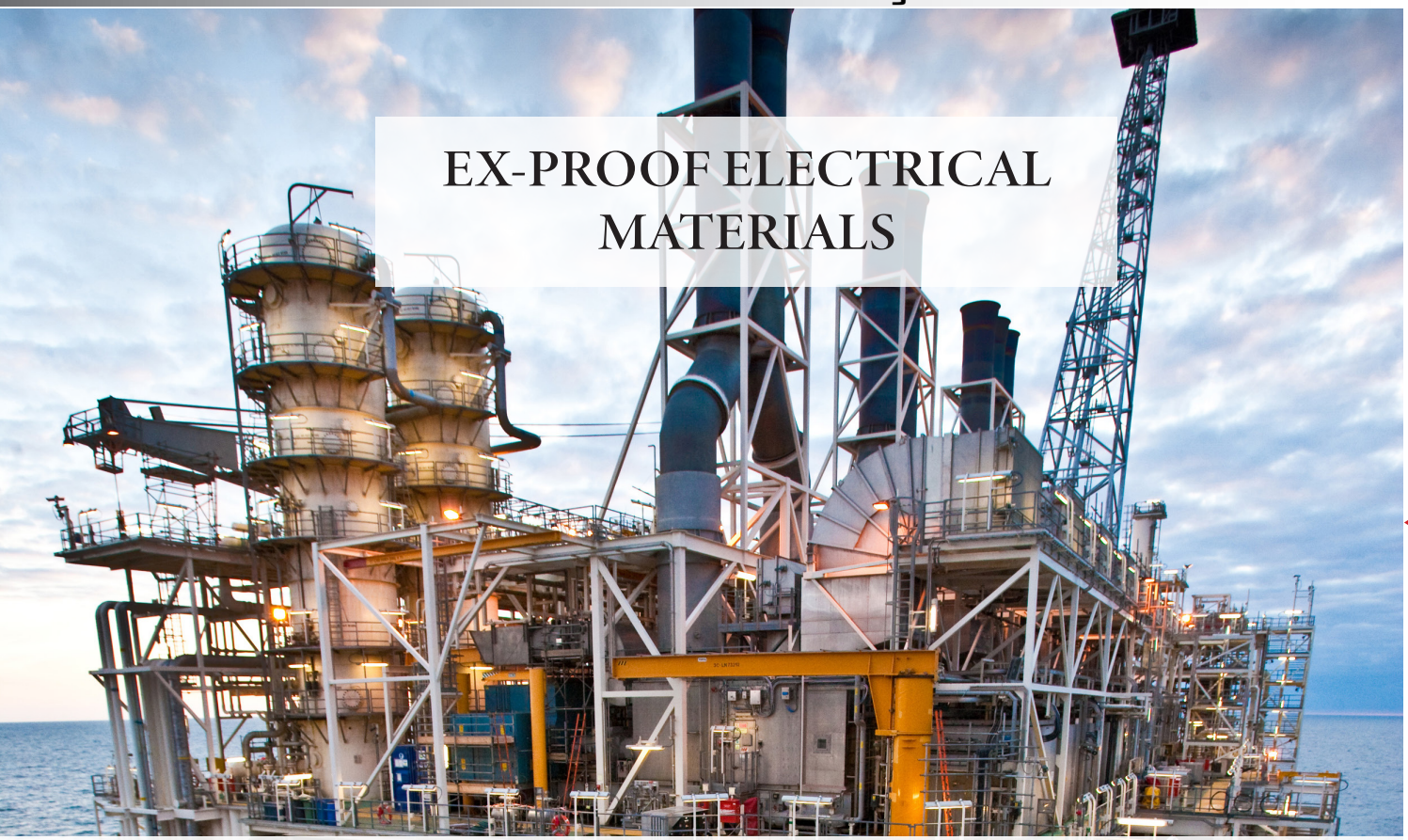
DEMKA
single source for all electrical needs



