

Explosion Protection



System 8
System 13

...perfectly switched!



Nass Controls LP

Nass Magnet GmbH

since 2011
nass magnet Hungária Kft.
Precision Controls Kft.

System 8 ATEX

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System 13 ATEX

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System 8 ATEX / System 13 ATEX

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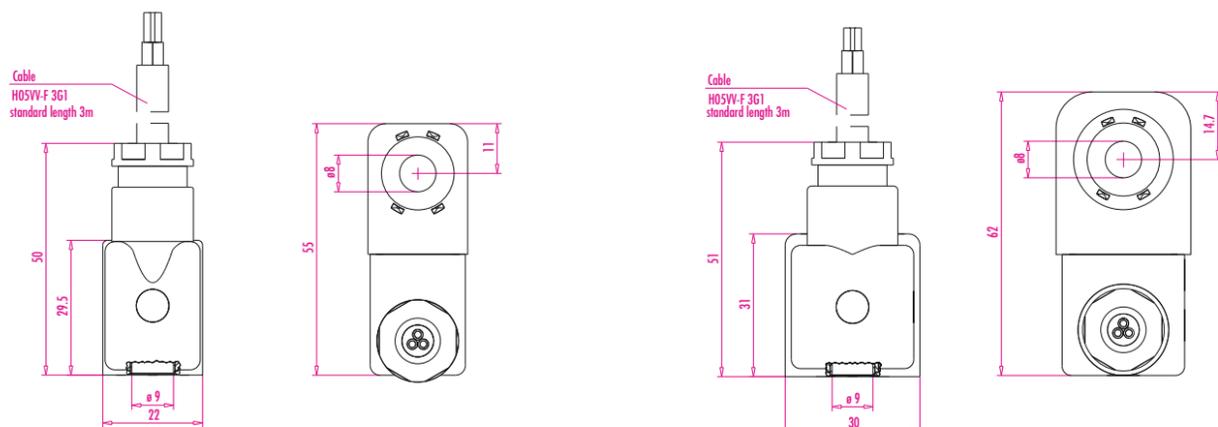
Explosion Protection according to 94/9/EG (ATEX 95a, former 100a)

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Solenoid Coil System 8 ATEX

Widths: 22 mm and 30 mm
 Ex II 2G EEx m II T₁ / IEC Ex m II T₁
 Ex II 2D IP65 T₁ °C / IP65 DIP A21 T₁ °C
 Protection by Encapsulation
 Connection Type:
 Cable H05VV-F 3G1



General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +50°C
Relative duty cycle	100%
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector according to EN 60529	IP 65
Moulding material	Thermoplastic
Cable length (other cable lengths on request)	3 m

Technical Data / Standard Version

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

EC-Type Examination Certificate

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

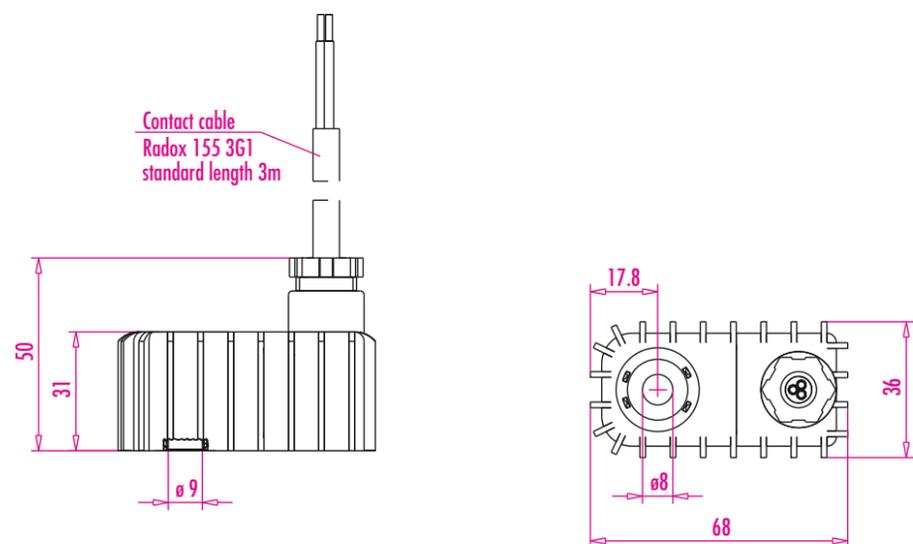
Width 30mm: PTB 03 ATEX 2018X
 IECEx PTB 04.0002X

Additional approvals from national admission offices on request.
 Attention: Fuse must be mounted upstream (see also instruction manual).



