SAFETY INSTRUCTION

COILS Ex TYPE 204008212###, CATEGORY 3 GD

16/11/2021 edition

1. FOREWORD

These safety instructions refer to installation, use & maintenance of encapsulated coils Ex type 204008212### for operation of solenoid valves to be used in areas with potentially explosive atmospheres.
The coils type 204008212### are Group II equipment, category 3 GD to be used in classified area with presence of gas, vapour, flammable mist and combustible dust, with type of protection **Ex ec IIC T5, T4 Gc / Ex tc IIIC T91°C, T115°C Dc**. These coils are developed and produced according to the ATEX 2014/34/EU directive, UK SI 2016 N.1107 Regulation and relevant applicable standards : EN IEC 60079-0, EN IEC 60079-7 and EN 60079-31.

2. INSTALLATION

2.1 Suitability of installation ambient

For the utilization in potentially explosive areas it is necessary to verify that solenoids are suitable to area classification , substances and temperature range present in the installation area.
Criteria for classification of areas with risk of explosion are mentioned into EN 60079-10-1 standard (gas) and EN 60079-10-2 standard (dust).
Technical requirements of electric installation in hazardous location are provided by the EN 60079-14 standard.
Following to these technical and legal prescription, following items to take into account :

- Type of industries : Group II - surface plant
- Classification of area : zone 2 / 22 (to which the equipment characteristics are related; category 3 G / 3 D)
- Characteristics of flammable media that are present in the area as gas / dust
  - Substances group: IIC (gas) , IIIC (dust)
  - Temperature class and maximum surface temperature: T5 , T4 / T91°C÷T115°C
  - EPL: Gc (gas) / Dc (dust)

Data which are mentioned on the label, besides the rated operation data, include the necessary information for a correct installation and start-up

Caution: Use an electromagnetic operator suitable for use in AC voltage when the solenoid is powered by alternating current.

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2.2 Limits for utilization

Solenoids type 204008212###, for operation of solenoid valves, can be used with the following ambient temperature :

- from – 20°C to + 50°C. (24VDC 4,8 W ; 24VDC 5,3 W ; 24VAC 7,5VA - 110VAC 7,5VA - 220VAC 7,5VA)
- from – 20°C to + 40°C. (230VAC 7,5VA)

Protection degree is IP 65 according to EN 60529 standard, by using appropriate gaskets and connector; the connector used shall be suitable to the zoning (ATEX / UKCA marked for zone 2 / 22),substance and temperature with a minimum protection degree IP65

Nominal data for solenoids type 204008212###

- Max. electric power : VDC: 5,3 W – VAC: 7,5VA
- Voltage…… : 24VDC – 24 ; 220 ; 230 [VAC]

2.3 Data quoted on the label that refer to safety

CE	CE marking in compliance to the directive 2014/34/EU and to all the applicable European directives
UK CA	UK/CA marking in compliance with the UK Regulationto UK SI 2016 No.1107 and to all the applicable UK directives
Ex	Marking in compliance to ATEX directive 2014/34/EU and to applicable technical standards
II 3 GD	Coil group II for surface installation, Category 3, with presence of combustible gas and dust, suitable for Zone 2 (gas) and Zone 22 (dust)
Ex ec	Type of protection "nc" (non-sparking devices at increased safety**,**) for gas
IIC	Gas group IIC (equipment suitable for all types of gas)
T5, T4	Temperature classes for gas
Gc	Equipment for gas, vapor or mist, with normal level of protection (EPL Gc)
Ex tc	Type of protection "tc" (dust tight equipment) for combustible dust
IIIC	Group of dust IIIC (equipment suitable for all types of combustible dust)
T91°C, **T115°C**	Maximum surface temperature for combustible dusts
Dc	Equipment for combustible dust with normal level of protection (EPL Dc)

Note: Ex coils rated class T5 are suitable as well for class of temperatures from T1 to T4.

