Explosion Protection

System 8
System 13

...perfectly switched!

Nass Controls LP Nass Magnet GmbH Precision Controls Kft.

System 8 ATEX

Solenoid Coil – Mounting Width 22 mm and 30 mm . . . . EEx m
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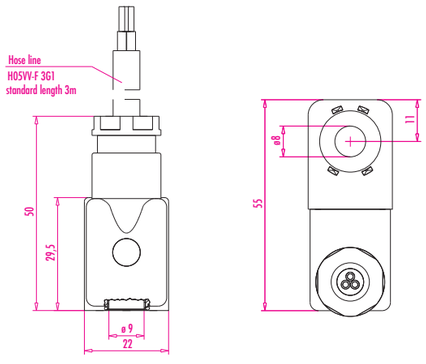
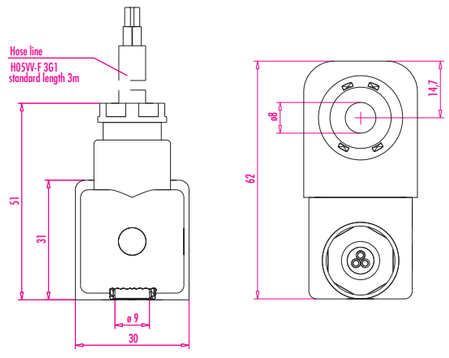
Solenoid Coil System 8 ATEX

Mounting Widths 22 mm and 30 mm
Ex II 2G EEx m II T_ / IEC Ex m II T_
Ex II 2D IP65 T_ °C / IP65 DIP A21 T_°C
Protection by encapsulation
Connection type: Sheathed flexible cable
H05ZV2V-F 3G1





EC-Type-Examination Certificate

Mounting Width 22mm: PTB 00 ATEX 2001X
IECEx PTB 05.0006X

Mounting Width 30mm: PTB 03 ATEX 2018X
IECEx PTB 04.0002X

General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +50°C
rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	F
Protection type	IP 65
Moulding Material	Thermoplastic
Cable length	3 m

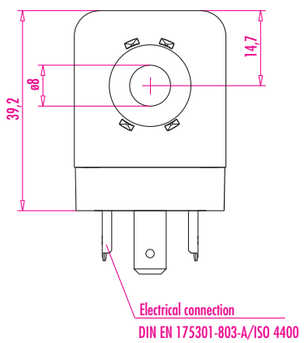
Technical Data / Standard Version

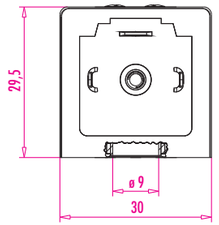
Drawing No..	Ref. No.	Mounting Width	Voltage [V]	Frequency [Hz]	Output [VA/ W]	Power level	Temperature Class
1213 50.1-00/6851	250 7786	22mm	24 DC	-	2.8	1	T5
1213 00.1-00/6858	250 6945		24 DC	-	5.0	3	T4
0513 00.1-00/6835	250 7923		110 AC	50/ 60	3.8		
0513 00.1-00/6836	250 6942		230 AC	50/ 60	5.1		
1215 60.1-00/6898	250 8598	30mm	24 DC	-	2.6		T6
0515 60.1-00/6926	250 8845		110 AC	50/ 60	2.4		
0515 60.1-00/6929	250 8595		230 AC	50/ 60	2.1		
1215 30.1-00/6896	250 8596		24 DC	-	3.3	4	T5
0515 30.1-00/6897	250 8664		110 AC	50/ 60	3.0		
0515 30.1-00/6961	250 8594		230 AC	50/ 60	3.1		
1215 00.1-00/6894	250 8493		24 DC	-	5.2	5	T4
0515 00.1-00/6895	250 9718		110 AC	50/ 60	4.7		
0515 00.1-00/6949	250 8492		230 AC	50/ 60	5.3		

Additional approvals of national notified bodies institutes: On request

Solenoid Coil System 8 ATEX

Mounting Width 30 mm
EEx 2G EEx ia II C T_ / IEC Ex ia IIC T_
Intrinsic Safety
Connection type: DIN EN 175301-803-A/ ISO 4400





EC-Type-Examination Certificate

PTB 02 ATEX 2154

General Data

rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	F
Protection type incl. connector according to EN 60529	IP 65
Moulding Material	Thermosel resin

