



[1] **EU-TYPE EXAMINATION CERTIFICATE**

[2] **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU – Annex III**

[3] Certificate Number: **EPT 24 ATEX 5591 X issue 0**

[4] Equipment: **Electromagnets for valve actuator**
Type 481GD

[5] Manufacturer: **ATAM S.p.A.**

[6] Address: **Via Archimede, 7 - 20864 Agrate Brianza (MB)**

[7] This equipment and its accepted variations are specified in the annex to this Certificate.

[8] Eurofins Product Testing Italy S.r.l., Notified Body n. 0477 in accordance with Article 21 of the Directive 2014/34/EU of the European Parliament and of the Council of 26th February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II of the Directive. The examination and test results are recorded in the confidential Report N° EPT.24.REL.03/2313039


[9] Compliance with the essential health and safety requirements is assured through the verification of them and by compliance with the following harmonized standards:

EN IEC 60079-0:2018, EN 60079-18:2015+A1:2017

[10] If the sign "X" is placed after the Certificate number, it indicates that the equipment is subject to the special conditions for safe use specified in the annex to this Certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, the exam and the tests of the specified equipment.

Further requirements of the Directive 2014/34/EU apply to the manufacture and supply of this equipment. These requirements are not object of this Certificate.

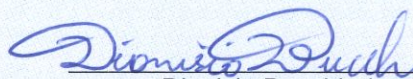
[12] The equipment shall include the sign  and the following strings:

II 2 GD
Ex mb IIC T3 Gb
Ex mb IIIC T200°C Db

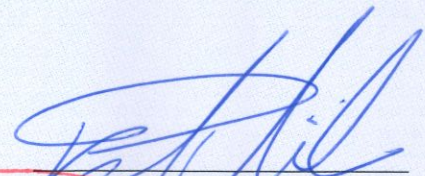
-20°C ≤ Ta ≤ +60°C

Place and date of issue:
 (DD-MM-YYYY)

Torino, 30-09-2024



Dionisio Bucchieri
 Directive Responsible



Paolo Trisoglio
 Managing Director



PRD N° 119B
 Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

This Certificate has 6 pages and it is reproducible only in its entirety. Conditions of validity are reported below.



[13]

ANNEX

[14]

**EU-TYPE EXAMINATION CERTIFICATE
N. EPT 24 ATEX 5591 X issue 0**
[15] Equipment description

The equipment, type 481GD consists of electrical coils intended for driving pneumatic/hydraulic valves (which are not part of this certificate).

It is intended to be supplied by mains or other supply line with a rated voltage not exceeding 240 V. The electrical winding of the solenoid consists of a copper wire wound on an insulating plastic body and subsequently overmolded with the same material. A metal ferrule is attached to the main body of the coil; this houses a non-resettable thermal link complying with the requirements of EN 60691 and a double half-wave current rectifier (the latter only for AC supply versions) mounted on a PCB to which a 3-pole cable (having maximum operating temperature not less than 105 °C) is permanently connected before final encapsulation with epoxy casting compound.

The magnetic flux is closed by means of a carbon steel shield and washers that surround the outer perimeter of the moulded winding. The solenoid has a coaxial bore capable of accommodating a plunger with an outer diameter \varnothing 22 mm; this part, as well as the pneumatic/hydraulic valve and any other magnetically operated parts by the 481GD solenoid, are outside the scope of this certificate being parts selected by the user for the final intended application.

The ambient temperature of the area where the device is to be used shall be included in the range $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$.

Code designation:

Each product is identified with its marking by a model code as explained by the coding scheme reported below:

Type code: 481GD ①②③④

① = Rated power [W]

② = Alternate current / Direct current

0 = AC

1 = DC

③ = Cable length [m]

④ = Optional suffixes not influential on the equipment and the type of protection



PRD N° 119B
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

Dionisio Bucchieri
Directive Responsible



Page 2 of 6
30-09-2024

[13]

[14]



ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 24 ATEX 5591 X issue 0

Temperature limitation and electrical rating:

The temperature limits are closely related to the winding design parameters and the tripping temperature of the embedded thermal protection; each winding is sized on the basis of the supply voltage thus defining the following characteristic constructive limit parameters:

Electrical ratings of D.C. version electromagnets type 481GD □ 1 □ □					
Supply Voltage [Un] (V d.c.)	Maximum thermal link trigger temperature [Tf] (°C)	Coil electrical parameters limits at Ta = Tcoil = 20 °C			Temperature Class / Maximum surface temperature
		Maximum peak (initial) dissipated power by the coil [P] (W)	Maximum current Density (A/mm ²)	Frequency [f] (Hz)	
12 <i>Note¹</i>	128	28 <i>Note¹</i>	11.88	0 Hz	T3 / T200°C
24					
48					
100					
110					
115					
120					
220					
230					
240					

Note¹: The electromagnets having supply voltage 12 V d.c. are limited in minimum temperature or maximum peak power as reported below:

Case 1: Ta_min = 0 °C & Maximum peak dissipated power = 28 W

Case 2: Ta_min = -20 °C & Maximum peak dissipated power = 26 W

Electrical ratings of A.C. version electromagnets type 481GD □ 0 □ □					
Supply Voltage [Un] (V r.m.s.)	Maximum thermal link trigger temperature [Tf] (°C)	Coil electrical parameters limits at Ta = Tcoil = 20 °C			Temperature Class / Maximum surface temperature
		Maximum peak (initial) dissipated power by the coil [P] (VA)	Maximum current Density (A/mm ²)	Frequency [f] (Hz)	
24	128	28	11.88	50 Hz / 60 Hz	T3 / T200°C
48					
100					
110					
115					
120					
220					
230					
240					

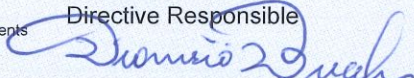
Note: the coil electrical parameters indicated in the above tables represent the worst case limit (e.g. electromagnet having coil designed to dissipate less power are admitted).



