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Mobile Accessory Valves

Catalog HY14-2405/US

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catalog-cvr.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Contents

General Description

Series CFD flow controls are a constant volume, priority-type flow control designed for power steering.

Operation

Flow enters the valve through the inlet. The spool orifice size is fixed and determines flow from the controlled flow port. When controlled flow demand is satisfied, the balance of the inlet flow passes through the excess flow port and returns to the tank. The excess flow port is not a work port and must not be pressurized. In addition, flow cannot be reversed through the excess flow port.

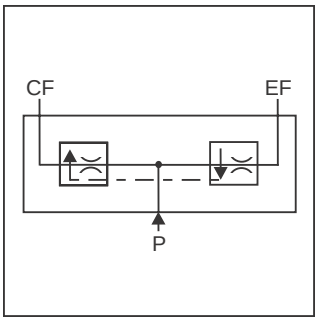
Flow through the controlled port can be reversed, but it is not pressure compensated.

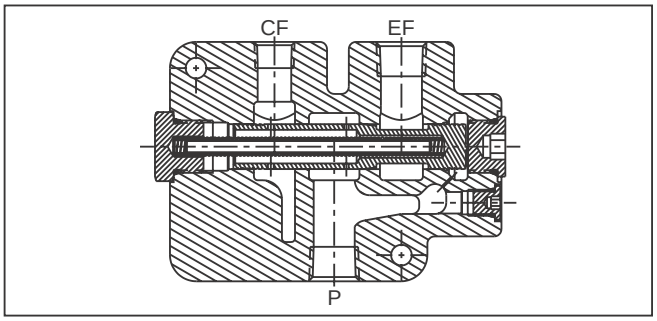
Features

- Fixed flow rate
- Cross drilled spool provides extremely accurate metering
- Hardened metering spool
- High tensile, cast iron body

Specifications

Input Flow	56.25 LPM (15 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 177 Bar (2500 PSI) 138 Bar (2000 PSI)
Minimum Compensation Pressure	3.45 Bar (50 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

CFD — □ — □

Constant Volume Priority Flow Control

Port Size

Controlled Flow

Code	CF Port	EF Port	P Port	T Port
10	SAE-8	SAE-10	SAE-10	3/8" NPTF
50	3/8" NPTF	1/2" NPTF	1/2" NPTF	3/8" NPTF
75	1/2" NPTF	3/4" NPTF	3/4" NPTF	3/8" NPTF

Code	Description
1	3.75 LPM (1.0 GPM)
1.5	5.63 LPM (1.5 GPM)
2	7.5 LPM (2 GPM)
3	11.25 LPM (3 GPM)
4	15 LPM (4 GPM)
5	18.75 LPM (5 GPM)

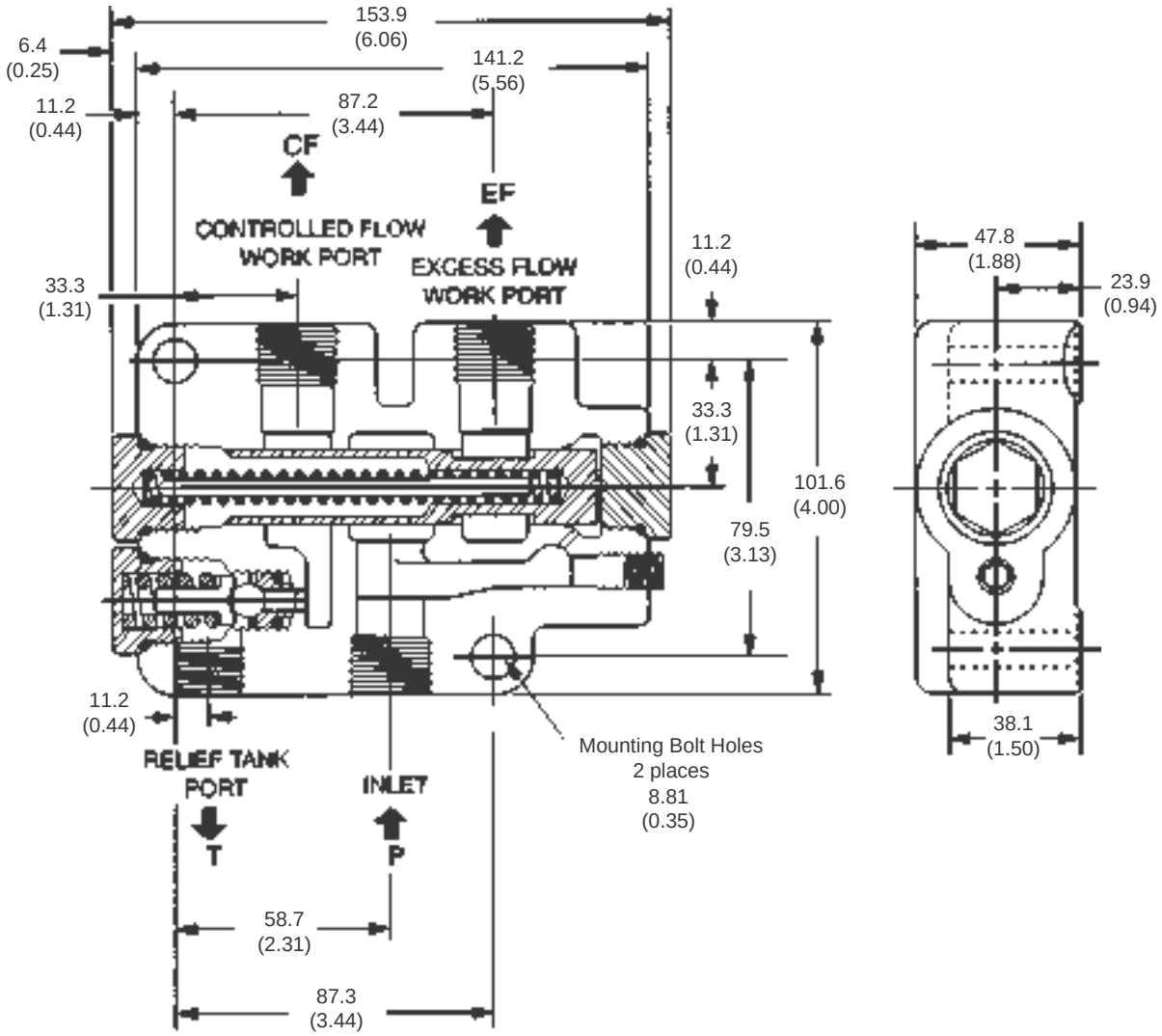
Service Parts

SAE - 10 plug	10HP50V-S
SAE - 4 plug	4HP50V-S
Spool Seal	3910N-7

Note: The body and the internal parts are non-service items.

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Inch equivalents for millimeter dimensions are shown in (**)



General Description

Series CFDA flow controls offer a dependable means of obtaining flow adjustment up to 56.25 LPM (15 GPM). It provides easy manual control where frequent flow change is required. Pressure compensation provides a smooth, constant output flow regardless of pressure changes at the controlled flow port.

Operation

Flow enters the valve through the inlet. Rotating the adjusting knob varies the flow from the controlled flow port. When controlled flow demand is satisfied, the balance of the inlet flow passes through the excess flow port and returns to the tank. The excess flow port is not a work port and must not be pressurized.

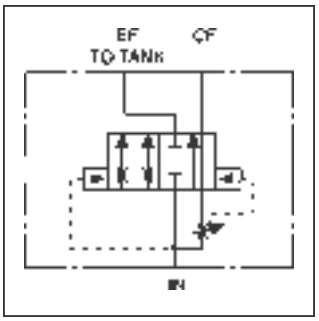
Flow through the controlled port can be reversed, but is not pressure compensated.

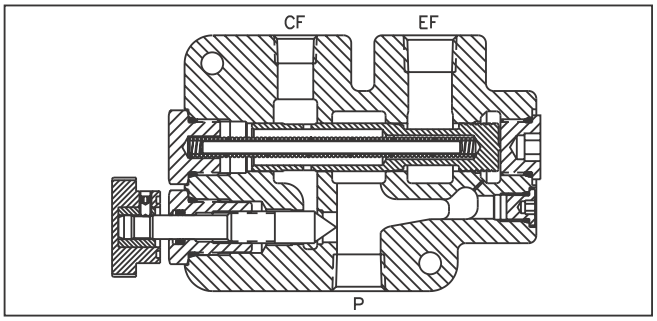
Features

- Adjustable flow rate
- Cross drilled spool provides extremely accurate metering
- Hardened metering spool
- High tensile, cast iron body

Specifications

Input Flow	56.25 LPM (15 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 177 Bar (2500 PSI) 138 Bar (2000 PSI)
Flow Adjustment Range	6 turns of knob from minimum to maximum flow
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

CFDA — □

Pressure Compensated Bypass Type Flow Control

Port Size

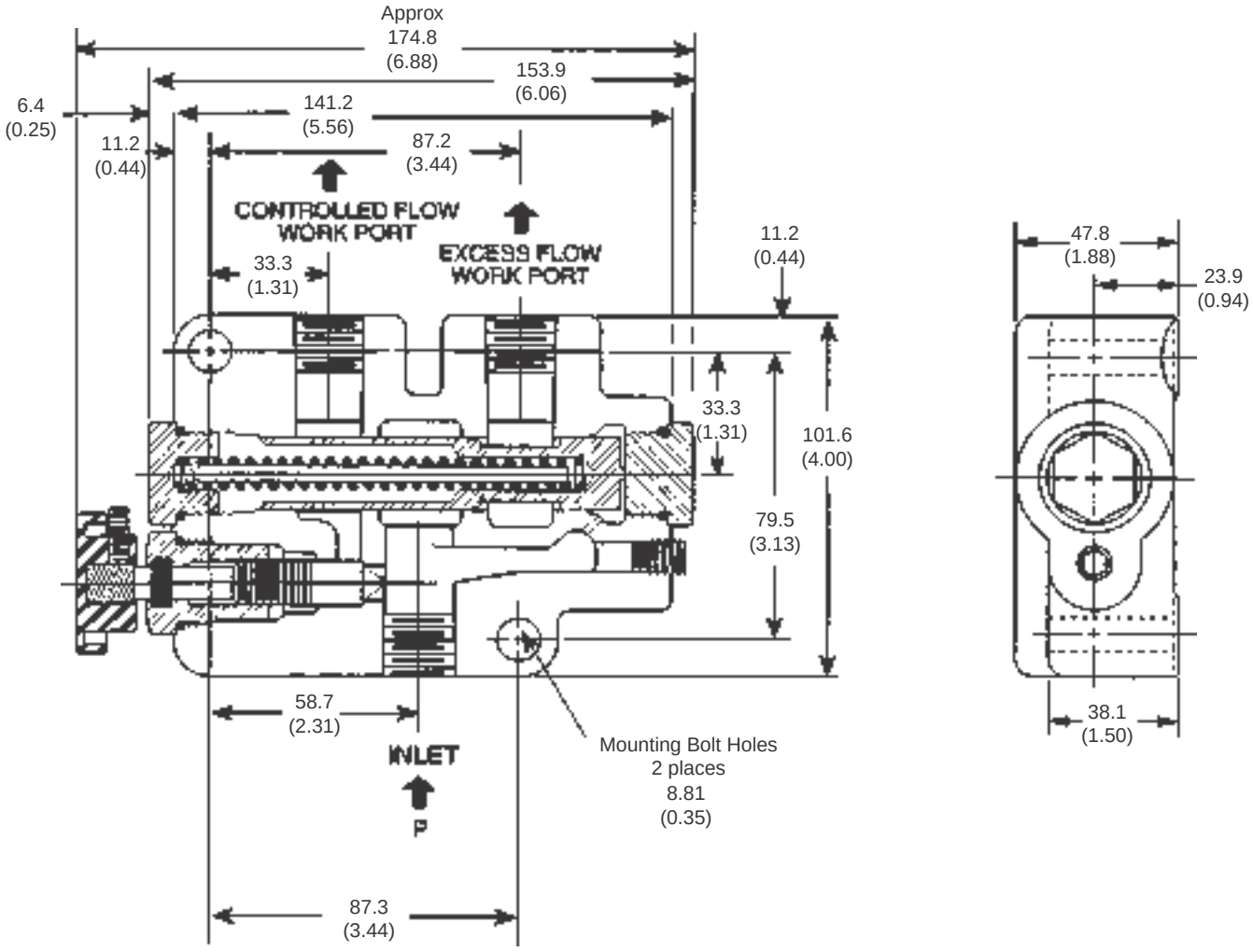
Code	Description
10	SAE-10 (3/4" - 16 UNF)
50	1/2" - 14 NPT
75	3/4" - 14 NPT

Service Parts

Knob	03236001
Seal Knob Cap	3910N-7

Note: The body and the internal parts are non-service items.

Inch equivalents for millimeter dimensions are shown in (**)



General Description

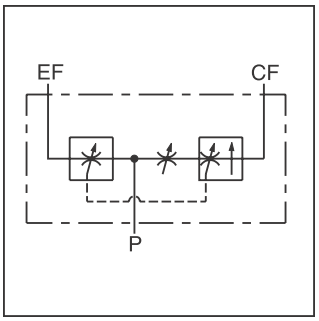
Series DC25 accessory valves are priority flow controls. They are designed for applications where two separate hydraulic circuits are to be served from a single pump. The valve provides a priority flow to the primary (CF) circuit, and an excess flow to a secondary (EF) circuit or to the tank. When the excess flow port is plugged, the valve will function as a restrictive-type, pressure compensated flow control.

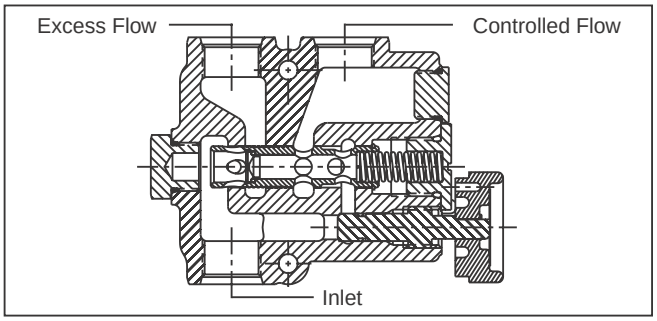
Features

- Excess flow can be used in a secondary circuit
- Hardened metering spool

Specifications

Input Flow	112.5 LPM (30 GPM)
Adjustable Controlled Flow Range	3.75-97.5 LPM (1-26 GPM)
Accuracy of Adjustment	± 10% @ 11.25 LPM (3 GPM) or greater
Operating Pressure	SAE Ports 210 Bar (3000 PSI)
	NPTF Ports 138 Bar (2000 PSI)
Minimum Operating Pressure	4.8 Bar (70 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Spool – Hardened and ground steel
Filtration	ISO Code 16/13, SAE Class 4 or better
Mounting Position	In-line; no restrictions
Knob Rotation	360° full adjustment





Operation

Flow enters the inlet port and passes through an adjustable control orifice. The control orifice can be varied externally in the adjustable version.

