

# SIGHTGLASS LIGHT FITTINGS

Series (F)HEL / (F)HEL PowerLED / FHL / FHL PowerLED, the ideal solution for your lighting problems in hazardous as well as in safe areas

- Fully developed package
- Various mounting options
- For combination of sight / light unit as well as for separate fitting (2 port version)
- Also supplied as complete units with VETROLUX sightglasses



Type HEL 50 deHW, Ex d e IIC T3 Gb, Ex t IIIC T195°C Db / IP67, Ex II 2 G + D, 230 V, 50 W, halogen version, mounted on circular sightglass to DIN 28120, DN 125, PN 10, in 1 port version.

Branch office / exclusive agent:

With the innovative series HEL / FHEL / HEL PowerLED / FHEL PowerLED / FHL / FHL PowerLED, you may choose between 12 standard types to meet your needs, offering the following main advantages:

**For the purchasing department:**

- **Highly competitive prices** due to extremely compact value-engineered design and highly efficient manufacturing techniques
- **Short lead times**

**For the design engineer or the plant engineer:**

- Versatile design enabling the light fittings to be used as a combination “view **and** light through **one** assembly” as well as for use as a separate light fitting in a two port system, already from DN 25 on depending on the type of the sightglass
- **Easy installation** due to the availability of 3 different fixing systems (side feet “Sch”, fixation bracket “W”, flange collar “R”), meeting all applications on:
  - Circular sightglasses to DIN 28120 / 28121 or similar
  - Sight flow indicators
  - Screwed sightglasses similar to DIN 11851
- **Most compact design** providing brilliant illumination due to powers of up to 50 watts (refer to page 3)
- **Dazzle free illumination** due to a wide range of different light outputs (refer to page 3) as well as anti-dazzle shield “B” or opal glass “M”
- units may be **installed in any position without restriction**
- **Admitted** for food processing applications
- **Particularly designed for extremely brilliant lighting** of vessels, reactors, tanks or silos
- All types may be equipped with an electronic timer “U” or “V” or a built-in push-button for momentaneous operation (“D”) (see “Additional equipment”)
- Hazardous area types **with or without connection box** (Ex “de” or Ex “d”)
- Hazardous area types: ATEX equipment protection level (EPL): Gb (zones 1 and 2) and Db (zones 21 and 22)
- Safe area models may be equipped with a built-in “ON-OFF”-switch (“E”) for a limited operation period
- LED types admitted for ambient temperatures from - 20 °C to + 40 °C
- All models may be equipped **with transport handle** (“T”), thus serving as a hand lamp

**For the maintenance electrician:**

- **Easy replacement** of bulbs or LED units
- **Industry standard halogen bulbs** (series HEL / FHEL / FHL)
- **LED types with extremely long life span (up to 40,000 hours)** (series HEL PowerLED / FHEL PowerLED / FHL PowerLED)

**Operating conditions:**

Completely **independent** of internal vessel pressure or vacuum

**Enclosure protection degree:**

IP 67, dust tight and protected against the effects of temporary immersion to EN 60529 / DIN VDE 0470 part 1

**Construction and materials:**

Housing, fixation elements “Sch” and “W” and cover of connection box (depending on type) made of corrosion resistant cast aluminium alloy (Anticorodal). Upon request, painted with a two component acryl based colour (“K”). Horizontal cable gland with sealing ring M 20 x 1,5 (series HEL / HEL PowerLED) or M 16 x 1,5 (series FHEL / FHEL PowerLED / FHL / FHL PowerLED). Hazardous area models without junction box are supplied with standard 5 metre cable length connected internally at our factory. Other cable lengths may be ordered. Connection to terminals up to 2.5 mm<sup>2</sup>. Additional earth terminal 4 mm<sup>2</sup> at the outside of the housing (hazardous area types only). For timers “U” or “V”, an operating time of 3 minutes is preprogrammed at our factory. Other operating times may be set. Built-in reflector-bulb-unit (series HEL / FHEL / FHL) or LED unit (series HEL PowerLED / FHEL PowerLED / FHL PowerLED).

