

## Q Series & C Series

Technopolymer valves system



ENGINEERING YOUR SUCCESS.



### **WARNING - USER RESPONSIBILITY**

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# Parker Fluid Control Solutions Europe - FCSE

## Who we are?

The Fluid Control Solutions Europe (FCSE) Business Unit is part of Fluid and Climate Controls Division Europe (FCCE) of Parker Hannifin, the global leader in Motion and Control Technologies.

FCSE core competences are the development and manufacturing of an extremely diverse range of fluid control products, including solenoid valves and pressure regulators.



Gessate (Italy)  
Fluid Controls Solutions Europe

## History

Parker is the leading company in the manufacturing and development of solenoid valve technologies for over 60 years, with continuous research and development bringing innovative solutions to the marketplace, for example leading the way in the utilisation of synthetic ruby for critical water applications or the unsurpassed reliability and precision of our pressure regulators. The expertise accumulated and developed through the years is evident in the superior performances of FCSE solutions.

## Markets

Our products and solutions are typically designed for markets including Industrial Equipment, Industrial Automation, Mobile, Transportation, Life Sciences, Beverage dispensing and for Fluid and Process Control.

## Benefits

The modular concept of our products, having separate solenoid valves and electrical parts, provides the customer with increased flexibility by allowing numerous combinations. This additional flexibility can enable distributors to greater reduce valve inventory levels, whilst retaining the same number of capabilities. Parker also has unrivalled experience in developing customised product solutions complying with the highest technical, environmental, energy and service life requirements.

# Introduction

Parker is your ideal partner offering the broadest range of solutions for beverage dispensers.

Thanks to Parker's extensive expertise and our dedication to innovation we are today in the position to offer a broad range of robust and exclusive solutions to achieve superior performance in high demanding professional equipment.

## Market segments

- **Professional coffee machines**
- **Full Automatic Coffee Machines**
- **Drinkable water dispensing equipment (hot and cold)**
- **Beverage dispense systems, pressurized boiler technology**

## Typical Applications

- **Water loading control of a boiler**
- **Hot water dispense to instant/coffee powders**
- **Steam control**
- **Cold, hot and superheated water shut-off**
- **Cold, hot water and steam mixing**

## Food Certifications Compliance

- **1935/2004/CE**
- **MOCA**
- **A wide selection is NSF169 certified**

\*These products are covered by an international patent

# Technical vocabulary

The technical features of each solenoid valve model are indicated in the tables with the following headings:

<b>Port size:</b>	Fitting dimensions are indicated in mm and represent the diameter of the thermoplastic tube suitable for the push to connect system.
<b>Orifice:</b>	Main orifice diameter in millimetres (nominal diameter).
<b>Flow factors:</b>	Defined as the quantity of water, temp. between +5°C and +30°C, which flows through the solenoid valve with a pressure drop of 1 bar (100 KPa-0.1 MPa), in m <sup>3</sup> /h (cubic metres per hour) and in l/min (liters per minute).
<b>Minimum pressure:</b>	The lowest differential pressure required for operation, in bar.
<b>Maximum differential pressure (MOPD):</b>	The highest working differential pressure with 90% of the rated voltage (-10% V <sub>n</sub> ).
<b>Fluid maxi. temperature:</b>	Maximum admissible temperature for the media used. In °C.
<b>Seat seal:</b>	Material used for the seat discs.
<b>Pressure vessel:</b>	The mechanical part of a solenoid valve.
<b>Electrical part:</b>	Compatible electrical part reference. Our tables are indicating the most standard solution.
<b>Power consumption:</b>	Power consumption of a specific electrical part on selected pressure vessel, rated by AC and DC, in W. Power consumption must be considered in cold condition for the coil, at T <sub>Amb</sub> : +20 C. See also details in each electrical part description (page 18).
<b>Safe body working pressure:</b>	Ref. EN 1333:2007 (PN) the maximum admissible pressure at 20°C which can be applied to the solenoid valve to check the tightness of the mechanical seals (threads, welds) and the mechanical resistance of the materials.

# General Description

## Material Specifications

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**Valve Body:**

PPS GF40%

**Seals:**

FKM (FDA) - EPDM (FDA)

**Pilot tube:**

AISI 303 Stainless Steel

**Nozzle:**

Peek

**Plunger:**

AISI 430F Stainless Steel

**PTC Fittings:**

Polyamide – Stainless Steel - FKM

**Spring:**

AISI 302 Stainless Steel

**Shading ring:**

Copper

## Installation

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The valves can be mounted in any position. It is however recommended to install them with the coil in vertical position above the body.

