TEKNISK ELVARME

VARMESLANGER

ATEX

NEWTRONIC

EX ELECTRICAL HEATERS

HX6 SERIES

200°C

INDUSTRIAL HEATING HOSE WITH CONSTANT POWER

The industrial heating hose with HX6 series heating conductors is designed for use in Ex areas. The heating hoses are above all characterised by their compact construction with connection configuration. The HX series heating hoses are tested to ATEX standards and with an EC type examination certificate they are certified for the entire heating hose.

The specially structured HX6 series heating hoses can be used in temperature classes T1 ... T3 depending on the temperature control and are suitable for use in zones 1/2 (gas) and zones 21/22 (dust). Their operation in zones 0 and 20 is not permissible.

The HX6 series industrial heating hoses are equipped with **two EX-PT100** sensors. PT100 Exi intrinsically safe are also optional.

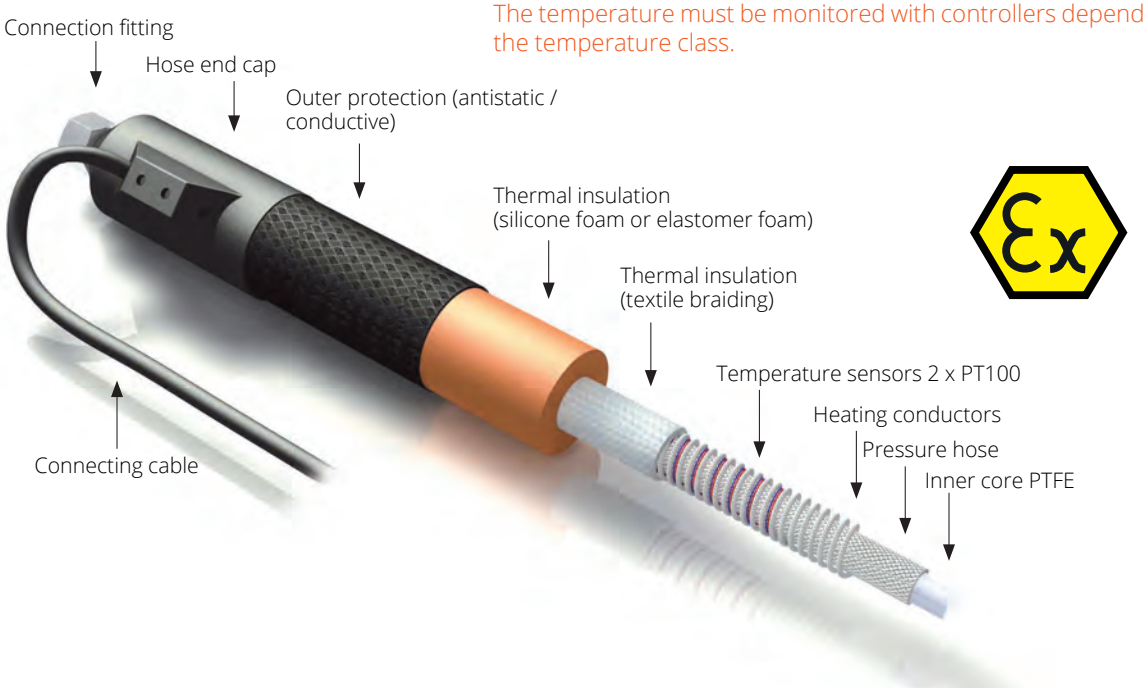
APPLICATIONS:

Heat-loss free transport of: oil, grease, resin, tar, paint, water, carbon dioxide, plastic, moulding compounds etc. in Ex areas.

Temperature classes	T3=200°C
Ex areas	Zone 1/2 (gas) Zone 21/22 (dust)
Marking	II2G Ex eb IIC T1... T6 II2D Ex tb IIIC T85°C... 2430 200°C
EC type examination certificate	EPS 11 ATEX 1 341 X
Directive	2014/34/EU, EN 60079-0, EN 60079-7, EN 60079-18

Operating temperature	200°C
Rated voltage	230 V AC
Power rating	depending on the design of the nominal diameter
Connecting cable	1.0 m
Pressure hose	see Industrial pressure hoses
Connector fittings	steel / stainless steel, see Fittings
Thermal insulation	thermally stabilised, close-pore foam or thermal fleece
Outer protection	antistatic, see Outer protection hoses
Hose end caps	PA hard cap or elastomer cap

The temperature must be monitored with controllers dependent upon the temperature class.