**Mounting:**

On circular sightglasses to DIN 28120 or similar:

DN 25 – DN 150: With side feet “Sch”

DN 80 – DN 200: With fixation bracket “W”

On circular sightglasses to DIN 28121 or similar:

DN 40 – DN 200: With side feet “Sch”

DN 80 – DN 200: With fixation bracket “W”

On screwed sightglasses similar to DIN 11851:

DN 50 – DN 100: With intermediate flange collar “R” in AISI 304 (order to specify DN size)

From DN 125 on: With fixation bracket “W” onto the grooved collar nut

On sight flow indicators:

With fixation bracket “W” or specific customer adaptation (the housing has 4 drilled holes M5 size)

# Standard types Electrical data Additional equipment



| Type designation for                   | Safe area light fitting      |             |  | FHL 35 H                  | FHL 50 H                  |                             | FHL PowerLED-S / -F 4, 5                    |
|--|------------------------------|-------------|--|---------------------------|---------------------------|-----------------------------|---|
|  | Hazardous area light fitting | HEL 35 deH  | HEL 50 deH                               | FHEL 35 dH                | FHEL 50 dH                | HEL de PowerLED-S / -F 4, 5 | FHEL d PowerLED-S / -F 4, 5                 |
| Nominal rating                         | (W)                          | 35          | 50                                       | 35                        | 50                        | 7<br>(980 Lumen)            | 7<br>(980 Lumen)                            |
| Terminal voltage                       | (V)                          | 230, 240 AC | 230, 240 AC                              | 230, 240 AC               | 230, 240 AC               | 230–240 AC<br>24 AC/DC      | 230–240 AC<br>24 AC/DC                      |
| Light source                           |                              | Halogen     | Halogen                                  | Halogen                   | Halogen                   | LED                         | LED   |
| Socket of the light source             |                              | GU 10       | GZ 10 <sup>2</sup><br>GU 10 <sup>3</sup> | GU 10                     | GU 10                     |                             |   |
| Lateral junction box                   |                              | •           | •  |                           |                           | •                           |   |
| Weight (without fixation) <sup>1</sup> | (kg)                         | 1.90        | 1.90                                     | 1,50 (FHL)<br>1,75 (FHEL) | 1,50 (FHL)<br>1,75 (FHEL) | 1,85                        | 1,45 (FHL PowerLED)<br>1,70 (FHEL PowerLED) |

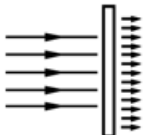




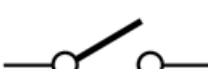
<sup>1</sup> Only light fitting. Fixations "W" 0.03 (FHL [PowerLED]) resp. 0.06 ([F]HEL [PowerLED]) kg, "Sch" 0.16 kg. <sup>2</sup> In 230 V. <sup>3</sup> In 230 and 240 V.  
<sup>4</sup> "Spot"-version ("-S"; narrow light beam) or "flood"-version ("-F"; wide light beam). <sup>5</sup> Only available with options "D", "V" or "U".

The indications below **only refer to the hazardous area models:**

|                                |  |  |   |  |  |  |  |
|--------------------------------|--|--|---|--|--|--|--|
| Ignition protection type to EN | 60079-0 / -1<br>60079-7 <sup>6</sup><br>61421-0 / -1 <sup>7</sup><br>60079-31 <sup>8</sup> | Ex d e IIC<br>Gb / Ex t IIIC<br>Db / IP 67 | Ex d e IIC<br>Gb / Ex t IIIC<br>Db / IP 67            | Ex d IIC Gb /<br>Ex t IIIC Db /<br>IP 67 | Ex d IIC Gb /<br>Ex t IIIC Db /<br>IP 67 | Ex d e op is IIC Gb;<br>Ex t IIIC Db IP 67 | Ex d op is IIC Gb;<br>Ex t IIIC Db IP 67 |
| Explosion groups               |  | IIC / IIIC                                 | IIC / IIIC  | IIC / IIIC                               | IIC / IIIC                               | IIC / IIIC                                 | IIC / IIIC                               |
| Temperature class (G / D) at   | T <sub>a</sub> = -20°C /<br>+40°C  | T4 / T130°C                                | T4 / T130°C <sup>9</sup><br>T3 / T195°C <sup>10</sup> | T4 / T130°C                              | T3 / T195°C                              | T6 / T80°C                                 | T6 / T80°C                               |
|                                | T <sub>a</sub> = -20°C /<br>+60°C  | T3 / T195°C                                | T3 / T195°C   | T3 / T195°C                              | T3 / T195°C                              | T6 / T80°C                                 | T6 / T80°C                               |
| ATEX                           |  | Ex II 2 G + D                              | Ex II 2 G + D   | Ex II 2 G + D                            | Ex II 2 G + D                            | Ex II 2 G + D                              | Ex II 2 G + D                            |

