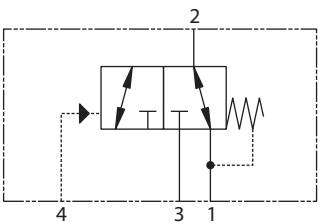
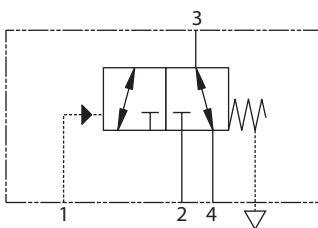
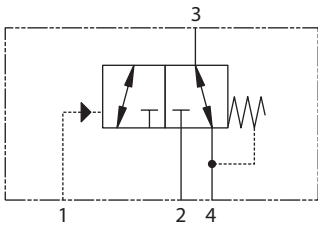
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS12-10	C-10-4	30 (8)	350 (5000)	D-630
PTS12-12	C-12-4	114 (30)	350 (5000)	D-640
PTS2-16	C-16-4	132 (35)	210 (3000)	D-650
PTS12-16	C-16-4	132 (35)	350 (5000)	D-660
PTS2-20	C-20-4	265 (70)	210 (3000)	D-670



Directional Controls

Valve locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS13-10	C-10-4	30 (8)	350 (5000)	D-680
PTS13-12	C-12-4	113 (30)	350 (5000)	D-690
PTS3-16	C-16-4	132 (35)	210 (3000)	D-700
PTS13-16	C-16-4	132 (35)	350 (5000)	D-710
PTS3-20	C-20-4	265 (70)	210 (3000)	D-720
PTS6-16	C-16-4	132 (35)	210 (3000)	D-790
PTS16-16	C-16-4	132 (35)	350 (5000)	D-800

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS14-12	C-12-4	114 (30)	350 (5000)	D-730
PTS14-16	C-16-4	132 (35)	350 (5000)	D-740
PTS5-16	C-16-4	132 (35)	210 (3000)	D-770
PTS15-16	C-16-4	132 (35)	350 (5000)	D-780

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS5-10	C-10-3	11 (3)	210 (3000)	D-750
PTS5-12	C-12-3	105 (28)	350 (5000)	D-760

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS9-8	C-8-5S	19 (5)	280 (4000)	D-810
PTS9-10	C-10-5S	38 (10)	280 (4000)	D-820
PTS9-12	C-12-5S	76 (20)	280 (4000)	D-830
PTS9-16	C-16-5S	151 (40)	280 (4000)	D-840
PTS9-20	C-20-5S	230 (60)	280 (4000)	D-850

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Hot oil shuttle</i>				
1HSH20	CVB-22-06-0	20 (5)	350 (5000)	D-856

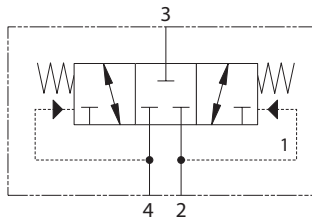
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Directional Controls

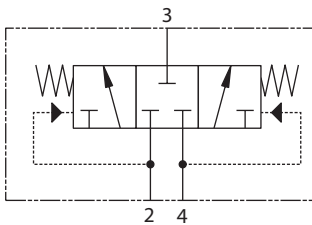
Valve Locator



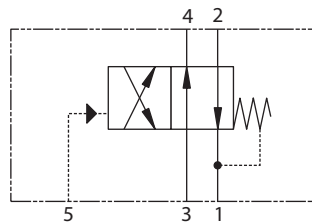
Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Sequence</i>				
DSV4-10	C-10-4	26 (6.9)	350 (5000)	D-860
DSV4-12	C-12-4	113 (29.9)	350 (5000)	D-866



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Hot oil shuttle</i>				
1HSH701	A21145	80 (21)	420 (6000)	D-870



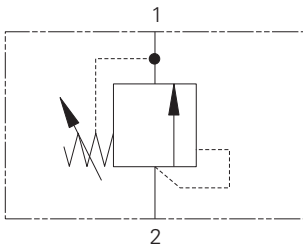
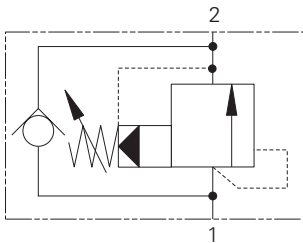
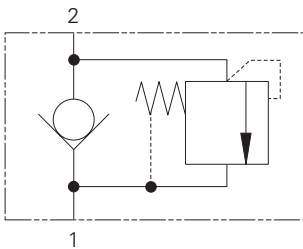
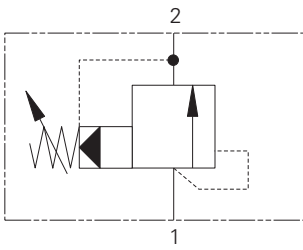
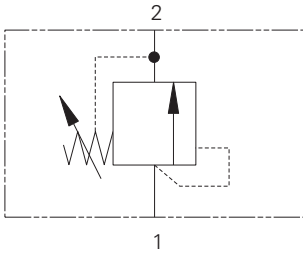
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pilot to shift valve</i>				
PTS6-10	C-10-4	23 (6)	210 (3000)	D-880
PTS16-10	C-10-4	23 (6)	350 (5000)	D-890
PTS16-12	C-12-4	76 (20)	350 (5000)	D-900



Pressure Controls

Valve locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, poppet</i>				
		L/min (USgpm)	bar (psi)	
1DR2	A879	1.2 (0.3)	400 (5800)	E-100
1DR30	A879	30 (8)	400 (5800)	E-110
RV1-10	C-10-2	30 (8)	210 (3000)	E-120
RV1-12	C-12-2 (u)	114 (30)	350 (5000)	E-130

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, spool</i>				
		L/min (USgpm)	bar (psi)	
RV5-10	C-10-2	114 (30)	350 (5000)	E-140
RV11-12	C-12-2 (u)	190 (50)	350 (5000)	E-150
1AR100	A881	150 (40)	400 (5800)	E-160
RV5-16	C-16-2	300 (80)	350 (5000)	E-170

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, poppet</i>				
		L/min (USgpm)	bar (psi)	
RV4-10	C-10-2	1/45 (0.25/12)	350 (5000)	E-180

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, spool</i>				
		L/min (USgpm)	bar (psi)	
RV2-10	C-10-2	12-114 (3-30)	350 (5000)	E-190
1ARC100	A881	150 (40)	400 (5800)	E-200

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, poppet</i>				
		L/min (USgpm)	bar (psi)	
RV8-8	C-8-2	30 (8)	350 (5000)	E-208
RV3-10	C-10-2	76 (20)	250 (3600)	E-210
RV8-10	C-10-2	76 (20)	350 (5000)	E-220
RV3-12	C-12-2 (u)	132 (35)	350 (5000)	E-230
RV8-12	C-12-2 (u)	132 (35)	350 (5000)	E-240
RV3-16	C-16-2	300 (80)	350 (5000)	E-250

