LUCIFER®

Explosion-proof solenoid
II 1 G / II 1 D
EEx ia IIC T6

Catalogue 8736/GB

ATEX

Système de Management Certifié SQS ISO 9001/14001
Reg. No. 10440

Parker

Explosion-proof solenoids with Intrinsically Safe protection "ia" 4 mA/ 20mA Loop compatible

According to ATEX directive 94/9/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 made entirely 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 valves 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 4mA/20mA makes the product suitable for IS-Field bus - IS-Remote I/O applications. For suitable IS-barriers, please consult us.

495910 –300 mW (Compatible with all Lucifer solenoid valves ending ...97, see table 1)

Reference			**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			IP67	
Ambient temperature			- 40 °C to +65 °C The application is limited also by the temperature range of the valve	
Electrical connection			Electric connection is done in the connection box on an easily accessible connector terminals. The introduction of the cable (Ø min 7 mm, Ømax. 9 mm, section max. 2.5 mm²) in the connection box passes by the built in M20x1.5 cable gland	
Maximum supply voltage			28 VDC – 110 mA	28 VDC – 280 mA
Power	**DC**	**Minimum**	0.3 W (with 13 VDC)	0.3 W (with 13 VDC)
		Maximum	1.2 W (with 24 VDC)	2.58 W (with 24 VDC)
	Depending on applied voltage, IS barrier type and resistance of connected cable			
Line check			4 mA or 5 VDC max	
Coil resistance at 20°C **Impedance** **Apparent inductance** **Apparent capacitance**			195 Ω 500 Ω (with 15 VDC) 0 mH 0 μF	
Response time			1 – 2 s	
Solenoid duty			Continuous duty solenoid (ED 100%)	

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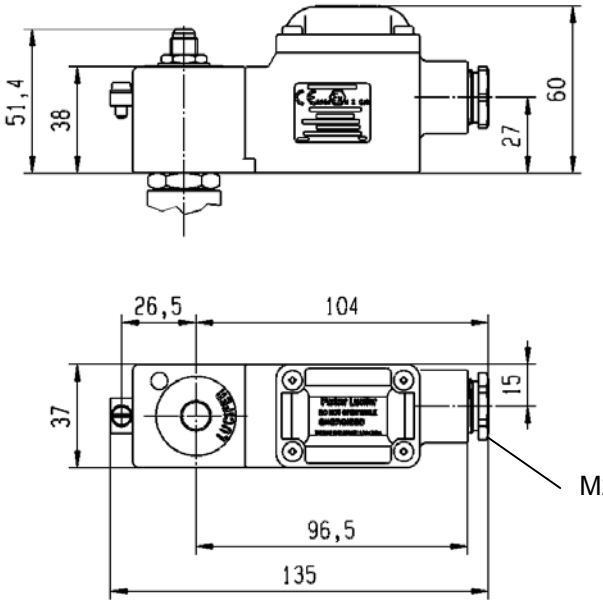
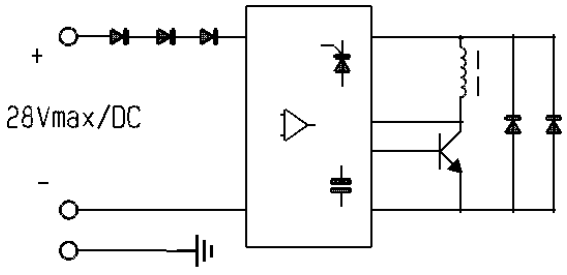
List of compatible valves with solenoid type 495910 (table 1)

