Series 300 and 400 Monoblock Control Valves

Effective: February 1, 2004
Supersedes: Cat. No. GPD-1025 dated 4/97

Description

The Parker Series 300 valve is designed to control single-acting cylinders or a uni-directional hydraulic motors. The spool in this valve is a 3-way, 3-position spool. The positions are power, neutral, and exhaust. “B” port is always the power port and “A” port is always plugged.

The standard Series 300 valve is spring-centered to neutral position with work port blocked in neutral. Optional spool and spool positioner assemblies are available. This valve which is available in single-spool monoblock housing only, is ideal for general mobile and industrial hydraulic applications.

The Parker Series 400 valve is designed to control a double-acting cylinder or a reversible hydraulic motor. The standard spool for this valve is a 4-way, 3-position spool. The Series 400 valve cannot be converted to a 300 valve.

The Series 400 valve does not have a load (reverse flow) check to prevent reverse flow when spool is in transition between neutral and power positions.

The spool is spring-centered to neutral position with cylinder ports blocked in neutral. Optional spool and spool positioner assemblies are available. This valve which is available in single-spool monoblock housing only, is ideal for general mobile and industrial hydraulic applications.

Features

- Monoblock body design
- Available in open center or closed center configurations
- Built-in, shim-adjustable relief valve
- Built-in, load (reverse flow) check (series 300 only)
- Control handles may be mounted in “up” or “down” position
- Numerous spool positioner options available
- Replaceable, hardened relief valve seats
Specifications

Nominal Flow Rating ............................................................... Up to 16 GPM (60.6 lpm)

Operating Pressure (maximum)
  Continuous (SAE Porting) ................................................ 2500 PSI (172.5 bar)
  Continuous (NPT Porting) .................................................. 2000 PSI (138.0 bar)
  Exhaust Core 1 .............................................................. 1000 PSI (69.0)

Operating Temperature ...................................................... -40° F (-40° C) TO + 176° F (+80° C)

Available Port Sizes
  Inlet & Outlet ................................................................. .34" NPT, (SAE #12 - Optional)
  Work Ports ................................................................. .1/2" NPT, (SAE #10 - Optional)

Fluid .................................................................................. Petroleum Based, 60-1000 SSU (10-216 cSt)

Filtration Required (minimum) ................................................. 33 micrometer

Shipping Weight (approx.) ................................................... .81/4 Lbs (3.74 kgs)

Seals .................................................................................. Buna-N (Standard)

Mounting Position ................................................................ Not Restricted

1 Valves with exhaust cores pressures exceeding 500 PSI (34.5 bar) may required a heavy spool centering spring.

PERFORMANCE CURVES

Typical Pressure Drop Thru Open Center with Standard Ports
150 SUS (3.65 Centistokes) Oil at 100° F

Typical Pressure Drop Thru Open Center with Standard Ports
150 SUS (3.65 Centistokes) Oil at 100° F
DIMENSIONS - Series 300 and 400

DIMENSIONS ARE IN INCHES (MILLIMETERS) AND ARE FOR REFERENCE ONLY.
SPOOL AND POSITIONER OPTIONS

3-Way Spool
For control of single acting cylinders or starting and stopping non-reversible hydraulic motors where free-wheeling is not required. The work port is blocked in the neutral position.

4-Way Spool
For control of double acting cylinders or reversible hydraulic motors where floating a cylinder or motor free-wheeling is not required. Both work ports are blocked in the neutral position.

4-Way Free Flow Spool
For control of double acting cylinders or reversible hydraulic motors. Because both work ports are open to tank in the neutral position, free flow spools will allow a motor to coast.

Warning: If you are using the free flow “F4” spool configuration when installing a Model 340 or 440 directional control valve in a cylinder lift application, it must be used in conjunction with a load holding device. A load holding device will prevent the load from free falling when the spool is in the neutral position. A free falling load could cause serious bodily injury or property damage if the holding device is not installed. Be sure to clear the work area prior to testing the cylinder lift application to avoid a potential dangerous situation.

Spring-Centering Spool Positioner
Furnished as standard, unless otherwise specified. This option spring returns the valve spool to neutral from the “A” and “B” power positions when the handle is released.

3-Position Detent Spool Positioner
This option “detents” the valve spool in neutral and the “A” and “B” power positions. There is no spring to return the valve spool to neutral. The valve spool will remain in the position in which it was manually placed when the handle is released.

This option is NOT intended for use as a positive spool locking device against excessive external forces or machine vibration.

(Optional) Detent Stops are available to limit spool travel to two detented positions, either Neutral and Spool in or Neutral and Spool Out.

Spring Extended Spool Positioner
This option eliminates Spring-Centering to Neutral, and spring loads the spool to the “OUT” position only. This option is usually used for “Cam-Operation” of spool. Customer must supply cam-follower mechanism.

A handle assembly is NOT furnished with this option.
HANDLE OPTIONS

Standard handles will be furnished, unless otherwise specified when ordering. All standard handles are cast iron with a black plastic coating. The following handle options are available:

LHO (Less Handle Only) - If the bracket, links and pins are required, but not the handle, specify “LHO”.

LCHA (Less Complete Handle Assembly) - If the complete bracket, handle, link and pins are not required, specify “LCHA”.

![Diagram of handle options]
ORDER CODE

Basic Model
[3] Prefix for 300 Series
[4] Prefix for 400 Series

1 Positioner Type
[00] Spring Return to Neutral [Standard]
[10] 3-Position Detent
[20] Spool Spring-Loaded to “Out” Position (Furnished with spool clevis only—typically used for Cam Control).

1 Spool Type
(00) Open Center (Work Ports Blocked, Pump to Tank in Neutral)
(30) Closed Center (All Ports Blocked in Neutral)
(40) Free Flow (All Ports Open to Tank in Neutral)

Handle Information
[ ] Complete Handle Assembly (Standard)
[LHO] Less Handle Only (Includes Bracket & Pins)
[LCHA] Less Complete Handle, Bracket & Pins

Relief Valve Options 2
[ ] Standard Relief
(Specify Relief Setting When Ordering, If not specified, relief valves will be set at 1500 PSI @ 7.6 GPM)
[NR] No Relief Option
(Relief area Stamped “NR”)

Notes
1. A Positioner Type and a Spool Type may be combined in one valve assembly.
   Example: A Free Flow motor spool (Model 440) may be combined with a 3-Position Detent (Model 410) and should be specified as Model 410-40.

2. Valves shipped from the factory with “NR” Option CANNOT be modified to install a Relief Valve.
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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 shall 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.