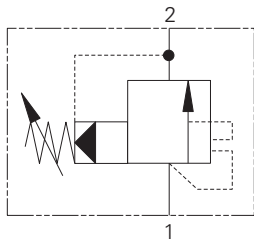
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Pressure Controls

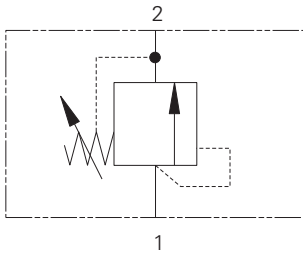
Valve locator



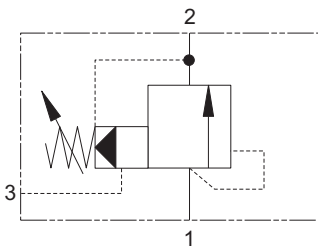
Functional Symbol



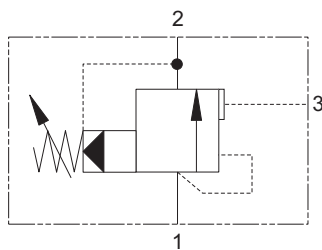
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, spool, unloading</i>				
1UAR100	A881	L/min (USgpm) 150 (40)	bar (psi) 350 (5000)	E-270



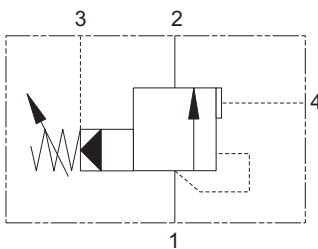
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, spool</i>				
1GR30	A881	L/min (USgpm) 30 (8)	bar (psi) 160 (2300)	E-280
1GR60	CVA20-01-0	60 (16)	40 (600)	E-290
1GR100	A881	150 (40)	40 (600)	E-300



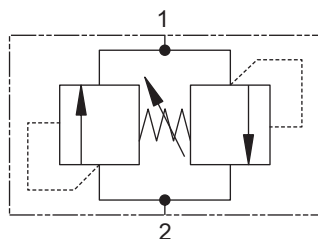
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief ventable, spool</i>				
1VR100	A3146	L/min (USgpm) 100 (26)	bar (psi) 350 (5000)	E-310
1VR200	A16102	200 (52)	350 (5000)	E-320



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Unloading</i>				
1UL60	A3146	L/min (USgpm) 60 (16)	bar (psi) 350 (5000)	E-330



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Unloading</i>				
1PUL60	A12088	L/min (USgpm) 60 (16)	bar (psi) 350 (5000)	E-340
1PUL200	A3145	200 (52)	350 (5000)	E-350



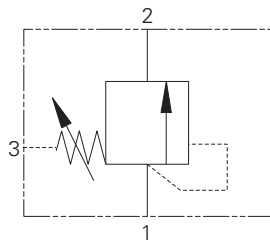
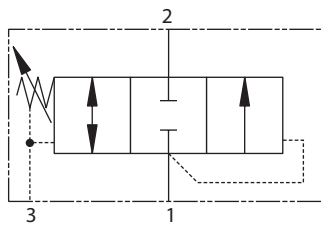
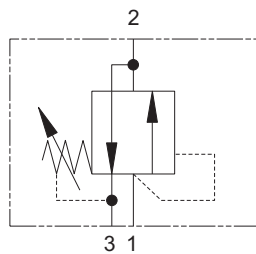
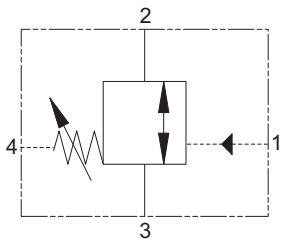
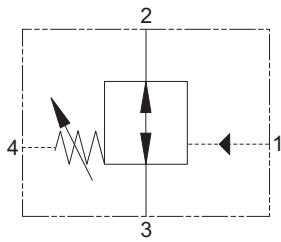
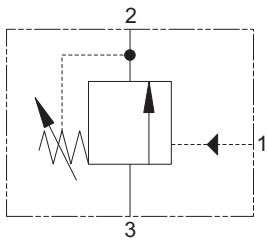
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief dual</i>				
1CLLR50	C-10-2	L/min (USgpm) 50 (12)	bar (psi) 250 (3625)	E-360
1CLLR100	A878	150 (40)	350 (5000)	E-370



Pressure Controls

Valve locator

Functional Symbol



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Pressure sequence valve, spool</i>				
PSV2-8	C-8-3	23 (6)	210 (3000)	E-380
PSV4-8	C-8-3	15 (4)	350 (5000)	E-390
PSV2-10	C-10-3	23 (6)	210 (3000)	E-420
PSV4-10	C-10-3	15 (4)	210 (3000)	E-430

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Series sequence valve, NO, spool</i>				
PSV8-10	C-10-4	23 (6)	210 (3000)	E-400

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Series sequence valve, NC, spool</i>				
PSV10-10	C-10-4	23 (6)	210 (3000)	E-410

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Series sequence valve, spool</i>				
PSV1-10	C-10-3	23 (6)	210 (3000)	E-440
PSV5-10	C-10-3	8 (2)	210 (3000)	E-450

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Series sequence valve, spool</i>				
PSV3-10	C-10-3	23 (6)	210 (3000)	E-460

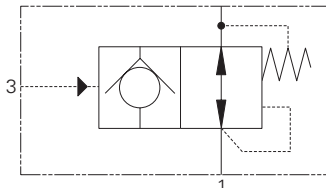
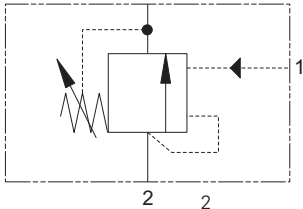
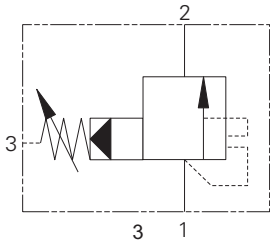
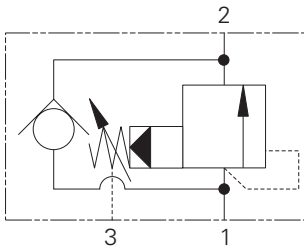
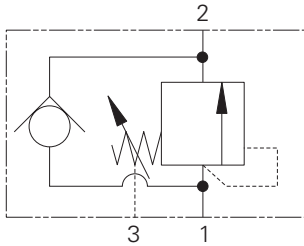
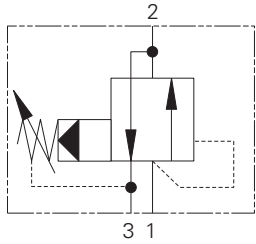
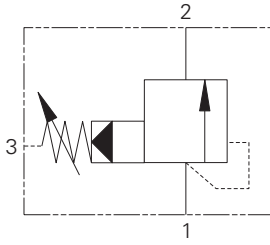
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Series sequence valve, spool</i>				
PSV7-10	C-10-3	23 (6)	210 (3000)	E-470
1DS30	A880	30 (8)	140 (2000)	E-480
1DS60	CVA-22-06-0	60 (16)	40 (600)	E-490
1DS100	A880	150 (40)	40 (600)	E-500

