



Cable sealing solutions

FOR HAZARDOUS AREAS

We Seal Your World™



Roxtec approved for Ex e and Ex tD

The Roxtec Ex cable sealing system is certified according to the ATEX directive and the IECEEx, International Certification Scheme, for use in areas where explosive atmospheres are likely to occur.



Our Ex e products are designed to prevent ignition of explosive atmospheres. Typical applications are Ex e and/or Ex tD classified electrical enclosures, such as transformers, motors, generators and junction boxes.

The protection Ex e means increased safety, and the protection EX tD means protection by enclosure for explosive dust atmosphere.

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

- Petro-chemical and chemical industries
- Mills, concrete plants
- Spray booth plants
- OEM producers intending to

supply to areas where the ATEX product directive applies

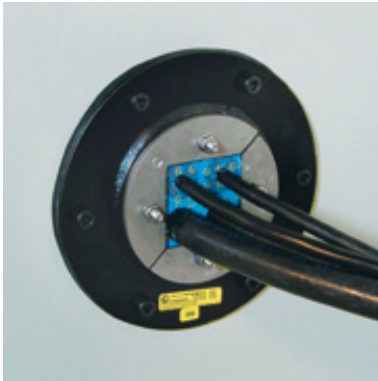
- Silo works
- All other industries where areas have been zone classified according to marked areas in the chart on the following page.

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: Oil or gas platforms which are fixed are not excluded from the directive.

- Medical devices intended for use in a medical environment.



Roxtec R 100 B Ex frame

Areas, zones, groups and categories

| Areas | Classification of explosion hazard | Required marking for electrical equipment | |
|------------|------------------------------------|---|--------------|
| | | Equipment group | Category |
| Mining | Operating | I | M1 |
| Mining | Shutdown | I | M2 or M1 |
| Non-mining | Zone 0 | II | 1G |
| Non-mining | Zone 1 | II | 2G or 1G |
| Non-mining | Zone 2 | II | 3G, 2G or 1G |
| Non-mining | Zone 20 | II | 1D |
| Non-mining | Zone 21 | II | 2D or 1D |
| Non-mining | Zone 22 | II | 3D, 2D or 1D |

Highlighted zones = Permitted zones for Roxtec Ex products

Zone classification

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 authorized personnel.

The Roxtec Ex product range includes a wide variety of seals to handle different cable sizes and openings. Our products are designed and approved for use in Zone 1 and 2 for gas (incl vapor, mists) and 21 and 22 for dust.

| 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 Ex products



The ATEX directive

Directive 94/9/EC is commonly referred to as the ATEX ("Atmosphères Explosibles") product directive. Its objective is to eliminate or minimize 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 harmonization directive. Its provisions replace existing divergent national and European legislation which covers the same subjects as stipulated by the ATEX product directive.

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

Standards

Roxtec Ex products are tested, approved and certified according to the following standards:

EN 60079-0:2006
EN 60079-7:2003
EN 61241-0:2006
EN 61241-1:2004
IEC 60079-0:2004
IEC 60079-7:2001
IEC 61241-0:2006
IEC 61241-1:2004

IECEx, International Certification Scheme

The IECEx certification scheme simplifies global trade with, as well as maintenance of, equipment intended for use in explosive atmospheres. The IECEx scheme is voluntary. It is managed by the IEC, a standardization organization, and based on

global acceptance of test reports by the member states.

Certification is based on requirements in specific international IEC standards for explosion protected equipment.

Reduction of risk with Roxtec

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

What is an explosive atmosphere?

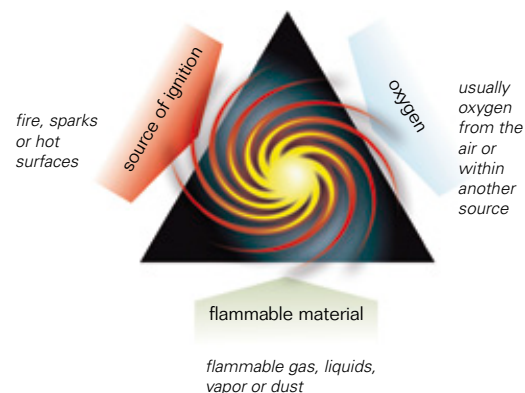
An explosive atmosphere is defined as a mixture of air and a flammable substance in the form of gases, vapors, mists, dusts or fibers, in which, after ignition, combustion spreads throughout the entire unconsumed mixture.