EX-PROOF ELECTRICAL MATERIALS

- EX-PROOF LIGHTINGS
- Ex-proof Luminaries
- Ex-proof Floodlight
- Ex-proof High-bay Luminaries
- Ex-proof LED Canopy Luminaries
- Ex-proof Spotlight
- Ex-proof Portable Lighting Fixtures
- Ex-proof Emergency, Warning and Signal Lighting

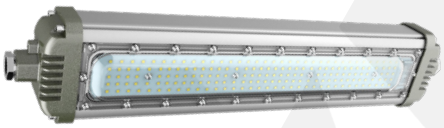
- EX-PROOF CABLE GLANDS
- Ex-proof Brass Cable Glands
- Ex-proof Stainless Steel Cable Glands
- Ex-proof Plastic Cable Glands
- Ex-proof Pressure Equalisation and Drain Plug
- Ex-proof Blind Plug

- EX-PROOF PLUGS, SOCKETS and OTHER FITTINGS
- Sockets
- Plugs
- Sockets with Automatic Circuit Breaker
- Drain and Breather Valve
- Sealing Nipples and Bushings
- Electrical Fittings
- Flexible Conduits
- Rigid Conduits

- EX-PROOF JUNCTION BOX and ENCLOSURE SYSTEMS
- Junction Box
- Round Junction Box
- Control, Monitoring and Signalling Devices
- Aluminium Enclosure Systems
- Polyester Enclosure Systems
- Stainless Steel Enclosure Systems
- Hand-held Enclosure Systems

- EX-PROOF CONTROL PANELS
- Control Stations
- 'Ex d/tb' Electronic Grounding System
- ‘Ex eb/tb’ electronic Grounding System
- Grounding Clamp
- Breaker
- Instrument Housings
- Rotary Switches
- Limit Switches

EX-PROOF LIGHTINGS





INTRODUCTION

Explosion proof lighting is a type of fixture that may be exposed to specific elements, such as chemicals, gases, or extreme heat, and is meant to prevent the fixture from exploding as a result of being exposed to these harsher circumstances and surroundings.

ADVANTAGES

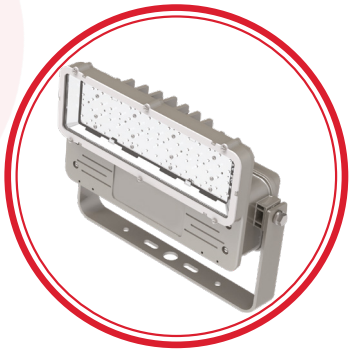
- High luminous efficiency
- Less power consumption-energy saving
- Long service life-maintenance-free
- Strong safety
- Conducive to environmental protection

APPLICATION

- **Chemistry Plants**
- **Paint Plants**
- **Oil Storage Facility**
- **Energy Plant**
- **Harbour and Shipyard**
- **Oil Filling Plants**
- **Industrial Areas**
- **Fuel-Oil Station and Gasoline Storage**
- **Dry Cleaning Plants**
- **Spray Finishing Areas**
- **Aircraft Hangars**

TYPES

- **Ex-proof Luminaries**
- **Ex-proof Floodlight**
- **Ex-proof High-bay Luminaries**
- **Ex-proof LED Canopy Luminaries**
- **Ex-proof Spotlight**
- **Ex-proof Portable Lighting Fixtures**
- **Ex-proof Emergency, Warning and Signal Lighting**


Ex-Proof Luminaries

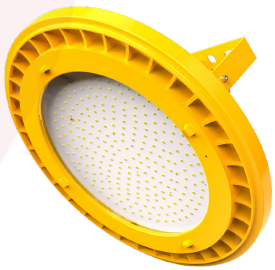
Ex-Proof fluorescent lighting fixtures can be safely use in area of high explosion risk zones and dangerous gas and dust using zones.

Ex-Proof Floodlights

Explosion-proof floodlight provides the greatest protection for facilities that store, refine, or manufacture combustible, flammable, or ignitable materials. The long-lasting and robust electrostatic surfacing is applied to the heavy-duty, anodized die-cast shell. This extra protection prevents over voltage and heating, as well as the build up of electrostatic energy.

