VYRTYCH

OIL & GAS CHEMICAL SECTOR

The oil & gas and chemical sectors encompass industries related to the extraction, refining, processing, and distribution of oil, natural gas, and chemicals. Both sectors play a critical role in the global economy, particularly in energy, material production, and chemical products. Here are the main characteristics of each:

OIL & GAS SECTOR

- **Extraction and production:** Involves exploration and extraction of crude oil and natural gas from underground or offshore reserves.
- **Refining and processing:** Oil is refined into products such as gasoline, diesel, kerosene, and more. Natural gas is processed for use as fuel or raw material.
- **Distribution and sale:** Oil industry products are transported via pipelines, ships, trains, and tanker trucks to distribution points, such as gas stations or industrial plants.

CHEMICAL SECTOR

- **Production of chemicals:** Includes the manufacturing of basic chemicals, petrochemicals, fertilizers, plastics, dyes, pharmaceuticals, and other chemical products.
- **Processing of raw materials:** The chemical industry often uses products from the oil and gas sector (e.g., natural gas, oil) as raw materials for producing chemicals and plastics.
- **Applications across industries:** Chemical products are used in a wide range of sectors, such as agriculture, pharmaceuticals, construction, automotive, and consumer goods.

An explosive atmosphere in the oil & gas, and chemical sectors arises primarily due to the presence of flammable substances in the form of gases, vapors, or dust, which can mix with air to create a dangerous mixture. This mixture can ignite in the presence of an ignition source, leading to an explosion. Here are several reasons why explosive atmospheres occur in these sectors:

PRESENCE OF FLAMMABLE GASES AND VAPORS

In the oil & gas sector: Products such as natural gas, oil, and their byproducts are highly flammable. Leaks of gases or vapors during extraction, refining, storage, or transportation can lead to the formation of an explosive atmosphere.

Gas Hazards: Methane, propane, butane, hydrogen sulfide.
Dust Hazards: Not common.
Hybrid Mixtures: Possible in processing plants where both gas and dust might be present

In the chemical sector: Many chemicals used in manufacturing processes are highly flammable (e.g., solvents, acetylene, hydrogen). Even small leaks of these substances, when combined with air, can create an explosive mixture.

Gas Hazards: Various flammable gases and vapors like ethylene, propylene, benzene.
Dust Hazards: Powdered raw materials and products.
Hybrid Mixtures: Possible in certain manufacturing processes.

LEAKS FROM TECHNOLOGICAL PROCESSES

During extraction, processing, or chemical production, leaks of gases, vapors, or dust can occur due to faulty pipes, tanks, or valves. When these leaks reach certain concentrations in combination with air, the risk of an explosion increases.

COMBUSTIBLE DUST

In the chemical industry: Substances such as sugar, flour, coal, metal dust, or chemical compounds in the form of dust can create an explosive atmosphere when dispersed in the air. Dust is often underestimated, but its concentration in a confined space can be very dangerous.

Dust explosions occur when fine dust particles mix with air and are ignited.

IGNITION SOURCE

Explosions only occur when an explosive atmosphere comes into contact with an ignition source, such as a spark from electrical equipment, static electricity, hot surfaces, open flames, or mechanical friction.

CONFINED SPACES

Explosive atmospheres are more dangerous in confined or poorly ventilated spaces, where flammable gases, vapors, or dust can concentrate more easily. In the oil, gas, and chemical sectors, work often takes place in enclosed tanks, pipeline systems, and reactors, increasing the risk of explosions.

These factors make the oil, gas, and chemical sectors particularly prone to explosive atmospheres, which is why strict safety regulations and protocols are in place to minimize the risks.

SAFETY AND INNOVATION

„We manufacture high-quality and safe lighting solutions specifically designed for the oil, gas, and chemical industries. Our products meet the strict requirements for use in hazardous environments, ensuring maximum safety and reliability.“

AQUA-110-Ex1/21

ZONE 1/21

Explosion proof tubular luminaire

II 2G Ex db eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T62°C Db

- IP66/67/69
- IK10
- Up to 12 100 lm
- Up to 152 lm/W
- -30 °C to +60 °C
- Lenght - L03/L06/L12/L15

soon soon

Characteristics:

- High impact resistant polycarbonate opal tube 110 mm
- End caps from stainless steel or aluminium
- The luminaire is resistant to atmospheric and salt corrosive environment C5M
- Available in different colour temperatures (Tc)
- Surface or suspended mounting
- Ready for LOOP IN - LOOP OUT

High installation flexibility:

Oil & gas | Chemical | Off-shore | Marine | Food & beverages | Sewage treatment plants

LORD-Ex1/21

ZONE 1/21

Explosion proof linear luminaire

II 2G Ex eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T67°C Db

- IP66/67/69
- IK08
- Up to 11 000 lm
- Up to 153 lm/W
- -40 °C to +60 °C
- Lenght - L03/L06/L12/L14

soon soon

Characteristics:

- Aluminium alloy with ELOX surface is resistant to atmospheric and salt corrosion in a C5M environment
- Opal or clear tempered safety glass
- Available in different colour temperatures (Tc)
- Emergency kit on request
- Surface or suspended mounting
- Ready for LOOP IN - LOOP OUT

High installation flexibility:

Oil & gas | Oil refinery | Chemical | Manufacturing | Energy | Marine

KERN-Ex1/21, KERN-Ex2/21

ZONE 1/21, 2/21

Explosion proof bulkhead luminaire

ZONE 1/21
II 2G Ex eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T67°C Db

- IP66
- IK10
- Up to 1 650 lm
- Up to 105 lm/W
- -30 °C to +50 °C

ZONE 2/21
II 3G Ex nR IIC T6 Gc
II 2D Ex tb IIIC T80°C Db

- IP66
- IK10
- Up to 3 450 lm
- Up to 159 lm/W
- -30 °C to +60 °C

soon soon

Characteristics:

- Polycarbonate UV stable housing RAL 7035
- Opal polycarbonate diffuser
- Available in different colour temperatures (Tc)
- Emergency version with set of pictograms
- Dimming on request
- Surface or suspended mounting
- The emergency version is equipped with a magnetic switch for checking the function of the emergency mode, this allows checking without opening the luminaire

Manufacturing Oil & gas Chemical Oil refinery Energy

TOSA-Ex2/21

ZONE 2/21, 22

NEW

FLOODLIGHT luminaire

II 3G Ex nR IIC T5 Gc/ Ex nR IIC T5 Gc
II 2D Ex tb IIIC T95°C Db/ Ex tb IIIC T95°C Db
certificate TÜV 25 ATEX 9256X/ 9255X
IECEx TUR 25.0015X

- IP66
- IK08
- Up to 21 000/ 26 000/ 31 000 lm
- Up to 140 lm/W
- -40 °C to +65 °C

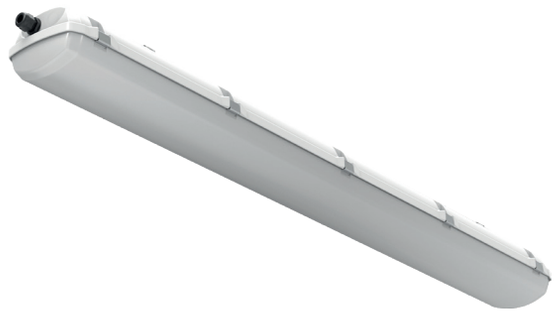
Characteristics:

- Robust aluminium housing RAL 9006
- Housing material - aluminum (low copper content)
- Tempered clear glass
- The luminaire is resistant to atmospheric and salt corrosive environment C5M
- Adjustable bracket, mounting angle +/-90°
- Ready for LOOP IN - LOOP OUT

Oil & gas · Chemical · Energy · Marine

EXTRA-EX-LED

ZONE 1/21, 22



Explosion proof linear luminaire

II 2G Ex eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T67°C Db
certificate FTZÚ 16 ATEX 0167X

- IP66
- IK10
- Up to 6 561 lm
- Up to 155 lm/W
- -20 °C to +50 °C
- Lenght - L06/L12

soon

Characteristics:

- High impact resistant polycarbonate
- UV stable housing RAL 7035
- Opal polycarbonate diffuser
- Available in different colour temperatures (Tc)
- Emergency kit on request
- Surface or suspended mounting

Oil & gas · Chemical · Pharma & Laboratories · Food & beverages · Energy

EXTEND-EX-P-LED

ZONE 1/21, 22

Explosion proof linear luminaire

II 2G Ex db eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC 71°C Db
certificate FTZÚ 16 ATEX 0080X

