Parker Means Components, Systems and Partnerships that Work

Parker is committed to offering the automotive industry the most comprehensive array of motion control products and technologies. We are continuously improving the performance and value of our products to meet the current and future needs of the global automotive industry.

Parker's auto manufacturing focus includes body and assembly, powertrain, metal stamping, components and trim.

Industry Leader

No one can match Parker's expertise in supplying motion control components and complete systems. For more than half a century, automotive manufacturers have trusted Parker with their motion control needs.

Parker in Automobile Manufacturing

The specification list of Parker Products for the automotive Industry - Bulletin SAE 1 - lists 290 automotive plants around the world. This is a result of the technical and commercial competence we provide through close relationships with purchasers, engineers, project managers and shop floor personnel of the industry. Performance, efficiency, economy and reliability of Parker products make us the preferred source.

Parker partnership benefits include:

- Simultaneous engineering service, standardization, of components reduces part numbers, and provides easy maintenance
- Added value through subassemblies, systems and kits
- 24 hour service with drop shipping
- Low watt valve technology lowers energy and maintenance costs
- Total systems and experienced project management support

We help to reduce your inventory, procurement costs, machine down time and to find solutions for environmental issues.

⚠️ WARNING ⚠️

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application including consequences of any failure, and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated on the separate page of this document entitled “Offer of Sale”.

General information ........................................................................................................... Inside Cover

Features

  The Parker Sempress “Low Impact” Effect ................................................................. 2
  The Parker Sempress “Rapid Approach” Effect .......................................................... 2
  Other Options .............................................................................................................. 3
  Program Overview ...................................................................................................... 3

Products

  DH / DP Valve Block
  with Low Impact and Rapid Approach Control ....................................................... 4-5

  LVU Frame Block
  Clamping System with Quick Release for Air Service Units ................................. 6-7

  LVU-HY Frame Block
  Clamping System with Quick Release for Air & Water Service Units .................... 8-9

  EPDN / MP Series
  Proportional Valve with Micro Processor ................................................................. 10-13

Reference List .................................................................................................................. 14

Dimensions ...................................................................................................................... 15-18

Offer of Sale ..................................................................................................................... 20
Features
Over the last decades we have developed and manufactured, in close collaboration with the major car manufacturers, a number of specific products for spot welding applications.

Parker Sempress Pneumatic is part of the Automation Group of the Parker Hannifin Corp. Cleveland, Ohio, USA. Parker Hannifin is the world leader in Fluid Power technology.

The Parker Sempress “Low-Impact” Effect
A specific feature in Parker Sempress Pneumatic spot weld cylinder is the “Low-Impact” effect.
This is reached by means of an integrated pneumatic control which ensures that the electrodes are touching the sheet metal with low force and speed (kinetic energy) and that immediately after touch down of the electrodes the press-force is built-up instantly.
This gives following advantages:
• Less noise because the electrodes only touch the metal sheets softly.
• No bouncing of the electrodes on the metal sheets, hence the spot welding can start immediately after the first contact.
• Less wear on electrodes (measured lifetime-improvement of 30%) and sensitive electrode-caps (measured lifetime improvement of 200%).
• No damaging of the metal sheets. Additional polishing can be avoided.
• Less shocking movements in the welding gun and between electrodes
• On robot-guns: water-hoses and electric cabling show less wear.
• On manual guns: less physical stress for the operator
• Less sparking because both metal sheets are pressed together properly and immediately after first contact.
• Less welding points required because the quality of the weld is improved.
• Lower welding current can be used.
• An electrical feedback signal is available when 75% of the clamping force has been reached.

One of the features of the Parker Sempress “Low-Impact” system is that it is stroke-independent. This means that the system works on every position of the cylinder. The nominal stroke of the cylinder should be longer than the maximum required stroke.