Ex-Proof High-Bay Luminaries

Ex-proof high-bay luminaries are tempered glass fixtures that can withstand impact. It's utilized in places like refineries, fuelling stations, chemical plants, and cosmetics manufacturers where there's a significant risk of explosion. It delivers illumination from various angles thanks to its angle-adjustable mounting brackets.



Ex-Proof LED Canopy Luminaries

Ex-proof canopy fixtures are fringe lightings that are placed at industrial locations, such as fuel stations, chemical plants, harbour and shipyards, oil filling plants, and so on, to protect them from harsh and dangerous environments such as rain, snow, dust.

Ex-Proof Spotlights

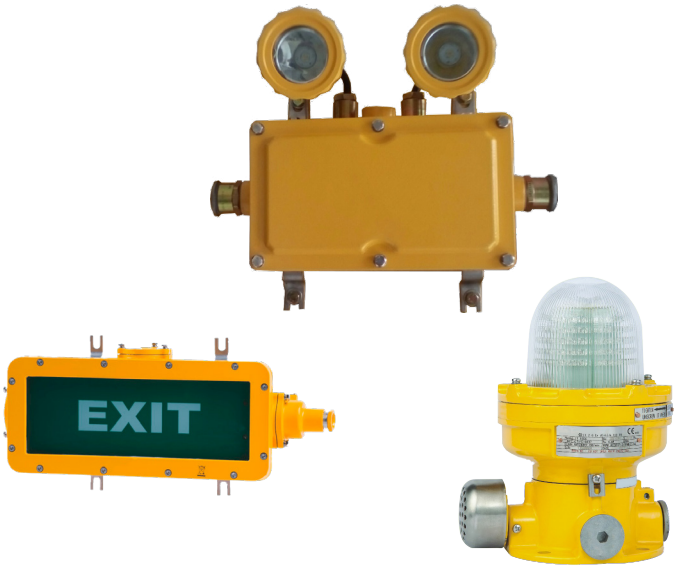
Explosion-proof spotlight is a lighting fixture designed to protect against the ignition of various environmental factors by unconstrained sparks. Explosion-proof designs separate the internal electrical reactions of a light fixture from external fumes or hazardous materials.

Ex-Proof Portable Lighting Fixtures

Ex-proof portable lighting is a lighting fixture that can be picked up, relocated, or plugged in with or without an electrical outlet when the working environment is harsh and dangerous.

Ex-Proof Emergency Warning and Signal Lighting

Ex-proof emergency lighting refers to light sources that are battery-backed or otherwise independently powered and are meant to turn on when a power loss causes low visibility in the workplace. Many workplace standards also demand that emergency lights be installed.



EX-PROOF CABLE GLANDS




INTRODUCTION

Explosion-proof cable glands are ideal for use in potentially explosive environments, allowing direct insertion of armoured and non-armoured cables into explosion-proof junction boxes and/or lighting fixtures, plugs and sockets, and so on: Ex-proof metallic cable glands with compression rings, metallic barrier cable glands, non-armoured cable plastic cable glands, and other uses.

ADVANTAGES

- Less power consumption-energy saving
- Long service life-maintenance-free
- Strong safety
- Conducive to environmental protection

APPLICATION

- **Chemistry Plants**
- **Paint Plants**
- **Oil Storage Facility**
- **Energy Plant**
- **Harbour and Shipyard**
- **Oil Filling Plants**
- **Industrial Areas**
- **Fuel-Oil Station and Gasoline Storage**
- **Dry Cleaning Plants**
- **Spray Finishing Areas**
- **Aircraft Hangars**