- IP66
- IK10
- Up to 6 138 lm
- Up to 139 lm/W
- -20 °C to +55 °C
- Lenght - L07/L13

soon

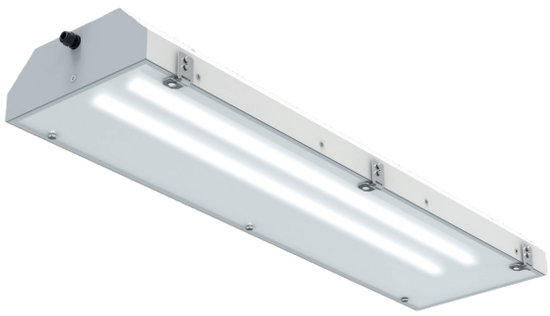
Characteristics:

- GRP housing RAL 7035
- Clear polycarbonate diffuser
- Central locking system
- Available in different colour temperatures (Tc)
- Emergency kit on request
- Surface or suspended mounting

Oil & gas · Chemical · Pharma & Laboratories · Food & beverages · Energy

PITBUL-EX-LED

ZONE 1/21, 22



Explosion proof steep roof luminaire

II 2G Ex db eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T 67°C Db
certificate FTZÚ 16 ATEX 0089X

- IP65
- IK10+
- Up to 13 447 lm
- Up to 159 lm/W
- -40 °C to +60 °C
- Lenght - L07/L13

Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Opal tempered safety glass
- Available in different colour
- temperatures (Tc)
- Emergency kit on request
- Surface, recessed or suspended mounting

Manufacturing · Oil & gas · Chemical · Oil refinery · Pharma & Laboratories

RAMBO-EX-LED

ZONE 1/21

Explosion proof tubular luminaire

II 2G Ex db eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T59°C Db
certificate FTZÚ 17 ATEX 0053X

- IP66/67
- IK10
- Up to 5 441 lm
- Up to 126 lm/W
- -20 °C to +50 °C
- Lenght - L13/L18

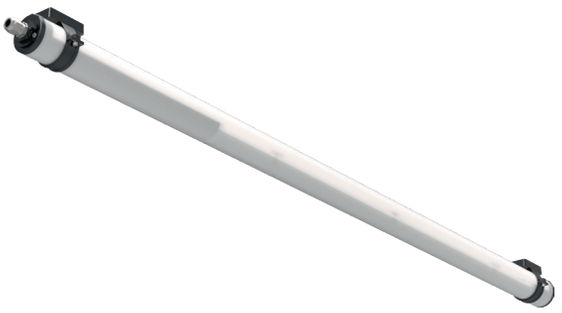
Characteristics:

- High impact resistant polycarbonate clear tube in steel housing RAL 9016
- End caps from polycarbonate fiberglass
- Available in different colour temperatures (Tc)
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Off-shore · Oil refinery

AQUA-70-EX-LED

ZONE 1/21



Explosion proof tubular luminaire

II 2G Ex db eb mb op is IIC T4 Gb
II 2D Ex tb op is IIIC T62°C Db
certificate FTZÚ 17 ATEX 0052X

- IP66/68
- IK10
- Up to 5 985 lm
- Up to 139 lm/W
- -20 °C to +50 °C
- Lenght - L11/L17

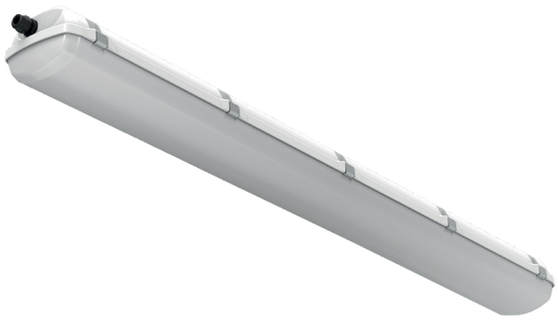
Characteristics:

- High impact resistant polycarbonate clear tube
- End caps from polycarbonate fiberglass
- Available in different colour temperatures (Tc)
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Off-shore · Oil refinery · Sewage treatment plants

EXTRA-N-LED-2/21

ZONE 2/21



Explosion proof linear luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex II 2D Ex tb IIIC T80°C Db
certificate FTZÚ 24 ATEX 0020X

