

# HYPERFORMANCE™

HIGH PRESSURE VALVES



**HYDRAFORCE**

POWER FORWARD

[www.hydraforce.com](http://www.hydraforce.com)

# HYPERFORMANCE

**H-Series High Pressure Valves up to 350 bar / 5075 psi**

HydraForce, a global leader focused on development of hydraulic cartridge valve technology, has expanded and enhanced its line of *HyPerformance*<sup>™</sup> valves to include multi-function high pressure valves. These new multi-function valves are designed to reduce the “hydraulic footprint” — the amount of space used on a machine for hydraulics - while increasing system functionality.

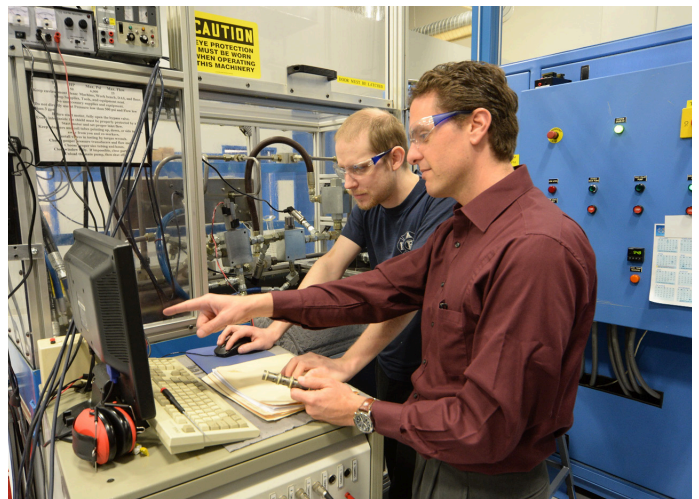
HydraForce valves offer the industry’s highest level of valve performance, enabling the most reliable application of cartridge technology in high duty cycle, high horsepower and high pressure equipment applications.

## What the H in *HyPerformance*<sup>™</sup> Means

The new *HyPerformance*<sup>™</sup> valves supplement the high pressure standard valves currently released in the HydraForce catalog.

The H prefix in the valve model code indicates compliance with *HyPerformance*<sup>™</sup> standards:

- All *HyPerformance* products are tested to the rigorous NFPA/T2.6.1 standard testing method.
- All *HyPerformance* products are rated for 350 bar (5,075 psi) operating pressure.
- All *HyPerformance* products are 1000-hour salt-spray-rated in accordance with American Society for Testing and Materials (ASTM) standard B117.



*HyPerformance* valves must pass additional performance testing to earn their name and the "H" prefix designation on the model code.

## FEATURES:

- 350 bar (5075 psi) continuous operating pressure
- 420 bar (6090 psi) intermittent 10% duty cycle
- Fatigue-tested to 420 bar (6090 psi) for 2 million cycles
- Flows up to 379 lpm (100 gpm)
- 1000-hour salt-spray-tested
- IP69K-rated solenoid coils
- Single-piece, high endurance PPD1 urethane seals rated to 107°C (225°F)
- Vibration tested (3-axis) to 20 G (rms)
- Combined load-sense and relief valve functions

## BENEFITS:

High installation torque improves reliability under heavy duty cycle conditions.

Single-piece urethane seals eliminate back-up rings and improve ease of installation. Optional fluorocarbon seals with back-up rings are available but will change valve life cycle.

Modified H-series cavity, with bottom shoulder, enhances strength and prevents twisting or binding during installation, assuring accurate and consistent performance.

All *HyPerformance* products are tested to 900,000 cycles in accordance with the rigorous NFPA T 2.6.1 standard for verifying rated fatigue and burst pressure.