The Parker Sempress “Rapid-Approach” Effect
Another specific feature is the “Rapid-Approach” effect. This allows, especially at welding guns with a big opening between both electrodes, for high speed in the beginning of the movement. At a certain point this speed is reduced after which the normal movement follows with the “Low-Impact” feature as described above. Also the “Rapid-Approach” feature is stroke-independent.
This feature provides advantages when longer strokes are to be made, e.g. on C-type of welding guns with a stroke > 60 mm (2.36”).
Other Options

- A Built-in P/E Switch.
  This outputs an electric signal as soon as the cylinder reaches 75% of its full force.
  This signal indicates that after a very short squeeze-time or immediately welding can start.

- Completely Isolated Cylinder
  This prevents both electrodes from getting a short-circuit through the piston rod, piston and housing of the cylinder.

- Non-rotating Piston Rod.
  This prevents that the electrode connected to the piston rod does not get out of position and damages the electric cabling and water hoses.

Program Overview

The weld system consists of the following product options:

1. Pneumatic Cylinders
   - Single Stroke
   - Double Stroke
   - With Pre-stroke
   - With Weld Stroke

2. Valve Blocks

3. Air and Water Treatment Units

4. Proportional Valves

Parker Sempress can combine these products into one system that features both “Low-Impact” and “Rapid-Approach” into your application. We would like to get the opportunity to explain to you how this can be done for your application.
DH / DP Valve Block with Low Impact and Rapid Approach Control

Description
Pneumatic valve block for use with pneumatic weld gun cylinders. The block has an integrated low impact system and is provided with two solenoid operated “Namur” valves. One valve for the pre-stroke and one for the weld stroke. The valves can be of the single solenoid type or the double solenoid type. The block is available for different constructions of cylinders:

- DH = Piston to Piston
- DP = Two Cylinders Back-to-Back

The block can be supplied with single solenoid or double solenoid valves, depending of the type of control available.

Dimensions: See page 15

Applications
The Valve Block can be used with any Pneumatic Spot Weld Cylinder with Pre-stroke.

Mounting
Diameter of the cylinder from Ø 70 mm up to Ø 140 mm. Adapter plates are available to mount the valve block on your pneumatic cylinder.

Technical Data
Medium .......................... Compressed air, filtered to 40µ and dried to a dewpoint of 37°F (3°C), lubricated or non-lubricated. Once lubricated air is applied, this must be maintained.

Lubrication ..................... The block is shipped with lifetime lubrication, silicone-free grease.

Working Pressure ........... 21 to 145 PSIG (1.5 to 10 bar)
Ambient Temperature ...... 41°F to 120°F (5°C to 49°C)
Weight ............................ 5.5 lbs (2.5 kgs)

Pneumatic Valve
24V DC
- Operating Voltage Solenoids .... 24V DC ±10%
- Power Consumption .................. 4.8W
- Class of Protection .................. IP65 (with plug mounted)
- Connector .......................... M12, 22mm, 30mm

120V AC
- Operating Voltage Solenoids .... 120V AC ±10%
- Frequency ............................ 50 / 60 Hz
- Power Consumption ............... 6.3VA / 7.8 VA
- Class of Protection .................. IP65 (with plug mounted)
- Connector .......................... M12, 22mm, 30mm

Proximity Sensor
24V DC
- Supply Voltage ..................... 10 to 30 VDC
- Rated Operational Current .......... 200mA
- Degree of Protection ............... IP67
- Ambient Temperature Range ...... -22°F to 185°F (-30°C to 85°C)
- Switching Indication .............. By LED (Orange)
- Output ............................... PNP or NPN
- Connector .......................... Conprox (H1141)

120V DC
- Supply Voltage ..................... 20 to 250 VAC
- Frequency ............................ 50 or 60 Hz
- Supply Voltage Indication ........ By LED (Green)
- Rated Operational Current ........ 400 mA
- Degree of Protection ............... IP67
- Ambient Temperature Range ...... -13°F to 158°F (-25°C - +70°C)
- Switching Indication .............. By LED (Orange)
- Output ............................... PNP or NPN
- Connector .......................... Minifast (B1331)

Service Kits: See page 15
The Parker Sempress “Rapid-Approach” Effect

Another specific feature is the “Rapid-Approach” effect. This allows, especially at welding guns with a big opening between both electrodes, for high speed in the beginning of the movement. At a certain point this speed is reduced after which the normal movement follows with the “Low-Impact” feature as described above. Also the “Rapid-Approach” feature is stroke-independent.