- IP66
- IK10
- Up to 16 311 lm
- Up to 155 lm/W
- -20 °C to +60 °C
- Lenght - L06/L12/L15

soon

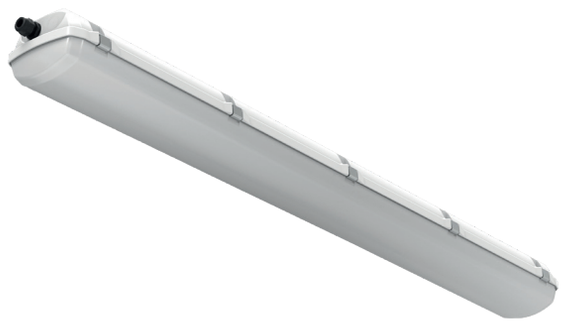
Characteristics:

- Polycarbonate UV stable housing RAL 7035
- Opal polycarbonate diffuser
- Available in different colour temperatures (Tc)
- Emergency kit/Dimming on request
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Pharma & Laboratories · Food & beverages

EXTRA-N-LED

ZONE 2/22



Explosion proof linear luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex II 3D Ex tc IIIC T80°C Dc
certificate FTZÚ 16 ATEX 0102X

- IP66
- IK10
- Up to 17 903 lm
- Up to 166 lm/W
- -20 °C to +60 °C
- Lenght - L06/L12/L15

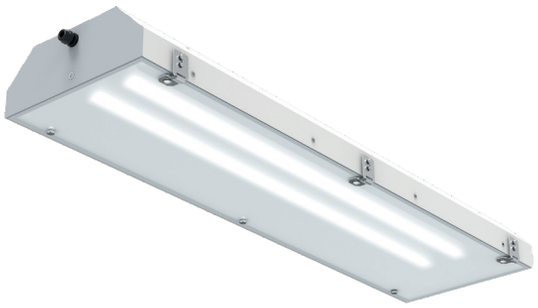
Characteristics:

- Polycarbonate UV stable housing RAL 7035
- Opal polycarbonate diffuser
- Available in different colour temperatures (Tc)
- Emergency kit/Dimming on request
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Pharma & Laboratories · Food & beverages

PITBUL-N-LED

ZONE 2/22



Explosion proof steep roof luminaire

II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T68°C Dc
certificate FTZÚ 17 ATEX 0129X

- IP65
- IK10+
- Up to 24 845 lm
- Up to 131 lm/W
- -20 °C to +65 °C
- Lenght - L07/L13/L16

Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Opal tempered safety glass
- Available in different colour
- temperatures (Tc)
- Emergency kit/Dimming on request
- Surface, recessed or suspended mounting

Manufacturing Oil & gas Chemical Paint shops Pharma & Laboratories

FILA-N-LED

ZONE 2/21, 22

Explosion proof paint booth luminaire

II 3G Ex nR IIC T6 Gc
II 2D Ex tb op is IIIC T70°C Db
certificate FTZÚ 20 ATEX 0075X
II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T70°C Dc
certificate FTZÚ 20 ATEX 0077X

- IP66
- IK07
- Up to 25 692 lm
- Up to 142 lm/W
- -20 °C to +65 °C
- Lenght - L07/L13/L16

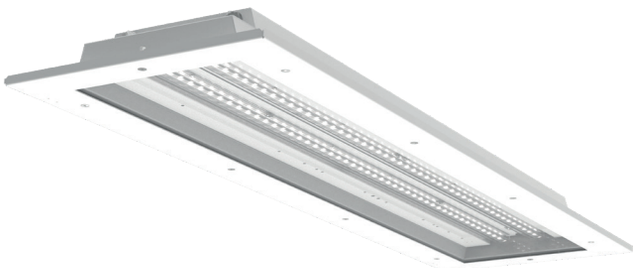
Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Opal tempered safety glass
- Available in different colour
- temperatures (Tc)
  Emergency kit/Dimming on request
- Variable mounting options (surface, vertical, horizontal, corner, recessed)

Manufacturing Oil & gas Chemical Paint shops Pharma & Laboratories

NORD-N-LED-CG

ZONE 2/22



Explosion proof paint booth luminaire

II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T80°C Dc
certificate FTZÚ 17 ATEX 0026X

