



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)
- 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

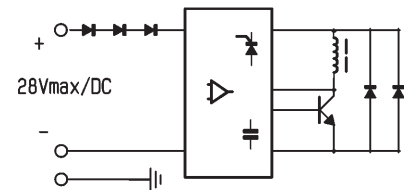
Value propositions

- 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

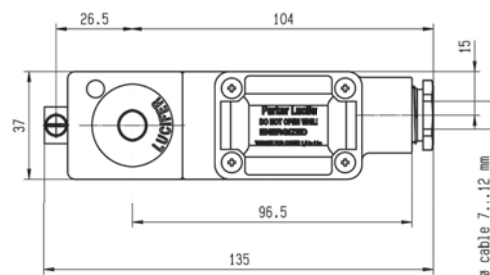
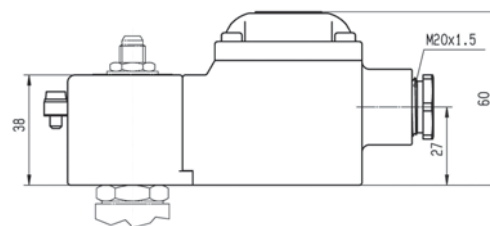
495910...

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

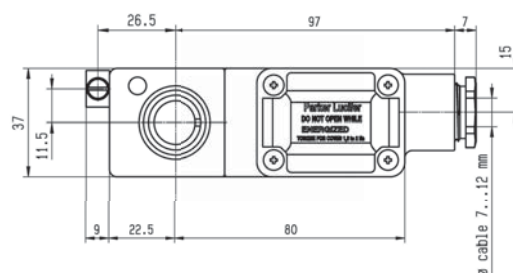
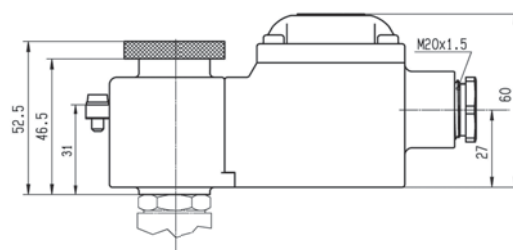
496565...

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 cm³ => 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)

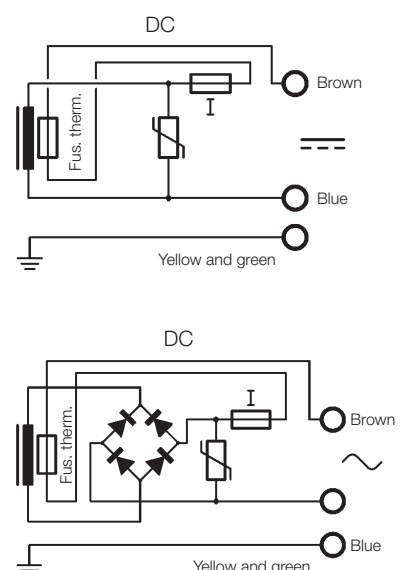
Protection features

- 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

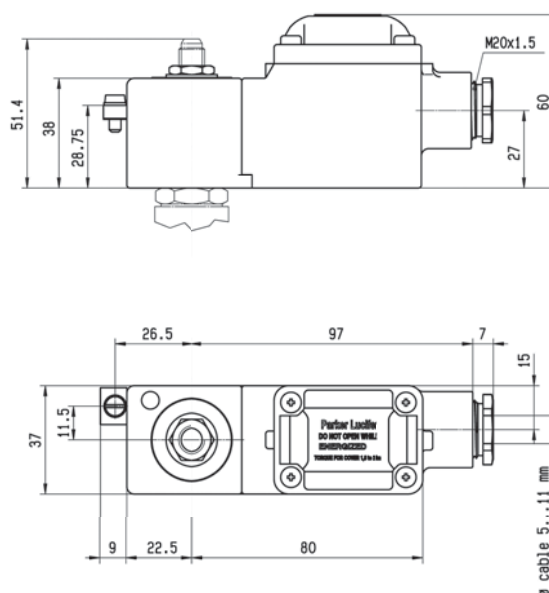
495900 & 495905 ..

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

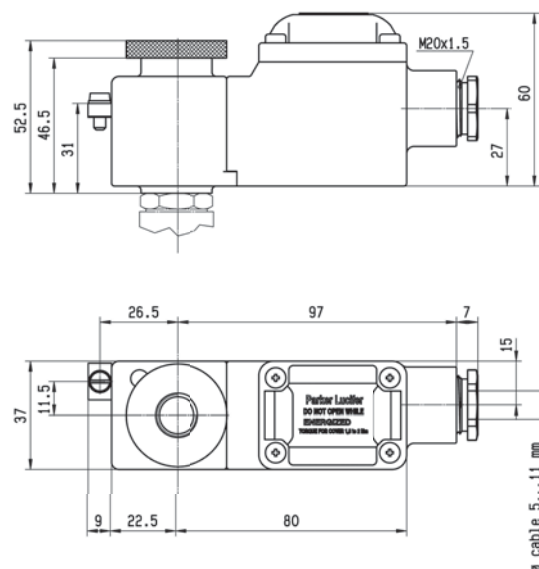
496555 & 496560

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 / 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 mm²) 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
CLASSIC	495900	6	Valves Ref. ... ending ...97	121K0497	131K0497	341N3197
	495910			121V5397, ...	131F4497, ...	341P2197, ... (A)
	495905	2	All valves compatible with standard coil 481865 (8/9 W)	121V5763 322H7506	E131K04 133V5406 (B)	341N31 341P22
CPR	496555	9	X valves with Alum. or Brass body	-	-	(U)131 X 11.. (U)133 X 01...(C)
	496560	13	X, V and F valves with St. steel Body	U121V75.. (D)	U133V75.. (F)	U133 X75.. (E)
	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)

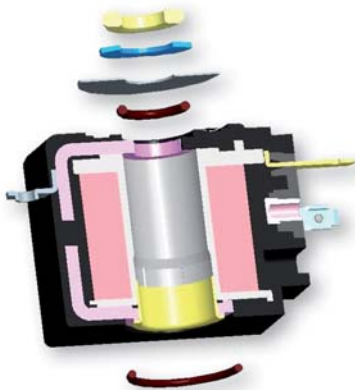


(F)

Classic Range

Fixation elements

Ref.: 495900-495905-495910

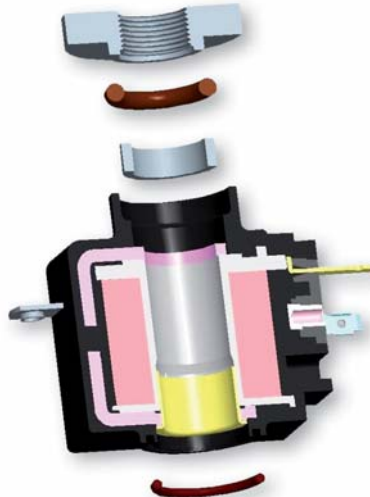


Weight: 400 g

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.



WARNING - USER RESPONSIBILITY

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At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



AEROSPACE

Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO₂ controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
- Elastomeric o-rings
- ENI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.

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