

**LUCIFER®**

# **Explosion-proof Solenoids**

**II 2 G / II 2 D**

**EEx dm IIC T4, T5, T6**

*Catalogue 8735/GB*



**ATEX**



### Explosionproof solenoids with flameproof enclosure/encapsulation "dm"

According to ATEX directive 94/9/EC and Standards EN 50014, EN 50018, EN 50028 and EN 50281-1-1

#### Application:

Control of solenoid valves intended for installations in hazardous areas in which explosive gas- vapour- or dust atmospheres are present, i. e. zones 1, 21 or zones 2, 22 (ATEX: Group II, apparatus categories 2G/D or 3G/D). The enclosure of these explosion proofs solenoids "dm" is made entirely in 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 also extremely corrosive environment, e. g. Chemical, Petrochemical and Refineries industries (CPR). Due to the compact size and easy cable connection by screw terminals, these solenoids may be mounted in confined spaces.

#### Features:

The coil winding (copper wires of insulation Class H) and magnetic iron path are encapsulated in synthetic material Class H and meet "m" protection. The connection box and cover of selected high quality synthetic material (Class H) in order to meet the standard EN 50018 for type of protection

"d" flameproof enclosure. **The cable gland assembly M20x1.5 makes part of the "d" certificated enclosure.** The solenoids are provided with an embedded non-resetting thermal fuse to prevent excessive heating, i.e. assuring the maximum allowed surface temperatures T4/T5. A varistor for peak voltages suppression is potted-in, in Epoxy resin Class H. Additional safety assures a built in replaceable fuse easily accessible in the connection box. (see table 2: fuses/varistors). Low power version available.

#### Benefits:

Thanks to the innovative design of Parker Lucifer engineers, it has been possible to create a full plastic flameproof enclosure "d" with a very high safety level. The volume in the connection box (ignition volume) could be reduced to less than 10 cm<sup>3</sup> only. In case of a spark, an explosion is much less probable and if it takes place, the explosion will generate a very low pressure only. The flame will extinguish immediately. Nevertheless, the design of the flameway / safe gap (between enclosure/cover) meets to an ignition volume of 100 cm<sup>3</sup>. Therefore, the housing would resist even against the pressure generated by an internal explosion of an explosive mixture of 100 cm<sup>3</sup>; this gives an extra safety.

**495900 Low power 2W-2.5W** (compatible with all Lucifer valves ending ... 97 , see table 1)  
**495905 Standard 8W** (suitable with all Lucifer valves compatible with coil 481865 -9W)

Reference		495900 VDC	495900 VAC	495905	
Approval		<b>LCIE 02 ATEX 6451 X</b>			
Type of protection	Gas	II 2 G - EEx dm IIC T5 / T6	II 2 G - EEx dm IIC T4 / T5 / T6	II 2 G - EEx dm IIC T4	
	Dust	II 2 D - +95 °C / +80°C	II 2 D - +130 / +95 / +80°C	II 2 D - +130 °C	
Degree of protection		IP67			
Ambiant temperature		-40 to +65°C / +55°C	-40 to +65 / +55 / +40°C	-40 to +65 °C	
		The application is limited also by the temperature range of the valve			
Insulation Class		H ( 180 ° )			
Electrical connection		Electric connection is done in the connection box on an easily accessible connector terminals. The introduction of the cable ( <b>Ø min 7 mm, Ømax. 9 mm, section max. 2.5 mm<sup>2</sup></b> ) in the connection box passes by the built in M20x1.5 cable gland			
Elec. Power	DC	Pn (hot)	2 W	-	8 W
		P (cold) 20°C	2.5 W	-	9 W
	AC	Pn (holding)	-	2.5 W	8 W
		Attraction cold	-	3W	9 W
Nominal voltage		6 to 110 VDC	12 to 240 VAC	6 to 110 VDC 12 to 240 VAC	
Voltage tolerance		± 10 % of the nominal voltage			
Solenoid duty		Continuous duty solenoid (ED 100%)			

**List of compatible valves with solenoid type 495900 (table 1)**

Port size G	Orifice size mm	Qn NL/min	Kv L/min	Operating pressure Bar		Fluid temperature °C		Body material	Valve reference no.	Electrical part reference no.	Ambiant temperature °C Valve only	
				Min.	Max.	Min.	Max.				Min.	Max.

**2-way normally closed – Direct operated**

1/4"	1,5	80	1,5	0	10	-25	+75	Brass	<b>121K0497</b>	<b>495900</b>	-20	+65
1/4"	3	250	3,5	0	4,5	-25	+75	Brass	<b>121K0397</b>	<b>495900</b>	-20	+65
1/4"	1,5	80	1,5	0	10	-25	+75	St. steel	<b>121V5497</b>	<b>495900</b>	-20	+65
1/4"	3	220	3,5	0	4,5	-25	+75	St. steel	<b>121V5397</b>	<b>495900</b>	-20	+65