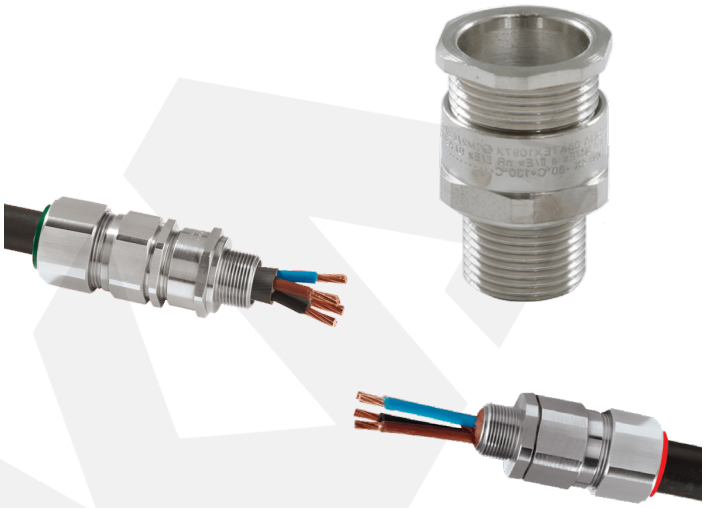
TYPES

- **Ex-proof Brass Cable Glands**
- **Ex-proof Stainless Steel Cable Glands**
- **Ex-proof Plastic Cable Glands**
- **Ex-proof Pressure Equalisation and Drain Plug**
- **Ex-proof Blind Plug**



Ex-Proof Brass Cable Gland

Brass cable glands, when combined with appropriate sealing inserts, have a working temperature range of up to -60°C to +140°C. When using armoured or shielded cables, a metallic cable gland that is appropriate for the cable type must always be utilized. Only metal cable glands are suitable for flame-proof applications. Brass glands provide high corrosion resistance when combined with a nickel surface. Metallic cable glands have a much longer service life than plastic in situations with a lengthy service life. Only metal glands provide continuous EMC protection in measurement and control technologies, where attemption must be reduced.



Ex-Proof Stainless Steel Cable Gland

Stainless steel cable glands are used where uncompromising resistance to environmental impacts is required. Stainless steel is required when salt water or chemical atmospheres might harm the products, such as in the chemical industry or on offshore platforms, due to its superior corrosion resistance. Furthermore, the material is utilized in situations where contamination of the product, on the one hand, should be prevented as much as feasible or, on the other hand, cleaning should be made as simple as possible. Stainless steel is also well suited for this application due to its surface roughness.

Ex-Proof Plastic Cable Gland

Plastic cable glands provide good resistance for salt water and hazardous areas. Their weights are much lighter compared to a metal versions. Plastic cable glands are user-friendly and easy to install. Therefore, plastic cable glands are used where compactness and low weight are required in conjunction with good economy.

Ex-Proof Pressure Equalisation and Drain Plug

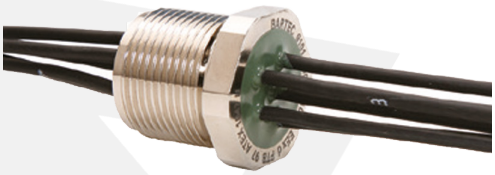
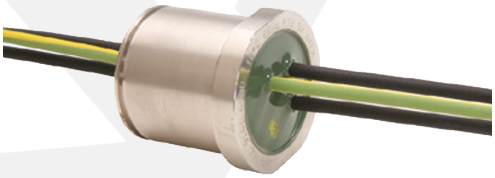
Pressure equalisation and drain plug elements for use in explosion protection are available in poly-amide, brass and stainless steel. They can be used in a temperature range from -50°C to +150°C.

Ex-Proof Blind Plug

Blind plugs are used in the temperature range from -60°C to +130°C. It can be produced in brass and poly-amide. The blind plugs can be used in gas and dust atmospheres.

EX-PROOF CABLE PLUGS, SOCKETS and OTHER FITTINGS




INTRODUCTION

Explosion-proof plugs and sockets can be utilized in any place with a potentially explosive atmosphere, however they cannot be used with industrial type plugs. The electrical fittings enable the construction of a full electrical pipe system. Three-piece unions for gas groups IIb and IIC allow for independent rotation and connection between pipes of electrical equipment and enclosures or various explosion-proof equipment devices. Reducers and adaptors are used to connect equipment, enclosures, pipes, and hubs of various sizes and threads, whilst plugs are used to shut pipe ends and are built with hex socket heads to guarantee the opening is only accessible with appropriate tools. The range is completed by open elbows, sealing fittings, nipples, couplings, rigid and flexible tubes.