This feature provides advantages when longer strokes are to be made, e.g. on C-type of welding guns with a stroke > 60 mm (2.36”).

The Parker Sempress “Low-Impact” Effect

A specific feature in Parker Sempress Pneumatic spot weld cylinder is the “Low-Impact” effect.

This is reached by means of an integrated pneumatic control which ensures that the electrodes are touching the sheet metal with low force and speed (kinetic energy) and that immediately after touch down of the electrodes the press-force is built-up instantly.

This gives following advantages:

- Less noise because the electrodes only touch the metal sheets softly.
- No bouncing of the electrodes on the metal sheets, hence the spot welding can start immediately after the first contact.
- Less wear on electrodes (measured lifetime-improvement of 30%) and sensitive electrode-caps (measured lifetime improvement of 200%).
- No damaging of the metal sheets. Additional polishing can be avoided.
- Less shocking movements in the welding gun and between electrodes.
- On robot-guns: water-hoses and electric cabling show less wear.
- On manual guns: less physical stress for the operator.
- Less sparking because both metal sheets are pressed together properly and immediately after first contact.
- Less welding points required because the quality of the weld is improved.
- Lower welding current can be used.
- An electrical feedback signal is available when 75% of the clamping force has been reached.

One of the features of the Parker Sempress “Low-Impact” system is that it is stroke-independent. This means that the system works on every position of the cylinder. The nominal stroke of the cylinder should be longer than the maximum required stroke.

The closing speed and impact force can be regulated by turning the regulating screw in the valve block. The electric signal “Start Welding” can be taken from the M12-Pin connection on the valve block.
LVU Frame Block Clamping System with Quick Release for Air Service Units

Description
Clamping system with quick release system for air service units.
Used in highly demanding surroundings.
This system allows you to close the air supply line and keep the secondary line under pressure.

Dimensions: See page 16

Model Number
<table>
<thead>
<tr>
<th>Slotted Screwdriver</th>
<th>Lever</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; 3098400 BSPP</td>
<td>3525300 BSPP</td>
</tr>
<tr>
<td>1&quot; 3523200 BSPP</td>
<td>3525400 BSPP</td>
</tr>
<tr>
<td>1/2&quot; 3524900 NPT</td>
<td>3526800 NPT</td>
</tr>
<tr>
<td>1&quot; 3525000 NPT</td>
<td>3526900 NPT</td>
</tr>
</tbody>
</table>

Unit Consists Of:
1. Inlet Block
2. Extension Flanges
3. Output Block

Function
The frame-block is a clamping system for air service components.
The frame-block has following features:
- The unit can easily be extended to take either 3, 4 or 5 components.
- For easy exchange of defective components, the unit can be closed off with a screwdriver or lever by turning the release screw on the inlet block.
- When the unit is closed off, the system behind the unit remains under pressure and can continue to operate.
- Components are released automatically immediately after opening of the unit and they can be taken out and when necessary be replaced.
- After replacing the components the unit can be closed again using the same release screw or lever on the inlet block.
- When closed the system detects whether or not all components are in place.
- The unit is less expensive in installation costs than traditional systems.

