



# ASEAN & ANZ Fluid Control Market Range

CAT.ASEAN\_FCD\_Mar 2016

aerospace  
climate control  
electromechanic  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



ENGINEERING YOUR SUCCESS

# Parker Hannifin Corporation

Parker can be found on and around everything that move. We manufacture highly engineered components and systems that facilitate motion and the controlled flow of liquids and gasses for a wide variety of global markets to increase our customers' productivity and profitability.

From flying aircraft and building infrastructure; to developing more efficient energy, advancing medical science and engineered materials, providing clean food and water, and supporting military efforts.

Parker's 55,000 employees bring it all together, partnering with our customers to help solve some of the world's greatest engineering challenges.



## Solving The World's Greatest Engineering

Our focus on solving some of the world's greatest engineering challenges sparks our passion for innovation and secures our future growth.

The development of more efficient energy sources; the desire to produce and distribute clean water; new drug discovery and medical advances; the building of infrastructure and transportation to support a growing population; the safe cultivation, transportation and preservation of food sources; emerging developments in defense; and the protection of our environment – all of these challenges drive Parker people forward, seeking new ways to innovate, combine technologies, collaborate, develop systems and partner with our customers to solve problems.

## Partnership in Motion From hidden costs to visible profits

Partnership is an important aspect of the Parker Hannifin business philosophy. We feel that together we can increase your productivity and profitability by utilizing all the products, services and systems in our portfolio.

Whether your needs is to develop sophisticated new machinery or to keep production lines running 24 hours a day, Parker is there to work with you to help you achieve your goals.

## History

The history of our great company is an interesting account of the transformation of technology over a period of nearly 100 years.

Founded in 1918, the evolution of the Parker Appliance Company into Parker Hannifin Corporation illustrates a legacy of innovation.

We believe our future growth is assured by honoring Parker's tradition of excellence and fair dealings.

1918	Founded
822,000	Products Sold
58,151	Customers
13,000	Distribution/MRO Outlets
1,200	Markets
316	Manufacturing Plants
50	Countries

## Parker Hannifin ASEAN & Australasia





### ASEAN Sales Office Presence

- **SINGAPORE** (Head Office)
- **MALAYSIA**  
Kuala Lumpur  
Penang  
Johor Bahru
- **INDONESIA**  
Jakarta
- **THAILAND**  
Bangkok
- **VIETNAM**  
Ho Chi Minh City
- **PHILIPPINES**  
Manila

### Australasia Sales Office Presence

- **SYDNEY** (Head Office)
- **AUSTRALIA**  
Perth  
Melbourne  
Brisbane  
Adelaide  
Mackay  
Newcastle
- **NEW ZEALAND**  
Auckland

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## A COMPLETE RANGE OF SOLENOID VALVES FOR FLUID CONTROL

### 2 WAY VALVES

- ▶ For dry or lubricated air, neutral gases and liquids
- ▶ For water and neutral liquids
- ▶ Anti water hammer
- ▶ Hot water and steam
- ▶ For hydraulic oil and neutral liquids (Max. 100 bar)
- ▶ High corrosion resistant (303 Stainless Steel) (316L Stainless Steel)
- ▶ Oil burner
- ▶ Fast switching
- ▶ Liquipure® for beverage dispensing



### 3 WAY VALVES

- ▶ For dry or lubricated air
- ▶ For hydraulic oil and neutral liquids (Max. 75 bar)
- ▶ High corrosion resistant (303 Stainless Steel)
- ▶ Liquipure® for beverage dispensing



### 5 WAY DISTRIBUTORS FOR PNEUMATIC APPLICATIONS

- ▶ Pipe mounted/ Sub-base mounting



### 3 & 5 WAY PNEUMATIC DISTRIBUTORS FOR ACTUATION CONTROL

- ▶ Pipe mounted
- ▶ NAMUR interface
- ▶ 316L Stainless Steel (Pipe mounted and with NAMUR interface)



### COILS & ELECTRICAL PARTS

- ▶ Coils
- ▶ Housings
- ▶ Explosion-Proof Electrical Parts



## A MODULAR CONCEPT FOR EVERY APPLICATION

### CHOOSE BETWEEN:

<b>ACTUATION MODES</b>	<ul style="list-style-type: none"> <li>▶ Direct Operated</li> <li>▶ Magnalift</li> <li>▶ Pilot Operated</li> </ul>	<ul style="list-style-type: none"> <li>▶ Manual Reset</li> <li>▶ Externally Operated</li> </ul>
<b>MATERIAL TYPES</b>	<ul style="list-style-type: none"> <li>▶ Brass</li> <li>▶ 303 Stainless St.</li> <li>▶ 316L Stainless St.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Anodized Aluminium</li> <li>▶ Zinc Alloy</li> <li>▶ POM</li> </ul>
<b>MOUNTING SOLUTIONS</b>	<ul style="list-style-type: none"> <li>▶ Pipe</li> <li>▶ Sub-base</li> <li>▶ NAMUR</li> </ul>	<ul style="list-style-type: none"> <li>▶ Banjo</li> <li>▶ CETOP</li> <li>▶ ISO</li> </ul>
<b>CONTROL FUNCTIONS</b>	<ul style="list-style-type: none"> <li>▶ Normally Closed</li> <li>▶ Normally Open</li> <li>▶ Universal</li> </ul>	<ul style="list-style-type: none"> <li>▶ Control by Electric Impulse</li> <li>▶ Dual Solenoids</li> <li>▶ PWM</li> </ul>
<b>INTERNAL DESIGN</b>	<ul style="list-style-type: none"> <li>▶ Piston</li> <li>▶ Poppet</li> </ul>	<ul style="list-style-type: none"> <li>▶ Diaphragm</li> <li>▶ Spool</li> </ul>
<b>SEALS</b>	<ul style="list-style-type: none"> <li>▶ FKM</li> <li>▶ NBR</li> <li>▶ EPDM</li> </ul>	<ul style="list-style-type: none"> <li>▶ Ruby</li> <li>▶ PUR</li> <li>▶ PCTFE...</li> </ul>



**IECEx / ATEX CERTIFICATION****ELECTRICAL PART ATEX CERTIFICATION**

A selection of FCDE electrical parts conform to the terms of the 94/9/EC directive and are made for potentially explosive environments - zone 0/20, 1/21 and 2/22.

Within the coil section, the presence of the ATEX logo shows that the coil is ATEX approved.

**MECHANICAL PART ATEX CERTIFICATION**

A selection of FCDE mechanical parts conform to the terms of the 94/9/CE directive specific to non electrical equipment for use within potentially explosive environments - zones 0/20, 1/21 and 2/22.

NAMUR & piped valve ranges now include a marking which indicates mechanical ATEX approval. Within the valve section, the presence of the ATEX logo shows that the valve is ATEX approved.

**SOLENOID VALVE CERTIFICATION**

When both the electrical and mechanical part are ATEX approved, the solenoid valve can be used in explosive atmospheres.

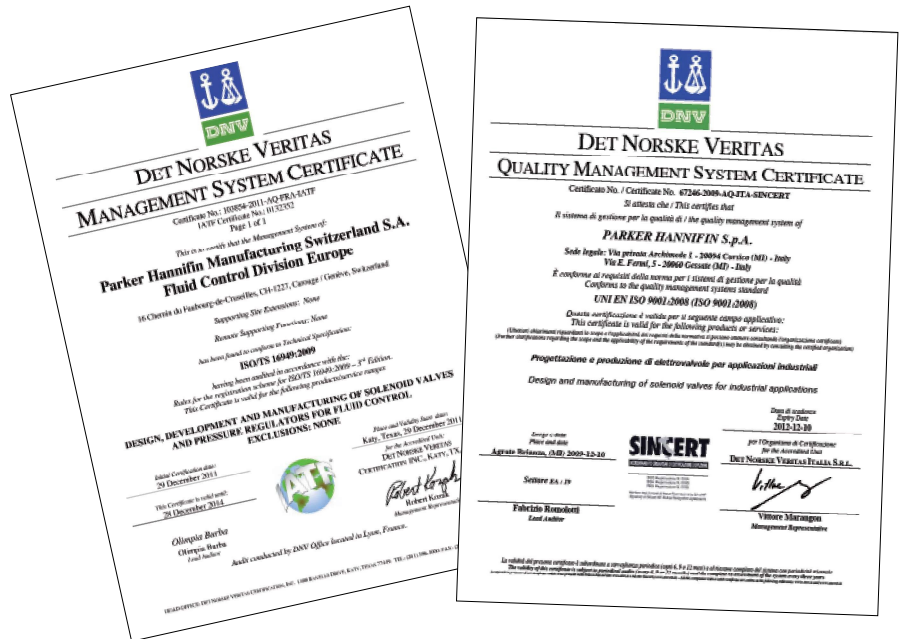
The solenoid valve will be delivered assembled and tested.