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Pressure Controls

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Series sequence valve, spool</i>				
1PS60	CVA-22-06-0	L/min (USgpm)	bar (psi)	E-510
1PS100	A880	60 (16)	350 (5000)	E-520
1PS200	A16102	150 (40)	350 (5000)	E-540
		250 (60)	350 (5000)	

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Series sequence valve, spool</i>				
PSV1-16	C-16-3	L/min (USgpm)	bar (psi)	E-530
		95 (25)	350 (5000)	

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Series sequence valve, spool</i>				
1PSC30	A6610	L/min (USgpm)	bar (psi)	E-550
		30 (8)	350 (5000)	

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Series sequence valve, spool</i>				
1PSC100	A880	L/min (USgpm)	bar (psi)	E-560
		150 (40)	350 (5000)	

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Series sequence valve, spool, unloading</i>				
1UPS100	A880	L/min (USgpm)	bar (psi)	E-570
		150 (40)	350 (5000)	

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pilot operated, poppet, unloading</i>				
PUV3-10	C-10-3	L/min (USgpm)	bar (psi)	E-576
		4 (1)	210 (3000)	

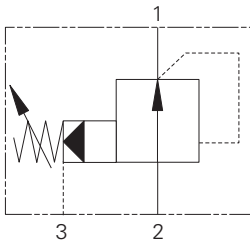
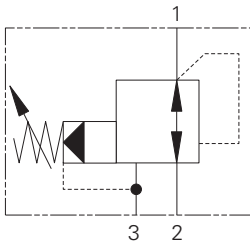
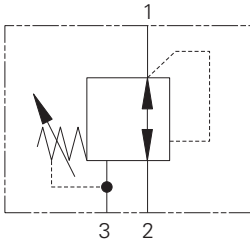
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Accumulator discharge valve</i>				
ADV1-16	C-16-3S	L/min (USgpm)	bar (psi)	E-580
		30 (8)	210 (3000)	



Pressure Controls

Valve locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pressure reducing valve, spool</i>		L/min (USgpm)	bar (psi)	
PRV1-10	C-10-3	15 (4)	165 (2400)	E-590

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pressure reducing valve, spool</i>		L/min (USgpm)	bar (psi)	
PRV2-10	C-10-3	38 (10)	240 (3500)	E-600
PRV12-10	C-10-3	45 (12)	350 (5000)	E-610
PRV12-12	C-12-3	114 (30)	350 (5000)	E-620
PRV2-16	C-16-3	151 (40)	350 (5000)	E-640

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pressure reducing valve, spool</i>		L/min (USgpm)	bar (psi)	
1PA100	A880	100 (26)	10-350 (150-5000)	E-630
1PA200	A16102	200 (52)	350 (5000)	E-650

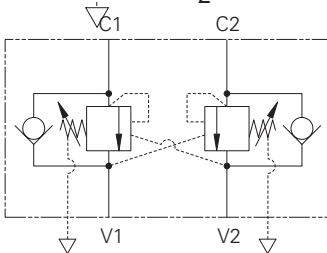
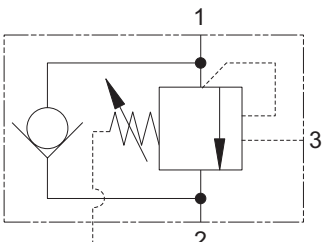
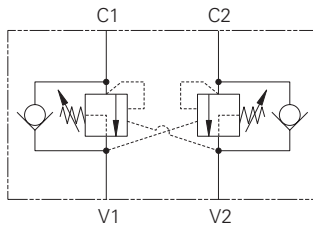
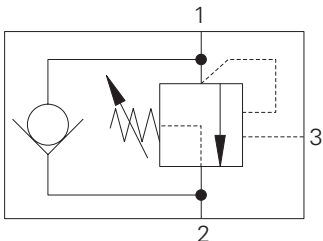
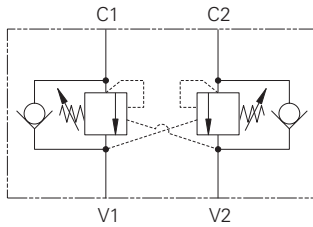
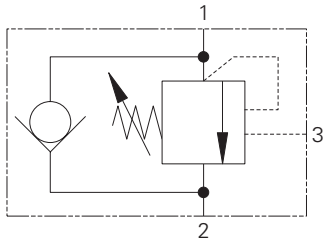
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Motion Controls

Valve locator



Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>OCV standard</i>				
		L/min (USgpm)	bar (psi)	
1CE20	A22903	20 (5)	270 (4000)	F-100
1CE30	A6610	30 (8)	270 (4000)	F-110
1CE90	A12336	90 (23)	270 (4000)	F-170
1CE120	A877	120 (32)	270 (4000)	F-230
1CE140	A20081	140 (37)	340 (4390)	F-280
1CE300	A6935	300 (80)	270 (4000)	F-310
1SE30	A20090-T11A	30 (8)	270 (4000)	F-360
1SE90	A20092-T2A	90 (23)	270 (4000)	F-400
1SE140	A20094-T17A	140 (37)	340 (4390)	F-440

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>OCV part balanced</i>				
		L/min (USgpm)	bar (psi)	
1CER30	A6610	30 (8)	270 (4000)	F-120
1CER90	A12336	90 (23)	270 (4000)	F-180
1CER140	A20081	140 (37)	340 (4390)	F-290
1SER30	A20090-T11A	30 (8)	270 (4000)	F-370
1SER90	A20092-T2A	90 (23)	270 (4000)	F-410
1SER140	A20094-T17A	140 (37)	340 (4390)	F-450

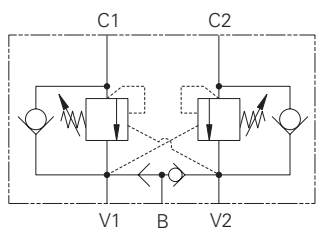
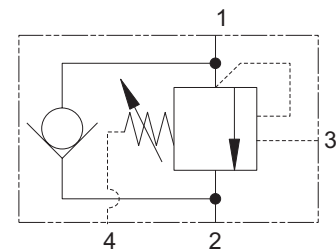
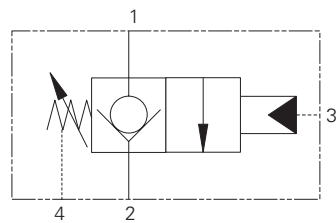
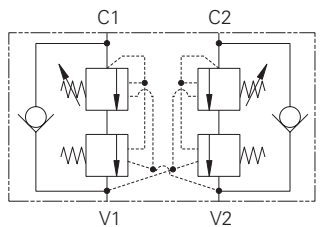
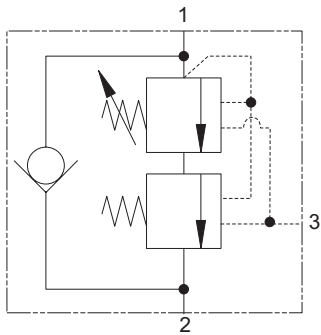
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>OCV fully balanced</i>				
		L/min (USgpm)	bar (psi)	
1CEB30	A6610	30 (8)	270 (4000)	F-130
1CEB90	A12336	90 (23)	270 (4000)	F-190
1CEB120	A877	120 (32)	270 (4000)	F-240
1CEB300	A6935	300 (80)	270 (4000)	F-320
1SEB30	A20090-T11A	30 (8)	270 (4000)	F-380
1SEB90	A20092-T2A	90 (23)	270 (4000)	F-420