Technical Data / Standard Version

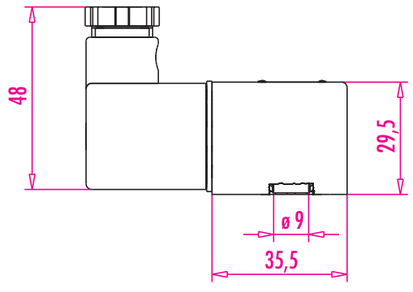
Drawing No..	Ref. No.	1) Barrier		2) Solenoid Coil			Power level
		Electr. Characteristics	Admissible Limits	>37mA Final Over-temperature. 18K 275 Ohm +/- 8%	Ambient Temperature	Temperature Class	
1259 50.1-00/5146	250 8577	21,6... 28V DC	32V DC 195 mA 1.6 W		-40° ...+85° C	T4	1
1259 30.1-00/5146	250 8576				-40° ...+50° C	T6	

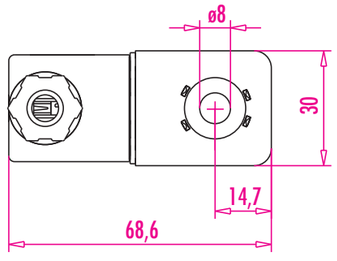
Additional approvals of national notified bodies institutes: CSA (Canada) FM (USA)

Solenoid Coil System 8 ATEX

incl. Connector

Mounting Width 30 mm
Ex II 3G EEx nA II T5 / Ex II 3D IP65 T95 °C
Connection type: Connector according to
DIN EN 175301-803-A and ISO 4400





General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +50°C
rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	F
Protection type incl. connector according to EN 60529	IP 65
Moulding Material	Thermoplastic

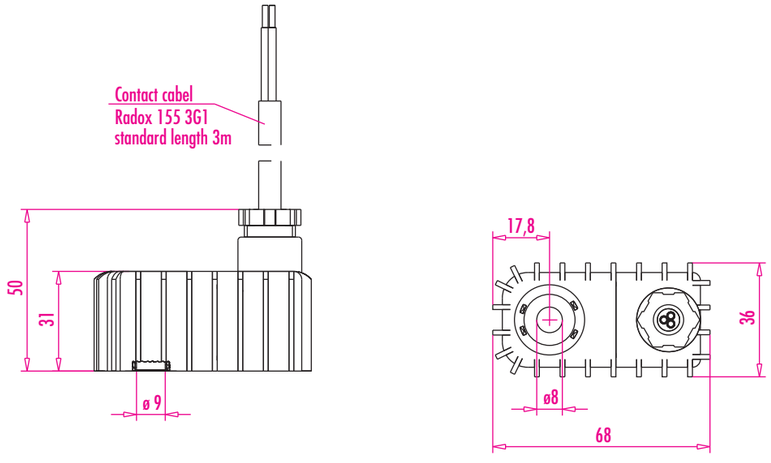
Technical Data / Standard Version

Drawing No..	Ref. No.	Voltage [V]	Frequency [Hz]	Output [VA/ W]	Power level	$\Delta\vartheta_{32}$ [K]
0558 50.1-00/5146	250 9603	24 DC	-	2.1		32
0558 50.1-00/5140	250 9605	110 AC	50	4.0		46
0558 50.1-00/5140	250 9605		60	3.1	3	46
0558 50.1-00/6395	250 9604	230 AC	50	4.0		47
0558 50.1-00/6395	250 9604		60	3.1		47
0558 50.1-00/5147	250 9694	24 DC	-	2.7	4	38

$\Delta\vartheta_{32}$ = *Steady-state over-temperature according to VDE 0580*

Solenoid Coil System 8 ATEX

Mounting Width 36 mm
Ex II 2G EEx ma II T_ / IEC Ex m II T_
Ex 2D EEx ma II IP T_ / IP 65 DIP A21 Ta_
Connection type: Sheathed flexible cable,
cold-flexible RADOX 355 3G1



EC-Type-Examination Certificate

PTB 05 ATEX 2015X
IECEx PTB 05.0009X

General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-50°C ... +50°C/ 60°C*
rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	F
Protection type	IP 65, IP 67
Moulding Material	Thermoplastic
Cable length	3 m