Flow through the adjustable control orifice causes a pressure drop which is sensed across the compensator spool. Excess flow across the compensator spool increases the pressure drop across it. This changes the pressure drop and shifts the spool allowing it to maintain priority flow and diverting more flow to the excess flow port. When pressure in the excess flow port exceeds the pressure in the controlled flow port, the spool will also shift to maintain the required priority flow to the primary circuit.

If the controlled flow port is blocked, the compensator spool will return to the closed position, allowing no flow through the valve.

DC25 — **A** — ☐

- DC25: Priority Flow Control
- A: Flow Control Adjustment
  - Knob Adjustment
- ☐: Port Size

Code	Description
10	SAE-10
12	SAE-12
50	1/2" NPTF
75	3/4" NPTF

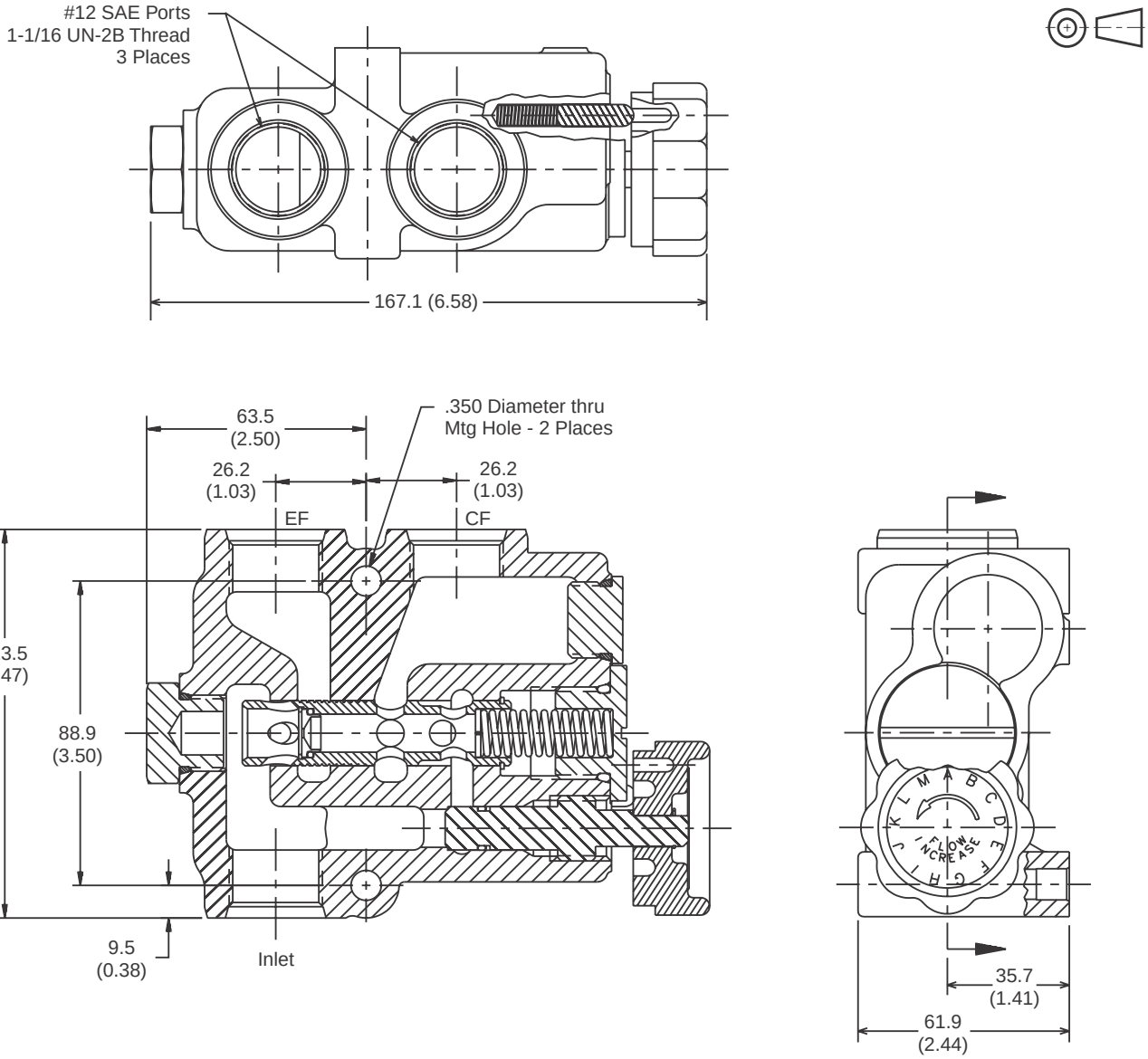
Service Parts

Relief Valve Kits	
34 to 86 Bar (500 to 1250 PSI)	20089001
121 to 138 Bar (1750 to 2000 PSI)	20089004
138 to 179 Bar (2000 to 2600 PSI)	20089005 (SAE ported valves only)
179 to 207 Bar (2600 to 3000 PSI)	20089006 (SAE ported valves only)
Knob Kit	00712017

Note: The body and the spool are not service items.

Dimensions

Inch equivalents for millimeter dimensions are shown in (**)



DC25.p65, dd

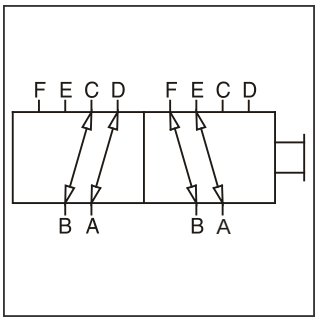
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

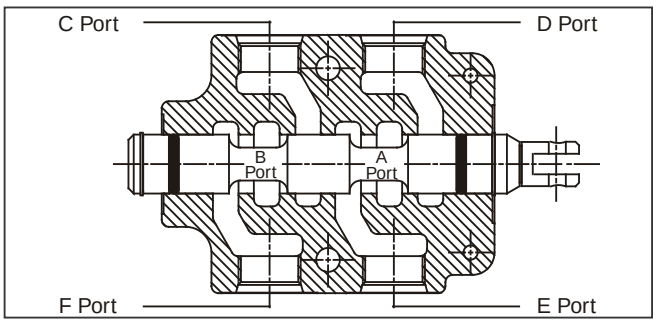
General Description

Series DS12 and DS75 accessory valves are two-position, double selector valves. They are designed for directing flow from one single hydraulic circuit to two separate hydraulic lines. This permits operation of two, double-acting cylinders with:

- one four-way control valve, or
- four single-acting cylinders with two three-way control valves.

The valve should be operated (shifted) prior to applying pressure to it. When the spool begins to move, all ports are momentarily connected.





Operation

In the normal mode, pump flow can enter the valve through either A or B port. The other port then becomes the return port. Port A is connected to Port D; Port B is connected to Port C. When the lever is pushed in, Port A is connected to Port E; Port B is connected to Port F.

Features

- Chrome plated spool
- High-tensile cast iron body

Specifications

Input Flow	93.75 LPM (25 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 207 Bar (3000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Spool – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions

Ordering Information

DS — ☐

Double Selector Valve

Port Size

Code	Description
12	SAE 12 (1 1/16" - 12 UN)
75	3/4" - 14 NPT

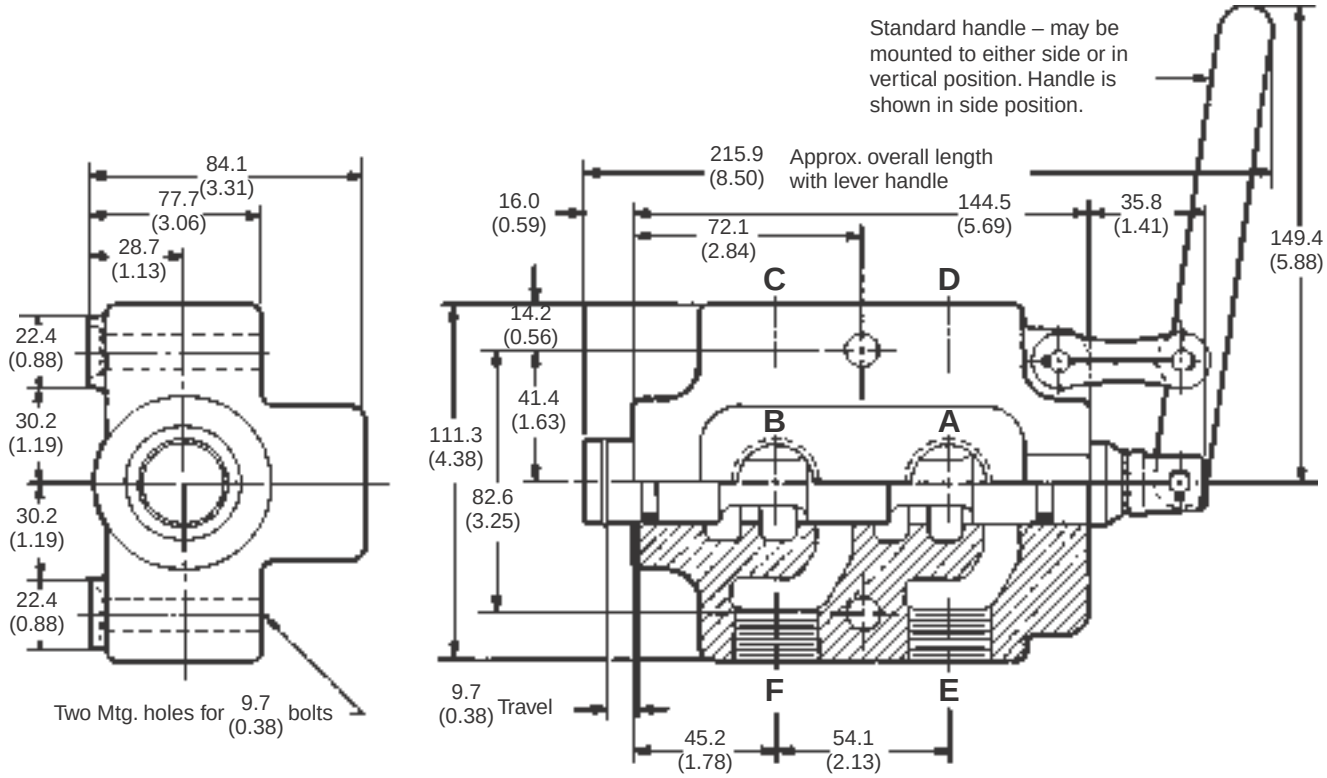
Note: NPT pipe ports are not recommended for pressures above 138 Bar (2000 PSI)

Service Parts

Handle Kit	06656001
Kit – Spool Seals and Retaining Rings	06492001
Clevis and Lock Washer Kit	08650235

Note: The body and the spool are not service items.

Inch equivalents for millimeter dimensions are shown in (**)



General Description

Series DWV relief valves are differential area, cross-over reliefs (cushion valves). They are designed to eliminate or minimize shock, surge, or overload conditions on hydraulic equipment. They may be used with cylinders of equal displacement, or with motors to provide crossover relief when the motors are stopped.

Operation

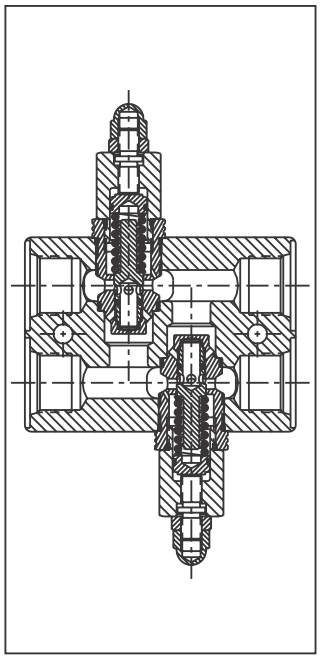
The DWV relief valve relieves oil from one side of the actuator to tank, therefore reducing shock and preventing overload. It also eliminates cavitation and the need for a separate tank connection. The valve should be installed as close to the actuator as possible for best results.

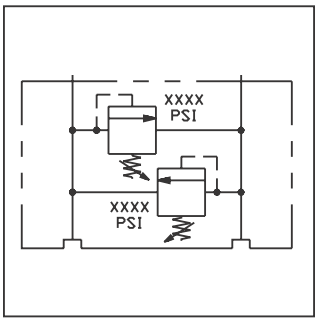
Features

- Compact, low profile design
- Fast response to cushion shocks and protect actuators
- Cartridge style relief valves
- High tensile, compacted graphite body

Specifications

Input Flow	93.75 LPM (25 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 210 Bar (3000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Poppet – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

DWV — ☐ — ☐ — ☐

Differential Area Crossover Relief | Port Size | Adjustment Option | Pressure Range

Code	Description
8	SAE-8 (3/4" - 16 UNF)
10	SAE-10 (7/8" - 14 UNF)
12	SAE-12 (1 1/16" - 12 UNF)
50	1/2" - 14 NPT
75	3/4" - 14 NPT

Code	Description
Omit	Shim Adjustable
A	Screw Adjustable

Code	Setting	Range
1250	89 Bar (1250 PSI)	35 - 89 Bar (500 - 1250 PSI)
2000	142 Bar (2000 PSI)	89 - 142 Bar (1250 - 2000 PSI)
2500	177 Bar (2500 PSI)	142 - 177 Bar (2000 - 2500 PSI)
3000	210 Bar (3000 PSI)	142 - 210 Bar (2000 - 3000 PSI)

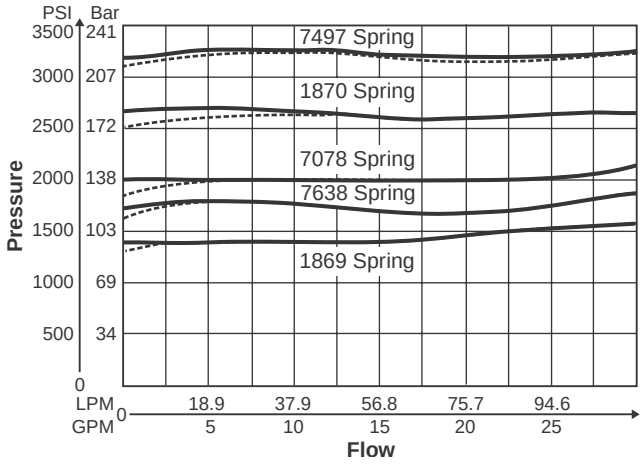
Service Parts

Relief Valve Cartridges	
35 - 89 Bar (500 - 1250 PSI)	WHA-1250
89 - 142 Bar (1250 - 2000 PSI)	WHA-2000
142 - 177 Bar (2000 - 2500 PSI)	WHA-2500
177 - 210 Bar (2500 - 3000 PSI)	WHA-3000
O-Ring Seal Kit	00712359
Relief Adjustments	
Screw Adjustment – 1/4 turn = 200 PSI ±10%	
Shim Adjustment –	
100 PSI	00462001
150 - 250 PSI	00459001
250 - 450 PSI	00458001

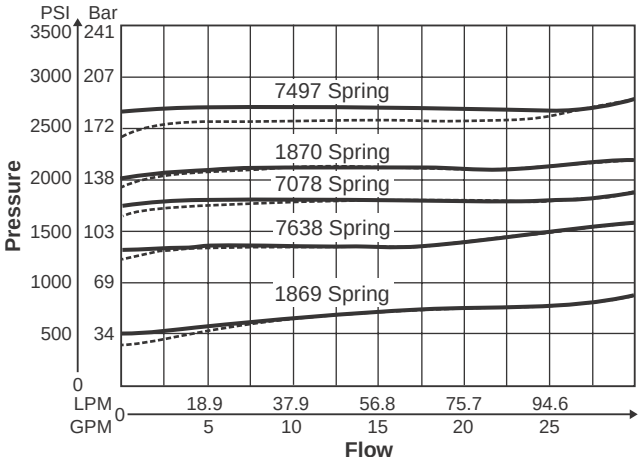
Note: The body and the internal parts of the relief valve (including the spring) are non-service items.