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Valve locator

Functional Symbol



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>OCV counterbalanced</i>				
1CEL30	A6610	30 (8)	380 (5510)	F-140
1CEL90	A12336	90 (23)	380 (5510)	F-210
1CEL140	A20081	140 (37)	380 (5510)	F-300
1SEL30	A20090-T11A	30 (8)	380 (5510)	F-390
1SEL90	A20092-T2A	90 (23)	380 (5510)	F-430
1SEL140	A20094-T17A	140 (37)	380 (5310)	F-460

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>OCV zero differential</i>				
1CPBD30	A20530	30 (8)	350 (5000)	F-150
1CPBD90	A12196	90 (23)	350 (5000)	F-220
1CPBD120	A6726	180 (47)	400 (5800)	F-260
1CPBD300	A13098	300 (80)	400 (5800)	F-340

Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>OCV fully balanced</i>				
1CEBD90	A12196	90 (23)	270 (4000)	F-200
1CEBD120	A6726	180 (47)	270 (4000)	F-250
1CEBD300	A13098	300 (80)	270 (4000)	F-330

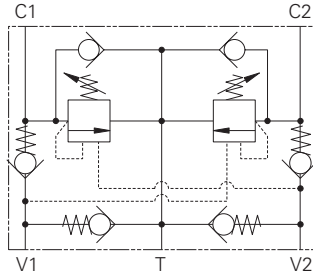
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Motion control valve, with brake shuttle</i>				
1CEESH35		30 (8)	270 (4000)	F-470
1CEESH95		90 (23)	160-270 (4000)	F-480
1CEESH150		150 (40)	270 (4000)	F-490
1CEESH350		300 (80)	270 (4000)	F-500

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

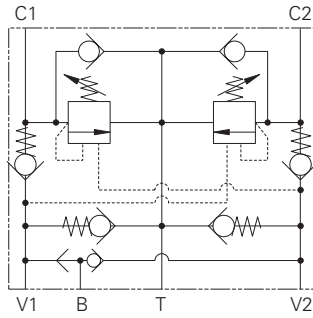
Motion Controls

Valve locator

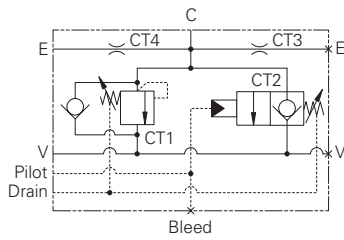
Functional Symbol



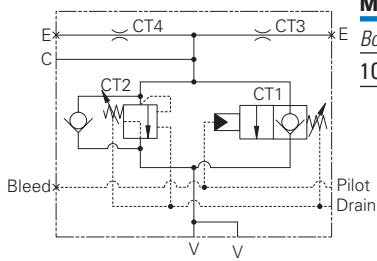
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Motion control valve & lock</i>				
1CEEC35		30 (8)	270 (4000)	F-510
1CEEC95		95 (25)	270 (4000)	F-520
1CEEC150		150 (40)	270 (4000)	F-530
1CEEC350		300 (80)	270 (4000)	F-540



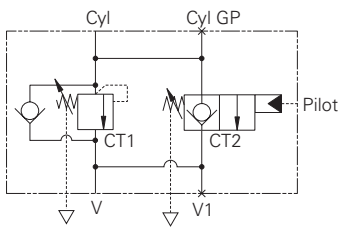
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>Motion control valve & lock with brake shuttle</i>				
1CEEC3H35		30 (8)	270 (4000)	F-550
1CEEC3H95		95 (25)	270 (4000)	F-560
1CEEC3H150		150 (40)	270 (4000)	F-570
1CEEC3H350		350 (80)	270 (4000)	F-580



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>BoomLoc</i>				
1CEBL256		250 (66)	350 (5000)	F-600
1CEBL356		350 (92)	350 (5000)	F-610



Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>BoomLoc</i>				
1CEBL556		550 (145)	400 (5800)	F-620



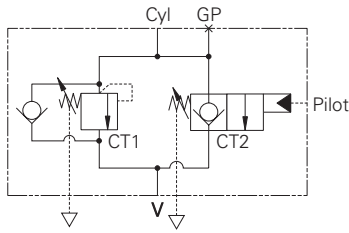
Model	Cavity	Flow Rating L/min (USgpm)	Typical Pressure bar (psi)	Page
<i>BoomLoc</i>				
1CEBL31F3W35P		30 (8)	350 (5000)	F-630



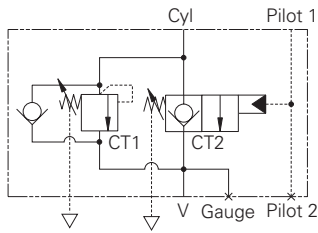
Motion Controls

Valve locator

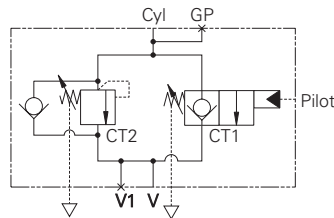
Functional Symbol



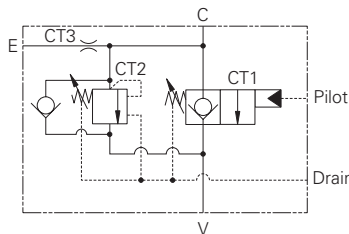
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>BoomLoc</i>		L/min (USgpm)	bar (psi)	
1CEBL31F1/2635P		30 (8)	350 (5000)	F-640



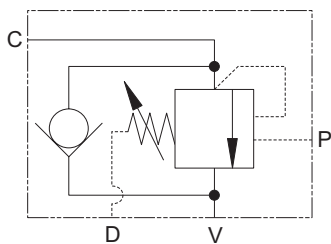
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>BoomLoc</i>		L/min (USgpm)	bar (psi)	
1CEBL31F4W35P		30 (8)	350 (5000)	F-650



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>BoomLoc</i>		L/min (USgpm)	bar (psi)	
1CEBL91F4W35P		90 (24)	350 (5000)	F-660



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>BoomLoc</i>		L/min (USgpm)	bar (psi)	
1CEBL151F4W35P		150 (40)	350 (5000)	F-670