<sup>6</sup> For Ex d e only. <sup>7</sup> Halogen types. <sup>8</sup> PowerLED types. <sup>9</sup> With socket GZ 10 (230 V). <sup>10</sup> With socket GU 10 (230 and 240 V).

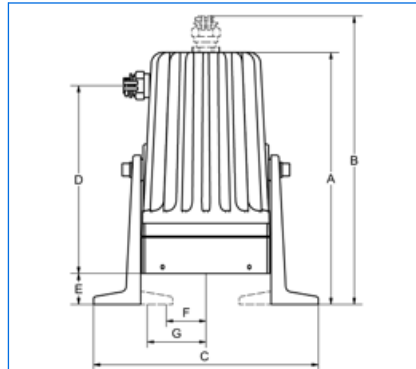
## Additional equipment:

|   |  |
|---|--|
|  <p><b>Opal glass</b> ... M<br/>In some cases, such as in pipeline flow indicator applications, a strong blinding effect occurs. For such situations, we offer an opalised glass fitted into the unit, which increases the dispersion of the light and eliminates glare.</p>   |  <p><b>Transport handle</b> ... T<br/>This ergonomic and insulated handle makes transport around the plant easy, and also facilitates the use of the light fitting for inspection inside a vessel on a trailing lead.</p>                                    |
|  <p><b>Device for momentary operation</b> ... D<br/>To reduce energy consumption and increase the life span of the light source, the light fittings may be equipped with a built-in device providing for momentary illumination. This device <b>cannot be combined</b> with timers "V" or "U".</p>   |  <p><b>Paint finish</b> ... K<br/>The special two component acrylic paint finish protects against corrosion in highly aggressive environments, and may satisfy customers' special aesthetic requirements. RAL 9001 is standard, other colours on demand.</p> |
|  <p><b>Timers</b> ... V / U<br/>The timers for operation on the unit <b>and</b> from distance (...V) or from distance <b>only</b> (...U) reduce energy consumption and increase the life span of the light source by limiting operation to approximately 4 minutes. They are particularly recommended for short or sporadic observation of the vessel contents. The timers <b>cannot</b> be combined with the device ...D.</p> |  <p><b>ON-OFF-switch</b> ... E<br/>This switch is available for the types FHL 35, FHL PowerLED-S und FHL PowerLED-F.</p>   |

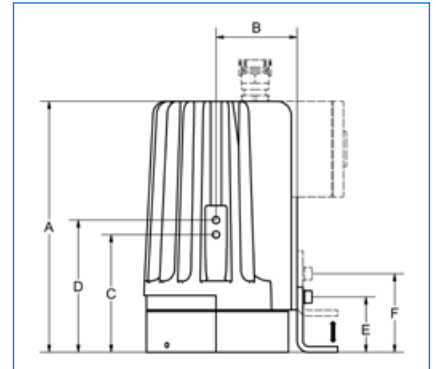
## Dimensions Application examples



Type HEL 35 deHSchB, Ex d e IIC T4 Gb, Ex t IIIC T130°C Db / IP67, Ex II 2 G + D, 230 V, 35 W, halogen version, with anti-dazzle shield "B", on circular sightglass to DIN 28120, DN 150, PN 6, in version "view and light through one sightglass".