Please consult page **17** for specific installation instructions.

## Media

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These valves have been developed to achieve best performances with a wide range of media. Typical fluids are air, water and steam

## Coils

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The complete coil range is described at page **18**.

Please consult also the «How to order» section at page **19** to select the product configuration which fits your application requirements.

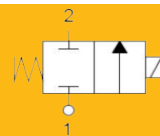


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## Q Series Technopolymer valve system 2 way valves, pipe mounting

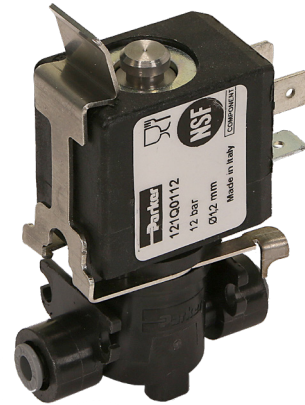
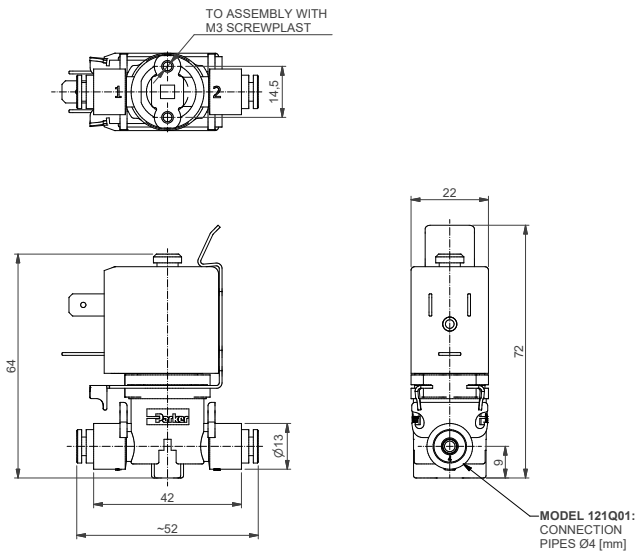
This product is designed to offer quickest installation and maintenance through a push to connect system and cartridge based zero tooling design.

Consult the how to order section of this catalogue to properly configure the product and order.

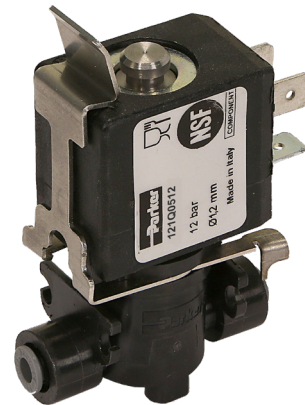
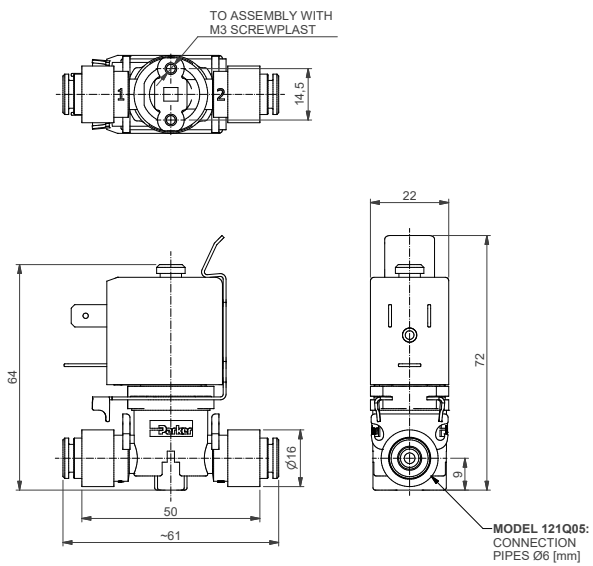