Performance Curves

Low End – 34 to 207 Bar (500 to 3000 PSI)

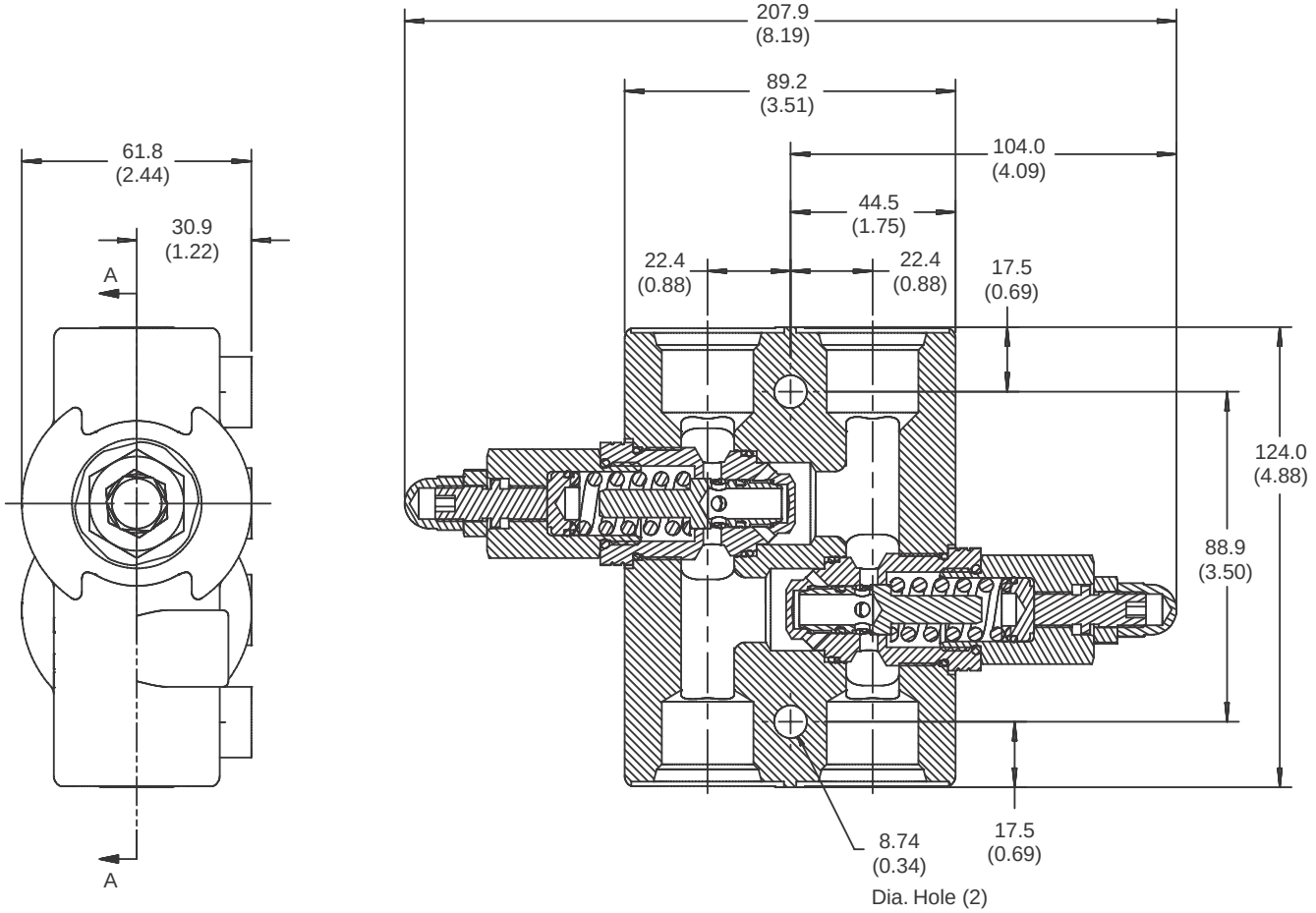


High End – 34 to 207 Bar (500 to 3000 PSI)



Dimensions

Inch equivalents for millimeter dimensions are shown in (**)



DWV.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series DXV relief valves are direct acting, crossover reliefs (cushion valves). They are designed to eliminate or minimize shock, surge, or overload conditions on hydraulic equipment. They may be used with cylinders of equal displacement, or with motors to provide cross-over relief when the motors are stopped.

Operation

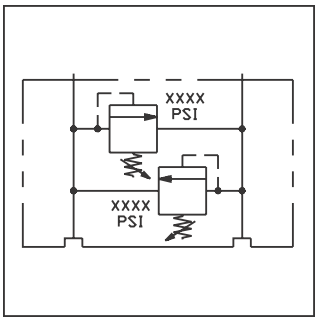
The DXV relief valve relieves oil from one side of the actuator to tank, therefore reducing shock and preventing overload. It also eliminates cavitation and the need for a separate tank connection. The valve should be installed as close to the actuator as possible for best results.

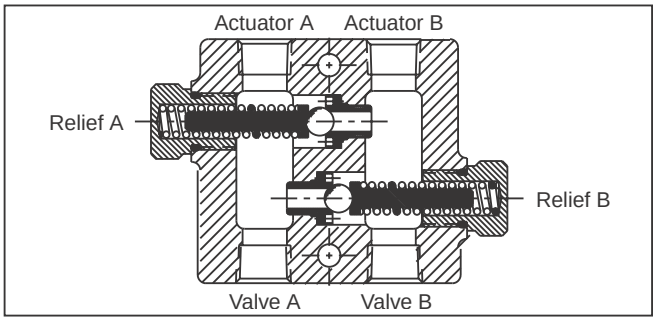
Features

- Compact, low profile design
- Hardened seats for long life
- Fast response to cushion shocks and protect actuators
- High tensile, compacted graphite body

Specifications

Input Flow	37.5 LPM (10 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 210 Bar (3000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Poppet – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

DXV — □ — □ — □

Direct Acting Crossover Relief | Port Size | Adjustment Option | Pressure Range

Code	Description
8	SAE-8 (3/4" - 16 UNF)
10	SAE-10 (7/8" - 14 UNF)
38	3/8" - 18 NPT
50	1/2" - 14 NPT
75	3/4" - 14 NPT

Code	Description
Omit	Shim Adjustable

Code	Setting	Range
400	28 Bar (400 PSI)	3.5 - 28 Bar (50 - 400 PSI)
750	53 Bar (750 PSI)	28 - 53 Bar (400 - 750 PSI)
900	64 Bar (900 PSI)	53 - 64 Bar (750 - 900 PSI)
1300	92 Bar (1300 PSI)	64 - 92 Bar (900 - 1300 PSI)
1450	103 Bar (1450 PSI)	91 - 103 Bar (1300 - 1450 PSI)
1800	128 Bar (1800 PSI)	103 - 128 Bar (1450 - 1800 PSI)
2000	142 Bar (2000 PSI)	128 - 142 Bar (1800 - 2000 PSI)
3000*	210 Bar (3000 PSI)	142 - 210 Bar (2000 - 3000 PSI)

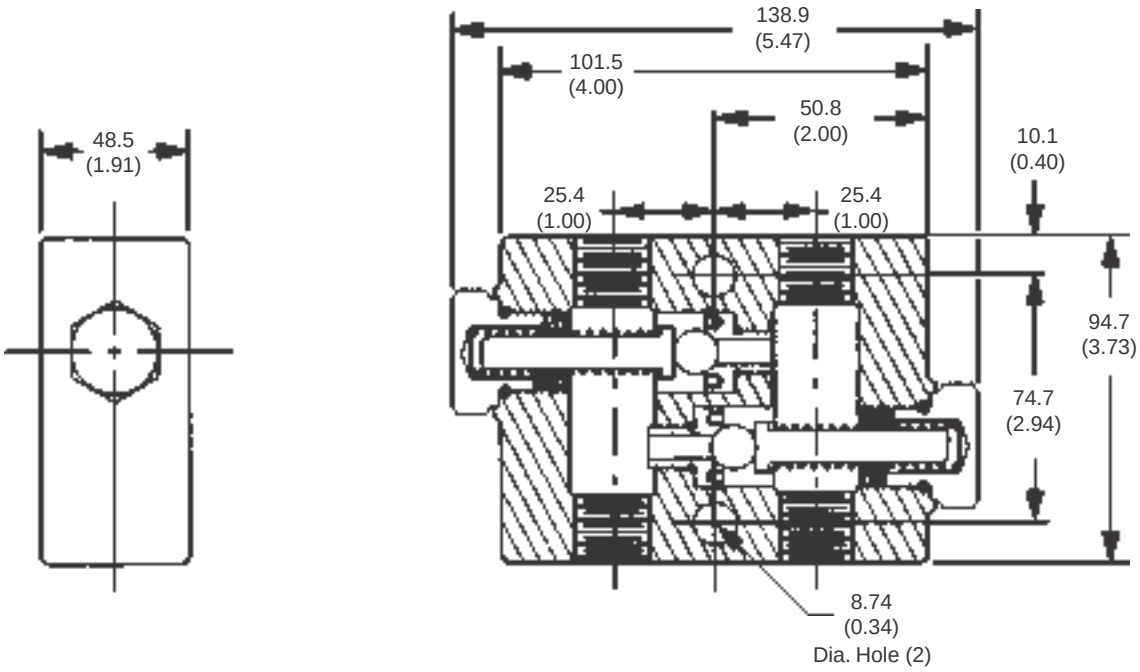
* SAE ported bodies only.

Service Parts

Upper Relief Valve Seal	2115N-7
Relief Adjustments	
Shim Adjustment	
100 PSI	00462001
150 - 250 PSI	00459001
250 - 450 PSI	00458001

Note: The body and the internal parts of the relief valve (including the spring) are non-service items.

Inch equivalents for millimeter dimensions are shown in (**)



General Description

Series HP50 pilot pressure valves are designed to provide a separately mounted, pilot pressure system for solenoid and hydraulic remote-controlled, directional control valves.

The pilot pressure valve is installed in the hydraulic system between the pump and the directional control valve.

This valve can be used for other applications where a pilot pressure is required. Possible applications are remote-controlled, variable displacement pumps or motors and differential locks.

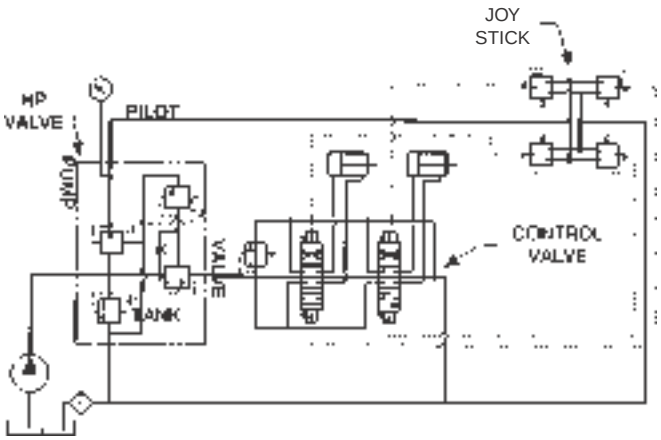
The valve consists of a mechanical sequence valve and a pressure reducing cartridge. The pilot operated sequence valve creates a stand-by pressure greater than the pressure reducing cartridge. The pressure reducing cartridge limits the maximum pressure in the pilot circuit.

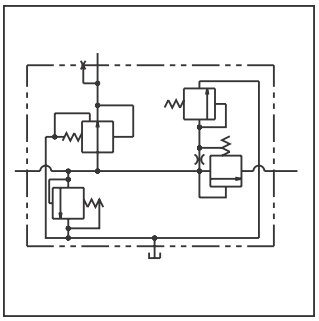
Features

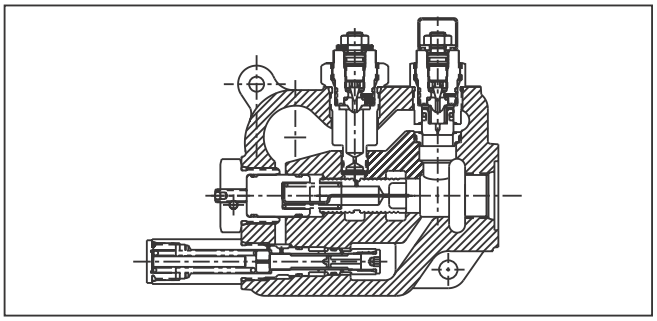
- Eliminates separate pilot pump and relief valve for a pilot system
- Simplifies plumbing for a pilot system
- Easily installed into an existing hydraulic system
- Optional main system relief valve available
- Solenoid kits available

Operation

The mechanical pressure build up valve can be used in open center systems where the pump is not in stand-by operation for long periods of time. Pilot pressure is maintained at all times.







Specifications

Input Flow	187.5 LPM (50 GPM)
Pilot Flow	18.75 LPM (5 GPM)
Operating Pressure **Inlet** **Tank**	 240 Bar (3500 PSI) 24 Bar (350 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron
Filtration	ISO Code 16/13, SAE Class 4 or better
Mounting Position	In-line; no restrictions

Understanding the HP pilot pressure valve

Many open center systems have very little pressure drop through the directional valve when in the neutral position. These systems do not provide enough pressure for pilot operation. To create pilot pressure, use the HP valve.

