

EXPLOSION HAZARDOUS ZONES

An explosion hazard occurs in the industry, warehouse which stores, processes, and manufactures inflammable substance such as: gas, liquid, solid.
 A mixture of inflammable substance in the form of gas, vapours, mist or dust with air we call an **Explosive Atmosphere**.
 Explosion rises if in the Explosion Atmosphere - excessive temperature, an electrical arc, spark or any other energy ignition occurs.
 The equipment for EX zones - due to ATEX directives - is divided into Groups and Sub-groups:

Groups:
 I - the equipment for all underground coal mining with firedamp.
 II - the equipment for hazardous areas other than underground coal mining.

SUB-groups:
 IIA - industrial methane, propane, petrol and the majority of industrial
 IIB - ethylene, coke oven gas and other industrial gases
 IIC - hydrogen, acetylene, carbon disulphide

The **self-ignition temperature**, or spontaneous ignition temperature is the minimum temperature at which an explosive atmosphere can spontaneously ignite.
 The **energy** required to start a flame can be changed to thermal form by an increase in the temperature of the mixture.
 The **explosive mixtures** are allocated into broad bands giving the Temperature Classes meaning the maximum surface temperatures for the electrical equipment.

Temp. class	Max. surface temp.	Self-ignition temp.
T1	450	> 450
T2	300	> 300 < 450
T3	200	> 200 < 300
T4	135	> 135 < 200
T5	100	> 100 < 135
T6	85	> 85 < 100

The explosion hazardous areas are divided into **Zones**:

Explosive Atmosphere	Explosion Hazardous Zones	
A mixture of air with gas, vapours, mist (G) or dust (D)	ZONE 0 and ZONE 20	an area in which an explosive atmosphere is continuously present or for long periods or frequently;
	ZONE 1 and ZONE 21	an area in which an explosive atmosphere is likely to occur occasionally in normal operation;
	ZONE 2 and ZONE 22	an area in which an explosive atmosphere is not likely to occur in normal operation but, if it does occur, will persist for a short period only;

Explosion proof enclosures are divided into the protection sub-groups.
 Below we present some examples of protection sub-groups:

„EX e” increased safety protection - normally sparking components are excluded from this method of protection. Other components are designed to substantially reduce the likelihood of the occurrence of fault conditions which could cause ignition. This is done by reducing and controlling working temperatures, ensuring the electrical connections are reliable, increasing insulation effectiveness and reducing the probability of contamination by dirt and moisture ingress.

„EX d” flameproof enclosure protection - the potentially incandive parts are contained within an enclosure into which the explosive atmosphere can enter but which will contain Any resultant explosion and prevent its transmission outsider of the enclosure.

„EX n” non sparking protection - for this method precautions are taken with connection and wiring to increase reliability, though not to as high degree as for EX e. Where internal surfaces are hotter than the desired T rating, they can be tightly enclosed to prevent the ready ingress of an explosive atmosphere.



LIGHT FOR OFFICES



LIGHT FOR MARINE



LIGHT FOR INDUSTRY



LIGHT FOR STREET



HAZARDOUS AREAS INSTALLATION „EX”



LIGHT FOR SPORT

hazardous areas
INSTALLATION „EX”





hazardous AREAS INSTALLATION „EX“

It requires specialistic, technical luminaries to supply the safety lighting installation into hazardous areas. Polam –Rem offers you a wide range of explosion-proof luminaries to light the industrial facilities and areas with explosion hazard atmosphere of gas, vapours and dusts in the zones 1,2, 21,22.

113 EX

The luminaire for incandescent lamp, max. wattage 200W. The body is made of die-cast aluminium. It is closed with transparent diffuser made of borosilicate glass. The metal parts are covered with polyester powder paint. The luminaire is for suspended installation. Additional equipment: protection grill, flat reflector, cone reflector.

Application: Industrial facilities and areas with explosion hazard atmosphere of gas, vapours and dusts in the zones 1,2, 21,22.

183 EX

The luminaire for T8 lamps, max. wattage 2x36W. The body is made of zinc-coated steel sheet, covered with polyester powder paint. It is closed with transparent diffuser made of hardening polycarbonate. The closing clamps are made of stainless steel. The metal parts are covered with polyester powder paint. The luminaire is for ceiling or wall – with two brackets- installation.

Application: Industrial facilities and areas with explosion hazard atmosphere of gas, vapours and flammable fogs mixed with air in the zones 1;2. The luminaire is recommended particularly for the chemically hostile inland and marine environment – including drilling platforms, oil refineries.

EXP 02

The luminaire for T8 lamps, max. wattage 3x58W. The body and the diffuser are made of UV resistant polycarbonate. The closing clamps are made of stainless steel, The mounting plate is made of polyester powder paint covered steel sheet.

Options: it may be equipped with emergency unit.
Application: Industrial facilities and areas with explosion hazard atmosphere of gas, vapours and dusts in the zones 2;22.

EXP 07

Floodlight for high pressure sodium, metal halide lamps. Max. wattage 400 W. The housing is made of die-cast aluminium, covered with powder paint. It is equipped with symmetric or asymmetric reflector made of aluminum sheet. The body is closed with hardening glass. It is to be installed with the adjustable bracket.

Additional equipment: protection grill.
Application: Industrial facilities and areas with explosion hazard atmosphere of gas, vapours and dusts in the zones 2;22.

EXPLOSION PROOF EQUIPMENT

We offer to our customers sockets, plugs, junction boxes, switches, cable glands to be applied into the industrial facilities and areas with explosion hazard atmosphere of gas, vapours flammable fogs and dusts mixed with air in the zones 1,2, 21,22.

II 2G Ex d IIB T4 II 2D IP66 T135°C



II 2G Ex ed II T5 IP66 / 67 G 13



II 3G Ex nA IIC T5 II 3D tD A22 IP65 T100°C



II 3G Ex tD A22 IP65 T180°C-220°C E27/E40



II 2G Ex IIB-IIC T5-T6 II 2D IP65-67 T55-75°C