Solenoid Coil System 8 ATEX

Width: 36 mm
 Ex II 2G EEx ma II T₁ / IEC Ex m II T₁
 Ex 2D EEx ma II IP T₁ / IP 65 DIP A21 Ta₁
 Connection Type:
 Cable Flexible at Low Temperatures
 RADOX 155 3G1



General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-50°C ... +50°C/ 60°C*
Relative duty cycle	100%
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector acc. to EN 60529	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 / Special Versions

Drawing No.	Part 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	T6
0516 60.1-00/6929	250 9599	230 AC	2.7		50/ 60	T6
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	T5
0516 30.1-00/6961	250 9598	230 AC	3.1		50/ 60	T5
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	T4
0516 00.1-00/6949	250 9597	230 AC	5.3		50/ 60	T4

EC-Type Examination Certificate

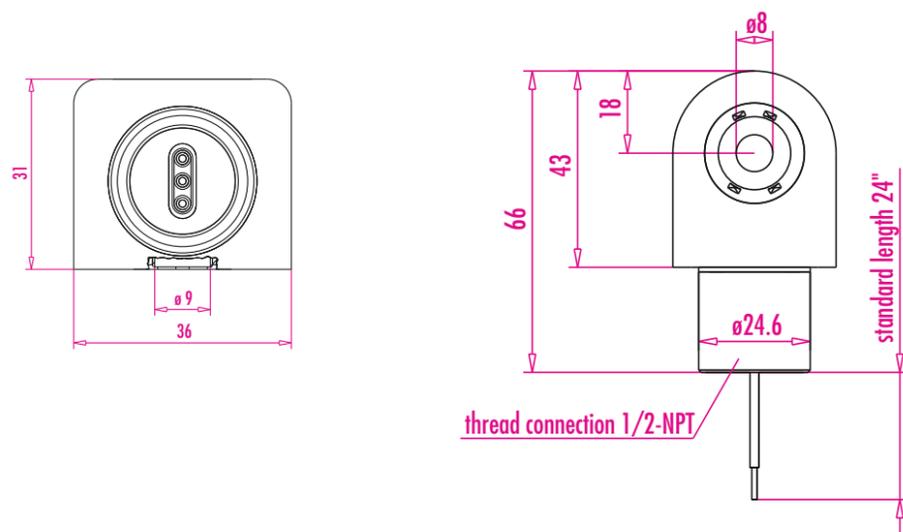
PTB 05 ATEX 2015X
 IECEx PTB 05.0009X

Additional approvals from national admission offices on request.
 Attention: Fuse must be mounted upstream (see also instruction manual).



Solenoid Coil System 8 ATEX

Special Version: System 8 Ex CSA/ FM
 Width: 36 mm
 Ex m II T4 + Division 1
 Connection Type: Flying Leads, Thread 1/2 - NPT



General Data

Voltage tolerance	-10% ... +10%
Ambient temperature	-20°C ... +60°C
Relative duty cycle	100%
Insulation class of insulating materials according to DIN VDE 0580	H
Degree of protection with connector acc. to EN 60529	IP 65
Moulding material	Thermoplastic
Length of flying leads	24 Inch / 0.6 m

Technical Data / Special Versions

Drawing No.	Part No.	Voltage [V]	Output [VA / W]	Power Level	Frequency [Hz]	Thread Connection	
						Steel*	Stainless Steel
0568 00.1-00/6873	250 7706	12 DC	4.5	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	120 DC	5.5		-	X	
0568 00.1-00/6727	250 8097	110 AC	7.5		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	

EC-Type Examination Certificate

CSA 202633
 FM 3006713

Hazardous Locations

Ex m II T4 and division 1 - Class I, Group A, B, C and D - Class II, Group E, F and 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.