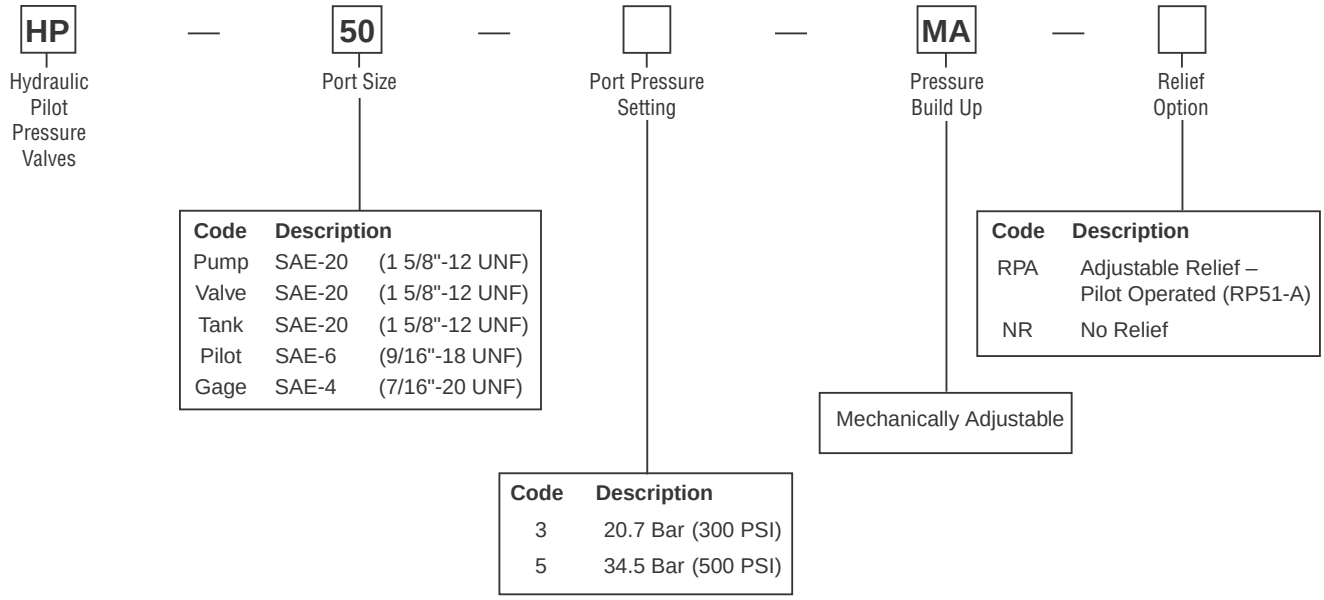
The HP valve has four basic component parts:

1. Sequence valve slave
2. Sequence valve pilot
3. Reducing valve
4. Relief valve

The sequence slave (part #1) and the sequence pilot (part #2) create the back pressure that is used for pilot operation. The reducing valve (part #3) protects the pilot system from high pressure. The relief valve (part #4) protects the pump. Note that the relief valve is located on the pump side of the sequence valve.

HP.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA



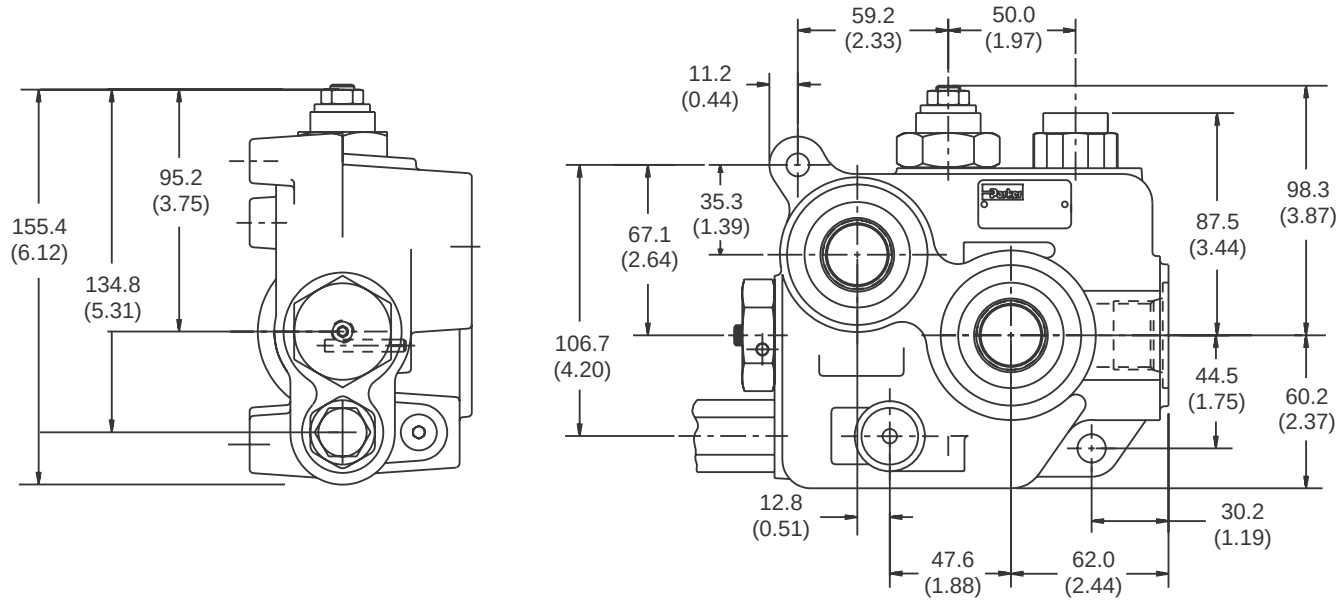
Service Parts

20.7 Bar (300 PSI) Pilot Pressure Reducing Valve	11416001
34.5 Bar (500 PSI) Pilot Pressure Reducing Valve	11416002
NR - no relief plug	04142003
Relief Valve	RP51-A
Pressure Build Up Valve	20275001
Upper Seal - Pressure Build Up Valve	3914V-9
Lower Seal - Pressure Build Up Valve	2019N-7
Lower Back Up Ring - Pressure Build Up Valve	407480
12 VDC Solenoid Unloader Kit	10722001
24 VDC Solenoid Unloader Kit	00711871
Relief Valve Seal Kit	00712223

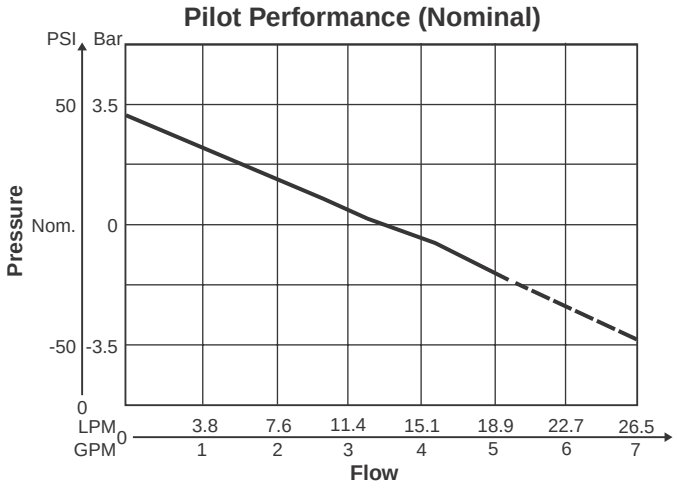
Note: The body and the internal parts are non-service items.

Dimensions

Inch equivalents for millimeter dimensions are shown in (**)



Performance Curve



HP.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series LO valves are single and double, pilot operated check valves. They are designed to lock a cylinder or part of a circuit without leakage, while a control valve is in a neutral position. Lock valves function as check valves, allowing flow to a cylinder and blocking reverse flow until pilot pressure is applied to unlock the circuit. This valve works best when used with a directional control valve that vents the work ports to tank when it is in a neutral mode.

Operation

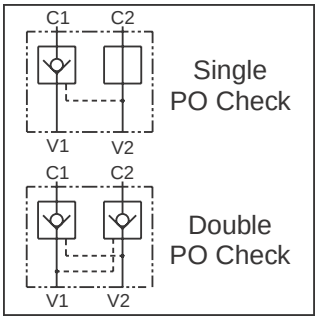
Free flow is permitted from the valve port to the work port through the check valve. This check prevents reverse flow in the absence of pilot pressure. When adequate pilot pressure is applied at the pilot port, the pilot piston unseats the check poppet permitting free flow.

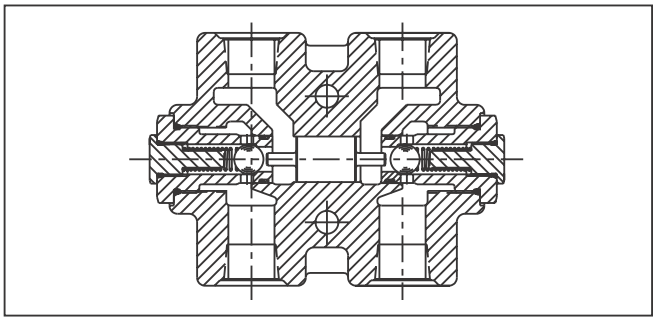
Features

- Hardened seats
- Ball/Spring check valves
- High tensile, cast iron body

Specifications

Input Flow	93.75 LPM (25 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 210 Bar (3000 PSI) 138 Bar (2000 PSI)
Pilot Ratio	3.36 to 1
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

LO — ☐ — ☐

LO	Pilot Operated Check Valve

Port Size Code	Description
10	SAE-10 (7/8" - 14 UNF)
50	1/2" - 14 NPT

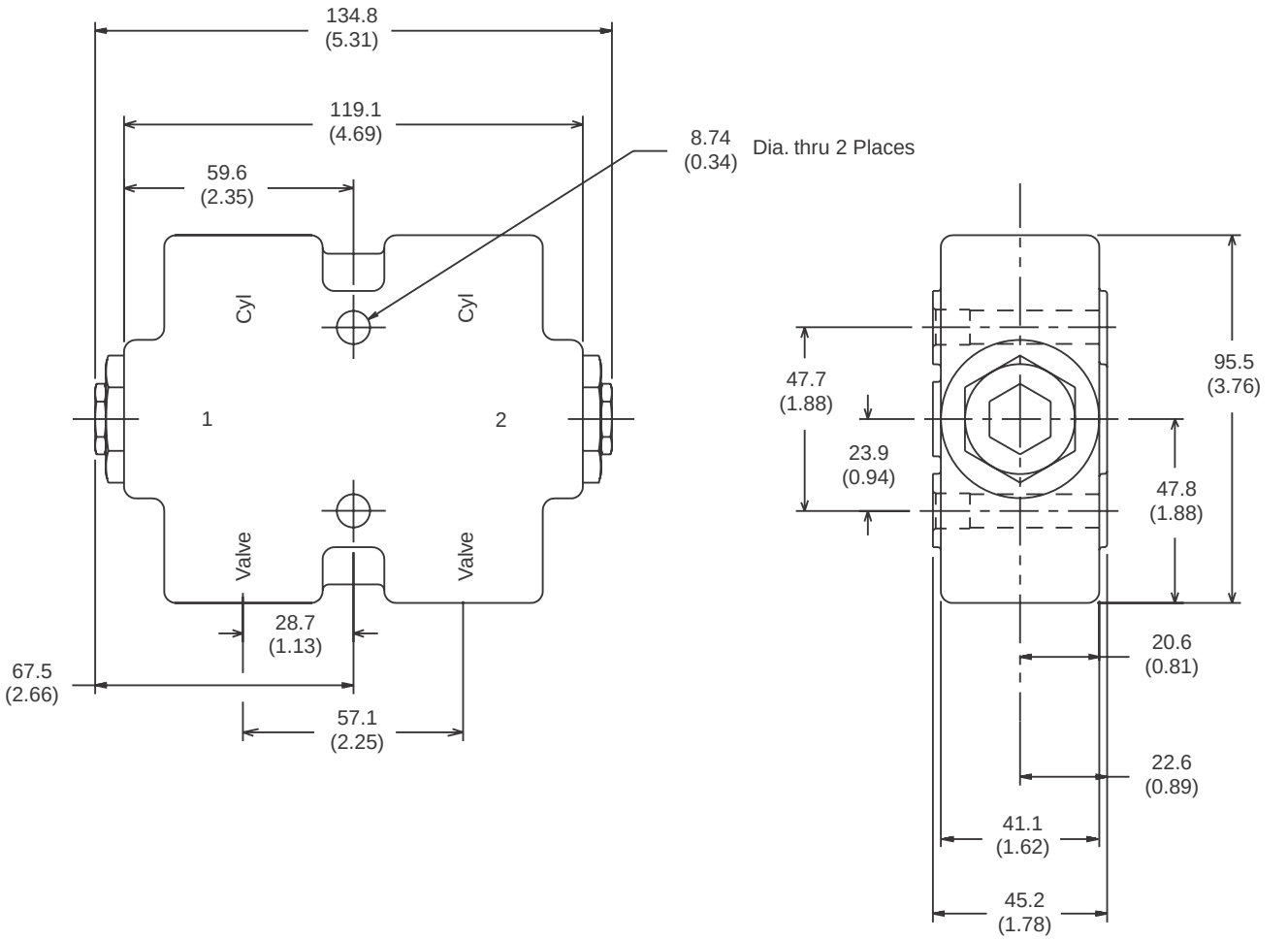
Type Code	Description
S	Single
D	Double

Service Parts

Check Valve	07350001

Note: The body and the internal parts are non-service items.

Inch equivalents for millimeter dimensions are shown in (**)



General Description

Series LOA valves are single and double, pilot operated check valves. They are designed to lock a cylinder or part of a circuit without leakage, while a control valve is in a neutral position. Lock valves function as check valves, allowing flow to a cylinder and blocking reverse flow until pilot pressure is applied to unlock the circuit. This valve works best when used with a directional control valve that vents the work ports to tank when it is in a neutral mode.

Operation

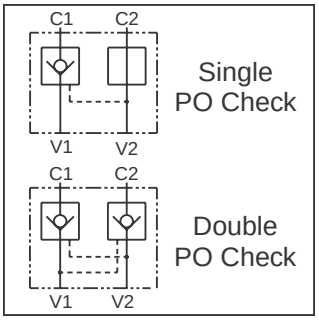
Free flow is permitted from the valve port to the work port through the check valve. This check prevents reverse flow in the absence of pilot pressure. When adequate pilot pressure is applied at the pilot port, the pilot piston unseats the check poppet permitting free flow.

