

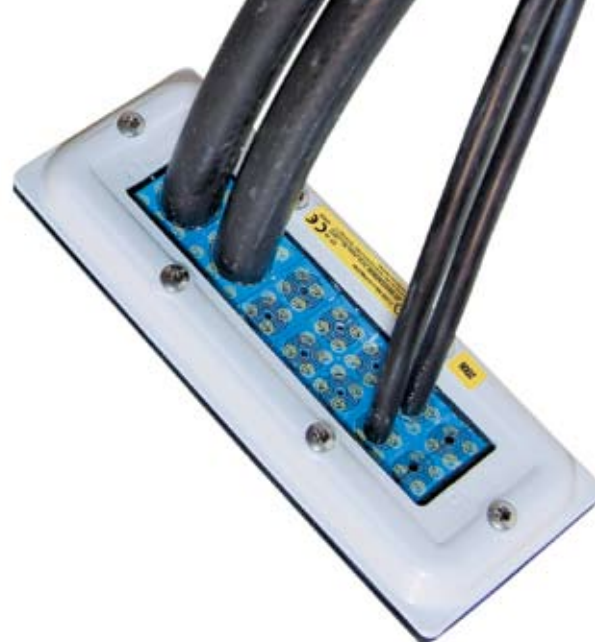


Cable sealing solutions
for hazardous areas



We Seal Your World

Roxtec approved for EEx e



The Roxtec Ex cable sealing system is certified according to ATEX for use in areas where explosive atmospheres are likely to occur. The protection *EEx e* means increased safety.

Roxtec's EEx e products are designed to prevent ignition of explosive atmospheres. Typical applications are EEx e classified electrical enclosures, transformers, motors, generators and junction boxes.

Zones, Groups and Categories

Areas	Classification of explosion hazard	Required marking for electrical equipment	
		Device group	Category
Mining	Operating	I	M1
Mining	Shutdown	I	M2 or M2
Surface	Zone 0	II	1G
Surface	Zone 1	II	2G or 1G
Surface	Zone 2	II	3G or as 2G
Surface	Zone 20	II	1D
Surface	Zone 21	II	2D or 1D
Surface	Zone 22	II	3D or as 2D

Highlighted zones = Permitted zones for Roxtec's Ex products



Roxtec R 100 B EEx frame

Some of the potential industries that are likely to be affected by the ATEX directive includes:

- Petro-chemical and Chemical industry
- Mills, Concrete plants
- Spray booth plants
- OEM producers intending to supply to areas where the ATEX product directive applies
- Silo works
- All other industries where areas have been Zone classified according to marked areas in chart above.

Equipment not included under the ATEX product directive

- Seagoing vessels and mobile offshore units together with equipment on board such vessels or units, as they are already covered by the IMO Convention.

Note that: Oil or Gas platforms which are fixed are not excluded from the directive.

- Medical devices intended for use in a medical environment.

Hazardous areas are classified into zones based on the possibility of occurrence of an explosive atmosphere.

It is the obligation of the owner or the operator of a facility to ensure that the zone classification is done by authorised personnel.

The Roxtec EEx e product range includes a wide variety of seals to handle different cable sizes and openings. The products are designed and approved for use in Zone 1 and 2 for Gas (incl vapour, mists) and 21 and 22 for Dust. See figure, Area classification. ■

Area classification

Zone	
Zone 0 (gases)	Flammable material present continuously or for long periods
Zone 20 (dust)	
Zone 1 (gases)	Flammable material present occasionally in normal operation
Zone 21 (dust)	
Zone 2 (gases)	Flammable material present in abnormal conditions only for short periods
Zone 22 (dust)	

Highlighted zones = Permitted zones for Roxtec's Ex products

The Directive

Directive 94/9/EC is commonly referred to as the ATEX ("Atmosphères Explosibles") products directive. Its objective is to eliminate or minimise the risks resulting from the use of certain products in or in relation to a potentially explosive atmosphere.

The ATEX product directive is a total harmonisation directive meaning that its provisions replace existing

divergent national and European legislation which cover the same subjects as stipulated by the ATEX product directive.

As of the 1st of July 2003, all other relevant national regulations have been abolished and the ATEX product directive, as transposed into the national legislation of the Member States, is the sole legal instrument applicable.

The ATEX products directive applies in the countries of the European Union as well as in Liechtenstein, Iceland and Norway. ■



This information is:

- of a general nature only and is not intended to address the specific circumstances of any particular individual or entity;
- not necessarily comprehensive, complete or up to date;

For more information regarding the ATEX product directive readers are welcome to call Roxtec's technical support at +46 455 36 67 00 or download the full directive from www.roxtec.com.

Reduction of risk with Roxtec

The purpose of the Roxtec EEx e products is to minimize the risk of an explosion to occur.

What is an explosive atmosphere?

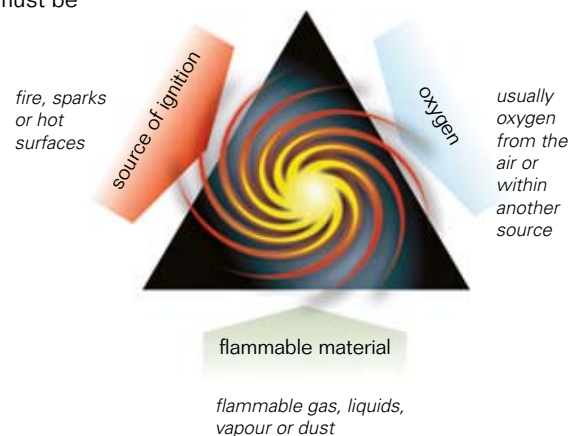
An explosive atmosphere is defined as a mixture of air and a flammable substance in the form of gases, vapours, mists, dusts or fibres, in which, after ignition, combustion spreads throughout the entire unconsumed mixture.

Potential sources of ignition include: Hot surfaces, electrical sparks, open flames and mechanical friction sparks.

What is an explosion?

An explosion is a sudden chemical reaction of a flammable material with oxygen. In order for an explosion to occur three conditions must be fulfilled;

- 1: Flammable material
- 2: Oxygen
- 3: Ignition source



Risk reduction in general

In all situations where there may be an explosive atmosphere the following steps should be taken to minimize the risk of explosion:

- Elimination of the explosive atmosphere around the source of ignition
- Elimination of the source of ignition
- Substitute with a non-flammable substance
- Lowering the process temperature

In practice, however, it is very difficult to ensure that an explosive atmosphere will never occur.

In these cases the ATEX products directive provides necessary protective measures. ■

Roxtec Ex marking

All of Roxtec's Ex products are clearly marked in accordance with the ATEX Directive.

The Roxtec Ex products are easily identified by the yellow Ex labels and Ex icon. Roxtec frames are marked with the label on the outside

(see example Roxtec G 6x1 EEx frame below).

Roxtec wedge is marked with a label on the front. Roxtec sealing modules are marked with the Ex symbol. ■

Steel Frame G

II 2GD — II = Device group
2GD = Category (Gas, Dust)

EEx e II IP66/IP67 — E = Equipment certificate issued by an EEC approved body
Ex = The symbol to indicate that the electrical apparatus corresponds with one or more explosion protection techniques
e = The symbol for each type of protection technique used
II = The group of electrical apparatus
IP66/IP67 = IP Code (Ingress Protection)

SP 04ATEX3902X — SP = Name or mark of notified body
04 = Year of certification
3902 = Serial No.
X = Marking to indicate special conditions for safe use. Schedule of limitations are listed in each certificate. (suffix "U" indicate component certificate)

G 1x1 – G 1x7	G 4x1 – G 4x7	G 7x1 – G 7x7
G 1+1x1	G 4+4x1	G 7+7x1
G 1+1+1x1	G 4+4+4x1	G 7+7+7x1
G 2x1 – G 2x7	G 5x1 – G 5x7	G 8x1 – G 8x7
G 2+2x1	G 5+5x1	G 8+8x1
G 2+2+2x1	G 5+5+5x1	G 8+8+8x1
G 3x1 – G 3x7	G 6x1 – G 6x7	
G 3+3x1	G 6+6x1	
G 3+3+3x1	G 6+6+6x1	

CE — G... = Approved products

0402 — 0402 = Serial number of notified body

Minimum/Maximum ambient temperatur — Temp. range -60 — + 80°C

Roxtec International AB
Verkö Industriområde, Rombvägen 2
SE-371 23 Karlskrona, Sweden

When the equipment is designed for use in an ambient temperature range other than -20° C to +40° C the symbol T_a or T_{amb} together with the special range of ambient temperatures must be marked



Roxtec Ex sealing system



The ingenious features of the Roxtec products provide our customers with numerous benefits including safety and cost-efficiency.



The purpose of using a Roxtec Ex sealing system is to create an intrusion-proof passage for cables. This is achieved by allowing the cables to be routed through a Roxtec frame. Roxtec sealing modules are then inserted in the frame to seal the passage. The built in flexibility of the Roxtec modular system provides fast and safe installations. On top of this, a Roxtec sealing system allows additional installations or reconfigurations to be performed in the future.

Multidiameter™ technology

A unique feature of our system is the Multidiameter technology and its adaptability. The fit to the cable is achieved by peeling layers from the core of the seal, such as Roxtec modules or Roxtec round seals. The benefits are enormous for the users.

Fewer parts that can do more, turns the pre-planning and logistics into simplicity. In fact, every step in your operations, from design to maintenance, will benefit from the improvement. ■

Roxtec Ex sealing system

Modules



RM EEx modules



CM EEx modules

Rectangular frames



S EEx frames



SF...W EEx frames



G EEx frames



 CF 8 EEx frame



 CF 32 EEx frame



 CF 16 EEx frame

Round frames/seals



R...W EEx frames



R...B EEx frames



RS...W EEx seal



RS...B EEx frames



 C RST EEx seals

Assembly parts



Wedge kit EEx



Wedge EEx



Stayplate EEx



Lubricant

Accessories



Pre-compression wedge



Pre-compression tool



Pre-compression eccentric tool



Handgrip pre-comp



Stayplate clamps



Stayplate clips



Slide Caliper

Roxtec's Ex frames/seals are marked  II GD EEx e II. Ingress protection is from IP66 to IP68 depending on the product. Temperature range -60° C — +80° C

 = Compact solution

We Seal Your World



Market Leader

Roxtec is the global market leader in modular seals for cable and pipe entries. Our head office is situated in Sweden, where we manufacture our products and coordinate sales and marketing. Our business is truly international with more than 85 per cent of the sales made to the global market. We service our customers in more than 70 markets through 12 subsidiaries and an extensive network of local distributors.

Continuous development

Roxtec works continuously to improve its products, to keep pace with and lead developments in the market place as well as meeting new requirements pertaining to materials and standards. All of these activities are carried out within the framework of our quality management system, certified according to the SS-EN ISO 9001:2000 standard.

Quick deliveries

Delivery times are crucial. Local representatives and stocks worldwide mean that we can deliver at short notice and products will be delivered to the destination of your choice, to warehouses or directly to site.

Find out more

Learn more about us, and find your nearest Roxtec representative at www.roxtec.com ■



Roxtec International AB
 Box 540, 371 23 Karlskrona, SWEDEN
 PHONE +46.455.36 67 00, FAX +46.455.820 12
 EMAIL info@se.roxtec.com, www.roxtec.com