

# SIGHTGLASS LIGHT FITTINGS

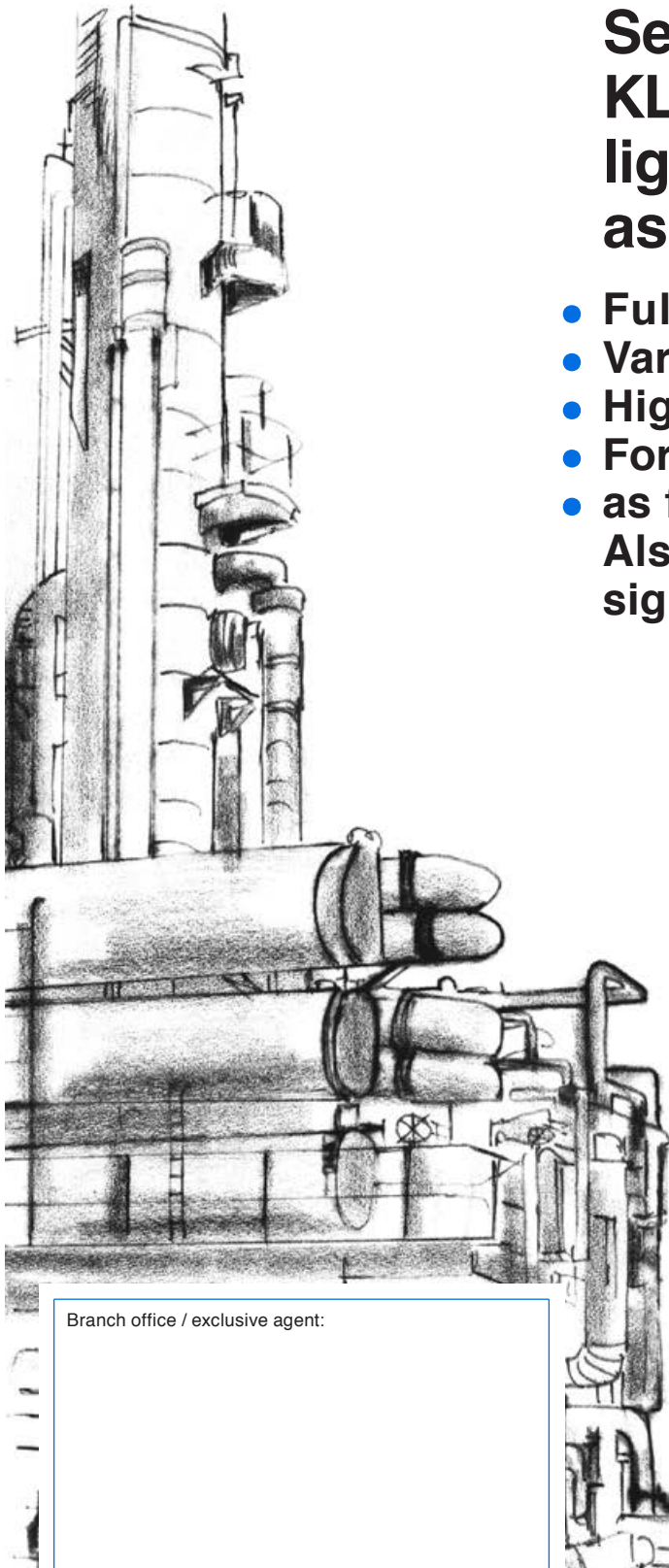
**Series KEL/LKEL/FKEL/FLKEL/  
KL, the ideal solution for your  
lighting problems in hazardous  
as well as safe areas.**

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



Type KEL 20 deH W, Ex d e IIC T4 Gb, Ex t IIIC T130°C Db IP67, Ex II 2  
G + D, 230 V, 20 W, mounted on circular sightglass to DIN 28120, DN 125,  
PN 10, in 1 port version.

Branch office / exclusive agent:



# Short information and advantages

## General technical data

### Mounting possibilities

With the series KEL / LKEL / FKEL / FLKEL / KL, you may choose between 19 standard types to meet your own application needs, offering the following principal 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
    - Screwed sightglasses similar to DIN 11851
    - Sight flow indicators
  - **Most compact design** providing brilliant illumination due to high wattage capability up to 100 Watts!
  - Hazardous area types **with or without connection box**. (Ex «de» or Ex «d»)
  - **Dazzle free illumination** due to a wide range of power supplies (refer to page 3) as well as through anti-dazzle shield “B” or opal glass “M”
  - Light 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
  - Different types may be equipped with an electronic timer “U” or “V” or with a built-in push-button for momentaneous operation (“D”) (see “Additional equipment”, page 3)
  - 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”)
  - All models may be equipped **with transport handle** (“T”) thus serving as a hand lamp
- For the maintenance electrician:**
- Connection to **different supply voltages possible** (see table page 3)
  - **Easy replacement** of bulbs
  - **Halogen bulbs** are **industry standards available** from local suppliers