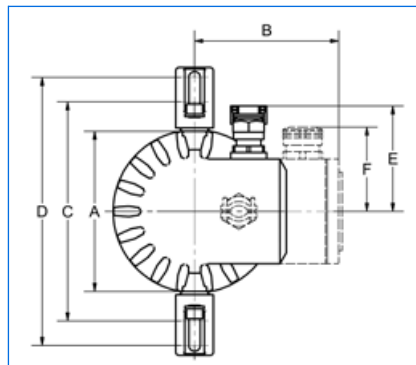
| A   | B   | C   | D   | E  | F  | G  |
|-----|-----|-----|-----|----|----|----|
| 198 | 226 | 176 | 147 | 24 | 31 | 46 |



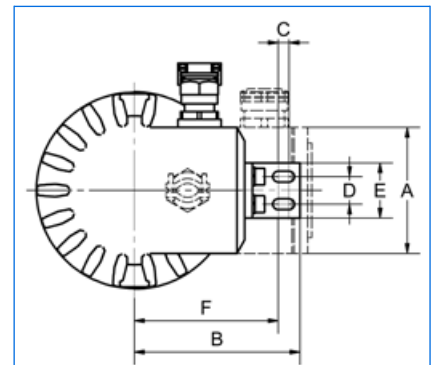
| A   | B  | C  | D  | E  | F  |
|-----|----|----|----|----|----|
| 173 | 56 | 81 | 91 | 38 | 54 |



Type FHEL 35 dHVRK1, Ex d IIC T4 Gb, Ex t IIIC T130°C Db / IP67, Ex II 2 G + D, 230 V, 35 W, halogen version, with timer "V", on screwed sightglass similar to DIN 11851, DN 65, PN 6. Fixation with intermediate flange collar "R".



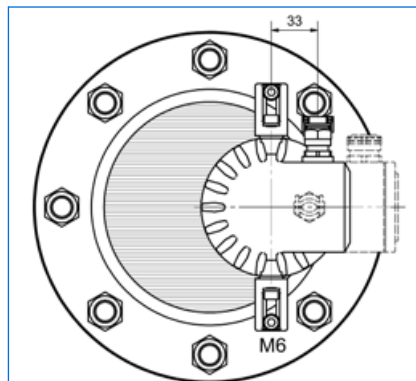
| A  | B  | C   | D   | E  | F  |
|----|----|-----|-----|----|----|
| 98 | 88 | 134 | 164 | 65 | 52 |



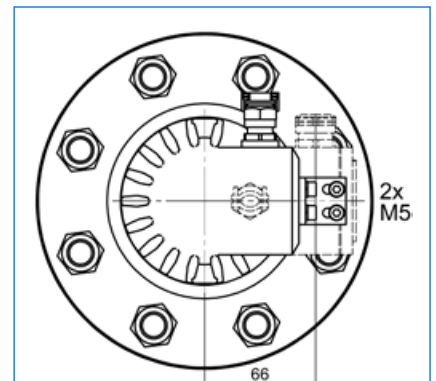
| A  | B  | C | D  | E  | F  |
|----|----|---|----|----|----|
| 64 | 84 | 5 | 14 | 28 | 73 |



Type FHEL 50 dH MWsp, Ex d IIC T3 Gb, Ex t IIIC T195°C Db / IP 67, Ex II 2 G + D, 230-240 V, 50 W, halogen version, with opal glass "M", on pipeline flow indicator type FDE 50, DN 50.



Fixation «Sch»



Fixation «W»

All dimensions in mm.

Subject to changes without preliminary notice.

# MAX MÜLLER AG

PROCESS ILLUMINATION AND VISUAL OBSERVATION SYSTEMS

Hagmattstrasse 19 • CH - 4123 Allschwil / Switzerland

Telephone +41 61 487 92 92 • Telefax +41 61 487 92 99

www.maxmuller.com • E-Mail: info.ch@maxmuller.com