



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



## Process Market Oil & Gas - Chemical - Pharmaceutical

Lucifer® 37 mm ATEX & IECEx certified  
"ia" & "d mb" electrical parts



ENGINEERING YOUR SUCCESS.

# Market



Pharmaceutical

The 37 mm ATEX electrical parts are primarily designed for process actuator and valve control in the Oil & Gas, Chemical and Pharmaceutical market places.

These target markets have inherent technical demands such as:

- Explosive atmosphere (gas - vapour - or dust)
- Corrosive or aggressive environments (temperature, salt, water, ...)

The medium used is generally compressed air.

The 37 mm electrical parts control:

- 2/2 & 3/2 valves
- 4 & 5/2 distributors (double-acting actuators)



Chemical plant

# Applications

Parker has developed a wide range of ATEX electrical parts covering all ATEX zones applications whilst being fully interchangeable with a wide variety of current Parker valves.

This is achieved due to a modular design concept:

- **Classic range:** for standard process control applications in chemical and pharmaceutical markets
- **CPR range (Chemical Petrochemical Refinery applications):** for more aggressive environmental applications, such as in Oil & Gas where corrosion issues are often present and are solved using stainless steel valves and fittings

For such markets and explosive atmosphere applications, it is necessary to use certified equipments:

**ATEX certified for Europe**  

**IECEx certified worldwide**  

37 mm range	37 mm Type	Electr. group	Associated Valves	Part Ref.	ATEX protection mode	Nominal Power	max T° Class	Targeted ATEX Zones			Dedicated Sub-Markets						
								0/20	1/21	2/22	Offshore	O & G Services	Refineries	Petrochemical	Chemical	Pharmacy	Biofuel
CLASSIC	Low power	6	references ending .. 97	495900	"d mb"	< 2.5 W	T6	-	x	x	-	-	-	-	x	x	x
				495910	"ia" Booster	< 2.5 W	T6	x	x	x	-	-	-	-	x	x	x
	Standard	2	the ones working with Std "8W" coil 481865	495905	"d mb"	8W	T4	-	x	x	-	-	-	-	x	x	x
CPR	Corrosion resistance	13	X, V & F 316 L St. St. body valves	496560	"d mb"	8 W	T4	-	x	x	-	x	x	x	x	x	x
				496565	"ia" Booster	< 2.5 W	T6	x	x	x	-	x	x	x	x	x	x
	Basic	9	Alum. Or Brass Body X valves	496555	"d mb"	6 W	T6	-	x	x	-	x	x	x	x	x	x
				496565	"ia" Booster	< 2.5 W	T6	x	x	x	-	x	x	x	x	x	x

A.C.C. = Armoured Cable Compatible

# Benefits

- ATEX certified products complying with new standards (new marking)
- IECEx certified products (International ATEX certification; site [www.iecex.com](http://www.iecex.com))
- Modularity concept (electrical parts fitting with a wide range of Parker valves)
- Resistance to extreme outdoor applications:
  - ▶ H class material
  - ▶ IP67 protection degree
  - ▶ Stainless steel external parts
- Temperature Classes T6 to T4
- Low current consumption (Booster) "ia" products, suitable with major current IS equipments (barriers, remote I/O modules with  $I_n = 20\text{mA}$ )
- "d mb" products protection: thermal, electrical (replaceable fuse) & surge suppressor EMC (varistor)
- Several electrical cable diameter range possibility
- Modern, light and compact design
- More value for money



# Standards

- All 37 mm electrical parts have been designed and manufactured according to ATEX directive 94/9/EC and normative up-to-date standards:
  - ▶ **Gas applications**  
EN 60079-0, EN 60079-1, EN 60079-11, EN 60079-18
  - ▶ **Dust applications**  
EN 61241-0, EN 61241-1, EN 61241-11, EN 61241-18



These European standards have also their equivalence on international markets: IEC 60079... & IEC 61241...