** An ambient temperature of 60° C is only admissible in temperature class T4 and in case of AC applications.*

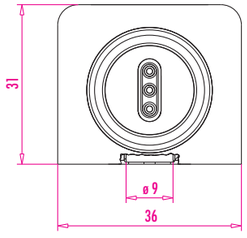
Technical Data / Standard Version

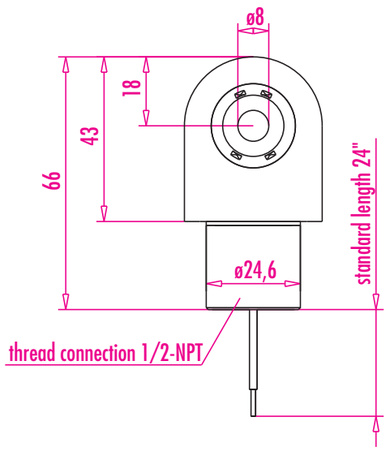
Drawing No..	Ref. No.	Voltage [V]	Output [VA/ W]	Power level	Frequency [Hz]	Temperature Class
1216 60.1-00/6898	250 9602	24 DC	2.6	3	-	T6
0516 60.1-00/6926	251 0266	110 AC	2.4		50/ 60	
0516 60.1-00/6929	250 9599	230 AC	2.7			
1216 30.1-00/6896	250 9601	24 DC	3.3	4	-	T5
0516 30.1-00/6897	251 0270	110 AC	3.0		50/ 60	
0516 30.1-00/6961	250 9598	230 AC	3.1			
1216 00.1-00/6894	250 9600	24 DC	5.2	5	-	T4
0516 00.1-00/6895	251 0271	110 AC	4.7		50/ 60	
0516 00.1-00/6949	250 9597	230 AC	5.3			

Additional approvals of national notified bodies institutes: On request

Solenoid Coil System 8 ATEX

Special Version: System 8 Ex CSA/ FM
Mounting Width 36 mm
Ex m II T4 + Division 1
Connection type: Thread 1/2 - NPT





EC-Type-Examination Certificate

CSA 202633
FM 3006713

Hazardous Locations

Ex m II T4 und division 1 · Class I, Group A, B, C und D · Class II, Group E, F und G · Class III
Approved in compliance with CAN/ CSA-E79-0-95 and CAN/ CSA-E79-18-95 for CSA, according to ANSI/ ISA-S12.00.01-1999 and ANSI/ ISA-S12.23.01-1998 for FM.

General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +60°C
rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	H
Protection type incl. compatible adapter	IP 65
Moulding Material	Thermoplastic
Wire length	24 Inch / 0,6 m

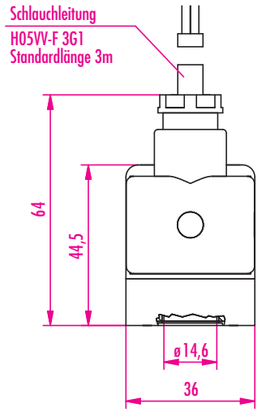
Technical Data / Special Version

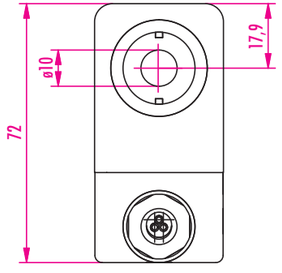
Drawing No..	Ref. No.	Voltage [V]	Output [VA/ W]	Power level	Frequency [Hz]	Thread Connection Steel*	Thread Connection Special Stainless Steel
0568 00.1-00/6873	250 7706	12 DC	4.5			X	
0568 05.1-00/6873	250 8866	12 DC	4.5				X
0568 00.1-00/6726	250 7707	24 DC	4.6		-	X	
0568 05.1-00/6726	250 8867	24 DC	4.6				X
0568 00.1-00/6734	250 9580	120DC	5.5			X	
0568 00.1-00/6727	250 8097	110 AC	7.5	5	50	X	
0568 00.1-00/6874	250 7708	120 AC	6.8		60	X	
0568 05.1-00/6874	250 8868	120 AC	6.8		60		X
0568 00.1-00/6731	250 8098	220 AC	7.7		50	X	
0568 05.1-00/6733	250 9091	230 AC	7.5		50		X
0568 00.1-00/6875	250 7709	240 AC	6.7		60	X	

*Steel zinc-chromated

Solenoid Coil System 13 ATEX

Mounting Width 36 mm
Ex II 2G EEx m II T_ / IEC Ex m II T_
Ex II 2D IP65 T_ °C / IP65 DIP A21 T_°C
Protection by encapsulation
Connection type:
Sheathed flexible cable H052V2V-F 3G1





