

# 2/2 & 3/2 Solenoid Valves for High Pressure pneumatic applications - 40 bar

## Product offering:

- 2/2 valves and 3/2 way valves - pilot operated
- Pipe mounting (G 1/2- 3/4) or sub-base mounting
- 1.5 (2) - 40 bar
- Normally open or closed
- Internal or external pilot pressure supply

## Customer Value Proposition:

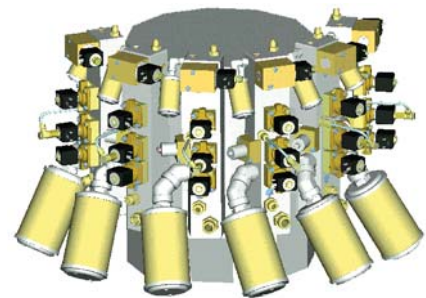
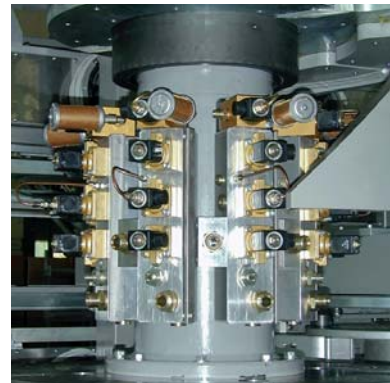
- Safety of operation
- Reliability
- Response time stability
- Repeatability
- No leakage
- Integrated non return valve (421version)

The use of high pressure gases became a necessity in the new technologies developed during the last years.

The control of these fluids can be done through the solenoid valves specially designed by Parker Lucifer for high pressure applications (maximum 50 bar).

The **life expectancy of several millions** of cycles, with **response time of few milliseconds**, allows the use of these valves on intensive applications and on high technology machines, as the plastic bottle blowing machines, or the laser cutting machines.

Parker Lucifer also develops special valves or adapted blocks upon specific customers needs. Please contact your agent for more information.



# Application Example

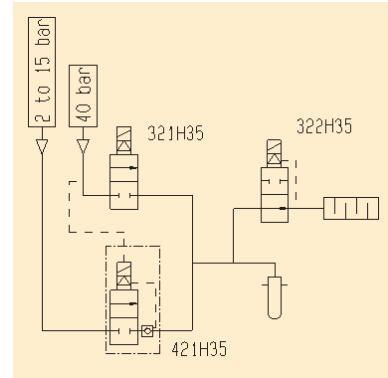
## Plastic Bottle Blowing

Three 2-way solenoid valves permit to control the required blowing functions to produce plastic bottles.

In a first phase the N.O. valves (322 H 35) and N.C. valves (421 H 35) are energised. The pressure in the circuit is therefore established to a pre-determined level (2 to 15 bar). During the same time the 3/2 valve (331 B 31) maintains the mould closed with a 40 bar pressure.

In a second phase, the N.C. valve 321H35 is energised and the pressure increases up to 40 bar. Independently from the position of the 421H35 valve, the 321H35 valve assures by design that the 40 bar pressure is maintained and cannot go back into the "low pressure" circuit.

In a third phase, the N.O. valve 322H35 is de-energised and permits the discharge of the circuit down to 0 bar.



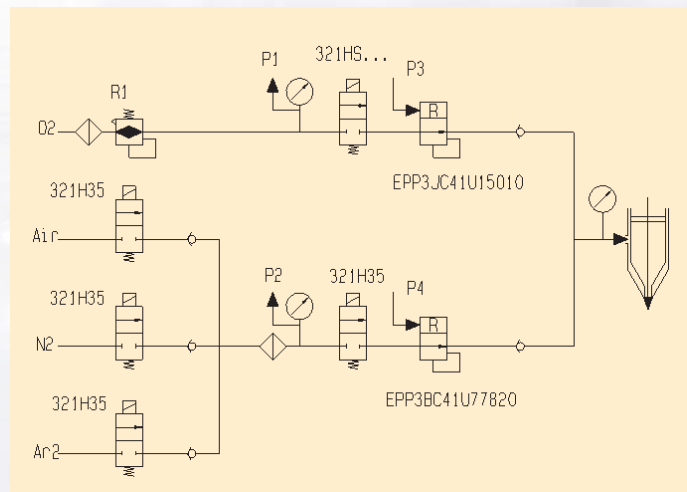
**Fig.1**

Three valves (F type) are grouped on a common block to assure the above mentioned operation.

