

WORKPLACE LIGHTING

The optimal lighting at the workplace or inside the machine not only raises safety, but also enhances well being and counteracts work fatigue.

The decisive factor here is the choice of light source. Lamps fitted with modern LED technology emit an optimal and unvarying level of neutral colour light that does not flicker or contain UV or IR components.



HEBC - short lamp arm with ball joint

The temperature near the lamp is constantly low, which is important for maintenance work. Unlike halogen or neon lamps, this does not have a filament and so makes work possible even under difficult conditions.

The average life of the LEDs is 50,000 hours, equivalent to six years of continuous duty. Compared with the conventional filament bulb, this reduces operating costs by 50%, without replacements or maintenance work. A 700 mA LED consumes 3 W.

There are three housing variants available for installation at the workplace, all with the ON/OFF switch directly on the lamp head:

- HEBC - short lamp arm with ball joint
- HEBF - long lamp arm, flexible
- HEBL - long lamp arm, rigid



Lamp head with 3, 6, and 9 LEDs



HEBF - long lamp arm, flexible

All lamp types have an anodised aluminium head and are secured with screws through their base. The ON/OFF switch is placed directly on the lamp head.

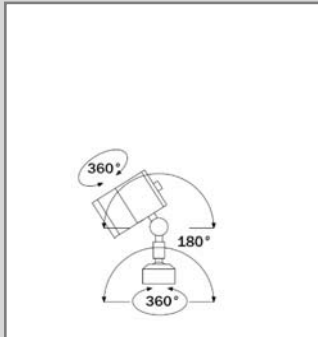
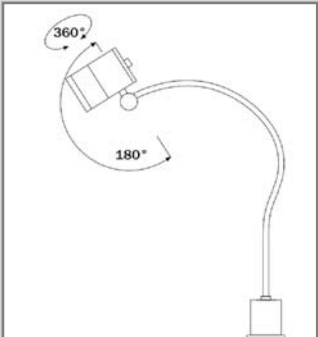
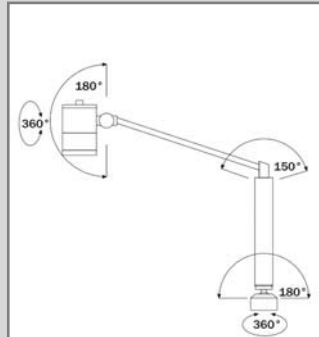
The lamp base can be screwed in position at the workplace or inside the machine. Alternative fasteners are a clip foot and magnetic base for more flexible solutions.



HEBL - long lamp arm, rigid

For the perfect illumination and brightness control, every one of these lamp types can be fitted with three, six, or nine LEDs and with an 8°, 25°, or 40° lens.

WORKPLACE LIGHTING

Typ	HEBC	HEBF	HEBL
LED Type	Cree-XR-E	Cree-XR-E	Cree-XR-E
No. of LEDs	3 / 6 / 9	3 / 6 / 9	3 / 6 / 9
LED life	50,000 h (350 mA)	50,000 h (350 mA)	50,000 h (350 mA)
Brightness/lens	diffuse / 8°, 25°, 40°	diffuse / 8°, 25°, 40°	diffuse / 8°, 25°, 40°
Light temperature	5300° K	5300° K	5300° K
Reflector Ø mm	64x86 (3/6 LED), 90x101 (9 LED)	64x86 (3/6 LED), 90x101 (9 LED)	64x86 (3/6 LED), 90x101 (9 LED)
Basic dimensions	60x60 mm, H 36 mm	80 x 63 mm, H 102 mm	60x60 mm, H 36 mm
Lamp arm	-	Ø15 mm x L 700 mm, flexible	top Ø12 x L420 mm bottom 35x35x240mm
Fasteners	4 screws	4 screws	4 screws
Switches	single pole, ON/OFF	single pole, ON/OFF	single pole, ON/OFF
IP rating	IP 65	IP 65	IP 65
Colour	black, other colours on request	black, other colours on request	black, other colours on request
Adjustable angle			

Electrical properties

Lamp type	HEBC/HEBF/HEBL - 3 LED	HEBC/HEBF/HEBL - 6 LED	HEBC, HEBF, HEBL - 9 LED
Operating voltage	11,4 VDC	22,8 VDC	34,2 VDC
Current 350 mA	3 Watt	6 Watt	9 Watt
Current 500 mA	6 Watt	12 Watt	-
Current 700 mA	9 Watt	-	-
IEC marking	III	III	III

HEMA also supplies an adaptor matching the ordered illuminant type. Solely the operating voltage must be specified on the order (see table above).

Illumination on surface (40° lens), distance 1000 mm

Lamp type	HEBC/HEBF/HEBL - 3 LED		HEBC/HEBF/HEBL - 6 LED		HEBC, HEBF, HEBL - 9 LED	
Light cone Ø [mm]	350 mA/350 lu	500 mA/500 lu	350 mA/350 lu	500 mA/500 lu	350 mA/350 lu	500 mA/500 lu
100	455 lx	610 lx	1070 lx	1440 lx	1060	1660 lx
200	450 lx	600 lx	1000 lx	1315 lx	990	990 lx
300	425 lx	570 lx	880 lx	1160 lx	890	890 lx
400	370 lx	490 lx	760 lx	990 lx	755	890 lx
500	310 lx	415 lx	610 lx	800 lx	615	950 lx
600	250 lx	335 lx	450 lx	600 lx	480	740 lx

All dimensions in mm if not marked otherwise. Errors and omissions excepted.

MACHINE LIGHTING

For constant illumination inside the machine, the HETLED lighting system was developed on a modular basis. As a result, the light provided by this system in the interior can be adapted specifically to actual needs. Units with three, six, nine, or twelve LEDs are available.



