Neckarsulm, 26. June 2024
LED workspace lights featuring M12-A

**Illuminate workplaces and machines**

**High-quality light is a decisive factor for in ensuring the precision, quality, and safety of manufacturing and inspection processes. LED lights from binder are used as machine lights or workspace lighting. Additionally, the compact design, homogeneous light distribution, and optimised heat management of these lights are noteworthy. The products are equipped with an M12-A connector, rendering them suitable for use in industrial environments.**

binder, a leading supplier of industrial circular connectors, has developed industrial LED lights that can be implemented in two distinct ways: to illuminate workspaces and to indicate different operating modes of machines. In addition, M12 LED lights were developed as a result of a specific request in the context of a biologically oriented research project. The LED light was initially developed to stimulate the reproduction of octopuses using specific wavelengths of light. Subsequently, it was adapted for broader use in automation technology and the food and beverage industry as part of a further development. Typical applications include automation technology and the food and beverage industry.

The lights are available in three lengths of 250 mm, 358 mm and 412 mm and corresponding illumination ranges of 170 mm, 270 mm and 332 mm respectively. They comply with protection classes up to IP69K. The standardised M12 plug-in connection, which is widely used throughout the industry, serves as the foundation for the product, facilitating straightforward installation, seamless integration into existing automation systems, and a customisable configuration of the lighting. The LED luminaire has been designed for use in lighting applications, including task lighting in automation technology and the food and beverage industry. Its robust construction and versatile design qualify it for use in machine luminaires that illuminate work areas and indicate different operating modes of machines.

The A-coding enables the transmission of both electrical power and signals via this interface.

**Background: Machine and workspace luminaires**

The provision of adequate lighting at workstations and machines is of significant importance in ensuring a clear view of the processes, which is particularly crucial for precision work and the identification of errors or irregularities. Furthermore, adequate lighting ensures the safety of operators and plant personnel by making potential sources of danger visible. It is evident that adequate light is of significant importance for the visual inspection of products, as it has a notable impact on the overall productivity of processes. Modern machine lights are equipped with energy-efficient and long-lasting LED technology, which has the potential to significantly reduce energy consumption and maintenance requirements. This results in a reduction in the necessity for maintenance and contributes to a reduction in operating costs.

One of the challenges faced by machine luminaires is their resistance to harsh environments, which are often characterised by dust, moisture, chemicals and mechanical influences. Consequently, typical requirements include industry-relevant protection classes, such as those pertaining to the ingress of particles or water, as well as the potential for exposure to cleaning agents and water jets.

In order to ensure the reliability of machines and systems in the vicinity of production processes, it is necessary to select components that are capable of withstanding high temperatures. It is therefore essential that the components in question demonstrate sufficient heat resistance and that there is adequate heat dissipation. Given the often confined and difficult-to-access nature of the areas of application, the design of the luminaires should facilitate straightforward installation and maintenance.

In terms of photometric properties, it is of crucial importance that the luminaires provide sufficient brightness, a pleasant colour temperature, uniform light distribution and freedom from flicker and glare. Moreover, suitable interfaces are required to ensure seamless integration of the luminaires into machines and production lines. Finally, it is of paramount importance to consider the aspects of electrical safety in order to prevent the occurrence of short circuits or overloads and to ensure the safety of the operating environment.

Dieter Sandula, Product Manager at binder, emphasises the outstanding features of the luminaire: ‘The M12 LED luminaire has not only won the Red Dot Award, a prestigious design competition for industrial products; its design also clearly stands out from the usual products on the market. binder can also design the luminaires according to our customers’ wishes, for example with special addressable LEDs, special light wavelengths or different power levels."

**The binder LED lights at a glance**

The LED lights in the three lengths mentioned above are equipped with 60, 96 or 114 LEDs. With a power consumption of 5.7 to 11.04 W, they achieve luminous fluxes of 410 to 746 lm and illuminance levels of 108 to 198 lx. The light colour is 4,000 K with a spectrum similar to daylight, and the colour rendering index is above 90 according to the data sheet. The symmetrical arrangement of the LEDs creates a homogeneous light pattern and helps to avoid thermal hotspots. At operating temperatures between -25 °C and +60 °C, the service life of the thermally optimised luminaires is specified at 50,000 hours.

Current versions of binder LED luminaires are available with both aluminium and steel end caps. New product concepts are also equipped with white and/or coloured LEDs. Further modifications can include addressable LEDs, special light wavelengths or different power levels, depending on customer requirements.

**About binder**

binder, headquartered in Neckarsulm, Germany, is a family-owned company characterized by traditional values and one of the leading specialists for circular connectors. Since 1960, binder has been synonymous with the highest quality. The company works with more than 60 sales partners on six continents and employs around 2,000 people worldwide.

The binder group includes the binder headquarters, 16 affiliated companies, two system service providers as well as an innovation and technology center. In addition to Germany, the binder sites are located in Austria, China, France, Hungary, the Netherlands, Singapore, Sweden, Switzerland, the UK, and the USA.

Fugure caption:
Winner of the Red Dot Award: LED work light from binder. Photo: binder

Fields of application:

* Automation technology
* Machine and plant engineering
* Process technology
* Food and beverage industry

Features:

* Luminosity: 410 to 746 lm
* Light yield: 68 to 72 lm/W
* Illumination (1 m): 108 to 198 lux
* Light color: 4,000 K
* CRI: >90
* Connector: M12 A-coded
* Protection degree: IP67, IP68, IP69K
* Durability: 50,000 h

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