## WORLD CLASS STANDARDS

### QUALITY STANDARDS:

- ▶ ISO 9001
- ▶ ISO 14001
- ▶ ISO TS 16949



### CERTIFICATIONS AND APPROVALS:

Our products have been approved and are compliant with the relevant market requirements including:

- |         |         |
|---------|---------|
| ▶ CE    | ▶ SVGW  |
| ▶ ATEX  | ▶ DIN   |
| ▶ RoHS  | ▶ AGA   |
| ▶ UL    | ▶ TUV   |
| ▶ Reach | ▶ Kosha |
| ▶ IECEx | ▶ IMQ   |
| ▶ CSA   | ▶ NSF   |
| ▶ Gost  | ▶ VDE   |



**2/2 VALVES FOR GENERAL PURPOSE, PILOT OPERATED**

The Parker 2 way valves (1 way for inlet and 1 way for outlet) for water and neutral liquids are optimized constructions for liquids handling. The exclusive diaphragm design gives a superior flow rate with one of the fastest response time.

Typical applications are:

- Water and hot water supply in plumbing installations
- Breeding
- Irrigation
- Industrial washing machines
- Car washing systems
- Fire fighting

These applications can be found in many markets dealing with water and hot water like plumbing, industries, water treatment, transportation, medical, process, etc...

2/2 normally closed

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)	Coil Type
7321BIN00	3/8"	13	50	NBR	90	20	2.0
7321BAN00	1/2"	13	50	NBR	90	20	2.0
7321BCN00	3/4"	20	140	NBR	90	20	2.0
7321BDN00	1"	25	160	NBR	90	20	2.0
7321BEN00	1 1/4"	35	420	NBR	90	10	2.0
7321BFN00	1 1/2"	40	500	NBR	90	10	2.0
7321BGN00	2"	50	620	NBR	90	10	2.0

2/2 normally open

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)	Coil Type
7322BIN00	3/8"	13	50	NBR	90	20	2.0
7322BAN00	1/2"	13	50	NBR	90	20	2.0
7322BCN00	3/4"	20	140	NBR	90	20	2.0
7322BDN00	1"	25	160	NBR	90	20	2.0
7322BEN00	1 1/4"	35	420	NBR	90	10	2.0
7322BFN00	1 1/2"	40	500	NBR	90	10	2.0
7322BGN00	2"	50	620	NBR	90	10	2.0

*For more compatible coils, see page 21 > ACCESSORIES*



**2/2 VALVES FOR HOT WATER & STEAM**

The Parker 2 way valves (1 way for inlet and 1 way for outlet) for steam and hot water are robust constructions for fluid temperature up to 180°C. This includes the famous Ruby seal and also the stainless steel bodies for the harshest requirements.

Typical applications are:

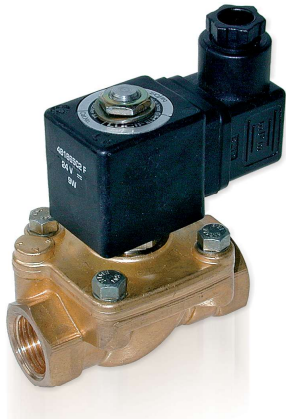
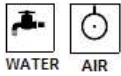
- Laundries
- Plastic molding
- Heating systems
- Sterilization

These applications can be found in many markets like industries, medical, process, etc...

2/2 normally closed

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)	Coil Type
7321BAH00	1/2"	13	50	EPDM	140	10	2.0
7321BCH00	3/4"	20	140	EPDM	140	10	2.0
7321BDH00	1"	25	160	EPDM	140	10	2.0
7321BEH00	1 1/4"	35	420	EPDM	140	10	2.0
7321BFH00	1 1/2"	40	500	EPDM	140	10	2.0
7321BGH00	2"	50	620	EPDM	140	10	2.0

*For more compatible coils, see page 22 > ACCESSORIES*

**2/2 VALVES FOR GENERAL PURPOSE, DIRECT OPERATED**

The Parker 2 way valves (1 way for inlet and 1 way for outlet) for all fluids, including air, offer large possibilities to control many kinds of fluids with different sealing and flow capabilities according to the installation and requirements, a wide selection of robust valves is proposed to fulfill the most demanding needs.

Typical applications are:

- Shut off valves
- Filling
- Dosing
- Air handling
- Mixing

These applications can be found in many markets where reliability and performances are key factors like in industries, water treatment, transportation, medical, process, etc...

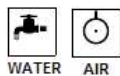
2/2 normally closed, Direct Acting Valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
121K01	1/4"	5	11	VITON	100	7/2	2.0
E121K04	1/4"	1.5	1.5	PCTFE	75	60/25	2.0
E121K63	1/4"	2.5	3.5	RUBY	100	28/10	2.0
E121K65	1/4"	1.2	0.85	RUBY	100	80/36	2.0
E121K45	1/2"	11	36	VITON	100	0.7/0.3	2.0
E121K46	1/2"	8.5	25	VITON	100	1.1/0.5	2.0

2/2 normally closed, Direct Acting Valves (0 Min Pressure)

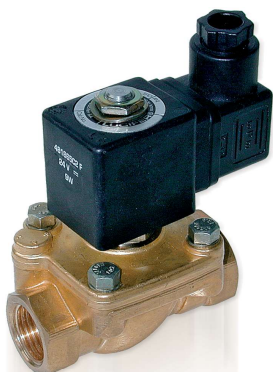
Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
121KBG2SV00	1/4"	5	11	VITON	100	7/2	2.0

*For more compatible coils, see page 21 > ACCESSORIES*

**2/2 - 3/2 VALVES FOR GENERAL PURPOSE,  
DIRECT OPERATED & MAGNALIFT**

WATER

AIR



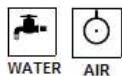
3/2 normally closed, Direct Acting Valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
131KBG2LV00	1/4"	3	3	VITON	100	7	2.0

2/2 normally closed, Magnalift Valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
221G15	1/2"	15	65	NBR	75	16/0	2.0
221G16	3/4"	15	80	NBR	75	16/0	2.0
221G21	1"	25	175	NBR	75	16/0	2.0
221G23	3/8"	15	65	FKM	100	16/0	2.0
221G25	1/2"	15	65	FKM	100	16/0	2.0
221G26	3/4"	15	80	FKM	100	16/0	2.0
221G27	1"	15	80	FKM	100	16/0	2.0

*For more compatible coils, see page 21 > ACCESSORIES*

**2/2 - 3/2 VALVES FOR GENERAL PURPOSE,  
DIRECT OPERATED & MAGNALIFT**

2/2 normally closed, 303 stainless steel valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
121V5163	1/4"	5	10	RUBY	140	14/6.5	2.0
71215SN2MV00	1/4"	3	4	VITON	120	14/10	2.0
73212SN2MV00	1/4"	6	10.8	VITON	120	21	2.0

2/2 normally closed, 316 stainless steel valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
221S10F	3/8"	15	40	VITON	85	10/0	2.0
221S15F	1/2"	15	50	VITON	85	10/0	2.0
221S20F	3/4"	24	95	VITON	85	10/0	2.0
221S25F	1"	24	105	VITON	85	10/0	2.0

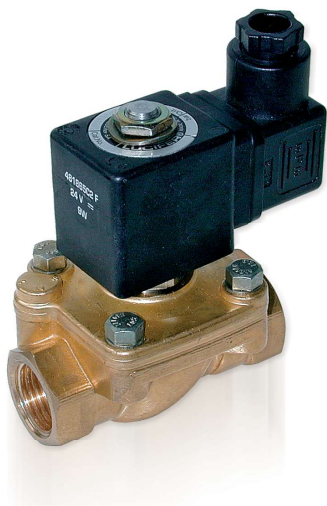
2/2 normally open, 430 stainless steel valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
71225SN2KF00	1/4"	2.4	2.1	PCTFE	75	12	2.2

3/2 universal, 430 stainless steel valves (0 Min Pressure)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
71335SN2ANJ1	1/4"	0.8	0.3	NBR	85	28	2.0

*For more compatible coils, see page 21 > ACCESSORIES*

**2/2 VALVES FOR HIGH PRESSURE GENERAL PURPOSE,  
DIRECT OPERATED & MAGNALIFT**

The Parker 2 way valves (1 way for inlet and 1 way for outlet) for all fluids, including air, offer large possibilities to control many kinds of fluids with different sealing and flow capabilities according to the installation and requirements, a wide selection of robust valves is proposed to fulfill the most demanding needs.