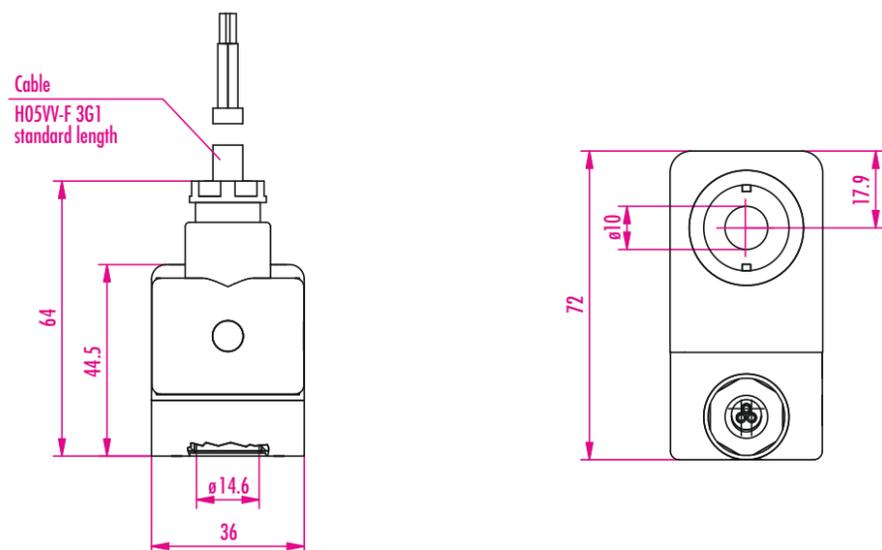
* steel zinc-chromated

Attention: Fuse must be mounted upstream (see also instruction manual).



Solenoid Coil System 13 ATEX

Width: 36 mm
 Ex II 2G EEx m II T₁ / IEC Ex m II T₁
 Ex II 2D IP65 T₁ °C / IP65 DIP A21 T₁ °C
 Protection by Encapsulation
 Connection Type:
 Cable H05VV-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
Relative duty cycle	100%
Insulation class of insulating materials according to DIN VDE 0580	F
Degree of protection with connector acc. to EN 60529	IP 65
Moulding material	Thermoplastic
Cable length	3 m

Technical Data / Special Versions

Drawing No.	Part No.	Voltage [V]	Output [VA / W]	Power Level	Frequency [Hz]	Temperature Class
1218 60.1-00/6974	250 8643	24 DC	5.2	2*	-	T6
0518 60.1-00/6997	251 0237	110 AC	4.2		50/ 60	T6
0518 60.1-00/6972	250 8641	230 AC	4.3		50/ 60	T6
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	T5
0518 30.1-00/6972	250 8463	230 AC	4.3		50/ 60	T5
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	T4
0518 00.1-00/6971	250 8460	230 AC	8.5		50/ 60	T4

*only single mounting allowed. The max. permissible ambient temperature for DC-applications is +40°C.
 Additional approvals from national admission offices on request. Attention: Fuse must be mounted upstream (see also instruction manual).

Solenoid Coils System 8 ATEX Solenoid Coils System 13 ATEX

Special Remarks Hazardous Locations



System 8, Widths: 22 mm and 30 mm
Ex II 2G EEx m II T₁ / IEC Ex m II T₁
Ex II 2D IP65 T₁ °C / IP65 DIP A21 T₁ °C
Encapsulation
Connection Type: Cable H052V2VF 3G1



System 8, Width: 36 mm
Ex II 2G EEx ma II T₁ / IEC Ex m II T₁
Ex 2D EEx ma II IP T₁ / IP 65 DIP A21 Ta₁
Connection Type: Cable Flexible at
Low Temperatures RADOX 355 3G1



System 8, Width: 30 mm
EEx 2G EEx ia II C T₁ / IEC Ex ia IIC T₁
Intrinsic Safety
Connection Type:
DIN EN 175301-803-A / ISO 4400



Special Version: System 8 Ex CSA / FM
Width 36 mm
Ex m II T4 + Division 1
Connection Type: Flying Leads,
Thread 1/2 - NPT



System 8, 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



System 13, Width: 36 mm
Ex II 2G EEx m II T₁ / IEC Ex m II T₁
Ex II 2D IP65 T₁ °C / IP65 DIP A21 T₁ °C
Encapsulation
Connection Type: Cable H052V2VF 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. The perfect function of these solenoid coils and the respective components shown in this catalogue will be guaranteed for a winding at operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached with lower parts of the valve in plastic and coils moulded with thermoplastic. Manifold 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. Explosion protection is only realized by using the pertinent components described in the present catalogue - max. operating 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. The perfect function of these solenoid coils and the respective components shown in this catalogue will be guaranteed for a winding at operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached with lower parts of the valve in plastic and coils moulded with thermoplastic. The solenoid coil is appropriate for single mounting and alignment on manifolds.

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. operating 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. The perfect function of these solenoid coils and the respective components shown in this catalogue will be guaranteed for a winding at operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached with lower parts of the valve in plastic and coils moulded with thermoplastic.

The solenoid coil is appropriate for single mounting and alignment in blocks. These solenoid coils have been approved at Nass Magnet GmbH according to Directive 94/9/EC. Explosion protection is only realized by using the pertinent components described in the present catalogue - max. operating 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 is valid for the indicated standard voltages. Other voltages are available on request. The perfect function of these solenoid coils and the respective components shown in this catalogue will be guaranteed for a winding at operating temperature (max. ambient temperature and max. voltage tolerance). The steady-state over-temperature is reached with lower parts of the valve in plastic and coils moulded with thermoplastic. Manifold on request. 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. operating 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.