## Laser Cutting

For this application, few 2/2 Normally closed valves control the gas inlet, in order to assure the different phases and options of the laser cutting. The valves 321H35 are used for inert gases as Air, Argon, Nitrogen. A special model 321HS... is used for oxygen applications.

Electronic pressure regulators type EPP... regulate the pressure from 0 to 20 bar, according to cutting conditions.



# Application Example

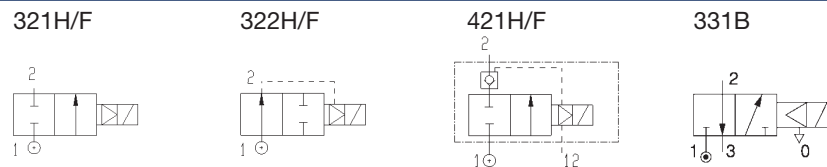
## Main Technical Specifications

### Function

2/2 pilot operated: Normally closed (with internal pilot pressure) 321H/F type  
 Normally closed (with external pilot pressure) 421H/F type  
 Normally open (with internal pilot pressure) 322H/F type

3/2 pilot operated: normally closed (with internal pressure) 331B type

### ISO diagram



### Mounting

- For direct pipe mounting G 1/2" or 3/4" (2/2 Valve type H); G 1/4 (3/2 Valve type B)
- For sub-base mounting (type F)

### Nominal diameter

15 mm (type H), 14 mm (type F)

### Pressures

For the version with external pilot pressure, the pilot pressure must always be higher than the controlled pressure

### External Leakage

0 Ncc/min.

### Internal Leakage

< 20 Ncc/min.

### Fluids

Dry lubricated or non lubricated air, Argon, Nitrogen.  
 Oxygen on request

### Proof pressure

200 bar

### Filtration

< 1 µm

### Life expectancy

> 2 10<sup>6</sup> cycles (dry and clean air)  
 > 8 10<sup>6</sup> cycles (lubricated air)

### Temperatures

Ambient / fluid mini: -10 °C  
 Ambient / fluid maxi: +50 °C

### Materials specifications

Body/cover: 2/2 Valves: Brass - 3/2 Valves: Aluminium  
 Pilot seals : PUR  
 Main seals : FKM (Viton®) with isolating diaphragm from PUR  
 Tube and plunger : Stainless steel  
 Coil : Encapsulation from PA66 + 30% fiber glass

### Options

Δp maxi 50 bar on request

### Response Time

Depends on application

### Mounting Position

Indifferent

### Specials

Parker Lucifer also develops special valves or adapted blocks upon specific customers needs.  
 Please contact your agent for more information.

Port size	Orifice	Flow Factor (l/min)	Admissible differential pressure (bar)			Fluid Temp.	Seal Material (C°)	Reference Nos				Dim. Ref. N°
			Min.	Max. DC	Max. AC			Gaz Max.	Global Ref. No.	Valve	Housing	

### 2/2 Valves - Direct Pipe Mounting

Normally CLOSED

1/2"	15	3150	1.5	40	40	50	FKM	-	<b>321H35</b>	2995	see table	1
3/4"	15	3550	1.5	40	40	50	FKM	-	<b>321H36</b>	2995	see table	1

### 2/2 Valves - Direct Pipe Mounting

Normally OPEN

1/2"	15	3150	1.5	40	40	50	FKM	-	<b>322H35</b>	2995	see table	2
3/4"	15	3550	1.5	40	40	50	FKM	-	<b>322H36</b>	2995	see table	2

### 2/2 Valves - Direct Pipe Mounting

External Pilot

Normally CLOSED

1/2"	15	3150	2	40	40	50	FKM	-	<b>421H35</b>	2995	see table	3
3/4"	15	3550	2	40	40	50	FKM	-	<b>421H36</b>	2995	see table	3

### 2/2 Valves - Sub-base Mounting

Normally CLOSED

-	14	2100	1.5	40	40	50	FKM	-	<b>321F35</b>	2995	see table	4
-	22	7000	5	40	40	50	FKM	-	<b>321F37</b>	2995	see table	-

### 2/2 Valves - Sub-base Mounting

Normally OPEN

-	14	2100	1.5	40	40	50	FKM	-	<b>322F35</b>	2995	see table	5
-	22	7000	1.5	40	40	50	FKM	-	<b>322F37</b>	2995	see table	-

### 2/2 Valves - Sub-base Mounting

External Pilot

Normally CLOSED

-	14	2100	2	40	40	50	FKM	-	<b>421F35</b>	2995	see table	6
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### 3/2 Valves - Direct Pipe Mounting