Typical applications are:

- Shut off valves
- Filling
- Dosing
- Air handling
- Mixing

These applications can be found in many markets where reliability and performances are key factors like in industries, water treatment, transportation, medical, process, etc...

2/2, direct acting, normally closed

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
E121K67	1/4"	1.5	1.5	Ruby	120	60/25	2.0
E321H15	1/2"	15	60	NBR	100	40	2.0

*For more compatible coils, see page 21 > ACCESSORIES*



## 2/2 ANGLE BODY SEAT VALVES



2/2 normally closed, BSP, 316L St/St valves, flow over seat, for steam and gas

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	dp (BAR) min/max	Pilot Pressure (Bar)
PA15S1G4R040S	1/2"	13	78	PTFE	180	0-16	3.5-10
PA20S1G5R050S	3/4"	18	150	PTFE	180	0-16	3.5-10
PA25S1G6R050S	1"	24	267	PTFE	180	0-16	4.5-10
PA32S1G7R063S	1-1/4"	31	400	PTFE	180	0-16	4.5-10
PA40S1G8R063S	1-1/2"	35	549	PTFE	180	0-16	4.5-10
PA50S1G9R080S	2"	45	881	PTFE	180	0-16	5-10
PA65S1GTR100S	2-1/2"	65	1369	PTFE	180	0-16	5-10

2/2 normally closed, BSP, 316L St/St valves, flow under seat, for liquids and anti water hammer

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	dp (BAR) min/max	Pilot Pressure (Bar)
PA15SAG4R050S	1/2"	13	78	PTFE	180	0-16	4.5-10
PA20SAG5R050S	3/4"	18	150	PTFE	180	0-10	4.5-10
PA25SAG6R063S	1"	24	267	PTFE	180	0-8	4.5-10
PA32SAG7R080S	1-1/4"	31	400	PTFE	180	0-11	4-10
PA40SAG8R080S	1-1/2"	35	549	PTFE	180	0-8	4-10
PA50SAG9R100S	2"	45	881	PTFE	180	0-9	4-10

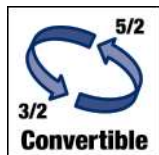
2/2 normally closed, BSP, Aluminium Actuator with 304 SS valves

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	dp (BAR) min/max	Pilot Pressure (Bar)
PA15S1G4S040A	1/2"	13	78	PTFE	180	0-16	3-10
PA20S1G5S050A	3/4"	18	150	PTFE	180	0-16	3-4
PA25S1G6S050A	1"	24	267	PTFE	180	0-16	3-5.5
PA32S1G7S063A	1-1/4"	31	400	PTFE	180	0-16	3-5.5
PA40S1G8S063A	1-1/2"	35	549	PTFE	180	0-16	3-6.5
PA50S1G9S080A	2"	45	881	PTFE	180	0-16	3-6.6
PA65S1GTS100A	2-1/2"	65	1369	PTFE	180	0-16	3-6

2/2 normally closed, BSP, Aluminium Actuator with 304 SS valves, anti hammer

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	dp (BAR) min/max	Pilot Pressure (Bar)
PA15SAG4S050A	1/2"	13	78	PTFE	180	0-16	4.5-10
PA20SAG5S050A	3/4"	18	150	PTFE	180	0-10	4.5-10
PA25SAG6S063A	1"	24	267	PTFE	180	0-8	4.5-10
PA32SAG7S080A	1-1/4"	31	400	PTFE	180	0-11	4-10
PA40SAG8S100A	1-1/2"	35	549	PTFE	180	0-16	4-10
PA50SAG9S100A	2"	45	1369	PTFE	180	0-9	4-10

## 3/2 - 5/2 NAMUR VALVES



### Product Features:

- Valves have threaded ports and NAMUR interface plates.
- Common plate changes the 3/2-5/2 function simply by rotating the interface plate 180°.
- Valve construction permits easy & quick maintenance & reduces system down time.

High Flow 1/4" NAMUR valve, single solenoid, IP65

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
2341N0120	3/2 or 5/2	1/4"	4	600	NBR	80	1.5 - 10

High flow 1/4" NAMUR valve, dual solenoid, IP65

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
BPKAD6JNC2	3/2 or 5/2	1/4"	4	600	NBR	80	2-10

5 watt, IP65, 22mm coils for High Flow NAMUR Valves

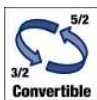
Part Number	Voltage
481180C2	24VDC
4811803D	230VAC
C12209N21	DIN PLUG



## 3/2 - 5/2 NAMUR VALVES FOR EX APPLICATION



AIR

3/2  
5/2  
Convertible

Lucifer explosion proof NAMUR Single Solenoid Valve (7000 series coils)

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
341N31	3/2 or 5/2	1/4"	4	600	NBR	80	2-10

Lucifer explosion proof NAMUR double Solenoid Valve (7000 series coils)

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
347N31	3/2 or 5/2	1/4"	4	600	NBR	80	2-10

9 Watt DC & 11 Watt AC, Exme IIC T3/T4, Class 1 - ZONE 1 COIL, IP66

Part Number	Voltage
492190Q1	230VAC
492190P0	24VAC
492190P2	110VAC
492190C2	24VDC
492190C4	48VDC
492190C5	110VDC

## 3/2 - 5/2 NAMUR VALVES FOR EX APPLICATION



Lucifer explosion proof NAMUR Single Solenoid Valve

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
U341N3250	3/2 or 5/2	1/4"	4	1400	NBR	80	2-10

9 Watt DC & 11 Watt AC, Exme IIC T3/T4, Class I - ZONE 1 Coil, IP66

Part Number	Voltage
492190Q1	230VAC
492190P0	24VAC
492190P2	110VAC
492190C2	24VDC
492190C4	48VDC
492190C5	110VDC

4/2 & 5/2 single solenoid NAMUR valves

Part Number	Config	Port Size G	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)
341L9594	3/2 or 5/2	1/4"	4	1400	NBR	75	10-75

1 Watt, Ex ia IIC T6 DIN coil (IEC), IP67

Part Number	Voltage
495910N7	24VDC

**VALVE FOR GAS**



2/2, direct acting, normally closed, brass body, class 1, cert no. 6162, 6160

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
121K01	1/4"	5	11	Viton	100	7/2	2.0
121K3306	3/8"	6	13.8	Viton	100	5/1.1	2.0
E121K46	1/2"	8.5	25	Viton	100	1.1/0.5	2.0
E121K45	1/2"	11	36	Viton	100	0.70/0.3	2.0
221GS3534C	3/4"	15	91.8	Viton	100	2/NA	2.0

2/2, direct acting, normally closed, 316 st/st body, class 3, cert no. 7744

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) AC/DC	Coil Type
221S10F	3/8"	15	40	VITON	85	10/7	2.0
221S15F	1/2	15	50	VITON	85	10/7	2.0
221S20F	3/4"	24	95	VITON	85	10/7	2.0
221S25F	1"	24	105	VITON	85	10/7	2.0
221GS3534C	3/4"	15	91.8	Viton	100	2/NA	2.0

9 watt, IP65, DIN Coil

Part Number	Coil Type	Voltage
4827253D	2.0	230VAC
482725C2	2.0	24VDC
482725A2	2.0	24VAC
482725A5	2.0	110VAC
482725C1	2.0	12VDC
482725C4	2.0	48VDC
482725C5	2.0	110VDC
482635P0	2.0	24VAC 50/60
482635S5	2.0	115VAC50 120VAC60
482635S6	2.0	240VAC 50/60

14W, IP65, DIN, high temp

Part Number	Voltage
492727F4	2.2
492727C2	2.2
492727A2	2.2
492727A5	2.2
492727C1	2.2
492727C4	2.2
492727C5	2.2

9 watt, IP67, IEC Ex d mb IIC, T4, DIN Coil

Part Number	Coil Type	Voltage
495905F4	2.0	230VAC
495905C2	2.0	24VDC
495905A2	2.0	24VAC
495905A5	2.0	110VAC
495905C1	2.0	12VDC
495905C4	2.0	48VDC
495905C5	2.0	110VDC



## STAINLESS STEEL RANGE OF PRODUCT FOR CHEMICAL, PETROCHEM & ON / OFFSHORE

The 316 stainless steel range of solenoid valves follow a severe Quality Assurance and materials traceability program.