Air Service Components

<table>
<thead>
<tr>
<th>Slotted Screwdriver</th>
<th>Lever</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; BSPP 3098400 BSPP</td>
<td>3525300 BSPP</td>
</tr>
<tr>
<td>1&quot; BSPP 3523200 BSPP</td>
<td>3525400 BSPP</td>
</tr>
<tr>
<td>1/2&quot; BSPP 3524900 NPT</td>
<td>3526800 NPT</td>
</tr>
<tr>
<td>1&quot; BSPP 3525000 NPT</td>
<td>3526900 NPT</td>
</tr>
</tbody>
</table>

- Air Filters
  P3KFA/C002
  89223428
- Pressure Regulators
  P3KRA/C002
  30469000
- Intermediate Blocks
  89219222
  89219221
- Lubricators
  89216271
  89216273
- Dump Valves
  3041000
  3023000
- Combination Dump Valve
  3041100
  3052500

Proportional Regulator
See page 13

ANSI

Diagram:
- Air
- Welding Pressure
- Pressure Equalizing Valve
Technical Data

Air Service Unit
Maximum Input Pressure ............. 145 PSIG (10 bar)

Filter ................................................................. 5µ

Proportional Valve
Connections .................................. G 1/2" BSPP / NPT
                                            G 1" BSPP / NPT

Materials
Housing ............................................ Aluminum
Other ........................................ Brass, Stainless Steel
LVU-HY Frame Block Clamping System with Quick Release for Air & Water Service Units

Description
Water block is integrated at the front side of the frame block, which gives you the possibility to centralize all pneumatic and water connections to one unit, and gives you also a very compact and flexible unit.
Outlet for thyristor cooling is integrated at the bottom of the water block.

Model Number
LVU-HY-1/2-N (1/2" NPT)
LVU-HY-1-N (1" NPT)
LVU-HY-1/2-G (1/2" BSPP)
LVU-HY-1-G (1" BSPP)

Dimensions: See page 17

Unit Consists Of:
1. Pneumatic Part: Frame block in which air service components are clamped together.

On the frame block, the following components are fitted:
- Inlet Block
- Extension Flanges
- Output Block

In the frame-block, the following components can be installed:
- Air filter.
- Connection block with built-in pressure regulator and pressure gauge for the equalizing cylinder.
- Proportional valve
- More components available on request.

2. Coolant Water Part: The Plastic Water Block, with following components, is mounted to the front of the Frame Block.
   - Two manual ball valves (one for the supply, one for the return)
   - Connectors for the tubing to the welding gun.
   - Flow sensor (Model Number SI1000) on the top side, sensing the return flow.
   - Connectors supply and return for the thyristor on the bottom side.

Note: Manual ball valves are supplied with unit. Electric valves can be supplied as an option.

ANSI
LVU-HY Frame Block Clamping System

Function
The frame block is a clamping system for air service components (filters, regulators, lubricators, proportional valves, slow start valves and dump valves). The frame block has following features:

- The unit can easily be extended to take either 3, 4 or 5 components.
- For easy exchange of defective components, the unit can be closed off with a screwdriver or lever by turning the release screw on the inlet block.
- When the system is closed off, the system behind the unit remains under pressure and can continue to operate.
- Components are released automatically, immediately after opening of the unit and can be taken out and when necessary to be replaced.
- After replacing the components, the unit can be closed again using the same ball valve lever or slotted screwdriver on the inlet block.
- When closed, the system detects whether or not all components are in place.

Technical Data

Air Service Unit
- Maximum Input Pressure ............. 145 PSIG (10 bar)
- Filter .......................................................... 5µ
- Proportional Valve ..................... See separate leaflet
- Connections ............................... G 1/2” BSPP / NPT
  G 1” BSPP / NPT

Materials
- Housing ..................................................... Aluminum
- Other .................................................. Brass, Stainless Steel

Water Service Unit
- Supply / Return Connection ......... G 3/4” BSPP/NPT
- Robot Connections .............................. M22 x 1.5
- Flow Controller ................................. On Specification

Materials
- Housing ..................................................... Plastic
- Fittings .................................................. Brass
EPDN Series Proportional Valve

Description
Proportional valve (Electronic Pressure Regulator) with micro processor which enables you to adjust all parameters settings by means of push buttons.

