

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-Ex1

Ex ZONE 1/21



Explosion proof tubular luminaire

- IP66/67/69
- IK10
- Up to 13 000 lm
- Up to 160 lm/W
- -40 °C to +60 °C
- Length - L03/L06/L12/L15



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:



LORD-Ex1

Ex ZONE 1/21, 22



Explosion proof linear luminaire

- IP66/67/69
- IK08
- Up to 13 000 lm
- Up to 155 lm/W
- -40 °C to +60 °C
- Length - L03/L06/L12/L14



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



Oil & gas



Oil refinery



Chemical



Manufacturing



Energy



Marine

High installation flexibility:



KERN-Ex1, KERN-Ex2

Ex ZONE 1/21, 2/21



Explosion proof bulkhead luminaire

ZONE 1/21

- IP66
- IK10
- Up to 1653 lm
- Up to 135 lm/W
- $-30\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$

ZONE 2/21

- IP66
- IK10
- Up to 3400 lm
- Up to 152 lm/W
- $-30\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$



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
- The emergency version is equipped with a magnetic switch for checking the function of the emergency mode, this allows checking without opening the luminaire



TOSA-Ex2

Ex ZONE 2/21, 22

NEW



FLOODLIGHT luminaire

Ex II 3G Ex nR IIC T5 Gc/ Ex nR IIC T5 Gc
Ex 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 32 000 lm
- Up to 140 lm/W
- -40 °C to +60 °C



Characteristics:

- Robust aluminium housing RAL 9006
- Housing material - aluminum ENAC-44300 (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



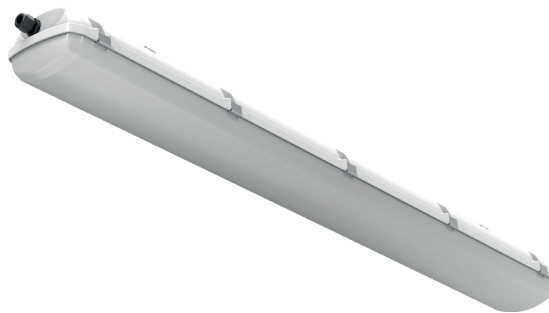
Sewage treatment plants



Marine

EXTRA-EX-LED

Ex ZONE 1/21, 22



Explosion proof linear luminaire

Ex II 2G Ex eb mb op is IIC T4 Gb
Ex 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
- Length - L06/L12



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

Ex ZONE 1/21, 22



Explosion proof linear luminaire

Ex II 2G Ex db eb mb op is IIC T4 Gb

Ex 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
- \updownarrow -20 °C to +55 °C
- Length - L07/L13



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



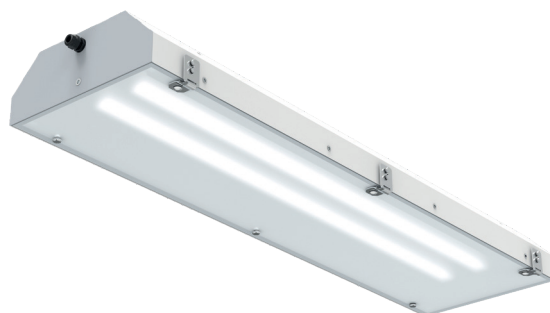
Food & beverages



Energy

PITBUL-EX-LED

Ex ZONE 1/21, 22



Explosion proof steep roof luminaire

Ex II 2G Ex db eb mb op is IIC T4 Gb

Ex 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
- \updownarrow -40 °C to +60 °C
- Length - 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
- Length - 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






AQUA-70-EX-LED

 ZONE 1/21



Explosion proof tubular luminaire

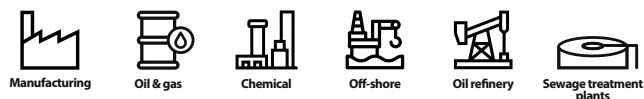
 II 2G Ex db eb mb op is IIC T4 Gb
 II 2D Ex tb op is IIIC T62°C Db
 certificate FTZÚ 17 ATEX 0052X

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



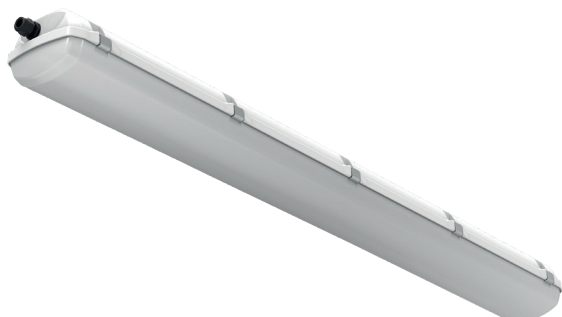
Characteristics:

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



EXTRA-N-LED-2/21

Ex 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
- \updownarrow -20 °C to +60 °C
- Length - 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



EXTRA-N-LED

Ex 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
- \updownarrow -20 °C to +60 °C
- Length - L06/L12/L15