ADVANTAGES

- Less power consumption-energy saving
- Long service life-maintenance-free
- Strong safety
- Conducive to environmental protection

APPLICATION

- **Chemistry Plants**
- **Paint Plants**
- **Oil Storage Facility**
- **Energy Plant**
- **Harbour and Shipyard**
- **Oil Filling Plants**
- **Industrial Areas**
- **Fuel-Oil Station and Gasoline Storage**
- **Dry Cleaning Plants**
- **Spray Finishing Areas**
- **Aircraft Hangars**

TYPES

- **Ex-Proof Sockets**
- **Ex-Proof Plugs**
- **Ex-Proof Sockets with Circuit Breaker**
- **Ex-Proof Drain and Breather Valve**
- **Ex-Proof Sealing Nipples and Bushings**
- **Ex-Proof Electrical Fittings**
- **Ex-Proof Flexible Conduits**
- **Ex-Proof Rigid Conduits**

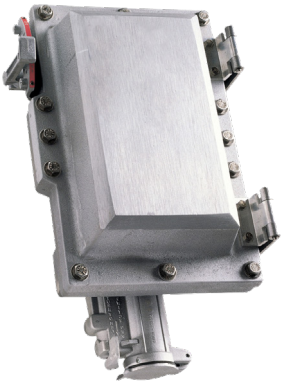


Ex-Proof Sockets

Cable sockets with an interlocking disconnecting switch are suited for any explosive environment. They cannot be used in conjunction with industrial plugs. The colour of the ring identifies the rated voltage.
EPC and EPRC connections, with voltage ranges ranging from 63A to 125A, are ideal for power welding equipment, compressors, generators, and big mobile equipment in general. Only when the plug is inserted can the circuit breaker be closed, and only when the circuit breaker is in the "open" position can the plug be retrieved.

Ex-Proof Plugs

Ex-proof plugs are moveable connectors attached to electrically powered devices, with the socket fixed to equipment or a building structure and linked to an activated electrical circuit. The plug is a male connection with protruding pins that correspond to the holes and female contacts in a socket. Ex-proof plugs and socket-outlets are products designed for potentially explosive atmospheres.

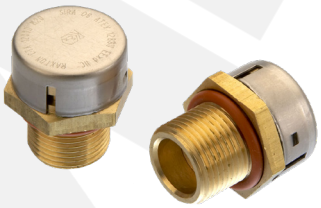


Ex-Proof Sockets with Circuit Breaker

Sockets with automatic circuit breakers are available in two or three pole types with an earth connection. When the plug is inserted, it activates the internal circuit breaker, which powers up the device. This technique prevents arcs from forming between plugs and socket cavities and pins. The body, cover, and external handle's material is aluminium alloy with a low copper concentration.

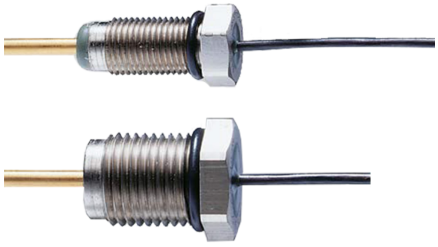
Ex-Proof Drain and Breather Valve

Breather drains enable pressure compensation between enclosures and surrounding atmosphere, thereby minimizing moisture build-up caused by temperature fluctuation and humid environments. Furthermore, they effectively drain any condensed water present within the device.



