

LUCIFER®

Explosion-proof Solenoid

**II 1 G / II 1 D
EEx ia IIC T6**

Catalogue 8736/GB



ATEX



Parker

Explosionproof solenoids with intrinsically safe protection «ia» 4mA / 20mA loop compatible

According to ATEX directive 97/9/EC and Standards EN 50014, EN 50020 and EN 50281-1-1

Application

Control of solenoid valves for installations in hazardous areas in which explosive gas- vapour- or dust atmospheres are present, i. e. zones 0, 20, zones 1, 21 or zones 2, 22 (ATEX: Group II, apparatus categories 1G/D up to 3G/D) where the type of protection EEx ia (ib) IIC T6 and a loop compatibility 4mA/20mA is required.

The enclosure of these IS solenoids «ia» is entirely made of synthetic material. All external metallic components in contact with the atmosphere are made in stainless steel. The integrated sealing and O-rings assure the degree of protection IP67. Therefore, these products took into account not only the suitability with hazardous areas but with extremely corrosive environment, e. g. Chemical, Petrochemical and refineries industries (CPR). Due to the compact size and easy connection by screw terminals, these IS-solenoids may be mounted in confined spaces.

Features

The coil winding (copper wires insulation Class H) and magnetic iron path are encapsulated in synthetic material Class H, the connection box and cover are of selected high

quality synthetic material (Class H.)The electronic «booster» circuit is embedded in an Epoxy resin class H, too.

A time laps of 1 to 2s is required to charge the built in capacitor (condenser), i. e. the response time for opening the valve is approx. 1 to 2s. During the discharge (50 à 100ms) the boosted attraction force necessary for opening the valve is generated. After this period, the holding current of minimum 20mA keeps the valve in open position (ON). When the solenoid is in OFF state, the loop compatible configuration allows to control the line with 4mA (5VDC maximum).

Benefits

Thanks to the Lucifer «IS-booster» technology, the standard valve can easily be adapted for Intrinsically Safe applications «ia»with air and corrosive media (available for 2/2 and 3/2 direct operated types as well as 2/2 and 5/2 models with manual override on request) . The control signal of only **20mA** makes the product suitable for IS-Field bus - IS-Remote I/O applications. For suitable IS-barriers, please consult us.

495910 - Miniwatt - 300mW (compatible with all Lucifer solenoid valves ending by ..97 - see Table 1)

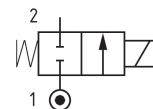
Reference Number		495910 VDC	
Approval		LCIE 03 ATEX 6464 X	
Type of protection	Gas	II 1 G - EEx ia IIC T6	II 1 G - EEx ia IIB T6
	Dust	II 1 D - 80°C	
Degree of protection		IP 67	
Ambient temperature		-40°C to +65°C The application is also limited by the temperature range of the valve	
Electrical connection		Electric connection is done in the connection box on an easily accessible connector terminal. The introduction of the cable (Ø min. 7 mm, Ø max. 12 mm, max. section 2,5 mm²) in the connection box passes by the built in M20x1,5 cable gland	
Max. supply voltage		28 VDC - 110mA	28 VDC - 280mA
Power	DC	Min.	0,3W (with 13 VDC)
		Max.	1,02W (with 24 VDC)
Depending on applied voltage, IS barrier type and resistance of connected cable			
Line check		4mA or 5 VDC max.	
Coil resistance at 20°C		195	
Impedance		500 (with 15 VDC)	
Apparent inductance		0 mH	
Apparent capacitance		0 µF	
Response time		1 - 2 s	
Solenoid duty		Continuous duty solenoid ED 100%	

List of compatible valves with solenoid type 495910 (Table 1)

Port size	Orifice size	Qn	Kv	Operating pressure		Fluid temperature		Body material	Reference Number		Ambient temperature valve only	
				bar	bar	°C	°C		Valve	Electrical part	°C	°C
G	mm	NL/min	L/min	Min.	Max.	Min.	Max.			Min.	Max.	

Directly operated
2-Way

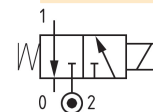
Normally closed



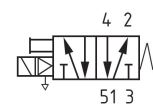
1/4"	1.5	80	1.5	0	10.0	-25	+75	Brass	121K0497	495910	-20	+65
	3.0	250	3.5	0	4.5	-25	+75	Brass	121K0397	495910	-20	+65
	1.5	80	1.5	0	10.0	-25	+75	St. steel	121V5497	495910	-20	+65
	3.0	220	3.5	0	4.5	-25	+75	St. steel	121V5397	495910	-20	+65