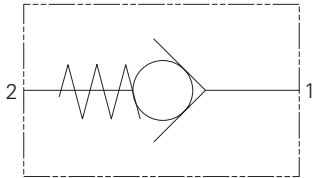
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>BoomLoc</i>		L/min (USgpm)	bar (psi)	
1CEBL153F4W35P		150 (40)	350 (5000)	F-680

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

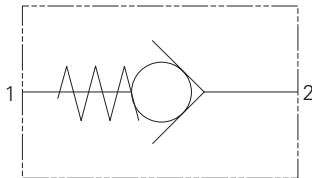
Check Valves

Valve Locator

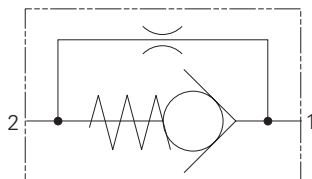
Functional Symbol



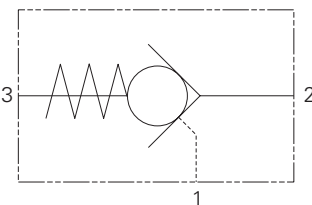
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Check valve, direct</i>				
		L/min (USgpm)	bar (psi)	
FPR1/4	Inline	12 (3)	350 (5000)	G-100
FPR3/8	Inline	30 (8)	350 (5000)	G-100
FPR1/2	Inline	45 (12)	320 (4570)	G-100
FPR3/4	Inline	85 (22)	300 (4300)	G-100
FPR1	Inline	140 (37)	250 (3600)	G-100
FPR11/4	Inline	220 (58)	250 (3600)	G-100
FPR11/2	Inline	310 (82)	210 (3000)	G-100
3CA20	A879	40 (10)	350 (5000)	G-110
CV3-4	C-4-2	7.6 (2)	350 (5000)	G-120
CV3-8	C-8-2	30 (8)	350 (5000)	G-130
CV3-10	C-10-2	76 (20)	210 (3000)	G-140
CV13-10	C-10-2	76 (20)	350 (5000)	G-140
CV11-12	C-12-2 (u)	114 (30)	350 (5000)	G-160
CV1-16	C-16-2	151 (40)	210 (3000)	G-170
CV11-16	C-16-2	151 (40)	350 (5000)	G-170
CV2-20	C-20-2	227 (60)	210 (3000)	G-180
3CA300	C-20-2	300 (80)	350 (5000)	G-190



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Check valve, direct</i>				
		L/min (USgpm)	bar (psi)	
CV16-10	C-10-2	76 (20)	350 (5000)	G-150



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Check valve, with bypass orifice</i>				
		L/min (USgpm)	bar (psi)	
CV6-10	C-10-2	76 (20)	350 (5000)	G-200
CV6-16	C-16-2	151 (40)	210 (3000)	G-210



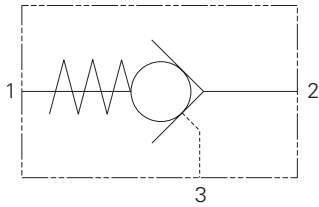
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Check valve, pilot-to-open</i>				
		L/min (USgpm)	bar (psi)	
SPC2-8	C-8-3	19 (5)	240 (3500)	G-220
SPC2-10	C-10-3	23 (6)	240 (3300)	G-230



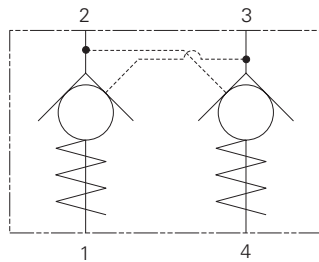
Check Valves (cont.)

Valve locator

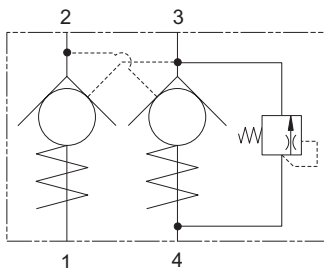
Functional Symbol



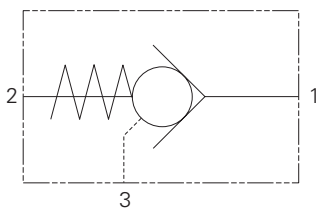
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Check valve, pilot-to-open</i>				
4CK30	A6610	30 (8)	350 (5000)	G-240
4CK90	A12336	90 (24)	350 (5000)	G-250
4CKD90	A12336	90 (24)	420 (6000)	G-260
4CK120	A877	120 (32)	350 (5000)	G-270
4CK300	A6935	300 (80)	350 (5000)	G-280
4SK30	A20090-T11A	30 (8)	350 (5000)	G-300
4SK90	A20092-T2A	90 (24)	350 (5000)	G-310
4SK140	A20094-T17A	140 (37)	350 (5000)	G-320
4KD25	Inline	25 (6)	700 (10000)	G-350



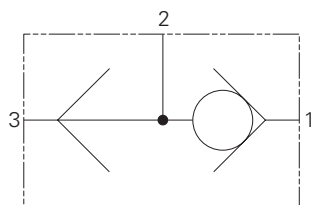
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Dual pilot checks</i>				
DPC2-8	C-8-4	19 (5)	240 (3500)	G-330



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Dual pilot checks with thermal relief</i>				
4CKKT50	A12744	25 (6.6)	300 (4350)	G-340



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Check valve, pilot-to-close</i>				
5CK30	A6610	30 (8)	350 (5000)	G-360
5CK120	A877	120 (32)	350 (5000)	G-370
5CK300	A6935	250 (65)	350 (5000)	G-380



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Shuttle</i>				
1SH10	A16927	20 (5)	350 (5000)	G-390
DSV1-10	C-10-3	23 (6)	210 (3000)	G-400
DSV2-4	C-4-3	3 (.75)	240 (3500)	G-410
DSV2-8	C-8-3	23 (6)	240 (3500)	G-420
DSV3-XX-B	Inline	170 (45)	350 (5000)	G-430

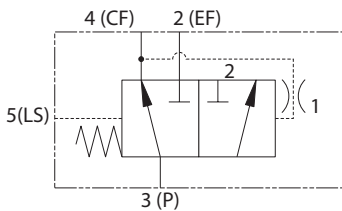
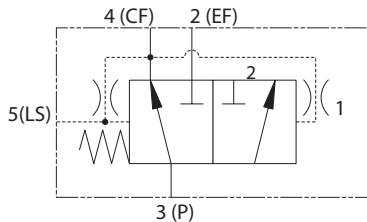
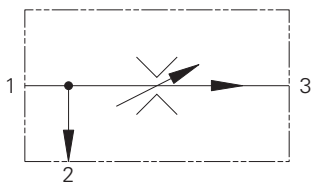
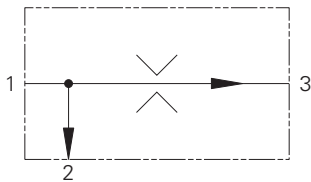
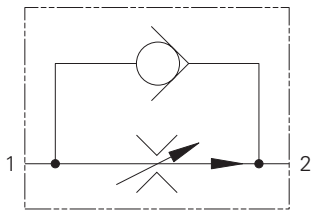
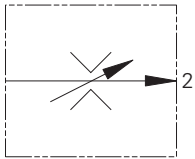
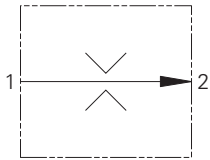
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Flow Controls