They are supplied with corresponding certificates. Used or specified as actuator control or fail-safe valves. We offer many different protection solutions ("ia", "d", "e" & "mb"), according to ATEX and IECEx certification.

We provide the ultimate in quality, reliability and safety: AK7 certified (valves X), working in SIL 2 & 3 loops (valves F, V & X).

For more information, see page 18 - 19



Valve Actuation Application

### Needle and ball valves

Parker manually, pneumatically, and electrically actuated Series Ball Valves provide quick turn on-off control of fluids utilized in process and instrumentation applications. A broad selection of valve body, seat, and seal materials provide a wide range of pressures and temperatures at which the valve may be used.

For more information, refer to catalog:  
Catalog 4121-BV > Ball and Plug Valves



The range of Stainless Steel FRLs are ideal for use in particularly harsh or aggressive environment.

- Suitable for Marine & On/Offshore applications
- Chemical / Petroleum and process industries

For more information, see page 17



### Pro-Bloc & Monoflanges

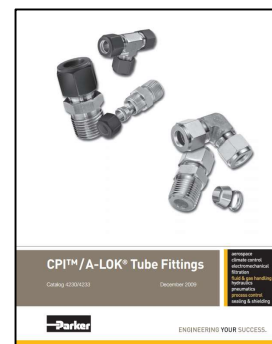
The Parker flange products are designed to replace conventional multiple-valve installations currently in use for interface with pressure measuring systems.

By combining customer specified valves into a single manifold, the number of leak paths is considerably reduced and the mass of the system is lowered reducing the stresses from loading and vibration.

PARKER has ULTRA LOW FUGITIVE EMISSION Valves to ISO 15848 class "A".

For more information, refer to catalog:

Catalog 4190-FP > Double Block and Bleed with Ultra-Low Emission options



### Product Range:

CPI fittings  
A-LOK fittings  
Flange connectors  
Instrumentation Grade  
Tubing

For more information, refer to catalog:

Catalog 4230/4233 >

CPI™/A-LOK® Tube Fittings

## STAINLESS STEEL FILTER, REGULATOR, LUBRICATOR FOR CHEMICAL PETROCHEM & ON / OFFSHORE



### Operating information

Max operating pressure	20 bar 12 bar when fitted with auto-drain
Max operating temperature	Regulator 65°C Filter + Regulator 80°C, 50°C when fitted with auto-drain

### Regulator



Port size	Flow l/min @ 7 bar	Order code fitted with 0-8.5 bar spring
G1/4 Plastic bonnet/knob Full S/S version	450	PR364G02CSS PR354G02CSS
G1/2 Plastic bonnet/knob Full S/S version	2820	PR10G04CSS PR11G04CSS

### Lubricator

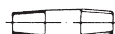


Port size	Flow l/min @ 7 bar	Order code
G1/2	3000	PL10G04DSS

### Filter/Regulator



Port size	Flow l/min @ 7 bar	Order code fitted with 0-8.5 bar spring
G1/4 Plastic bonnet/knob Full S/S version	450	PB548G02DHCSS PB558G02DHCSS
G1/2 Plastic bonnet/knob Full S/S version	1800	PB11G04DJCSS PB12G04DJCSS



### Connectors

Port size	Order code
G1/4	AC-2SS
G1/2	AC-4SS

Stainless steel pressure gauge  
M1/4G40S-10 (0 to 10 bar)

Panel mounting nut for G1/4: PR05X51SS  
G1/2: PR10X51SS

### Particulate Filter



Port size Flow	Flow l/min @ 7 bar	Filter Element	Order code with manual drain	Order code with auto drain
G1/4	660	20μ	PF504G02DHSS	
G1/2	1800	40μ	PF10G04DJSS	PF10G04DJRSS

\* For 5μ filter element substitute **H** or **J** with **G**

### Coalescing Filter

Port size Flow	Flow l/min @ 7 bar	Filter Element	Order code with manual drain	Order code with auto drain
G1/4	240	0.3μ	PF501G02DHSS	
G1/2	480	0.01μ	PF11G04DJSS	PPF11G04DJRSS

## 2/2 - 3/2 VALVES FOR CHEMICAL, PETROCHEM &amp; OFFSHORE



2/2 Direct solenoid operated - Normally closed (316LSS)

Part Number	Thread NPT	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) Min - Max	Coil Type
U121V5595	1/4	1	40	PUR	75	0 - 98	1 or 4
U121V55961D	1/4	1	40	PUR	75	0 - 98	3
U121V5596	1/4	1	40	PUR	75	0 - 98	3



3/2 Direct solenoid operated - Universal valves (316LSS)

Part Number	Thread NPT	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) Min - Max	Coil Type
U133V5695	1/4	2.5	220	FKM	75	0 - 8.5	2, 3, 4
U133X5156	1/4	5	680	NBR	65	0 - 10	2, 3, 4
U133X5196	1/4	5	680	NBR	65	0 - 10	2 or 3
U033X5156	1/4	5	680	NBR	65	0 - 10	1 or 3



Ex ia IIC T6 (Intrinsically safe) IP66

Part Number	Coil Type	Voltage
48287001N7	1	24VDC
49296501N7	2	24VDC
48333001N7	5	24VDC

Ex me II T5/T6 (1-1.5 Watt) ATEX coil, IP66

Part Number	Coil Type	Voltage
492210C2	4	24VDC

6 Watt, Ex me II T5/T6 (Explosion Proof) IP66

Part Number	Coil Type	Voltage
492310C2	3	24VDC
492310C4	3	48VDC
492310C5	3	110VDC
492310Q1	3	240VAC
492310P2	3	110VAC

## INTRINSICALLY SAFE VALVES



2/2 Solenoid operated - Normally closed (Brass)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR)	Coil Type
321H1590	1/2	14.5	60	NBR	75	0.3 - 10	1
321G3790	1	25	185	NBR	75	0.3 - 10	1
321G3990	1-1/2	40	425	NBR	75	0.5 - 10	1
321G4090	2	40	540	NBR	75	0.5 - 10	1

3/2 Solenoid operated - Normally closed (303SS)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating (BAR) Min - Max	Coil Type
131V5490	1/4	1	0.6	FKM	75	0 - 10	1

1 Watt, IP67, Ex ia IIC T6 DIN coil (IEC)

Part Number	Coil Type	Voltage
495910N7	1	24VDC

## VALVES FOR FOOD, VENDING MACHINES, MEDICAL & INSTRUMENTATION MARKETS



2/2 Direct solenoid operated - Normally closed (303SS)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating DC (BAR) Min - Max	Pressure- Rating AC (BAR) Min - Max
20CC02JV4	1/8	2	2.1	FKM	116	0 - 12.5	0 - 31
20CC02LV4	1/8	2.4	3.1	FKM	116	0 - 9	0 - 22
20CC02MV4	1/8	3.7	4	FKM	116	0 - 7	0 - 17
20CC02PV4	1/8	3.2	4.6	FKM	116	0 - 4	0 - 12

2/2 Direct solenoid operated - Normally closed (303SS)

Part Number	Coil Type	Voltage
4B2A	IP65	12VDC
4B2B	IP65	24VDC
4B2E	IP65	24 VAC
4B2F	IP65	110 VAC
4B2G	IP65	220 VAC

Part Number	Coil Type	Voltage
4D6A	IP65	12 VDC
4D6B	IP65	24 VDC
4D6E	IP65	24 VAC
4D6F	IP65	110VAC
4D6G	IP65	220 VAC

2/2 Solenoid operated - Normally closed (303SS)

Part Number	Thread BSPP	Orifice mm	Kv l/min	Seal Material	Max Temp C	Pressure Rating DC (BAR) Min - Max	Pressure- Rating AC (BAR) Min - Max
WV121S121JV	1/8	2	1.9	FKM	75	0 - 7	0 - 10
WV121S122LV	1/4	2.5	2.8	FKM	75	0 - 5	0 - 7

2/2 Solenoid operated - Normally closed (Plastic)

Part Number	Thread BSPP	Orifice mm	Seal Material	Max Temp C	Pressure Rating DC (BAR) Min - Max	Pressure- Rating AC (BAR) Min - Max
121S432KS	1/4	2.5	SILICON	75	0 - 5	0 - 7

300mm Lead, 8 Watt, IP65, UL CE coil

Part Number	Coil Type	Voltage
H-WS-C1	IP65	12 VDC
H-WS-C2	IP65	24 VDC
H-WS-B5	IP65	110 VAC
H-WS-B7	IP65	220 VAC