EX ELECTRICAL HEATERS

HX6B SERIES

120°C

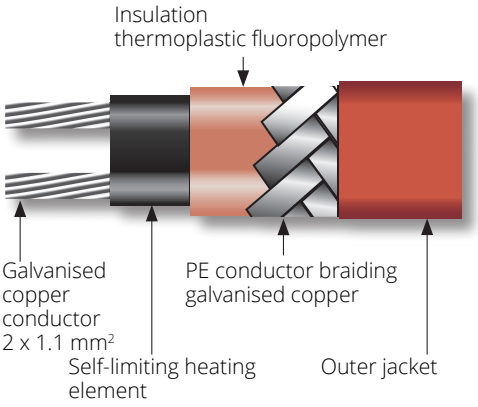
INDUSTRIAL HEATING HOSE WITH SELF-LIMITING POWER

The HX6B series industrial heating hoses is designed for use in Ex areas. The heating hoses are above all characterised by their compact construction with connection configuration. The HX series heating hoses are tested to ATEX standards and with an EC type examination certificate they are certified for the entire heating hose.

The specially structured HX6B series heating hoses can be used in temperature classes T1 ... T6 depending on the temperature control and are suitable for use in zones 1/2 (gas) and zones 21/22 (dust). Their operation in zones 0 and 20 is not permissible.

The HX6B series industrial heating hoses can be deployed, even without temperature regulation, as a consequence of their self-limiting characteristic. The maximum final temperature must be monitored with controllers dependent upon the application.

HBR heating tapes, built into HX6B



APPLICATIONS:

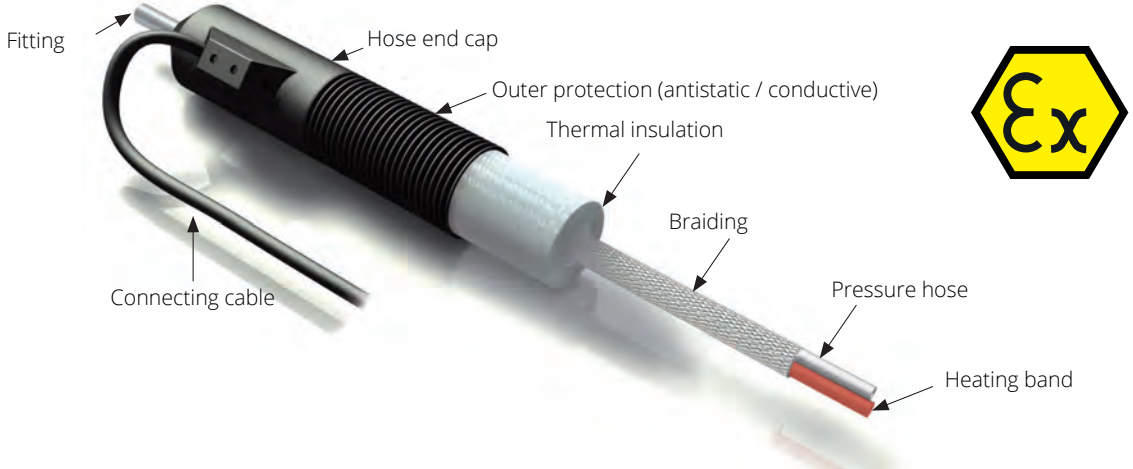
Heat-loss free transport of: oil, grease, resin, tar, paint, water, carbon dioxide, plastic, moulding compounds etc. in EX areas.