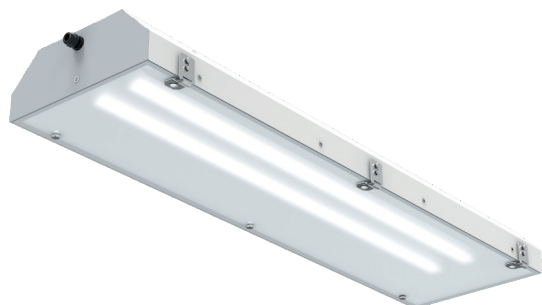
Characteristics:

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



PITBUL-N-LED

Ex ZONE 2/22



Explosion proof steep roof luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex 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
- \updownarrow -20 °C to +65 °C
- Length - 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



FILA-N-LED

Ex ZONE 2/21, 22



Explosion proof paint booth luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex II 2D Ex tb op is IIIC T70°C Db
certificate FTZÚ 20 ATEX 0075X
Ex II 3G Ex nR IIC T6 Gc
Ex 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
- \updownarrow -20 °C to +65 °C
- Length - L07/L13/L16



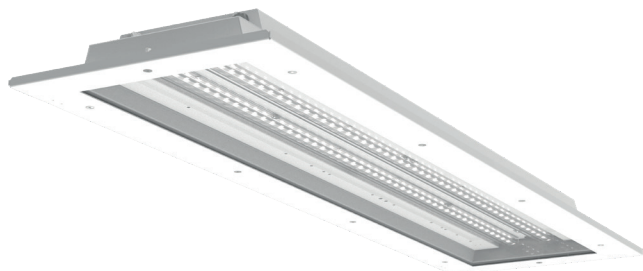
Characteristics:

- 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)



NORD-N-LED-CG

Ex ZONE 2/22



Explosion proof paint booth luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex 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
- \updownarrow -20 °C to +60 °C
- Length - 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

Ex ZONE 2/22



Explosion proof paint booth luminaire

Ex II 3G Ex nR IIC T6 Gc
Ex 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
- \updownarrow -20 °C to +60 °C
- Length - 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





Explosion proof HIGH-BAY

ZONE 2/21

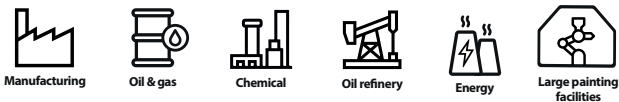
Ex II 3G Ex nR IIC T6...T5 Gc
Ex II 2D Ex tb op is IIIC T85°C Db
certificate FTZÚ 22 ATEX 0107X

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

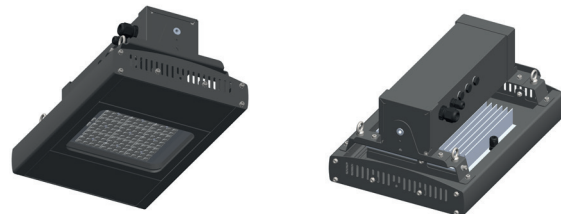
- IP66
- Up to 43 634 lm
- Up to 179 lm/W
- -40 °C to +70 °C



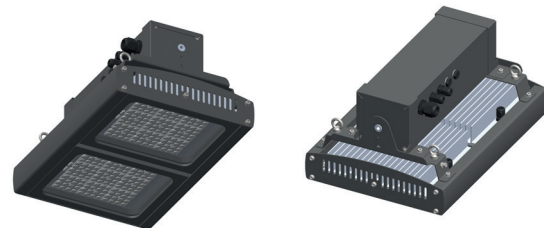
Characteristics:

- 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)

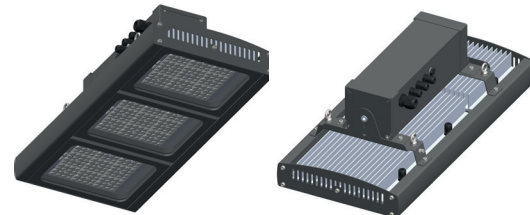
1M - 1 module



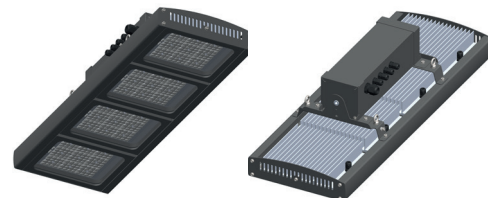
2M - 2 modules



3M - 3 modules



4M - 4 modules



BORDER-N-LED

Ex ZONE 2/21, 22



Explosion proof lighting panel

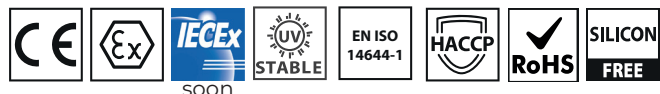
ZONE 2/21

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



Characteristics:

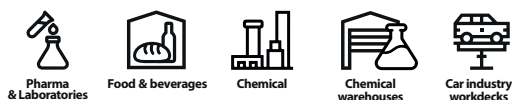
- Robust steel RAL 9016 sheet or stainless steel AISI304, AISI316
- Classified for clean areas in compliance with ISO 14644-1
- Available in different colour temperatures (Tc)
- Emergency kit/Dimming on request