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:

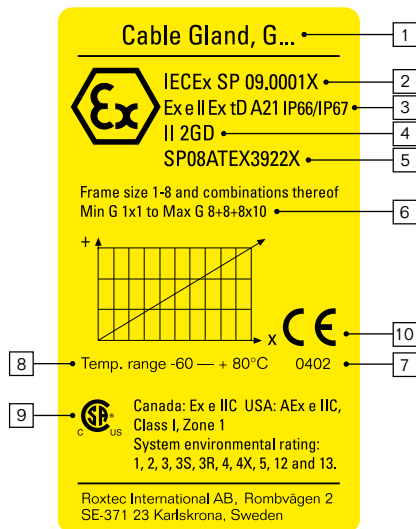
- Elimination of the explosive atmosphere around the source of ignition
- Elimination of the source of ignition
- Substitute with a non-flammable substance
- Lowering the process temperature

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

In these cases the ATEX product directive provides necessary protective measures.

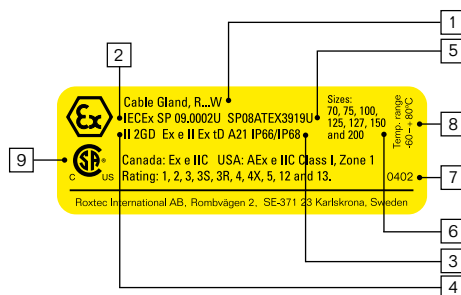
Roxtec Ex marking

All Roxtec Ex products are clearly marked in accordance with the ATEX directive. They are easily identified by the yellow Ex label and Ex icon.



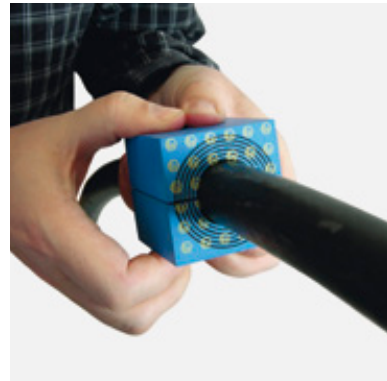
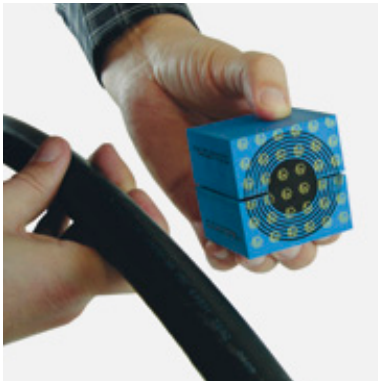
1. Type of gland (cable seal).
2. IECEx certificate number.
U = Marking to indicate that the equipment is an Ex component.
X = Marking to indicate that special conditions for safe use apply for the certification of the product.
3. **Ex e II** = Marking for protection against potential explosive gases.
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 techniques used. "e" is increased safety.
II = The group of electrical apparatus.
Ex tD = Marking for protection against potential explosive dust. Protected by enclosure.
A21 = The equipment is intended to be placed in zone 21 and 22 (not in zone 20).
IP66/IP67 = IP code (Ingress Protection)
4. **II** = The equipment group of electrical apparatus.

5. **SP** = Name or mark of notified body.
08 = Year of certification.
3922, 3919 = Consecutive No.
U = Marking to indicate that the equipment is an Ex component.
X = Marking to indicate that special conditions for safe use apply for the certification of the product.
6. Type designation for the certified cable gland.
7. **0402** = Serial number of notified body.
8. Minimum/maximum ambient temperature.
9. CSA marking for US and Canada. Class 1, Zone 1.
10. For cable glands certified as apparatus according to the ATEX directive, the CE mark is also applied.



Roxtec Ex sealing system

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



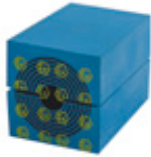
The purpose of using a Roxtec Ex sealing system is to create an intrusion-proof passage for cables. This is achieved by allowing the cables to be routed through a Roxtec frame. Roxtec sealing modules are then inserted in the frame to seal the passage. The built in flexibility of our modular system provides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

Multidiameter™ by Roxtec

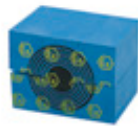
A unique feature of our system is Multidiameter™, a solution based on sealing modules with removable layers. The fit to the cable is achieved by peeling off layers from the core of the seal, such as Roxtec modules or Roxtec round seals. The benefits are enormous for the users. Fewer parts that can do more, turn 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 Ex modules