Temperature classes	T6 = 85°C, T4 = 135°C, T3 = 200°C
EX areas	Zone 1/2 (gas) Zone 21/22 (dust)
Marking	Ex II2G Ex mb IIC T3... T6 II2D Ex mb Ex IIIC T85°C... T200°C CE 2004
EC type examination certificate	EPS 11 ATEX 1 341 X
Directive	2014/34/EU, EN 60079-0 , EN 60079-7, EN 60079-18

Operating temperature	approx. 35°C... 120°C
Rated voltage	230 V AC
Power rating	see table below
Connecting cable	1.0 m
Pressure hose	see Industrial pressure hoses
Connector fittings	steel / stainless steel, see Fittings
Thermal insulation	thermally stabilised, close-pore foam or thermal fleece
Outer protection	antistatic, see Outer protection hoses
Hose end caps	PA hard cap or elastomer cap
Option	Ex PT100 or PT100 Exi intrinsically safe sensors

Data relate to an outside temperature of approx. +10°C

Approx. power per metre up to DN12 pressure hose	10 W/m	17 W/m	25 W/m	31 W/m	40 W/m	60 W/m
Holding temperature approx.	35°C	40°C	50°C	60°C	95°C	120°C
Permissible temperature switched on	85°C	85°C	85°C	85°C	150°C	200°C
Max. heating circuit length at 16A	150 m	130 m	100 m	70 m	60 m	40 m
Temperature classes	T6	T6	T6	T6	T3	T3



EX ELECTRICAL HEATERS

HX3 SERIES

100 C / 200°C

ANALYTICAL HEATING HOSE WITH CONSTANT POWER

The HX3 series analytical heating hoses with Ex heating conductor is designed for use in Ex areas. The heating hoses are above all characterised by their compact construction with connection configuration. The HX series heating hoses are tested to ATEX standards and with an EC type examination certificate they are certified for the entire heating hose.

The specially structured HX3 series heating hoses can be used in temperature classes T1 ... T3 depending on the temperature control and are suitable for use in zones 1/2 (gas) and zones 21/22 (dust). Their operation in zones 0 and 20 is not permissible.

The HX3 series analytical heating hoses are equipped with two EX-PT100. PT100 Exi intrinsically safe are also optional.

APPLICATIONS:

Maintaining temperature and avoidance of frost and condensation (motor exhaust fumes, CO_2-measurement, measuring samples, industrial gases, air & environmental measurements) in EX areas.

Temperature classes	T3=200°C
Ex areas	Zone 1/2 (gas) Zone 21/22 (dust)
Marking	II2G Ex eb IIC T1... T6 II2D Ex tb IIIC T85°C... T450°C CE 2004
EC type examination certificate	EPS 11 ATEX 1 341 X
Directive	2014/34/EU, EN 60079-0, EN 60079-7, EN 60079-18

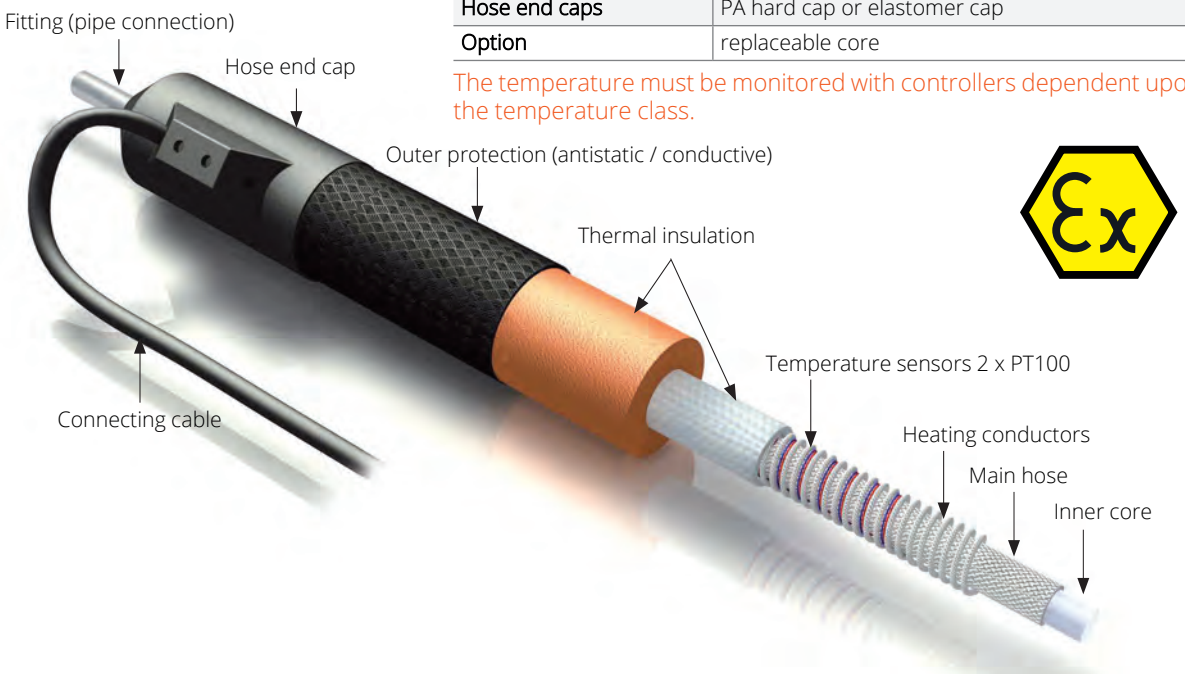
Operating temperature	200°C
Rated voltage	230 V AC
Power rating	depending on the design of the nominal diameter
Connecting cable	1.0 m
Inner core DN 4-12 mm	PTFE, PFA or VA, see Inner cores analytics
Connector fittings	steel / stainless steel, RSL
Thermal insulation	thermally stabilised, close-pore foam or thermal fleece
Outer protection	antistatic, see Outer protection hoses
Hose end caps	PA hard cap or elastomer cap
Option	replaceable core

