



# Servicing & Maintenance

in hazardous areas

 **COOPER** Crouse-Hinds



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### Maintenance of industrial plants in hazardous areas

With the growing complexity of industrial plants, requirements also grow for safe operations and related to this, safer and more efficient maintenance. The latter must be able to guarantee the safe functioning of a plant at any time, and hence to minimise the downtime. This is a task which demands a lot of the servicing team. It can become particularly difficult when service work is to be carried out in hazardous areas during operation, as the issuing of a hot work permit generally costs a considerable amount of effort and an inevitable stop in operations. In selecting equipment, the user therefore attaches particular importance to:

- Longevity
- Low maintenance effort
- Simple maintenance
- Intelligent maintenance support

### Safety first

In choosing the lights and equipment to be installed, you should therefore pay particular attention to the safety and quality of the equipment. The choice of apparently “good-value solutions” can have far-reaching consequences, since as well as an often high effort required for maintenance, extensive financial damage can also be caused by malfunctioning. With products of the CEAG brand, developed for longevity and ease of maintenance – supported by intelligent features – you are on the safe side.

Moreover, the movable lights, cord reelers, plug distributors and repair sockets from CEAG support you for optimal servicing of your plants in explosive areas.



## CEAG – products for your security

### Security through Quality

Cooper Crouse-Hinds of course utilises DIN EN ISO 9001 certified quality management, which is regularly monitored by an independent and internationally accepted “certification organization, the DQS”.

In addition to this, there is the certification for explosion protection according to EU Directive 94/9/EC for “recognition of quality assurance in production” by the German Physikalisch-Technische Bundesanstalt (PTB).

The assessment criteria used here go well beyond those of the general ISO certification. The explosion protected lights and switching devices of the CEAG brand are in accordance with all valid directives and standards, particularly those of Directive 94/9/EC of the European Parliament and Council of 23/03/94, also known as ATEX 95 or ATEX 100a, which defined the basic security requirements within the EU for explosion-protected equipment.



### CE-Sign

The creation of a declaration of a compliance and the affixing of the CE label is a basic prerequisite for it to be possible for a product to be sold in the European Economic Area, as this is the way in which the manufacturer confirms that a product is made in accordance with directives, and that all quality assurance provisions have been adhered to. It goes without saying that products of the CEAG brand will constantly be adapted to the ever-changing “state of the art”, in order to provide the user with products in accordance with the latest technological developments and findings.



### Products in the Toughness Test

Before we put our products at your disposal, we have satisfied ourselves thoroughly that they are up to even the toughest requirements, as you have to be able to rely on them in case of emergency.

Our test for impermeability against water and dust (IP protection class) is just one of many which our products go through. We don't leave quality assurance to chance, or to our customers.



## Explosion protection according to European law



### Occupational health and safety in hazardous areas

With the Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 (also known as ATEX 137 or ATEX 118a), uniform minimum requirements within the European Community were defined for improving the health and safety protection of workers potentially at risk from explosive atmospheres for the complete field of explosion protection (gas and dust). In carrying out the obligations according to Article 8 of Directive 1999/92/EC (Explosion Protection Document), an employer shall ensure that, for every workplace in hazardous areas,

- the explosion risks have been determined and assessed,
- technical and organizational measures have been taken to attain the safety aims of the directive and
- the work equipment, including warning devices, is designed operated and maintained with due regard for safety.



**Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 on the minimum requirements for improving the health and safety protection of workers potentially at risk from explosive atmospheres (also known as ATEX 137)**

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#### Annex I:

##### Classification of areas where explosive atmospheres may occur

1. Areas where explosive atmospheres may occur
2. Classification of explosive areas

#### Annex II:

##### A. Minimum requirements for improving the health and safety protection of workers potentially at risk from explosive atmospheres.

1. Organisational measures
2. Explosion protection measures

##### B. Criteria for the selection of equipment and protective systems

#### Annex III:

Warning signs for marking areas where explosive atmospheres may occur.

An essential article of this European health and safety protection directive is Article 8 with the stipulated "Explosion Protection Document", that the operator of an Ex installation shall draw up and update. In particular, the explosion protection document states:

## Explosion protection according to European law

- that the explosion risks have been determined and assessed;
- that suitable measures have been taken in order to fulfil the aims of this directive;
- what areas according to Annex I have been subdivided into Zones;
- for what areas the minimum requirements in accordance with Annex II apply;
- that the workplace and the work equipment, including warning devices, are designed, operated and maintained with due regard for safety;
- and that, in accordance with Council Directive 89/655/EEC, arrangements have been made for the safe use of the work equipment.