## ACCESSORIES

9 watt, IP65, Coil + DIN Plug

Part Number	Coil Type	Voltage
4827253D	2.0	230VAC
482725C2	2.0	24VDC
482725A2	2.0	24VAC
482725A5	2.0	110VAC
482725C1	2.0	12VDC
482725C4	2.0	48VDC
482725C5	2.0	110VDC
482635P0	2.0	24VAC 50/60
482635S5	2.0	115VAC50 120VAC60
482635S6	2.0	240VAC 50/60

14W, IP65, Coil + DIN Plug,  
high temp

Part Number	Voltage
492727F4	2.2
492727C2	2.2
492727A2	2.2
492727A5	2.2
492727C1	2.2
492727C4	2.2
492727C5	2.2

9 watt, IP67, IEC Ex d mb IIC, T4,  
Coil + DIN Plug

Part Number	Coil Type	Voltage
495905F4	2.0	230VAC
495905C2	2.0	24VDC
495905A2	2.0	24VAC
495905A5	2.0	110VAC
495905C1	2.0	12VDC
495905C4	2.0	48VDC
495905C5	2.0	110VDC

9 watt, IP20, Screw Terminal Coils

Part Number	Coil Type	Voltage
481000C1	2.0	12VDC
481000C2	2.0	24VDC
481000C4	2.0	48VDC
481000C5	2.0	110VDC
481000A2	2.0	24VAC
481000A4	2.0	48VAC
481000A	2.0	115VAC
4810003D	2.0	240VAC

Housing For Screw Terminal Coils

Part Number	Description
48427020	Protection IP44
48453820	Protection IP67



Sintered Bronze Silencers

Part Number	Description
9090050700	1/8"
9090050800	1/4"
9090050900	3/8"
9090051000	1/2"

Solenoid Valve Din Timer

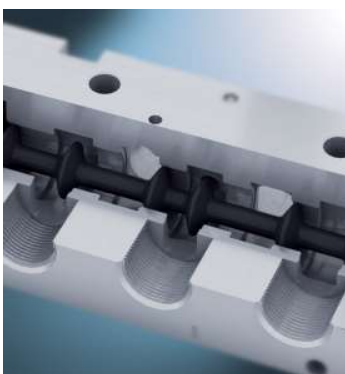
Part Number	Description
ELECD4	1-120 SEC

DIN Plugs

Part Number	Description
C12209N21	Standard 22mm Connector
C18209N21	Standard 32mm Connector
S18209TA011	LED 32mm 12VDC
S18209TA021	LED 32mm 24VDC
S18209TA041	LED 32mm 110VAC
S18209TA051	LED 32mm 240VAC
S12209TA021	LED 22mm 24VDC
S12209TA041	LED 22mm 110VAC
S12209TA051	LED 22mm 240VAC
48104340 (25pcs)	Standard 22mm connector
48658640 (25pcs)	Standard 32mm connector

## VIKING LITE

**Rust and corrosion resistant,  
High reliability with flexible installation**



### Rust and corrosion resistant designs

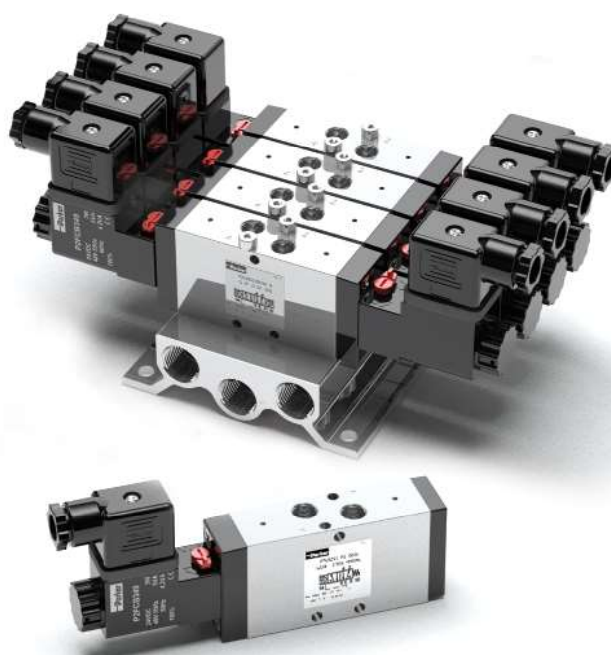
Viking Lite valves are made of anodized aluminium, for good corrosion resistance. The smooth design, with no dirt-collecting pockets, makes the valve suitable for most environments.

### High reliability

Viking Lite valves easily comply with the requirements for the component reliability in accordance with EU Machinery Directive standards EN292-2 and EN983. The valves are designed for use with or without supplementary lubrication.

### Compact installation dimensions - flexible installation

Compact dimensions direct body porting and integral mounting holes are all features of the Viking Lite range. In addition to single valve installation, the Viking Lite valves may be installed on manifolds so that the valves have a common supply and manifolded exhausts.



## VIKING LITE - 3 & 5 WAY SPOOL VALVES

### Directional Control Valves

Solenoid operated directional control valves

Internal supply to solenoid valve(s) via port 1.

Max operating pressure 10 bar, temperature range -10°C to +50°C

3/2 valves, internal air, standard temperature

Symbol	Size A	Actuation	Return	Min Operation Pressure (bar)	Changeover time (ms) at 6 bar @20°C actua./return	Weight kg	Order Code Without coil <i>*Refer to page 26 for coils &amp; connector</i>
	G1/8	Air Signal	Air Signal	1.5	5/5	0.18	P2LAZ311PP
	G1/4			1.5	6/6	0.18	P2LBZ312PP
	G3/8			1.5	8/8	0.36	P2LCZ313PP
	G1/8	Air Signal	Spring	3.0	8/15	0.16	P2LAZ311PS
	G1/4			3.0	10/20	0.16	P2LBZ312PS
	G3/8			3.0	10/30	0.35	P2LCZ313PS
	G1/8	Electric Signal	Electric Signal	1.5	10/10	0.18	P2LAZ311EENDCN
	G1/4			1.5	12/12	0.18	P2LBZ312EENDCN
	G3/8			1.5	17/17	0.36	P2LCZ313EENDCN
	G1/8	Electric Signal	Spring	3.0	15/35	0.16	P2LAZ311ESNDCN
	G1/4			3.0	18/45	0.16	P2LBZ312ESNDCN
	G3/8			3.0	27/75	0.35	P2LCZ313ESNDCN



5/2 valves, internal air, standard temperature

Symbol	Size A	Actuation	Return	Min Operation Pressure (bar)	Changeover time (ms) at 6 bar @20°C actua./return	Weight kg	Order Code Without coil <i>*Refer to page 26 for coils &amp; connector</i>
	G1/8	Air Signal	Air Signal	1.5	5/5	0.18	P2LAZ511PP
	G1/4			1.5	6/6	0.18	P2LBZ512PP
	G3/8			1.5	8/8	0.36	P2LCZ513PP
	G1/8	Air Signal	Spring	3.0	8/15	0.16	P2LAZ511PS
	G1/4			3.0	10/20	0.16	P2LBZ512PS
	G3/8			3.0	10/30	0.35	P2LCZ513PS
	G1/8	Electric Signal	Electric Signal	1.5	10/10	0.19	P2LAZ511EENDCN
	G1/4			1.5	12/12	0.21	P2LBZ512EENDCN
	G3/8			1.5	17/17	0.44	P2LCZ513EENDCN
	G1/8	Electric Signal	Spring	3.0	15/35	0.17	P2LAZ511ESNDCN
	G1/4			3.0	18/45	0.20	P2LBZ512ESNDCN
	G3/8			3.0	27/75	0.43	P2LCZ513ESNDCN


## VIKING LITE - 3 & 5 WAY SPOOL VALVES

### Accessories

#### Type P2LA 5/2 valves

	<b>Manifold bar, P2LA</b> incl. seals, mounting screws. G3/8	<b>Order Code</b>
	For 4 valves	PH-AUG-084-004K
	For 6 valves	PH-AUG-084-006K
	For 8 valves	PH-AUG-084-008K
	For 10 valves	PH-AUG-084-010K
	For 12 valves	PH-AUG-084-012K
	For 14 valves	PH-AUG-084-014K
	<b>Manifold bar, P2LB, (not for P2LB with external air supply to solenoid valves)</b> incl. fasteners and O-ring. G3/8	<b>Order Code</b>
	For 2 valves	PH-AUG-086-002K
	For 4 valves	PH-AUG-086-004K
	For 6 valves	PH-AUG-086-006K
	For 8 valves	PH-AUG-086-008K
	For 10 valves	PH-AUG-086-010K

#### Type P2LA / P2LB 3/2 valves

	<b>Manifold bar, P2LB, (not for P2LB with external air supply to solenoid valves)</b> incl. fasteners and O-ring. G3/8	<b>Order Code</b>
	For 2 valves	PH-AUG-085-002K
	For 4 valves	PH-AUG-085-004K
	For 6 valves	PH-AUG-085-006K
	For 8 valves	PH-AUG-085-008K
	For 10 valves	PH-AUG-085-010K

## VIKING LITE - 3 & 5 WAY SPOOL VALVES

### 22mm Solenoid pilot options

#### Coils

Coils are wound with enameled copper wire, having temperature index 1800C with class F insulation (1550C) and are encapsulated in Thermoplastic resin. When fitted with suitable connector and correct gasket they give protection to IP65.