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9/91-P

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA
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Bulletin HY14-2713-B1/US, 3C, 2/04, PHD
Series SP, SPK and SSK Monoblock Control Valves

Features
- Monoblock body design
- Available in parallel (SP & SPK) or series (SSK) configurations
- Available in 1-, 2-, or 3-spool versions (model SSK available in 2-spool only)
- Adjustable or non-adjustable ball/spring type relief valve. Optional differential poppet, main relief valve available.
- Built-in, reverse flow check — one check for ‘A’ port circuit and one for ‘B’ port circuit in series SP and SPK (one for each spool in series SSK)
- Control handles may be mounted in ‘up’ or ‘down’ position
- Numerous spool positioner options available
- (Optional) power-beyond conversion, port outlet available

Specifications

<table>
<thead>
<tr>
<th>Nominal Flow Rating</th>
<th>Up to 20 GPM (76 lpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure (maximum)</td>
<td>2000 PSI (138 bar)</td>
</tr>
<tr>
<td>Continuous Operating</td>
<td>500 PSI (34.5 bar)</td>
</tr>
<tr>
<td>Exhaust Core</td>
<td>-40°F (-40°C) to +176° (+80°C)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Petroleum Based, 60-1000 SSU (10-216 cSt)</td>
</tr>
<tr>
<td>Available Port Sizes</td>
<td>SAE 12, 3/4” NPT</td>
</tr>
<tr>
<td>Inlet &amp; Outlet</td>
<td>SAE 10, 1/2” NPT</td>
</tr>
<tr>
<td>Work Ports</td>
<td>SAE 10, 3/4” NPT</td>
</tr>
<tr>
<td>Fluid</td>
<td>33 micrometer nominal</td>
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<tr>
<td>Filtration Required (minimum)</td>
<td>SP and SPK (1-, 2-, or 3-Spool)</td>
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<tr>
<td>Number of Spools</td>
<td>SSK (2-Spool only)</td>
</tr>
<tr>
<td>Shipping Weight (approx.)</td>
<td>SP Approx. 15.5 lbs. (7.03 kgs)</td>
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<tr>
<td>1-spool</td>
<td>SPK Approx. 17.5 lbs (7.94 kgs)</td>
</tr>
<tr>
<td>2-spool</td>
<td>All Models Approx. 24 lbs. (10.89 kgs)</td>
</tr>
<tr>
<td>3-spool</td>
<td>SP Approx. 32.5 lbs. (14.74 kgs)</td>
</tr>
<tr>
<td>3-spool</td>
<td>SSK Approx. 29.5 lbs. (13.38 kgs)</td>
</tr>
<tr>
<td>Seals</td>
<td>(Standard) Buna-N (Optional) Viton</td>
</tr>
<tr>
<td>Mounting Position</td>
<td>Not Restricted</td>
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</table>
DESCRIPTION

Model SP

Model SP Monoblock Type Directional Control Valve is manufactured to give outstanding, long-lasting performance. Spools are hone-fitted for above average "load-hold" characteristics.

Model SP Valves are available either 3-way (single-acting), 4-way (double-acting) 4-way free flow (motor) or with combinations of each.

Monoblock valve housings are available in 1-, 2-, or 3-spool configurations. Optional spools, bonnet assemblies and ports are available on special order.

Model SPK

Model SPK Monoblock Type Directional Control Valve is available in 1-, 2-, or 3-spool configurations. The No. 1 spool is always a 4-way float spool. Spools No. 2 and No. 3 are either 3-way or 4-way, the same as in the SP valve.

The float spool is the same as the 4-way, 3-position spool, with the addition of a fourth 'Float' position. When in 'Float' position, the pump flow is directed to the tank through the open center core. Both work ports are open to the tank.

The float spool is spring-centered to Neutral in three positions. The fourth position is a detented 'Float' position which allows a cylinder to 'Float' or a motor to 'Free Wheel'.

Applications for valves with 'Float' positions include bulldozers, loaders, snow plows and other types of equipment that require a combination of both 'Float' and 'Hold' operations.

Model SSK

Model SSK Monoblock Type Directional Control Valve is designed for Series Circuit Operation, which allows simultaneous operation of two cylinders or motors by directing the discharge oil from the cylinder or motor controlled by the No. 1 spool to the cylinder or motor controlled by the No. 2 spool.

The No. 1 spool of the Model SSK valve is a 4-way, 4-position float spool as described in the Model SPK. The No. 2 spool is a 4-way, 3-position spool with spring return to neutral from power positions.

In the SSK valve, pressure is additive. The sum of the pressures required by both sections cannot exceed the main relief valve setting or pump pressure capability. If the cylinder controlled by spool No. 1 is fully retracted or extended, pump flow will go over the main relief and will not be available to spool No. 2.

The Model SSK may be used in any Open Center circuit where it is necessary to actuate two different functions simultaneously.

Note: The Model SSK CANNOT BE USED in 'Closed Center' hydraulic circuits.
**PERFORMANCE CURVES**

Model SPK

**PRESSURE DROP THRU OPEN CENTER**
- A 1-Spool Valve
- B 2-Spool Valve
- C 3-Spool Valve

**MAXIMUM PRESSURE DROP THRU VALVE**
(One spool in "Power Position")
- A 1-Spool Valve
- B 2-Spool Valve
- C 3-Spool Valve

Model SSK

**PRESSURE DROP THRU OPEN CENTER**
- A

**MAXIMUM PRESSURE DROP THRU VALVE**
(One spool in "Power Position")
- A

Model SP

**PRESSURE DROP THRU OPEN CENTER**
- A 1-Spool Valve
- B 2-Spool Valve
- C 3-Spool Valve

**MAXIMUM PRESSURE DROP THRU VALVE**
(One spool in "Power Position")
- A 1-Spool Valve
- B 2-Spool Valve
- C 3-Spool Valve
**SPOOL OPTIONS**

3-Way (Spool Code ‘3’)
For control of single acting cylinders or starting and stopping non-reversible hydraulic motors where free-wheeling is not required. The work port is blocked in the neutral position.

4-Way (Spool Code ‘4’)
For control of double acting cylinders or reversible hydraulic motors where floating a cylinder or motor free-wheeling is not required. Both work ports are blocked in the neutral position.

4-Way Free Flow (Spool Code ‘F4’)
For control of double acting cylinders or reversible hydraulic motors. Because both work ports are open to tank in the neutral position, free flow spools will allow a motor to coast.

*Warning: If you are using the free flow ‘F4’ spool configuration when installing a Model SP, SPK, or SSK directional control valve in a cylinder lift application, it must be used in conjunction with a load holding device. A load holding device will prevent the load from free falling when the spool is in the neutral position. A free falling load could cause serious bodily injury or property damage if the holding device is not installed. Be sure to clear the work area prior to testing the cylinder lift application to avoid a potential dangerous situation.*

4-Way Float (Spool Code ‘K4’)
This spool is the same as the 4-Way spool with the addition of a fourth “Float” position. It is spring-centered to neutral from the “A” and “B” power positions. The fourth position is the detented “Float” position which allows a cylinder to float or a hydraulic motor to free wheel.

The “float” option is available for the No. 1 spool of Models SPK and SSK directional control the valves only.
**SPOOL POSITIONER OPTIONS**

**Spring-Centering Positioner (No Code)**
Furnished as standard, unless otherwise specified. This option spring returns the valve spool to neutral from the “A” and “B” power positions when the handle is released.

**Spool Travel Limiter (Code ‘L’)**
This option may be used to limit the spool travel ‘in’ to a very fine degree, allowing a restricted amount of pressurized oil to pass through ‘A’ port of the control valve to the cylinder or motor. This makes possible a regulated speed of operation. Used with the standard Spring Centering or Spring Extended Spool options.

If used in conjunction with a 3-way spool (for single-acting operation), the ‘A’ port is plugged and ‘B’ port only is used. Therefore, the Spool Travel Limiter would restrict exhaust oil from work port ‘B’ to tank.

**3-Position Detent Positioner (Code ‘D’) **
This option ‘detents’ the valve spool in neutral and the ‘A’ and ‘B’ power positions. There is no spring to return the valve spool to neutral. The valve spool will remain in the position in which it was manually placed when the handle is released.