The temperature must be monitored with controllers dependent upon the temperature class.

RSL

Pipe connection for cutting ring screw connection

DN	RSL L (mm)	d (mm)
4	25	6
6	25	8
8	26	10
10	26	12
12	28	15



EX ELECTRICAL HEATERS

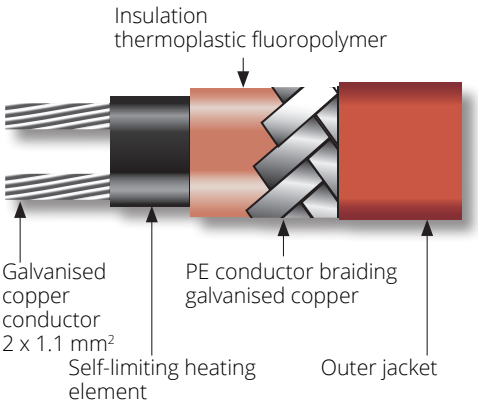
HX3B SERIES 120°C

ANALYTICAL HEATING HOSE WITH SELF-LIMITING POWER

The self-limiting analytical heating hoses is designed for use in Ex areas. The heating hoses are above all characterised by their compact construction with internal connection configuration. The HX series heating hoses are tested to ATEX standards and with an EC type examination certificate they are certified for the entire heating hose.
The specially structured HX3B series heating hoses can be used in temperature classes T1 ... T6 depending on the temperature control and are suitable for use in zones 1/2 (gas) and zones 21/22 (dust). Their operation in zones 0 and 20 is not permissible.

The HX3B series industrial heating hoses can be deployed, even without temperature regulation, as a consequence of their self-limiting characteristic. The maximum final temperature must be monitored with controllers dependent upon the application.

HBR heating tapes, built into HX3B



APPLICATIONS:

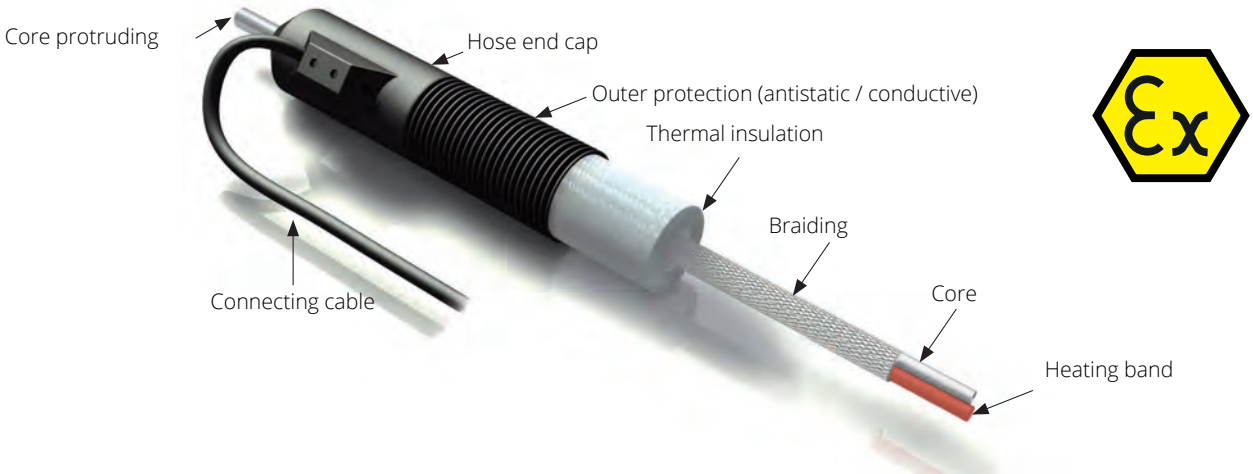
Maintaining temperature and avoidance of frost and condensation (motor exhaust fumes, CO_2-measurement, measuring samples, industrial gases, air & environmental measurements) in EX areas.

Temperature classes	T6 = 85°C, T4 = 135°C, T3 = 200°C
Ex areas	Zone 1/2 (gas) Zone 21/22 (dust)
Marking	Ex II2G Ex mb IIC T3... T6 Ex II2D Ex mb IIIC T85°C... T200°C CE 2004
EC type examination certificate	EPS 11 ATEX 1 341 X
Directive	2014/34/EU, EN 60079-0, EN 60079-7, EN 60079-18

Operating temperature	35°C ... 120°C
Rated voltage	230V AC
Power rating	depending on the configuration of nominal diameter
Connecting cable	1.0 m
Inner core DN 4 – -12 mm	PTFE, PFA, stainless steel 100 mm protruding, without transition
Option	replaceable core
Thermal insulation	thermally stabilised, close-pore foam or thermal fleece
Outer protection	antistatic, see Outer protection hoses
Hose end caps	PA hard cap or elastomer cap
Option	Ex-PT100 / PT100 Exi intrinsically safe sensors

Data relate to an outside temperature of approx. +10°C

Approx. power per metre up to DN12 core	10 W/m	17 W/m	25 W/m	31 W/m	40 W/m	60 W/m
Holding temperature approx.	35°C	40°C	50°C	60°C	95°C	120°C
Permissible temperature switched on	85°C	85°C	85°C	85°C	150°C	200°C
Max. heating circuit length at 16A	150 m	130 m	100 m	70 m	60 m	40 m
Temperature classes	T6	T6	T6	T6	T3	T3



EX ELECTRICAL HEATERS

AIRTHERM AIR HEATER

100°C

AIR HEATER WITH HIGHLY FLEXIBLE CONNECTION HOSE

The Airtherm air heater was specially designed for heating compressed air. The air in the connection heat is heated, which is equipped with a ceramic heating element and the appropriate sensor. The feed connection is via a highly flexible line in which both compressed air and also the electrical connection are integrated. The air and electrics are separated in a connector housing.

Operating temperature	20 to 100°C
Connection thread	G ¼
Manufacturing lengths of the compressed air line	2.5 m, 5.0 m, 7.5 m, 10 m (special lengths on request)

Depending on requirements, the air temperature can be set up to max. 100°C (measured at the pistol nozzle). The compact design permits easy integration into existing systems

APPLICATIONS

PAINTING TECHNOLOGY:
automatic paint spraying systems, painting robots, manual spraying, prevention of condensation

BREATHING AIR HEATING (PROTECTIVE WEAR):
in fire fighting, chemical industry, tank cleaning

GENERAL MECHANICAL ENGINEERING
For control purposes, our HT 40 controllers, the HT 55L with special air software (connection of two Airtherms possible) or an appropriately approved Airtherm controller for the Ex version can be used.