#### Corrosion resistant design

The pilot operator body is manufactured in thermoplastic PA 6 material and the core tube brass/stainless steel. The plunger/core is made from stainless steel and the valve seats from FKM.

#### Solenoid Pilot Exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut fitted to the core tube is the Diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimises ingress of dirt into the valve through this port. The alternative plastic knurled nut can be specified (refer to part number system) if the exhaust air needs to be captured and piped away using the M5 tapped port.


#### Manual Override options

The standard manual override is the monostable (spring return) extended plastic override.

22mm solenoid operator part numbers and spares  
Solenoid coils for 22mm solenoid operators

Voltage	Weight (Kg)	Order Code
24V DC	0.093	P2FCB349
230V/50Hz, 230V/60Hz	10.093	P2FCB357

Solenoid Connectors / Cable Plugs EN175301-803

 With standard screw	Description	Order Code 22mm
	Standard IP65 without flying lead	3EV10V10
	With LED and protection 24V AC/DC	3EV10V20-24
	With LED and protection 230V AC	3EV10V20-230

Note: Coil and connectors must be ordered separately.



## FLUID COMPATIBILITY CHART

1= Good 2 = Satisfactory N.B. all the fluids are at ambient temperature unless otherwise indicated.

FLUID	MATERIAL						
	STAINLESS STEEL	BRASS	NBR	VITON	EPDM	NEOPRENE	RUBY TEFLON
Acetone	1	1	-	-	1	-	1
Air	1	1	1	1	1	1	1
Ammonia	1	-	-	-	-	1	1
Animal oil	1	1	1	1	-	-	1
Amyl acetate	1	2	-	-	-	-	1
Amyl alcohol	1	2	-	2	1	2	1
Argon	1	1	-	1	1	-	-
Beer	1	1	1	1	1	1	1
Borax	1	1	2	1	1	-	1
Boric acid	1	2	1	1	1	1	1
Butane gas	1	1	1	1	-	2	-
Butane gas	1	1	1	1	-	-	-
Butyl alcohol	1	2	1	1	-	1	1
Butylene	1	1	-	1	-	-	1
Calcium bisulphite	1	2	1	1	-	1	1
Calcium chloride	1	2	1	1	1	1	1
Carbon dioxide - CO2	1	1	1	2	-	-	1
Chlorobenzene	1	2	-	1	-	-	1
Coffee	1	1	1	1	1	1	1
Cyclohexane	1	1	1	1	-	-	1
Diesel oil	1	1	1	1	-	-	1
Distilled water	1	2	1	2	1	1	1
Dry bromine	1	1	-	2	-	-	1
Ethyl alcohol	1	2	1	-	1	1	1
Ethyl chloride	1	2	1	1	1	-	1
Ethylene glycol	1	2	1	1	1	1	1
Formic acid	1	2	-	-	-	1	1
Fuel oil	1	1	1	1	-	-	1
Fruit juice	1	2	1	1	-	1	1
Fresh water	1	1	1	2	1	1	1
Glycerol	1	2	1	1	1	1	1
Glycol	1	2	1	1	1	1	1
Glucose	1	1	1	1	1	1	1
Helium	1	1	1	1	1	1	-
Heptane	1	1	1	1	-	-	1
Hexane	1	2	1	1	-	-	1
Hydrogen	1	2	1	1	1	1	-
Isoxathian	1	1	1	1	-	-	1
Kerosine	1	1	1	1	-	-	1

## FLUID COMPATIBILITY CHART

1= Good 2 = Satisfactory N.B. all the fluids are at ambient temperature unless otherwise indicated.

FLUID	MATERIAL						
	STAINLESS STEEL	BRASS	NBR	VITON	EPDM	NEOPRENE	RUBY TEFLON
LPG gas	1	1	1	1	-	-	1
Methane gas	1	1	1	1	-	-	-
Methyl acetate	1	1	-	-	-	-	1
Methyl alcohol	1	2	1	-	1	1	1
Methyl chloride	1	1	-	1	-	-	1
Methyl-ethyl-ketone	1	1	-	-	1	-	1
Milk	1	2	1	1	1	1	1
Mineral oil	1	1	1	1	-	2	1
Naphtha	1	2	2	1	-	-	1
Natural gas	1	1	1	1	-	-	-
Neon	1	1	1	1	1	1	-
Nitrogen	1	1	1	1	1	1	1
Oxygen	1	1	-	1	1	1	-
Ozone	1	1	-	1	1	-	-
Paint	1	1	-	1	-	-	1
Palmitic acid	1	2	-	1	-	2	1
Pentane	1	1	1	1	-	-	1
Perchloroethylene	1	2	2	1	-	-	1
Petrol	1	1	1	1	-	-	1
Petroleum	1	2	1	1	-	-	1
Phenol	1	2	-	1	-	-	1
Potassium chloride	1	2	1	1	1	1	1
Propane gas	1	1	1	1	-	-	-
Propyl alcohol	1	1	1	1	1	1	1
Sea water	1	2	1	1	1	1	1
Silicone oil	1	1	1	1	1	1	1
Soap solution	1	1	1	1	1	-	1
Sodium bicarbonate	1	2	1	1	1	1	1
Steam at 140°C	1	1	-	2	1	-	1
Steam at 180°C	1	1	-	-	1	-	1
Tartaric acid	1	1	1	1	-	-	1
Toluene	1	1	-	2	-	-	1
Trichloroethane	1	2	-	1	-	-	1
Trichlorethylene	1	2	-	1	-	-	1
Vegetable oil	1	2	1	1	-	-	1
Vinegar	1	2	-	1	-	2	1
Wet bromine	1	2	-	2	-	-	1
Xylene	1	1	-	1	-	-	1

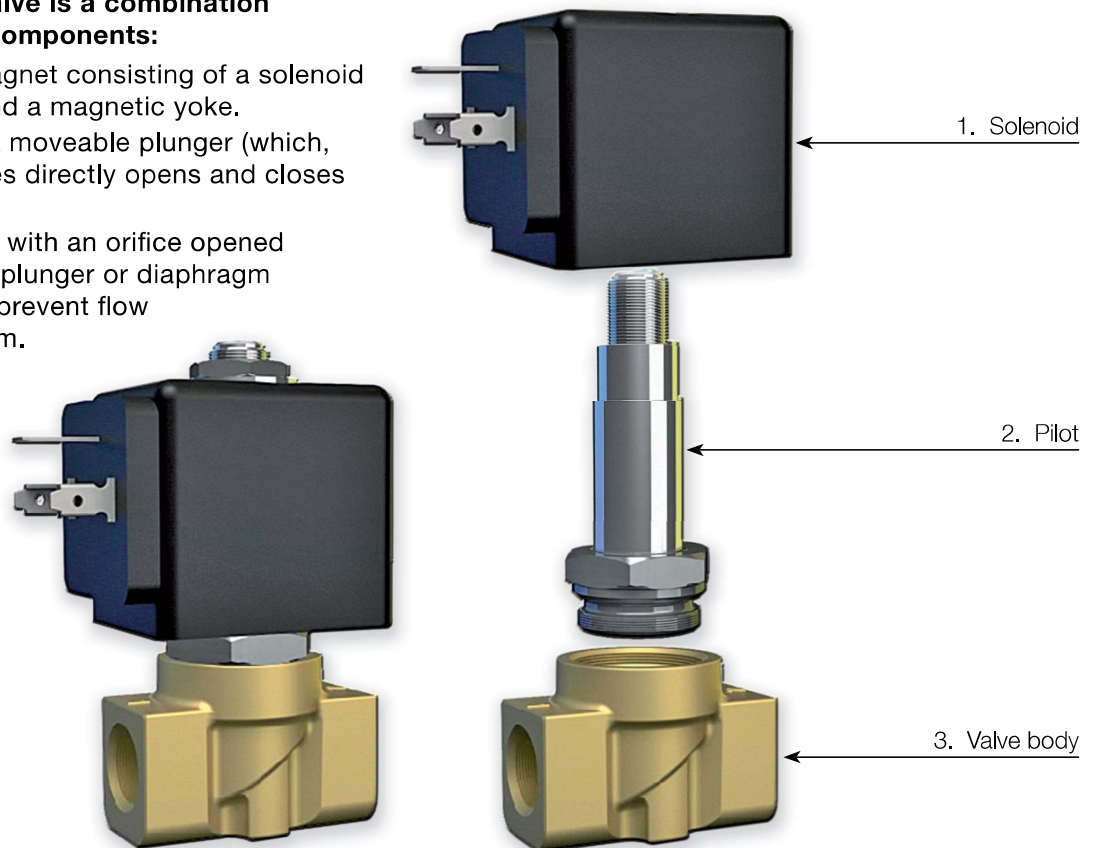
## TECHNICAL INFORMATION

### General Information

Solenoid valves are electro-mechanical devices used for interrupting or diverting the flow of fluids by opening or closing one or more orifices.