Modular machine interior lighting HETLED

The housing of the HETLED is of aluminium and polycarbonate and is ideal for dusty or wet environmental conditions e.g. inside machines. Also a scratchproof glass variant is available as an option for use in machining production. All HETLED versions fulfil the protective requirements for IP 68. The encapsulated design is an effective barrier against foreign particles and moisture for a maintained high quality of lighting at all times.

An LED has a max life of 50,000 hours, reducing maintenance work to a considerable degree. This long life and high lighting quality also help to save maintenance and energy costs.



Machine interior lighting HETLED with three LED

Advantages of using HETLED lamps

- Compact measurements with maximum illumination
- Robust design for demanding applications
- Adjustable lighting angle
- High flexibility
- Innovative fastening modes for maximised installation convenience
- Resistant to many coolants and lubricants
- High IP rating
- LED technology for up to 50,000 hours of operation
- Energy efficient



Fastening with clips



Screw union with mount

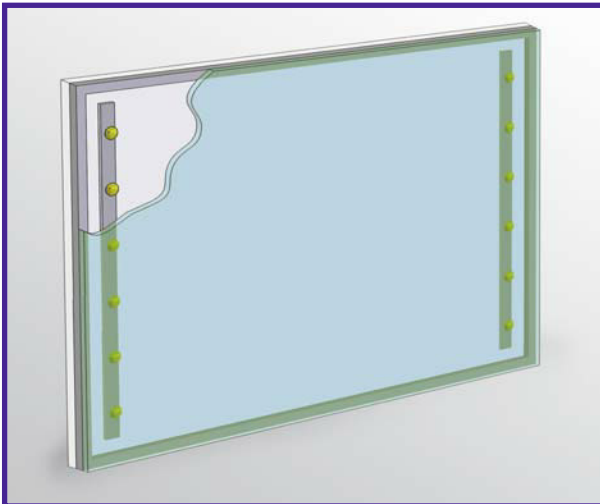
	TLED 3	TLED 6	TLED 9	TLED 12
Operating voltage 350 mA	3 W	6 W	9 W	12 W
Operating voltage 500 mA	6 W	12 W	18 W	24 W
Operating voltage 700 mA	9 W	-	-	-
Current	11,4 V DC	22,8 V DC	34,2 V DC	45,6 V DC
IEC marking	III	III	III	III
cable length	1,5 m,	1,5 m	1,5 m	1,5 m
LED type	Cree XR-E	Cree XR-E	Cree XR-E	Cree XR-E
LED life	50 000 h	50 000 h	50 000 h	50 000 h
LED no	3	6	9	12
Light temperature	5300 °K	5300 °K	5300 °K	5300 °K
Lenze	8° - 25° - 40°	8° - 25° - 40°	8° - 25° - 40°	8° - 25° - 40°
Dimensions (mm)	Ø 36x167	Ø 36x302	Ø 36x437	Ø 36x572
Fasteners	2 metal clips	2 metal clips	2 metal clips	2 metal clips
Colour	alloy	alloy	alloy	alloy
IP rating	IP68	IP68	IP68	IP68

HEMA also supplies an adaptor matching the ordered illuminant type. Solely the operating voltage must be specified on the order (see table above).

MACHINE SAFETY WINDOW WITH INTEGRATED LIGHTING

Machine safety windows permit safe viewing of machining operations inside the machine tool. Most often there is a need for additional lighting.

Depending on available space and position, conventional lights can become dulled by accumulation of swarf and contamination by coolant.



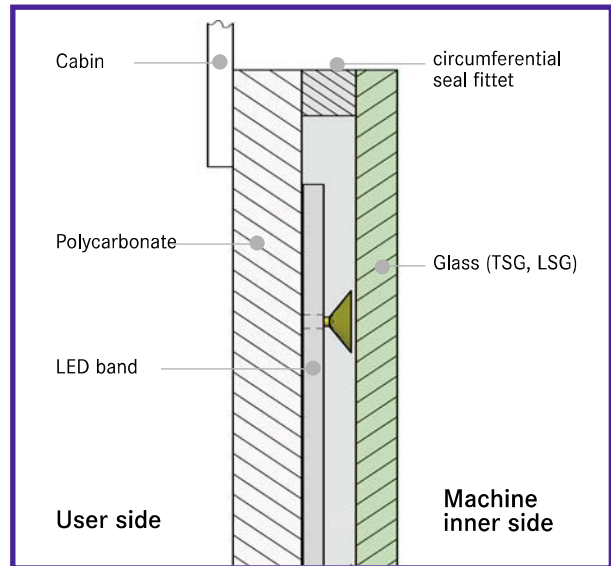
Machine safety window with LED lighting

The optimal solution combines both safety window and lighting in the form of HEMW – the integration of LED technology within the machine tool safety window. These illuminated safety windows combine the advantages of two established systems in one compact solution.

The optimal solution combines the view inside the machine with suitable lighting. This solution is available in the form of the illuminated HEMW, the integration of LED technology in a machine safety window.



Machine safety window with LED lighting



Layout of the safety window with integrated lighting

These illuminated safety windows combine the advantages of two established systems in the one compact solution for the machine interior which eliminates problems of swarf and coolant contamination of internally mounted lamps.

The well proven perimeter seal design ensures the LED's and internal surfaces are protected from ingress of contamination and moisture.

The advantages of HEMA windows with integrated lighting:

- Compact system solution
- Flexible illumination of the machine interior
- Tried and tested LED technology
- Elimination of lamp contamination
- Power supply from the mains or the machine
- Retrofit option on machines

HEMA is also able to supply an adaptor to match the type of lamp required. Only the operating voltage must be specified when ordering (see previous table)

Further information on HEMA machine safety and Visiport rotating windows can be found in our main catalogue »Protective and Window Systems«.