AIRTHERM AIR HEATER SYSTEM
Components for the Ex protected area

Connection housing	
Testing and approval	PTB 03 ATEX 1125 X
– IP protection type	IP 65
– Ignition protection type	II 2 G EX e II T3 (gas)
– Ignition protection type	II 2 D IP65 T 200°C (dust)
Cable glands	
PG 16 – testing and approval	EX 80407016 Rose
PG 9 – testing and approval	EX 80407016 Rose
Control line	
Testing and approval	PTB 03 ATEX 1125 X
Heating cartridge	
Testing and approval	PTB 03 ATEX 1125 X
– IP protection type	IP 65
– Ignition protection type	T3
Operating voltage	230 V AC
Power rating	500 VA
Airtherm hose (hybrid round cable)	
Testing and approval	PTB 03 ATEX 1125 X
Air pressure range	1 – 8 bar

EXPLOSION PROTECTION CLASSIFICATION

ZONES – EXPLOSION GROUPS – TEMPERATURE CLASSES

INTRODUCTION

Explosion hazard areas are divided into zones, the equipment in device groups and device categories. For a certified device, the marking on the type plate makes it identifiable for which zone the explosion protected equipment may be used.

CLASSIFICATION INTO DEVICE GROUPS

Devices are divided in Groups into I and II, whereby Group I involves mining "underground" and Group II involves gas and dust explosion protection in all other applications.

CLASSIFICATION INTO ZONES

Explosion hazard areas are divided into six zones, whereby the division is determined by the probability of how often and long it is expected that a hazardous explosive atmosphere occurs. Combustible gases, mists, vapours and combustible dusts are distinguished.

Zones 0, 1 and 2 arise for gases-mists-vapours, whereby the requirements for the equipment used there ascend from zone 2 to 0.

Zones 20, 21 and 22 arise for dusts, whereby the requirements for the equipment used there ascend from zone 22 to 20.

CLASSIFICATION INTO IGNITION PROTECTION CATEGORIES

The ignition protection type does not represent a quality feature, but is a constructive solution to achieve explosion protection for the equipment.

FOR ELECTRICAL EQUIPMENT IN GAS

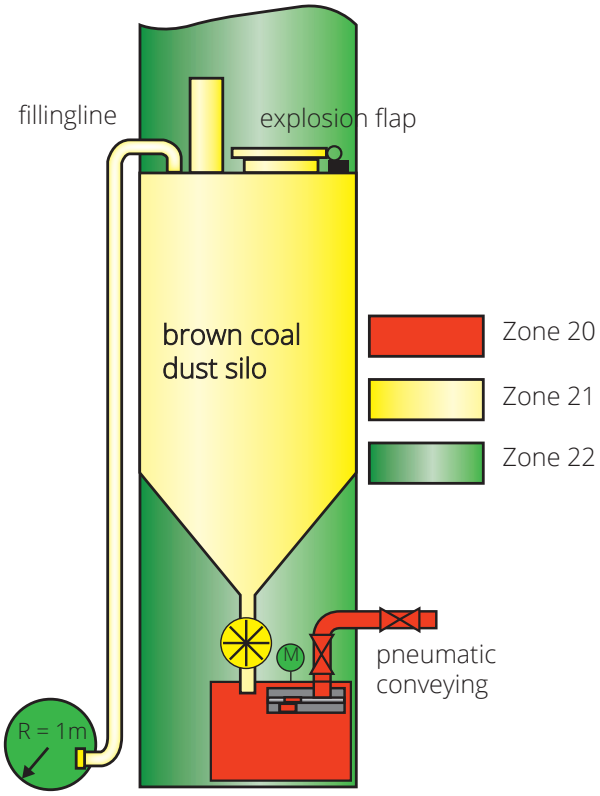
- Intrinsic safety Ex i
- Pressure-proof enclosure Ex d
- Increased safety Ex e
- Pressurized enclosure Ex p
- Oil immersion Ex o
- Cast enclosure Ex m
- Powder filling Ex q
- Ignition protection for Zone 2 Ex n
- Special ignition protection Ex s