EC-Type-Examination Certificate

PTB 03 ATEX 2086X
IECEx PTB 05.0005X

General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +50°C
rel. duty cycle	100%
Thermal class of insulating material according to DIN VDE 0580	F
Protection type	IP 65
Moulding Material	Thermoplastic
Cable length	3 m

Technical Data / Standard Version

Drawing No..	Ref. No.	Voltage [V]	Output [VA/ W]	Power level	Frequency [Hz]	Temperature Class
1218 60.1-00/6974	250 8643	24 DC	5.2	1	-	T6
0518 60.1-00/6997	251 0237	110 AC	4.2		50/ 60	
0518 60.1-00/6972	250 8641	230 AC	4.3			
1218 30.1-00/6974	250 8467	24 DC	5.2	2	-	T5
0518 30.1-00/6997	251 0238	110 AC	4.2		50/ 60	
0518 30.1-00/6972	250 8463	230 AC	4.3			
1218 00.1-00/6973	250 8465	24 DC	10.1	3	-	T4
0518 00.1-00/6990	250 8878	110 AC	9.1		50/ 60	
0518 00.1-00/6971	250 8460	230 AC	8.5			

Additional approvals of national notified bodies institutes: On request

Solenoid Coils System 8 ATEX
Solenoid Coils System 13 ATEX

Special Remarks
Hazardous Locations

Mounting Width 22 mm und 30 mm
Ex II 2G EEx m II T_ / IEC Ex m II T_
Ex II 2D IP65 T_ °C / IP65 DIP A21 T_°C
Encapsulation
Connection type:
Sheathed flexible cable H052V2V-F 3G1

Mounting Width 36 mm
Ex II 2G EEx ma II T_ / IEC Ex m II T_
Ex 2D EEx ma II IP T_ / IP 65 DIP A21 Ta_
Connection type: Sheathed flexible cable,
cold-flexible RADOX 355 3G1

Mounting Width 30 mm
EEx 2G EEx ia II C T_ / IEC Ex ia IIC T_
Intrinsic Safety
Connection type:
DIN EN 175301-803-A/ ISO 4400

Special Version: System 8 Ex CSA/ FM
Mounting Width 36 mm
Ex m II T4 + Division 1
Connection type: Wire, thread 1/2 - NPT

Mounting Width 30 mm
Ex II 3G EEx nA II T5 / Ex II 3D IP65 T95 °C
Connection type: Connector
DIN EN 175301-803-A / ISO 4400

Mounting Width 36 mm
Ex II 2G EEx m II T_ / IEC Ex m II T_
Ex II 2D IP65 T_ °C / IP65 DIP A21 T_°C
Encapsulation
Connection type:
Sheathed flexible cable H052V2V-F 3G1

System 8 ATEX , EEx m / EEx ma

The mentioned performance data and steady-state over-temperatures are valid for the indicated standard voltages. Other voltages are available on request. Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature, max. ambient temperature and max. voltage tolerance. The steady-state over-temperature is reached in case of valve bodies of plastic and coil encapsulation made of Thermoplastic. Manifolded mounting on request. These solenoid coils have been approved according to EN 50028 or DIN VDE 0170/0171, Part 9 respectively and IEC 600 79-18 by the Federal Physico-Technical Institute (PTB) in compliance with Directive 94/9/EC (ATEX 100a). Explosion protection is only realized by using the pertinent components described in the present catalogue - max. service pressure for armature assembly / valve system 12 bar in standard. For more detailed technical descriptions please refer to DIN VDE 0580.

System 8 ATEX , EEx ia

The mentioned performance data and steady-state over-temperatures are valid for the indicated standard voltages. Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature, max. ambient temperature and max. voltage tolerance. The steady-state over-temperature is reached in case of valve bodies of plastic and coil encapsulation made of Thermoplastic. The solenoid coil is appropriate for single and manifolded mounting.

These solenoid coils have been approved according to EN 50020 or DIN VDE 0170/0171, Part 5 respectively by the Federal Physico-Technical Institute (PTB) in compliance with Directive 94/9/EC (ATEX 100a). Explosion protection is only realized by using the pertinent components described in the present catalogue - max. service pressure for armature assembly / valve system 12 bar in standard. For more detailed technical descriptions please refer to DIN VDE 0580.