Features
- Alarm Output Signal 24VDC when Required Pressure is Reached
- Connector M12 4P Male (Plug and Cable are Not Supplied)
- Fits in the Parker Pneumatic Frame-block (Air Service Unit)
- Free Programmable Software
- Integrated and Adjustable Slow-Start Functions

Accuracy
Linearity .................................................... < 0.3% of F.S

Air Consumption
Under normal conditions and in steady state there is no air consumption.

Alarm Output Signal
Within the signal band an output signal is available: 24VDC, PNP open collector, max 50mA, prevented against short-circuit (accepts inductive loads).

Available Options
Analog Output: 0 - 10 Volts
For additional information, please contact factory.

Change the Control Signal
From 0 - 10 V to 4 - 20mA (Ri = 500): (Parameter 4)

Class of Protection................................. IP 65

Control Signal
0 - 10V, Ri = 100K or 4 - 20mA, Ri = 500
The control signal can be changed.

Dimensions: See page 18

Electrical Connections
Use plug M12: 4-Pole female
(Other connectors available on request)
The electrical connections are as follows:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24V Supply</td>
<td>Brown</td>
</tr>
<tr>
<td>2</td>
<td>0-10V Control</td>
<td>White</td>
</tr>
<tr>
<td></td>
<td>Signal Ri = 100k</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0V (GND) Supply</td>
<td>Blue</td>
</tr>
<tr>
<td>4</td>
<td>24V Alarm Output</td>
<td>Black</td>
</tr>
</tbody>
</table>

Flow Capacity: 1/2" = 63.6 SCFM, 1" = 148.3 SCFM

Hidden Functions EPDN4-MP
During start-up unit. (Power goes on)
When keys DOWN and UP are pressed during start-up, (connecting to the 24V power supply) manual mode is activated. This means that the user is able to increase / decrease the output pressure of the EPD, by pressing the UP or DOWN key. During this action the display will blink, indicating that the manual mode is activated.

Pressing the UP and DOWN key again simultaneously will cause the EPD to terminate manual mode.

After Start-up (Power is on)
Parameter 0 = 3
Entering this value in parameter 0 will store the calibrated factory data into the working parameters. (Default calibration data is used)

Behavior Control
The regulation speed of the pressure regulator can be modified by means of one parameter. (P 20)
The value in this parameter has a range from 0-5, a higher value means slower regulation speed (but more accurate). When the value 0 is entered, you are able to create your own custom settings. For details see page 12, parameter 20.
EPDN Series Proportional Valve

**Materials**
- Housing: Anodized Aluminum and Plastic
- Seals: NBR
- Valves: Polyurethane
- Others: Delrin, Brass, Aluminum

**Mounting**
The unit preferably is to be mounted vertically with the electrical connection to the top.

**Parameters.**
Functionality of EPD can be manipulated by means of parameter settings. These settings can be changed by means of the 3 buttons at the front side of the EPD.

For details see page 12 “How to Change Parameters”.

**Pilot Valve Protection**
When the required output pressure can not be achieved because of a lack of input pressure the unit will display “No.P”. The output pressure will then approximately be equal to the inlet pressure. As soon as the input pressure is back on the required level the normal control function follows.

**Pressure Range**
- Primary (Input Pressure): max. 16 bar
- Secondary (Output Pressure): 0 to 12 bar

The output pressure is indicated on a built-in digital display. Pressure drop input / output min. 0.5 bar

**Response Times**
For a volume of 330 cm³ directly on the outlet of the regulator:
- Pressure increase from 2 to 4 bar: 32 msecs
- Pressure increase from 2 to 8 bar: 137 msecs
- Pressure decrease from 4 to 2 bar: 64 msecs
- Pressure decrease from 8 to 2 bar: 159 msecs

For a volume of 330 cm³ on a distance of 20 meters from the regulator (Connected with tubing - inner Ø 10 mm):
- Pressure increase from 2 to 4 bar: 56 msecs
- Pressure increase from 2 to 8 bar: 200 msecs
- Pressure decrease from 4 to 2 bar: 69 msecs
- Pressure decrease from 8 to 2 bar: 96 msecs