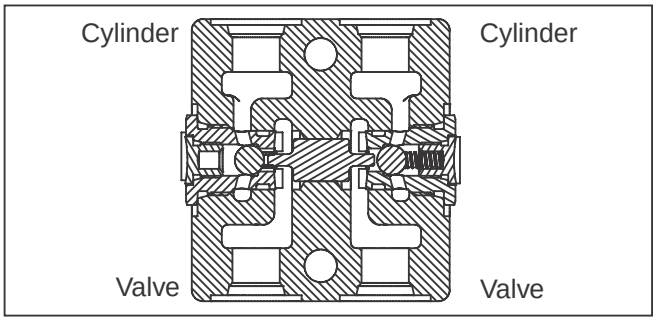
Features

- Hardened seats
- Ball/Spring check valves
- High tensile, cast iron body

Specifications

Input Flow	30 LPM (8 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 210 Bar (3000 PSI) 138 Bar (2000 PSI)
Pilot Ratio	3.36 to 1
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions





Ordering Information

LOA — □ — □

Pilot Operated Check Valve

Port Size

Code	Description
6	SAE-6 (9/16" - 18 UNF)
25	1/4" - 14 NPT
38	3/8" - 18 NPT

Type

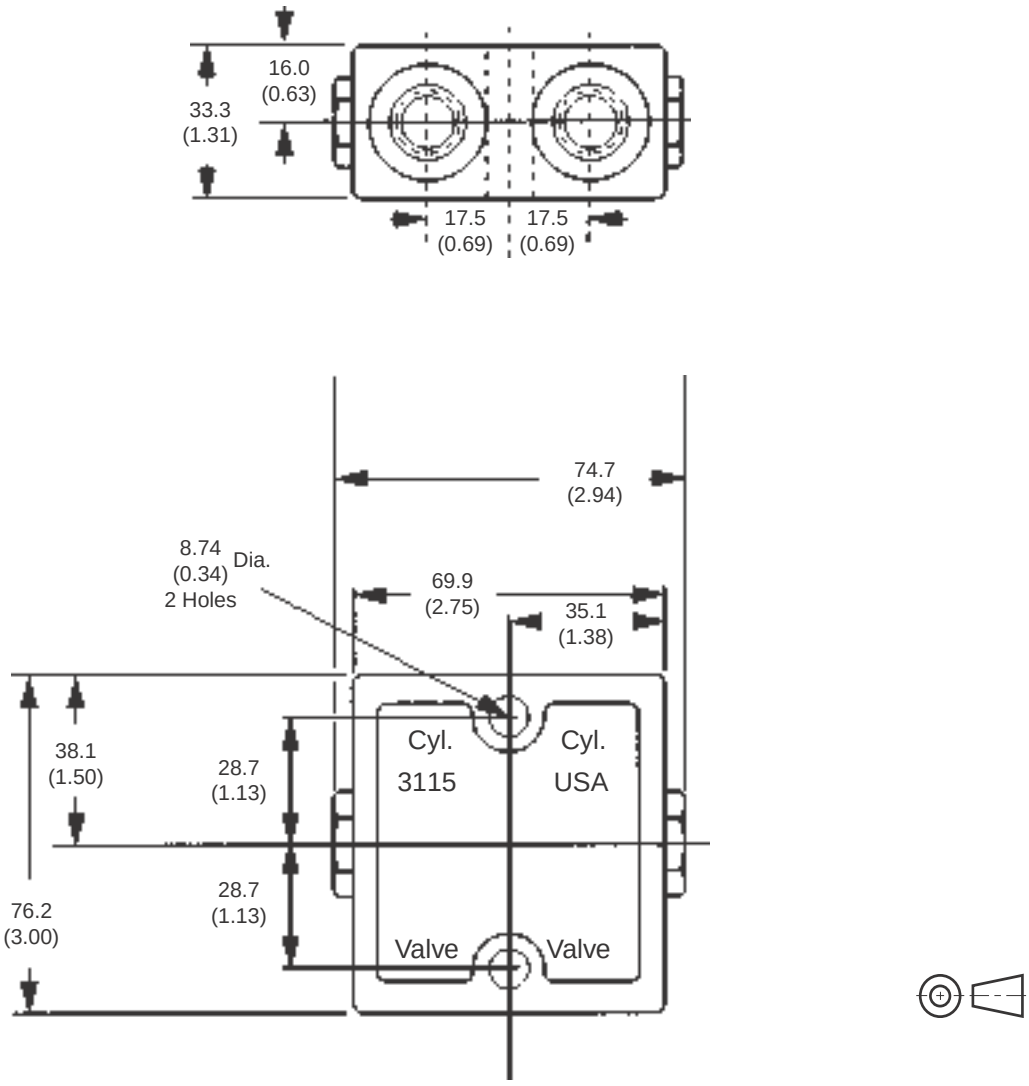
Code	Description
S	Single
D	Double

Service Parts

Check Valve	04169001

Note: The body and the internal parts are non-service items.

Inch equivalents for millimeter dimensions are shown in (**)



General Description

Series PD and PDC accessory valves are pressure compensated flow dividers. They are designed for applications where two separate hydraulic circuits are to be served from a single pump. The valve splits the flow in three ratios between the two hydraulic lines. Flow through the series PD flow divider cannot be reversed. Flow through the PDC flow divider can be combined in the reverse direction and synchronized in both directions.

Series PD and PDC flow dividers will divide the inlet flow to ±10% of the specified outlet flow when used within recommended capacities. In addition, many actuators can displace fluid different from the ratio of the divider. This can cause two actuators to either lock up or become out of synch. A means of rephasing the actuators is recommended.

Operation

As flow enters the inlet port of the PD version, it will pass through the control orifices in the interconnected spools. The flow passing through the orifices in the spools creates a pressure drop which pulls the two spools away from each other. The flow then passes to the two-divider outlet ports.

When flow is to be combined in the PDC versions, it enters the valve through the two-divider outlet ports. The flow passes through the orifices in the spools creating a pressure drop which pushes the two spools towards each other. The combined flow then passes to the inlet port. The design of the PD spool does not allow flow to combine.

Features

- Pressure compensated
- Cross drilled spool provides accurate metering
- High tensile, cast iron body

Ordering Information

□ — □ — □

Flow Divider — Port Size — Ratio

Code	Description
PD	Flow Divider
PDC	Flow Divider/ Combiner

NPT pipe ports are not recommended for pressures above 138 Bar (2000 PSI)

Code	Description
10	SAE-10 (3/4" - 16 UNF)
12	SAE 12 (1 1/16" - 12 UNF)
50	1/2" - 14 NPT
75	3/4" - 14 NPT

Note: The PDC is only available in a 50/50 ratio.

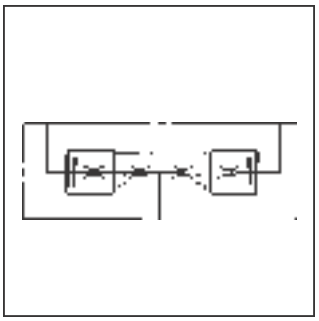
Code	Description
50	50/50
60	60/40
70	70/30

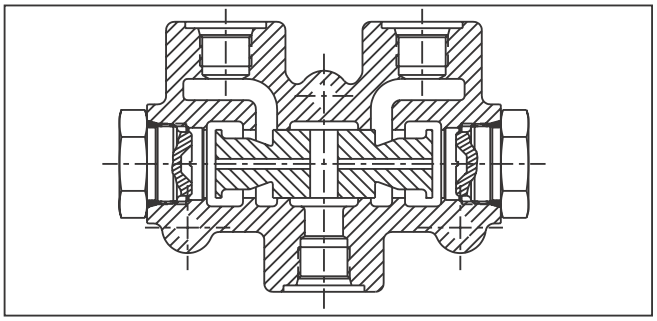
Service Parts

Spool Seal	3914N-9 (2 required)

Note: The body and the internal parts are non-service items.

PD-PDC.p65, dd



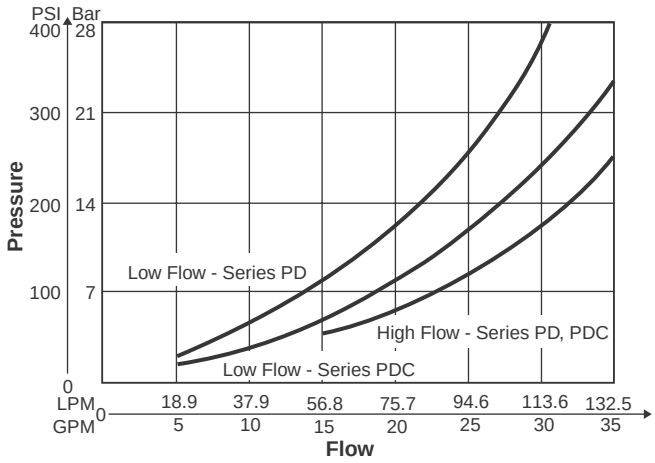


Specifications

Input Flow **PD / PDC50** **PD / PDC75** **PD / PDC12**	 18.75 - 75 LPM (5 - 20 GPM) 75 - 131.25 LPM (20 - 35 GPM) 75 - 131.25 LPM (20 - 35 GPM)
Accuracy	±10%
Operating Pressure **SAE Ports** **NPTF Ports**	 177 Bar (2500 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Spool – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions

Performance Curves

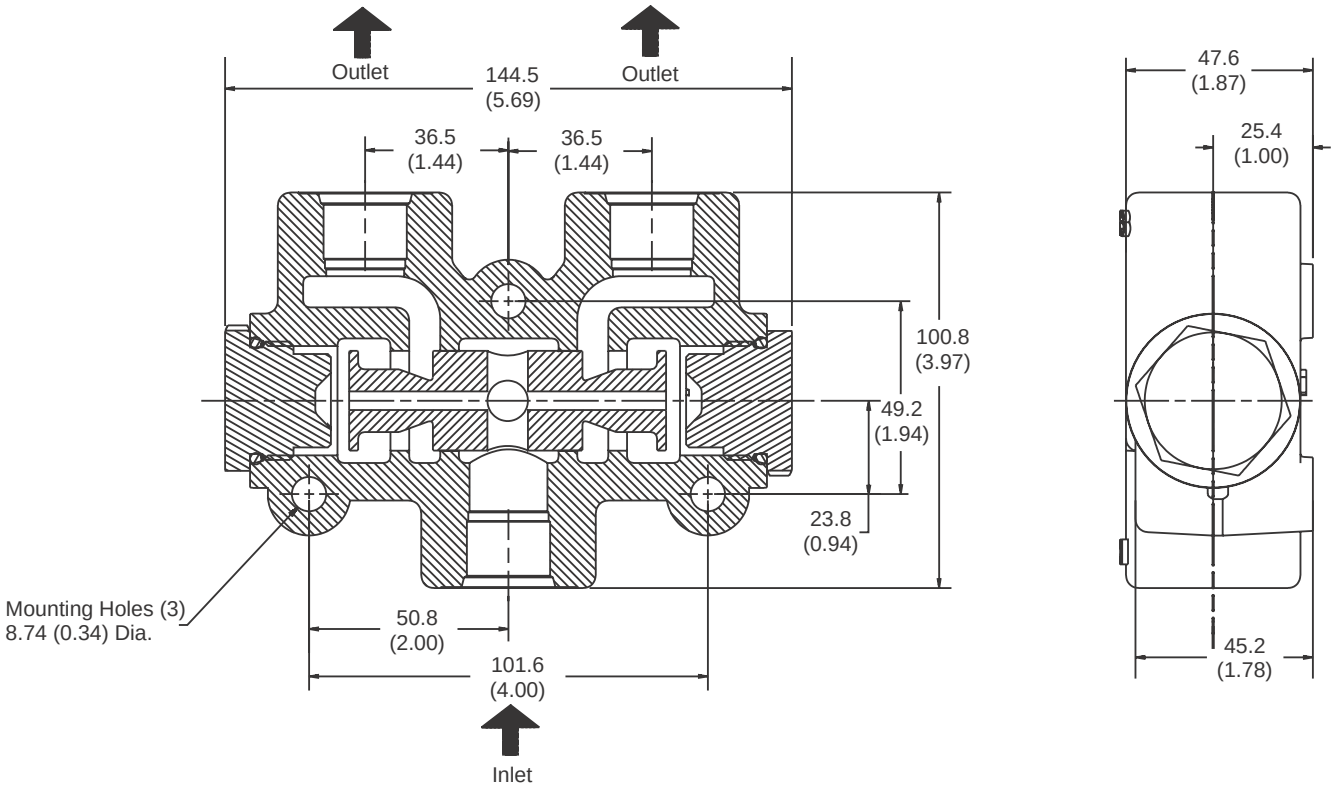
In Divider Mode from Inlet to Joined Legs



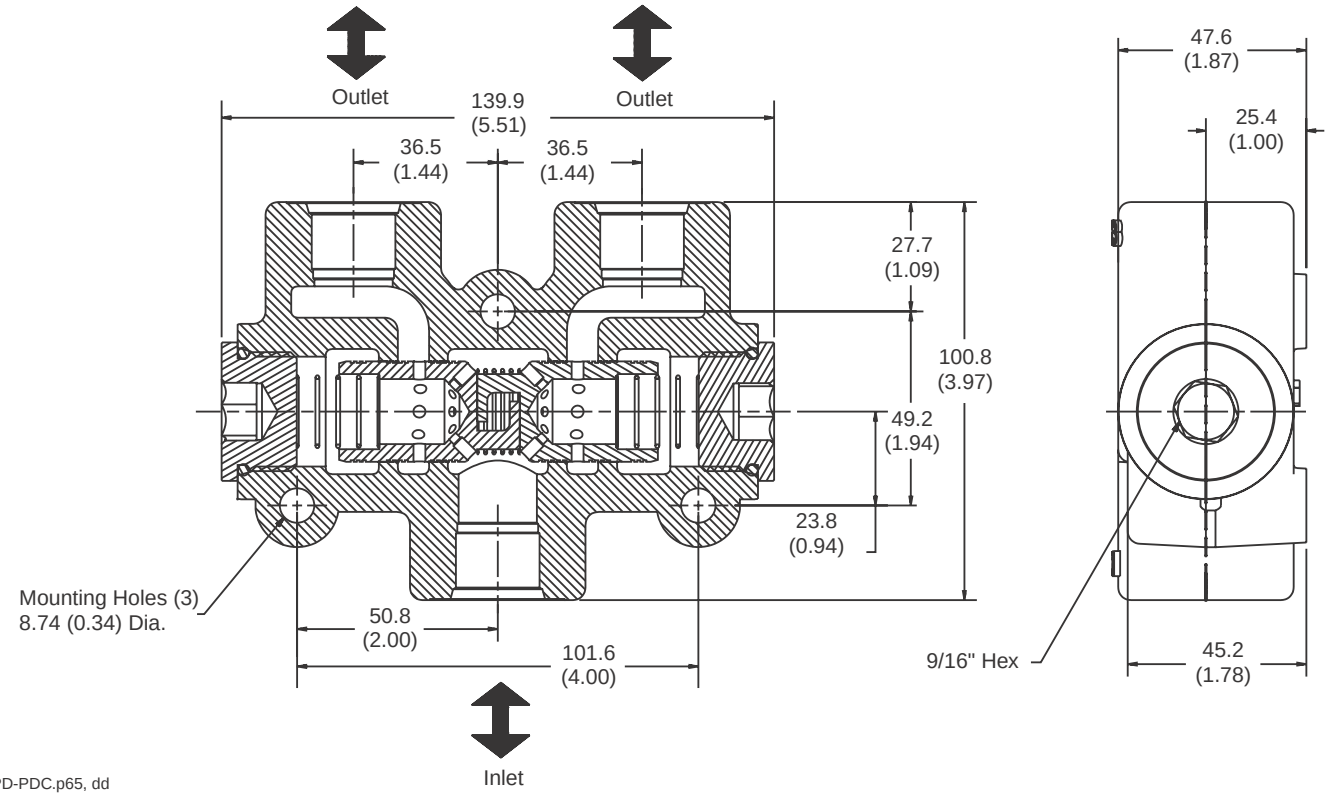
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Inch equivalents for millimeter dimensions are shown in (**)

Series PD
Standard Flow Divider



Series PDC
Flow Divider / Combiner



PD-PDC.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series RPJL accessory valves are relief valves used for limiting the maximum pressure which can be applied to the portion of the hydraulic circuit where it is connected.