This option is NOT intended for use as a positive spool locking device against excessive external forces or machine vibration.

(Optional) Detent Stops are available to limit spool travel to two detented positions, either Neutral and Spool In or Neutral and Spool Out.

**4-Position Float Positioner (Code ‘K4’) **
This option is the same as Spring-Centering Positioner with an addition of a fourth ‘float’ position.

In the float position (handle pushed in as far as it will go), the work ports are open to tank, allowing a cylinder to ‘float’ or a hydraulic motor to ‘free wheel’.

**1-Position Detented Positioner (Code ‘R’) **
This feature allows spring-centering to neutral with a Detent for the spool ‘IN’ position only.

Work Port ‘B’ will remain open to tank when in the detented position, thereby allowing a single-acting cylinder to ‘float’.

**Rotary Spool Positioner (Code ‘W’) **
With this option, the spool is positioned/moved by a rotary movement of the spool. Allows for 90° rotation of the spool in each direction from the center, making a 180° total spool rotation with detent position in neutral.

There is no spring-centering, therefore the spool will stay in any position placed.

Note: No handle is supplied - the customer must furnish his own handle mechanism.

**Spring Extended Positioner (Code ‘A’) **
This option eliminates Spring-Centering to Neutral, and spring loads the spool to the ‘OUT’ position only. This option is usually used for ‘Cam-Operation’ of spool. Customer must supply cam-follower mechanism.

A handle assembly is NOT furnished with this option.
**MAIN RELIEF VALVE OPTIONS**

**Main Relief Valves**
The primary function of the main relief valve is to prevent excessive pressure spikes. When a main relief valve is not required, a no relief valve ‘NR’ plug must be installed in the relief valve cavity.

**Ball and Spring Type Relief Valves**
Ball and spring type relief valves are available in low pressure and high pressure models. They are available in externally-adjustable (Models 'J' and 'J-HP') and non-adjustable, tamper resistant versions (Models 'J-NJ' and 'J-NJ-HP'). Specific pressure ranges are given in the Ordering Instructions.

**Differential Poppet Type Relief Valves**
Differential poppet type relief valves are also available for use in the Model SP, SPK and SSK valves. Since they do not fit the same machining as the Ball and Spring type relief valves it is important to make the relief valve selection prior to ordering the valve.

The Model 'WS' is an internal shim-adjustable relief while the Model 'WSA' offers an external adjustment option. Both of these are used in the Model SP valve. The Model 'WK' and 'WKA' relief valves are used in the Model SPK and SSK valves. Specific pressure ranges are given in the Ordering Instructions.

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**HANDLE OPTIONS**

Four handle types are available for Model SP, SPK, and SSK directional valves.

The standard vertical, and offset handles are available with or without black plastic coating. The optional vertical handle with hole is only available in the non-coated version.

**NOTE:** Handles are not supplied with valves having rotary ‘W4’ and ‘WF4’ spool positioners.
DIMENSIONS - Series SP

DIMENSIONS ARE IN INCHES (MILLIMETERS) AND ARE FOR REFERENCE ONLY.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SPOOL</td>
<td>1.375 in.</td>
<td>2.750 in.</td>
<td>2.875 in.</td>
<td>4.125 in.</td>
<td>1.000 in.</td>
<td>5.625 in.</td>
<td>5.937 in.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(34.925mm)</td>
<td>(69.850mm)</td>
<td>(73.025mm)</td>
<td>(104.775mm)</td>
<td>(25.400mm)</td>
<td>(142.875mm)</td>
<td>(150.800mm)</td>
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<tr>
<td>2 SPOOL</td>
<td>1.375 in.</td>
<td>3.625 in.</td>
<td>5.000 in.</td>
<td>5.125 in.</td>
<td>1.000 in.</td>
<td>7.875 in.</td>
<td>8.187 in.</td>
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<tr>
<td></td>
<td>(34.925mm)</td>
<td>(92.075mm)</td>
<td>(127.000mm)</td>
<td>(130.175mm)</td>
<td>(25.400mm)</td>
<td>(200.025mm)</td>
<td>(207.950mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 SPOOL</td>
<td>1.375 in.</td>
<td>3.625 in.</td>
<td>5.875 in.</td>
<td>7.250 in.</td>
<td>7.375 in.</td>
<td>8.625 in.</td>
<td>10.125 in.</td>
<td>10.437 in.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(34.925mm)</td>
<td>(92.075mm)</td>
<td>(149.225mm)</td>
<td>(184.150mm)</td>
<td>(187.375mm)</td>
<td>(219.075mm)</td>
<td>(257.175mm)</td>
<td>(265.100mm)</td>
<td></td>
</tr>
</tbody>
</table>
DIMENSIONS - Series SSK

DIMENSIONS ARE IN INCHES (MILLIMETERS) AND ARE FOR REFERENCE ONLY.
DIMENSIONS - Series SPK

DIMENSIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SPPOOL</td>
<td>1.375 in. (34.925mm)</td>
<td></td>
<td></td>
<td>2.750 in. (69.850mm)</td>
<td>2.875 in. (73.025mm)</td>
<td>4.125 in. (104.775mm)</td>
<td>94</td>
<td></td>
<td>5.625 in. (142.875mm)</td>
</tr>
<tr>
<td>2 SPPOOL</td>
<td>1.375 in. (34.925mm)</td>
<td>3.625 in. (92.075mm)</td>
<td></td>
<td>5.000 in. (127.000mm)</td>
<td>5.125 in. (130.175mm)</td>
<td>6.375 in. (161.925mm)</td>
<td>94</td>
<td></td>
<td>7.875 in. (200.025mm)</td>
</tr>
<tr>
<td>3 SPPOOL</td>
<td>1.375 in. (34.925mm)</td>
<td>3.625 in. (92.075mm)</td>
<td>5.875 in. (149.225mm)</td>
<td>7.250 in. (184.150mm)</td>
<td>7.375 in. (187.375mm)</td>
<td>8.625 in. (219.075mm)</td>
<td>94</td>
<td></td>
<td>10.125 in. (257.175mm)</td>
</tr>
</tbody>
</table>

DIMENSIONS ARE IN INCHES (MILLIMETERS) AND ARE FOR REFERENCE ONLY.
**ORDER CODE - Series SP and SPK**

**SPXTE - DF4 - DF4 - 3 - HP - LHO**

**Basic Model**
- [SP] Model ‘SP’
- [SPK] Model ‘SPK’ (Float)

**Machining Options**
- [-] Conversion Port Not Machined
- [C] Closed Center Plug Installed
- [X] Conversion Plug Installed
- [Y] Power Beyond Sleeve Installed

**Outlet Port Location(s)**
- [-] Standard End Outlet
- [T] Optional Top Outlet
- [E] Optional End Outlet Location
- [TE] Optional Top and End Locations

**Positioner Options**
- **Model ‘SP’ (All spools)**
- [-] Standard Spring Centering
- [A] Spring Extended Spool
- [D] 3-Position Detent (See Note 1)
- [L] Spool Travel Limiter
- [R] 1-Position Detent (Spool IN Only)
- [W] Rotary Spool Positioner
- **Model ‘SPK’ (Spool No. 1 only)**
- [-] 4-Position Float Only (No Options)