Valve locator



Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Flow regulator valve, fixed</i>				
		L/min (USgpm)	bar (psi)	
FR5-8	C-8-2	10 (25)	280 (4000)	H-100
FR5-10	C-10-2	23 (6)	280 (4000)	H-110
FR1-16	C-16-2	114 (30)	210 (3000)	H-120
FR1-20	C-20-2	227 (60)	210 (3000)	H-130

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Flow regulator valve, adjustable</i>				
		L/min (USgpm)	bar (psi)	
FR2-10	C-10-2	38 (10)	210 (3000)	H-140
FR2-16	C-16-2	114 (30)	210 (3000)	H-150

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Flow regulator with check</i>				
		L/min (USgpm)	bar (psi)	
2CFRC60	A7447	4-60 (1-16)	350 (5000)	H-160
FAR1-10	C-10-2	1-38 (0.25-10)	310 (4800)	H-170
FAR1-12	C-12-2(u)	1.5-95 (0.4-25)	310 (4500)	H-180
FAR1-16	C-16-2	3.8-114 (1-30)	310 (4500)	H-190

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Priority flow regulator, bypass, fixed</i>				
		L/min (USgpm)	bar (psi)	
PFR5-8	C-8-3	<10 (2.5)	280 (4000)	H-200
PFR5-10	C-10-3	<23 (6)	280 (4000)	H-210
PFR15-10	C-10-3	<38 (10)	350 (5000)	H-220
PFR11-12	C-12-3	<30 (8)	350 (5000)	H-230
PFR11-16	C-16-3	<114 (30)	350 (5000)	H-240

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Priority flow regulator, bypass, adjustable</i>				
		L/min (USgpm)	bar (psi)	
2CFP60	CVA-27-04-0	<60 (16)	350 (5000)	H-250
PFR12-10	C-10-3	<64 (17)	350 (5000)	H-254
PFR12-12	C-12-3	<45 (12)	350 (5000)	H-260
PFR2-16	C-16-3	<114 (30)	210 (3000)	H-270
PFR12-16	C-16-3	<114 (30)	350 (5000)	H-280

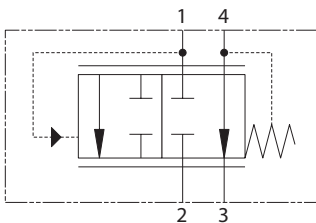
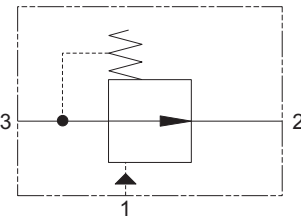
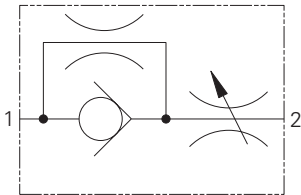
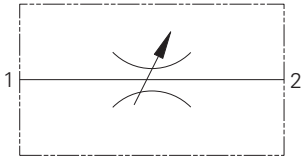
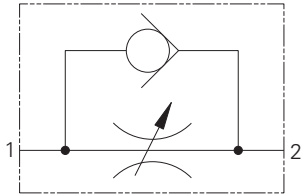
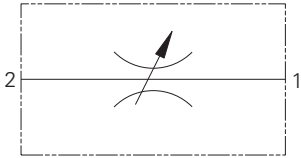
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Priority flow regulator</i>				
		L/min (USgpm)	bar (psi)	
PFRD/S-12	C-12-5S	76 (20)	280 (4000)	H-290
PFRD/S-16	C-16-5S	150 (40)	280 (4000)	H-300
PFRD/S-20	C-20-5S	230 (60)	240 (3500)	H-310



Flow Controls (cont.)

Valve locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Manual rotary flow restrictor</i>				
		L/min (USgpm)	bar (psi)	
MRV2-10	C-10-2	<56 (15)	210 (3000)	H-320
MRV2-16	C-16-2	<170.3 (45)	210 (3000)	H-330

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Needle Valve</i>				
		L/min (USgpm)	bar (psi)	
2CR80	A7447	<80 (20)	350 (5000)	H-340

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Needle valve</i>				
		L/min (USgpm)	bar (psi)	
NV1-8	C-8-2	<45 (12)	280 (4000)	H-342
NV1-10	C-10-2	<45 (12)	210 (3000)	H-350
FCV7-10	C-10-2	<45 (12)	210 (3000)	H-380
FCV11-12	C-12-2 (u)	<114 (30)	350 (5000)	H-390
FCV6-16	C-16-2	<208 (55)	210 (3000)	H-400

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Needle valve</i>				
		L/min (USgpm)	bar (psi)	
NV1-16	C-16-2	<151 (40)	210 (3000)	H-360
NV1-20	C-20-2	<265 (70)	210 (3000)	H-370

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pressure compensator, restrictive</i>				
		L/min (USgpm)	bar (psi)	
PCS3-10	C-10-3	<38 (10)	210 (3000)	H-410
PCS13-10	C-10-3	<38 (10)	350 (5000)	H-420
PCS3-12	C-12-3	<58 (15)	240 (3500)	H-430
PCS13-12	C-12-3	<58 (15)	350 (5000)	H-440
PCS3-16	C-16-3	<114 (30)	210 (3000)	H-450
PCS13-16	C-16-3	<114 (30)	350 (5000)	H-460
PCS3-20	C-20-3	<189 (50)	210 (3000)	H-470

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Pressure compensator bypass/priority</i>				
		L/min (USgpm)	bar (psi)	
PCS4-10	C-10-4	<38 (10)	210 (3000)	H-480
PCS14-10	C-10-4	<38 (10)	350 (5000)	H-490
PCS4-12	C-12-4	<58 (15)	240 (3500)	H-500
PCS14-12	C-12-4	<58 (15)	350 (5000)	H-510
PCS4-16	C-16-4	<114 (30)	210 (3000)	H-520
PCS14-16	C-16-4	<114 (30)	350 (5000)	H-530
PCS4-20	C-20-4	<189 (50)	210 (3000)	H-540

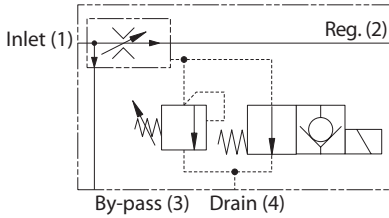
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Flow Controls (cont.)