System 8 ATEX , EEx n

The mentioned performance data and steady-state over-temperatures are valid for the indicated standard voltages. Other voltages are available on request. Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature, max. ambient temperature and max. voltage tolerance. The steady-state over-temperature is reached in case of valve bodies of plastic and coil encapsulation made of Thermoplastic. Manifolded mounting on request. These solenoid coils have been approved according to EN 50028 or DIN VDE 0170/0171, Part 9 respectively and IEC 600 79-18 by the Federal Physico-Technical Institute (PTB) in compliance with Directive 94/9/EC (ATEX 100a). Explosion protection is only realized by using the pertinent components described in the present catalogue - max. service pressure for armature assembly / valve system 12 bar in standard. For more detailed technical descriptions please refer to DIN VDE 0580.

System 13 ATEX, EEx m

The mentioned performance data are valid for the indicated standard voltages. Other voltages are available on request. Perfect function of these solenoid coils with the pertinent components included in this catalogue is assured with the winding having reached its operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached in case of valve bodies of plastic and coil encapsulation made of Thermoplastic.
These solenoid coils have been approved according to EN 50028 and IEC 600 79-18 by the Federal Physico-Technical Institute (PTB) in compliance with Directive 94/9/EC (ATEX 100a). Explosion protection is only realized by using the pertinent components described in the present catalogue - max. service pressure for armature assembly / valve system 12 bar in standard. Regarding initial operation and further operation the special conditions of the operating manual have to be kept to. For more detailed technical descriptions please refer to DIN VDE 0580.
Explosions Protection according to 94/9/EC (ATEX 95a, former 100a)

Explosion Protection according to 94/9/EG (ATEX 95a, former 100a)

Classification of Hazardous Locations

IEC – CENELEC - Europe		
permanent danger e.g. container interior	occasional danger e.g. gas tank, outlet aperture	danger in case of abnormal operating conditions e.g. container ambiance
zone 0 (gases) zone 20 (dusts)	zone 1 (gases) zone 21 (dusts)	zone 2 (gases) zone 22 (dusts)

Gases

Zone	Category	Safety Requirements
0	1 G required	2 independent safety measures
1	2 G required, 1 G possible	1 independent safety measure
2	3 G required, 1 G, 2 G possible	normal operation

Dusts

Zone	Category	Safety Requirements
20	1 D required	2 independent safety measures
21	2 D required, 1 D possible	1 independent safety measure
22	3 D required, 1 D, 2 D possible	normal operation

Explosion Requirement

Ignition Sources:	Ignition Substances:	Oxygen Sources:
· Hot surfaces · flames and hot gases · mechanically produced sparks · electrical equipment · equalising currents · static electricity · lightning flash	„Gases and dusts produced from inflammable liquids and solid material and being present in the proper inflammable concentration"	· Air (21 % oxygen) · pure oxygen · oxygen releasing compounds

Firing temperature ...

and classification of inflammable substances according to groups and temperature classes

Max. admissible surface temperature	450°C	300°C	200°C	135°C	100°C	85°C
Temperature class	T1	T2	T3	T4	T5	T6
Group I	Methane					
Group II A	Acetone Ethane Ethyl acetate Ammonia Benzene (pure) Acetic acid Carbon oxide Methanol Propane Toluene	Ethyl alcohol i-Amyl acetate n-Butane Butan-1-ol n-Hexane	Benzine Diesel fuel Aeroplane fuel n-Hexane			
Group II B	Natural gas	Ethylene				
Group II C	Hydrogen	Acetylene*				Carbon disulphide

IP - Protection

Types (Protection against Contact and Penetration of Foreign Objects and Water)

Protection degree against contact and penetration of foreign objects		Protection degree against penetration of water	
No protection	0	0	No protection
Protection against big foreign objects	1	1	Vertically falling water drops must not lead to a damaging effect.
Protection against medium-sized foreign objects >12mm	2	2	Water drops falling in any angle up to 15° to the perpendicular must not have a damaging effect.
Protection against small foreign objects >2.5mm	3	3	Water drops falling in any angle up to 60° to the perpendicular must not lead to any damage.
Protection against granular foreign objects >1mm	4	4	Water splashing against work equipment from all directions must not have a damaging effect.
Protection against dust deposits	5	5	A water jet from a nozzle being directed from all directions onto work equipment must not have a damaging effect.
Protection against dust entrance	6	6	In case of temporary flooding, e.g. in case of heavy seas water must not penetrate into the work equipment in harmful quantities.
		7	Water must not penetrate into the work equipment, if it is immersed in water under stipulated pressure and time conditions (lower part at least 1 m under water column during 30 minutes).
		8	Water must not penetrate into the work equipment, if it is immersed in water at a specified pressure and for any period of time.