**Handle Information**
- [-] Standard, Complete Handle Assy
- [LHO] Less Handle Only
- [LCHA] Less Complete Handle Assy

**Main Relief Option (See Notes 2 & 3)**
- [-] Standard ‘J’ Relief (300-1500 PSI) (bar)
- [HP] High Pressure ‘J’ Relief (1501 - 2000 PSI) (bar)
- [NJ] Non-Adjustable, ‘J’ Relief (400 - 1500 PSI) (bar)
- [NJ-HP] Non-Adj, High Pressure ‘J’ Relief (1501 - 2000 PSI) (bar)
- [WS] & [WK]* Differential Poppet-Types, Non-Adjustable (500-2000 PSI) (bar)
- [WSA] & [WKA]* Differential Poppet-Types, adjustable within the spring range installed:
  - No. 1864-001 Spring; (1351-1750 PSI)
  - No. 1451-001 Spring; (1751-2000 PSI)
- [NR] No Relief Plug Installed

All Model SP and SPK housings are machined for the Model J Ball/Spring - Type Relief Valve unless the Model WK Differential Poppet - Type Relief is specified. If relief valve is not required, the relief port will be plugged “NR”.

*Machining for Model J is not the same as that required for the Model WS, therefore these relief valves are not interchangeable.

**Positioner and Spool Options - Spool No. 3**
Same Options as Spool No. 1 (Excluding Float)

**Positioner and Spool Options - Spool No. 2**
Same Options as Spool No. 1 (Excluding Float)

**Spool Options**
- **Model ‘SP’ (All Spools)**
- **Model ‘SPK’ (Spools 2 & 3 only)**
  - [4] 4-Way
  - [3] 3-Way
  - [F4] 4-Way Free Flow

- **Model ‘SPK’ (Spool No. 1 only)**
  - [-] 4-Way, 4-Position Float

---

**Note 1:** An (Optional) Detent Stop is available for use with the ‘D’ Positioner Option.
Specify: Neutral and Spool "OUT" Positions only or Neutral and Spool "IN" positions only.

**Note 2:** Adjustable within the spring range installed:
- No. 01864001 Spring 1351 - 1750 PSI (93-120 bar)
- No. 02562002 Spring 1751 - 2000 PSI (121-138 bar)

**Note 3:** Specify relief setting when ordering. If not specified, Relief Valves will be set at 1000 PSI (79 bar) at 7.6 (28.7 litres/min) GPM. Pressure settings must be specified on all non-adjustable models.
ORDER CODE - Series SSK

Basic Model
[SSK] Model 'SSK' (Series)

Machining Options
[-] Conversion Port Not Machined
[X] Conversion Plug Installed
[Y] Power Beyond Sleeve Installed

Outlet Port Location
[-] Standard End Outlet
[T] Optional Top Outlet
[E] Optional End Outlet Location

Spool No. 1
[-] 4-Way, 4-Position Float Only (No Options)

SSKXE - 4 - DF4 - HP - LHO

Handle Information
[-] Standard, Complete Handle Ass'y
[LHO] Less Handle Only
[LCHA] Less Complete Handle Ass'y

Main Relief Option (See Notes 2 & 3)
[-] Standard 'J' Type Relief (300 - 1500 PSI) (bar)
[HP] High Pressure 'J' Type Relief
(1501-2000 PSI) (bar)
[NJ] Non-Adjustable, 'J' Type Relief
(400 - 1500 PSI) (bar)
[NJ-HP] Non-Adj. High Pressure 'J' Type Relief
(1501-2000 PSI) (bar)
[WK]* Differential Poppet-Type, Non-Adjustable
(500-2000 PSI)
[WKA]* Differential Poppet-Type, adjustable within
the spring range installed:
No. 1864-001 Spring; 1351-1750 PSI
No. 1451-001 Spring; 1751-2000 PSI
[NR] No Relief Plug Installed

All Model SSK housings are machined for the Model J
Ball/Spring - Type Relief Valve unless the Model WK
Differential Poppet - Type Relief Valve is specified. If relief
valve is not required, the relief port will be plugged "NR".

*Machining for the Model J is not the same as that required
for the Model WK, therefore these relief valves are not
interchangeable.

Spool No. 2 Options
[4] 4-Way, 3-Position
[3] 3-Way, 3-Position
[F4] 4-Way 3-Position, Free Flow

Spool No. 2 Positioner Options
[-] Standard Spring-Centering
[A] Spring Extended Spool
[D] 3-Position Detent (See Note 1)
[L] Spool Travel Limiter
[R] 1-Position Detent (Spool IN Only)
[W] Rotary Spool Position

Note 1: An (Optional) Detent Stop is available for use with the 'D' Positioner Option
Specify: Neutral and Spool 'OUT' Positions only DH Neutral and Spool 'IN' positions only.

Note 2: Adjustable within the spring range installed;
No. 01864001 Spring 1351 - 1750 PSI (93-120 bar)
No. 02562002 Spring 1751 - 2000 PSI (121-138 bar)

Note 3: Specify relief setting when ordering. If not specified, Relief Valves will be set at
1000 PSI (79 bar) at 7.6 (28.7 litres/min) GPM. Pressure settings must be specified
on all non-adjustable models.
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We hereby declare that the hydraulic and pneumatic components supplied by Parker Hannifin Hydraulic Valve Division comply with the requirements of EC directives, as well as with national and international standards and safety regulations specific to the products. The products are thus authorized for use in machines or machine parts which, from 1995, will require a declaration of conformity in accordance with EC Directives on Machinery 89/392/EEC, as modified by EC Directives 91/368/EEC and 93/44/EEC, including CE symbol.

Selected proportional valves with integral electronics and discrete electronic circuit accessory boards will be marked with the CE symbol in conformance with the EMC directives. In accordance with Appendix II B of the EC Directive on Machinery, we are obliged to out that machinery fitted with our products may not be put into service until it has been established that the machine complies with the appropriate directives.

For general information, please note that the hydraulic components without electronics distributed by Parker Hannifin Hydraulic Valve Division do not require any EC declaration of conformity and that marking with the CE symbol is not authorized.

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VDP11 & VDP12H

Select models with up to six* chrome-plated and ground spools (items 10, 11, 12 & 13) available in double-acting, single-acting, and motor configurations. Meter precisely thanks to specifically designed precision spool notches (item 7). Pilot operated relief valves (item 1) ensure quiet operation with minimum pressure spike. Each spool has individual load drop checks (item 6) standard.

Specify standard spring return to neutral positioning (item 8) or standard position holding detents. High pressure carry over is available on all models. Each valve has the flexibility of a top or side inlet (item 2) and a top or side outlet (item 3). For a complete list of options, see page B-18. All stocked valves include a spring-return, double-acting spool and a main relief set at 1750 PSI. All other components and options listed can be installed by your Distributor or by us.

Whether you are designing a Mobile circuit or want to add Mobile valve performance capability to another type of product, we are ready, willing and able to help.

Features:

- Flows to 25 GPM
- Pilot operated adjustable relief valve
- Top & side ports
- High pressure carry over (power beyond) port
- Superior metering
- Open center standard, can be converted to closed center
- Parallel circuit
- Load drop checks
- Spring return to neutral or detented spool control

An enbloc directional control valve consists of a body with internal passages which are connected and disconnected by a moveable part referred to as a spool. A directional control valve will start, stop, direct fluid flow to a hydraulic cylinder or motor.