**Operating conditions:** Completely **independent** of vessel internal pressure or vacuum

**Electrical data:**

Supply: Alternative or direct current (AC or DC), depending on type of the light fitting. (Versions with integrated transformer AC only)

Terminal voltages: Refer to table on page 3 for details

Power: Refer to table on page 3 for details

**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 of corrosion resistant cast aluminium alloy (Anticorodal). Upon request painted with a two component acryl based colour (“K”). Cable gland M 20 x 1,5 or NPT ½” ((Ex)-types), Pg 11 (safe area types) contained in our delivery. Hazardous area models without junction box are supplied depending on type with standard 5 metre cable length connected internally at our works. (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> external to the housing for hazardous area types. When timer “U” or “V” is included, an operating time of 3 minutes is preprogrammed at our factory. Other operating times may be specified on ordering. With built-in transformers, the hazardous area models contain an integrated fuse. Built-in reflector or reflector-bulb-unit, according to your needs to produce a wide (“flood” version) or concentrated (“spot” version) beam of light. Standard version: “Spot”.

**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 (DN size should be specified on ordering)

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 (i. e. the light housing has 4 drilled holes M5 size for this purpose)

# Standard types

## Electrical data

## Additional equipment

| Type designation for                           | safe area light fitting<br>hazardous area light fitting | KL 5 H                                |                                       | KL 10 H                               |                                       | KL 20 H                               |                                       |            |            | KL 50 H<br>KL 100 H |
|--|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|------------|------------|---------------------|
|  |   | FKEL 5 dH<br>FLKEL 5 dH               | KEL 5 deH<br>LKEL 5 deH               | FKEL 10 dH<br>FLKEL 10 dH             | KEL 10 deH<br>LKEL 10 deH             | FKEL 20 dH<br>FLKEL 20 dH             | KEL 20 deH<br>LKEL 20 deH             | FKEL 50 dH | KEL 50 deH |                     |
| Nominal rating                                 | (W)   | 5                                     | 5                                     | 10                                    | 10                                    | 20                                    | 20                                    | 50         | 50         | 50<br>100           |
| Terminal voltage with built-in transformer     | (V)   | 24, 36<br>42, 115<br>230, 240         | 24, 36<br>42, 115<br>230, 240         | 24, 36<br>42, 115<br>230, 240         | 24, 36<br>42, 115<br>230, 240         | 24, 36<br>42, 115<br>230, 240         | 24, 36<br>42, 115<br>230, 240         |            |            |                     |
| Secondary voltage of built-in transformer      | (V)   | 12                                    | 12                                    | 12                                    | 12                                    | 12                                    | 12                                    |            |            |                     |
| Terminal voltage without transformer (AC / DC) | (V)   | 12                                    | 12                                    | 12                                    | 12                                    | 12, 24                                | 12, 24                                | 12, 24     | 12, 24     | 12, 24              |
| Bulb   |   | Halogen                               | Halogen                               | Halogen                               | Halogen                               | Halogen                               | Halogen                               | Halogen    | Halogen    | Halogen             |
| Socket   |   | G4                                    | G4                                    | G4                                    | G4                                    | G4                                    | G4                                    | GY 6.35    | GY 6.35    | GY 6.35             |
| Lateral junction box                           |   |                                       | •                                     |                                       | •                                     |                                       | •                                     |            | •          |                     |
| Weight with lateral junction box (kg)*         | with transfo  |                                       | 2,15 <sup>1)</sup> 2,45 <sup>3)</sup> |                                       | 2,15 <sup>1)</sup> 2,45 <sup>3)</sup> |                                       | 2,15 <sup>1)</sup> 2,45 <sup>3)</sup> |            |            |                     |
|  | without transfo   |                                       | 1,65 <sup>1)</sup> 1,95 <sup>3)</sup> |                                       | 1,65 <sup>1)</sup> 1,95 <sup>3)</sup> |                                       | 1,65 <sup>1)</sup> 1,95 <sup>3)</sup> |            | 1,65       |                     |
| Weight without lateral junction box (kg)*      | with transfo  | 2,25 <sup>1)</sup> 2,56 <sup>2)</sup> |                                       | 2,25 <sup>1)</sup> 2,56 <sup>2)</sup> |                                       | 2,25 <sup>1)</sup> 2,56 <sup>2)</sup> |                                       |            |            |                     |
|  | without transfo   | 1,75 <sup>1)</sup> 2,06 <sup>2)</sup> |                                       | 1,75 <sup>1)</sup> 2,06 <sup>2)</sup> |                                       | 1,75 <sup>1)</sup> 2,06 <sup>2)</sup> |                                       | 1,25       |            | 1,25                |

\* Only light fitting. Fixations "W" 0.03 kg, "Sch" 0.16 kg.