Index of Explosion-Proof Types

Designation	Standard	Remarks
General Requirements	EN 60079-0	DIN EN 50014 contains general regulations for the design and test of electrical equipment for explosion-proof areas.
Encapsulation of Oil (o)	EN 60079-7	Regarding the explosion-proof type „encapsulation of oil“, the device or part of it are separated from the explosion-hazardous atmosphere by encapsulation of oil.
Encapsulation of Overpressure (p)	EN 60079-2	An explosion-proof gas being under overpressure (min. 0,5 mbar) shields the ignition source and avoids the penetration of the surrounding atmosphere.
Encapsulation of Sand (q)	EN 60079-5	The fine-grain filling material shields the ignition source. Orderly used, an arc created inside may not ignite the ex-atmosphere surrounding the body.
Pressure Resistant Encapsulation (d)	EN 60079-1	In case of ignition inside the encapsulation, the body must resist the pressure, and a transmission of the „inner“ explosion to the outside must be excluded.
Extended Security (e)	EN 60079-7	The explosion-proof type (e) is only valid for equipment or parts of it which, under normal circumstances, do neither create sparks nor arcs, do not reach hazardous temperatures and the nominal voltage of which does not exceed 11 kV.
Intrinsic Safety (i)	EN 60079-11	The energy inside the circuit is limited to values which do not allow inadmissibly high temperatures and/or sparks resp. arcs.
„Non Igniting“ (n)	EN 60079-15	Simplified application of the other explosion-proof types für area 2.
Encapsulation (m)	EN 60079-18	The ignition source is embedded into a sealing compound in such a way that it cannot ignite a hazardous explosive atmosphere.
Intrinsically Safe Electric Systems (iSYST)	EN 60079-25	There are distinctions between - certified intrinsically safe systems - uncertified intrinsically safe systems. An intrinsically safe system is the permitted totality of connected electrical equipment (intrinsically safe and appropriate equipment) which is documented by a description of the system.

Evidence of Intrinsic Safety

According to EN 60079-14 proof has to be furnished that intrinsic safety is given when interconnecting work equipment. Two basic power circuit types are distinguished:
Single intrinsically safe power circuit with only one pertinent and at least one intrinsically safe work equipment without additional supply

More than one pertinent work equipment being able to supply electrical current to the intrinsically safe power circuit during normal operation or in case of failure

Identification of Work Equipment

Intrinsically safe work equipment may, as an example, bear the following identification:

EEx ia IIC T6
- T6 → Temperature class
- IIC → Explosion group
- ia → Inflammation protection type (ia = 2 independent safety measures)
- EEx → corresponds to European Standard

Pertinent work equipment, as an example, may be identified as follows:

[EEx ia] IIC
- IIC → Explosion group
- ia] → Inflammation protection type
- EEx → corresponds to European Standard
- [→ Pertinent work equipment

Up to now the certification number of the testing agency included the generation status of the applied standards, e.g.
PTB No. Ex-85.B.2128X

PTB Nr.	→	notified body
Ex-	→	explosion-proof work equipment
85.	→	year of examination
B.	→	generation of standards
2128	→	current certification number
X	→	special conditions

According to the ATEX directive this identification is as follows:
PTB 97 ATEX 2128X

PTB	→	notified body
97	→	year of examination
ATEX	→	according to directive 94/4/EC
2128	→	current certification number
X	→	special conditions

Within the EC, the devices must fulfil the corresponding regulations. If a manufacturer complies with these requirements, the device is provided with the CE symbol, which is extended regarding explosion protection according to the ATEX directive. The number of the notified body having carried out the QS system approval is added to the CE symbol.
E.g. the testing agency of the TÜV Hanover has the identification number 0032, PTB in Braunschweig has 0102 and EXAM BBG in Bochum has 0158.
In addition, the year of manufacture (also coded) and the constructional safety level according to ATEX has to be provided on the work equipment.

Intrinsically safe work equipment is then identified as follows:

II 1 G
- G → Explosion protection for gases, vapours and fogs (D = dusts)
- 1 → very high safety, appropriate for zone 0 (2 independent safety measures)
- II → All sectors excluding mining (mining I)

The device category of the pertinent work equipment is put in round brackets:

II (1) G
- G → must not be installed in a hazardous location
- (1) → In summary, intrinsically safe work equipment is provided with the following complete identification:

II 1 G EEx ia IIC T6
Analogously, the complete identification of pertinent work equipment is as follows:

II (1) G [EEx ia] IIC

Subject to errors and modification (See also cataloque page 3)

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