# Process Market Explosive Atmosphere Applications

## ATEX Zones 0/20

Intrinsically safe "ia" protection mode

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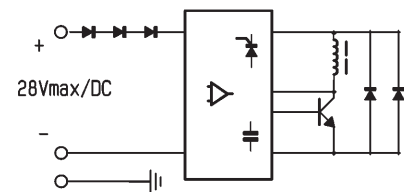
### Value propositions

- ATEX and IECEx certified products
- Working in all ATEX zones (0/20; 1/21 & 2/22)
- Low current (20 mA) consumption (Booster technology use) => Suitable with standard market IS equipments (barriers, remote I/O)
- T6 temperature class
- 4/20 mA loop function
- Admissible wires: Ø 7 to 12 mm (divisible joint)

### Booster function

The Intrinsically Safe electrical parts are equipped with "Booster" circuit, acting in 3 phases:

- Energy accumulator: a small current of minimum 20 mA loads a capacitor during 2 to 4 seconds, till a voltage threshold level
- Attraction phase ( $t < 50$  msec.): the Booster circuit uses its accumulated energy to attract the valve's plunger and switches the valve from "unenergised" to "energised" position
- Holding status: the Booster circuit stays in its new position (attraction and not capacitor loading) to keep the valve activated



### 4/20 mA loop function

When the solenoid valve is in "OFF" status, a residual 4 mA current (5 VDC maxi) allows the control of the electrical line, by checking the closing of the loop (4 mA current ability to circulate).

Nevertheless, this low current does not provide enough energy to activate the booster circuit and open the valve.

# Classic Range 495910

Electrical Group N° 6

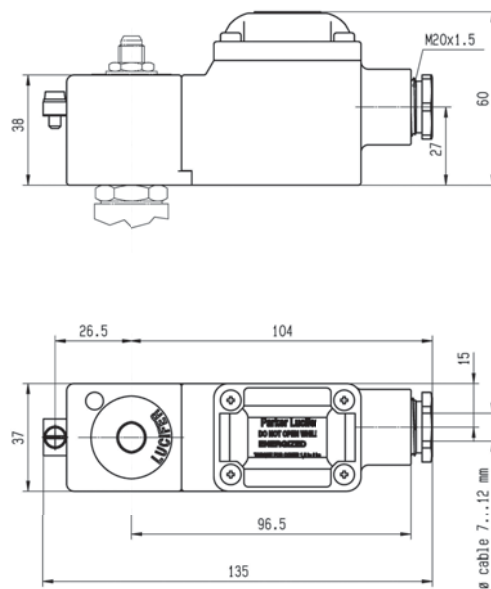
495910...

II 1 G - Ex ia IIC (IIB) T6

II 1 D - Ex tD A20 IP67 - T 80 °C



Dimensions (in mm)



# CPR Range 496565

Electrical Groups N° 9 & N° 13

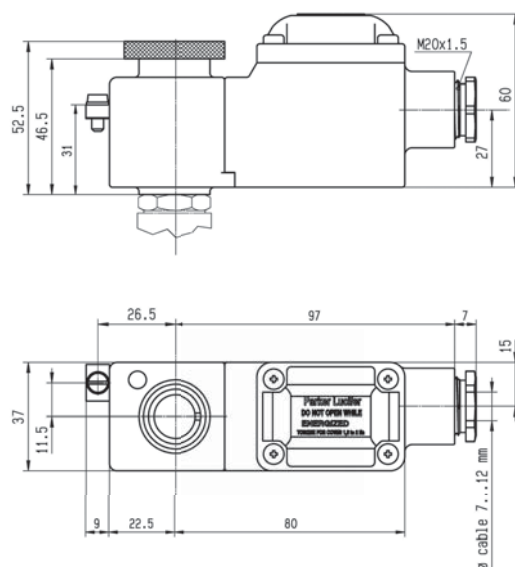
496565...

