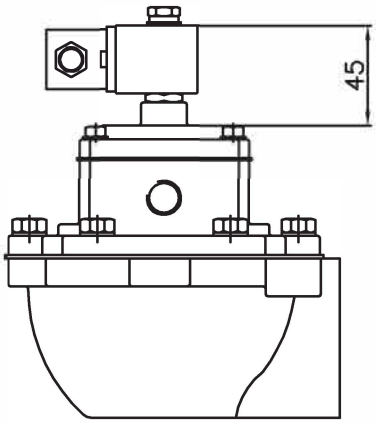
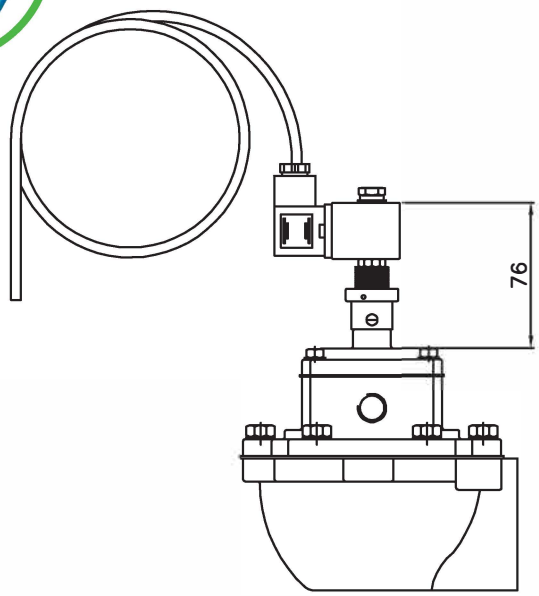
ATEX - Solenoid valves with Atex certification



Valve configuration
ATEX II 3 GD T5 T140°C (zone 2 and 22)

Compared to the standard versions, ATEX valves with EXII3GD and IP65 marking are equipped with specific coils and connections that make them suitable for use in zone 22, maintaining practically the same overall dimensions.

Unlike the previous version, ATEX valves with EXII2GD and IP65 marking are equipped with a coil with a fully built-in connection cable; moreover, they have a brass pilot unit suitable for use in zone 2A.



Valve configuration
ATEX II 2 GD Ex mb II T4
Ex mD 21 T135°C
Protection adopted EN 13463-5
construction safety "c"

THE 94-9-EC ATEX DIRECTIVE

The 94/9/EC directive establishes the constructive and operating features (mandatory since 01/07/2003) of equipment and protective Systems intended for use in potentially explosive atmospheres. This Directive covers all explosion risks of whatever nature (electrical or not). Among its main aspects, it:

- introduces essential safety requirements (Ann. II – ESR);
- applies to equipment used in underground mines (Group I) and surface installations (Group II);
- classifies equipment into categories, according to the level of protection required;
- monitors production based on corporate quality management systems.

The Atex directive was the first to consider the explosion risk due to non-electrical sources, such as mechanical sparks, vibrations, surface overheating of mechanical and electrical components due to non-electrical phenomena, such as vibrations, high rotation speeds, mechanical lock, and overloads. This directive also establishes that the place of installation, deposit, and operation of the machine must be assessed carefully to be classified according to any presence and/or formation of an explosive atmosphere.
It also provides ESRs and prevention warnings as the equipment itself can be a source of explosive atmosphere (Ann. II – sect. 1.0.1).

PURPOSE OF THE DIRECTIVE - The 94/9/EC ATEX directive was implemented by the European Union to liberalise the market of products intended to be used in potentially explosive atmospheres, whilst harmonising technical features and applicable standards. This directive aims at protecting people and property from hazards arising from the use of equipment and protection systems in a potentially explosive atmosphere.

EXPLOSIVE ATMOSPHERE - Mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts (temp. between -20°C and +40°C and pressure between 0.8 and 1.1 bar in compliance with EN60079 and EN13463-1) in which, after ignition has occurred, combustion spreads to the entire unburned mixture (see also 94/9/EC, Chap. I, Art.1)

POTENTIALLY EXPLOSIVE ATMOSPHERE - An atmosphere that can become explosive due to local and operational conditions.

AREAS EXPOSED TO EXPLOSION RISKS ACCORDING TO DIRECTIVE 1999/92/EC - Hazardous areas are divided into zones according to the frequency and duration of the presence of the explosive atmosphere.

Zone 0: A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is present continuously, or for long periods, or frequently.

Zone 1: A place in which a potentially explosive atmosphere consisting of a mixture with air of

dangerous substances in the form of gas, vapour or mist is likely to occur occasionally during ordinary activities.

Zone 2: A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur during normal activities, but, if it does, it will persist for a short period only.

Zone 20: A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.

Zone 21: A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur occasionally during ordinary activities.

Zone 22: A place in which an explosive atmosphere in the form or a cloud of combustible dust in air is not likely to occur during ordinary activities, but, if it does, it will persist for a short period only.

CORRESPONDENCE BETWEEN ZONES AND CATEGORIES

GROUP I (Underground, methane and/or combustible dust)		**GROUP II** (Surface, gas/air or mixture of dust/air/vapour)					
Category M		**Category 1**		**Category 2**		**Category 3**	
1	2	G	D	G	D	G	D
		Gas Zone 0	Dust Zone 20	Gas Zone 1	Dust Zone 21	Gas Zone 2	Dust Zone 22
Equipment ensuring a very high level of protection. Operation guaranteed in the event of possible errors	Equipment ensuring a high level of protection. Possible interruption in the presence of a potentially explosive atmosphere	For equipment ensuring a very high level of protection. In the event that potentially explosive atmospheres occur for long periods or frequently.		For equipment ensuring a high level of protection. In the event that potentially explosive atmospheres occur occasionally.		For equipment ensuring a normal level of protection. In the event that potentially explosive atmospheres occur only rarely and for a short period.	

In an industrial setting (e.g. ATEX product in Group II), users are responsible for carrying out a risk assessment and dividing the workplace into zones according to the potential presence of gas, vapour, and combustible dust (in clouds or layers) in the event of activities that may lead to explosion risks.
Directive 1999/92/EC is implemented in Italy by Legislative Decree 81/2008 Title XI.
The manufacturer provides all the details concerning the Groups and categories the products fall into, so that users can decide in which Zone the ATEX product can be used safely, although it will not be possible to foresee where and how they will actually operate.