Series 18
Teflon® Solenoid Valves

Features:
- Low Power
- Low Internal Volume
- High Cycle Life
- Only Teflon® Wetted Parts
- High Speed
- Requires No Pressure to Operate

Valve Specifications:
Ports: 1/4-28 Threaded Ports
Operating Media: Liquids and Gases
Operating Pressures: Vacuum to 20 psi [1.38 BAR]
Operating Temperature: 40° to 150°F [4° to 66°C]
Leak Rate: <1x10⁻⁶ cc/sec/atm Helium
Standard Orifices: 0.031 and 0.062
[0.8mm and 1.6mm]
Materials Contacting Media: Teflon®

Electrical Specifications
(continuous duty rated)

<table>
<thead>
<tr>
<th>DC (V)</th>
<th>Power (W)</th>
<th>Current (mA)</th>
<th>Resistance (Ω 45% @ 70°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2.5</td>
<td>211</td>
<td>57</td>
</tr>
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<td>24</td>
<td>4.2</td>
<td>173</td>
<td>139</td>
</tr>
</tbody>
</table>

Mechanical Configuration

All Series 18 valves are cycled 50,000 times prior to shipment after which they are tested 100% for all electrical and flow characteristics including actuation, response time, and leakage under both pressure and vacuum. After this rigorous testing, they are put through one additional leak check on a Mass-Spectrometer and tested for leak rates less than 1x10⁻⁶ ATM-cc/sec Helium.

Parker Hannifin Corporation
General Valve Division
18 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvdelp@parker.com
Series 1
Teflon® Solenoid Valves

Features:
- Low Power
- Low Internal Volume
- Requires No Pressure to Operate
- Only Teflon® and Glass Wetted Parts

Valve Specifications:
Ports: 1/4-28 Threaded Ports
Operating Media: Liquids and Gases
Operating Pressures: Vacuum to 20 psi [1.38 BAR]
Operating Temperature: 50° to 150°F [10° to 66°C]
Standard Orifices: .031 and .062 [0.8mm and 1.6mm]
Materials Contacting Media: Teflon® and Glass

Electrical Specifications
(continuous duty rated)

<table>
<thead>
<tr>
<th>DC (V)</th>
<th>Power (W)</th>
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</table>

Mechanical Configuration

Kalex®, Teflon® and Viton® are registered trademarks of I.D.U.P. ont de Namours and Company.

The Series 1’s small internal volume combined with a fast response time—8ms—enables users to get fast readings and analysis. Washout is rapid. The Series 1’s require no pressure to operate and the absence of sliding surfaces in the fluid stream ensures operation without particle generation.
Series 3
2 and 3 Way Solenoid Valves

Features:
- Low Internal Volume
- 2 Way NO, 2 Way NC and 3 Way Configurations
- Requires No Pressure to Operate
- High Cycle Life
- Small Package
- Integral Barbed Fittings

Valve Specifications:
Ports: 1/16", 1/8" and 3/16" Integral Barbed Fittings and #10-32 Threaded Ports
Operating Media: Liquids and Gases
Operating Pressures: Vacuum to 100 psi [6.89 BAR] (Orifice Dependent)
Operating Temperature: 40° to 150°F [4° to 66°C]
Standard Orifices: .055 to .093 [1.4mm to 2.4mm]
Materials Contacting Media: Passivated Stainless Steel, Teflon® and Elastomer, 10-32 Thread Bodies are Acetal, Barbed Bodies are Ryton® (Polyphenylene Sulfide)

Electrical Specifications (continuous duty rated)

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Mechanical Configuration

Kulanz®, Teflon® and Ryton® are registered trademarks of the Nature of Company. Ryton® is registered trademark of Phillips. Parker Hannifin Corporation

General Valve Division
19 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvp@park.com

Parker Hannifin Corporation
Instrumentation
Series 4
2 and 3 Way Solenoid Valves

Features:
- Low Internal Volume
- 2 Way NO, 2 Way NC and 3 Way Configurations
- Requires No Pressure to Operate
- High Cycle Life
- Small Package