FOR ELECTRICAL EQUIPMENT IN DUST

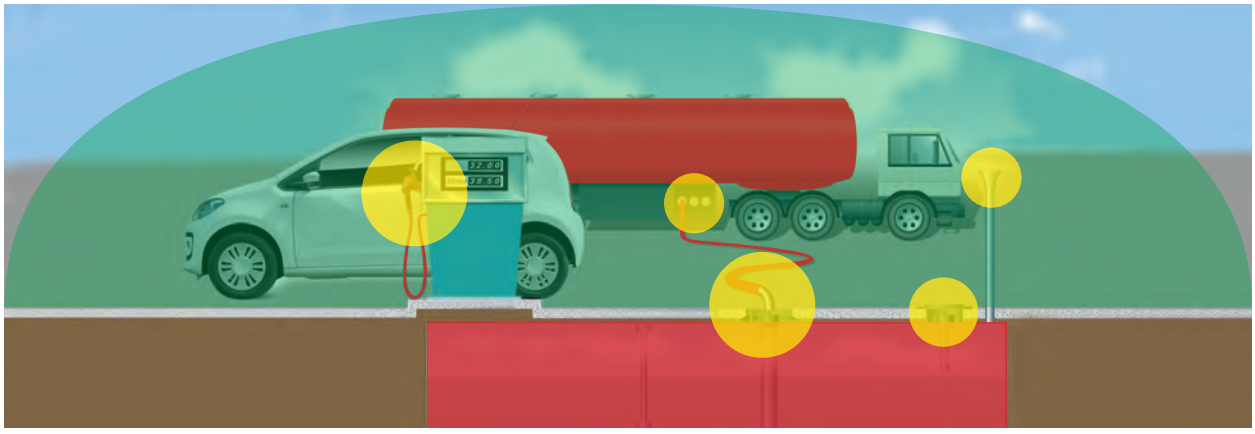
- Pressurized enclosure Ex pD
- Intrinsic safety Ex iD
- Cast enclosure Ex mD
- Dust ignition protection Ex tD

FOR NON-ELECTRICAL EQUIPMENT

- Protection by flow restricting enclosure Ex fr
- Pressure-proof enclosure Ex d
- Intrinsic safety Ex g
- Constructional safety Ex c
- Ignition source monitoring Ex b
- Pressurized enclosure Ex p
- Liquid immersion Ex k



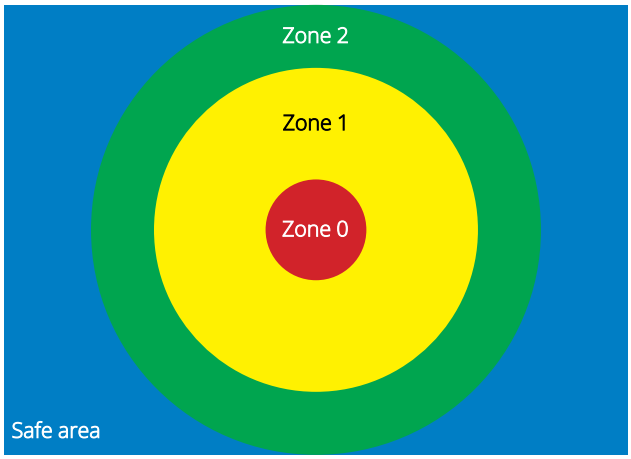
Ex zone plan for a pulverized lignite silo



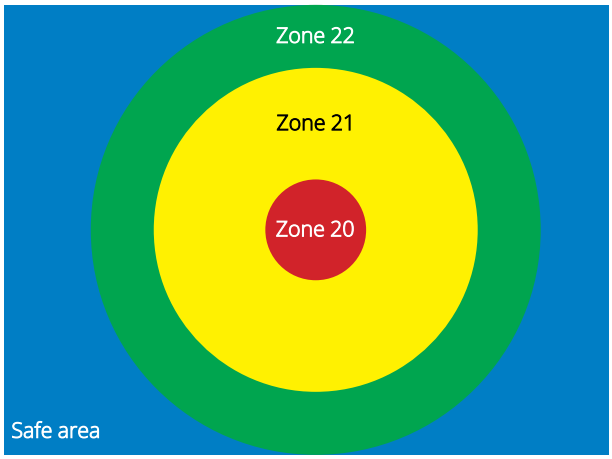
Example: Filling station with Ex zones (explosion hazard areas)

Zone 0 Zone 1 Zone 2

EXPLOSION PROTECTION CLASSIFICATION



Typical zone sequence for gases-mists-vapours originating from a **petrol drum** with filling in a closed room.