Series RPJL relief valves are pilot operated, poppet-type relief valves. Their best application is a main system relief where smooth consistent performance is required.

Operation

The pilot section opens when inlet pressure on the RPJL relief valve exceeds the valve setting. This pilot flow creates a pressure imbalance across the main section causing the valve to open. The pilot section closes once the inlet pressure drops below the valve setting. This then re-seats the poppet in the main valve and closes it.

Features

- Compact, low profile design
- Hardened and ground poppet
- High tensile, compacted graphite body

Ordering Information

RPJL — [ ] — **A**

- **RPJL**: In-line Mounted Pilot-operated Relief Valve
- [ ]: Port Size

Code	Description
10	SAE-10 (7/8" - 14 UNF) Inlet and Outlet
12	SAE 12 (1 1/16" - 12 UNF) Inlet and Outlet
50	1/2" - 14 NPT
75	3/4" - 14 NPT Pressure Ports 1/2" - 14 NPT Tank Port

- **A**: Adjustment Option — Adjustable

Note: NPT pipe ports are not recommended for pressures above 138 Bar (2000 PSI)

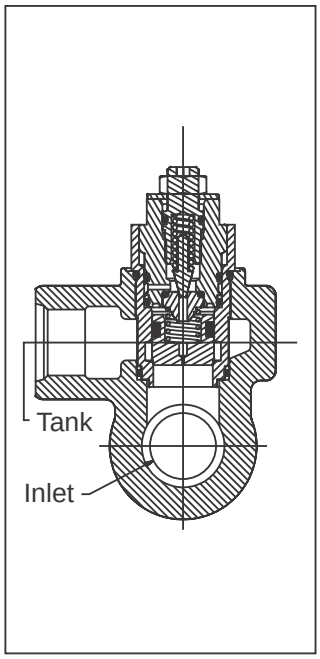
A right angle flow (former T option) is created by plugging one of the P ports.

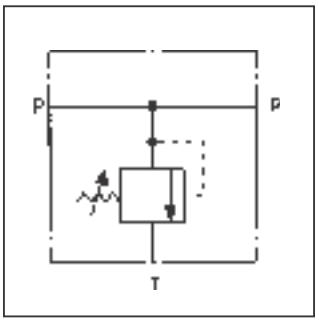
Service Parts

Relief Valve	RP51-A-5000
O-Ring Seal Kit	00712223
Body Kit	
RPJL-10	K-WJL-10
RPJL-50	K-WJL-50
RPJL-75	K-WJL-75
Relief Adjustment 1/4 turn = 200 PSI ±10%	

Note: The internal parts of the relief valve (including the spring) are non-service items.

RPJL.p65, dd



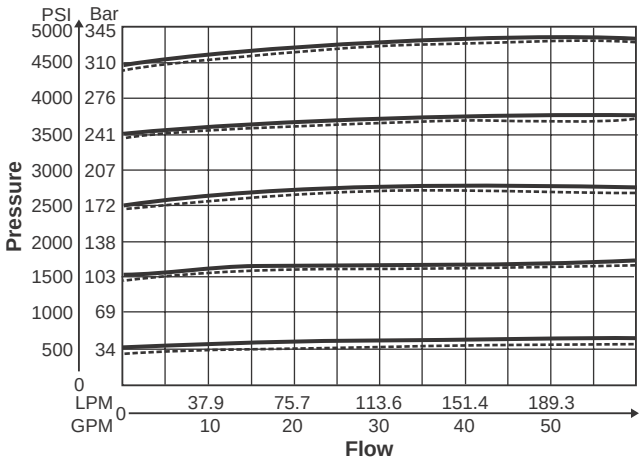


Specifications

Input Flow	93.75 LPM (25 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 350 Bar (5000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Spool – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions

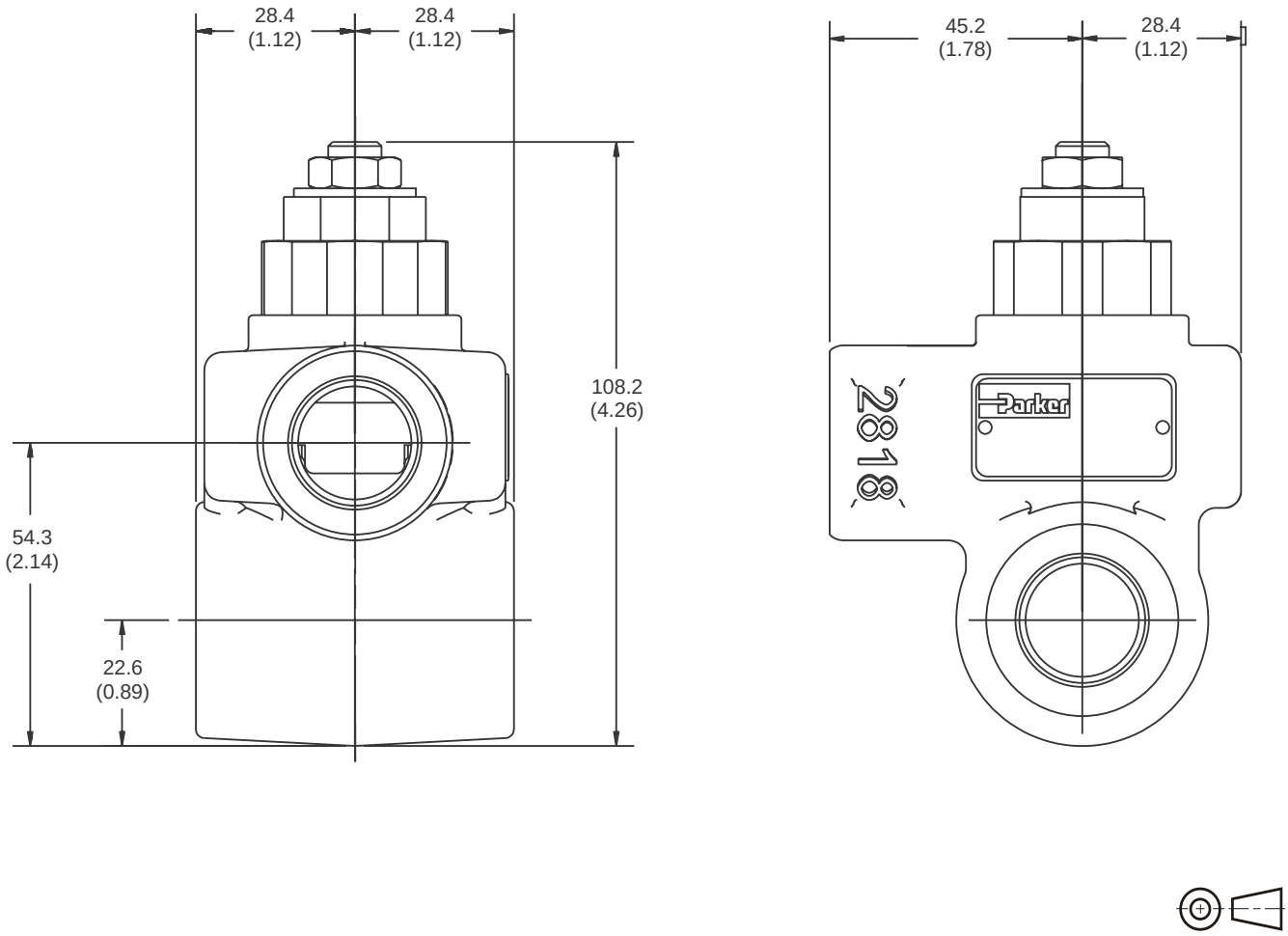
Performance Curves

Crack – 34 to 345 Bar (500 to 5000 PSI)



Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Inch equivalents for millimeter dimensions are shown in (**)



General Description

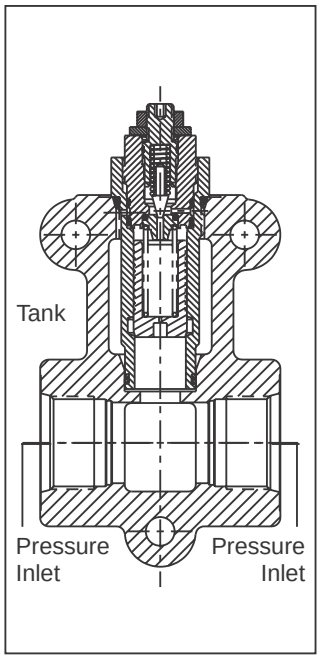
Series RPL relief valves are pilot operated, ball-type relief valves. Their best application is a main system relief where smooth consistent performance is required.

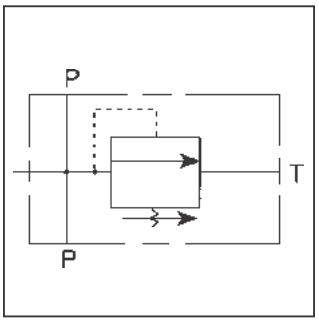
Operation

The pilot section opens when inlet pressure on the RPL relief valve exceeds the valve setting. This pilot flow creates a pressure imbalance across the main section causing the valve to open. The pilot section closes once the inlet pressure drops below the valve setting. As a result, this re-seats the poppet in the main valve and closes it.

Features

- Compact, low profile design
- Pilot operated for smooth, stable operation
- High tensile, compacted graphite body





Specifications

Input Flow	225 LPM (60 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 350 Bar (5000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Poppet – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions

Ordering Information

RPL — [ ] — **A**

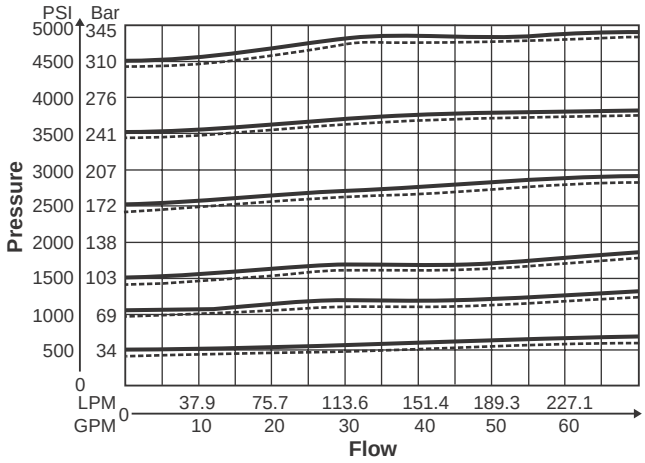
- **RPL**: Pilot Operated Relief Valve
- [ ]: Port Size

Code	Description
12	SAE 12 (1 1/16" - 12 UN)
16	SAE 16 (1 5/16" - 12 UN)
75	3/4" - 14 NPT
100	1" - 11 1/2 NPT

- **A**: Adjustment Option
  - Adjustable

Performance Curves

Crack – 34 to 345 Bar (500 to 5000 PSI)

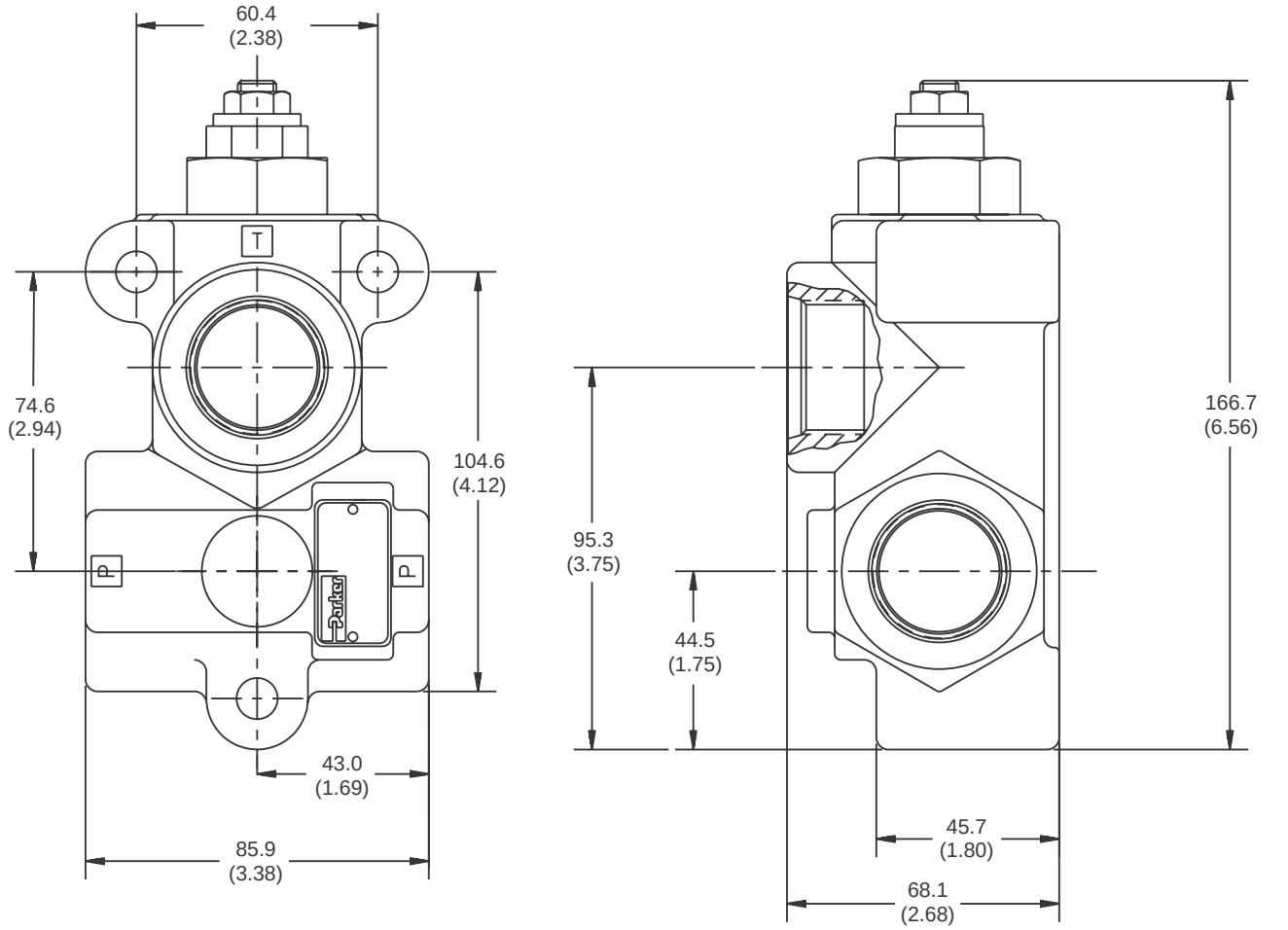


Service Parts

Relief Valve	RP60-A
External Seal – relief valve	3914N-9
Body Kit	
RPL-16	K-RPL-16
RPL-75	K-RPL-75
RPL-100	K-RPL-100
Relief Adjustment 1/4 turn = 200 PSI ±10%	

Note: The body and the internal parts of the relief valve (including the spring) are non-service items

Inch equivalents for millimeter dimensions are shown in (**)

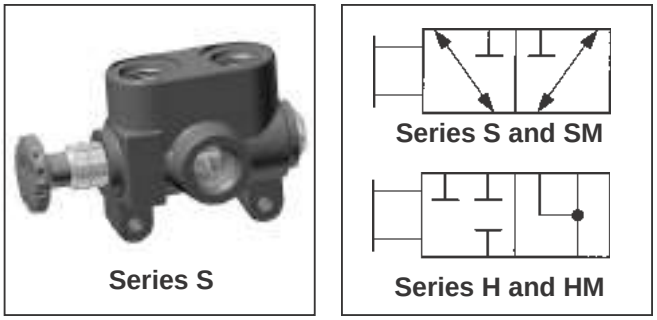


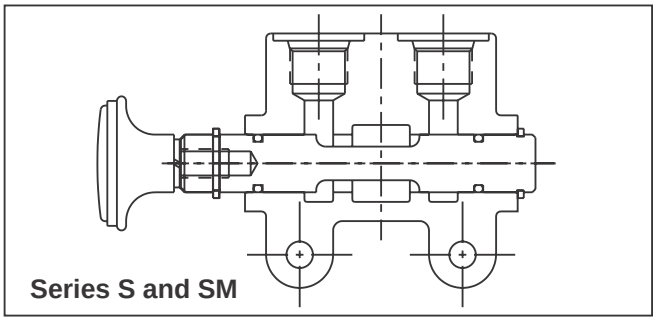
General Description

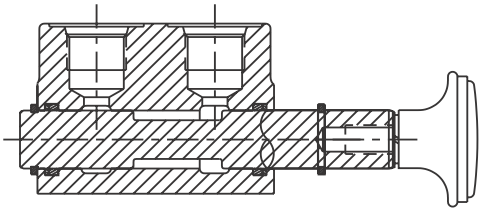
Series S and SM accessory valves are two-position, three way selector valves. They are designed for directing flow from one single pump to one, or the other of two separate hydraulic lines. An example of this is the operation of two single-acting cylinders, independent of each other.