**The solenoid valve is a combination of three basic components:**

1. An electromagnet consisting of a solenoid (windings) and a magnetic yoke.
2. A pilot with a moveable plunger (which, in some cases directly opens and closes the valve).
3. A valve body with an orifice opened or closed by plunger or diaphragm to enable or prevent flow of the medium.



### Operating principles

The term solenoid refers to operator and coil, also known as pilot or magnetic actuator.

The coil consists of copper wire wound on a support reel. When electric current is applied into the coil, magnetic flow lines are generated which are stronger in the coil center.

This magnetic flow raises the moveable plunger in the coil until it brings it into contact with the pole piece. The valve body has an orifice through which the fluid flows when the valve is open.

The moveable plunger has an integral seat which when the solenoid coil is energised, moves off the valve (direct operated) orifice or diaphragm (pilot operated) orifice opening the valve.

When the coil is de-energised, a return spring brings the plunger back to the original closing position, thus cutting off the flow of the fluid.

## TECHNICAL INFORMATION

### Solenoid Valves

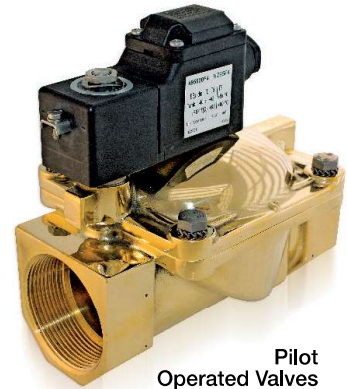
Solenoid valves are electrically operated devices used to control flow. The most common types of solenoid valve are:



MagnaLift  
Valves



Direct  
Operated Valves



Pilot  
Operated Valves

### Angle Seat Valves

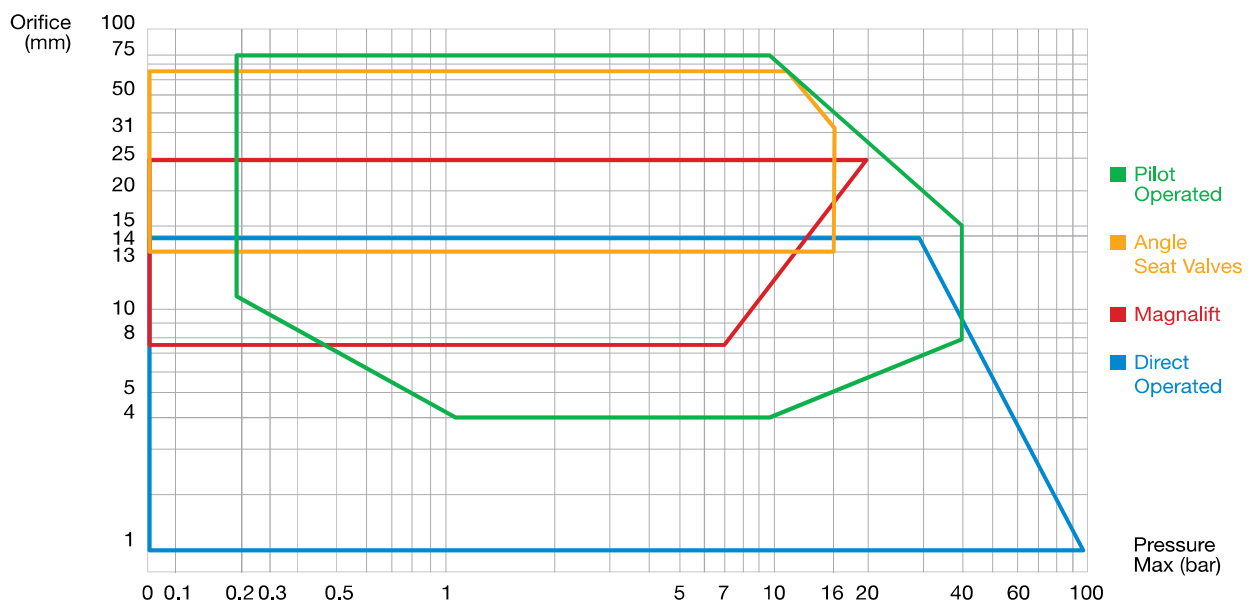
An angle seat valve is actuated by a pneumatically driven piston and is capable to handle slurry solutions with particles or corrosive solutions at high temperature up to 180°C and operating pressure up to 16 Bar.



Angle  
Seat Valves

### Area of operation:

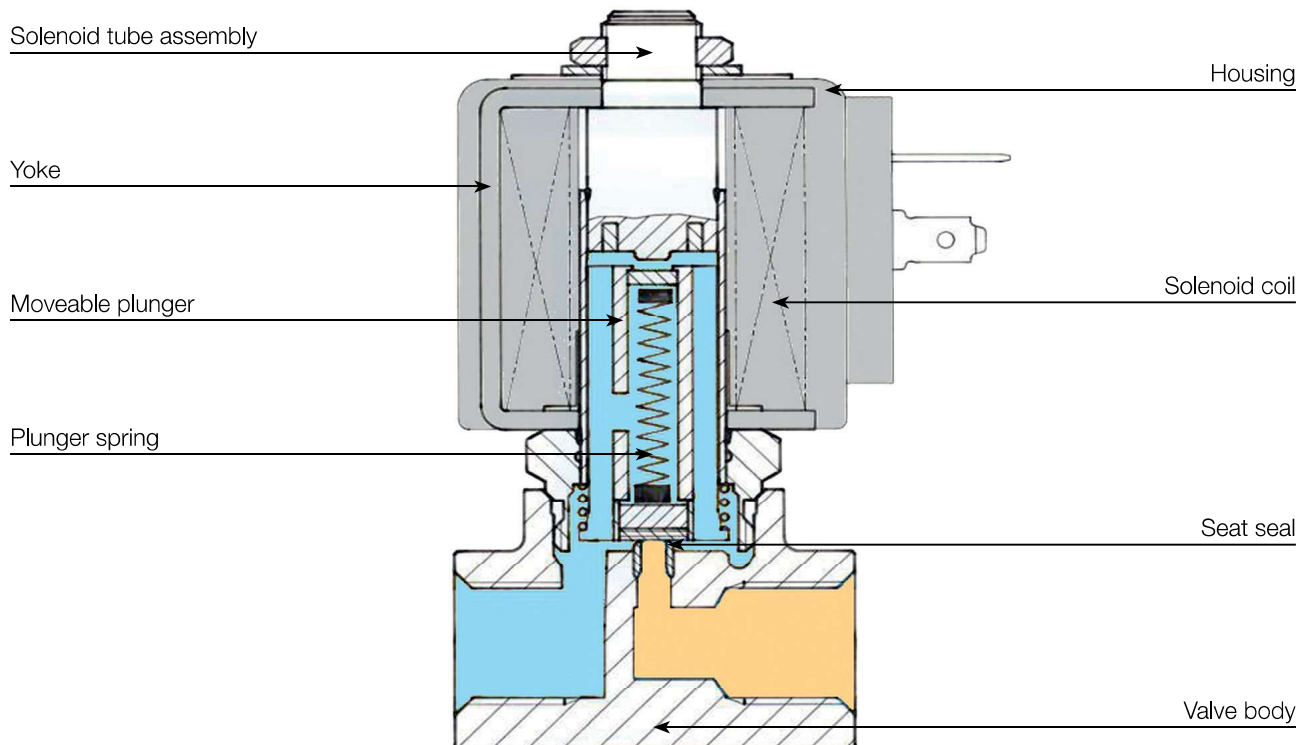
Each valve principle, as described in the previous pages, has a defined area of operation related to its pressure and flow capabilities. The following graph shows which type of valve is suitable in our complete range for a certain situation.