II 1 G - Ex ia IIC (IIB) T6

II 1 D - Ex tD A20 IP67 - T 80 °C



Dimensions (in mm)



# Process Market Explosive Atmosphere Applications

## ATEX Zones 1/21

Flameproof enclosure "d mb" protection mode

### Value propositions

- ATEX and IECEx certified products
- Working in ATEX zones 1/21 (& 2/22)
- Innovative ATEX flameproof enclosure protection mode:
  - ▶ Full plastic housing + cable gland
  - ▶ Connection box volume reduced to less than 10 cm<sup>3</sup> => in case of an eventual spark, the induced explosion would generate only a very low overpressure => the induced flame will be extinguished immediately (laminated by housing) and would transmit, "cold" flame, without any risk to the external environment.
  - ▶ Light, small ATEX flameproof "d" product
- T4 to T6 temperature classes
- Admissible wires: Ø 5 to 11 mm (joint 5 to 9 mm + joint 9 to 11 mm)

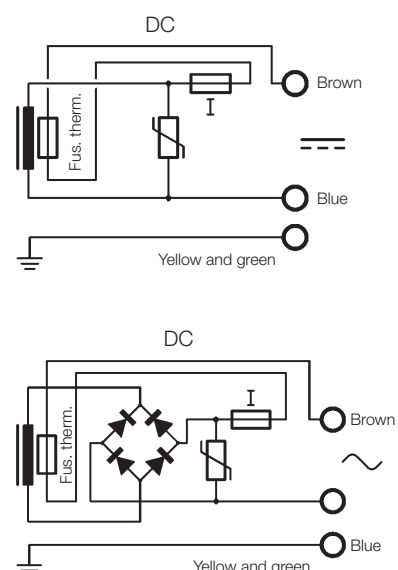
### Protection features

- Embedded non-resetting thermal fuse to prevent excessive heating
- Replaceable electrical fuse, easily accessible in the connection box to prevent electrical wires connection mistakes or wrong voltage supply
- A varistor acts as voltage peaks absorber (surge suppressor)

Fuse according to IEC 60127 - 3/4 and EN 60127 - 3/4		
Fuse current value [mA]	Example: Type: Schurter MST 250	Parker Lucifer Kit Ref.
100	34.67	495921.01
250	34.67	495921.02
400	34.67	495921.03
630	34.67	495921.04
800	34.67	495921.05
1600	34.67	495921.06
2000	34.67	495921.07

Nominal Coil Voltage [V]	Varistor Shut-off voltage [V]
12 to 24 V	35 V
48 V	95 V
115 to 240 V	385 V

Electrical drawing



## Classic Range

**495900** Electrical Group N° 6

**495905** Electrical Group N° 2

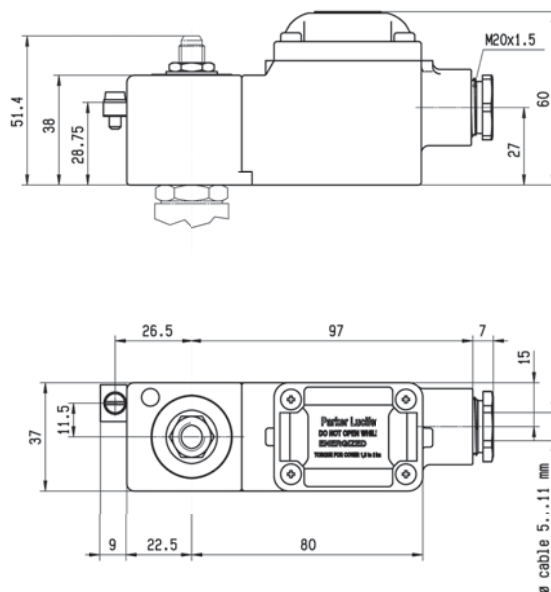
495900 & 495905 ..

