LED Tube

The **hansen LED Tube** is a highly flexible light source designed for backlighting acrylic, banner or similar translucent materials. Its primary application is the illumination of channel letters and light boxes in illuminated advertising systems.

The **LED Tube** consists of a chain of series-connected LEDs. Each LED is provided with an anti-parallel protective diode mounted on the same printed circuit board. For better protection, the circuit boards and the connecting cables are enclosed in a continuous transparent heat shrink tubing.

LED spacing, overall length, brightness and light colour of the LED Tube can be specified by the customer.

### Classification of LED-type, light colour and current:

<table>
<thead>
<tr>
<th>Type</th>
<th>Standard</th>
<th>Power</th>
<th>Power-2x100</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mA</td>
<td>0.08 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 mA</td>
<td>0.11 W</td>
<td>0.15 W</td>
<td></td>
</tr>
<tr>
<td>100 mA</td>
<td>0.32 W</td>
<td>0.2 W</td>
<td>0.6 W</td>
</tr>
</tbody>
</table>

### Lichttechnische Daten einer LED:

- **Light colour**
  - White 2,700 K: 8.7 lm, 42 lm
  - White 3,000 K: 8.7 lm, 42 lm
  - White 4,000 K: 9.6 lm, 44 lm
  - White 5,000 K: 9.6 lm, 44 lm
  - White 6,500 K: 9.6 lm, 44 lm
  - White 7,600 K: 9.6 lm, 44 lm
  - Blue (463 - 471 nm): 2.4 lm, 6.3 lm
  - Green (516 - 534 nm): 9.2 lm, 21.5 lm
  - Red (612 - 624 nm): 9.5 lm (at 50 mA), 14 lm
  - Yellow (583 - 592 nm): 6.3 lm (at 50 mA), XXX
  - Amber (600 - 609 nm): 9.5 lm (at 50 mA), XXX
  - LED radiation angle: 120°
  - Colour rendering, white: CRI 80 (CRI 70 bei 7600K)

- **Heat shrink tubing:**
  - **Base material:** Cross-linked polyolefin
  - **Colour/surface:** Transparent/smooth, matt
  - **Operating temperature:** -55 °C to +135 °C
  - **Dielectric strength:** 24 kV/mm (VDE 0303 Part 2)
  - **Flammability:** FMVSS 302 passed
  - **Halogen-free:** According to DIN VDE 0472-815
  - **Approvals:** Vg95343, UI224, CSA

- **Wiring diagram:**
  - The LED Tube must only be operated with **hansen** constant-current converters.
  - **230 volts** ➔ Converter ➔ LEDs with Zener diodes (series connection) ➔ Protective diode

- **General data:**
  - **Type of connection:** Series connection
  - **Power supply unit:** **hansen** converter type C... / ...
  - **Degree of protection:** IP3X
  - **Class of protection:** II
  - **Ambient temperature range:** -25 °C to +65 °C
  - **Residual luminous flux:** 70% after 50,000 operating hours
  - **UV resistance:** Must be protected against direct UV radiation
  - **Conformity:** CE, RoHS
  - **Test certificate:** TÜV type test

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All values refer to an ambient temperature of +25°C.