

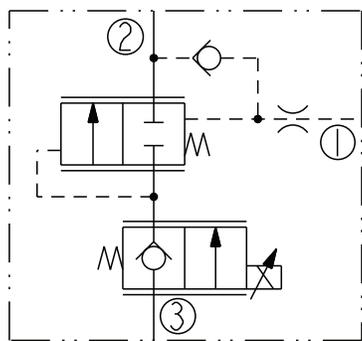


## Multi-Function HSPECxx-30 Cartridge Valves Provide Post-Compensated “Flow Sharing” at High Pressures

For high pressure hydraulic applications where flow-sharing is needed, the HSPECxx-30 family of hydraulic cartridge valves can provide a unique advantage. Flow sharing is desirable whenever a machine needs to operate multiple work functions simultaneously.

Traditionally, flow sharing circuits are achieved using spool-type directional control valves. However, a traditional spool valve constrains you to fixed meter-in/meter-out characteristics while the use of multiple cartridge valves does not. This allows you to make a machine more productive and efficient by providing separate and independent meter-in/meter-out performance. The result is less wasted energy in the form of pressure drop and improved metering and flow control.

Cartridge valve-based directional control circuits are a superior alternative for controlling the motion of a hydraulic cylinder or motor. Although cartridge valves are installed in a centralized manifold, each valve can be fine-tuned independently, making it possible to optimize the meter-in/



ISO symbols depict the multiple functions of HSPECxx-30 cartridge valves.



	HSPEC16-30	HSPEC12-30A	HSPEC10-30A
<b>FLOW RATING</b>	132 lpm/35 gpm	70 lpm/18.5 gpm	35 lpm/9 gpm
<b>PRESSURE RATING</b>	350 bar (5075 psi); 10% cycle life; 420 bar (6090 psi)		

meter-out performance of one function without adversely affecting the other functions in the circuit. This offers unparalleled flexibility, as cartridge valves can be sized, tuned, and adjusted to match individual flow requirements in a single package.

They are also easy and cost-effective to service, since it is possible to replace a single cartridge valve without affecting the others in the system. Whereas, with a sectional type directional control valve you would be required to remove and completely disassemble the valve stack to service a single work function.

For detailed information and specifications, visit [www.hydraforce.com](http://www.hydraforce.com) or contact your local HydraForce representative at [www.hydraforce.com/distribs/world.htm](http://www.hydraforce.com/distribs/world.htm)

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## Features/Benefits

The HSPECxx-30 proportional flow control valve is a high pressure, 3-way, normally closed, solenoid-operated cartridge valve designed for post-compensated applications with load-sense systems.

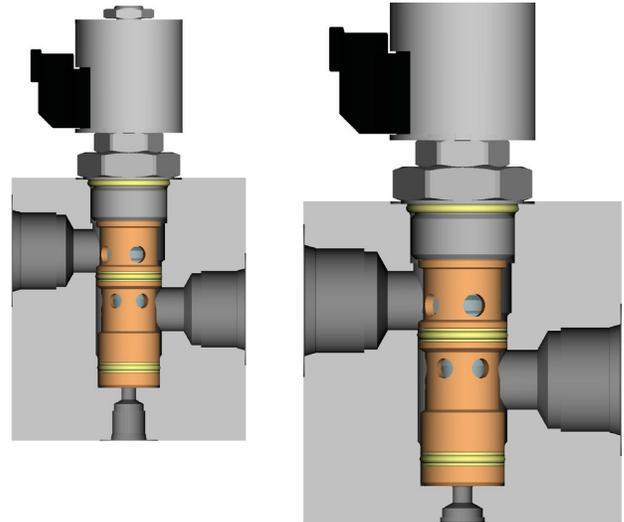
When de-energized, the HSPECxx-30 valve blocks flow from port 3 to port 2. It will regulate flow out of port 2 regardless of load pressure, with the flow rate proportional to the current applied to the solenoid. When used in post-compensated systems, the load-sense port 1 should be connected to the highest load to maintain flow sharing when flow demand exceeds flow supply.