II 2 G - Ex d mb IIC - T4/T5/T6

II 2 D - Ex tD A21 IP67 - T 130/95/80 °C



Dimensions (in mm)



## CPR Range

**496555** Electrical Group N° 9

**496560** Electrical Group N° 13

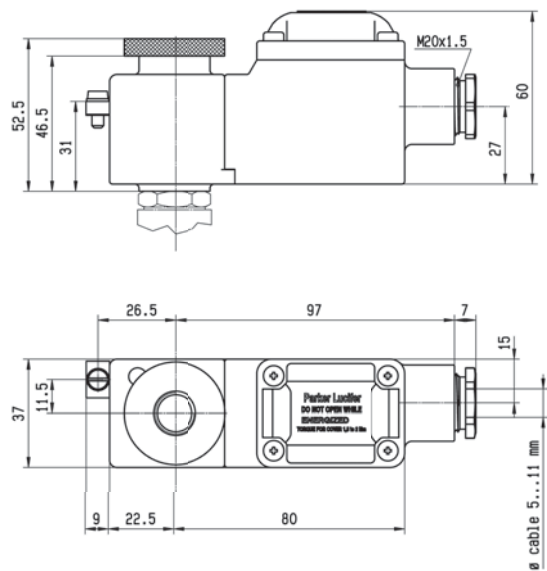
496555 & 496560

II 2 G - Ex d mb IIC - T4/T5/T6

II 2 D - Ex tD A21 IP67 - T 130/95/80 °C



Dimensions (in mm)



# 37 mm Electrical Parts Ranges Overview

		CLASSIC Range			CPR Range			
Electrical part reference		495900	495905	495910	496555	496560	496565	
Approval Certificates Ref.	ATEX LCIE	03_6451 X	03_6451 X	03_6464 X	07_6075 X	07_6075 X	08_6071 X	
	IECEX LCIE	06.0004 X	06.0004 X	07.0006 X	07.0014 X	07.0014 X	08.0030 X	
Protection Modes	Gas	II 2 G - Ex d mb IIC T4 / T5 / T6*		II 1 G - Ex ia IIC T6	II 2 G - Ex d mb IIC T4 / T5 / T6		II 1 G - Ex ia IIC / IIB T4 / T5 / T6	
	Dust	II 2 D tDA21 T 130 / 95 / 80°C		II 1 D tD A20 T 80°C	II 2 D tDA21 T 130 / 95 / 80°C		II 1 D tD A20 T 130 / 95 / 80°C	
Ambient Temperature Range		- 40°C to + 65 / 50 / 40°C	- 40°C to + 65°C	- 40°C to + 65°C	- 40°C to + 65 / 50 / 35°C	- 40°C to + 80 / 75 / 65°C		
		Note: the application might be limited by the admissible temperature range of the valve itself						
Protection degree		IP67						
Insulation class material		H (180°C)						
Electrical connection		Electric connection is done in the connection box on an easily accessible screw terminals connector. The introduction of the cable (Ø min 5 mm, Ømax. 12 mm, section max. 2.5 mm <sup>2</sup> ) in the connection box passes through the built-in M20 x 1,5 cable gland.						
Electrical Power	DC	P nominal (hot)	2 W	8 W	min 0.3 W (with 13 VDC)	6 W	8 W	min 0.3 W (with 13 VDC)
		P cold (20°C)	2.5 W	9 W	max: ** (with 24 VDC)	7.5 W	10.5 W	max: ** (with 24 VDC)
	AC	P nominal (hot)	2.5 W	8 W	-	6 W	8 W	-
		P cold (20°C)	3 W	9 W	-	7.5 W	10.5 W	-
Nominal Voltage Range ***		6 to 110 VDC / 12 to 240 VAC		28 VDC	6 to 110 VDC / 12 to 240 VAC		28 VDC	
Voltage Tolerance		+ / - 10 % of the nominal voltage		-	+ / - 10 % of the nominal voltage		-	
Impedance (in Ohms)		Depends on voltage code		Attract. ~ 625 Holding ~ 510	Depends on voltage code		Attract. ~ 600 Holding ~ 570	
Electrical response time		Immediate		2 to 4 sec.	Immediate		2 to 4 sec.	
Line check function		-	-	4 mA or 5 VDC max.	-	-	4 mA or 5 VDC max.	
Max. duty cycle		Continuous solenoid duty cycle: ED 100%						
Electrical Group (Valve type compatibility)		6	2	6	9	13	9 & 13	

\* T6 temperature class for 495900: AC voltage with + 40°C max amb. Temp. / DC voltage with max. + 55°C amb. Temp.