Normally CLOSED

1/4"	8	750	1	40	40	50	PUR	-	<b>331B31</b>	2995	see table	7
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### 3/2 Valves - Sub-base Mounting

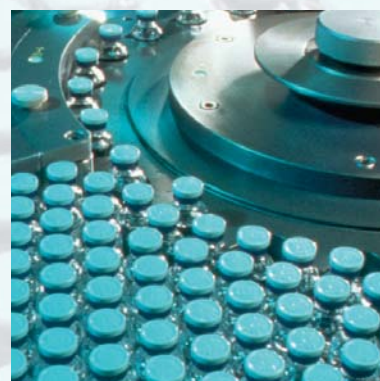
Normally CLOSED

-	8	750	1	40	40	50	PUR	-	<b>331F31</b>	2995	see table	-
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#### Available electrical parts:

You will find standard available coil details on the next pages. Due to the innovative sleeve design it is also possible to use all listed Parker valves with special solutions, like water tight (IP67) or explosion proof designs.

Please consult your local agent for more details.



# Electrical Parts Availability

## 32 mm Electrical Parts Availability

### 481865 Series - Standard Coil Mono-Frequency, F Class, IP65

Encapsulated in synthetic material, connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only. This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

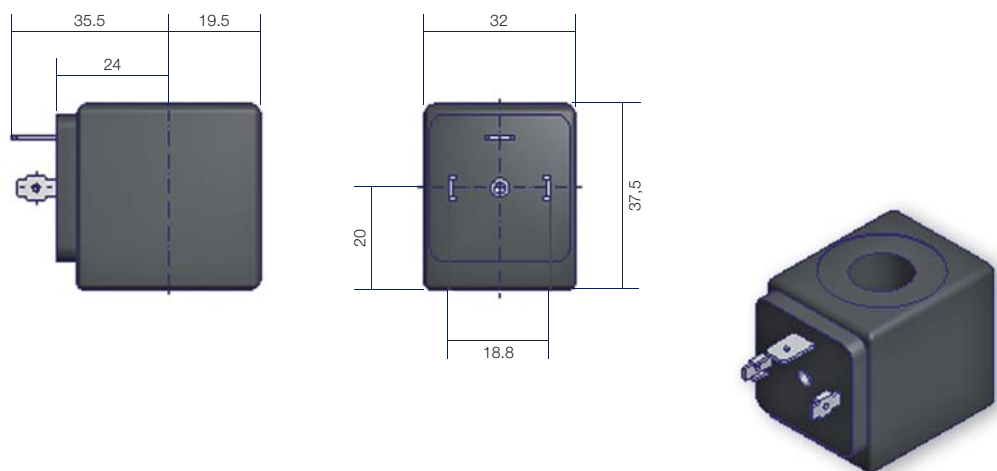
Voltage V	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
24/50	8 W	481865A2	-	-40°C to +50°C	F Class 155°C	8
48/50	8 W	481865A4	-	-40°C to +50°C	F Class 155°C	8
110/50	8 W	481865A5	-	-40°C to +50°C	F Class 155°C	8
220-230/50	8 W	4818653D	-	-40°C to +50°C	F Class 155°C	8
380/50	8 W	481865A9	-	-40°C to +50°C	F Class 155°C	8
24/60	8 W	481865B2	-	-40°C to +50°C	F Class 155°C	8
230/60	8 W	481865J3	-	-40°C to +50°C	F Class 155°C	8
115/60	8 W	481865K8	-	-40°C to +50°C	F Class 155°C	8
12 DC	9 W	481865C1	-	-40°C to +50°C	F Class 155°C	8
24 DC	9 W	481865C2	-	-40°C to +50°C	F Class 155°C	8
48 DC	9 W	481865C4	-	-40°C to +50°C	F Class 155°C	8
110V DC	9 W	481865C5	-	-40°C to +50°C	F Class 155°C	8

**Voltage**

**Tolerances:** -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

**Duty:** Continuous duty coil (100%ED)

**Weight:** 130 g (without plug)



## 32 mm Electrical Parts Availability

### 483510 Series - Standard Bi-Frequency Coil, F Class, IP65

Encapsulated in synthetic material, connector for 2P+E DIN 43650 A Plug, IP65 insulation class to be considered with connector plug only.