Series H and HM accessory valves are two-position, three way selector valves. They are designed to be used with a three-position, four way valve to provide a float or free-wheeling condition. Application examples include plows, loaders, and certain winches.

All four versions of this valve should be shifted prior to the application of pressure. The flow forces might make this valve difficult to shift under normal operating pressure and flow conditions.







Series H and HM

Operation

Flow enters the valve at the inlet port. When the lever is pushed in, the spool shifts allowing inlet flow to reach the work port furthest away from the lever. When the lever is pulled out, the spool shifts allowing inlet flow to reach the work port closest to the lever.

Features

- Pressure balanced spool
- Chrome plated spool
- High-tensile cast iron body

Specifications

Input Flow **37.5 LPM (10 GPM)** **75 LPM (20 GPM)** **112.5 LPM (30 GPM)** **225 LPM (60 GPM)**	HM-8 and HM-50 S-8, SM-8, S-10, S-50 and SM-50 S-12, H-12, S-75 and H-75 S-16, S-100	**Operating Temperature Range (Ambient)**	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Operating Pressure **SAE Ports**207 Bar **NPTF Ports**	(3000 PSI) 138 Bar (2000 PSI)	**Material**	Body – High strength cast iron Spool – Hardened and ground steel
		Filtration	ISO Code 16/13 SAE Class 4 or better
		Mounting Position	In-line; no restrictions

□ Series — □ Port Size

Code	Description
S	Circuit Selector
SM	Circuit Selector
H	Float Selector
HM	Float Selector

Code	Description
8	SAE 8 (3/4" - 16 UNF)
10	SAE 10 (7/8" - 14 UNF)
12	SAE 12 (1 1/16" - 12 UN)
50	1/2" - 14 NPT
75	3/4" - 14 NPT
100	1" - 11 1/2 NPT

The following models are not available:

H-8	**HM-10**	**SM-10**
H-10	**HM-12**	**SM-12**
H-16	**HM-16**	**SM-16**
H-50	**HM-75**	**SM-75**
H-100	**HM-100**	**SM-100**

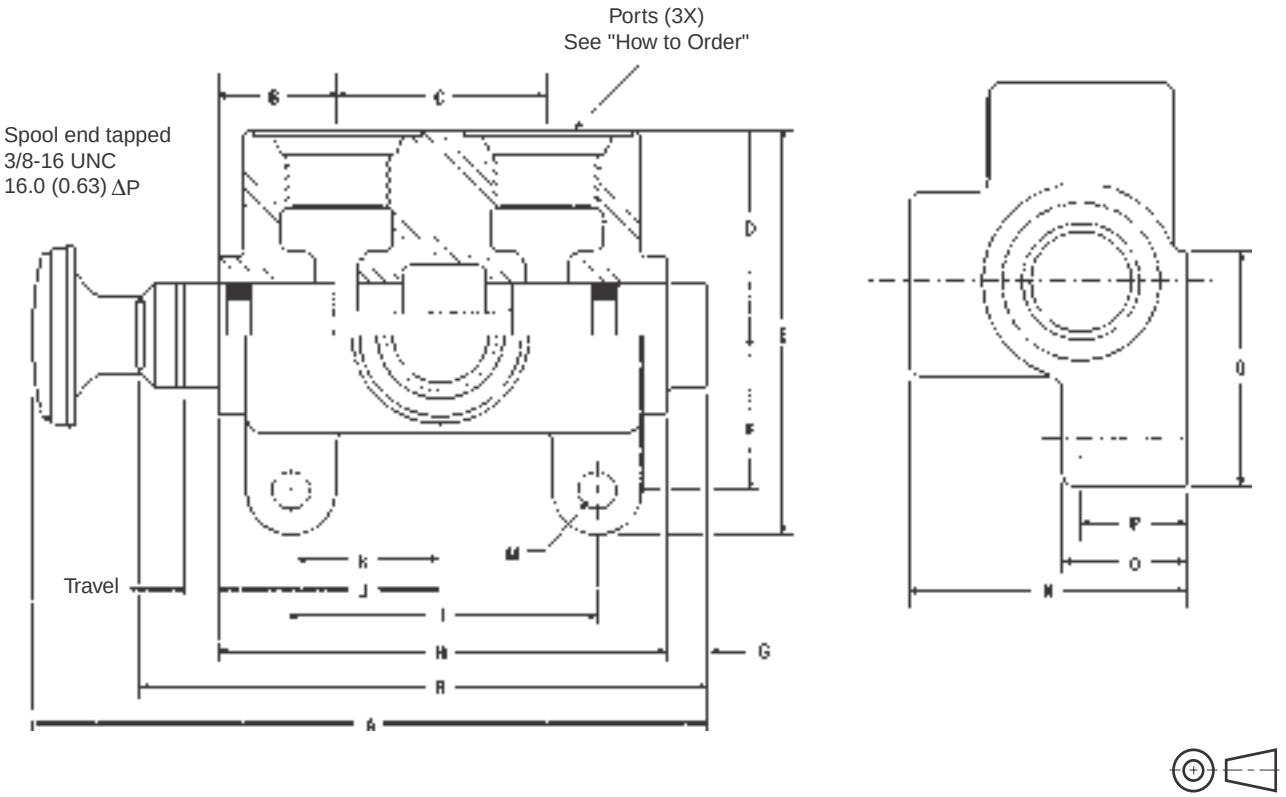
All valves are shipped with a knob.

Service Parts

Knob Kit with Lockwasher all versions	06645001
Clevis Kit	08650235
Spool Seal & Retaining Ring Kit	
Size 12 and 75 only (H or S)	06492001
Size 8, 10 and 50 only (H or S)	06490001
Size 16 and 100 only (H or S)	06493001
Spool Seal, Retaining Ring & Back-up Ring Kit (HM & SM Only)	11411001

Note: The body and the spool are not service items.

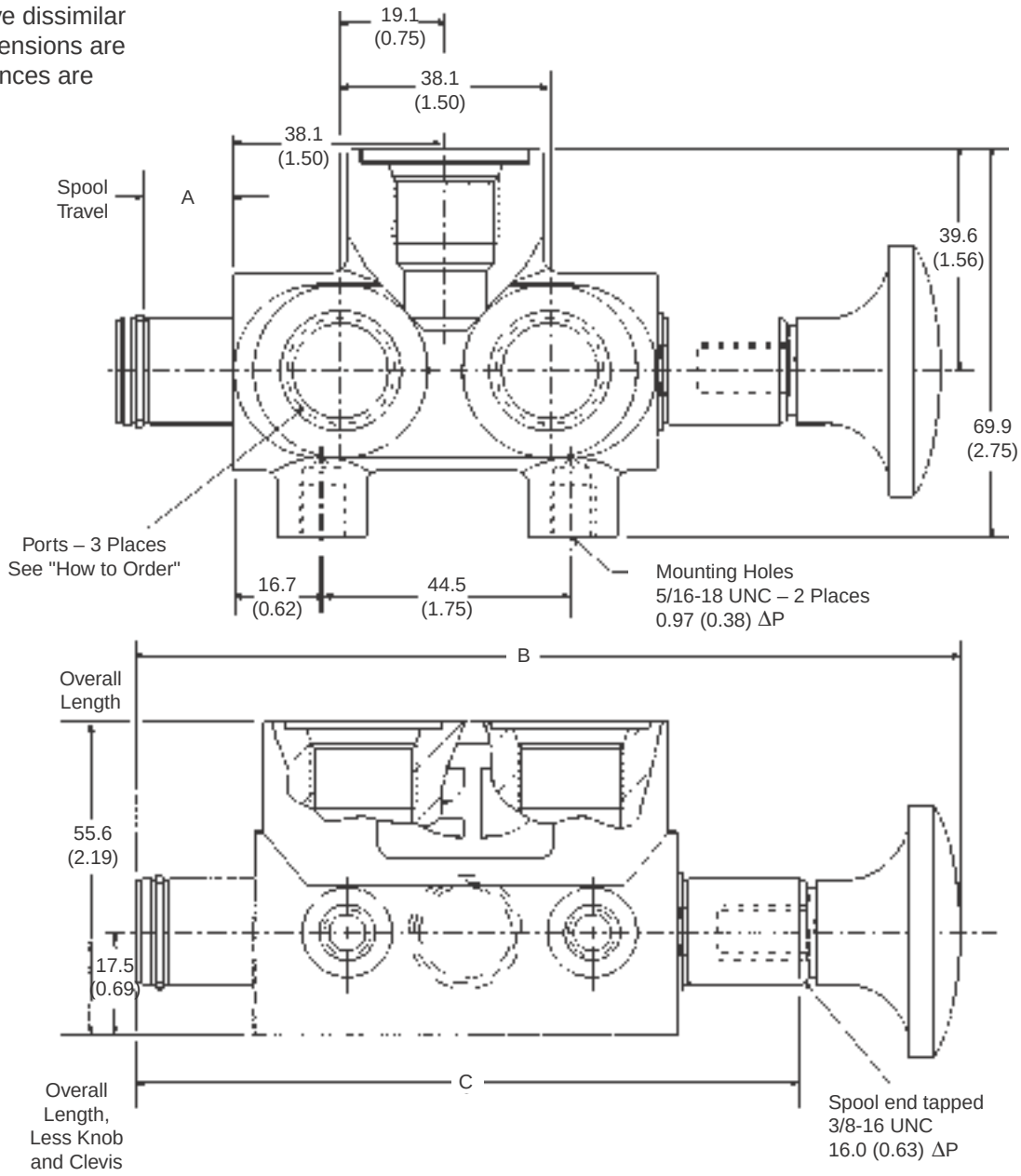
Inch equivalents for millimeter dimensions are shown in (**)



Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
S-50	147.1 (5.79)	24.6 (0.97)	41.4 (1.63)	42.9 (1.69)	84.1 (3.31)	30.2 (1.19)	6.4 (0.25)	90.4 (3.56)	54.1 (2.13)	45.2 (1.78)	26.9 (1.06)	7.9 (0.31)	8.9 (0.35)	66.6 (2.62)	28.5 (1.12)	25.4 (1.00)	50.8 (2.00)	117.4 (4.62)
S-75	168.2 (6.62)	28.7 (1.13)	53.9 (2.12)	52.3 (2.06)	101.6 (4.00)	38.1 (1.50)	6.4 (0.25)	111.3 (4.38)	76.2 (3.00)	55.6 (2.19)	38.1 (1.50)	9.7 (0.38)	8.9 (0.35)	66.6 (2.62)	28.5 (1.12)	25.4 (1.00)	58.7 (2.31)	138.2 (5.44)
S-100	188.5 (7.42)	30.2 (1.19)	65.0 (2.56)	57.2 (2.25)	114.3 (4.50)	42.9 (1.69)	6.4 (0.25)	125.5 (4.94)	87.4 (3.44)	62.7 (2.47)	43.7 (1.72)	9.7 (0.38)	10.4 (0.41)	88.9 (3.50)	35.1 (1.38)	31.8 (1.25)	73.2 (2.88)	158.8 (6.25)
H-75	168.2 (6.62)	28.7 (1.13)	53.9 (2.12)	52.3 (2.06)	101.6 (4.00)	38.1 (1.50)	6.4 (0.25)	11.3 (4.38)	76.2 (3.00)	55.8 (2.19)	38.1 (1.50)	9.7 (0.38)	8.9 (0.35)	66.6 (2.62)	28.5 (1.12)	25.4 (1.00)	58.7 (2.31)	138.2 (5.44)

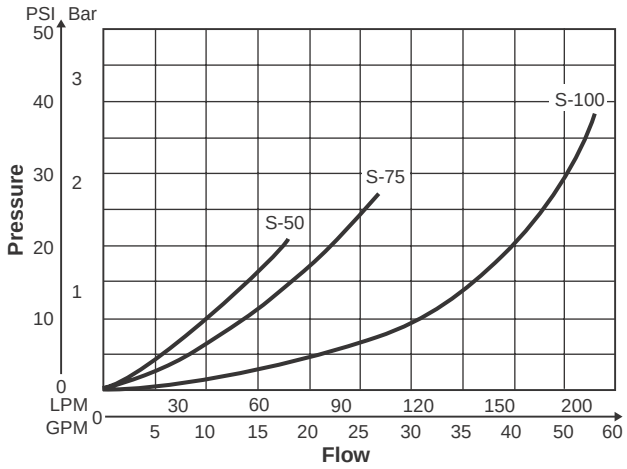
Inch equivalents for millimeter dimensions are shown in (**)

Series SM and HM share a common housing, but have dissimilar spools. Common dimensions are depicted while differences are charted.