# HYPERFORMANCE

## H-Series High Pressure Valves up to 350 bar / 5075 psi

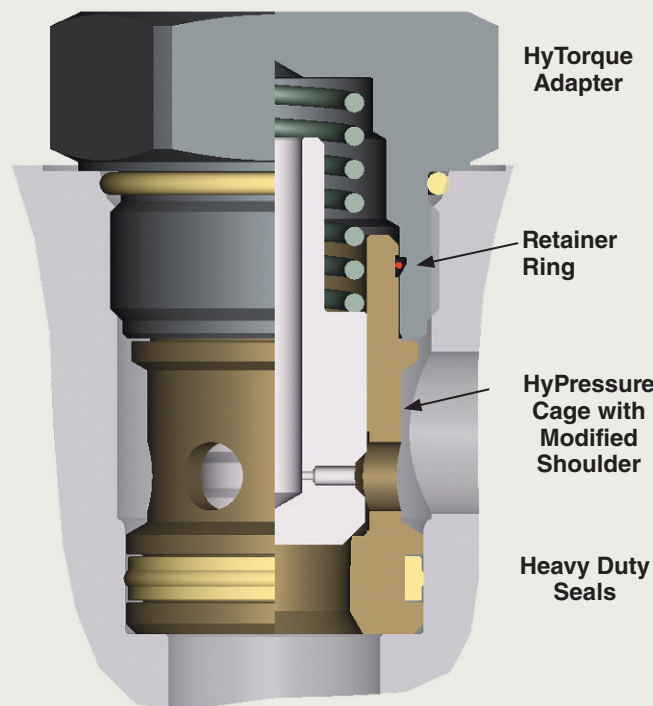
### **HYPRESSURE** Reliability

- Qualified for continuous operating pressure of 350 bar (5075 psi) for 1 million cycles with excursions to 420 bar (6090 psi) for 10% of the duty cycle
- Burst-pressure-tested up to 1379 bar (20,000 psi)
- Fatigue-tested to 420 bar (6090 psi) for 2 million cycles with urethane seals

### **H-SERIES** Cavity

- HyPerformance valves fit in a modified standard cavity, called the H-series cavity, with a bottom shoulder to support the cage.
- HyPerformance valves feature an enhanced design that strengthens the pressure holding capability of the cartridge.
- The profile of the H-series cavity is the same as the standard cavity with the exception of the bottom shoulder. A revised form tool is required in order to control the shoulder depth.

### **HYPERFORMANCE** Construction



Please consult the individual valve catalog pages for details on torque and cavity interchangeability.

### **HYFLOW – HYHORSEPOWER**

- HyPerformance valves have been released as a family of products ranging from -08 cavity size to metric -42 cavity, with flow ratings up to 379 lpm (100 gpm)

### **HYSTRENGTH** Sealing

- High strength, high temperature-rated PPDI urethane seals provide reliability under heavy duty cycle operation. Back-up rings are eliminated for streamlined and reliable installation.
- HyPerformance valve performance is qualified with urethane seals. Other seals are available but may have different life cycle performance.

### **HYTORQUE** Installation

- Installation torques of 3 to 4 times higher than that of standard screw-in cartridges prevents back-out under heavy cyclic high pressure operation.
- The valve cage is retained in, but not fixed, to the adapter in order to prevent distortion or binding during installation.

### **HYVIBRATION** Tolerance

- Valve coils and stem tubes are tested to a 20 G (rms) 3-axis profile, assuring reliability in severe mobile machinery applications.

### **HY-COIL** Integrity

- HydraForce coils are designed for continuous operation at +/-15% of rated voltage assuring reliable and safe operation under cold temperature, weak battery, and continuous duty conditions.
- IP69K-rated E-Coils are tested for severe application conditions including thermal shock, water immersion, vibration, dust, high-pressure cleaning, severe load cycling, extreme storage temperatures, chemical resistance and humidity.
- HyPerformance valves and E-Coils have a 1000-hour salt-spray protective coating that guards against red rust corrosion.

# HYPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

High pressure **HyPerformance** valves are available in the following categories:

**Solenoid Valves** - See page 4

**Electro-Proportional Valves** - See page 5

**Check and Directional Valves** - See page 6-7

**Proportional Directional Valves** - See page 7

**Logic Elements** - See page 8

**Flow Controls/Pressure Compensators** - See page 9

**Flow Controls/Dividers/Combiners** - See page 9

**Pressure Controls** - See page 10

**Sequence Valves** - See page 10

**Thermal Relief** - See page 10



Engineers at the **HydraForce Innovation Center in Vernon Hills, IL** collaborate on new designs of high pressure valves.

