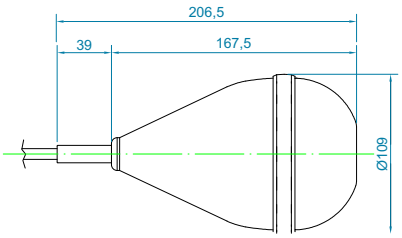
TAURUS-EX

II 1G Ex ia IIC T6
2010 Atex 2328

EN - Three watertight chambers level regulator with freely suspended trim variation, for use in explosive environments. Suitable in explosive potential environments. Suitable for level regulation in drainage plants, pumping stations and dirty water systems.

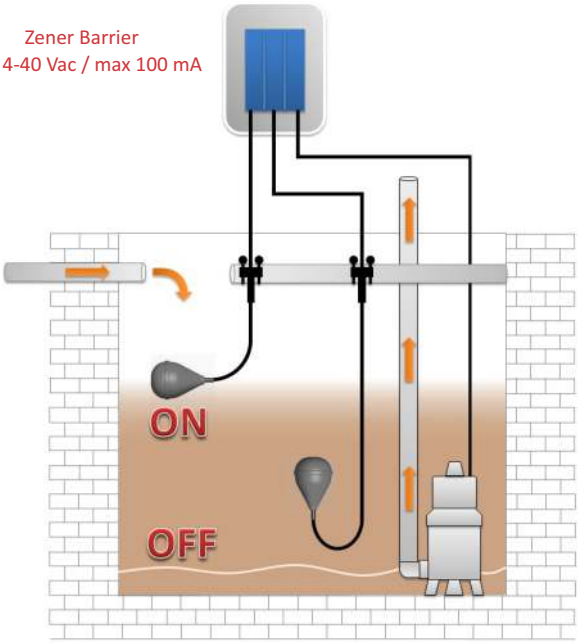
- shielded cable ÖLFLEX® PETRO 4G1 Ø 8,8mm (2 functions): suitable in slime and mud / oil / esters drilling, as well as with the solution of calcium bromide, lubricants based on mineral oil, diluted acids, aqueous alkaline solutions and other chemicals - onshore and offshore drilling - supply ships.
- Patented

EN - Thanks to the particular carbon black charge, the electrostatic charges that might arise in the installation are transferred outside through the ground wire of the float.



EN - Taurus-Ex has to be connected through an intrinsic safety power supply circuit provided of Intrinsic Safety Barrier.