Diffuser:

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



SALUKA-N-LED

Ex ZONE 2/22



Explosion proof linear luminaire

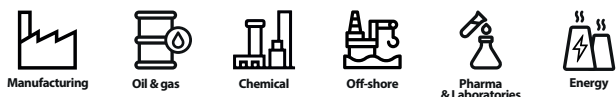
Ex II 3G Ex nR IIC T6 Gc
Ex II 3D Ex tc IIIC T80°C Dc
certificate FTZÚ 17 ATEX 0027X

- IP66
- IK07
- Up to 16 963 lm
- Up to 154 lm/W
- \updownarrow -20 °C to +60 °C
- Length - 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



BASET-N-LED

Ex ZONE 2/22



Explosion proof bulkhead luminaire

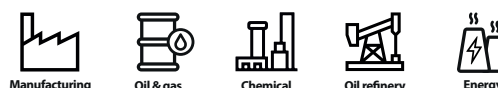
Ex II 3G Ex nR IIC T6 Gc
Ex II 3D Ex tc IIIC T65°C Dc
certificate FTZÚ 18 ATEX 0048X

- IP66
- IK07
- Up to 2 537 lm
- Up to 131 lm/W
- \updownarrow -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



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.

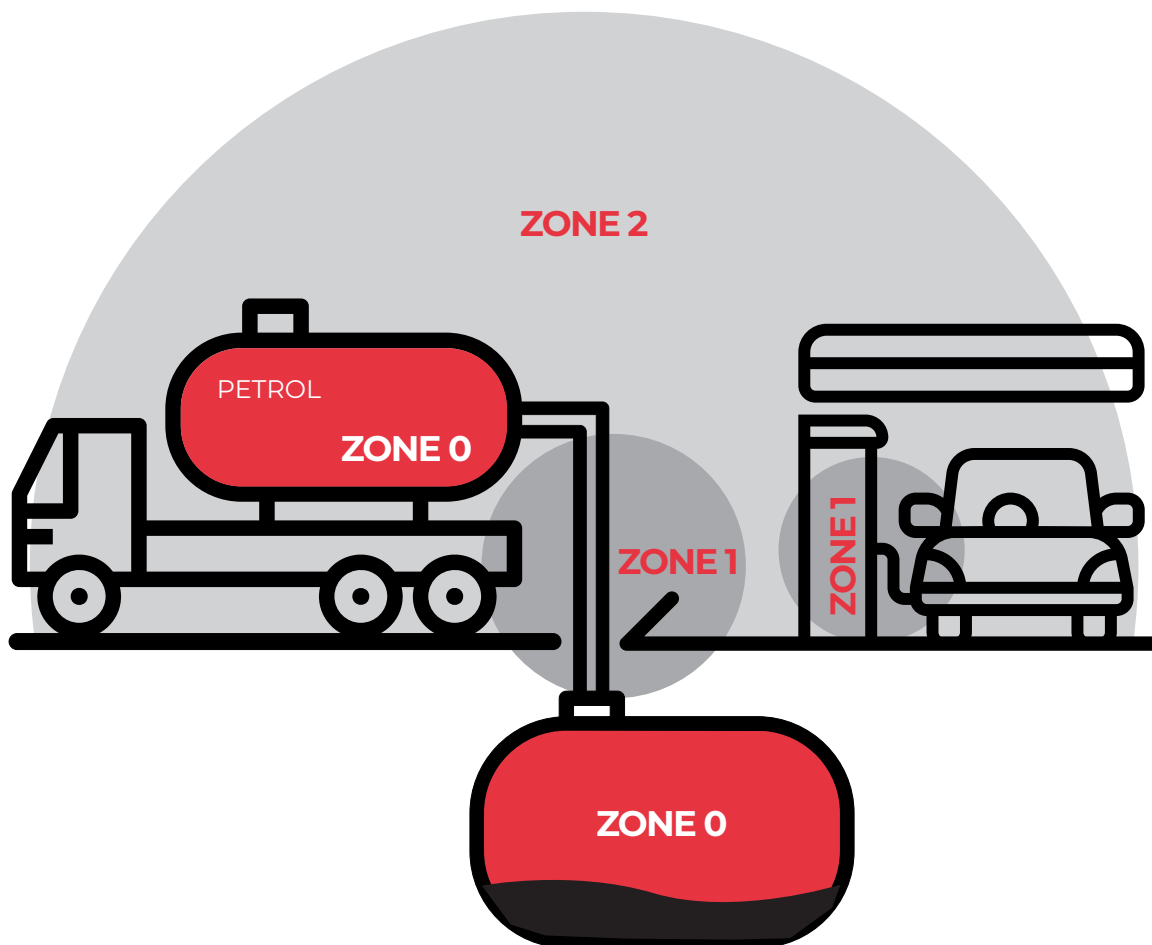
Group of devices I

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

Group of devices II

installations 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





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3/2025