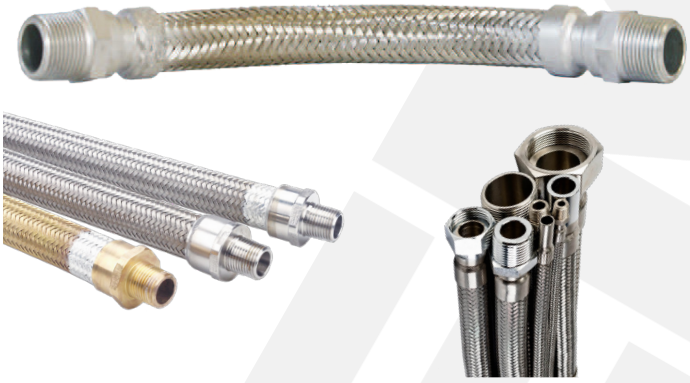
Ex-Proof Sealing Nipples and Bushing

Sealing nipples and bushings are used to interconnect ex-proof enclosures. The cables are sealed through a bi-component resin set around each conductor.



Ex-Proof Electrical Fittings

Electrical fittings are components of full electrical pipe systems. Three-piece unions for gas groups IIb and IIC allow for independent rotation and connection between pipes of electrical equipment and enclosures or various ex-proof equipment devices. Reducers and adaptors are used to connect equipment, enclosures, pipes, and hubs of various sizes and threads, whilst plugs are used to shut pipe ends and are built with hex socket heads to guarantee the opening is only accessible with appropriate tools. The range is completed by open elbows, sealing fittings, nipples, couplings, rigid and flexible tubes.



Ex-Proof Flexible Conduits

Ex-proof flexible conduits are used to connect offset equipment or devices subject to vibrations such as electrical motors. They are also useful for lighting fixture installation and as an alternative to rigid conduits when rigid conduits are difficult to install. Ex-proof flexible conduits are incredibly flexible and have a very good vibration dampening effect.

Ex-Proof Rigid Conduits

Rigid metal conduit, or RMC, is galvanized steel tube with threaded fittings that is installed. It's generally used outside to shield electrical wires, panels, and other equipment from damage, and it can also offer structural support.

EX-PROOF JUNCTION BOXES and ENCLOSURE SYSTEMS

INTRODUCTION

Explosion-proof junction box is a special type of electrical enclosure that is made to be installed in areas where there is a danger of explosion and/or fire of combustible dust. Depending on the type and design ex-proof junction boxes can be made of structural or stainless steel, aluminium alloy, zinc alloy.
Explosion-proof enclosures are designed for the arrangement of electrical equipment and its elements, as well as the protection of people from coming into contact with electrical parts integrated into enclosures of electrical equipment elements, and the protection of said parts from the environment and mechanical impacts.

ADVANTAGES

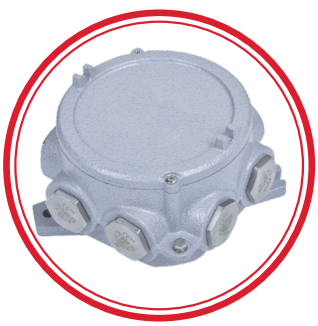
- Protection against surges
- Prevention against high temperature
- Protection of the working professionals
- Protection against erratic operating conditions

APPLICATION

- **Chemistry Plants**
- **Paint Plants**
- **Oil Storage Facility**
- **Energy Plant**
- **Harbour and Shipyard**
- **Oil Filling Plants**
- **Industrial Areas**
- **Fuel-Oil Station and Gasoline Storage**
- **Dry Cleaning Plants**
- **Spray Finishing Areas**
- **Aircraft Hangars**

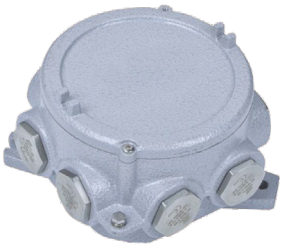
TYPES

- **Ex-Proof Junction Box**
- **Ex-Proof Round Junction Box**
- **Ex-Proof Control, Monitoring and Signalling Devices**
- **Ex-Proof Aluminium Enclosure Systems**
- **Ex-Proof Polyester Enclosure Systems**
- **Ex-Proof Stainless steel Enclosure Systems**
- **Ex-Proof Hand-held Enclosure Systems**



Ex-Proof Junction Box

Ex-proof junction boxes, also known as Electrical boxes, enclose wire connections. They help protect against short circuits, which can cause fires. Junction boxes are used in hazardous due to the presence of hydrogen or gases and vapours of equivalent hazard such as found in process industries, missile bases, and gas manufacturing plants.