Furthermore, in the said minimum requirements in accordance with Annex II, it is stipulated that

***“all necessary measures shall be taken to ensure that the workplace, the work equipment and the associated connection devices ... are maintained and operated in such a way as to minimize the risks of an explosion ...”***

In the respective countries of the EU, the aims of the requirements of Directive 1999/92/EC have been converted into national laws and decrees. These legal regulations are supplemented by the respective requirements in the international standards:

**IEC/EN 60079-17** Explosive atmospheres – Part 17: Electrical installations inspection and maintenance

**IEC/EN 60079-14** Explosive atmospheres – Part 14: Electrical installations design, selection and erection

The following requirements result from the above:

- **Requirements relating to the inspection of hazardous work-places** on which the safety of the complete installation depends by a “competent person”\*) before being used for the first time.
- **Requirements relating to the operation of hazardous installations**, whereby they shall be operated and monitored in a proper state and any necessary maintenance or repair work shall be carried out immediately.
- **Requirements relating to the inspection of work equipment**, whereby, in the event of influences that can cause damage, such work equipment shall be inspected by a “competent person”\*) at given intervals\*) and, if required, they shall be repaired.
- **Requirements relating to recurrent inspections**, whereby hazardous installations and parts of installations shall be inspected by a “competent person”\*) at given intervals\*) to ensure their proper state.

\*) See IEC/EN 60079-14 and IEC/EN 60079-17 for further definitions.



Further detailed information on inspections, maintenance and repair work in hazardous areas can be found in:

### **IEC/EN 60079-17**

**Explosive atmospheres – Part 17: Electrical installations inspection and maintenance (IEC/EN 60079-17: 2007)**

### **IEC/EN 60079-14**

**Explosive atmospheres – Part 14: Electrical installations design, selection and erection (IEC/EN 60079-14: 2008)**



# Lighting

## Ex-hand lamps

### Ex Torches

Stabex mini, mini II and mini LED for activation with one hand – even with a working glove, for primary batteries and as a chargeable version. Tank inspection light Stabex M0 for Ex areas in zone 0.

### Ex Hand lamps

HE 5 and HE 8 with a handy design, strong lighting power, can be switched to a red signal light (HE 8 EN).

### Ex Hand spotlights

SEB 8, SEB 8 L, SEB 9, SEB 9 L; functional reliability provided by a display showing operational time remaining, breaking of coil and with reserve lighting mode; no overcharging of the battery possible thanks to capacity-dependent charging, focussable light cones.

### Ex Head Lamp

HLE 7 L EN with high-power 7 AH NC battery and integrated charger. Display showing charging status. Two-coil lamp provides security in the case of a broken coil.

### Ex Hand and Machine Lights

HL/ML ... with one-lamp and two-lamp versions, from 6 W to 58 W; with electronic ballast. Robust protective pipe made of polycarbonate with the high protective class IP 68.

### Ex Tank Inspection Light

FOC for high lighting power in zone 0; with metal halogen vapour discharge lamp at 150W, electronic ballast and special reflector for the 25m long light conductor cable. Fixed installation on transport cart.



## Ex-fluorescent light fittings, pendant light fittings and floodlights



### Ex lamps for outbuildings and for mast bases

eLLk/M 92... for standard fluorescent lamps Ø 26mm T8 18 to 58 W for use in zones 1, 2, 21 and 22, nLLK 08... for zones 2, 21 and 22 as well in the wet area, high protection class (IP 66), electronic ballast with EOL monitoring, easy to handle.

### Ex emergency lights

eLLK 92... NIB and nLLK 08 N from 18 W to 36 W, thanks to the built-in 7Ah-NC batteries, even in the case of a power cut these devices provide light reliably. Battery can be changed without problems, even in the Ex area; automatic function test; with charging status display (...NIB).

### Ex pendant light fittings

dHLS 85 for economic illumination of large objects in zones 1 and 2, particularly in refineries, chemical plants, and offshore plants. Robust powder-coated light metal housing, unproblematic changing of lamps even after long duration of use; optionally with outside reflector. SPG 1N pendant lamp for illumination of local working areas. Easy to hang up due to robust hooks, case made out of borosilicate glass protected by a wire basket.

### Ex floodlights

dTLS 85 and PX 04 for economic illumination of large objects in zones 1 and 2, particularly in refineries, chemical plants, and offshore plants. Robust powder-coated light metal housing, unproblematic changing of lamps even after long duration of use; mirror reflectors for various scattering angles.

# Energy supply

## Cord reels and socket distributors

### Socket distributors for repair and servicing in the Ex area

With closable interlock switch for power supply of industry equipment up to 80 A with hot work permit in Ex areas zones 1 and 2. Display of the switch status via a red light; high mechanical, chemical and thermic stability.

### Portable Ex socket distributors and cable drums

For flexible energy supply of movable electrical equipment in zones 1, 2, 21 and 22. Various combinations of plugs and sockets (up to 3 flange sockets) allow various uses. Can also be delivered with conductive coils.

### Ex Extensions

For flexible energy supply for movable electric equipment in zones 1, 2, 21 and 22. Can be delivered in various lengths and with various plugs.





## Mobile power distributors



### **Trolley**

For the ergonomic transportation of distribution boxes and other explosion-protected electrical equipment.

### **Ex plugs**

Flexibly utilisable mounting plate with mounted and wired Ex plugs for the flexible provision of electrical energy.

### **eXLink plug connections**

These plug connections in mini-format allow for easy plugging: connecting and disconnecting of actuators and sensors, e.g. of floating switches, submerged pumps, liquid level indicators, etc.

# Example solutions

## Customer-specific solutions

If desired we can also provide you with specially configured assemblies. Please ask us.

We will find the correct solution for your particular application.

On this page you can find a few example solutions.





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