- IP66
- IK10
- Up to 12 807 lm
- Up to 166 lm/W
- -20 °C to +60 °C
- Lenght - L07/L13/L16

Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Clear tempered safety glass
- Optics : ACL LINEAR LENS 24mm BATWING
- Available in different colour temperatures (Tc)
- Emergency kit/Dimming on request
- Recessed mounting

Manufacturing Paint shops

NORD-N-LED-OPG

ZONE 2/22

Explosion proof paint booth luminaire

II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T80°C Dc
certificate FTZÚ 17 ATEX 0026X

- IP66
- IK10
- Up to 26 322 lm
- Up to 160 lm/W
- -20 °C to +60 °C
- Lenght - L07/L13/L16

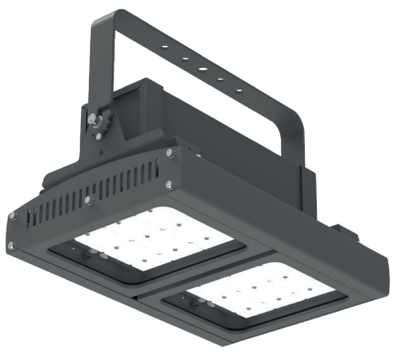
Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Opal tempered safety glass
- Available in different colour
- temperatures (Tc)
- Emergency kit/Dimming on request
- Recessed mounting

Manufacturing Paint shops

BERGER-N-LED

ZONE 2/21, 22



Explosion proof HIGH-BAY

ZONE 2/21

Ex II 3G Ex nR IIC T6...T5 Gc
Ex II 2D Ex tb op is IIIC T85°C Db
certificate FTZÚ 22 ATEX 0107X

Ex nR IIC T6... T5 Gc
Ex tb op is IIIC T85° Db
certificate IECEx FTZU 24.0004X

ZONE 2/22

Ex II 3G Ex nR IIC T6...T5 Gc
Ex II 3D Ex tc IIIC T85°C Dc
certificate FTZÚ 22 ATEX 0108X

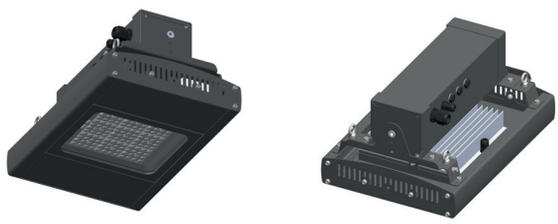
- IP66
- Up to 43 634 lm
- Up to 179 lm/W
- -40 °C to +70 °C

Manufacturing | Oil & gas | Chemical | Oil refinery | Energy | Large painting facilities

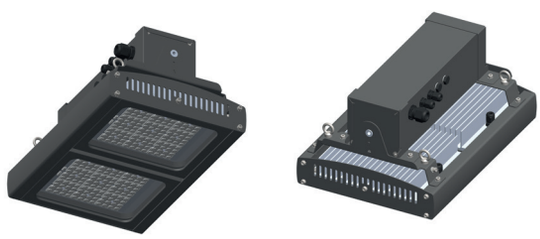
Characteristics:

- Robust aluminium housing RAL 7043
- Clear tempered safety glass
- Extreme high LED lifetime L70B50 Ta 70 - 100,000 h even at high temperatures
- Available in different colour temperatures (Tc)
- Dimming on request
- Suspended by means of 4 eye bolts M5 (standard equipment) or surface mounted by means of adjustable bracket (adjustable bracket on request only)

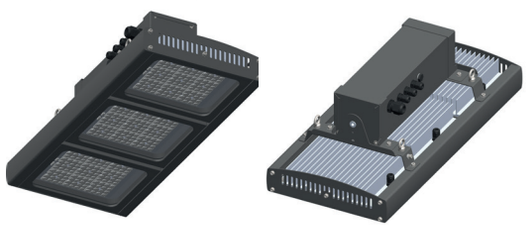
1M - 1 module



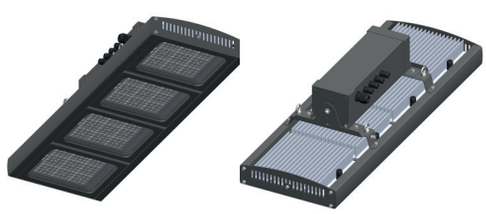
2M - 2 modules



3M - 3 modules



4M - 4 modules



BORDER-N-LED

ZONE 2/21, 22

Explosion proof lighting panel

ZONE 2/21

Ex II 3G Ex nR IIC T6 Gc
Ex II 2D Ex tb op is IIIC T85°C Db
certificate FTZÚ 23 ATEX 0038X