Ex-Proof Round Junction Box

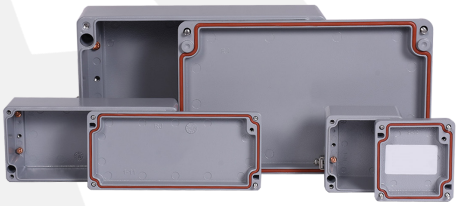
Ex-proof round junction boxes are made from aluminium alloy or stainless steel and are used to accommodate cables connected both with multi-pole terminal strips and modular terminals. These boxes cab be operating temperatures in the -40°C to +150°C range depending on their size, the type of gasket used and the terminals used.

Ex-Proof Control, Monitoring and Signalling Devices

Monitoring, controlling and signalling devices are installed as external accessories on 'Ex d' enclosures used in any industrial environment where an explosive atmosphere may be present, control devices can be used to close or open electrical or mechanical devices fitted inside the 'Ex d' enclosures while the signalling devices feature lights to indicate their operating status. The control and signalling device components are made from stainless steel to deliver unbeatable efficiency under any environmental conditions.

Ex-Proof Aluminium Enclosure

Ex-proof aluminium enclosures have high solvent resistance, a broad temperature resistance range and excellent corrosion resistance. The weight of aluminium is only about a quarter of that of steel. Ex-proof aluminium enclosures are also recyclable and light.



Ex-Proof Polyester Enclosure

Polyester enclosures are designed for use in harsh industrial situations because of their excellent temperature resistance, high impact strength, and durable structure. The enclosures are exceptionally sturdy and composed of glass-reinforced polyester. In harsh environments, they can be used in place of stainless steel enclosures. The low-cost polyester enclosing solution employed is UV-resistant, self-extinguishing, and halogen-free.

Ex-Proof Stainless Steel Enclosure

Ex-proof stainless steel enclosures ensure correct service in the aggressive environments it is installed in. These boxes successfully withstand harsh external factors such as water, dust, hard knocks, vibrations, corrosion, and extreme temperature fluctuations due to their high quality standard and use of select raw materials processed with cutting-edge technologies, ensuring a very long period of consistently reliable service.

Ex-Proof Hand-held Enclosure

Ex-proof hand-held enclosures are made of polyamide 12 and have an IP 65 degree of protection. They are utilized as fundamental components for gas-detection equipment and other Ex-sector applications. In the case of the two smaller enclosure sizes, types with a closed top and a display opening are available. Includes a recess for Ex-certified membrane keypads for hand-held enclosure applications. These enclosures have a service temperature range of -20°C to +60°C.

EX-PROOF CONTROL PANELS



INTRODUCTION

Ex-proof electrical control panels or electrical control stations are used in hazardous location. The Ex-proof control panel is designed and built to operate in environments where concentrations of flammable gases, vapours, liquids or combustible particles pose risks of ignition and explosion.
Ex-proof control panels are for the supply of lighting circuits or motive power distribution in any type of industrial application. They can be equipped with 'Ex d', 'Ex e' and 'Ex tb' IP66 command and control operators. The 'Ex d' limit switches in aluminium alloy have a wide range of actuators and multiple combinations of contacts allowing to realize the optimal solution for a perfect operation of the system located in a hazardous area. They ensure resistance and reliability with the passing of time. The electronic grounding system for tanks and tankers protects the electrical equipment from electrostatic and atmospheric discharges, while loading and unloading operations of flammable substances.