Port Size (PTC)	Orifice Ø mm	Flow Factors		Operating Pressure Differential			Fluid Temperature		Seat Seal	Product reference			Power		Dwg N°
		Kv l/min	KV m³/h	Min. Bar	Max. (MOPD)		Min. °C	Max. °C		Valve Ref.	Housing Ref.	Coil Ref.	AC W	DC W	
					AC bar	DC bar									
4.0 mm	1.2	0.7	0.04	0	15	12	-10	145	FDA FKM	121Q0112	1878	497510	4.5	9.3	1
	1.5	1	0.06	0	15	10	-10	145	FDA FKM	121Q0115	1878	497510	4.5	9.3	
	2.5	2.3	0.14	0	10	4	-10	145	FDA FKM	121Q0125	1878	497510	4.5	9.3	
6.0 mm	1.2	0.7	0.04	0	15	12	-10	145	FDA FKM	121Q0512	1878	497510	4.5	9.3	2
	1.5	1	0.06	0	15	10	-10	145	FDA FKM	121Q0515	1878	497510	4.5	9.3	
	2.5	2.3	0.14	0	10	4	-10	145	FDA FKM	121Q0525	1878	497510	4.5	9.3	





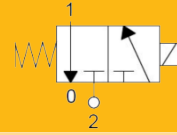
Drawing 1



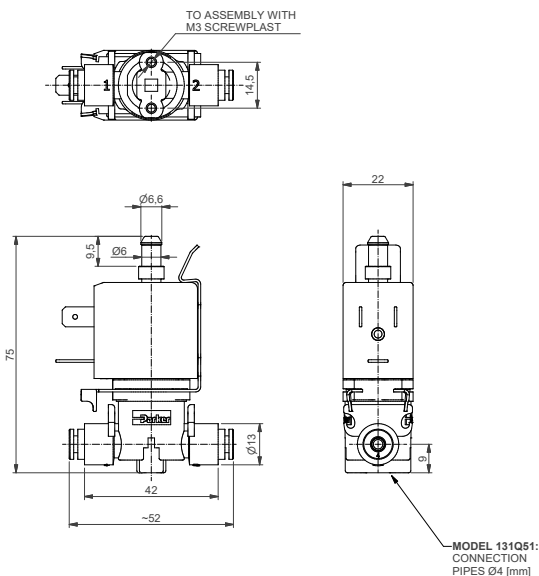
Drawing 2

# 3/2

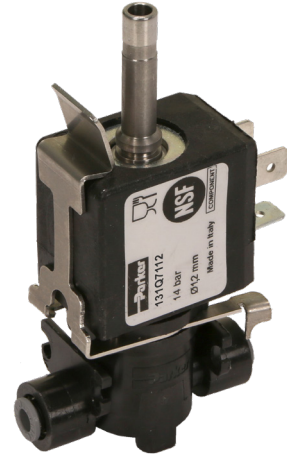
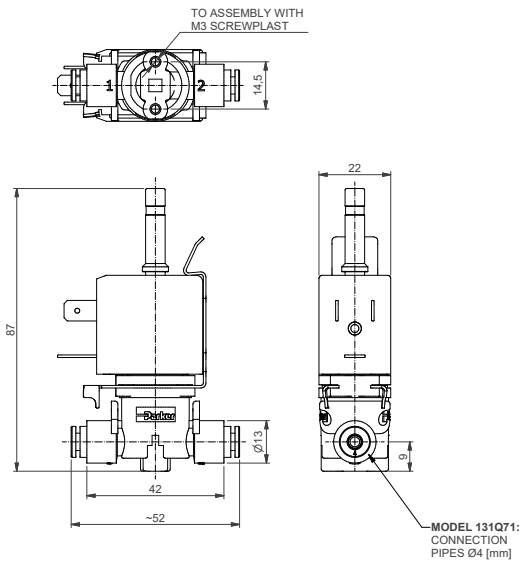
## Q Series Technopolymer valve system 3 way range