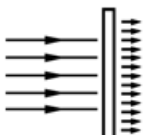

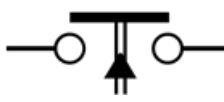
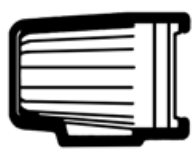

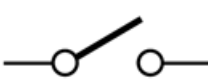
The lower indications are **only valid for the hazardous area models.**

|                                |   |                                 |  |                                 |  |                                 |  |                                 |  |             |
|--------------------------------|---|---------------------------------|--|---------------------------------|--|---------------------------------|--|---------------------------------|--|-------------|
| Ignition protection type to EN | 60079-0/60079-1/<br>60079-31                    | Ex d IIC Gb;<br>Ext IIICDb IP67 |  | Ex d IIC Gb;<br>Ext IIICDb IP67 |  | Ex d IIC Gb;<br>Ext IIICDb IP67 |  | Ex d IIC Gb;<br>Ext IIICDb IP67 |  |             |
|                                | 60079-0/60079-1/<br>60079-7 /<br>60079-31       |                                 | Ex d e IIC Gb;<br>Ext IIIC Db<br>IP 67 |                                 | Ex d e IIC Gb;<br>Ext IIIC Db<br>IP 67 |                                 | Ex d e IIC Gb;<br>Ext IIIC Db<br>IP 67 |                                 | Ex d e IIC Gb;<br>Ext IIIC Db<br>IP 67 |             |
| Explosion groups               |   | IIC / IIIC                      | IIC / IIIC                             | IIC / IIIC                      | IIC / IIIC                             | IIC / IIIC                      | IIC / IIIC                             | IIC / IIIC                      | IIC / IIIC                             | IIC / IIIC  |
| Temperature class G / D        | T <sub>a</sub> = -20°C /<br>+40°C <sup>4)</sup> | T6 / T80°C                      | T6 / T80°C                             | T4 / T130°C<br>T6 / T80°C       | T4 / T130°C<br>T6 / T80°C              | T4 / T130°C                     | T4 / T130°C                            | T3 / T195°C                     | T3 / T195°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                            | Ex II 2 G+D                     | Ex II 2 G+D                            | Ex II 2 G+D |

<sup>1)</sup> Indicated weights are for hazardous area types (series KEL / FKEL). Safe area models (series KL) 0.5 kg less.

<sup>2)</sup> Series FLKEL    <sup>3)</sup> Series LKEL    <sup>4)</sup> T<sub>a</sub> up to +60°C on request for series FLKEL and LKEL.

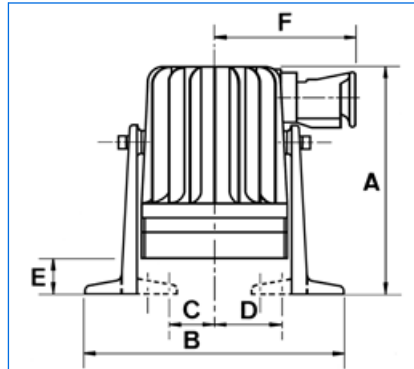
### Additional equipment:

|   |   |
|---|---|
|  <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/>In order to cut down on wasted energy and improve the bulb life, the safe area light fittings and the series LKEL / FLKEL may be equipped with a built-in device providing momentary illumination. This device <b>cannot be combined</b> with timers "V" or "U". (Please refer to our leaflet "switches, push-buttons and timers").</p>  |  <p><b>Paint finish</b> ... K<br/>The special two component acrylic paint finish protects against corrosion in excessively 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 <b>on</b> the unit or <b>at</b> a distance ...V or at distance only ...U save energy and increase the lifetime of the bulb by limiting operation to approximately 3 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.<br/><b>Timer U:</b> For types (F)KEL 5 / 10 dH / deH with 12 V and (F)KEL 20 dH / deH with 12 or 24 V supply voltage as well as for series LKEL / FLKEL<br/><b>Timer V:</b> For series LKEL / FLKEL</p> |  <p><b>ON-OFF-switch</b> ... E<br/>This switch is available for the types KL 20 H in <b>all</b> supply voltages, for the type KL 50 H with 12 or 24 V supply and for the type KL 100 H with 24 V supply. (Please refer to our leaflet "switches, push-buttons and timers").</p> |