Parker’s enbloc valves provide a space saving one piece iron construction (item 9) which requires a minimum of installation space. Control the independent or simultaneous operation of one or more cylinders (items 4 & 5) or hydraulic motors at one time with Parker open center enbloc directional control valves.

*6 Spool VDP12 only
Fluids: Viscosity range at operating temperature between 30-1000 SSU (1-220 cSt.). Oil should have maximum antiwear properties, rust, oxidation and anti-foam treatment or meet SAE J183. For applications requiring other fluids, please contact the Division.

Temperature Range: -20°F (-29°C) to 185°F (85°C). For applications requiring higher operating temperatures, please contact the Division.

Filtration: For maximum system component life, the system should be protected from contamination at a level not to exceed 214 particles greater than 10 microns per milliliter of fluid. A Parker full-flow filter with a Beta 10 rating of at least 2.2 should provide this level of cleanliness if maintained properly and never allowed to go into by-pass condition.

Special Applications: Consult your Parker representative for any applications that do not meet the above criteria.
Multi-Spool Control Valves 1, 2, 3, 4, 5 Spool

- Flows to 20 GPM
- Operating pressure 2000 PSI
- Relief valve adjustable from 600 to 2000 PSI
- High pressure carry over (power beyond) – See Page 12.
- Accessories, Options & Kits – See Pages 11, 12, 13, 14.
- How to order – See Pages 15, 16.

VDP11 - One Spool

Double acting "D" spool shown

VDP11 - Two Spool

Double acting "D" spool shown
**Technical Information**

**Series VDP11**

**VDP11 - Three Spool**

Double acting “D” spool shown

**VDP11 - Four Spool**

Double acting “D” spool shown

**VDP11 - Five Spool**

Double acting “D” spool shown
For millimeter equivalents multiply inch dimensions X 25.4.

Double Acting "D" Spool Shown

<table>
<thead>
<tr>
<th>CYLINDER PORTS</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-8 SAE TOP &amp; SIDE</td>
<td>INLET</td>
</tr>
<tr>
<td>-10 SAE TOP &amp; SIDE</td>
<td>OUTLET</td>
</tr>
<tr>
<td>-12 SAE TOP &amp; SIDE</td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>VARIABLE DIMENSIONS - VDP11</th>
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</thead>
<tbody>
<tr>
<td>1 SPOOL</td>
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<tr>
<td>&quot;A&quot;</td>
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<tr>
<td>&quot;B&quot;</td>
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</table>

VDP 11 SPOOL TRAVEL (each direction)

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>S</th>
<th>D</th>
<th>C</th>
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<tr>
<td></td>
<td>.37</td>
<td>.37</td>
<td>.37</td>
<td>.31</td>
</tr>
</tbody>
</table>

Spool eye is shown in neutral position.
Enbloc Directional Control Valves
Series VDP12, 12H

Multi-Spool Control Valves
1, 2, 3, 4, 6 Spool

(VDP12 is available only in six spool configurations, 2000 PSI operating pressure)

- Flows up to 25 GPM
- Operating pressure to 3500 PSi
- Relief value adjustable from 600 to 3500 PSI
- High pressure carry over (power beyond) - See Page 12.
- Dimensions & Porting - See Pages 9, 10.
- Accessories, Options & Kits - See Pages 11, 12, 13, 14.
- How to order - See Pages 15, 16.

VDP12H - One Spool

Double acting “D” spool shown

VDP12 - Two Spool

Double acting “D” spool shown

VDP12 - Three Spool

Double acting “D” spool shown
VDP12 - Four Spool

Double acting “D” spool shown

VDP12 - Six Spool

Double acting “D” spool shown
For millimeter equivalents multiply inch dimensions X 25.4.

### VDP 12H SPOOL TRAVEL (each direction)

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>S</th>
<th>D</th>
<th>C</th>
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<td>.406</td>
<td>.437</td>
<td>.312</td>
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### VARIABLE DIMENSIONS - VDP12H

<table>
<thead>
<tr>
<th></th>
<th>1 SPOOL</th>
<th>2 SPOOL</th>
<th>3 SPOOL</th>
<th>4 SPOOL</th>
<th>5 SPOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;B&quot;</td>
<td>3.825</td>
<td>5.325</td>
<td>6.875</td>
<td>8.325</td>
<td>9.825</td>
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</table>
For millimeter equivalents multiply inch dimensions X 25.4.

<table>
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<th>VDP 12 SPOOL TRAVEL</th>
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<td>(each direction)</td>
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<tr>
<td>P</td>
</tr>
<tr>
<td>.437</td>
</tr>
</tbody>
</table>
**Spool Configurations**

**“D” Spool (Double Acting Spool)**

In the neutral mode, pump flow is open to tank, and both cylinder ports are blocked. By shifting the spool in, pump flow is connected to the A port and the B port is open to tank. By shifting the spool out, pump flow is connected to the B port and the A port is open to tank. The most common application of this spool is in a circuit using a double acting cylinder.

**“P” Spool (Single Acting Spool)**

In the neutral mode, pump flow is open to tank, and the cylinder port is blocked. By shifting the spool out, pump flow is connected to the B port. By shifting the spool in, the B port is open to tank. The A port is not used.

**“S” Spool (Single Acting Spool)**

In the neutral mode, pump flow is open to tank and the cylinder port is blocked. By shifting the spool in, pump flow is connected to the A port. By shifting the spool out, the A port is open to tank. The B port is not used.

**“C” Spool (Motor Spool)**

In the neutral mode, pump flow is open to tank and both cylinder ports are also open to tank (this allows a motor to gradually coast to a stop). By shifting the spool in, pump flow is connected to the A port and the B port is open to tank. By shifting the spool out, pump flow is connected to the B port and the A port is open to tank. The most common application of this spool is in a circuit with a hydraulic motor.
High Pressure Carry Over (Power Beyond) VDP11

- High pressure carry over is used for piping flow to another valve in the system. Flow from this port should be piped to the inlet of the second valve. Flow to the second valve is available only when all spools in the first valve are in neutral position.
- **Caution:**
  - When using H.P.C.O. all valves must be piped to tank.
  - Do not pipe from outlet of first valve to inlet of second valve. Pipe tank line of first valve to tank; pipe H.P.C.O. line of first valve directly to the inlet of the second valve.
  - VDP11 H.P.C.O. port machining located on top of valve.
  - Use by inserting H.P.C.O. sleeve 572023 and install standard SAE fitting for piping second valve.
  - H.P.C.O. port size is -8 SAE straight thread.
  - For closed center operation, install H.P.C.O. and plug it.

High Pressure Carry Over

- High pressure carry over is used for piping flow to another valve in the system. Flow from this port should be piped to the inlet of the second valve. Flow to the second valve is available only when all spools in the first valve are in neutral position.
- **Caution:**
  - When using H.P.C.O. all valves must be piped to tank.
  - Do not pipe from outlet of first valve to inlet of second valve. Pipe tank line of first valve to tank; pipe H.P.C.O. line of first valve directly to the inlet of the second valve.
  - VDP12 and VDP12H H.P.C.O. port machining is on the side of the valve.
  - Use by inserting special adapter 562381 and install standard SAE fitting for piping second valve.
  - H.P.C.O. port size is -10 SAE.
  - For closed center operation, install H.P.C.O. and plug it.
Handles

VDP11&12 Handles (Three Spool Shown) Travel Shown For “D” Spool.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDP11</td>
<td>1-1/2</td>
<td>1-1/8</td>
<td>8-11/16</td>
<td>11-1/16</td>
<td>2-17/32</td>
<td>1-1/2</td>
<td>2-3/32</td>
<td>1</td>
<td>2-3/4</td>
</tr>
<tr>
<td>VDP12H</td>
<td>1-1/2</td>
<td>27/32</td>
<td>8-11/16</td>
<td>11-1/16</td>
<td>3-1/16</td>
<td>1-1/2</td>
<td>2-3/32</td>
<td>63/64</td>
<td>3-1/16</td>
</tr>
</tbody>
</table>

For metric equivalents multiply inch dimension x 25.4.