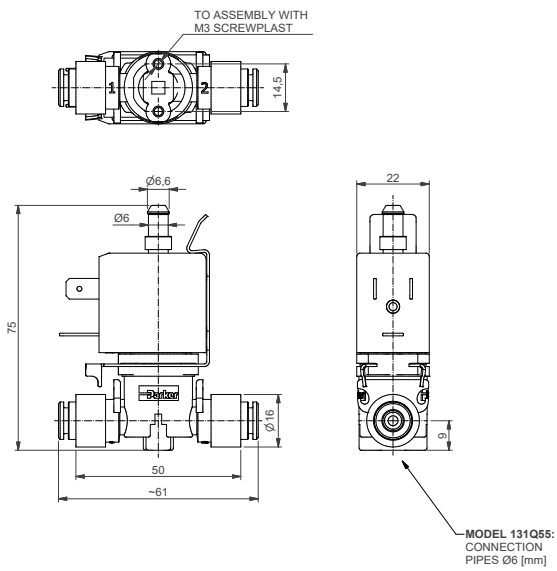
Port Size (PTC)	Discharge Port Spec	Orifice Ø		Flow Factors				Operating Pressure Differential			Fluid Temp		Seat Seal	Product reference			Power		Dwg N°
		1	(2)	Kv	Kv	Kv	Kv	Min.	Max. (MOPD)		Min.	Max.		Valve Ref.	Housing Ref.	Coil Ref.	AC	DC	
		mm	mm	l/min	l/min	m³/h	m³/h	Bar	AC bar	DC bar	°C	°C					W	W	
4.0 mm	Ø 6.0mm barb fitting	1.2	1.6	0.7	1.1	0.04	0.066	0	14	14	-10	145	FDA FKM	131Q5112	1878	497510	4.5	9.3	3
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131Q5115	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	0.14	0.066	0	3	3	-10	145	FDA FKM	131Q5125	1878	497510	4.5	9.3	
	Ø 6.0mm type C	1.2	1.6	0.7	1.1	0.04	0.066	0	14	14	-10	145	FDA FKM	131Q7112	1878	497510	4.5	9.3	4
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131Q7115	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	1.38	0.066	0	3	3	-10	145	FDA FKM	131Q7125	1878	497510	4.5	9.3	
6.0 mm	Ø 6.0mm barb fitting	1.2	1.6	0.7	1.1	0.04	0.066	0	14	14	-10	145	FDA FKM	131Q5512	1878	497510	4.5	9.3	5
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131Q5515	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	1.38	0.066	0	3	3	-10	145	FDA FKM	131Q5525	1878	497510	4.5	9.3	
	Ø 6.0mm type C	1.2	1.6	0.7	1.1	0.04	0.066	0	14	14	-10	145	FDA FKM	131Q7512	1878	497510	4.5	9.3	6
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131Q7515	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	0.14	0.066	0	3	3	-10	145	FDA FKM	131Q7525	1878	497510	4.5	9.3	



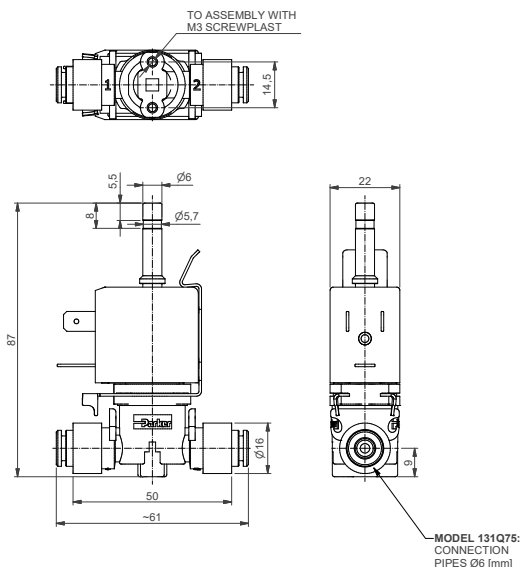
Drawing 3



Drawing 4



Drawing 5



Drawing 6

# 2/2

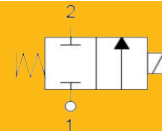
## C Series Cartridge valve system 2 way cartridge valves, normally closed

The C Series cartridge is a complete disposable solenoid valve completing the Q series.

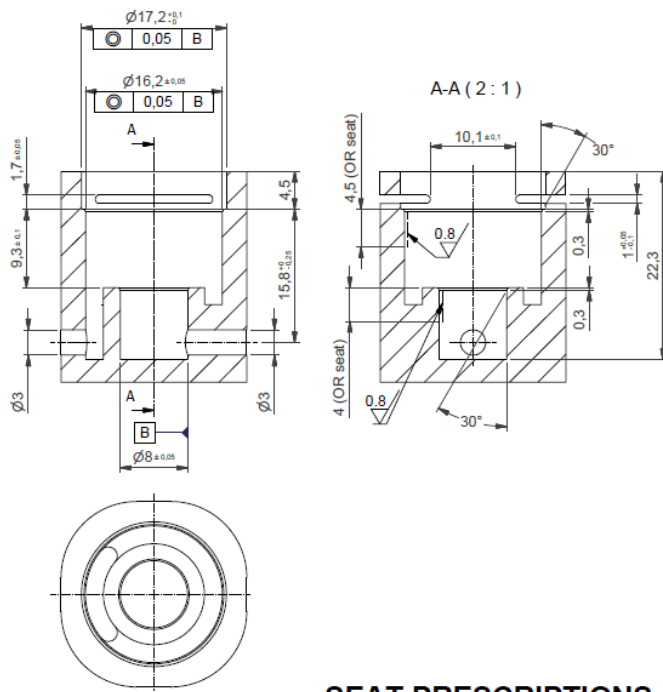
This section includes the C Cartridge valves availability.