**Supply Voltage**
- 24V DC ± 10%

**Reverse Protected**
- Max. 200 mA.

**Temperature Range**
- 14°F to 122°F
- (-10°C to 50°C)

**Type**
- EPDN

**Settings**
The regulator is pre-set at the factory as indicated on label. If required, adjustments can be made, see page 12.
- Dead Band: .. ± 1% of FS (= ± 0 to 12 bar) = Hysteresis
- Proportional Band: ............... ±10% of FS (= ± 1,2 bar)
- Signal Band: ....................... ±10% of FS (= ± 1,2 bar)

**Specific Applications**
So far the EPD has been used in a wide variety of applications such as:
1. Regulating welding forces on spot weld guns.
2. Regulating protective gases in laser cutting installations.
3. Maintaining pressure in cutting head chambers on tunnel drilling equipment.
4. Maintaining a small overpressure in clean rooms.
5. Regulating air-humidity in storage and handling rooms for e.g. tobacco or wood.
6. Regulating sprays of paint through the nozzles of painting installations.
7. Maintaining a protective shield of inert gases in furnaces in steel mills to avoid the contamination with air of gas in the metal.
8. Adjusting of braking forces on ships winches.
11. Controlling specific gas mixtures in laboratories.
12. Regulating speed control on a roll of carpet whilst rolling up in order to maintain the same stretch through the entire cloth.
13. Controlling vacuum in tube expansion purposes.

**Working Medium**
Compressed air or inert gases, filtered to min. 40µ, lubricated or non-lubricated, once lubricated air is supplied, this must be maintained.
## Parameter Setting

<table>
<thead>
<tr>
<th>Changeable User parameters*</th>
<th>Setting</th>
<th>Standard Value</th>
<th>Description</th>
<th>Unit</th>
<th>Action</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Back to factory settings</td>
<td></td>
<td></td>
<td>Back to Normal Settings</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>1</td>
<td>mA</td>
<td></td>
<td>Set Setpoint Input to mA</td>
<td>0(4)-20mA, (P29) 0-10V</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>1</td>
<td>V</td>
<td></td>
<td>Set Setpoint Input to Volt</td>
<td>0(4)-20mA, (P29) 0-10V</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>1</td>
<td>Alarm Output Analog Output</td>
<td></td>
<td>Set Output to Digital Alarm Output</td>
<td>24V= In Band</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>80 to 120</td>
<td>100</td>
<td>% F.S.</td>
<td></td>
<td>Set Analog Output Span</td>
<td>Span = 0-11V</td>
</tr>
<tr>
<td>9</td>
<td>50 to 250</td>
<td>100</td>
<td>x 10 mbar</td>
<td></td>
<td>Set Analog Output Span</td>
<td>Span = 0-11V</td>
</tr>
<tr>
<td>10</td>
<td>2 to 40</td>
<td>15</td>
<td>x 10 mbar</td>
<td></td>
<td>Set Deadband Area</td>
<td>20 to 400 mbar</td>
</tr>
<tr>
<td>11</td>
<td>0</td>
<td>1</td>
<td>bar</td>
<td></td>
<td>Change Display Reading</td>
<td>bar</td>
</tr>
<tr>
<td>12</td>
<td>1 to 250</td>
<td>1</td>
<td>x 10 mbar</td>
<td></td>
<td>Set Slow Area</td>
<td>0 to 2,5 bar</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>5</td>
<td>****</td>
<td></td>
<td>Set Slow Steps</td>
<td>Highest Speed Lowest Speed</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
<td>x 10 mbar</td>
<td></td>
<td>Set Preset Pressure (x10 mbar)</td>
<td>0 to 2 bar</td>
</tr>
<tr>
<td>15</td>
<td>1 to 100</td>
<td>100</td>
<td>% F.S.</td>
<td></td>
<td>Pressure Correction</td>
<td>0 to P-max</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>1</td>
<td>Fastest</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>17</td>
<td>2</td>
<td>Fastest</td>
<td>Fastest</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>18</td>
<td>3</td>
<td>3</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>19</td>
<td>4</td>
<td>4</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
<td>5</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>0</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>1</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>23</td>
<td>2</td>
<td>2</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>24</td>
<td>3</td>
<td>3</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
<td>4</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>26</td>
<td>5</td>
<td>5</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>27</td>
<td>0</td>
<td>0</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>1</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>29</td>
<td>2</td>
<td>2</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>30</td>
<td>3</td>
<td>3</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>31</td>
<td>4</td>
<td>4</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>32</td>
<td>5</td>
<td>5</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>33</td>
<td>0</td>
<td>0</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>34</td>
<td>1</td>
<td>1</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>35</td>
<td>2</td>
<td>2</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>36</td>
<td>3</td>
<td>3</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>37</td>
<td>4</td>
<td>4</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
<tr>
<td>38</td>
<td>5</td>
<td>5</td>
<td>Slow</td>
<td></td>
<td>Custom Set</td>
<td>Fastest Adjustable Only with 0 Custom Set</td>
</tr>
</tbody>
</table>