Seal & Repair Kits are available from stock — Consult factory.

Electric Switches and Spool Caps

These are generally used in an energy savings manner on fork lift trucks. These switches are fitted on the cap end of the spool. As the spool is shifted, the switch closes an electric circuit. The circuit controls a pump connected to an electric motor. As the motor and pump are engaged, the pump supplies pressure and flow to the valve; enabling the operator to raise and lower the forks or tilt the forks.
Main Relief

The main relief functions as the main pressure regulating device. It is a pilot operated type relief. By pilot operation, the main piston and spring stage of the relief is piloted by a dart and a stiff spring. The pilot stage handles low flows at high pressures. The main stage handles high flows at low pressures. By using the two together, large flows can be handled at high pressures without the typical instabilities associated with a direct acting relief.

Plug For Main Relief Cavity

Some applications require no main relief. Included in these applications are closed center circuits and accumulator circuits where, an external unloader is used; and a power-beyond circuit where two or more valves have the same pressure requirements.

Load Drop Checks

This check within the valve prevents a momentary load drop as a spool is being shifted. It is a standard feature in our valves.
# Valve Data Sheet

**System:**
- Closed Center ☐
- Open Center ☐

**Pump Flow**
- GPM

**System Temperature**
- °F

**Main Relief:**
- Plugged ☐
- Installed ☐

**Setting:**
- PSI at
- GPM

**Porting:**

<table>
<thead>
<tr>
<th>Inlet:</th>
<th>Side ☐</th>
<th>Top ☐</th>
<th>Outlet:</th>
<th>Side ☐</th>
<th>Cylinder Port Size</th>
<th>Size ☐</th>
</tr>
</thead>
</table>

**H.P.C.O. Installed:**
- Yes ☐
- No ☐

**Valve Model:**
- VDP11 ☐
- VDP12 ☐
- VDP12H ☐

## Options

<table>
<thead>
<tr>
<th>Spool Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spool Type (D, C, P, or S)</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring Return</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Position Detent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counterbalance - A Port</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counterbalance - B Port</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Electric Switches</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Handles</td>
<td></td>
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<td></td>
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<table>
<thead>
<tr>
<th>VDP11 Only</th>
<th>VDP12 Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
**VDP**

Valve Directional Parallel

**Design**

**Number and Type of Spools**

**Variation**

**Seals**

**Power Beyond**

**Detented Spool Option**

**Relief Option**

---

**Basic Valve**

<table>
<thead>
<tr>
<th>Spool</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>15 lbs.</td>
</tr>
<tr>
<td>DD</td>
<td>19 lbs.</td>
</tr>
<tr>
<td>DDD</td>
<td>23 lbs.</td>
</tr>
<tr>
<td>DDDD</td>
<td>29 lbs.</td>
</tr>
<tr>
<td>DDDDD</td>
<td>35 lbs.</td>
</tr>
</tbody>
</table>

**Spring Return Spool Adders (Installed In Valve)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Spring Centered D Spool Assembly</td>
<td>572024</td>
</tr>
<tr>
<td>C</td>
<td>Spring Centered C Spool Assembly</td>
<td>572027</td>
</tr>
<tr>
<td>S</td>
<td>Spring Centered S Spool Assembly</td>
<td>572025</td>
</tr>
<tr>
<td>P</td>
<td>Spring Centered P Spool Assembly</td>
<td>572026</td>
</tr>
</tbody>
</table>

**Three Position Detented Spool Adders (Installed In Valve)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit</td>
<td>All Spring Return Spools</td>
<td>—</td>
</tr>
<tr>
<td>D*</td>
<td>3 Position Detented D Spool Assembly</td>
<td>572214</td>
</tr>
<tr>
<td>S*</td>
<td>3 Position Detented S Spool Assembly</td>
<td>572215</td>
</tr>
<tr>
<td>P*</td>
<td>3 Position Detented P Spool Assembly</td>
<td>572216</td>
</tr>
<tr>
<td>C*</td>
<td>3 Position Detented C Spool Assembly</td>
<td>602809</td>
</tr>
</tbody>
</table>

*Specifies Spool Position — Example: D2 means the second spool assembly is detented.

---

**Please Specify in Writing as Separate Line Items**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>572016</td>
<td>One Spool Handle Assembly</td>
</tr>
<tr>
<td>572017</td>
<td>Two Spool Handle Assembly</td>
</tr>
<tr>
<td>572018</td>
<td>Three Spool Handle Assembly</td>
</tr>
<tr>
<td>572019</td>
<td>Four Spool Handle Assembly</td>
</tr>
<tr>
<td>602842</td>
<td>Five Spool Handle Assembly</td>
</tr>
<tr>
<td>665330</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>635794</td>
<td>Spool Cap for Switch Assembly</td>
</tr>
</tbody>
</table>

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**Code**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit Main Relief Installed and set at 1750 PSI &amp; 1 GPM</td>
<td></td>
</tr>
<tr>
<td>*** Main Relief at other settings Times 10 = PSI (180 = 1800 PSI)</td>
<td></td>
</tr>
<tr>
<td>NR Plugged Relief</td>
<td></td>
</tr>
</tbody>
</table>

**Note**: Switch Assemblies and Handles shipped with valve, but not installed to prevent damage in transit.
**Ordering Information**

**En bloc Directional Control Valves**

**Series VDP12**

---

### En bloc Directional Control Valves Series VDP12

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit</td>
<td>25 GPM, 2000 PSI</td>
</tr>
<tr>
<td>H</td>
<td>25 GPM, 3000 PSI</td>
</tr>
</tbody>
</table>

### High Pressure

- 25 GPM
- 2000 PSI

### Variation

- Detented Spool Option
- Power Beyond

### Seals

- Nitrile
- Fluorocarbon

### Power Beyond

- Main Relief Option

---

### Basic Valve

<table>
<thead>
<tr>
<th>Spool</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>17.5 lbs.</td>
</tr>
<tr>
<td>DD</td>
<td>23.5 lbs.</td>
</tr>
<tr>
<td>DDD</td>
<td>29.5 lbs.</td>
</tr>
<tr>
<td>DDDD</td>
<td>35.0 lbs.</td>
</tr>
<tr>
<td>DDDDD</td>
<td>49.5 lbs.</td>
</tr>
</tbody>
</table>

### Spring Return Spool Adders (Installed In Valve)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Spring Centered D Spool Assy.—VDP12 (H)</td>
</tr>
<tr>
<td>C</td>
<td>Spring Centered C Spool Assy.—VDP12 (H)</td>
</tr>
<tr>
<td>S</td>
<td>Spring Centered S Spool Assy.—VDP12 (H)</td>
</tr>
<tr>
<td>P</td>
<td>Spring Centered P Spool Assy.—VDP12 (H)</td>
</tr>
</tbody>
</table>

*Specifies Spool Position — Example: D2 means the second spool assembly is detented.