The product is designed to offer quickest installation and maintenance through a zero tooling concept and can be ordered to replace the Q series built-in cartridge or integrated in a cavity designed in accordance with dimensional drawing to realize manifolds or specific systems.

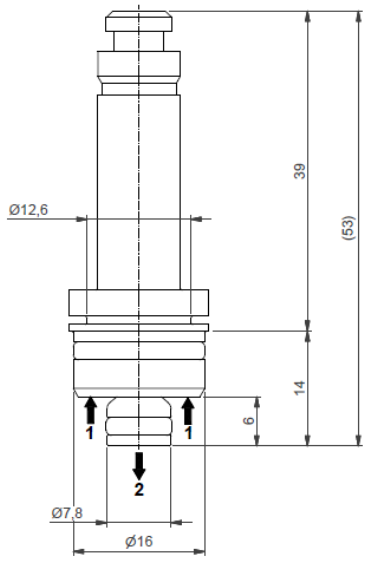
Consult the how to order section of this catalogue to properly configure the product and order.



Port Type	Orifice Ø mm	Flow Factors		Operating Pressure Differential			Fluid Temperature		Seat Seal	Product reference			Power		Dwg N°
		Kv	KV	Min.	Max. (MOPD)		Min.	Max.		Valve Ref.	Housing Ref.	Coil Ref.	AC	DC	
		l/min	m³/h	Bar	AC bar	DC bar	°C	°C					W	W	
Cartridge	1.2	0.7	0.042	0	15	12	-10	145	FDA FKM	121C0712	1878	497510	4.5	9.3	7
	1.5	1	0.06	0	15	10	-10	145	FDA FKM	121C0715	1878	497510	4.5	9.3	
	2.5	2.3	0.138	0	10	4	-10	145	FDA FKM	121C0725	1878	497510	4.5	9.3	