*Other parameter settings are available. Consult factory.

### How to Change Parameters:

Pressing Accept key for more than 3 sec, will activate parameter change mode. User can select parameter by pressing up or down key on EPD. (display shows Pxx). When parameter number is correct, pressing accept again will enter parameter number. (display shows parameter value now). Pressing the up or down key will change the parameter. (blinking display point shows parameter editing mode). Pressing the accept key will accept the new parameter value. (all digits will blink during acceptance). After releasing all keys, the next parameter number will be presented on the display. When no key is pressed, after 3 sec the display will show the actual output pressure.
### Ordering-key Specials

<table>
<thead>
<tr>
<th>Type</th>
<th>Micro Processor</th>
<th>Minimum Pressure Control</th>
<th>Maximum Pressure Control</th>
<th>Control Signal</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDN</td>
<td>4</td>
<td>0</td>
<td>145P</td>
<td>0U10</td>
<td>C</td>
</tr>
</tbody>
</table>

- **Type**
  - 4: 12 mm, 63.6 SCFM, 1/2" BSPP
  - 5: 12 mm, 63.6 SCFM, 1/2" NPT
  - 8: 25 mm, 148.3 SCFM, 1" BSPP
  - 9: 25 mm, 148.3 SCFM, 1" NPT

- **Pressure Control**
  - **Minimum Pressure Control**:
    - Required **minimum** pressure, expressed in **B** bar of **M** mbar or **PSI** (preset pressure)
  - **Maximum Pressure Control**:
    - Required **maximum** pressure (=F.S.*), expressed in **B** bar of **M** mbar or **PSI** (max. 12 bar or 174 PSI)

- **Control Signal**
  - 0U10: 0 ± 10 VDC, Ri = 100 kohm
  - 4I20: 4 ± 20 mA, Ri = 500 ohm
  - 8BIT: 8 Bit Digital

- **Option**
  - Blank: No Option
  - C: Slow Start Function
  - D: Suitable for Oxygen

---

**EPDN Series Proportional Valve**

Parker Pneumatic Welding Products

Catalog 0695/USA
### Reference List

An overview of customers, to whom we are currently supplying one or more of the products mentioned in this catalog. This is just a summary of our customer database.