ADVANTAGES

- Strong safety
- Less power consumption-energy saving
- Long service life-maintenance-free
- Conducive to environmental protection

APPLICATION

- **Chemistry Plants**
- **Paint Plants**
- **Oil Storage Facility**
- **Energy Plant**
- **Harbour and Shipyard**
- **Oil Filling Plants**
- **Industrial Areas**
- **Fuel-Oil Station and Gasoline Storage**
- **Dry Cleaning Plants**
- **Spray Finishing Areas**
- **Aircraft Hangars**

TYPES

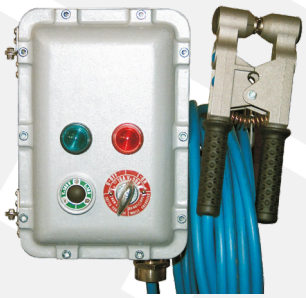
- **Ex-Proof Control stations**
- **'Ex d/tb' electronic grounding system**
- **'Ex eb/tb' electronic grounding system**
- **Ex-Proof Grounding clamp**
- **Ex-Proof Breaker**
- **Ex-Proof Instrument Housings**
- **Ex-Proof Rotary Switches**
- **Ex-Proof Limit Switches**


Ex-Proof Control Stations

Ex-proof control panels are made in aluminium alloy, polyester or stainless steel and they are ideal to house electrical equipment as control and signalling devices. They can be in-stalled on board machines or at distance and they are used in chemical, petrochemical and pharmaceutical industries and in any other place where an explosion-proof installation is required.

'Ex d/tb' Electronics Grounding System

They are used to control grounding continuity during thanks loading and unloading operations. Thanks normally arrive electrostatically loaded, and an imperfect earthing might cause fire originated by a spark in presence of gas. The earthing control system is composed of a marine grade copper free aluminium enclosure, as above described, inside fitted with the earthing control electronic circuit SM-2001, which is normally set at 20 ohm, and authorize thanks loading/unloading when resistance is less than 20 ohm.



'Ex eb/tb' Electronics Grounding System

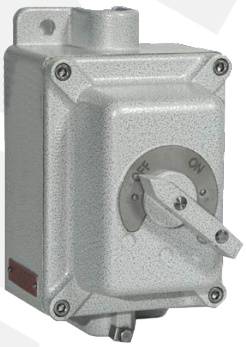
'Ex eb/tb' Electronics Grounding(Earthing) System help to prevent fire and explosions in areas with hazardous levels of static electricity when trucks or trains load and unload liquids and dry materials. It can be provided with one or two earthing clamps for the connection to tank trucks or other metallic parts.

Ex-Proof Grounding Clamp

Grounding (Earthing) clamp is used to connect tankers to earth during loading and unloading operations. Grounding is made inside the body of the clamp in an 'Ex d' chamber only after the clamp has been connected to the local earth installation.

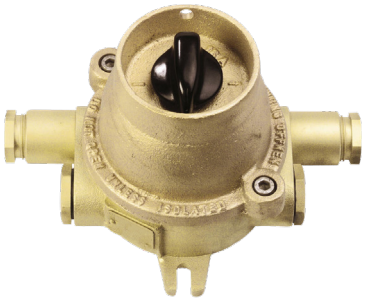
Ex-Proof Breaker

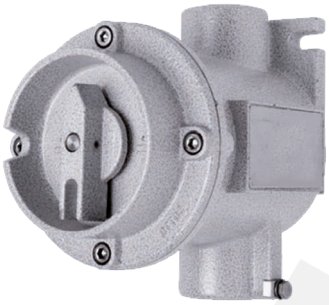
Three-pole magnetothermic breakers are used for three-phase motor command (start-stop) and protection. Circuit breaker with magnetothermic protection that may be adjusted via an external control handle.



Ex-Proof Instrument Housings

Instrument housings are normally used to contain analogical instruments such as ammeters and voltmeters of small and medium size.





Ex-Proof Rotary Switches

Rotary switches are used for branch circuit protection of lighting, equipment and motor circuits in hazardous areas. They provide a disconnect means, short circuit protection and thermal time delay overload protection.

Ex-Proof Limit Switches

Ex-proof limit switches are intended to provide the most typical installation needs. The major benefits of these limit switches in aluminium alloy are their ease of wiring and installation, durability, and long-term dependability. Furthermore, they are equipped with a diverse variety of actuators and contact combinations, allowing them to give the optimum option for the correct operation of a system in a risky zone.