



Dear/.....

Calderara di Reno, 27/01/2004

Re: report on authentication in conformity with ATEX 94/9/Cedei provision (STM-GSM products)

For a better understanding of the subject matter, a general preliminary should be introduced.

1- *What is ATEX?*

The ATEX directive, besides introducing the whole standards of the “New approach”, replaces the former directives (“Old approach”) on the matter and determines innovatory elements concerning the regulation of products operating in explosive atmosphere.

2- *When, where and to whom is it applied?*

ATEX is applied to electric and non-electric products designed to be introduced and to carry out their own purpose in a **potentially explosive atmosphere**, otherwise **in relation to that environmental condition**.

❖ Definition of **POTENTIALLY EXPLOSIVE ATMOSPHERE**

Atmosphere that could become explosive **in presence of environmental conditions** and/or of conditions related to the **operating fittings and fixtures taken into consideration**.

Mostly, explosion could originate from flammable substances such as gas, vapours, dispersed combustible powders (comburent oxygen) where a sparkle (of electric or mechanical origin) can be triggered as well as electric arc, absolute temperature, flame, irradiation, compression, etc.

ATEX is applied to the only products (purchased by the factory since 1/7/2003) issued for the first time on EU market or started for the first time in EU territory.

SECOND-HAND PRODUCTS: Products put on the market or in service before 1/7/2003 lacking in ATEX conformity checks. **The above products are not subdued**, even after changes in ownership or utilizer.

Care should nevertheless be taken over the following:

- Intervened **modifications**, or changes in use;
- Place of origin **out of EU territory** (ATEX is applied as to the new product).
- **MODIFIED PRODUCTS:** In presence of modifications such as reconditioning or reconfiguration, ATEX is not (re)applied if:
 - **The modification is not fundamental** (i.e., it concerns appearance or functional accessory aspects).
 - The product **is not issued on the market again**.
- **REPAIRED PRODUCTS:** **In absence of modifications**, ATEX is not (re)applied.
 - In case **spare parts different from the original but functionally unaltered** are employed, ATEX is not (re)applied (it is applied to the spare part if forming appliance, device, system or EX component).



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3- How is it applied?

Potentially explosive atmospheres are divided into **Groups** and **Parts** depending on their level of dangerousness. For each of them, particular devices or rules are expected (the determination of the part into which the reducer should be applied is due to the machine constructor, therefore customers **must** indicate the group, the category or the type of atmosphere according to EN 60079).

Product classification Devices are classified into two Groups and in Categories within the Groups

Table 1

GROUP	1 (I) (Underground work)		2 (II) (Generic explosive atmosphere)		
	M1	M2	1	2	3
CATEGORY (EN50014)					
ENVIRONMENTAL CHARACTERISTICS	Mines and above-ground equipments		Long-period or frequent explosive atmosphere	Possible explosive atmosphere	Explosive atmosphere in particular cases or for a short period
DANGEROUS MATERIAL	Firedamp, powders		Air/gas, vapours, smoke, air/powders		
PROTECTION LEVEL	Quite elevated	Elevated Out of tension in Ex atmosphere	Quite elevated	Elevated	Normal
EN60079-10 (Gas)			Z0	Z1	Z2
EN50281-1 (Powders)			Z20	Z21	Z22

= Parts included in ATEX authentication (STM products)

Once the **group** is identified (in the examined case only Group 2 products can be provided – Group 2 is normally marked as II), it must be known whether it is a matter of **gas (IIG) or dusty (IID) atmosphere**.

Group IIG devices (gas atmosphere) must be:

- mostly classified into a class of temperature indicated in table 1;
 - caused by the highest temperature of the actual surface;
 - or, if appropriate, limited to the specific gas or vapour for which they are provided;
- in the end, they must be expressly hallmarked.

Once Group II is described, a further division into possible explosive atmosphere (category 2) and explosive atmosphere in particular cases or for a short period (category 3) should be added. Four possible alternatives can be determined speaking about STM certified products:

- a) group 2, category 2, gas environment = II 2G = Z1
- b) group 2, category 2, dusty environment = II 2D = Z21
- c) group 2, category 3, gas environment = II 3G = Z2
- d) group 2, category 3, dusty environment = II 3G = Z22

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Once the group, part and type of atmosphere are determined, the highest surface temperature reachable by the loading reducer in real application conditions should be indicated.

Definition according to EN 13463-1:

highest surface temperature: *Higher temperature obtained during service in the hardest operative conditions (though within the established tolerance) from a part or from the surface of the device, of the protection system or of the component, which can produce the starting of the surrounding explosive atmosphere.*

^{Note 1} The highest surface temperature of the devices includes the safety margin up to the lowest starting temperature of potentially explosive atmosphere as required in EN 1127-1:1997.

^{Note 2} The relationship between the highest surface temperature of the devices and the lowest starting temperature of the layers and clouds of dust is indicated in EN 1127-1.

^{Note 3} The highest surface temperature is determined without layers of dust on the devices.

In case of **potentially explosive atmosphere in presence of gas (II 2G, Z1, Z2)**, reference is made to classes of temperature (schedule 1) or to the highest surface temperature determined by the same provisions according to the type of gas.

In case of **potentially explosive atmosphere in presence of dust (II 2D, Z21, Z22)**, the highest surface temperature (° C) of the type of dust should be indicated in conformity with the provisions.

^{schedule 1} **Classification of the highest surface temperatures for Group IIG devices**

Table 2

Class of temperature	Highest surface temperature (° C)
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

= Classes of temperature in ATEX certification (STM products)

^{Note 4} **NB: in case of T5 Class of temperature the extreme down-graded thermic power should be checked (ref. internal provisions: NORM 0198)**



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Designation examples.

- **Example of group II devices, category 2, for group IIB explosive gas with highest surface temperature belonging to T4 class**

II 2G c II B T4

NB: for some specific types of protection, group II devices assigned to be used in explosive gas atmospheres are classified according to the nature of the potentially explosive atmosphere to which they pertain. These devices are classified on the basis of explosion groups (divisions) IIA, IIB, IIG. These divisions, however, do not involve any variation for what concerning STM- GSM products, the above variation should therefore be tag-reported if demanded by the customer and should consequently be included in the order phase.

- **Example of group II devices, category 3, for explosive gas atmospheres, with highest surface temperature belonging to T4 class without any type of protection from starting**

II 3G T4

- **Example of group II devices, category 2, for dusty explosive atmospheres inclusive of protection from starting, structural security and highest surface temperature of 110 °C**

II 2D c 110 °C

- **Example of marking for gas and dusty atmospheres**

II 2GD c 230 °C

4- How is it applied?

In case of request of offer relating to any product in conformity with the provisions ATEX/94/9/CE, the enclosed **specifications paper** should be filled in.

Make a check test as described above.

Certified reducers will be delivered with:

- a second tag containing ATEX data;
- a valve breather with internal spring, where a valve breather is needed;
- if in accordance with classes of temperature T4 and T5, a temperature gauge will be included (132 °C in case of T4 and 99 °C in case of T5).
 - o Temperature gauge: single-reading thermometer, it blackens once temperature is reached, pointing out the achievement of that limit.
- Instruction and maintenance manual specific for ATEX can be downloaded directly from www.stmspa.com website.



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