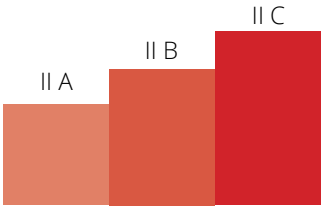
Typical zone sequence for gases-mists-vapours originating from a **grain silo** with filling in a closed room.

NEWTRONIC Ex DEVICES AND HEATING SYSTEMS ARE APPROVED FOR GASES IN ZONE 1/2 AND DUSTS IN ZONE 21/22.

CLASSIFICATION INTO DEVICE CATEGORIES

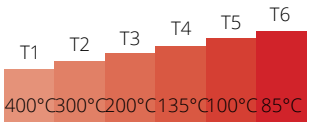
The device category defines which equipment may be used in which zone. In turn, there are six device categories. Categories 1G, 2G and 3G are classifications for gas explosion protection (G = gas); equipment with 1G is suitable for zone 0, 1 and 2, equipment with 2G for zone 1 and 2 and equipment with 3G for zone 2. The categories 1D, 2D and 3 D are classifications for dust explosion protection (D = dust); equipment with 1D is suitable for zone 20, 21 and 22, equipment with 2D for zone 21 and 22 equipment with 3D for zone 22.

EXPLOSION GROUPS, TEMPERATURE CLASSES



The device group and device category defines in which zones an item of equipment can be used. It is defined from the explosion group and temperature class for which media within the zones the equipment may be used.

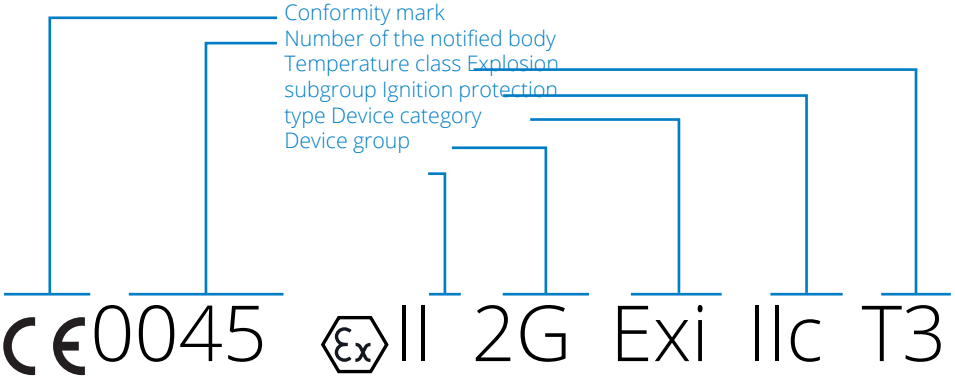
CLASSIFICATION INTO EXPLOSION GROUPS



Depending on the ignition type, the explosion protected equipment is sub-divided for gases, mists and vapours in three explosion groups (IIA-IIB-IIC). The explosion groups are split according to how flammable a gas is. The requirements for the equipment rise from II A to II C.

CLASSIFICATION IN TEMPERATURE CLASSES

The explosion protected equipment installed within the explosion hazard area is divided in six temperature classes (T1 to T6). The temperature class is not - as it is often erroneously interpreted - the deployment temperature of the equipment, but rather the maximum permissible surface temperature on the equipment, which, in relation to an environmental temperature of + 40°C, must not be exceeded at any point on the surface at any time. The maximum surface temperature must always be lower than the ignition temperature of the surrounding medium. The requirements for the equipment rise from T1 to T6.



Example

Labelling of devices for operation in explosion hazard areas according to the ATEX product directive 2014/34/EU

ELVARME

VORES PRODUKTSORTIMENT INKLUDERER:

ANALYSEMÅLING

ATEX

REGULATORER ATEX

WATER HEATERS

FLANGEVARMELEGMER STANDARD

VARMESLANGER

VI FØRER PRODUKTER INDENFOR KATEGORIERNE:

AUTOMATIK

HVAC & BYGNINGS-AUTOMATIK

KØLEPROFILER

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