2.4 Connections to control and supply apparatus

Connections to control and supply apparatus are performed by fast on, directly fixed onto the coil. The users have to connect on the coil the suitable connector complies to ATEX / UKCA requirements, not supplied from ATAM SPA. **It is prohibited to disconnect the coil when energized.**

2.5 Ground connection

Coils type 394002210### are provided with an earth fast on connection terminal located onto the body in conformity to prescriptions of EN IEC 60079-0 and EN IEC 60079-7 standards. Such a terminal must be connected to the earth line of the system.

3. CONTROLS AND MAINTENANCE

All operations of controls and maintenance regarding Ex solenoids must be performed according to EN 60079-17 standard.
In particular specific care must be paid to :

- Surfaces of coil cannot be machined nor altered in the dimensions originally stated.
- Substitution of parts that are subjected to wear (as for instance the OR seals) must be replaced by original spare parts.

4. REPAIRS

Any repair activity of the Ex coils is not permitted: in case of damage of any Ex coils, they shall be replace with a new one of the same type.

5. STOCKING

Stock the product for short periods in cold rooms, (-20°C / +60°C), dry, shaded and not exposed to corrosive agents.

6. SPECIAL CONDITION

The user have to clean regularly the external surface of the coil, with damp cloth or antistatic products, for avoid the store of dusty layer >5mm.

Safety note SN/257GD.... rev.2

Electromagnets type 257GD....

II 2 GD / I M2

Ex mb IIC T6, T5, T4 Gb

Ex mb IIIC T85°C, T100°C, T135°C Db

Ex mb I Mb

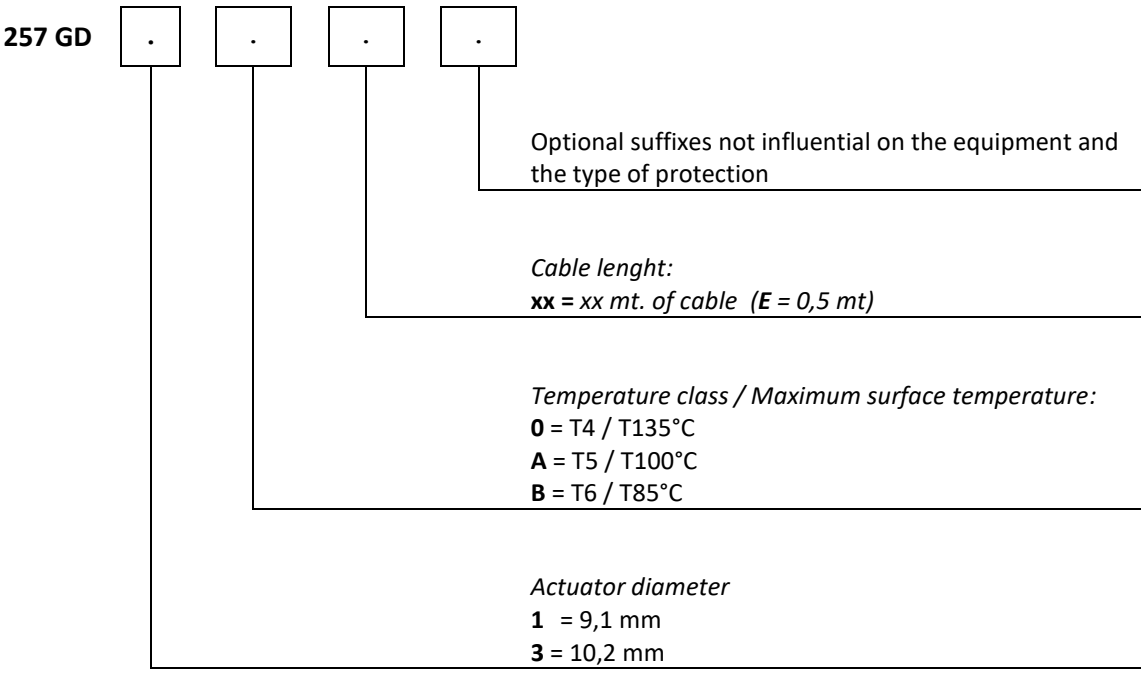
1. GENERAL DESCRIPTION

The electromagnets type 257GD.... are device suitable to be installed in zone 1 and zone 21 with type of protection Ex mb IIC / Ex mb IIIC and Ex mb I for mine, in accordance with:

- IEC 60079-0:2017 Equipment - General requirements
- IEC 60079-18:2014 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 : 24 V_{DC}
24 ÷ 230 V_{AC} - 50/60 Hz

Maximum power : 3,2 ÷ 5,3 W

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

Temperature class	*Maximum surface temperature*	*Rated Voltage*	*Max. Power*
T4	T135°C	24 V_{DC}	5,3W
T4	T135°C	24 ÷ 230 V_{AC}	5,3W
T5	T100°C	24 V_{DC}	4,8W
T5	T100°C	24 ÷ 230 V_{AC}	4,8W
T6	T85°C	24 V_{DC}	3,2W
T6	T85°C	24 ÷ 230 V_{AC}	3,2W

Ambient temperature : from -20°C to +40°C
Protection degree : IP66/IP67

Cable : 3x0,75mm^2 suitable for at least temperature = 105°C

3. MARKING

ATAM S.p.A
Type : 257GD….

ATEX Directive:
CE **0722** Ex **II 2 GD / I M2**
UKCA marking:
UK CA **2503**

Type of protection
Ex mb IIC T6, T5, T4 Gb
Ex mb IIIC T85°C, T100°C, T135°C Db
Ex mb I Mb

Each model is provided by specific marking depending the electromagnets power.

ATEX Directive

0722	=	Notified Body identification number for quality production survey (CESI)
II / I	=	group II and group I
2 GD	=	category 2 GD, equipment suitable for zone 1 (gas) and zone 21 (dust)
M2	=	category M2, equipment for mine, de-energized when explosive atmosphere present

Type of protection

Ex mb IIC	=	type of protections for gas group IIC
T6, T5, T4	=	temperature class for gas
Gb	=	EPL (Gas)

Ex mb IIIC	=	type of protection for dust group IIIC
T85°C, T100°C, T135°C	=	maximum surface temperature for dust
Db	=	EPL (Dust)
Ex mb I	=	type of protection for group I
Mb	=	EPL (Mine)

Relation between hazardous areas, categories and EPL

Hazardous area		***Categories***	***EPL***
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
Mine	-	M2	Mb or Ma

4. SAFETY INSTRUCTIONS FOR INSTALLATION IN HAZARDOUS AREAS

The electromagnets type 257GD.... 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 257GD.... are provided by an external ground connection terminal located onto the body. Such a terminal must be connected to the earth line of system with a suitable cable.
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^2.

It is forbidden any technical modification.

In zones with presence of combustible dusts it is necessary to periodically clean the surface of the lighting fixtures, limiting the depth of the layer to less than 5 mm.

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

Warning label:

WARNING, ELECTROSTATIC DISCHARGES :
DO NOT RUB, CLEAN ONLY WITH A DAMP CLOTH

PARTICULARS CONDITIONS FOR SAFE USE:

- The permanently connected unterminated supply cables must be mechanically protected against the risk of damage due to the mechanical stress.

- The connector blocks must be located out of hazardous area or be protected by a standardized mode of protection

- For an apparatus with interdependent cable, the user will have to connect the end of the cable either out of hazardous area or in an enclosure protected by a mode of protection recognized and adapted to the zone considered.

- For gassy mines using, the apparatus shall be installed in location with low risk of mechanical danger or protected by guards or protective covers suitable to withstand an impact of 20J.

- “A fuse corresponding to the rated current of the electromagnet (max. 3 x Irat according to IEC 60127) shall be connected in series to each solenoid as short-circuit protections. The rated voltage of the fuse shall be the same as or higher than the maximum value of the nominal voltage (Un + 10%) specified for the magnet. The breaking capacity of the fuse link shall be the same or higher than the maximum short-circuit current excepted to occur at the place of installation (usually 1500 A)”