Belt Conveyor Pull Rope Switch

HEN and HEK

Leaflet No. Kiepe 358
**APPLICATION**

Kiepe Pull Rope Switches HEN and HEK provide a switching system to isolate the power to conveyor systems and other process equipment in event of an emergency.

The devices have been designed for a maximum of safe operation under severe conditions.

**OPERATION**

Kiepe Pull Rope Switches are actuated by a plastic coated steel wire rope placed alongside the conveyor. Pulling on the rope at any point will trip and automatically lock the switches, de-energizing the conveyor starter contactor. Each switch is bi-directional in operation and has two ropes fitted to it from opposite directions terminating with a spring at the anchor points.

The springs will operate the switch in the event of rope breakage. The length of rope in either direction may be up to 50 meters. After tripping, the mechanical latch can be released only on the switch itself by the reset lever or a key (optional).

**Patented Springloaded Switching Operation (DBP 2935420)**

Pulling the rope operates the actuating lever, which trips the internal cam into the OFF position. As the actuating lever is now uncoupled, it is impossible for a subsequent switching operation to occur, even if considerable force is used.

Resetting can only be achieved by means of the reset lever, which at the same time provides ON-OFF-indication. Resetting can also be achieved by means of a key.

**TECHNICAL DATA**

| Device complies with | EN 60947-5-1  
|                     | EN 418  
|                     | EN 60204  
|                     | VDE 0110  
|                     | UVV-VBG 10  
| Housing             | HEN: Aluminium GK-AISi 12  
|                     | HEK: Naval brass, GK-CuZn38Al  
| Finish              | 2-component DD-tile enamel  
|                     | Enclosure yellow, RAL 1004  
|                     | Actuating lever, red, RAL 3000  
|                     | Reset lever, blue, RAL 5010  
| Mounting            | By means of 2 M 8 bolts  
| Cable Entry         | 2 x M 25 x 1.5  
| Protection          | IP 65 according EN 60529  
| Rated Isolation Voltage $U_i$ | AC 380 V, DC 440 V  
| Earth               | Inside the housing M 4  
| Ambient Temperature $^1$ | -25 °C ... + 70 °C  
| Switching System    | Max. 6 cam operated switching elements, positive make/break!  
| Conventional Thermal Current $I_{th}$ | 16 A  
| Rated Operational Voltage $U_e$ | AC 240 V, DC 250 V  
| Breaking Capacity $I_e/U_e$ | 10 A/AC 230 V  
| Mechanical Life     | Switch: $>10^8$ operations  
|                     | Contacts: $0.5 \times 10^6$ operations with full load  
| Connections         | Max. 2.5 mm²  
| Dome Light (optional) | 230 V/6 W, E14 base  
| Mounting Position   | See drawing installation  
| Options             | · Ventilation duct to avoid condensation  
|                     | · 5µ - goldplated contacts  

$^1$ Deviating ambient temperature upon request

Note: The devices may be used in control circuits only!
**Accessoires**

<table>
<thead>
<tr>
<th>Description</th>
<th>Ordering code</th>
<th>Weight/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull Rope, flexible steel wire, plastic coated, 3 mm ∅ red colour (available in 50 and 100 m length)</td>
<td>94.045 731.001</td>
<td>2,3 /100 m</td>
</tr>
<tr>
<td>Eyebolt M12 x 60 for rope guidance</td>
<td>94.045 727.001</td>
<td>11,0 /100 each</td>
</tr>
<tr>
<td>Eyebolt M12 x 200 for rope guidance</td>
<td>94.045 727.002</td>
<td>23,0 /100 each</td>
</tr>
<tr>
<td>Tension spring, stainless steel, 170 mm x 20 mm ∅</td>
<td>94.045 728.001</td>
<td>13,0 /100 each</td>
</tr>
<tr>
<td>Swing hook M10 to attach the tension spring to the conveyor</td>
<td>94.045 728.002</td>
<td>8,0 /100 each</td>
</tr>
<tr>
<td>Turnbuckle (metal, 2 eyes)</td>
<td>215.22.80.02.01</td>
<td>8,0 /100 each</td>
</tr>
<tr>
<td>Turnbuckle (metal, 1 eye, 1 hook)</td>
<td>94.047 869.001</td>
<td>2,3 /100 each</td>
</tr>
<tr>
<td>Rope clamp, egg form</td>
<td>94.047 870.001</td>
<td>3,6 /100 each</td>
</tr>
<tr>
<td>Switch element SN 4 as spare part</td>
<td>220.03.01.01.01</td>
<td>3,0 /100 each</td>
</tr>
<tr>
<td>Switch element SN 4, 5µ goldplated</td>
<td>220.03.01.01.02</td>
<td>3,0 /100 each</td>
</tr>
</tbody>
</table>

**Installation**

The switches are easily installed along the edge of the conveyor structure. The actuating lever should be positioned adjacent to the belt edge with the reset lever on the outside. Flexible vinyl coated steel wire is available for the pull rope. One egg formed clamp is used for each rope fastening point.

For guiding and rope support eye bolts are used at intervals up to 2.5 m. Stainless steel springs at the end of the rope ensure operation of the switch in the event of rope breakage (Fail safe).

The spring pretension is adjusted by means of turnbuckles which can simply be attached onto the actuating lever. Since the switches are bi-directional in operation, variations of temperature which can influence the rope length become balanced by means of the two springs.

**Adjustment**

1. Install the pull rope on one side of the actuating lever according to the drawing below.

2. Adjust the rope tension in such a way that the spring will properly operate the switch. Maximum extension of the spring is 500 mm. Now detach again the turnbuckle.

3. Repeat procedure 1. and 2. on the other side.

4. Attach both turnbuckles and operate the switch.

5. The now movable actuating lever should be balanced in the mid position by means of the two turnbuckles.

6. To limit the actuating distance of the pull rope and to avoid an inadmissible extension of the spring, a rope loop of approx. 40 to 60 mm longer than the tensioned spring should be installed in a parallel position.

7. Reset the switch. The system is now ready for operation.
Subject to change without notice.