Valve Specifications:
- Ports: 1/4-28 Threaded Ports, A-Lok Compression Fittings
- Operating Media: Liquids and Gases
- Operating Pressures: Vacuum to 100 psi [1.38 BAR] (Orifice Dependent)
- Leak Rate: <1x10E-5 cc/sec/atm Helium
- Operating Temperature: 40° to 150°F [4° to 66°C]
- Standard Orifices: .055 and .093 [1.4mm and 2.4mm]

Electrical Specifications
(continuous duty rated)

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</tbody>
</table>

Mechanical Configuration

K Store®, Teflon® and Viton® are registered trademarks of E.I. Du Pont de Nemours and Company.
Series 9
2 and 3 Way High Performance Valves

Features:
- Ultra High Speed
- High Flow
- Requires No Pressure to Operate
- High Cycle Life
- Stainless Steel Construction

Valve Specifications:
Ports: 1/4-28 Threaded Ports, 1/8 NPT and A-Lok Compression Fittings
Operating Media: Liquids and Gases
Operating Pressures: Vacuum to 1500 psi [1.38 BAR]
Operating Temperature: -40° to 200° C*
Standard Orifices: .031 and .062 [0.8mm and 1.6mm]
Materials Contacting Media: Passivated Stainless Steel, Teflon®
Coating, and Elastomer
Leak Rate: <1 x 10⁻⁷ cc/sec/atm Helium

Electrical Specifications
(continuous duty rated)

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<td>12</td>
<td>594</td>
<td>33</td>
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<td>24</td>
<td>12</td>
<td>500</td>
<td>48</td>
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<tr>
<td>28</td>
<td>11.2</td>
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<td>70</td>
</tr>
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</table>

Mechanical Configuration

*Notated for continuous duty at max. temperature.
Katz® Teflon® and Viton® are registered trademarks of E.I. du Pont de Nemours & Company.

The Series 9 is designed for high speed (5 ms or less opening response time) high flow (up to .116" orifice size) and high temperature applications (up to 200° C). This highly reliable compact valve is perfect for applications with the most critical needs. All valves are tested on helium leak detector mass spectrometers for leak rates less than 1 x 10⁻⁷ cc.

Parker Hannifin Corporation
General Valve Division
19 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4944 • Fax: (973) 575-4011
Email: gvhelp@parker.com
Iota One
Solenoid Valve Controller

Features:
- Microsecond Operating Times
- Wide Range of Valves Supported
- Internally or Externally Triggered Modes
- 5 Volt TTL Coincident Output
- Low Voltage Holding Circuit
- Multi Channel Models Available

Valve Specifications:
- Operates Most Series 9, 91, or 99 Valves
- 12, 20, 24 and 28 Volt DC Coils Supported

Electrical Specifications
- 100 or 120 Volts AC
  - 50-60 Hz: 3.0 Amp
  - 230 or 240 Volts AC
  - 50-60 Hz: 1.5 Amp

IOTA ONE is a bench top or rack mountable driver for high speed solenoid valves (series 9, 91 and 99). Pulse duration ranges in microseconds, milliseconds, or longer can be selected. Internally generated pulse trains can be achieved by setting on and off times or an operating frequency. Two externally triggered modes can be selected allowing partial or complete external control. Front panel BNC jacks are provided for both input and output TTL signals. The single channel unit can produce repetition rates up to 250 Hertz (maximum 50% duty cycle) while the multi-channel can produce repetition rates up to 999 Hertz. A shielded cable(s) is included for connection to the valve(s). Pulse valves are not included.

Used to drive molecular beam pulsed sources for laser spectroscopy experiments where pulsing the supersonic carrier gas instead of "CW" reduces the size of the vacuum pumping system required. Synchronizing the gas pulse with the laser pulse increases the signal-to-noise ratio and lowers the temperature. Molecules are cooled without changing to liquid, and therefore higher peak intensities can be achieved due to the smaller spectra of cold molecules. Less sample is required.