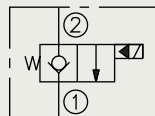
## High Pressure Solenoid Valves

**Poppet, 2-Way, N.C.**

Std. **SF08-20**  
27 lpm/7 gpm

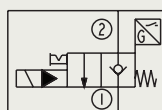
HyP **HSV10-20**  
76 lpm/20 gpm

HyP **HSV12-20**  
114 lpm/30 gpm



**Poppet, 2-Way, N.C.**

Std. **SV58-P20A**  
19 lpm/5 gpm

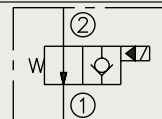


**Poppet, 2-Way, N.O.**

Std. **SF08-21**  
39 lpm/10 gpm

HyP **HSV10-21**  
76 lpm/20 gpm

HyP **HSV12-21**  
Coming soon



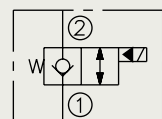
**Poppet, 2-Way, N.C. Bi-Directional**

Std. **SF08-22**  
23 lpm/6 gpm

Std. **SF20-22**  
303 lpm/80 gpm

HyP **HSV10-22**  
76 lpm/20 gpm

HyP **HSV12-22**  
114 lpm/30 gpm



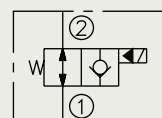
**Poppet, 2-Way, N.O. Bi-Directional**

Std. **SF08-23**  
30 lpm/8 gpm

Std. **SF20-23**  
303 lpm/80 gpm

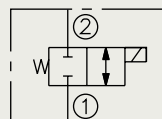
HyP **HSV10-23**  
76 lpm/20 gpm

HyP **HSV12-23**  
114 lpm/30 gpm



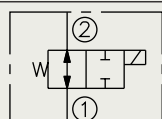
**Spool, N.C.**

HyP **HSV10-24**  
30 lpm/8 gpm



**Spool, N.O.**

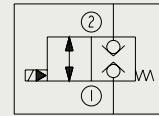
HyP **HSV10-25**  
34 lpm/9 gpm from 2-1  
26 lpm/7 lpm from 1-2



**Poppet, 2-Way, N.C. Blocking**

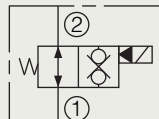
HyP **HSV10-28**  
76 lpm/20 gpm

HyP **HSV12-28**  
114 lpm/30 gpm



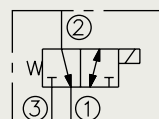
**Poppet, 2-Way, N.O. Blocking**

HyP **HSV10-29**  
76 lpm/20 gpm



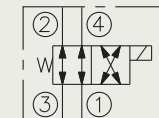
**Spool, 3-Way**

Std. **SV58-30**  
15 lpm/4 gpm

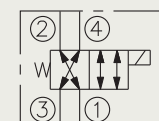


**Spool, 4-Way, N.O.**

Std. **SV58-40**  
11 lpm/3 gpm

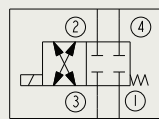


HyP **HSV10-40R**  
23 lpm/6 gpm



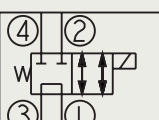
**Spool, 4-Way, N.C.**

Std. **SV58-41**  
17 lpm/4.5 gpm



**Spool, 4-Way, 2-Position**

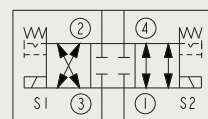
HyP **HSV10-44R**  
38 lpm/10 gpm



**Spool, 4-Way, 3-Position, Closed Center**

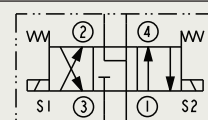
HyP **HSV10-47C**  
40 lpm/10 gpm

**HSV12-47C**  
57 lpm/15 gpm



**Spool, 4-Way, 3-Position, Motor Spool**

HyP **HSV10-47D**  
34 lpm/9 gpm



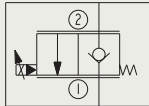
Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.

# HyPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Electro-Proportional Valves

**Poppet, Proportional  
2-Way, N.C. Blocking**



**HyP HSP10-20**

53 lpm/14 gpm with 11 bar/  
160 psi compensation  
34 lpm/9 gpm with 5.5 bar/  
80 psi compensation

**HyP HSP10-20A**

Linear metering version of  
HSP10-20

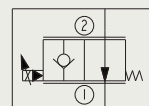
**HyP HSP12-20**

83 lpm/22 gpm with 11 bar/  
160 psi compensation

**HyP HSP16-20**

265 lpm/70 gpm

**Poppet, Proportional  
Directional, 2-Way, N.O.**



**HyP HSP10-21**

53 lpm/14 gpm  
with 11 bar/160 psi  
compensation  
34 lpm/9 gpm with  
5.5 bar/80 psi  
compensation

**HyP HSP10-21A**

Linear metering version  
of HSP10-21

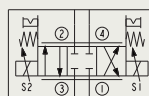
**HyP HSP12-21**

83 lpm/22 gpm  
with 11 bar/160 psi  
compensation

**HyP HSP16-21**

265 lpm/70 gpm

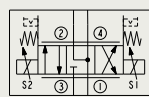
**Spool, Proportional  
4-Way, 3-Position,  
Closed Center**