ZONE 2/22

Ex II 3G Ex nR IIC T6 Gc
Ex II 3D Ex tc IIIC T85°C Dc
certificate FTZÚ 23 ATEX 0039X

- IP66
- Up to 9 996 lm
- Up to 158 lm/W
- -40 °C to +60 °C

soon

Characteristics:

- Robust steel RAL 9016 sheet or stainless steel AISI304, AISI316
- Classified for clean areas in compliance with ISO 14644-1
- Available in different colour temperatures (Tc)
- Emergency kit/Dimming on request

Diffuser:

- **GLM** – matt tempered safety glass
- **OP** – clear PC + opal plexiglass
- **MP** – clear PC +microprismatic plexi-glass
- **CGOP** - clear tempered safety glass + opal plexiglass
- **CGMP** - clear tempered safety glass + microprismatic plexiglass

Large variability of luminaires according to installation types:

- mounting into **false ceilings of M600/M625** modules
- installation using nivelation set for **metal suspended ceilings M598/M623**
- installation using nivelation set for **plasterboard**
- installation using frame for surface mounting

Pharma & Laboratories · Food & beverages · Chemical · Chemical warehouses · Car industry workdecks

SALUKA-N-LED

ZONE 2/22

Explosion proof linear luminaire

II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T80°C Dc
certificate FTZÚ 17 ATEX 0027X

- IP66
- IK07
- Up to 16 963 lm
- Up to 154 lm/W
- -20 °C to +60 °C
- Lenght - L07/L13/L16

Characteristics:

- Painted steel housing RAL 9016 (stainless steel on request)
- Opal tempered safety glass
- Available in different colour
- temperatures (Tc)
- Emergency kit/Dimming on request
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Off-shore · Pharma & Laboratories · Energy

BASET-N-LED

ZONE 2/22

Explosion proof bulkhead luminaire

II 3G Ex nR IIC T6 Gc
II 3D Ex tc IIIC T65°C Dc
certificate FTZÚ 18 ATEX 0048X

- IP66
- IK07
- Up to 2 537 lm
- Up to 131 lm/W
- -20 °C to +50 °C

Characteristics:

- Polycarbonate UV stable housing RAL 7035
- Opal polycarbonate diffuser
- Available in different colour
- temperatures (Tc)
- Emergency version with set of pictograms
- Dimming on request
- Surface or suspended mounting

Manufacturing · Oil & gas · Chemical · Oil refinery · Energy

BASIC TECHNICAL INFORMATION ABOUT HAZARDOUS AREAS

ATEX DIRECTIVE

Electrical instruments and devices for areas with danger of explosions that are subject to requirements of the ATEX directive This Directive lays down technical requirements for the conformity assessment of equipment and protective systems designed for use in areas with danger of explosions when placed on the market.