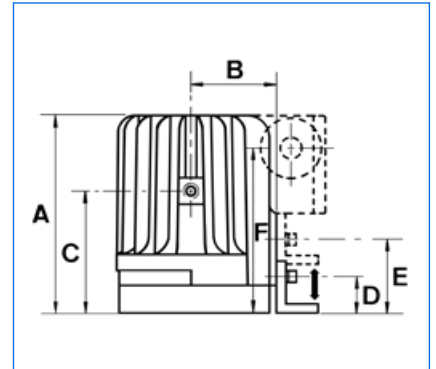
# Dimensions Application examples



Safe area type KL 100 H Sch B, 24 V, 100 W, with anti-dazzle shield "B", on circular sightglass to DIN 28120, DN 150, PN 10, in version "view and light through one sightglass".



| A   | B   | C  | D  | E  | F   |
|-----|-----|----|----|----|-----|
| 157 | 178 | 30 | 45 | 24 | 104 |

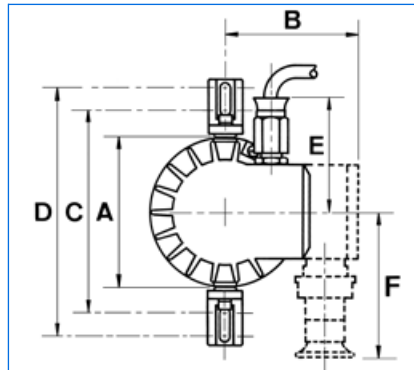


| A   | B  | C  | D  | E  | F   |
|-----|----|----|----|----|-----|
| 133 | 56 | 81 | 28 | 44 | 111 |

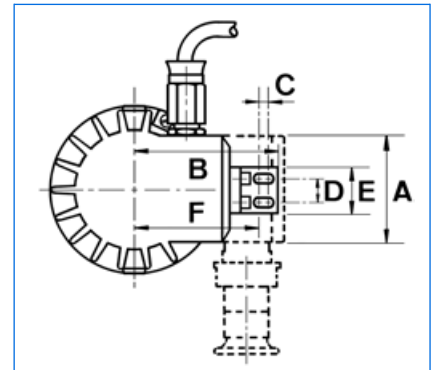
\* Series LKEL / FLKEL: + 31 mm



Hazardous area type FKEL 20 dH R, Ex d IIC T4 Gb, Ex t IIC T130°C Db IP67, Ex II 2 G + D, 230 V, 20 W, on screwed sightglass similar to DIN 11851, DN 65, PN 6. Fixation with intermediate flange collar "R".



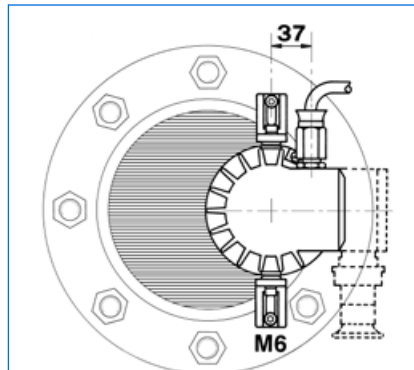
| A   | B  | C   | D   | E  | F   |
|-----|----|-----|-----|----|-----|
| 100 | 88 | 136 | 164 | 76 | 104 |



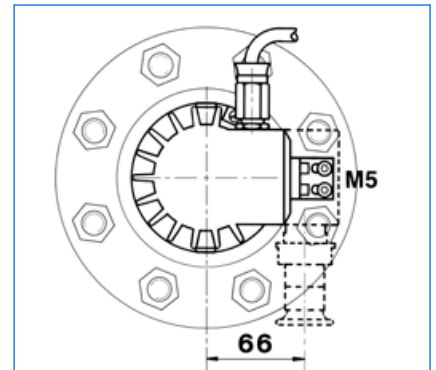
| A  | B  | C | D  | E  | F  |
|----|----|---|----|----|----|
| 64 | 84 | 5 | 14 | 28 | 73 |



Hazardous area type FKEL 5 dH WM, Ex d IIC T6 Gb, Ex t IIC T80°C Db IP67, Ex II 2 G + D, 230 V, 5 W, with opal glass "M", on pipeline flow indicator DN 50.



Fixation "Sch"



Fixation "W"

All dimensions in mm.

Subject to changes without preliminary notice.

Do you wish for more information about our wide range of light fittings for use in hazardous and safe areas, about our range of circular sightglasses to DIN 28120/28121, screwed sightglasses similar to DIN 11851, rectangular or D-ended sightglasses, pipeline flow indicators, centrally or sideways operated wipers, hinged sightglasses, spraying devices, camera systems for hazardous areas or our complete sight and lightglass units VETROLUX®? Are you interested in other types, special versions or different protection degrees? If yes, please contact us, our branch office or our local agents – it is our business! You will find the necessary indications about our sales network on the Internet.