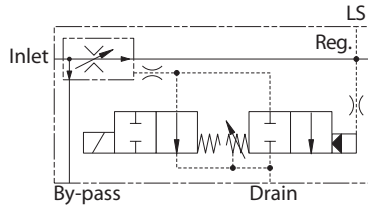
Valve locator



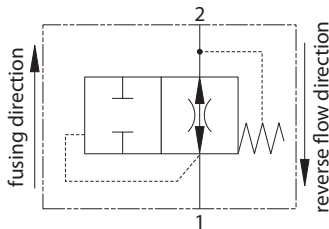
Functional Symbol



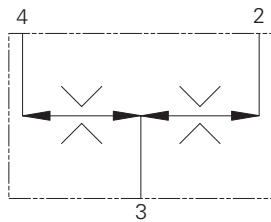
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
2FPH55		<55 (14)	280 (4000)	H-550
2FPH95		<95 (25)	350 (5000)	H-550
2FPH195		<160 (42)	350 (5000)	H-550



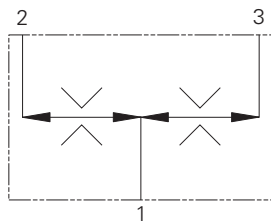
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
2FPH250		<200 (52)	350 (5000)	H-560
2FPH350		<350 (92)	350 (5000)	H-560



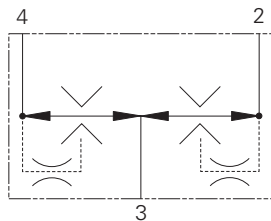
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
VF1-10	C-10-2	23 (6)	210 (3000)	H-570
VF11-10	C-10-2	23 (6)	350 (5000)	H-570
VF1-16	C-16-2	114 (30)	210 (3000)	H-580



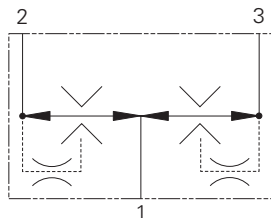
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
FDC1-16	C-16-4	<178 (47)	210 (3000)	H-590
FDC11-16	C-16-4	<140 (37)	350 (5000)	H-600
2CFD50	A12744	<40 (10.5)	350 (5000)	H-610
2CFD200	CVB-42-04-0	<220 (58)	280 (4000)	H-620



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
FDC1-20	Inline	<141 (37)	210 (3000)	H-630



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
FDC3-16	C-16-4	<152 (40)	210 (3000)	H-640



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
FDC3-20	Inline	<570 (150)	210 (3000)	H-650



Logic Elements

Valve locator

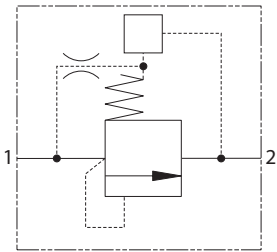
Functional Symbol

Various

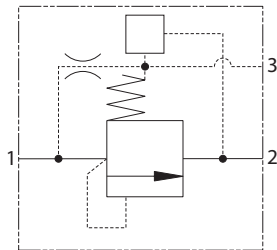
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Logic element spool</i>		L/min (USgpm)	bar (psi)	
DPS2-10	C-10-3S	60 (15)	290 (4200)	I-100
DPS2-12	C-12-3S	114 (30)	350 (5000)	I-110
DPS2-16	C-16-3S	189 (50)	290 (4200)	I-120
DPS2-20	C-20-3S	303 (80)	290 (4200)	I-130

Various

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Logic element poppet</i>		L/min (USgpm)	bar (psi)	
DPS2-10	C-10-3S	60 (15)	350 (5000)	I-100
DPS2-12	C-12-3S	114 (30)	350 (5000)	I-110
DPS2-16	C-16-3S	189 (50)	350 (5000)	I-120
DPS2-20	C-20-3S	303 (80)	350 (5000)	I-130



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Logic element</i>		L/min (USgpm)	bar (psi)	
LE402	C-20-2	350 (95)	350 (5000)	I-150



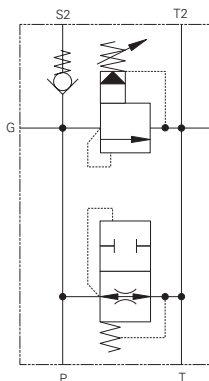
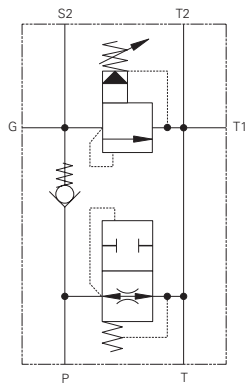
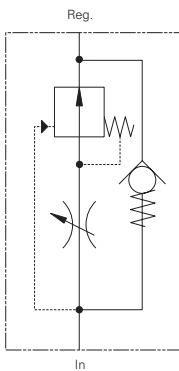
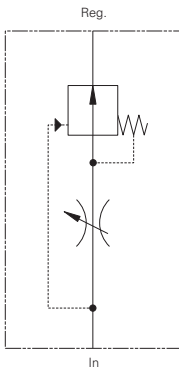
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Logic element</i>		L/min (USgpm)	bar (psi)	
LEV402	A21773	400 (100)	250 (3500)	I-160

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Circuit Maker Solutions

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Flow control, full range adjustable</i>				
FC-1	Inline	36 (9)	210 (3000)	K-100
FC-2	Inline	57 (15)	210 (3000)	K-110
FC-3	Inline	114 (30)	210 (3000)	K-120
FC-4	Inline	190 (50)	210 (3000)	K-130

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Flow control, full range adjustable</i>				
FRC-1	Inline	36 (9)	210 (3000)	K-140
FRC-2	Inline	57 (15)	210 (3000)	K-150
FRC-3	Inline	114 (30)	210 (3000)	K-160
FRC-4	Inline	190 (50)	210 (3000)	K-170

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pump control, single pump circulation</i>				
PCC1-12	Inline	114 (30)	210 (3000)	K-180
PCC1-16	Inline	228 (60)	210 (3000)	K-190

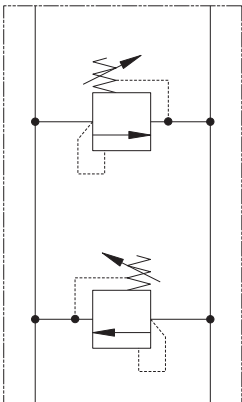
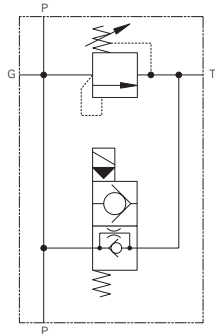
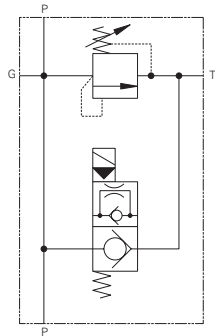
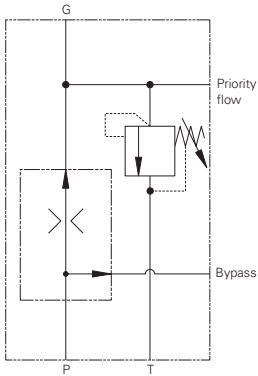
Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pump control, single pump circulation</i>				
PCC2-12	Inline	114 (30)	5-210 (3000)	K-200
PCC2-16	Inline	228 (60)	10-210 (3000)	K-210