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 surrounding
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 safeguards
1	2 G required, 1 G possible	1 independent safeguard
2	3 G required, 1 G, 2 G possible	normal operation

Dusts

Zone	Category	Safety Requirements
0	1 D required	2 independent safeguards
1	2 D required, 1 D possible	1 independent safeguard
2	3 D required, 1 D, 2 D possible	normal operation

Explosion Requirement

Flammable Sources:	Inflammable Substances:	Oxygen Sources:
<ul style="list-style-type: none"> hot surfaces flames and hot gases mechanically / electrically produced sparks electrical equipment equalising currents static electricity lightning stroke 	Gases and dusts arising from flammable liquids and solid materials, and existing in the right incensive concentration.	<ul style="list-style-type: none"> air (21 % oxygen) pure oxygen oxygen releasing compounds (potassium permanganate and others)

Ignition Temperature ...

and classification of inflammable substances according to groups and temperature classes.

Max. admissible surface temperature	450°	300°	200°	135°	100°	85°
Temperature class	T1	T2	T3	T4	T5	T6
Group I	Methane					
Group II A	Acetone					
	Ethane					
	Ethyl acetate		Ethyl alcohol			
	Ammonia		i-Amyl acetate			
	Benzene (pure)		n-Butane	Benzine		
	Acetic acid		Butan-1-ol	Diesel fuel		
Carbon oxide			Aviation fuel			
Methanol		n-Hexane				
Propane			n-Hexane			
Toluene						
Group II B	City 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 have any damaging effect.
Degree of protection against contact with and penetration of foreign objects >12mm	2	2	Water drops falling in any angle up to 15° to the perpendicular must not have any damaging effect.
Degree of protection against contact with and penetration of foreign objects >2.5mm	3	3	Water drops falling in any angle up to 60° to the perpendicular must not have any damaging effect.
Protection against granular foreign objects >1mm	4	4	Water splashing against work equipment from all directions must not have any damaging effect.
Protection against penetration of dust	5	5	A water jet from a nozzle being brought onto the work equipment must not have any 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	If the work equipment is plunged into water under stipulated conditions of pressure and time (lowest part at least 1m under water column for 30 minutes), water must not penetrate into it.
		8	If the work equipment is plunged into water with a predefined pressure and for an indefinite period, water must not penetrate into it.

Index of Ignition Protection Types

Name	Standard	Remarks
General Requirements	EN 60079-0	DIN EN 50014 contains general regulations for the design and test of electrical equipment for explosive regions.
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 explosive atmosphere.
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 respectively arcs.
„Non Igniting“ (n)	EN 60079-15	Simplified application of the other explosion-proof types for zone 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 (i-SYST)	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

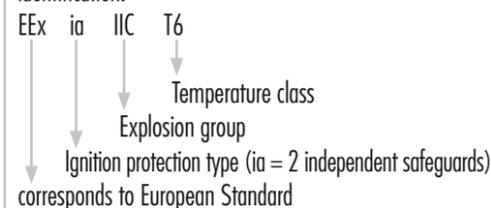
According to EN 60079-14 proof has to be furnished that intrinsic safety is given when interconnecting work equipment. Two basic power circuit types are distinguished :

1. Single intrinsically safe power circuit with only one pertinent and at least one intrinsically safe work equipment without additional supply.

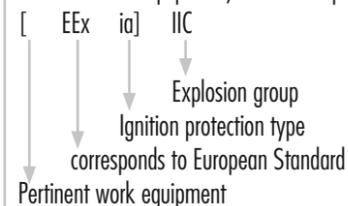
2. more than one pertinent work equipment being able to supply electrical current to the intrinsically safe power circuit during normal operation or in case of failure.

Identification of Work Equipment

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



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



According to the ATEX directive this identification is as follows:

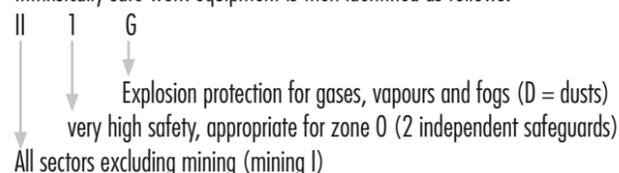
- PTB 02 ATEX 2154
- PTB → notified body
- 02 → year of examination
- ATEX → according to directive 94/4/EC
- 2154 → current certification number
- X → special conditions

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 (BVS) 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:



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



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

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