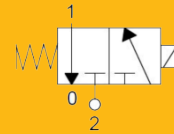
### SEAT PRESCRIPTIONS



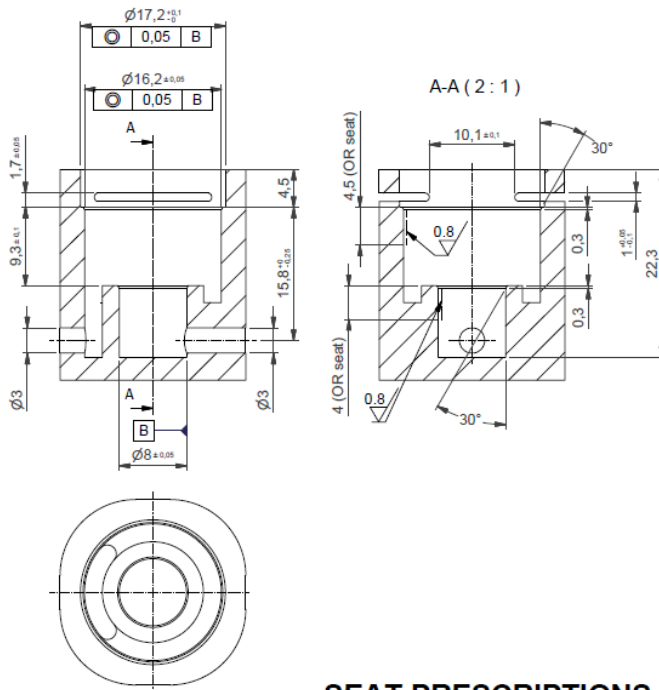
Drawing 7

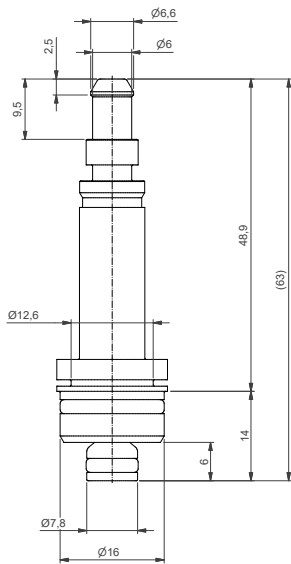
# 3/2

## C Series Cartridge valve system 3 way cartridge valves, normally closed

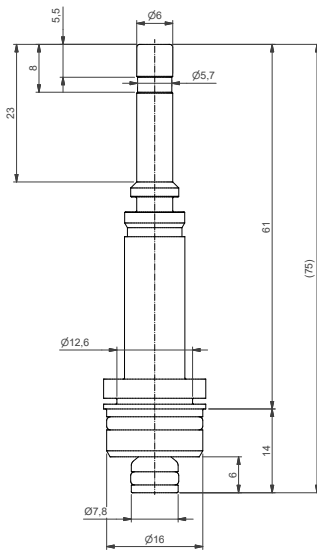


Port Type	Discharge Port Spec	Orifice Ø		Flow Factors				Operating Pressure Differential			Fluid Temp		Seat Seal	Product reference			Power		Dwg N°
		1	(2)	Kv	Kv	Kv	Kv	Min.	Max. (MOPD)		Min.	Max.		Valve Ref.	Housing Ref.	Coil Ref.	AC	DC	
		mm	mm	l/min	l/min	m <sup>3</sup> /h	m <sup>3</sup> /h	Bar	AC bar	DC bar	°C	°C					W	W	
Cartridge	Ø 6.0mm barb fitting	1.2	1.6	0.7	1.1	0.042	0.066	0	14	14	-10	145	FDA FKM	131C5712	1878	497510	4.5	9.3	8
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131C5715	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	0.138	0.066	0	3	3	-10	145	FDA FKM	131C5725	1878	497510	4.5	9.3	
	Ø 6.0mm type C	1.2	1.6	0.7	1.1	0.042	0.066	0	14	14	-10	145	FDA FKM	131C7712	1878	497510	4.5	9.3	9
		1.5	1.6	1	1.1	0.06	0.066	0	8	8	-10	145	FDA FKM	131C7715	1878	497510	4.5	9.3	
		2.5	1.6	2.3	1.1	1.38	0.066	0	3	3	-10	145	FDA FKM	131C7725	1878	497510	4.5	9.3	





Drawing 8



Drawing 9

# Coil assembly kit & Accessories

## Coil assembly kit

The coil assembly kit part number is 1878. It corresponds to the “housing” in the valve housing of Parker valve numbering system (pressure vessel-housing-coil)

Q Series and C series are compatible with 1878 housing system, which consists in a blocking clip shaped to ensure its usage for cartridge removal purposes. See example in the chapter “disposable cartridge replacement”.

The 1878 housing is always supplied with the Q Series pressure vessel or can be ordered separately.



## Installation kit (Q Series)

The Q series installation kit part number is 3287. It is optional and it consists in a stand-alone clip compatible with 10mm DIN46277-3 rails in order to properly allocate the valve inside the machine.

The clip can be ordered separately.



## DIN Plug connector

The DIN Plug connector compatible with 22mm coils, according to EN175301-803 -B is optional and is not being supplied with the valve assembly. It can be ordered separately, kit reference 48104340.

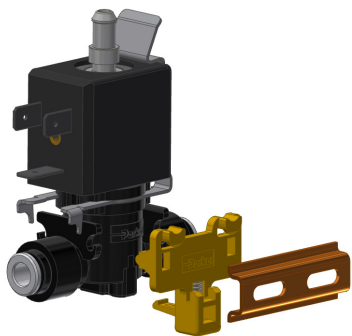




# Installation of Q Series

Our technopolymer valve system offers push-in fittings for 4,0mm and 6,0mm thermoplastic hoses. The valve body includes 2 fixing holes M3 to make possible safe installation of the product inside any equipment.

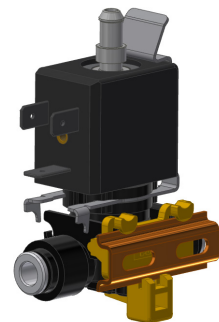
The product can also be installed on 10mm DIN46277-3 rails through a specific clip. The ordering p/n of the clip is **3287**.