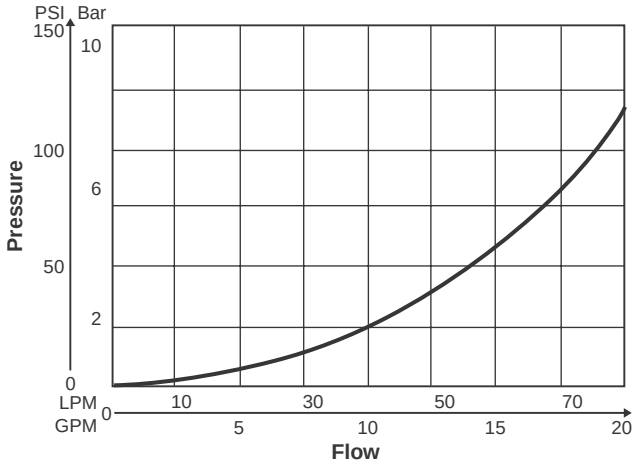
Series	A	B	C
SM	16.0 (0.63)	150.4 (5.92)	120.7 (4.75)
HM	10.4 (0.40)	140.7 (5.54)	111.3 (4.38)

Series S

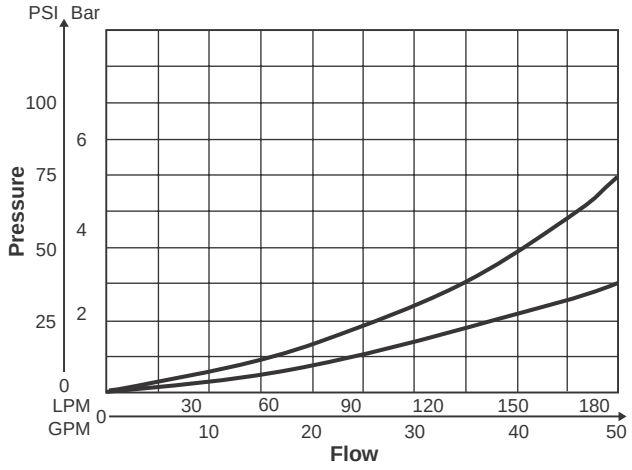


Note: Model S selectors will tolerate flow rates well in excess of those shown here. Consideration should be given to the restrictiveness of the port adaptors.

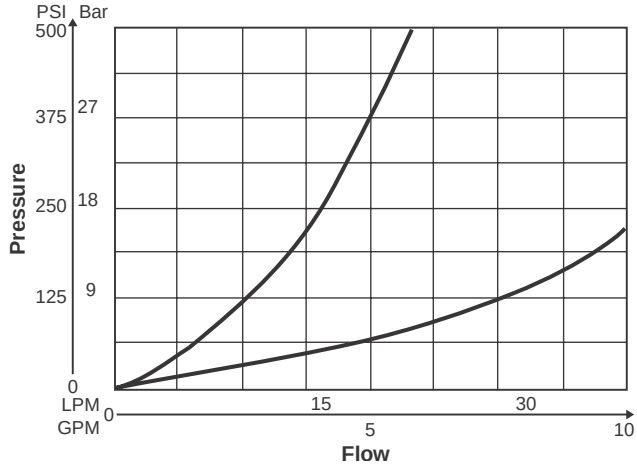
Series SM



Series H



Series HM



S-H-SM-HM.p65, dd

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

General Description

Series WJL accessory valves are relief valves used for limiting the maximum pressure which can be applied to the portion of the hydraulic circuit where it is connected.

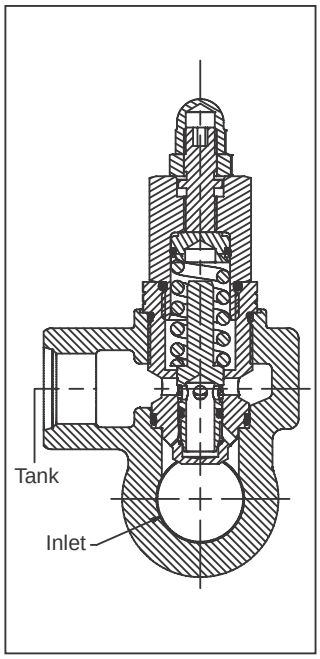
Series WJL relief valves are differential poppet-type relief valves. Their best application is a cylinder port relief where fast response time is required.

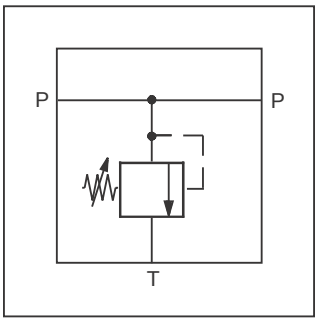
Operation

Pressure on the inlet of the WJL relief valve acts on the differential area of the poppet (area difference between the O.D. of the poppet and the seat diameter) to produce a force which is opposed by the spring force. The poppet is pushed off its seat when pressure reaches the valve setting. The spring force re-seats the poppet once the pressure drops below the valve setting.

Features

- Compact, low profile design
- Hardened and ground poppet
- High tensile, compacted graphite body





Specifications

Input Flow	93.75 LPM (25 GPM)
Operating Pressure **SAE Ports** **NPTF Ports**	 210 Bar (3000 PSI) 138 Bar (2000 PSI)
Operating Temperature Range (Ambient)	Nitrile Seals: -40°C to +93°C (-40°F to +200°F)
Material	Body – High strength cast iron Spool – Hardened and ground steel
Filtration	ISO Code 16/13 SAE Class 4 or better
Mounting Position	In-line; no restrictions

Note: A right angle flow path (former T option) is created by plugging one of the P ports.

Ordering Information

WJL — □ — □ — □

- **WJL** – In-line Mounted WH Differential Poppet Relief Valve
- □ – Port Size
- □ – Adjustment Option
- □ – Pressure Range

Code	Description
10	SAE-10 (7/8" - 14 UNF)
12	SAE 12 (1 1/16" - 12 UNF)
50	1/2" - 14 NPT
75	3/4" - 14 NPT Pressure Ports 12" - 14 NPT Tank Port

Code	Description
Omit	Shim Adjustable
A	Screw Adjustable

Note: NPT pipe ports are not recommended for pressures above 138 Bar (2000 PSI)

Code	Setting	Range
1250	89 Bar (1250 PSI)	35 - 89 Bar (500 - 1250 PSI)
2000	142 Bar (2000 PSI)	89 - 142 Bar (1250 - 2000 PSI)
2500	177 Bar (2500 PSI)	142 - 177 Bar (2000 - 2500 PSI)
3000	210 Bar (3000 PSI)	142 - 210 Bar (2000 - 3000 PSI)

Service Parts

Relief Valve Cartridges	
35 - 89 Bar (500 - 1250 PSI)	WHA-1250
89 - 142 Bar (1250 - 2000 PSI)	WHA-2000
142 - 177 Bar (2000 - 2500 PSI)	WHA-2500
177 - 210 Bar (2500 - 3000 PSI)	WHA-3000
O-Ring Seal Kit	00712223

Body Kits	
WJL-10	K-WJL-10
WJL-50	K-WJL-50
WJL-75	K-WJL-75
Relief Adjustments	
Screw Adjustment – 1/4 turn = 200 PSI ±10%	
Shim Adjustment – 100 PSI	00462001
150 - 250 PSI	00459001
250 - 450 PSI	00458001

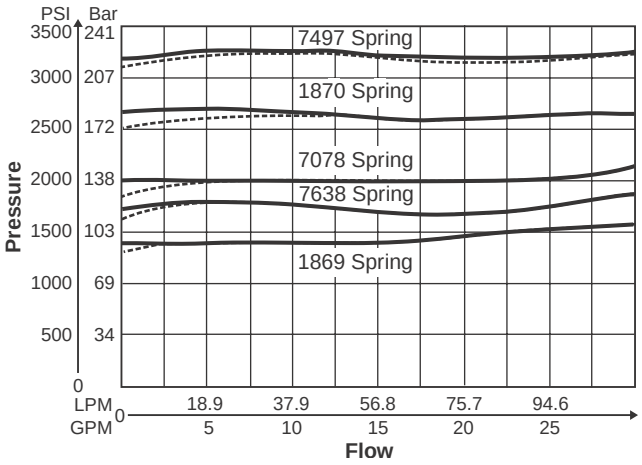
Note: The internal parts of the relief valve (including the spring) are non-service items.

WJL.p65, dd

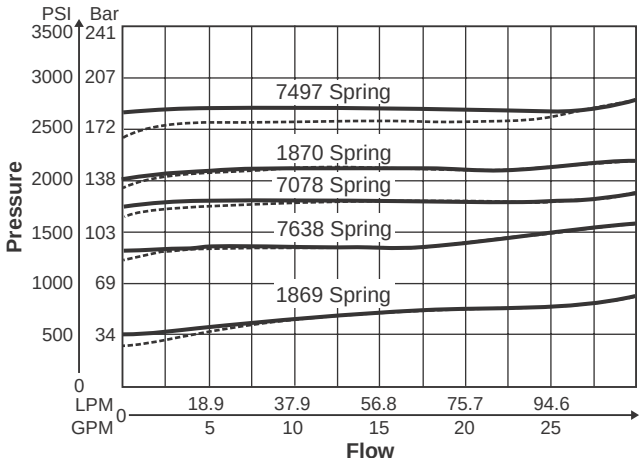
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Performance Curves

Low End – 34 to 207 Bar (500 to 3000 PSI)

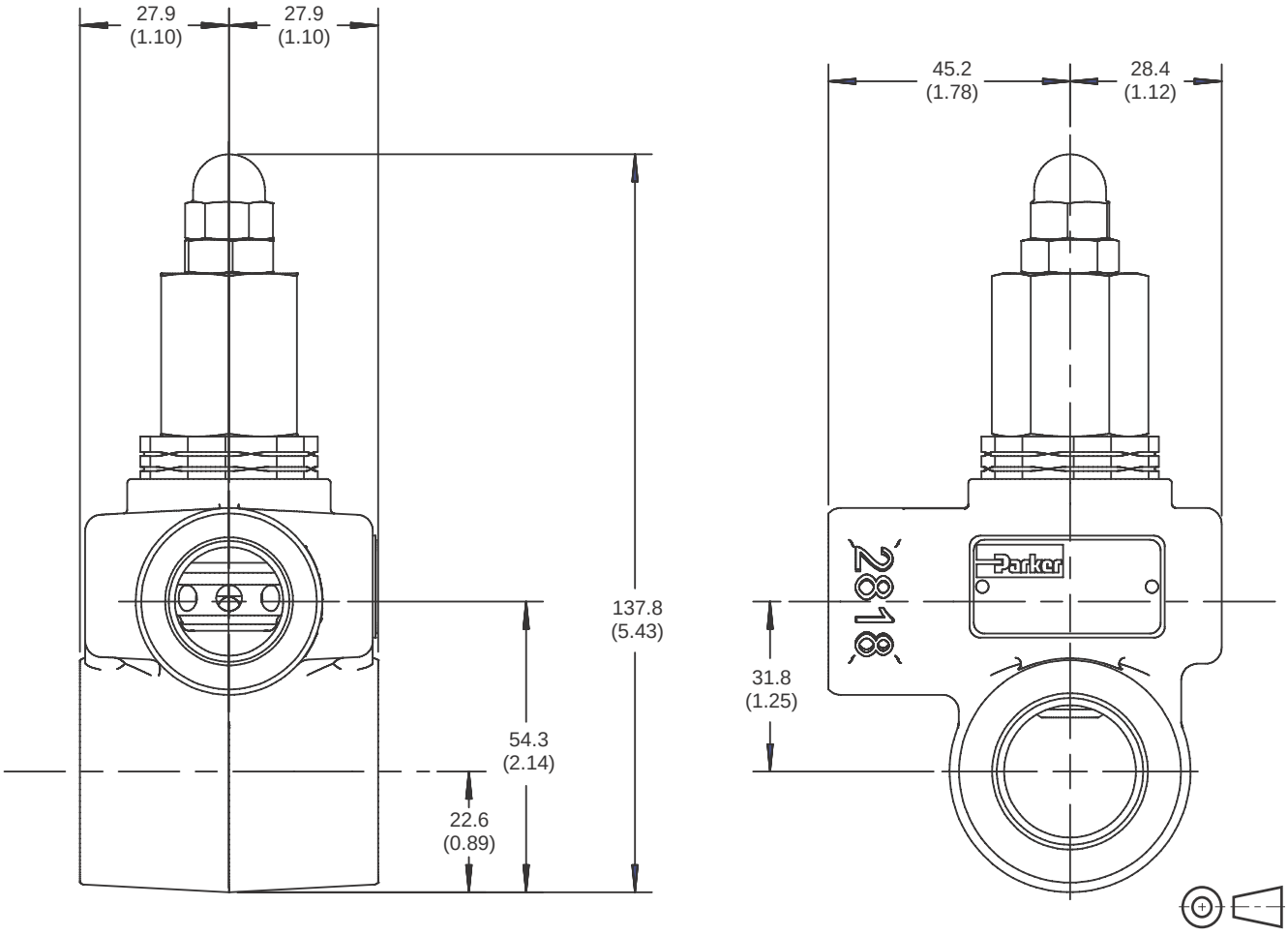


High End – 34 to 207 Bar (500 to 3000 PSI)



Dimensions

Inch equivalents for millimeter dimensions are shown in (**)



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Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA

Offer of Sale

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The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such items, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer, Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

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6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

9/91-P

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Parker Hannifin Corporation
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Elyria, Ohio, USA

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Parker Hannifin Corporation

About Parker Hannifin Corporation

Parker Hannifin is a leading global motion-control company dedicated to delivering premier customer service. A Fortune 500 corporation listed on the New York Stock Exchange (PH), our components and systems comprise over 1,400 product lines that control motion in some 1,000 industrial and aerospace markets. Parker is the only manufacturer to offer its customers a choice of hydraulic, pneumatic, and electromechanical motion-control solutions. Our Company has the largest distribution network in its field, with over 7,500 distributors serving nearly 400,000 customers worldwide.

Parker's Charter

To be a leading worldwide manufacturer of components and systems for the builders and users of durable goods. More specifically, we will design, market and manufacture products controlling motion, flow and pressure. We will achieve profitable growth through premier customer service.

Product Information

North American customers seeking product information, the location of a nearby distributor, or repair services will receive prompt attention by calling the Parker Product Information Center at our toll-free number: 1-800-C-PARKER (1-800-272-7537). In Europe, call 00800-C-PARKER-H (00800-2727-5374).

The Aerospace Group is a leader in the development, design, manufacture and servicing of control systems and components for aerospace and related high-technology markets, while achieving growth through premier customer service.

The Climate & Industrial Controls Group designs, manufactures and markets system-control and fluid-handling components and systems to refrigeration, air-conditioning and industrial customers worldwide.

The Fluid Connectors Group designs, manufactures and markets rigid and flexible connectors, and associated products used in pneumatic and fluid systems.

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The Hydraulics Group designs, produces and markets a full spectrum of hydraulic components and systems to builders and users of industrial and mobile machinery and equipment.

The Filtration Group designs, manufactures and markets quality filtration and clarification products, providing customers with the best value, quality, technical support, and global availability.

The Automation Group is a leading supplier of pneumatic and electromechanical components and systems to automation customers worldwide.

The Instrumentation Group is a global leader in the design, manufacture and distribution of high-quality critical flow components for worldwide process instrumentation, ultra-high-purity, medical and analytical applications.

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Catalog HY14-2502/US
Industrial Hydraulic Valves

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Catalog 2400/US
Mobile Hydraulic Valves

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Catalog HY14-2550/US
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