**HyP HSP10-47C**

33 lpm/8 gpm

**Spool, Proportional,  
4-Way, 3-Position,  
Motor Spool**

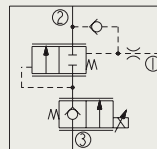


**HyP HSP10-47D**

35 lpm/9 gpm

### Multi-Function

**Proportional Flow  
Control, Integral  
Compensator, 3-Way  
Flow-Sharing**



**HyP HSPEC10-30A**

35 lpm/9 gpm

**HyP HSPEC12-30A**

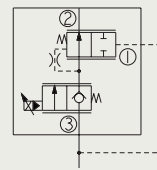
70 lpm/18.5 gpm

**HyP HSPEC16-30**

132 lpm/35 gpm

### Multi-Function

**Proportional Flow  
Control, Integral  
Compensator, 3-Way  
Load-Holding**



**HyP HSPEC10-34**

36 lpm/9.5 gpm

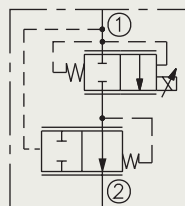
**HyP HSPEC12-34**

60.5 lpm/16 gpm

**HyP HSPEC16-34**

98 lpm/26 gpm

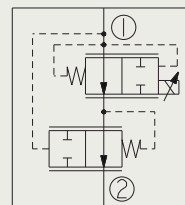
**Proportional  
Flow Control,  
Restrictive, N.C.**



**HyP HPV12-20**

68 lpm/18 gpm

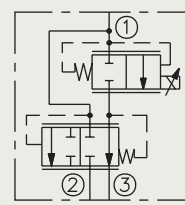
**Proportional  
Flow Control,  
Restrictive, N.O.**



**HyP HPV12-21**

61 lpm/16 gpm

**Proportional  
Flow Control,  
Bypass, N.C.**



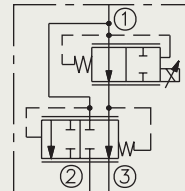
**HyP HPV12-30**

76 lpm/20 gpm

**HyP HPV16-30**

114 lpm/30 gpm

**Proportional  
Flow Control,  
Bypass, N.O.**



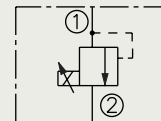
**HyP HPV12-31**

76 lpm/20 gpm

**HyP HPV16-31**

114 lpm/30 gpm

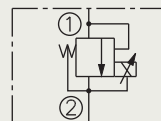
**Proportional  
Pressure Control,  
Relief, Increasing  
Pressure with  
Increasing Current**



**Std. TS58-20**

7.6 lpm/2 gpm

**Proportional  
Pressure Control,  
Relief, Decreasing  
Pressure with  
Increasing Current**



U.S. Patent 7,267,350

**Std. TS58-21F**

1.9 lpm/0.5 gpm

Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.



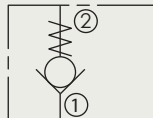
# HYPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Check & Directional Valves

### Check, Guided

Std. **CV06-B20**  
7.6 lpm/2 gpm



Std. **CV50-20**  
57 lpm/15 gpm

HyP **HCV06-20**  
19 lpm/5 gpm

HyP **HCV08-20**  
30 lpm/8 gpm

HyP **HCV10-20**  
76 lpm/20 gpm

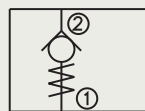
HyP **HCV12-20**  
95 lpm/25 gpm

HyP **HCV16-20**  
151 lpm/40 gpm

HyP **HCV42-M20**  
303 lpm/80 gpm

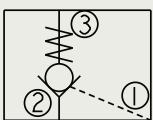
### Check, Guided, Reverse Flow Direction

HyP **CV06-B21**  
Up to 7.6 lpm/2 gpm



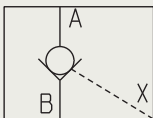
### Check, Pilot-to-Open

HyP **HPC08-30**  
30 lpm/8 gpm



### Check, Pilot-to-Open

HyP **HPCV10**  
76 lpm/20 gpm

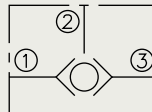


HyP **HPCV12**  
113 lpm/30 gpm

HyP **HPCV16**  
151 lpm/40 gpm

### Load Shuttle, Ball Type

Std. **LS50-30**  
30 lpm/8 gpm

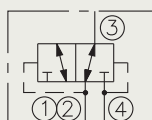


HyP **HLS06-30**  
7.6 lpm/2 gpm

HyP **HLS06-B30**  
7.6 lpm/2 gpm

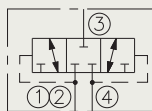
### Hot Oil Shuttle, Springless

Std. **HS50-42**  
38 lpm/10 gpm



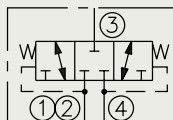
#### Transition:

Std. **HS52-42**  
132 lpm/35 gpm



### Hot Oil Shuttle, Spring Centered

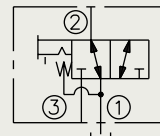
Std. **HS50-43**  
45 lpm/12 gpm



Std. **HS52-43**  
113 lpm/30 gpm

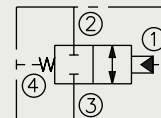
### Manual Shift Spring Return

Std. **MP58-30**  
25 lpm/6.5 gpm



### Spool, 2-Way, Directional, Pilot-Operated, Ported Vent

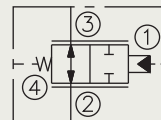
HyP **HPD16-M44**  
170 lpm/45 gpm



HyP **HPD42-M44**  
265 lpm/70 gpm

### Spool, 2-Way, Directional, Pilot-Operated, Ported Vent

Std. **PD42-M45**  
265 lpm/70 gpm

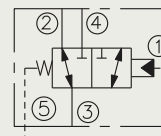


HyP **HPD16-M45**  
170 lpm/45 gpm

HyP **HPD42-M45**  
265 lpm/70 gpm

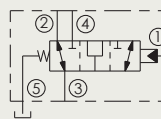
### Spool, 3-Way, Directional Pilot-Operated, Vented Spring

HyP **HPD16-S50**  
151 lpm/40 gpm



#### Transition:

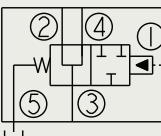
Std. **PD42-S50**  
265 lpm/70 gpm



HyP **HPD42-S50**  
265 lpm/70 gpm

### 3-Way Directional, Pilot-Operated

HyP **HPD16-S51**  
150 lpm/40 gpm

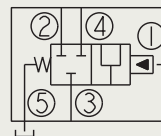


HyP **HPD42-S51**

265 lpm/70 gpm with seal options N, S, and V  
246 lpm/65 gpm with seal options NS, VS, and US

### 3-Way Directional Pilot-Operated

HyP **HPD16-S52**  
151 lpm/40 gpm



HyP **HPD42-S52**  
265 lpm/70 gpm

Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.

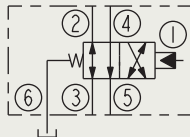
# HYPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Check & Directional Valves (cont'd.)

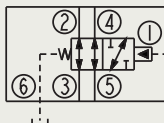
Spool, 4-Way, Directional, Pilot-Operated

HyP HPD42-S60  
189 lpm/50 gpm



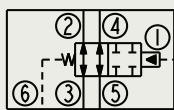
Spool, 4-Way, Directional, Pilot-Operated

HyP HPD42-S61  
189 lpm/50 gpm



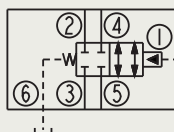
Spool, 4-Way Directional, Pilot-Operated, Vented Spring

HyP HPD42-S62  
189 lpm/50 gpm



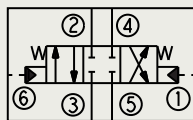
Spool, 4-Way Directional, Pilot-Operated, Vented Spring

HyP HPD42-S63  
189 lpm/50 gpm



Spool, 4-Way, 3-Position, Pilot-Operated, Normally Closed

HyP HPD12-S67C  
57 lpm/15 gpm

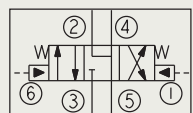


HyP HPD16-S67C  
95 lpm/25 gpm

HyP HPD42-S67C  
189 lpm/50 gpm

Spool, 4-Way, 3-Position, Pilot-Operated, Normally Closed

HyP HPD12-S67D  
57 lpm/15 gpm



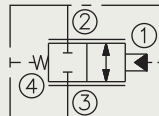
HyP HPD16-S67D  
95 lpm/25 gpm

HyP HPD42-S67D  
189 lpm/50 gpm

## High Pressure Proportional Directional Valves

Spool, 2-Way N.C. Pilot-Operated

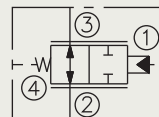
HyP HPE16-M44  
95 lpm/25 gpm



HyP HPE42-M44  
170 lpm/45 gpm

Spool, 2-Way N.O. Pilot-Operated

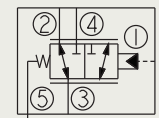
HyP HPE16-M45  
95 lpm/25 gpm



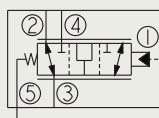
HyP HPE42-M45  
170 lpm/45 gpm

Spool, 3-Way N.O. Pilot-Operated

HyP HPE42-S50  
170 lpm/45 gpm

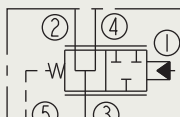


Transition:



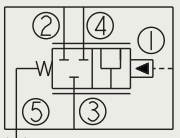
Spool, 3-Way, Pilot-Operated

HyP HPE42-S51  
170 lpm/45 gpm



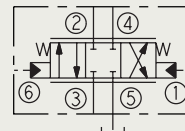
Spool, 3-Way, Piloted-Operated

HyP HPE42-S52  
170 lpm/45 gpm



4-Way 3-Position, Pilot-Operated, Normally Closed

HyP HPE16-S67C  
95 lpm/25 gpm

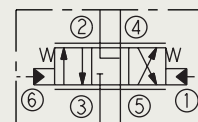


U.S. Patent 6,544,014

HyP HPE42-S67C  
170 lpm/45 gpm

Pilot-Operated Meter-in and Meter-Out

HyP HPE16-S67D  
95 lpm/25 gpm

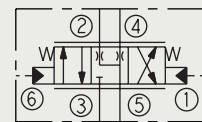


U.S. Patent 7,267,350

HyP HPE42-S67D  
170 lpm/45 gpm

3-Position Pilot-Operated, Restricted in Neutral

HyP HPE16-S67H  
95 lpm/25 gpm

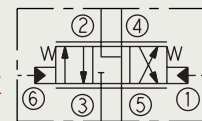


U.S. Patent 7,267,350

HyP HPE42-S67H  
170 lpm/45 gpm

Pilot-Operated Meter-In Only

HyP HPE16-S67K  
95 lpm/25 gpm



U.S. Patent 7,267,350

HyP HPE42-S67K  
170 lpm/45 gpm

Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.

# HyPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Logic Elements

### Vented Logic, Spool Type

Std. **EV10-S34**  
76 lpm/20 gpm

Std. **EV12-S34**  
151 lpm/40 gpm

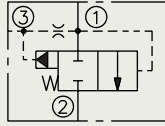
Std. **EV16-S34**  
189 lpm/50 gpm

HyP **HEV16-S34**  
190 lpm/50 gpm

Std. **EV20-S34**  
379 lpm/100 gpm

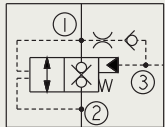
HyP **HEV42-S34**  
379 lpm/100 gpm

Std. **EV58-S34**  
38 lpm/10 gpm



### Vented Logic, Poppet Type

HyP **HEV12-S38**  
114 lpm/30 gpm



### Piloted Logic, Spool Type

Std. **EP08-35**  
38 lpm/10 gpm

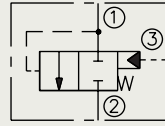
Std. **EP10-S35**  
76 lpm/20 gpm

Std. **EP12-S35**  
113 lpm/30 gpm

Std. **EP20-S35**  
379 lpm/100 gpm

HyP **HEP16-S35**  
189 lpm/50 gpm

HyP **HEP42-S35**  
379 lpm/100 gpm



### Multi-Function

#### Pressure Compensating

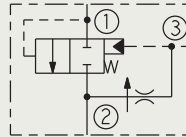
Std. **EPFR16-35**  
189 lpm/50 gpm

Std. **EPFR20-S35**  
303 lpm/80 gpm

Std. **EPFR50-S35**  
76 lpm/20 gpm

Std. **EPFR52-S35**  
151 lpm/40 gpm

Std. **EPFR58-35**  
38 lpm/10 gpm

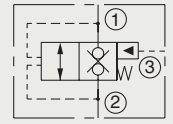


### Piloted Logic, Poppet Type

Std. **EP10-S38**  
113 lpm/30 gpm

Std. **EP20-S38**  
302 lpm/80 gpm

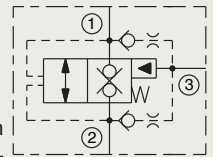
HyP **HEP42-S38**  
285 lpm/75 gpm



### Vented Logic, Poppet Type w/ Built-in Checks

Std. **EP20-S39**  
285 lpm/75 gpm

HyP **HEP42-S39**  
285 lpm/75 gpm



Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.