Circuit Maker Solutions

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Flow control, relief on priority flow</i>				
		L/min (USgpm)	bar (psi)	
PFRR-8	Inline	15 (4)	7-210 (3000)	K-220
PFRR-10	Inline	57 (15)	7-210 (3000)	K-230
PFRR-16	Inline	152 (40)	7-210 (3000)	K-240

Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, solenoid actuated</i>				
		L/min (USgpm)	bar (psi)	
SRV-8	Inline	23 (6)	210 (3000)	K-250
SRV-10	Inline	57 (15)	210 (3000)	K-260
SRV-12	Inline	114 (30)	210 (3000)	K-270
SRV-16	Inline	225 (60)	210 (3000)	K-280
SRV-20	Inline	300 (80)	210 (3000)	K-290

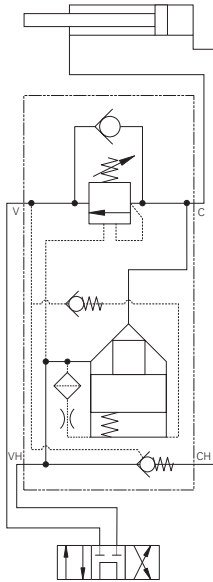
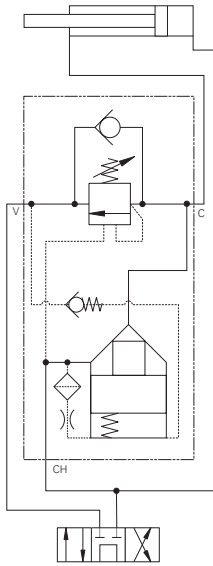
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Cross port relief</i>				
		L/min (USgpm)	bar (psi)	
CRV-10	Inline	76 (20)	210 (3000)	K-300
CRV-16	Inline	303 (80)	172 (2500)	K-310

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Circuit Maker Solutions

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Regenerative valve, pressure</i>		L/min (USgpm)	bar (psi)	
RGV-10	Inline	57 (15)	210 (3000)	K-320
RGV-12	Inline	114 (30)	210 (3000)	K-330

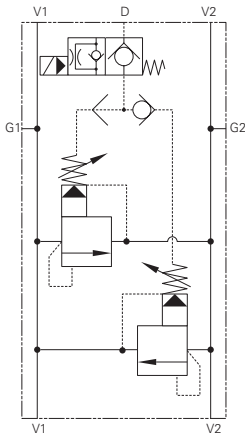
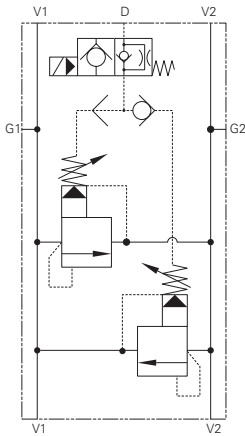
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Regenerative valve, pressure</i>		L/min (USgpm)	bar (psi)	
RLV-10	Inline	57 (15)	210 (3000)	K-340
RLV-12	Inline	114 (30)	210 (3000)	K-350



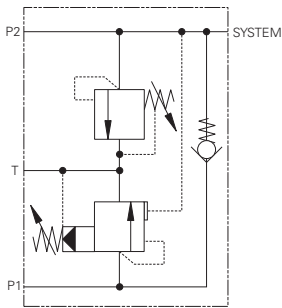
Circuit Maker Solutions

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Relief valve, cross port solenoid</i>		L/min (USgpm)	bar (psi)	
SCR-1		114 (30)	210 (3000)	K-360



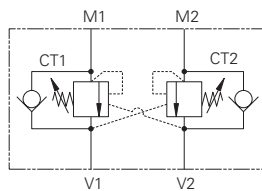
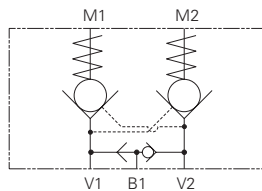
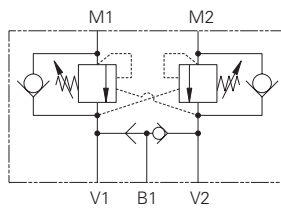
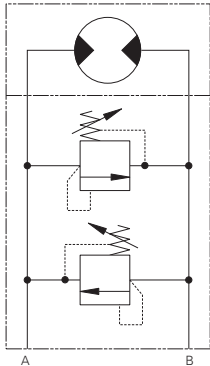
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Unloading valve</i>		L/min (USgpm)	bar (psi)	
1UL255		200 (52)	350 (5000)	K-380

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

Circuit Maker Solutions

Valve Locator

Functional Symbol



Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Motor mounted relief</i>				
H & T Motors		76 (20)	210 (3000)	K-390
2000 Motors		76 (20)	210 (3000)	K-400
OMP		150 (60)	350 (5000)	K-450
OMS		150 (60)	350 (5000)	K-460

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Motor mounted OCV with brake shuttle</i>				
H & T Motors		60 (15)	210 (3000)	K-410
2000 Motors		60 (15)	210 (3000)	K-420
OMP		30 (8)	270 (4000)	K-490
OMS		90 (23)	270 (4000)	K-500

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Motor mounted P.O. check with brake shuttle</i>				
H & T Motors		60 (15)	210 (3000)	K-430
2000 Motors		60 (15)	210 (3000)	K-440

Model	Cavity	Flow Rating	Typical Pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Motor mounted OCV</i>				
OMP		30 (8)	270 (4000)	K-470
OMS		90 (23)	270 (4000)	K-480



Pressure Control Functions

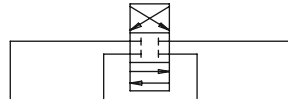
Sandwich Valves Locator

ISO 4401-03/CETOP

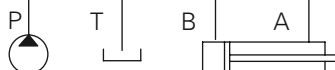
03 series



CAUTION: Sandwich valve flow ratings are limited by the ratings of individual cartridges. Consult cartridge valve literature.



Function	Functional Symbol	Model Code	Housing Kit	
Relief valve P-T		RV1 10 * * A321P **/**** 00	Model Part No.	A321P 02 185342
Relief valve A-T		RV1 10 * * A321A **/**** 00	Model Part No.	A321A 02-185340
Relief valve B-T		RV1 10 * * A321B **/**** 00	Model Part No.	A321B 02-185341
Proportional Relief valve P-T		ERV1 10 * *** A321P *** * 00	Model Part No.	A321P 02-185342
Proportional Relief valve A-T		ERV1 10 * *** A321A *** * 00	Model Part No.	A321A 02-185340
Proportional Relief valve B-T		ERV1 10 * *** A321B *** * 00	Model Part No.	A321B 02-185341
Relief valve P-T		RV5 10 * * A321P **/**** 00	Model Part No.	A321P 02-185342
Relief valve A-T		RV5 10 * * A321A **/**** 00	Model Part No.	A321A 02-185340
Relief valve B-T		RV5 10 * * A321B **/**** 00	Model Part No.	A321B 02-185341



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