Zener Barrier
max 4-40 Vac / max 100 mA



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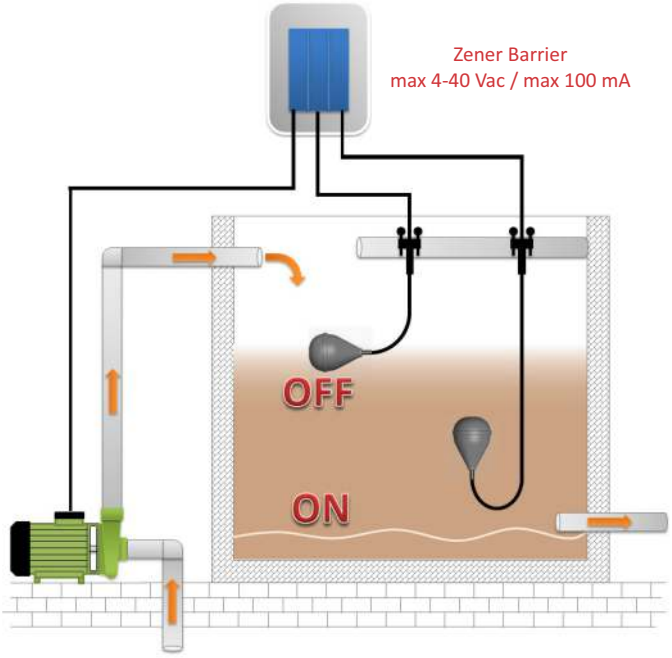
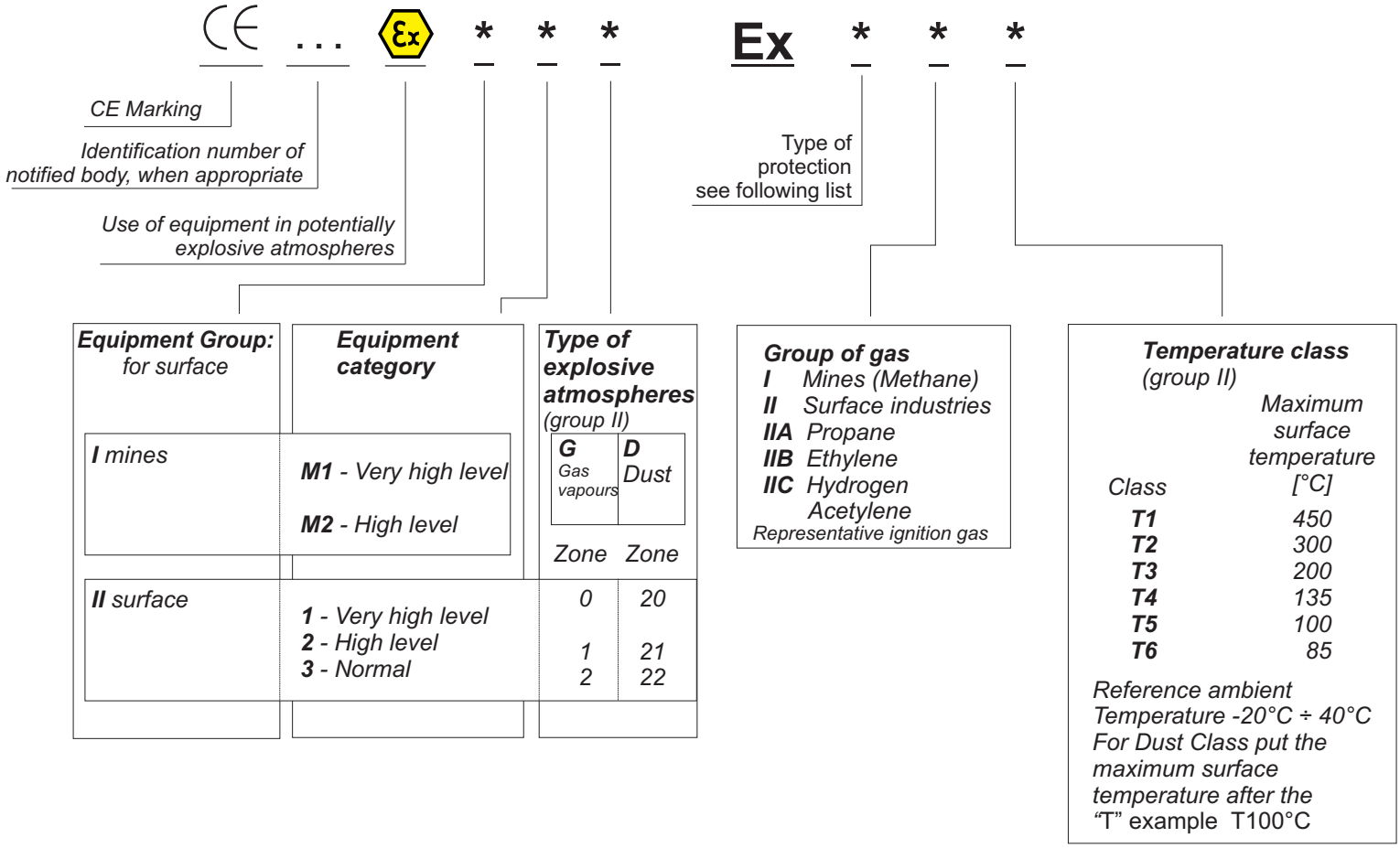


TECNOPLASTIC

ATEX *GUIDE*

European ATEX Directive 94/9/CE

Electrical and non-electrical equipment and protection systems



CATEGORY OF EQUIPMENT

Equipment of mines - Group I
Category M1
Level of protection: Very high level
2 types of protection or 2 indipendent faults
Category M2
Level of protection: High level
1 type of protection Normal operation

Equipment of surface - Group II
Category 1
Level of protection: Very high level
2 types of protection or 2 indipendent faults
Category 2
Level of protection: High level
Common frequent malfunction
Category 3
Level of protection: Normal
Required level of protection

STANDARDS AND TYPE OF PROTECTION

Electrical equipment for gas (G)

	Code	EN Rule	Category
General requirements		60079-0	
Oil immersion	o	60079-6	M2-2G
Pressurized apparatus	p	60079-2	M2-2G
Powder filling	q	60079-5	M2-2G
Flameproof enclosure	d	60079-1	M2-2G
Increased safety	e	60079-7	M2-2G
Intrinsic safety	ia	60079-11	M1-1G
Intrinsic safety	ib	60079-11	M2-2G
Encapsulation	m	60079-18	M2-2G
Protection type "n"	n	60079-15	3G
Category 1G		60079-26	1G
Category M		50303	M1

Electrical equipment for dust (D)

Protection by enclosures	Ex tD	EN 61241-1	1D
Protection by pressure	Ex pD	EN 61241-4	2D
Protection by intrinsic safety	Ex iD	EN 61241-11	1D
Protection by encapsulation	Ex mD	EN 61241-18	1D

TECNOPLASTIC

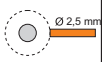
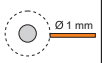
INFLAMMABLE GASES AND VAPOURS CLASSIFICATION

group of container	I	IIA	IIB	IIC
gas o vapore *gas or vapour*	*Methane (firedam p)*	*Ammonia* *Industrial methane* *Blas-furnace gas* *Carbon monoxide* *Propane* *Butane* *Pentane* *Esane* *Eptane* *Iso-octane* *Decane* *Benzene* *Xilene* *Cyclohexane* *Acetone* *Ethyl-methyl-ketone* *Methyl acetate* *Ethyl acetate* *Normal propyl acetate* *Normal butyl acetate* *Amyl acetate* *Cloroethylene* *Methanol* *Ethanol* *Iso Butanol* *Normal Butanol* *Amyl alcohol* *Ethyl nitrite*	*Buta 1:3-diene* *Ethylene* *Diethyl ether* *Ethylene oxide* *Town gas* *Coke-oven gas*	Acetilene *Hydrogen* *Acetylene*