CM Ex modules

Rectangular frames



S Ex frames



SF...W Ex frames



G Ex frames



CF 8 Ex frame



CF 32 Ex frame



CF 16 Ex frame

Round frames/seals



R...W Ex frames



R...B Ex frames



RS...W Ex seal



RS...B Ex frames



C RS T Ex seals

Assembly parts



Wedge kit Ex



Wedge Ex



Stayplate Ex



Lubricant

Accessories



Pre-compression wedge



Pre-compression tool



Pre-compression eccentric tool



Handgrip pre-comp




Stayplate clamps



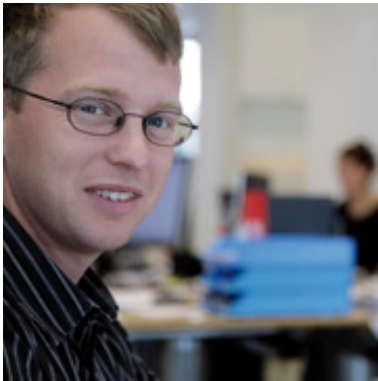
Stayplate clips



Slide Caliper

Roxtec Ex frames/seals are marked  II 2GD Ex e II. Ex tD A21. Ingress protection is from IP66 to IP68 depending on the product. Temperature range -60° C — +80° C or -40° C — +80° C depending on the product.

We support you globally



Sharing our knowledge

Roxtec is much more than a supplier. Our sales and support staff around the world help customers find their optimal solution. Our knowledge, acquired through many years of work in the field, enables us to guide you to a solution that suits your specific needs.

We help ensure quality

Our extensive R&D resources, with design departments, a fire test lab and a technical center, give us the opportunity to continuously develop and improve products and solutions for our customers. One example is the RTM Software that simplifies the design and planning of cable and pipe transits. We provide tests and certificates as well as support and documentation for transferring knowledge within your organization.



Installation training

Whenever desired, we provide product installation training on site through our sales staff and technicians. In the Installer's section of our website www.roxtec.com, we have collected useful information for staff involved in assembly and installation of the sealing system. Instructions and videos can be viewed online or downloaded for free.

The world's most available modular seal

Market leader

Roxtec is the global market leader in modular-based seals for cable and pipe entries. Our head office is situated in Sweden, where we manufacture our products and coordinate sales and marketing. We serve our customers in more than 70 markets through 18 subsidiaries and an extensive network of local distributors.

Continuous development

We work continuously to improve our products, to keep pace with and lead the development in the market place and to meet 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 ISO 9001 and ISO 14001 standards.

Quick deliveries

Delivery times are crucial. Local representatives and stocks worldwide mean that we can deliver at short notice. 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



Local presence worldwide

Roxtec is the world-leading provider of flexible sealing solutions for cable and pipe penetrations. Our adaptability solution, Multidiameter™, is based on modules with removable layers. It seals perfectly, regardless of the dimension of the cable or pipe. We are present all over the world in order to ensure product availability as well as quick support and supply.

Sweden, Roxtec International AB, HQ
Argentina, INGIAR Representaciones SRL
Australia, Roxtec Australia Ltd
Belgium, Roxtec b.v.b.a/s.p.r.l
Brazil, Roxtec Latin América Ltda
Chile, FACOR Ltda
China, Roxtec International Trading (Shanghai) Co. Ltd
Croatia, Roxtec d.o.o.
Czech Republic, Roxtec CZ s.r.o
Denmark, Roxtec ApS
Finland, Roxtec Finland Oy
France, Roxtec France
Germany, Roxtec GmbH
Hungary, Glob-Prot Trade and Service Ltd
India, Roxtec India Pvt Ltd
Italy, Roxtec Italia S.r.l
Japan, Roxtec Japan K.K
Kazakhstan, Company ECOS
Lithuania, SWELBALT
Mexico, Roxtec de México, S.A. de C.V
Nigeria, Structured Resource Business Ltd
The Netherlands, Roxtec BV
Norway, Roxtec AS
Peru, Synixtor S.A.C
Poland, Pionet Sp.zo.o
Portugal, Glacis, LDA
Russia, Roxtec RU
Romania, Roxtec RO s.r.l.
Singapore, Roxtec Singapore PTE Ltd
South Africa, Roxtec Africa (PTY) Ltd
South Korea, Roxtec Korea
Spain, Roxtec Sistemas Pasamuros S.L
Switzerland, Agro AG
UAE, Roxtec Middle East F.Z.E
UK/Ireland, Roxtec Ltd
USA/Canada, Roxtec Inc

For other markets and detailed contact information, please visit 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@roxtec.com, www.roxtec.com