



Explosion Protected Pendant Light Fitting, Series 6050



Optimum illumination of explosion hazardous equipment in large-area industrial installations

by Andreas Kaufmann



R. STAHL has presented another high-quality product on the explosion protection market with its new pendant light fittings of Series 6050. These light fittings are used primarily in areas requiring large-area illumination of installations and premises. As early as the development stage for the light fittings, major importance was attached to allowing for the corresponding requirements in the diverse fields of application. This relates both to the housing material (sea-water-resistant aluminium) and to the design of the fitted components, which must comply with the requirements for use under rough operating conditions.

Explosion protection

The pendant light fittings of Series 6050 comply with the requirements of Equipment Category 2G/D in accordance with Directive 94/9/EC and are designed on the basis of Standards IEC 60079 for Zones 1 and 2 and Standards IEC 61241-1 for Zones 21 and 22. The full marking of the light fittings is thus as follows:  II 2G EEx de IIC T3 ...T6 and  II 2D IP66 T80°C ...T142°C, whereby the temperature class and the maximum possible surface temperature $T_{o\ max}$ for uses in areas with the presence of combustible dusts depend on the fitted lamps. →

Applications

As already mentioned, the optimum application for the pendant light fittings, Series 6050, are in areas in which it is necessary to provide large-area illumination from a high light fitting suspension point. The light fittings are suitable for indoor and outdoor use and, specifically, for low ambient temperatures down to $-40\text{ }^{\circ}\text{C}$. The installation locations are diverse and extend from oil platforms, refineries and petrochemical installations through to applications in the general, industrial process industry.

Technical implementation

The 6050 Series of light fittings are available in two sizes: size 1 for lamps up to 150 W and size 3 for lamps up to 400 W.

The light fitting is ideally suited to rough operating conditions with its housing made of seawater-resistant aluminium and its borosilicate glass hood, which is resistant to thermal cycling.

The glass hood has an integrated prism structure. It limits glare on the one hand, and achieves more efficient illumination on the other.

One further enhancement to illumination is provided by an interior aluminium reflector. External reflectors made of high-polished aluminium are available as an option. These can be used dependent on the lighting task. This achieves either a narrow or a wide luminous intensity distribution. Correct choice of the reflector and the lamp achieves optimum, energy-efficient illumination. Allowance for economic aspects when planning lighting installations is becoming more and more important specifically for large industrial facilities.

The following lamp types are available for both housing sizes of Series 6050: halogen incandescent lamps, high-pressure sodium lamps, high-pressure metal halide lamps, high-pressure mercury-vapour lamps and induction lamps.

Owing to the extremely long service life (up to 60,000 hours) and to the fact that such lamps can still be started even at low temperatures (down to $-40\text{ }^{\circ}\text{C}$), the induction lamps are specifically suited to applications in which changing a lamp is a very complex process, i.e. applications in which a lamp change would involve high labour and wage costs. One other advantage of this lamp type is that the lamp can be reignited immediately after it is extinguished. This results in a higher availability and, thus, a higher installation safety.

›Rough operating conditions are not a problem for the new pendant light fittings of the 6050 Series‹

Maintenance and servicing costs make up a major share of operational running costs in the industrial sector, thus minimising such costs has a high priority for the companies. In the case of the 6050 Series of light fittings, cost optimisation is allowed for by the fact that lamps can be changed easily and in less time. The glass hood can be screwed off after undoing a locking screw on the glass hood supporting ring. The glass supporting ring features a hook to prevent the glass from falling down. This ensures that the light fitting can be serviced and maintained easily and safely in difficult

applications, e.g. when used in refineries and on drilling rigs.

A two-pole-switching, positive opening isolating switch can be fitted as an option, if automatic disconnection of the mains voltage upon opening of the light fitting is required. The light fitting is then disconnected from the power supply when the glass is screwed off the flameproof thread.

The other accessories also optimise application of the 6050 Series of light fittings. Such accessories include the stainless-steel mounting bracket that allows variable suspension of the light fittings with different alignments within an inclination range of up to 40° in respect to the vertical (Figure 1).

Alternatively, the light fittings Series 6050 may be mounted with a chain (Figure 2). This is attached to the upper housing by means of eyelets. This version allows efficient illumination even if the light fitting is suspended at a great height.

It may be advisable to attach a stainless-steel wire guard to the light fitting depending on operating conditions, for instance if the light fitting is subject to a high risk of mechanical stress. This optional accessory can also be fitted at a later date. The wire guard is simply positioned on the glass supporting ring and fixed in position by means of a securing screw.

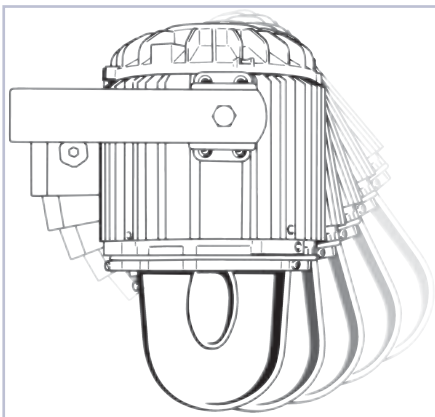


Figure 1: Mounting with swinging brackets

Figure 2: Mounting by chain suspension

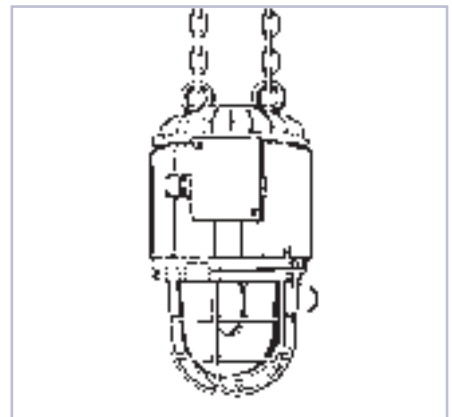




Figure 3: Mounting options and accessories for pendant light fittings of the 6050 series

Electrical connection

The design of the light fittings allows not only simple, efficient lamp change but also simple mains connection. The mains power supply is connected by means of an easily accessible terminal compartment featuring type of protection Increased Safety »e«. The standard light fitting features 2 M25 entry openings. The connection cable is routed through these openings and connected to cage clamp terminals.

Summary and outlook

The 6050 Series pendant light fittings opens up additional possible applications for efficient illumination of installations in hazardous areas to planners and users. The flexible mounting options, and the ease of installation and maintenance ensure that costs can be cut, thus providing potential profitability improvements.