INDEX OF PROTECTION

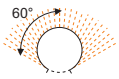
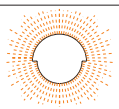
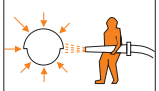
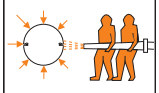
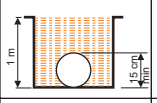
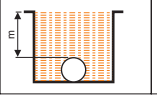
1 Cifra-*1 st figure*:

protection against solid bodies

IP	tests	
0		*No protection*
1		*Protected against solid bodies larger than 50 mm (eg. : accidental contact with the hand)*
2		*Protected against solid bodies larger than 12,5 mm (eg. : accidental contact with the hand)*
3		*Protected against solid bodies larger than 2,5 mm (tools, wires)*
4		*Protected against solid bodies larger than 1 mm (fine tools, small wires)*
5		*Protected against dust (no harmful deposit)*
6		*Completely protected against dust*

2 Cifra *2 st figure:*

protection against liquids

IP	tests	
0		*No protection*
1		*Protected against vertically-falling drops of water (condensation)*
2		*Protected against drops of water falling at up to 15° from the vertical*
3		*Protected against drops of rainwater at up to 60° from the vertical*
4		*Protected against projections of water from all directions*
5		*Protected against jets of water from all directions*
6		*Completely protected against jets of water or similar force to heavy seas*
7		*Protected against the effects of immersion*
8		*Protected against effects of prolonged immersion under specified conditions*

CENELEC-IEC AND NEC COMPARISON

International electrotechnical Commission (www.iec.ch)

The IEC (International Electrotechnical Commission), created in 1904 in Geneva (Switzerland) establish the IEC regulations. In 1947, with the creation of the International Standards Organisation (ISO) by the United Nations, the IEC became responsible for the organisation of the electrical division, while still remaining independant.
The IEC has defined three categories of hazardous zones:
- Zone 0 : the explosive atmosphere is continuously present.
- Zone 1 : the explosive atmosphere is often present.
- Zone 2 :the explosive atmosphere may accidentally be present.

Gas and vapour classification

Gases are divided into four groups by the CEC and the NEC (with some additional gases). The IEC also defines different groups of gases and vapours. The IEC and North American groups are viewed as fundamentally the same, apart from the fact that there are three groups in the IEC and four for the NEC. (See table as follows)

Temperature classification

IEC defined a temperature classification for materials used in hazardous areas. Following this, CEC and NEC have also been modified to include a temperature classification. (See table as follows)

GAS AND VAPOUR CLASSIFICATION

Group		Group or vapour
IEC	NEC (North America)	
II C	A	Acetylene
II C	B	Hydrogen
II B	C	Ethylene
II B	C	Ethyl9 ether
II B	C	Cyclopropane
II B	C	Butadene 1-3
II A	D	Propane
II A	D	Ethane
II A	D	Butane
II A	D	Benzène
II A	D	Pentane
II A	D	Heptane
II A	D	Acetone
II A	D	Methyl Ethyl
II A	D	Methyl Alcohol
II A	D	Ethyl Alcohol

TEMPERATURE CLASSIFICATION

Temperatures IN °C	Classification	
	IEC	NEC (North America)
450	T1	T1
300	T2	T2
280	T2	T2A
260	T2	T2B
230	T2	T2C
215	T2	T2D
200	T3	T3
180	T3	T3A
165	T3	T3B
160	T3	T3C
135	T4	T4
120	T4	T4A
100	T5	T5
85	T6	T6

Group 1 - underground workin mine
Group 2 - surface industry

TECNOPLASTIC

CENELEC-IEC / NEC COMPARISON

Inflammable Material	CENELEC/IEC				NEC		
	Protection	Zone	Group	Subdivision	Class	Division	Group
Gases and vapours							
Acetylene	d - e	1,2	II	C	I	1 - 2	A
Hydrogen	d - e	1,2	II	C	I	1 - 2	B
Propylene Oxide Ethyl oxide Butadiene	d - e	1,2	II	B	I	1 - 2	B
Cyclopropane Ethyl ether Ethylene	d - e	1,2	II	B	I	1 - 2	C
Acetone Benzene Butane Propane Hexane Paint Solvents Natural Gas	d - e	1,2	II	A	I	1 - 2	D
	Protection	Zone					
Combustible dusts Magnesium Aluminium or metallic dusts with $R \leq 10^5$ Ohms x cm	D/DIP	21-22			II	1	E
Coal	D/DIP	21-22			II	1	F
Floor Non metallic dusts with $R > 10^5$ Ohms x cm	D/DIP	21-22			II	2	G
Fibers and flying Rayon Cotton Linen Wood Hemp Flax bast Tow Coconut fiber Oakum					III	1-2(1)	

(1) Division 1: Manufacturing location
Division 2: Storage location