3-Way

Normally closed



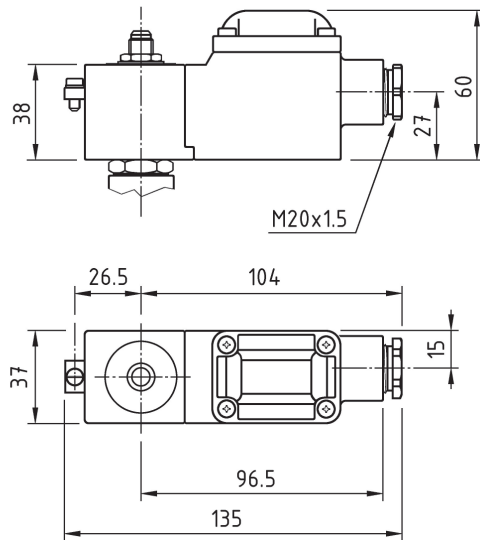
1/4"	1.5	80	1.5	0	7	-25	+75	Brass	131K0497	495910	-20	+65
	2.5	180	3.0	0	2	-25	+75	Brass	131K0397	495910	-20	+65
	1.5	80	1.5	0	3	-25	+75	Brass	133K0497 ¹	495910	-20	+65
	1.5	80	1.5	0	7	-25	+75	St. steel	131V5497	495910	-20	+65
	2.5	180	3.0	0	2	-25	+75	St. steel	131V5397	495910	-20	+65
SB ²	1.5	80	1.5	0	7	-25	+75	Brass	131F4497	495910	-20	+65
	2.5	180	3.0	0	2	-25	+75	Brass	131F4397	495910	-20	+65

¹ Universal function² Sub-base mountingPilot operated
4-Way

1/8"	4	600	-	2	10	-25	+65	Aluminum	341P2197	495910	-25	+65
	4	400	-	2	10	-25	+65	Aluminum	347P2197 ³	495910	-25	+65
CETOP 1/8"	6	800	-	1	10	-10	+75	Delrin®	341L0197	495910	-10	+65
1/4"	8	1400	-	2	10	-25	+65	Aluminum	341P2297	495910	-25	+65
	8	1400	-	2	10	-25	+65	Aluminum	341N3297 ⁴	495910	-25	+65
1/4-1/8"	4	355	-	1	10	-10	+75	Aluminum	341L9597 ⁴	495910	-10	+65
	4	600	-	2	10	-25	+65	Aluminum	341N3197 ⁴	495910	-25	+65

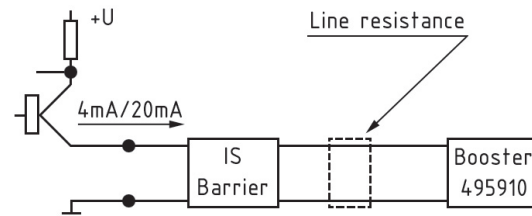
³ Bistable function⁴ NAMUR Interface

Dimensional drawing



Loop compatible 4mA / 20mA

The loop compatible configuration allows to control the continuity of the line feed when the solenoid is in OFF state.

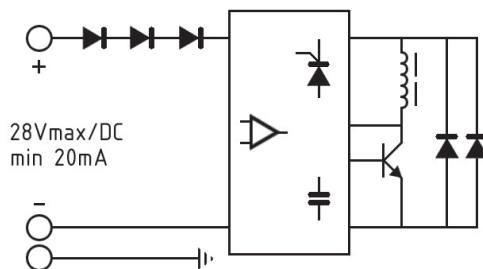


The OFF state is guaranteed from a current of 0mA up to 5mA. **The ON state of the solenoid valve is guaranteed when the current is > 20mA** for vibration and shock not exceeding 10 g axially and 20 g radial.

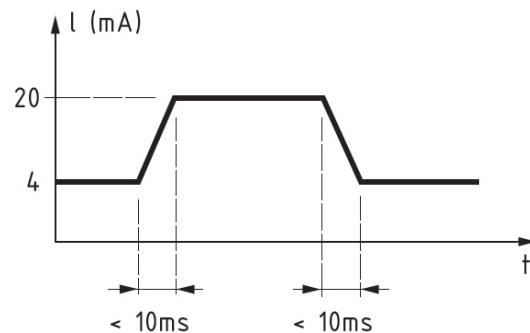
The change between the 2 current states ON to OFF and OFF to ON should last no more than 10 ms.

Refer to the diagram below.

Electrical Diagram



Loop compatible signal 4mA / 20mA



How to order?

The solenoid valve is composed by two elements, the mechanical part that is the valve and the electrical part which means the solenoid including the fixing elements and nameplate. Both elements together (assembly) are ATEX certified.

Therefore please specify: Valve type + solenoid type with voltage code.

Example: 121K0397 / 495910N7



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