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Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvcnhelp@parker.com
Valve Drivers
Single and Multi-Channel

Features:
- Small and Lightweight
- Models for 12 and 24 VDC Valves
- Internally or Externally Triggered Modes
- Single, Two Channel and Multi Channel Models Available
- Drivers for Iso-Latch® valves

The Valve Driver II family of instruments is designed to assist in the automation of fluid (liquid or gas) control systems in the laboratory. They allow manual as well as external control of one or more electric solenoid valves. The drivers employ a "hit and hold" drive circuit that applies a pulse of full voltage to the valve after which a low holding voltage cuts on to keep the valve open as long as required. This technique reduces overall power consumption and substantially reduces the heat build up in the valve. Manual switches and LED indicators are on the front panel. The back panel has two detachable terminal blocks; one for the valve and one for all other I/O. In addition to standard positive and negative (contact closure) TTL inputs the drivers can be configured to trigger on the leading or trailing edge of a pulse. These instruments are small, lightweight and are powered by a modular remote power supply. Most 12 or 24 volt DC valves produced by the General Valve Division of Parker Hannifin Corporation can be operated by one or more of these drivers.

There are four models of the Valve Driver II each offered in both 12 and 24 volt versions. The Single Channel; the Two Channel (both channels independent); the Multi-Channel (manul selection of 1 of 4 outputs); and the Iso-Latch®.

Parker Hannifin Corporation
General Valve Division
19 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvdhelp@parker.com
Pulse Valves
Series 9 and 99 Valves for Pulsed Spectroscopy

Features:
- Ultra High Speed
- Repeatable Pulses
- Requires No Pressure to Operate
- High Repetition Rates
- Stainless Steel Construction

Valve Specifications:
- Ports: A-Lok, VacuSeal and NPT Connections standard
- Operating Media: Liquids and Gases
- Operating Pressures: Vacuum to 1500 psi
- Operating Temperature: -40°C to 200°C* (0.5mm to 3.0mm)
- Orifice Sizes: <1 x 10^-4 cc/sec/atm Helium
- Materials Contacting Media:
  Series 9 Pulse Valves: O-Ring Materials: Kalrez®, Viton and EPDM
  Poppet Materials: PTFE, PPS, PEEK, Kel-F and Vespe®
  Series 99 Pulse Valves: Gasket Materials: PEEK, Copper and Nickel
  Poppet Materials: PTFE, PPS, PEEK, Kel-F and Vespe®

Electrical Specifications
(continuous duty rated)

<table>
<thead>
<tr>
<th>DC (V)</th>
<th>Power (W)</th>
<th>Current (mA)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>12</td>
<td>2000</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>1000</td>
<td>12</td>
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Mechanical Configuration

*Notated for continuous duty at max. temperature.
Kalrez®, Teflon® and Viton® are registered trademarks of E.I. Du Pont de Nemours nd Company.

Parker Hannifin Corporation
General Valve Division
19 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvdhep@parker.com
Series 99
Ultra High Vacuum Valves

Features:
- No Elastomers / Ultra High Vacuum / High Pressure
- Stainless Steel Construction
- Ultra High Speed
- Variety of Porting Options
- Orifice from 50 Microns to 2.9 mm
- High Cycle Life

Valve Specifications:
Ports: Inlet:
Outlet: Threaded Ports, Vacuum Fittings and Compression Fittings
1 1/3" Standard or Conflat® Compatible Flange and Cylindrical
Operating Media: Liquids and Gases
Operating Pressures:
Vacuum to 1250 psi [86.20 BAR]
(Orifice Dependent)
Operating Temperature:
-40° C to 200° C*
Leak Rate:
<1x10⁻⁸ or Better cc/sec/atm Helium
Standard Orifices:
031, 062 and 116
[0.8mm, 1.6mm and 2.9mm]
Materials Contacting Media:
Passivated Stainless Steel,
Teflon® Coating and Gasket

Electrical Specifications
(continuous duty rated)

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</table>
AC coils available upon request.