<table>
<thead>
<tr>
<th>Car Manufacturers</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>VW group</td>
<td>Comau</td>
</tr>
<tr>
<td>• Volkswagen</td>
<td>Gerbi-fase</td>
</tr>
<tr>
<td>• Audi</td>
<td>Serra Soldadura</td>
</tr>
<tr>
<td>• Seat</td>
<td>Kuka group</td>
</tr>
<tr>
<td>• Skoda</td>
<td>Thyssen Krupp</td>
</tr>
<tr>
<td>Ford group</td>
<td>Harms und Wende</td>
</tr>
<tr>
<td>• Ford</td>
<td>During</td>
</tr>
<tr>
<td>• Jaguar</td>
<td>Michels</td>
</tr>
<tr>
<td>• Landrover</td>
<td>Nimak</td>
</tr>
<tr>
<td>• Volvo</td>
<td>Aro</td>
</tr>
<tr>
<td>General Motors</td>
<td>British Federal</td>
</tr>
<tr>
<td>• Opel</td>
<td>Climec</td>
</tr>
<tr>
<td>• Saab</td>
<td>Renault Automation</td>
</tr>
<tr>
<td>Daimler Chrysler</td>
<td>Expert</td>
</tr>
<tr>
<td>• Mercedes Benz</td>
<td>F.A.T.</td>
</tr>
<tr>
<td>Nissan / Renault</td>
<td>E.M.W.A.</td>
</tr>
<tr>
<td>Rover</td>
<td>Fata</td>
</tr>
<tr>
<td></td>
<td>FFT</td>
</tr>
<tr>
<td></td>
<td>Durr</td>
</tr>
<tr>
<td></td>
<td>Esab</td>
</tr>
<tr>
<td></td>
<td>Tecna</td>
</tr>
<tr>
<td></td>
<td>ABB</td>
</tr>
<tr>
<td></td>
<td>Nothelfer</td>
</tr>
<tr>
<td></td>
<td>Pico</td>
</tr>
</tbody>
</table>
Kits & Accessories

Weld Pack Sensor Valve Kit ................. 3087900
PNP Sensor Kit ................................... 3087800
NPN Sensor Kit .................................. 3527200
Weld Block Sleeve Kit (1 piece per kit) .... 3059600
Non-Return Check Valve ...................... 3059900
Quick Exhaust Valve DH ...................... 3099100

mm (inches)
LVU Frame Block Dimensions

Parker Pneumatic
Welding Products

Catalog 0695/USA

LVU Frame Block Dimensions

Closed

90°

mm (inches)

G 1/2

G 1/2

336.50 (13.248)
187.00 (7.362)
57.20 (2.252)
62.00 (2.441)
80.75 (3.179)
253 (9.961)
287 (11.299)
29.50 (1.161)
12.50 (0.492)
71.00 (2.795)
80.80 (3.181)
Kits & Accessories
Water Service Flow Sensor Kit .................... SI1000
Kits & Accessories

- EPDN4-M Repair Kit .................................. 3527000
- EPDN5-M Repair Kit .................................. 3527000
- EPDN8-M Repair Kit .................................. 3527100
- EPDN9-M Repair Kit .................................. 3527100
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 item, when communicated to Parker Hannifin Corporation, its subsidiaries 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 made 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 terms or conditions are consistent 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 except as otherwise committed by Seller. Regardless of the method of delivery, unless Seller receives notice thereof within 30 days after Buyer’s receipt of the shipment.

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 COMPRISSES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREBUNDER. 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.

5. Limitation of Remedy: SELLER’S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER’S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREBUNDER, WHETHER ALLEGED TO ARISE FROM BREECH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify specifications for the items sold hereunder, however, 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 limitations, 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, Buyer shall have the right to discard or otherwise destroy 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 on 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 submission of invoice(s) to Seller. Such taxes shall be added to any invoice by Buyer for freight, insurance, de minimis 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 all claims, suits, actions, proceedings, costs and expenses (collectively, “Claim”) made or 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 action or claim is brought against Seller arising from or out of an item sold hereunder for the infringement of a U.S. patent, U.S. trademark or copyright, and Seller fails to defend such action or claim 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 action or claim is brought against Seller arising from or out of an item sold hereunder, 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. This indemnity provision 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, Seller shall defend and indemnify Buyer for its expenses or judgements 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 supersede any and all other agreements, understandings and negotiations thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of 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.
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 (00800-272-7537).

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

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

The Seal Group designs, manufactures and distributes industrial and commercial sealing devices and related products by providing superior quality and total customer satisfaction.

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 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.

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 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.