### Flow Sharing

Flow-sharing is one of the HSPECxx-30 valve's most useful features. Control systems with post-compensated flow sharing are easier to operate because they help the operator put the most flow where it's needed automatically. This helps a less experienced machine operator handle the control functions more smoothly.

### Space Savings

Space savings is another great advantage offered by the multi-function HSPECxx-30 valve.



**A single HSPECxx-30 valve (left) provides the same functions as three cartridge valves and a flow regulator (shown at right) in a smaller "footprint".**

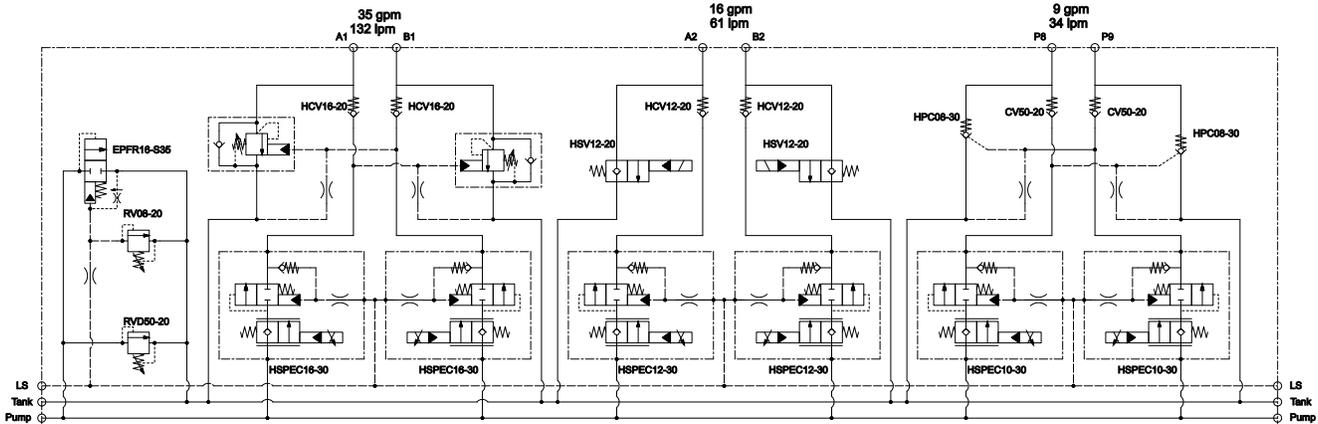
A single HSPECxx-30 valve can provide the same functions as three cartridge valves and a flow regulator, in less space and in a smaller manifold with a smaller "hydraulic footprint." This translates to savings in multiple areas - reduced size and weight for the machine, lower fuel cost, greater efficiency, parts consolidation, and more.

### For More Information

If you have questions about the new HSPECxx-30 cartridge valves, contact your HydraForce Regional Sales Manager, or visit [www.Hydraforce.com](http://www.Hydraforce.com).

Features	Benefits
Built in post-compensator.	Eliminates need for separate compensator valve.
The post-compensator allows flow sharing.	Flow sharing allows the hydraulic flow to be allocated appropriately to all functions.
Multi-function.	Reduced manifold space claim and improved circuit efficiencies.
Waterproof E-coils rated up to IP69K are standard.	Can be specified in wet, humid, and outdoor applications.
Several flow ratings from 35 to 132 lpm (9 to 35 gpm)	Well-suited for a range of applications.
Operating pressure to 5075 psi/350 bar continuous duty; 420 bar (6090 psi) 10% cycle life	Can be specified for high-pressure, horsepower-efficient applications.
Tested to 1 million cycles at full rated flow and pressure.	Long life; no worries about wear or decreased performance over time.
Designed, inspected and tested to HydraForce Quality standards with 5-year warranty. (See full warranty statement in the catalog.)	Guaranteed use for five years or longer.

## Application Ideas for HSPECxx-30 Multi-Function Valves



**Bridge Circuit (above) using HSPECxx-30 cartridge valves "bridges" any gaps in hydraulic flow with flow sharing.**

The ideal application for the HSPECxx-30 cartridge valves is the "bridge circuit" (shown above). Bridge circuits provide superior motion control performance by having flow control meter-in coupled with pressure control meter-out. The first function is controlled by two HSPEC16-30 paired with two counterbalance valves to provide precise meter-in/meter out control.