---

### Please Specify in Writing as Separate Line Items

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>825067</td>
<td>One Spool Handle Assy.—VDP12H</td>
</tr>
<tr>
<td>572017</td>
<td>Two Spool Handle Assy.—VDP12</td>
</tr>
<tr>
<td>572018</td>
<td>Three Spool Handle Assy.—VDP12</td>
</tr>
<tr>
<td>572019</td>
<td>Four Spool Handle Assy.—VDP12</td>
</tr>
<tr>
<td>602672</td>
<td>Six Spool Handle Assy.—VDP12</td>
</tr>
<tr>
<td>665330</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>635794</td>
<td>Spool Cap for Switch Assembly</td>
</tr>
</tbody>
</table>

**Note:** Part numbers for individual spool assemblies are listed on page 5.

---

### Code Description

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omit</td>
<td>All Spring Return Spools</td>
</tr>
<tr>
<td>D*</td>
<td>3 Position Detented D Spool Assembly—VDP12 (H)</td>
</tr>
<tr>
<td>S*</td>
<td>3 Pos. Detented S Spool Assembly—VDP12 (H)</td>
</tr>
<tr>
<td>P*</td>
<td>3 Pos. Detented P Spool Assembly—VDP12 (H)</td>
</tr>
<tr>
<td>C*</td>
<td>3 Pos. Detented C Spool Assembly—VDP12 (H)</td>
</tr>
</tbody>
</table>

---

### Main Relief

- Main Relief Installed and set at 1750 PSI & 1 GPM
- Main Relief at other settings. Times 10 = PSI (180 = 1800 PSI)
- Plugged Relief

**Note:** Switch Assemblies and Handles shipped with valve, but not installed to prevent damage in transit.
What Are Parker’s Auxiliary Control Valves?

Parker’s auxiliary control valves feature the same tough, durable, one piece iron construction as our en bloc valves. These rugged auxiliary control valves are designed for long trouble-free service under the most demanding operating conditions.

Parker’s VY13 valve leads off this series. The VY13 is more of a directional control valve than an auxiliary control valve. A hardened, chrome-plated spool provides precise control for both single acting and double acting cylinders. Ball checks in the cylinder ports maintain the load position as the spool is shifted back to neutral. A built in main relief provides protection from pressure surges. The VY13 valve’s primary application is in the small garden tractor industry.

The VPRP5B relief valve has the flexibility of being offset or in-line mounted. The valve is pilot operated and screw adjustable. The VPRP5B will handle 300-3000 PSI at up to 30 GPM. The VPRP5B can be used in both Mobile and non-Mobile applications.

Rely upon Parker application assistance in selecting the best valve for your requirements…Parker manufacturing, expertise and quality control to assure consistent, dependable performance.
Technical Information


**Check Valve:** Ball Checks to maintain load position with valve in neutral.

**Relief Valve:** Screw adjustable.

**Spool:** Metering — .380 spool travel assures precise positioning. Material — Hardened steel to resist corrosion and wear.

**Handles:** Optional — See reverse side for dimensions.

**Spool Control:** Spools furnished with spring return to neutral from operating positions.

**Operating Temperature:** -20°F (-29°C) to 185°F (85°C).

A version of this valve without the relief and/or without the checks is available. Please consult the factory for a **VY03**.

---

**VY13D1**

Three Position, for Double Acting Cylinders.

---

**VY13P1**

Three Position, for Single Acting Cylinders.
(Pull Valve Spool out to Power Cyl.)

---

**VY13S1**

Three Position, for Single Acting Cylinders.
(Shove Valve Spool in to Power Cyl.)

---

**VY13F**

Four Position, for Double Acting Cylinders That Require A Float Function.

---

**How To Order:**
Select from above models
Auxiliary Control Valve Dimensions

VY13S1  VY13D1  VY13P1

Note: Seal & Repair Kits are available from stock — Consult factory.

Pressure Drop Thru Valve

Pressures at "A"  190 PSI
Neutral & Hold Pressure at "B" .190

GPM Flow Thru Valve

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio 44035 USA
Pilot Operated Relief Valve

General Specifications:

☐ Unit is a pilot operated in-line or offset mounted relief valve. It can be used in circuits with widely varying flow rates and still maintain a constant pressure within the circuit.
☐ Pressure adjustment is from 500-2500 PSI STD.
☐ Maximum recommended flow is 30 GPM.
☐ Operating temperature: -20°F (-29°C) to 185°F (85°C).
☐ Seal compound: BUNA-N.
☐ Porting: See chart.
☐ Material: Cast iron body with hardened steel seats and plungers.
☐ Reseating pressure 95% of cracking pressure.
☐ Optional pressure ranges available for 300-1000 PSI setting and 2500-3000 PSI setting.

Typical Applications

Typical Performance
Dimensions

For millimeter equivalents multiply inch dimensions x 25.4.

Ordering Information

VPRP5B-3-A-A-175

<table>
<thead>
<tr>
<th>CODE</th>
<th>ADJUSTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Screw</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>CODE</th>
<th>INLET</th>
<th>OUTLET</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7/8-14 UNF-2B</td>
<td>1-1/16-12 UNF-2B</td>
</tr>
</tbody>
</table>

CODE ***

Three Digit Code Number Shall Represent 10% of Cracking Pressure

Pressure setting must be specified on your purchase order. 175 = 1750 PSI

Note*: If valve is used as angle rather than in-line relief add one 108 x 10 plug.

<table>
<thead>
<tr>
<th>CODE</th>
<th>SEAL COMPOUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Buna &quot;N&quot;</td>
</tr>
</tbody>
</table>

Note: Seal & Repair Kits are available from stock — Consult factory.
Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio  44035  USA

Hydraulics
E24

Catalog 2400/USA
Ordering Information

Auxiliary Control Valves
Series VPRP5B

VPRP  5B  3  A  A  A
Valve Pilot Operated
Size  Adjustment  Porting  Seals  Design Series  Valve Setting

Code  Flow & Pressure

Code  Description

Code  Setting

Code  Inlet  Outlet

Common Service Parts For VPRP 5B

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>592644P</td>
<td>VPRP5 Main Relief Assembly</td>
</tr>
<tr>
<td>835127K</td>
<td>VPRP5 Seal Kit</td>
</tr>
<tr>
<td>10HP50N-S</td>
<td>VPRP5 Inlet Plug (when valve is used in-line)</td>
</tr>
</tbody>
</table>

Common Service Parts For VY 13 D1

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>835131K</td>
<td>Seal Kit</td>
</tr>
<tr>
<td>835132K</td>
<td>Main Relief Rebuild Kit</td>
</tr>
<tr>
<td>686051P</td>
<td>Main Relief Assembly</td>
</tr>
</tbody>
</table>