**3-way normally closed – Direct operated**

1/4"	1,5	80	1,5	0	7	-25	+75	Brass	<b>131K0497</b>	<b>495900</b>	-20	+65
1/4"	2,5	180	3	0	2	-25	+75	Brass	<b>131K0397</b>	<b>495900</b>	-20	+65
SB	1,5	80	1,5	0	7	-25	+75	Brass	<b>131F4497</b>	<b>495900</b>	-20	+65
SB	2,5	180	3	0	2	-25	+75	Brass	<b>131F4397</b>	<b>495900</b>	-20	+65
1/4"	1,5	80	1,5	0	7	-25	+75	St. steel	<b>131V5497</b>	<b>495900</b>	-20	+65
1/4"	2,5	180	3	0	2	-25	+75	St. steel	<b>131V5397</b>	<b>495900</b>	-20	+65

**3-way universal – Direct operated**

1/4"	1,5	80	1,5	0	3	-25	+75	Brass	<b>133K0497</b>	<b>495900</b>	-20	+65
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**4-way – Pilot operated**

1/8"	4	600	-	2	10	-25	+75	Aluminum	<b>341P2197</b>	<b>495900</b>	-25	+65
1/8"	4	400	-	2	10	-25	+75	Aluminum	<b>347P2197</b>	<b>495900</b>	-25	+65
CETOP 1/8"	6	800	-	1	10	-10	+75	Delrin®	<b>341L0197</b>	<b>495900</b>	-20	+65
1/4"	8	1400	-	2	10	-25	+75	Aluminum	<b>341P2297</b>	<b>495900</b>	-25	+65
1/4" - 1/8"	4	355	-	1	10	-10	+75	Aluminum	<b>341L9597 *</b>	<b>495900</b>	-10	+65
1/4" - 1/8"	4	600	-	2	10	-25	+75	Aluminum	<b>341N3197 *</b>	<b>495900</b>	-25	+65
1/4"	8	1400	-	2	10	-25	+75	Aluminum	<b>341N3297 *</b>	<b>495900</b>	-25	+65

\* NAMUR interface

**Parameters of replaceables fuses and built-in varistors (table 2)**

Electrical Part	Nominal Current in [mA]	Fuse according to IEC 60127-3/4 EN 60127-3/4		Shut-off Voltage [V]	Electrical Part	Nominal Current in [mA]	Fuse according to IEC 60127-3/4 EN 60127-3/4		Shut-off Voltage [V]
		Current [mA]	Example Schurter Type MST 250				Current [mA]	Example Schurter Type MST 250	
495900A2 (24/50)	190	800	0034.6714	35	495905A2 (24/50)	550	2000	0034.6718	35
495900A4 (48/50)	95	400	0034.6711	95	495905A4 (48/50)	275	1600	0034.6717	95
495900E5 (115/50)	40	250	0034.6709	385	495905E5 (115/50)	115	400	0034.6711	385
495900F4 (230/50)	20	100	0034.6705	385	495905F4 (230/50)	57	250	0034.6709	385
495900K8 (110/60)	40	250	0034.6709	385	495905K8 (110/60)	136	630	0034.6713	385
495900B8 (240/60)	19	100	0034.6705	385	495905B8 (240/60)	65	250	0034.6709	385
495900C1 (12VDC)	200	800	0034.6714	35					
495900C2 (24VDC)	100	400	0034.6711	35	495905C2 (24VDC)	360	1600	0034.6717	35
495900C4 (48VDC)	49	250	0034.6709	95	495905C4 (48VDC)	180	800	0034.6714	95
495900C5 (110VDC)	21	100	0034.6705	385	495905C5 (110VDC)	75	400	0034.6711	385

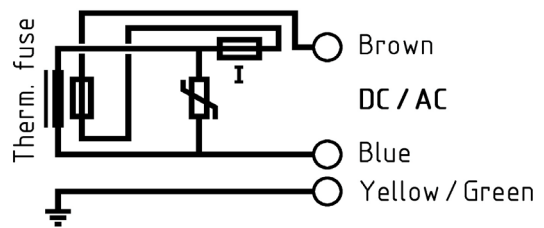
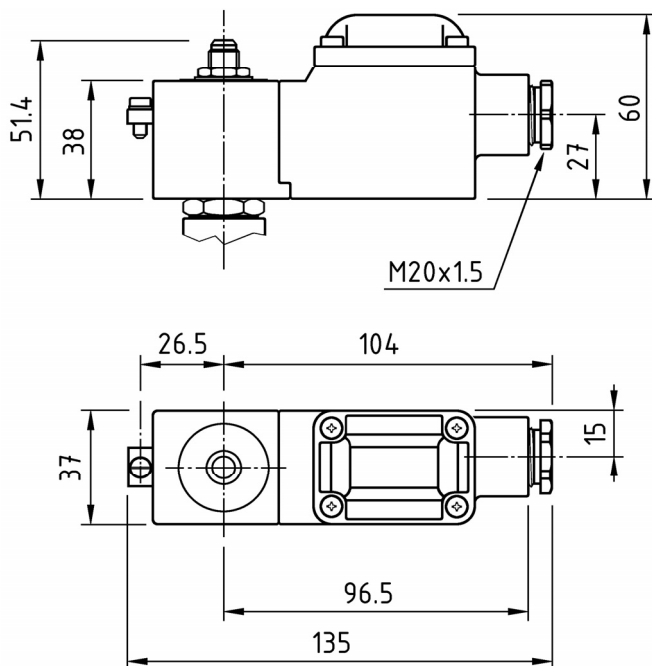
### How to order?

The solenoid valve is composed of 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 / 495900C2

### Dimensions / Electrical diagram



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