

Inspection and service

Electrical installations in explosive gas atmospheres in accordance with standard EN 60079-17

Standard EN 60079-17 stipulates strict provisions concerning the maintenance of electrical installations in hazardous zones:

- An initial inspection before they are commissioned.
- Regular inspections in time.
- Continuous supervision.

Frequency of inspection

The time interval between inspections should be set taking into account likely deterioration due to corrosion, the presence of chemicals or solvents, the accumulation of dirt or dust, the risk of water penetration, exposure to abnormal ambient temperatures or vibrations, whether the electrical equipment is removable or portable, but in any case this interval must not be more than 12 months.

Degree of inspection

- Visual inspection: faults directly visible such as missing buttons.

- Close inspection: visual inspection and in addition detection faults.

Close inspection does not normally require the enclosure to be opened, nor the equipment switched off.

- Detailed inspection: such as loose connections, detected after opening the enclosure.

Equipment EEx "d", EEx "e" and EEx "n"

Equipment

- Equipment is appropriate to the zone category
- Correct group equipment
- Correct equipment temperature class
- Correct identification of equipment circuit
- Identification of equipment circuit available
- Enclosure, glass parts, gaskets and/or sealing equipment satisfactory
- No unauthorised modification
- Bolts, cable entry devices (direct and indirect) and protection elements of correct type, complete and tightened
- Flat sealing surfaces clean, undamaged and any gaskets satisfactory
- Gaps in flat gaskets conforming to maximum authorised values
- Rated characteristics, type and position of lamps correct
- Electrical connections tight
- State of enclosure gaskets satisfactory

Installation

- Appropriate type of cable
- No apparent cable damage
- Satisfactory closing of bays, trunking and/or conduits
- Stop boxes and cable boxes filled correctly
- Integrity of conduit systems and interface with mixed systems maintained
- Connections to earth satisfactory, plus any additional connections satisfactory. Example: connections tight and conductors with large enough cross-section
- Automatic electrical protection devices correctly set (automatic reset not allowed in zone 1)
- Special conditions of use (if appropriate) complied with
- Cable ends not in use correctly protected

Environment

- Equipment adequately protected against corrosion, inclement weather, vibrations and other harmful factors
- No abnormal accumulation of dirt and/or dust

	EEx "d"	EEx "e"	EEx "n"
- Equipment is appropriate to the zone category	•	•	•
- Correct group equipment	•	•	•
- Correct equipment temperature class	•	•	•
- Correct identification of equipment circuit	•	•	•
- Identification of equipment circuit available	•	•	•
- Enclosure, glass parts, gaskets and/or sealing equipment satisfactory	•	•	•
- No unauthorised modification	•	•	
- Bolts, cable entry devices (direct and indirect) and protection elements of correct type, complete and tightened	•	•	
- Flat sealing surfaces clean, undamaged and any gaskets satisfactory	•		
- Gaps in flat gaskets conforming to maximum authorised values	•		
- Rated characteristics, type and position of lamps correct	•	•	•
- Electrical connections tight		•	•
- State of enclosure gaskets satisfactory		•	•
- Appropriate type of cable	•	•	•
- No apparent cable damage	•	•	•
- Satisfactory closing of bays, trunking and/or conduits	•	•	•
- Stop boxes and cable boxes filled correctly	•		
- Integrity of conduit systems and interface with mixed systems maintained	•	•	
- Connections to earth satisfactory, plus any additional connections satisfactory. Example: connections tight and conductors with large enough cross-section	•	•	•
- Automatic electrical protection devices correctly set (automatic reset not allowed in zone 1)	•	•	•
- Special conditions of use (if appropriate) complied with	•	•	•
- Cable ends not in use correctly protected	•	•	•
- Equipment adequately protected against corrosion, inclement weather, vibrations and other harmful factors	•	•	•
- No abnormal accumulation of dirt and/or dust	•	•	•

Mounting recommendation

Cable entries

Increased safety "e" enclosures

Cable entries are created by screwing the cable gland directly onto the enclosure, or for clearance holes, securing with a locknut.

Holes which are not used for cable entries must be blanked using the appropriate blanking plugs.



Flameproof "d" enclosure

Cable entries are created by screwing the cable gland directly onto the enclosure. The thread must be greased and the gland screwed-in to ensure that at least 5 threads are engaged.

Unused entries must be plugged using the appropriate certified blanking plug.



Seals

Increased safety "e" enclosures

The equipment has a protection index of at least IP 54. It is therefore important to ensure that the weatherproof seal is in good condition when the product is installed



Defective seals must be systematically replaced.

Flameproof "d" enclosures

This equipment is supplied with the flame-path greased. Once the equipment is installed, the flamepath must be greased to keep them in good condition.

Use a non-hardening anti-corrosive multi-purpose grease.

Do not allow silicon-based products to come into contact with the threads, as they may stick.

- do not modify any original entry or add entries as this is prohibited and will forfeit certification of the product.

Terminal connections



Increased safety "e" enclosures

Each approval certificate indicates the type of terminals to be used in each type of junction box.

The connection must be performed according to current regulations and any additional stipulations on the certificate, such as :

- Maximum current intensity
- Maximum capacity
- Tightening torque



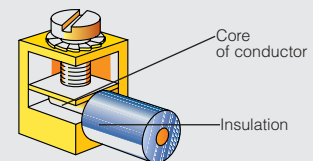
Flameproof "d" enclosures

The approval certificate does not stipulate the type of terminal to be used, it only states that the connection precautions given in the technical sheet should be followed.

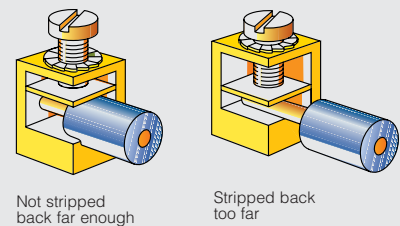
Stripping and connections

The conductors should only be stripped back to the edge of the metal part of the terminal connection, to ensure correct isolation.

Correct



Incorrect



Maintenance

Extract from article 4 of December 20th, 1988 French order, modified by January 10th, 1992 order :

« Interval between inspections is fixed at one year in rooms and work positions for which there are risks of degradation fire or explosion, etc. »