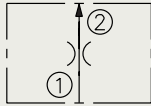
# HyPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Flow Controls

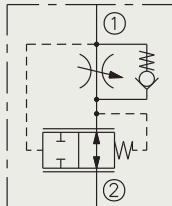
### Pressure Compensated, Fixed

Std. **FR50-20F**  
22.7 lpm/6 gpm



### Pressure Compensated, Adjustable

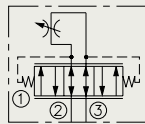
Std. **FR50-23**  
11.5 lpm/3 gpm



Std. **FR50-28**  
34 lpm/9 gpm

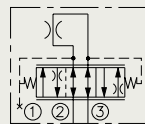
### Pressure Compensated, Adjustable, Bi-Directional

HyP **HFR10-32**  
19 lpm/5 gpm



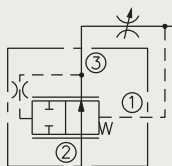
### Pressure Compensated, Fixed Orifice, Bi-Directional

HyP **HFR10-32F**  
19 lpm/5 gpm



### Pressure Compensator

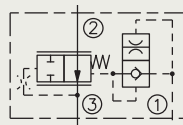
HyP **HEC12-32**  
83 lpm/22 gpm w/11 bar  
(160 psi) spring  
57 lpm/15 gpm w/5.5 bar  
(80 psi) spring



HyP **HEC16-32**  
114 lpm/30 gpm  
w/80 psi spring  
151 lpm/40 gpm  
w/160 psi spring

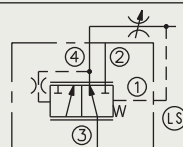
### Pressure Compensator, Load Holding

HyP **HEC12-34**  
83 lpm/22 gpm  
w/13.8 bar (200  
psi) spring



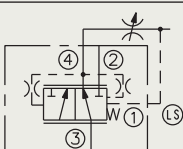
### Pressure Compensator

HyP **HEC12-42**  
95 lpm/25 gpm



### Pressure Compensator with Dynamic Load Sense

HyP **HEC12-43**  
95 lpm/25 gpm w/11  
bar (160 psi) spring  
68 lpm /18 gpm  
w/5.5 bar (80 psi)

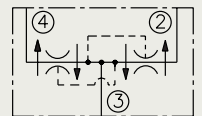


### HyP **HEC32-43**

530 lpm/140 gpm  
with 10.3 bar/150 psi spring  
379 lpm/100 gpm  
with 5.5 bar/80 psi spring

### Flow Divider/ Combiners

Std. **FD50-45**  
Input flow  
range options  
4-57 lpm/1-15 gpm



Std. **FD52-45**  
Input flow range  
options  
60-106 lpm/16-28 gpm

Std. **FD56-45**  
Input flow range  
options  
98-197 lpm/26-52 gpm

Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.

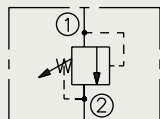
# HYPERFORMANCE

H-Series High Pressure Valves up to 350 bar / 5075 psi

## High Pressure Pressure Controls

### Relief, Direct-Acting Poppet

Std. **RV58-20**  
22 lpm/6 gpm



### Dynamic Relief

Std. **RVD50-20**  
114 lpm/30 gpm

### PED-Certified

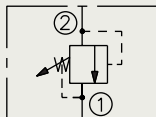
Std. **RVD50-20P**  
114 lpm/30 gpm

### With Dampening

HyP **HRVD08-20**  
53 lpm/14 gpm

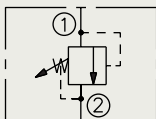
### Relief, Differential Area Poppet

Std. **RV50-22**  
75 lpm/20 gpm



### Relief, Pilot-Operated Spool

Std. **RV50-26**  
113 lpm/30 gpm

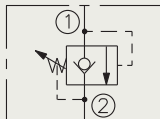


Std. **RV52-26**  
170 lpm/45 gpm

Std. **RV56-26**  
379 lpm/100 gpm

### Relief, Pilot-Operated Spool

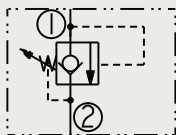
Std. **RV50-28**  
114 lpm/30 gpm



### Multi-Function

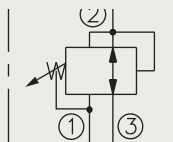
#### Relief, Direct-Acting Poppet with Anticavitation Reverse Flow Check

HyP **RVCV56-20**  
113.6 lpm/30 gpm from Port 1 to 2  
174.1 lpm/46 gpm from Port 2 to 1