PRD N° 119B
 Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

Dionisio Bucchieri
 Directive Responsible



Page 3 of 6
 30-09-2024



[13]
[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 24 ATEX 5591 X issue 0

Warning label

None

Routine tests

- According to Clause 9.1 of EN 60079-18:2015+A1:2017 each equipment shall be submitted to the visual inspection on the relevant parts from which the “Ex mb” type of protection depends on (obtained both for molding, overmolding and pouring processes). No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.
- According to Clause 9.2 of EN 60079-18:2015+A1:2017 each equipment shall be submitted to the dielectric strength test. The test shall be conducted as detailed below:

<i>Potentials/parts involved in the test</i>	<i>Test conditions</i>			
Power supply wiring ⇔ Encapsulation / overmolded coil surface + earth connection	<i>AC method & test duration ≥ 1 s</i>	<i>DC Method & test duration ≥ 1 s</i>	<i>AC method & test duration ≥ 100 ms</i>	<i>DC Method & test duration ≥ 100 ms</i>
	<i>Test Voltage applicable to equipment having rated voltage U ≤ 90 V</i>			
	500 V r. m. s. ^{+5%} _{0%}	700 V d. c. ^{+5%} _{0%}	600 V r. m. s. ^{+5%} _{0%}	840 V d. c. ^{+5%} _{0%}
	<i>Test Voltage applicable to equipment having rated voltage 90 V < U ≤ 240 V</i>			
	1500 V r. m. s. ^{+5%} _{0%}	2100 V d. c. ^{+5%} _{0%}	1800 V r. m. s. ^{+5%} _{0%}	2520 V d. c. ^{+5%} _{0%}

The test voltage shall be increased steadily within a period of not less than 10 s until it reaches the prescribed value, and it shall then be maintained for the duration mentioned in the table above.

The test shall be deemed to have passed if no breakdown or arcing occurs as defined by Clause 8.2.4.2 of the standard EN 60079-18:2015+A1:2017.

[16] **Assessment Report n° EPT.24.REL.03/2313039**

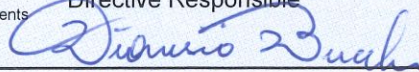
This EU-Type Examination Certificate is released after the positive result of the conformity assessment of the Council Directive 2014/34/EU and to harmonized technical standards listed in this certificate performed by the Notified Body Eurofins Product Testing Italy S.r.l., and reported in the Assessment Report above cited.



PRD N° 119B
Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

Dionisio Bucchieri
Directive Responsible



Page 4 of 6
30-09-2024



[13]

[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 24 ATEX 5591 X issue 0

[17] Special condition for a safe use

- 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 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	

- The device is intended to be installed in areas with low risk of impact and the installation method is limited as prescribed by the safety manual.
- 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 $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$.

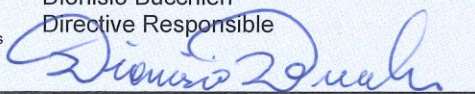
[18] Essential Health and Safety Requirements

Assured by compliance with harmonized standards.


 PRD N° 119B
 Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

 Dionisio Bucchieri
 Directive Responsible



 Page 5 of 6
 30-09-2024



[13]

[14]

ANNEX
EU-TYPE EXAMINATION CERTIFICATE
N. EPT 24 ATEX 5591 X issue 0

[19] Descriptive documents

The equipment object of this Certificate are described by the following documents that are scheduled documents and therefore they cannot be modified without the explicit authorization of the Notified Body.

Type of document	Document identification	Rev.	Date
Technical note	TN/481GD	3	10-09-2024
Drawing – 481 GD assembly	481GD_	2	26-03-2024
Drawing – Laser marking detail	481 marcatura	0	27-04-2023
Drawing – Coil former	472110XXX	0	30-09-2020
Drawing – Overmolded winding	481090	0	05-09-2019
Drawing – PCB	481_pcb	1	20-11-2023
Drawing – PCB Assembly	481645XXX	0	30-09-2020
Drawing – Ferrule	4817300XX	0	30-09-2020
Drawing – Metallic shield	4723100XX	0	30-09-2020
Drawing – Metallic washer	4723200XX	0	30-09-2020
Drawing – Reinforcement plate	481090	0	08-02-2024
Procedure – Overmolding and encapsulation process and inspection	ISQ 481GD	0	05-09-2024
Safety, use and maintenance instructions	Safety note SN/481GD	1	-

[20] Terms and conditions

The product liability rests with the Manufacturer, his representative or, in the absence of a representative, with the importer, in accordance with the General Product Safety Directive 2001/95/EC.

The following conditions may render this certificate invalid:

- changes in the design or construction of the product;
- changes or amendments to the Directive;
- changes or amendments in the standards which form the basis for documenting compliance with the essential requirements of the 2014/34/EU Directive.

[21] History

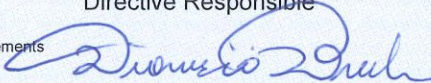
Issue	Description	Date
0	First Emission.	30-09-2024



PRD N° 119B
 Signatory of EA, IAF and ILAC Mutual Recognition Agreements

CP-ATEX-MOD-26-00

Dionisio Bucchieri
 Directive Responsible



Page 6 of 6
 30-09-2024

End of Certificate