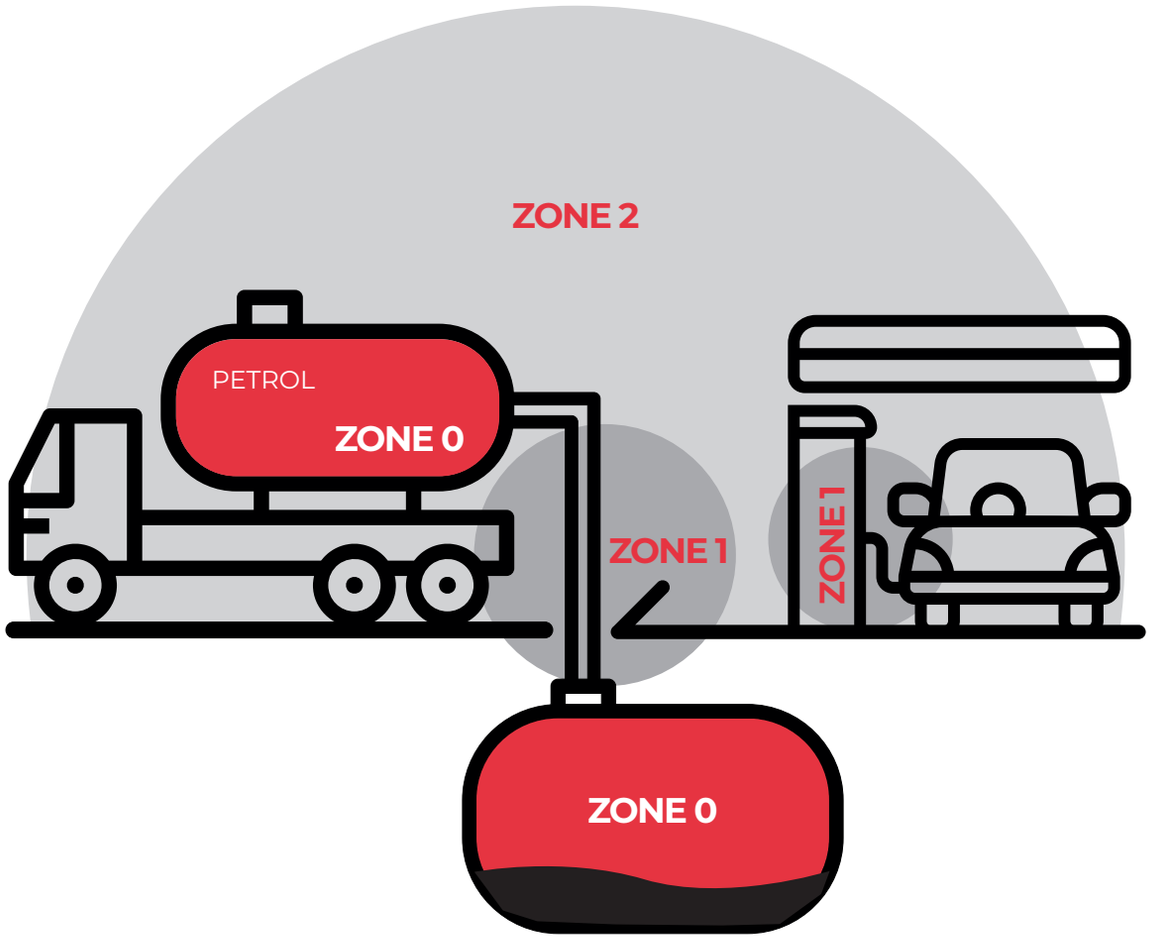
The installations are divided into corresponding groups and categories according to this directive.

Group of devices I

installations for underground mines with occurrence of mine gas (methane) and / or combustible dust

Group of devices II

nstallations for premises with danger of explosion other than underground mines with occurrence of mine gas (methane) and / or combustible dust



a) Equipment category 1 GD includes installations that are designed to be capable of operating in conformity with the operating parameters established by the manufacturer and ensuring a very high level of protection. Installations of this category are designed for application in areas where explosive atmosphere created by gases, vapours or mists or a dust-air mixture exists permanently, for long periods or often. Installations of this category must provide the required level of protection even in case of exceptional events involving the equipment.
ZONE 0/20 (Ga, Da)

b) Equipment category 2 GD includes installations that are designed to be capable of operating in conformity with the operating parameters established by the manufacturer and ensuring a very high level of protection. Installations of this category are designed for application in areas where the occasional formation of an explosive atmosphere by gases, vapours, mists or dust-air mixtures is likely.

The means of protection related to installations of this category ensure the required level of protection even in the event of frequent disturbances or failures of equipment that must be normally taken into account.
ZONE 1/21 (Gb, Db)

c) Equipment category 3 GD includes installations that are designed to be capable of operating in conformity with the operating parameters established by the manufacturer and ensuring a very high level of protection. Installations of this category are designed for application in areas where an explosive atmosphere created by gases, vapours, mists or dusts is unlikely to occur and, if an explosive atmosphere is created, it is likely to occur rarely and for a short time only. Installations of this category ensure the required level of safety during normal operation.
ZONE 2/22 (Gc, Dc)

VYRTYCH

We are a Czech manufacturer of industrial luminaires with 35 years of experience, specializing in a wide range of industrial and luminaires for special applications suitable for various industries such as oil & gas, chemical & pharmaceutical sector, medical, industrial and others.

100+ employees

35 years in the market

70+ export countries

European producer

60 000+ company area

VYRTYCH a.s.
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CZECH REPUBLIC

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5/2025