1. DIN rail, clip, valve



2. Valve/Clip assembly

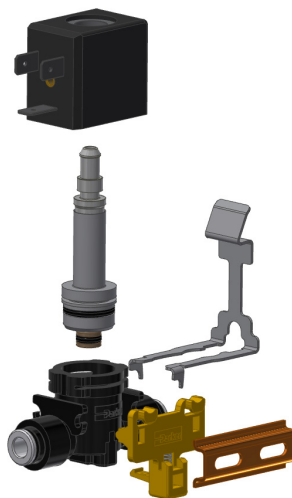


3. Valve Installed

## Disposable cartridge replacement

The Q Series offers an innovative zero tooling serviceability. The complete solenoid valve is designed around a disposable cartridge concept. Cartridge is indeed a full valve, integrating all the moveable and deteriorable elements. Cartridge product availability is included in the C Series section of the present literature.

The preventive or extraordinary maintenance of the product can now be performed on site, replacing the disposable cartridge with a new one. The clip which blocks the valve coil in the assembly can be used to pull out the disposable cartridge.



Cartridge valve detail



Clip being used to dismount the disposable cartridge from the valve

# Electrical parts

COILS FOR  
DIN PLUG CONNECTION



## DOUBLE FREQUENCY COIL 22 mm

This coil is designed for valves equipped with a miniature tube assembly (2000 series valves). This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection.

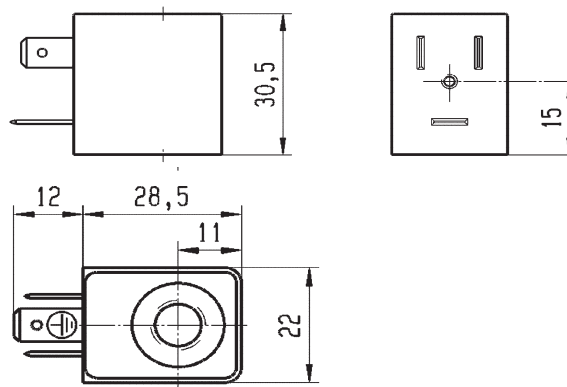
The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc. Coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive. DIN plug connector to be ordered separately.



Specification		Double frequency			
Reference (without DIN Plug)		497510			
Coil group		1.2			
Degree of protection		IP65 according to IEC / EN 60529 standards (with DIN plug).			
Class of insulation		F 155°C		H 180°C	
Electrical connection		The coil is connected with a 2 P + E plug according to EN 175301-803 type B.			
Ambient temperature		-40°C to +50°C The application is limited also by the temperature range of the valve.			
Elect. Power	DC	P (cold) 20°C		9,3W	
	AC	Pn (holding) Attraction cold		4,5 W 7,5 VA	
Weight		90 g			
Voltages "Un"		VAC/Hz	Code	VDC	Code
-10% to +10% of the Un		24/50-60	P0	24 V	C2 (UL)
		110-120/60	3K (UL)		
		220-230/50-60	3P		
		208-240/60	U3 (UL)		

To Order a Coil choose Coil Ref + Voltage Code, example: 497510 for 24 VDC = 497510C2

«The housing kit is already included in the valve reference, it is not needed to order it separately.»



# How to order

## Step 1

Select the pressure vessel.

Seat Seal	Parker Valves		
	Valve Ref.	Housing Ref.	Coil Ref.
FDA FKM	<b>121Q0112</b>	2995	481865
FDA FKM	121ZH1020	2995	481865
FDA FKM	121ZH1025	2995	481865



## Step 2

Add the housing reference after dash -  
Example: 121Q0112 - **1878**



## Step 3

Add the coil reference after dash -  
Example: 121Q0112 - 1878 - **497510**.

Specification	Standard
Reference (without DIN plug)	<b>497510</b>



## Step 4

Add the voltage code right after the coil reference.  
Example: 121Q0112 - 1878 - 497510**C2**

## Step 5

Accessories (i.e. 3287) shall be ordered separately.

NOTE:

1. If Customer desires to order pressure vessel only, p/n shall be equivalent to step 2
2. Cartridge, housing and coils shall be ordered separately.

### Ordering a product or a configuration not listed in the catalogue.

When an application demands a combination of features not listed in the catalogue, please feel free to contact the closest Parker office. Parker personnel will assist you in determining the applicability availability and price of the new product.

[www.parker.com](http://www.parker.com)



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US Product Information Centre  
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