Ordering Information

Service Parts

Valve Auxiliary

VY  13  D  1

Code  Description

Code  Flow & Pressure

4 GPM  2000 PSI

25 GPM, 2500 PSI

175  1750 PSI @ 1 GPM

*** Times 10 = PSI @ 1 GPM

Code  Setting

Code  Description

D  Double Acting Spool With Checks

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio  44035  USA

E24
## Common Service Parts For VDP 11

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>572027P</td>
<td>Spring Centered C Spool Assembly</td>
</tr>
<tr>
<td>572025P</td>
<td>Spring Centered S Spool Assembly</td>
</tr>
<tr>
<td>572026P</td>
<td>Spring Centered P Spool Assembly</td>
</tr>
<tr>
<td>572024P</td>
<td>Spring Centered D Spool Assembly</td>
</tr>
<tr>
<td>572214P</td>
<td>3 Position Detented D Spool Assembly</td>
</tr>
<tr>
<td>572215P</td>
<td>3 Position Detented S Spool Assembly</td>
</tr>
<tr>
<td>572216P</td>
<td>3 Position Detented P Spool Assembly</td>
</tr>
<tr>
<td>602809P</td>
<td>3 Position Detented C Spool Assembly</td>
</tr>
<tr>
<td>572023</td>
<td>HPCO (Power Beyond) Sleeve</td>
</tr>
<tr>
<td>572016</td>
<td>One Spool Handle Assembly</td>
</tr>
<tr>
<td>572017</td>
<td>Two Spool Handle Assembly</td>
</tr>
<tr>
<td>572018</td>
<td>Three Spool Handle Assembly</td>
</tr>
<tr>
<td>572019</td>
<td>Four Spool Handle Assembly</td>
</tr>
<tr>
<td>602842</td>
<td>Five Spool Handle Assembly</td>
</tr>
<tr>
<td>592644P</td>
<td>Main Relief Valve Assembly</td>
</tr>
<tr>
<td>562095P</td>
<td>Load Check Assembly</td>
</tr>
<tr>
<td>885023AP</td>
<td>Spool Cap Assembly</td>
</tr>
<tr>
<td>635794</td>
<td>Spool Cap for Switch Assembly</td>
</tr>
<tr>
<td>665330</td>
<td>Switch Assembly</td>
</tr>
<tr>
<td>612087P</td>
<td>Main Relief Plug Assembly</td>
</tr>
<tr>
<td>775723</td>
<td>Bleeder Plug for 775725 Spool Cap</td>
</tr>
<tr>
<td>885014-1</td>
<td>One Spool Valve Nitrile Seal Kit — VDP11</td>
</tr>
<tr>
<td>885014-2</td>
<td>Two Spool Valve Nitrile Seal Kit — VDP11</td>
</tr>
<tr>
<td>885014-3</td>
<td>Three Spool Valve Nitrile Seal Kit — VDP11</td>
</tr>
<tr>
<td>885014-4</td>
<td>Four Spool Valve Nitrile Seal Kit — VDP11</td>
</tr>
<tr>
<td>885014-5</td>
<td>Five Spool Valve Nitrile Seal Kit — VDP11</td>
</tr>
<tr>
<td>885012-1</td>
<td>One Spool Valve Fluorocarbon Seal Kit — VDP11</td>
</tr>
<tr>
<td>885012-2</td>
<td>Two Spool Valve Fluorocarbon Seal Kit — VDP11</td>
</tr>
<tr>
<td>885012-3</td>
<td>Three Spool Valve Fluorocarbon Seal Kit — VDP11</td>
</tr>
<tr>
<td>885012-4</td>
<td>Four Spool Valve Fluorocarbon Seal Kit — VDP11</td>
</tr>
<tr>
<td>885012-5</td>
<td>Five Spool Valve Fluorocarbon Seal Kit — VDP11</td>
</tr>
<tr>
<td>885017-1</td>
<td>One Spool Valve Nitrile Rebuild Kit — VDP11</td>
</tr>
<tr>
<td>885017-2</td>
<td>Two Spool Valve Nitrile Rebuild Kit — VDP11</td>
</tr>
<tr>
<td>885017-3</td>
<td>Three Spool Valve Nitrile Rebuild Kit — VDP11</td>
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<td>885017-4</td>
<td>Four Spool Valve Nitrile Rebuild Kit — VDP11</td>
</tr>
<tr>
<td>885017-5</td>
<td>Five Spool Valve Nitrile Rebuild Kit — VDP11</td>
</tr>
<tr>
<td>885016-1</td>
<td>One Spool Valve Fluorocarbon Rebuild Kit — VDP11</td>
</tr>
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<td>885016-2</td>
<td>Two Spool Valve Fluorocarbon Rebuild Kit — VDP11</td>
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<td>Three Spool Valve Fluorocarbon Rebuild Kit — VDP11</td>
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<tr>
<td>885016-4</td>
<td>Four Spool Valve Fluorocarbon Rebuild Kit — VDP11</td>
</tr>
<tr>
<td>885016-5</td>
<td>Five Spool Valve Fluorocarbon Rebuild Kit — VDP11</td>
</tr>
</tbody>
</table>
### Common Service Parts For VDP 12, 12H

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>562352P</td>
<td>Spring Centered C Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562093P</td>
<td>Spring Centered S Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562094P</td>
<td>Spring Centered P Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562092P</td>
<td>Spring Centered D Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562251P</td>
<td>3 Position Detented D Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562252P</td>
<td>3 Position Detented S Spool Assembly — VDP12</td>
</tr>
<tr>
<td>562253P</td>
<td>3 Position Detented P Spool Assembly — VDP12</td>
</tr>
<tr>
<td>572261P</td>
<td>3 Position Detented C Spool Assembly — VDP12</td>
</tr>
<tr>
<td>825487</td>
<td>Spring Centered C Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>805605P</td>
<td>Spring Centered S Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>805606P</td>
<td>Spring Centered P Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>805607P</td>
<td>Spring Centered D Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>975011P</td>
<td>3 Position Detented D Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>825074</td>
<td>3 Position Detented P Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>975012</td>
<td>3 Position Detented C Spool Assembly — VDP12H</td>
</tr>
<tr>
<td>562381</td>
<td>HPCO (Power Beyond) Fitting — VDP12 &amp; 12H</td>
</tr>
<tr>
<td>572016</td>
<td>One Spool Handle Assembly — VDP12</td>
</tr>
<tr>
<td>825067</td>
<td>One Spool Handle Assembly — VDP12H</td>
</tr>
<tr>
<td>572017</td>
<td>Two Spool Handle Assembly — VDP12</td>
</tr>
<tr>
<td>572018</td>
<td>Three Spool Handle Assembly — VDP12</td>
</tr>
<tr>
<td>572019</td>
<td>Four Spool Handle Assembly — VDP12</td>
</tr>
<tr>
<td>602672</td>
<td>Six Spool Handle Assembly — VDP12</td>
</tr>
<tr>
<td>592644P</td>
<td>Main Relief Valve Assembly — VDP12 &amp; 12H</td>
</tr>
<tr>
<td>715253P</td>
<td>Main Relief Valve Assembly — VDP12H</td>
</tr>
<tr>
<td>612087P</td>
<td>Main Relief Valve Plug Assembly — VDP12 &amp; 12H</td>
</tr>
<tr>
<td>562095P</td>
<td>Load Check Assembly — VDP12</td>
</tr>
<tr>
<td>572434</td>
<td>Load Check Assembly — VDP12H</td>
</tr>
<tr>
<td>885023AP</td>
<td>Spool Cap Assembly — VDP12 or VDP12H</td>
</tr>
<tr>
<td>775273</td>
<td>Bleeder Plug for 775725 Spool Cap</td>
</tr>
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