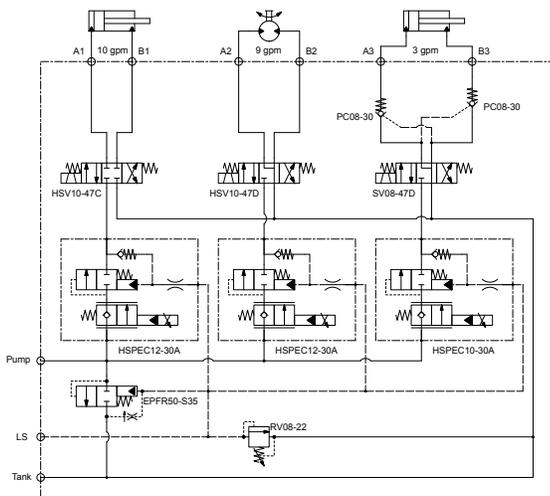
The second function is controlled by two HSPEC12-30A paired with two high pressure solenoid valves to provide meter-in only control with load holding solenoid valves. The third function is controlled by two HSPEC10-30A paired with two high pressure pilot-operated check valves to provide meter-in only control and load holding.

HSPECxx-30 cartridge valves can also be combined with four-way solenoid valves to control a motor or cylinder. This control scheme provides pressure-compensated flow control, precise metering characteristics and is easy to service.

The first function shows cylinder control with the HSPEC12-30A paired with a high pressure HSV10-47C four-way solenoid valve to achieve a common meter-in directional control function.

The second function shows the HSPEC12-30A paired with the high pressure HSV10-47 four-way solenoid valve to achieve meter-in control of a bi-directional motor.

The third function shows the HSPEC10-30A coupled with the SV08-47D and a pair of PC08-30 pilot-operated check valves to achieve a cost effective, meter-in control with load holding capabilities.



**HSPECxx-30 valves paired with solenoid valves provide cylinder and motor control.**

*HSPECxx-30 cartridge valves provide superior directional control for cylinder or motor applications where flow-sharing is needed.*

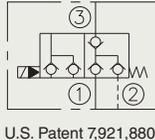
# More Multi-Function Valves from HydraForce

## SVCL - Solenoid Valve w/ Integral Load-Holding and Optional Load-Sense Check

### N.C. Poppet

#### SVCL10-30

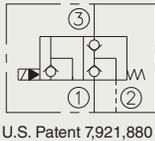
Flow:  
57 lpm/15 gpm  
Pressure:  
250 bar/3625 psi



U.S. Patent 7,921,880

#### SVCL10-32

Flow:  
57 lpm/15 gpm  
Pressure:  
250 bar/3625 psi



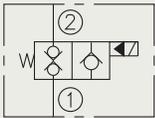
U.S. Patent 7,921,880

## SVCV - Solenoid Valve with Load-Holding and Reverse Flow Check

### N.C. Blocking/Poppet

#### SVCV08-20

Flow:  
22.7 lpm/6 gpm  
Pressure:  
207 bar/3000 psi



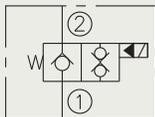
#### SVCV12-20

Flow: 113.6 lpm/30 gpm  
Pressure: 240 bar/3500 psi

### N.O. Blocking/Poppet

#### SVCV08-21

Flow: 22.7 lpm/6 gpm  
Pressure:  
207 bar/3000 psi

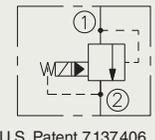


## SVRV - Solenoid Valve with Integral Pressure Relief

### N.O. Spool, 2-Way

#### SVRV10-26

Flow: 83.3 lpm/22 gpm  
Pressure:  
297 bar/4300 psi



U.S. Patent 7,137,406

#### SVRV12-26F

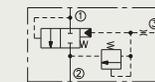
Flow: 189 lpm/50 gpm  
Pressure: 297 bar/4300 psi