\*\* 1.02 W with 110 mA max current value (ia IIC T6)  
2.58 W with 280 mA max current value (ia IIB T6)

Note: the final exact nominal electrical power will depend on:  
real applied voltage, IS equipment (barrier or remote I / O module), type and length of cable (impedance value), ambient conditions, ...

\*\*\* Range of voltage used for ATEX & IECEX certification - For real available voltage codes, please refer to Parker Price list.

# 37 mm Electrical Parts Compatible Valves List

37 mm Type	Elec. Part Ref.	Electrical Group	Compatible Valves Type	2 way valves examples	3 way valves examples	4/5 way distributors examples
<b>CLASSIC</b>	495900	6	Valves Ref. ... ending ...97	121K0497	131K0497	341N3197
	495910			121V5397, ...	131F4497, ...	341P2197, ... <b>(A)</b>
	495905	2	All valves compatible with standard coil 481865 (8/9 W)	121V5763 322H7506	E131K04 133V5406 <b>(B)</b>	341N31 341P22
<b>CPR</b>	496555	9	X valves with Alum. or Brass body	-	-	(U)131 X 11.. (U)133 X 01... <b>(C)</b>
	496560	13	X, V and F valves with St. steel Body	U121V75.. <b>(D)</b>	U133V75.. <b>(F)</b>	U133 X 75.. <b>(E)</b>
	496565	9 & 13	Most valves of the 2 above lines	U121V55.4	U133V75...	(U) 131 X 11... U 133 X 75...



**(A)**



**(B)**



**(C)**



**(D)**



**(E)**

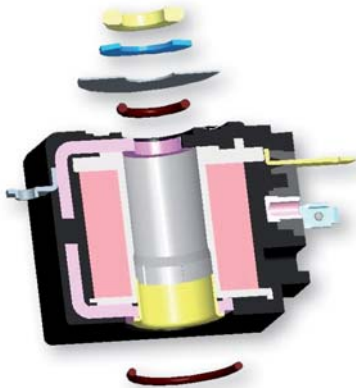


**(F)**

# Classic Range

## Fixation elements

Ref.: 495900-495905-495910

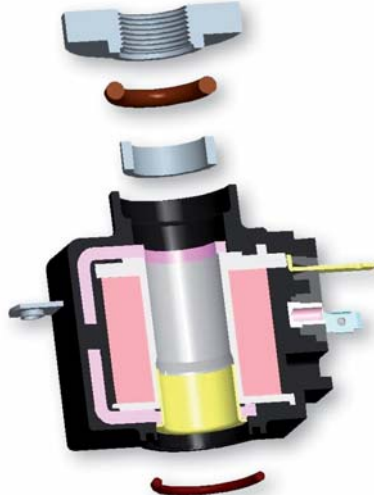


Weight: 400 g

# CPR Range

## Fixation elements

Ref.: 496555-496560-496565



Weight: 450 g

### Products at International level

Both product and system solutions are provided with all necessary marketing approvals and are in compliance with EN, IEC, ISO,.. standards. Certifications have been issued by well-known bodies such as: IMQ (Italy), LCIE (France), FM (USA), TÜV (Germany), DIN CERTCO (Germany), DVGW (Germany), DNV (Norway), GOST (Russia), KOSHA (Korea), NEPSI (China) UL (USA), CSA (Canada), AGA (Austria).

Parker Lucifer SA also holds global certification UNI EN ISO 9001: 2000 & UNI EN ISO 14001: 2004 indicating that management systems comply with International Quality and Environmental standards.



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