Areas of operation of Parker solenoid valves.

## BASIC COMPONENTS OF A SOLENOID VALVE

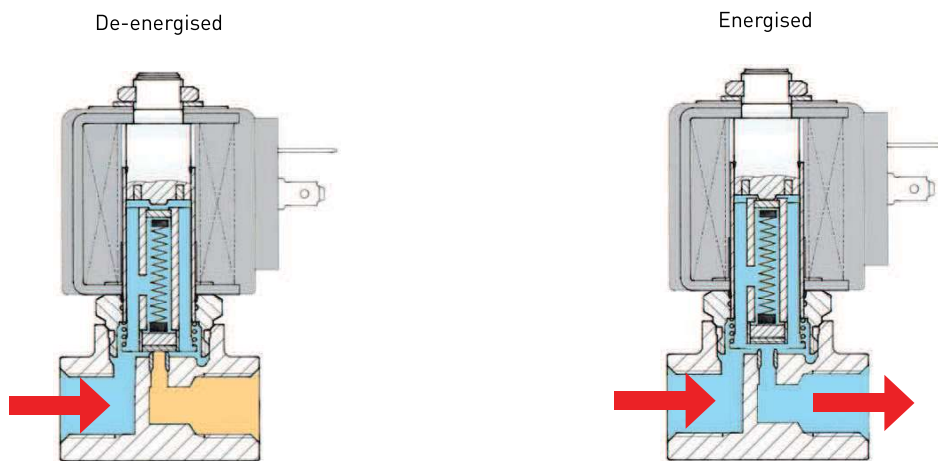
<b>Valve body:</b>	Main part of the solenoid valve including ports, seat and orifices.
<b>Solenoid tube assembly:</b>	Cylinder, in stainless steel, hermetically sealed and closed at one extremity. It is the guide channel of the moveable plunger which is moved magnetically. The solenoid coil is fitted on the external side of the enclosing tube.
<b>Moveable plunger:</b>	Made by ferritic stainless steel, it is attracted by the solenoid magnetic field and slides inside the tube.
<b>Plunger spring (or return spring):</b>	Used to hold the moveable plunger in position and to return it when de-energized.
<b>Seat seal:</b>	Part of the moveable plunger, it is used to close a valves main orifice or pilot orifice.
<b>Electromagnet (or solenoid coil):</b>	Electrical part consisting of a copper windings (solenoid) along, with a magnetic yoke (armature), when electric current flows through, it generates a magnetic field attracting the moveable plunger.
<b>Housing:</b>	Part that contains and protects the coil.
<b>Yoke:</b>	Metalic case surrounding the coil and concentrating electro-magnetic force on the moveable plunger.



## TECHNICAL INFORMATION

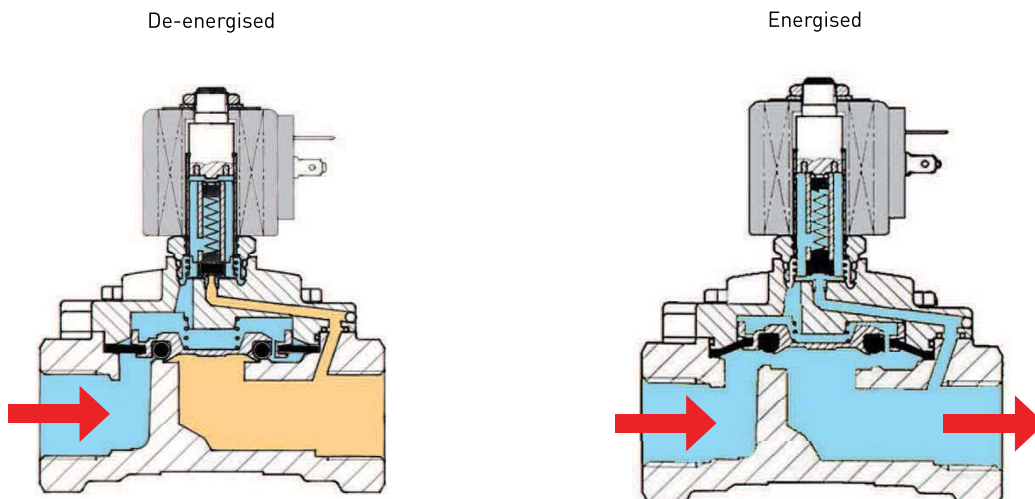
### Direct Operated Valve

Magnetic force is used directly to open or close the plunger which controls the passage of the fluid. Performances are limited by the coil, the pressure, and the valve orifice size. For direct operated valves, the minimum working pressure is 0 bar and the maximum pressure relies on the combination (valve/coil) chosen.



### Pilot Operated Valve

To control a higher flow, it is necessary to use pilot operated valves. The supply pressure enters the direct operated "pilot stage" which directs the flow to a "pilot chamber" which, in turn, applies the pilot pressure over a large area (generally a diaphragm or piston). Therefore, a large force is generated to move the main sealing elements against higher pressure or over a large orifice. One condition of operation is to have a minimum pressure available to shift the valve (indicated in the catalogue). In most applications, this presents no particular problems (refer to magnalift valve section). The pressure rating of the valve starts between 0.1 to 0.5 bar (depending on the valve). (NB. Pilot Operated Valves are also called Servo Operated Valves).



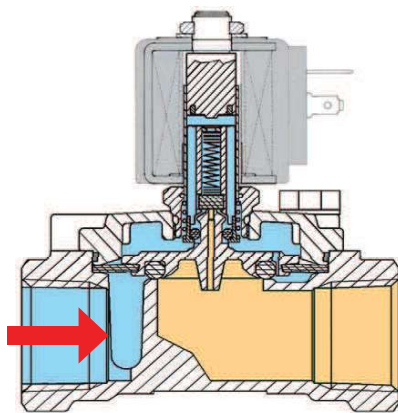


## TECHNICAL INFORMATION

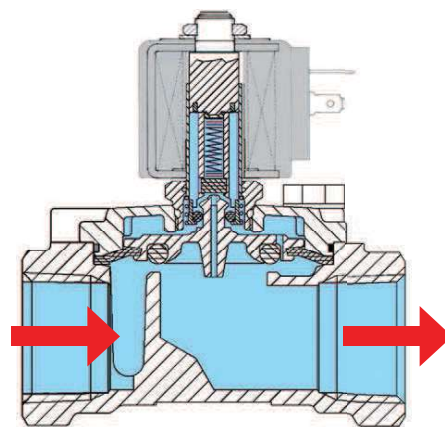
### Magnalift Operated Valve

The magnalift valves combine the features of the direct operated and pilot operated valves. A mechanical link between the plunger and diaphragm retainer allows the valve to operate as a direct operated valve at low pressures and as a pilot operated valve at higher pressures. Magnalift valves are specially designed for applications where 0 pressure is needed to operate the valve, as well as bigger flow than a direct operated valve.

De-energised



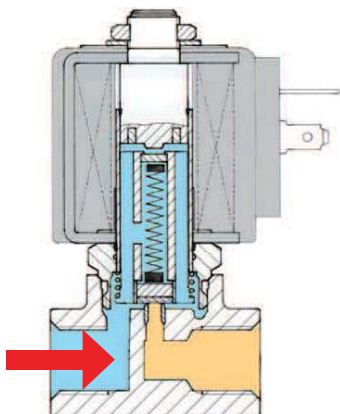
Energised



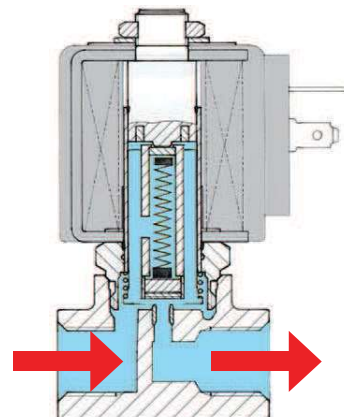
### Normally Closed Valve

Most of our valves are available in normally closed and normally open configuration when not energized. In certain applications, you may require a normally open valve (open function in case of current failure). The differentiating factor of design of this technology, is based upon the design of the seat seal, which is reversed in comparison to a normally closed valve.

De-energised



Energised



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