Mechanical Configuration

*Notated for continuous duty 1 max. temperature
Kwik®, Conflat® and Teflon® are registered trademarks of E.I. Du Pont de Nemours and Company.

The absolute latest in high and ultra-high vacuum valve technology. Utilizing the revolutionary Gen-Lock™ seal, the series 99 can achieve leak rates of 1 x 10⁻⁸ or better. The series 99 is also designed for high-speed (5ms or less opening response time) high flow (up to .116" orifice size) and high temperature applications (up to 200° C). This highly reliable compact valve is perfect for applications with the most critical needs.

Parker Hannifin Corporation
General Valve Division
19 Gorin Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvdhelp@parker.com
Series 2
Teflon® Solenoid Valves

Features:
- Low Power
- Low Internal Volume
- High Cycle Life
- Only Teflon® Wetted Parts
- High Speed
- Requires No Pressure to Operate

Valve Specifications:
- Ports: 1/4-28 Threaded Ports
- Operating Media: Liquids and Gases
- Operating Pressures: Vacuum to 20 psi [1.38 BAR]
- Operating Temperature: 40° to 150°F [4° to 66°C]
- Leak Rate: <1x10⁻⁶ cc/sec/atm Helium
- Standard Orifices: .031 and .062 [0.8mm and 1.6mm]
- Materials Contacting Media: Teflon®

Electrical Specifications
(continuous duty rated)

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</tr>
</tbody>
</table>

Mechanical Configuration

All Series 2 valves are cycled 50,000 times prior to shipment after which they are tested 100% for all electrical and flow characteristics including actuation, response time, and leakage under both pressure and vacuum. After this rigorous testing, they are put through one additional leak check on a Mass-Spectrometer and tested for leak rates less than 1x10⁻⁶ ATM-cc/sec Helium.

Parker Hannifin Corporation
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Phone: (973) 575-4844 • Fax: (973) 575-4011
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Parker Instrumentation
Series 27
Ultra High Speed Teflon® Solenoid Valves

Features:
- Compact Package
- Low Internal Volume
- High Cycle Life
- Only Teflon® Wetted Parts
- Ultra High Speed
- Requires No Pressure to Operate

Valve Specifications:
Ports: 1/4-28 Threaded Ports
Operating Media: Liquids and Gases
Operating Pressures: Vacuum to 30 psi (2.07 BAR)
Operating Temperature: 40° to 150°F (4° to 66°C)
Leak Rate: 1x10⁻⁴ cc/sec/atm Helium
Standard Orifices: .031 and .040 [0.8mm and 1.0mm]
Materials Contacting Media: Teflon®

Electrical Specifications
(Continuous duty rated)

<table>
<thead>
<tr>
<th>DC (V)</th>
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<th>Current (ma)</th>
<th>Resistance (Ω x 5% @ 70°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>5.0</td>
<td>414</td>
<td>29</td>
</tr>
<tr>
<td>24</td>
<td>7.0</td>
<td>292</td>
<td>82</td>
</tr>
</tbody>
</table>

Mechanical Configuration

All Series 27 valves are cycled 50,000 times prior to shipment after which they are tested 100% for all electrical and flow characteristics including actuation, response time, and leakage under both pressure and vacuum. After this rigorous testing, they are put through one additional leak check on a Mass-Spectrometer and tested for leak rates less than 1x10⁻⁴ ATM-cc/sec Helium.

Parker Hannifin Corporation
General Valve Division
19 Gloria Lane • Fairfield, NJ 07004
Phone: (973) 575-4844 • Fax: (973) 575-4011
Email: gvhelp@parker.com
Tubing and Fittings
We offer a full line of compatible tubing fittings and tools.