Port Size	Orifice Size	Qn	Kv	Operating Pressure Bar		Fluid temperature °C		Valve reference No.	Electrical part reference No.	Ambiante temperature °C Valve only	
G	mm	NL/min	L/min	Min.	Max.	Min.	Max.			Min.	Max.
2 way normally closed – Direct operated.											
1/4"	3	250	3,5	0	4,5	-25	+75	**121K0397**	**495910**	-20	+65
1/4"	1,5	80	1,5	0	10	-25	+75	**121K0497**	**495910**	-20	+65
1/4"	3	220	3,5	0	4,5	-25	+75	**121V5397**	**495910**	-20	+65
1/4"	1,5	80	1,5	0	10	-25	+75	**121V5497**	**495910**	-20	+65
3 way normally closed – Direct operated.											
1/4"	2,5	180	3	0	2	-25	+75	**131K0397**	**495910**	-20	+65
1/4"	1,5	80	1,5	0	7	-25	+75	**131K0497**	**495910**	-20	+65
1/4"	2,5	180	3	0	2	-25	+75	**131V5397**	**495910**	-20	+65
1/4"	1,5	80	1,5	0	7	-25	+75	**131V5497**	**495910**	-20	+65
SB	2,5	180	3	0	2	-25	+75	**131F4397**	**495910**	-20	+65
SB	1,5	80	1,5	0	7	-25	+75	**131F4497**	**495910**	-20	+65
1/4"	1,5	80	1,5	0	3	-25	+75	**133K0497**	**495910**	-20	+65
4 way - pilot operated											
1/8"	6	800	-	1	10	-10	+75	**341L0197**	**495910**	-20	+65
1/4" - 1/8"	4	355	-	1	10	-10	+75	**341L9597 ***	**495910**	-20	+65
1/4" - 1/8	4	600	-	2	10	-25	+75	**341N3197 ***	**495910**	-20	+65
1/4"	8	1400	-	2	10	-25	+75	**341N3297 ***	**495910**	-20	+65
1/8"	4	600	-	2	10	-25	+75	**341P2197**	**495910**	-20	+65
1/4"	8	1400	-	2	10	-25	+75	**341P2297**	**495910**	-20	+65
1/8"	4	400	-	2	10	-25	+75	**347P2197**	**495910**	-20	+65

* NAMUR interface

Dimensions/ Electrical diagram





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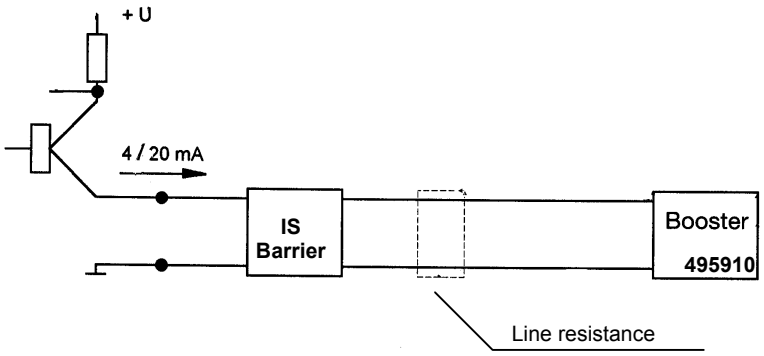
Loop compatible 4 / 20 mA

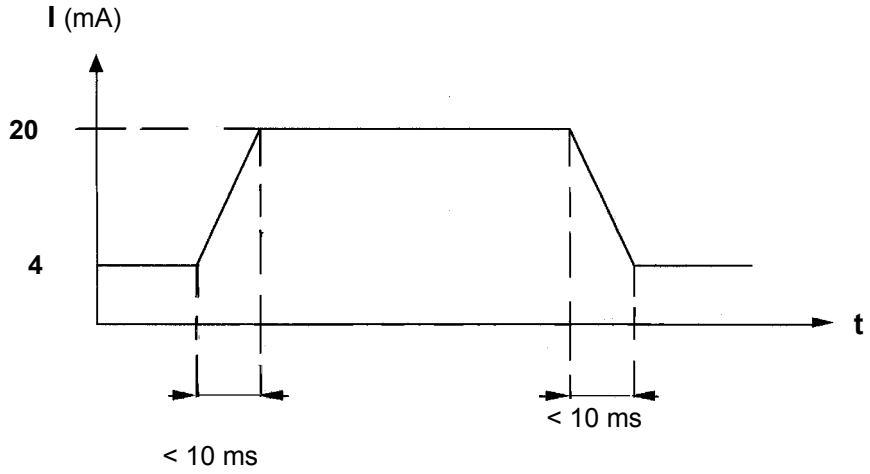
The loop compatible configuration allows to control the continuity of the line feed when the solenoid is in OFF state.



The OFF state is garanteed from a current of 0 mA up to 5 mA. The ON state of the solenoid valve is garanteed when the current is > 18 mA for vibation and shock not exceeding 10 g axially and 20 g radial.
The change detween the 2 current states ON to OFF and OFF to ON should last no more than 10 ms.

Refer to the diagram below.

Loop compatible 4 / 20 mA signal



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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