This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

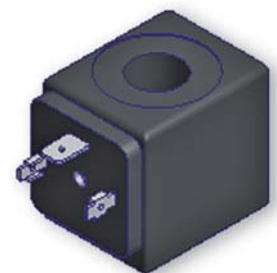
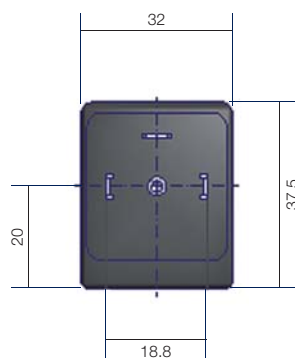
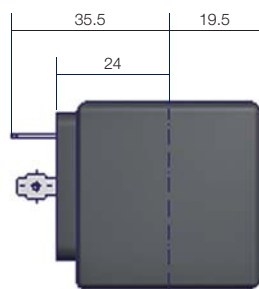
Voltage V	Power Consumption	Reference	Approvals	Ambient Temperature	Class of insulation	Dimensional Drawing
12/50-60	9 W	<b>4835101W</b>	-	-40°C to +50°C	F Class 155°C	8
24/50-60	9 W	<b>483510P0</b>	-	-40°C to +50°C	F Class 155°C	8
48/50-60	9 W	<b>483510S4</b>	-	-40°C to +50°C	F Class 155°C	8
110-115/50 120/60	9 W	<b>483510S5</b>	-	-40°C to +50°C	F Class 155°C	8
220-240/50 240/60	9 W	<b>483510S6</b>	-	-40°C to +50°C	F Class 155°C	8

**Voltage**

**Tolerances:** -10% to +10% of the nominal voltage (AC), -5% to +10% of the nominal voltage (DC)

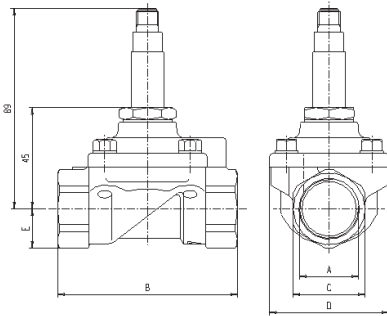
**Duty** Continuous duty coil (100%ED)

**Weight:** 130 g (without plug)

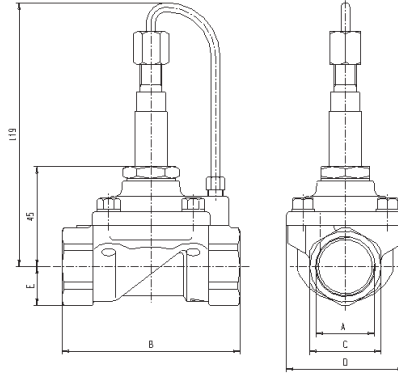


# Dimensions

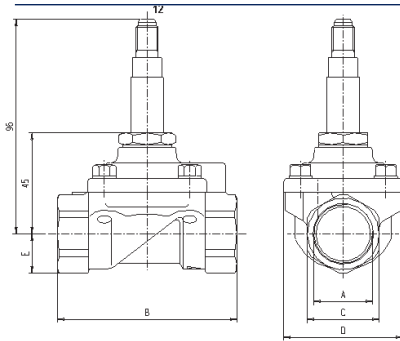
Dimensions Reference N° 1



Dimensions Reference N° 2

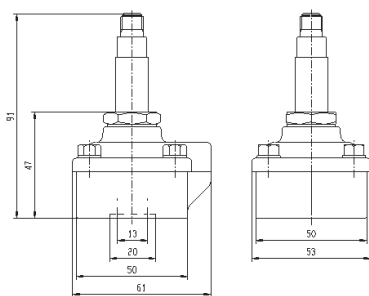


Dimensions Reference N° 3

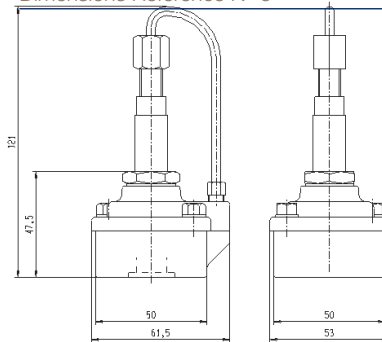


A	B	C	D	E
G3/4"	80	32	53	17.5
G1/2"	75	27	53	13.5

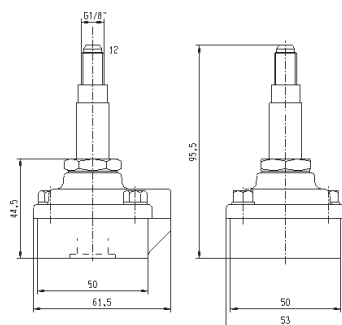
Dimensions Reference N° 4



Dimensions Reference N° 5



Dimensions Reference N° 6



Dimensions Reference N° 7