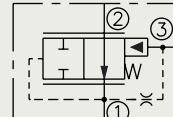
### Pressure Reducing/Relieving

Std. **PRES50-30**  
11.4 lpm/3 gpm



### Pressure Reducing Pilot Element

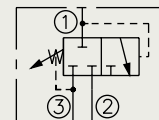
Std. **ER10-S30**  
68 lpm/18 gpm



Std. **ER12-S30**  
114 lpm/30 gpm

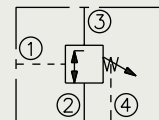
### Sequence, Pilot-Operated

Std. **PS50-36**  
57 lpm/15 gpm



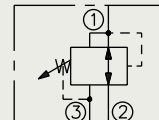
### Sequence, Normally Closed

Std. **PS50-40**  
22 lpm/6 gpm



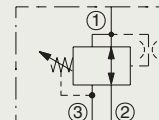
### Reducing/Relieving, Pilot Operated

Std. **PR50-36**  
56 lpm/15 gpm



### Reducing/Relieving, Direct-Acting

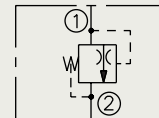
Std. **PR58-38**  
19 lpm/5 gpm



Std. **PR50-38**  
72 lpm/19 gpm

### Thermal Relief

Std. **TR04-B20**



Valves labeled "Std." utilize standard HydraForce valve cavities, are rated at 345 bar/5000 psi, and are available now.



# HyPERFORMANCE

**H-Series High Pressure Valves up to 350 bar / 5075 psi**

**The HydraForce Innovation and Technology Center** at 700 Woodlands Parkway in Vernon Hills, Illinois, is the new focal point for virtual and actual testing of hydraulic valves, integrated circuit manifolds and electronic controllers. This 142,000-sq.-ft. building houses our design and application engineering teams as well as complete testing facilities and vehicle proving grounds.

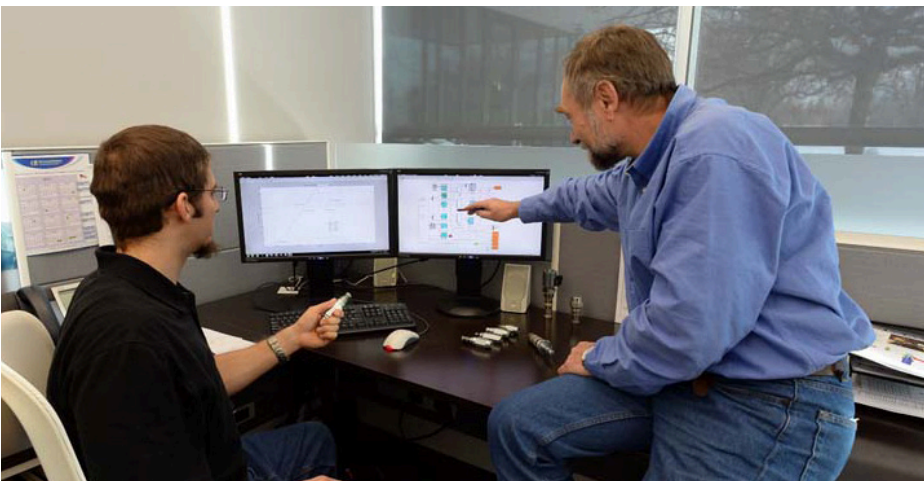
Computer resources for CFD and FEA simulation, and an electronics lab complete the innovation and technology center's capacity to provide you with the most advanced electrohydraulic controls in the industry.



***Multi-function HSPEC valves combine proportional control with built-in compensation to save space and improve efficiency.***



***At the HydraForce Innovation Center, engineers integrate HyPerformance valves into high pressure manifolds.***



***Pressure response performance is analyzed with simulation software and mapped out with graphical representations of calculations.***



***Design engineers from the solenoid, flow control and pressure control groups collaborate to develop multi-function valves at the HydraForce Innovation and Technology Center in Vernon Hills, IL.***





**MAIN HEADQUARTERS, ENGINEERING AND MANUFACTURING FACILITY IN LINCOLNSHIRE ILLINOIS, JUST NORTH OF CHICAGO.**



**INNOVATION AND TECHNOLOGY CENTER IN VERNON HILLS, ILLINOIS.**



**EUROPEAN HEADQUARTERS, ENGINEERING AND MANUFACTURING FACILITY IN BIRMINGHAM, ENGLAND.**



**ASIAN/PACIFIC HEADQUARTERS, PRECISION MACHINING AND MANIFOLD ASSEMBLY FACILITY IN CHANGZHOU, CHINA, NEAR SHANGHAI.**

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**Advanced Manufacturing Hub**  
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und Anlagenbau e.V. (VDMA)  
ISO 9001 & ISO 14001

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ISO 9001

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Fax: +82 32 623 5819  
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**RoHS COMPLIANT** HydraForce valve and manifold products comply with the European Council and Parliament RoHS directive 2002/95/EC limiting the use of hazardous substances. For all other products, consult factory.

