

***Safety note SN/481GD.... rev.0***

***Electromagnets type 481GD....***

***⊕ Ex II 2 GD***

***Ex mb IIC T3 Gb***

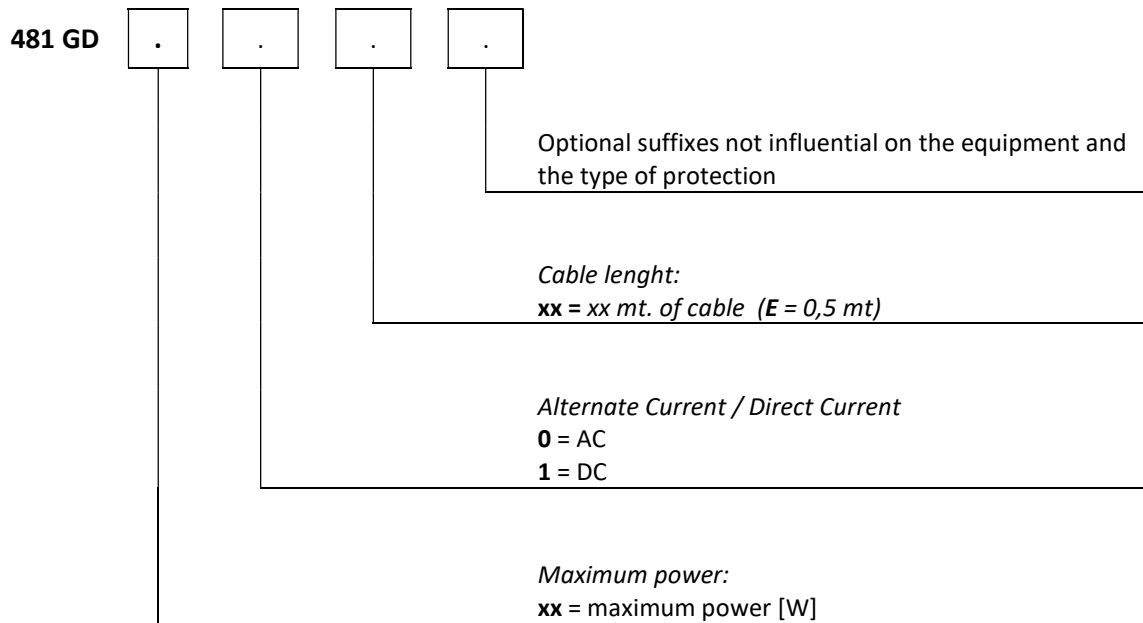
***Ex mb IIIC T200°C Db***

## 1. GENERAL DESCRIPTION

The electromagnets type 481GD.... are devices suitable to be installed in zone 1 and zone 21 with type of protection Ex mb IIC / Ex mb IIIC, in accordance with:

- IEC 60079-0:2017 Equipment - General requirements
- IEC 60079-18:2014+A1:2017 Equipment protection by encapsulation "m"
  
- EN IEC 60079-0:2018 Equipment - General requirements
- EN 60079-18:2015+A1:2017 Equipment protection by encapsulation "m"

### Model identification:



## 2. TECHNICAL CHARACTERISTICS

Rated voltage : 12 ÷ 240 V<sub>DC</sub>  
24 ÷ 240 V<sub>AC</sub> - 50/60 Hz

Maximum power : 28 W

The temperature class and the maximum surface temperature depends on the solenoid power:

<i>Temperature class</i>	<i>Maximum surface temperature</i>	<i>Rated Voltage</i>	<i>Max. Power</i>
T3	T200°C	See above	28 VA / W


Ambient temperature : from -20°C to +60°C

Cable : 3x0,75mm<sup>2</sup> suitable for at least temperature = 105°C minimum length 0,5 m

## 3. MARKING

ATAM S.p.A  
Type : 481GD....