## ECR - Piloted Logic Element w/Integral Pressure Relief

### Spool, Blocking

#### ECR16-S35

Flow: 189.3 lpm/50 gpm  
Pressure: 241 bar/3500 psi

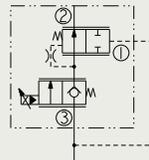


## HSPEC - HyPerformance™ Proportional Flow Control Valve with Integral Post-Compensator and Optional Load-Sense Check

### N.C. Poppet, 3-Way, Flow Control, Sealed Pilot

#### HSPEC10-34

Flow: 36 lpm/9.5 gpm  
Pressure:  
350 bar/5075 psi



#### HSPEC12-34

Flow: 60.5 lpm/16 gpm  
Pressure: 350 bar/5075 psi

#### HSPEC16-34

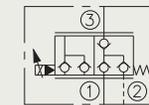
Flow: 98 lpm/26 gpm  
Pressure: 350 bar/5075 psi

## SPCL - Proportional Valve w/Integral Load-Holding and Optional Load-Sense Check

### N.C. Poppet, 3-Way Proportional Directional Control with Check-Isolated Load-Sense

#### SPCL10-30

Flow: 57 lpm/15 gpm  
Pressure: 250 bar/3625 psi



U.S. Patent 7,921,880

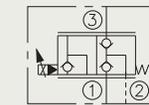
#### SPCL16-30

Flow: 152 lpm/40 gpm  
Pressure: 250 bar/3625 psi

### N.C. Poppet, 3-Way Proportional Directional Control with Non-Isolated Load-Sense

#### SPCL10-32

Flow: 57 lpm/15 gpm  
Pressure: 250 bar/3625 psi



U.S. Patent 7,921,880

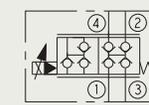
#### SPCL16-32

Flow: 152 lpm/40 gpm  
Pressure: 250 bar/3625 psi

### N.C. Poppet, 4-Way Proportional Directional Control with Non-Isolated Load-Sense

#### SPCL16-40

Flow: 152 lpm/40 gpm  
Pressure: 250 bar/3625 psi



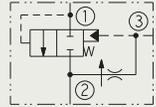
U.S. Patent 7,921,880

## EPFR - Logic Element with Integral Flow Regulator

### Spool, Spring-Biased Bypass-Type Directional Control

#### EPFR16-S35

Flow: 189.3 lpm/50 gpm  
Pressure: 241 bar/3500 psi



#### EPFR20-S35

Flow: 303 lpm/80 gpm  
Pressure: 320 bar/4600 psi

#### EPFR50-S35

Flow: 76 lpm/20 gpm  
Pressure: 345 bar/5000 psi

#### EPFR52-S35

Flow: 151 lpm/40 gpm  
Pressure: 345 bar/5000 psi

#### EPFR58-S35

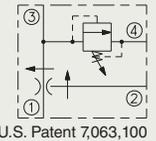
Flow: 38 lpm/10 gpm  
Pressure: 345 bar/5000 psi

## FRRV - Flow Control Valve w/Adjustable Pressure Relief

### Fixed-Compensated, Priority Type

#### FRRV10-41

Flow: 19 lpm/5 gpm  
Pressure:  
207 bar/3000 psi



U.S. Patent 7,063,100

#### FRRV12-41F

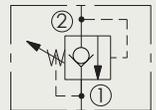
Flow: 45.4 lpm/12 gpm  
Pressure: 207 bar/3000 psi

## RVCV - Direct-Acting, Anti-Cavitation, Pressure Relief

### Poppet, Direct-Acting, with Built-In Reverse Flow Check

#### RVCV10-22H

Flow: 68.1 lpm/18 gpm at 275.8 bar (4000 psi)  
Pressure: 275.8 bar/4000 psi  
Anti-Cavitation Crack Pressure  
Port 1 to 2: 0.21 to 0.58 bar/3 to 8.5 psi



### Poppet, Direct-Acting, with Built-In Reverse Flow Check

#### RVCV56-20

Flow: 113.6 lpm/30 gpm Port 1 to 2;  
174 lpm/46 gpm Port 2 to 1  
Pressure: 420 bar/6100 psi  
Anti-Cavitation Crack Pressure  
Port 1 to 2: 0.34 ± 0.07 bar (5 ± 1.0 psi)