ATEX Directive:

CE 0722  II 2 GD

UKCA marking:

**UK  
CA** 2503

Type of protection

**Ex mb IIC T3 Gb**

**Ex mb IIIC T200°C Db**

*Each model is provided by specific marking depending the voltage.*

ATEX Directive

**0722** = Notified Body identification number for quality production survey (CESI)

**II** = group II

**2 GD** = category 2 GD, equipment suitable for zone 1 (gas) and zone 21 (dust)

Type of protection

**Ex mb IIC** = type of protections for gas group IIC

**T3** = temperature class for gas

**Gb** = EPL (Gas)

**Ex mb IIIC** = type of protection for dust group IIIC

**T200°C** = maximum surface temperature for dust

**Db** = EPL (Dust)

**Relation between hazardous areas, categories and EPL**

<i>Hazardous area</i>		<i>Categories</i>	<i>EPL</i>
Gas, vapour or fog	Zone 0	1G	Ga
Gas, vapour or fog	Zone 1	2G or 1G	Gb or Ga
Gas, vapour or fog	Zone 2	3G, 2G or 1G	Gc, Gb or Ga
Dust	Zone 20	1D	Da
Dust	Zone 21	2D or 1D	Db or Da
Dust	Zone 22	3D, 2D or 1D	Dc, Db or Da

**4. SAFETY INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS AREAS**

The electromagnets type 481GD.... shall be installed and maintained according to the applicable standards regarding electrical installations in hazardous area (for example: IEC/EN 60079-14 and IEC/EN 60079-17 or other national standards).

***Before installing, carefully read the instruction manual.***

This apparatus must be installed and put into operation in accordance with the provisions and regulations. Shall not be liable for damage caused by non-observance of the instructions and inappropriate use.

Bodies of electromagnets type 481GD.... are provided by an external ground connection terminal located onto the front nut. Such a terminal must be connected to the earth line of system with a suitable cable 4 mm<sup>2</sup> and proper connector.

An additional ground wire, connected internally to the body of solenoids, is incorporated to the cable of solenoids. It is a green-yellow cable with section of 0,75 mm<sup>2</sup>.

It is forbidden any technical modification.

Any repair activity of the ex-proof solenoids isn't admitted. In case of damage any ex-proof solenoid must be replaced with a new one of the same type.

**SPECIFIC CONDITIONS OF USE**

- "The electromagnet type 481GD shall be installed in such a way to have the plunger assembly vertically oriented. The equipment is designed to withstand impact energy up to 4J on its top area once mounted. During installation, it is necessary to ensure that the device is properly protected against any lateral and bottom impacts.
- The user must connect the free end of the cable in a non-explosive atmosphere or in an enclosure protected by a recognised type of protection suitable for the intended use. The cable has a primary insulation and outer sheath maximum operating temperature not lower than 105 °C; this parameter shall be taken into account during the electrical connection of the permanent cable."

- The equipment must be powered by supply line whose maximum current value is limited by the use of a time-delay fuse compliant with the standard IEC EN 60127 having the following parameters:

Equipment supply voltage	Time-delay fuse parameters		
	Max interrupting current $I_n$	Minimum voltage rating $V_n$	Breaking capacity
12 V d.c.	2.8 A	12 V	1500 A
24 V d.c. / V r.m.s.	1.6 A	24 V	
48 V d.c. / V r.m.s.	800 mA	48 V	
From 100 V d.c. / V r.m.s. to 115 V d.c. / V r.m.s.	500 mA	120 V	
120 V d.c. / V r.m.s.	300 mA	120 V	
From 220 V d.c. / V r.m.s. to 240 V d.c. / V r.m.s.	200 mA	240 V	

- In order to guarantee the limiting temperatures, it is always necessary to use this equipment together with a plunger assembly coupled with a metal valve body not smaller than the electromagnet part of this certificate. In addition, it is necessary to ensure that the surface of the metal valve body approaches the bottom metallic shield of the electromagnet with a gap not more than 2 mm in order to promote the heat dissipation of the electromagnet through the body of the valve.
- The thermal influences of the process in which the electromagnet is to be interfaced through the plunger assembly should be taken into account; it should be ensured that no part of the process plant with which the electromagnet is in contact can exceed the ambient temperature range  $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ .