

necessary **Accessories**  
for double-sided **Pull Cord Switches**

The following list describes the necessary quantities of accessories for erecting a pull cord emergency stop device according to the demands of the actual European standards (EN 60947-5-1 and DIN EN 418). The dimensions and the quantities of the named components are qualified for all DUK-double-side pull cord switches (*such switches, which can be actuated from 2 sides, left and right from the operating lever*), whose type figures begin with LHP.... or LHM....

Essential necessary is the **PULL CORD** (Fig. 1) in the right length. The pull cord is the actuator. According to the standards the actuator **MUST** be in red colour. This red colour is executed by a PVC-coating of the steel core. We offer outside diameters of 3mm as well as 5mm, the diameter of the core is in both cases 2mm. *According to the standards the tension strength of the pull cord MUST be 10 times higher than the actuation force of the pull cord switches. The minimum tension strength of at least 3.2kN (approx. 320kg) of our pull cord qualifies it for our and other manufacturers switches.* The length of each sides pull cord should not exceed 50m. The maximum length of the pull cord can be reduced by influences like vibrations, friction within the supports (eyebolts), thermal influences.

One essential demand of the standard is that the switch should be actuated automatically (without manual influence) if a pullcord gets slack or will be broken or ruptured. This demand can be fulfilled with **2 PRETENSIONING SPRINGS** (Fig. 2), which are installed within the left and the right pull cord. The pretension of each spring **MUST** be so high, that the spring actuates the switch to **ONE** side if the **OTHER** sides pullcord will be broken. The springs should be installed between the external ends of the pullcord and fix points. (*You can install them on half way or closest to the switch, but you can not say to a person in panic, in which direction he should pull. And if the springs will be direct on the switches lever and the pullcord will be pulled into the direction to the switch, the switch would not be actuated*). Our springs are equipped with strain reliefs, they prevent the slacking of the springs by too high actuation forces.

For jointing the pull cord to the bolt of the actuator lever as well as to the spring, each end of the pullcord must be bended by 180° to an eye (on one side around the bolt and on the other side through one eye of the pretensioning spring) and fixed by 1 or 2 cable clamps (rope clips) per cable end. Per switch are necessary **4 or 8 CABLE CLAMPS** (Fig. 3). Which type of rope clamp to be used and the quantity per cable end are not regulated in Europe. *We do not appoint the egg-form-clamp because the clamping force of this type is lower than the breaking force of the pull cord.* Each eye **CAN** be supported by 1 rope thimble (not obliqued), per switch **4 ROPE THIMBLES** (Fig. 4).

The pull cord **MUST** be supported in distances of maximum 4 meter, better shorter. If there are no supports on site (e.g. holes in the frame), the easiest method will be by **ROPE LOOPS** (eye bolts) (Fig. 5), available with open or closed eyes.

The above mentioned 2 pieces Pretensioning Springs must be jointed at their external ends to 2 **FIXED POINTS**. The eyes of our Pretensioning Springs are closed. Therefore the easiest direct connection is possible by eye bolts with open loops (if you use our Preloading Spring type SPF-W the maximum bolt diameter should be 8mm). Indirect connection is also possible, easiest by shackles (maximum bolt diameter also 8mm).

For speedy and easy adjustment of the right length of the pull cord **2 TURNBUCKLES** (tensioner element) (Fig. 7) are appointed. Best installation direct on the bolt of our switches actuating lever and the pullcord.

**Necessary per switch:**

Max 2x50m Pull Cord

4 or 8 Cable Clamps

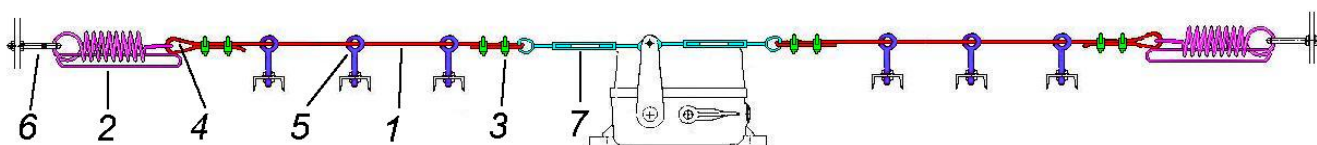
Rope Loops (eye bolts) (max. 4m distance)

2 Turnbuckles (not really necessary, but much easier)

2 Pretensioning Springs

4 Rope Thimbles (not really necessary)

2 Fixed Points (easiest 2 open rope loops)



# Accessories for double-sided Pull Cord Switches

All zinc-coated accessories are available also of stainless steel. In this case the type-figures must be extended by „-VA“.

## Pull Cord

**RL5** 5mm pull cord, 19-core zinc-coated steel cable 2mm diameter, red UV-stabilised PVC-coating gross 5mm diameter

**RL3** 3mm pull cord, 19-core zinc-coated steel cable 2mm diameter, red UV-stabilised PVC-coating gross 3mm diameter

available in free lengths ( type RL5B or RL3B) or 500m on 1 drum (type RL5F or RL3F)

## Pretensioning Springs

**SPF-W** Pretensioning spring, for mounting within the line of the pullcord, with strain relief, for fulfilment of the standard EN 60947 as well as EN 620 (automatical actuation of the pull cord switch in case of a fracture within the pull cord) (2 items necessary per switch). Made of stainless steel.

## Turnbuckles (tensioner elements)

**SPS6** Turnbuckle for easy and fine adjustment of the length and the pretension of the pull cord (for right function not really necessary, but easier mounting is guaranteed) (1 eye of the turnbuckle for bolting direct into the operation lever of the DUK-pullcord switch, the other eye for connection with the pullcord), zinc-coated.

## Rope Thimbles

**SKA5** Rope thimble for the 5mm pull cord (not essential necessary), zinc-coated

**SKA3** Rope thimble for the 3mm pull cord (not essential necessary), zinc-coated

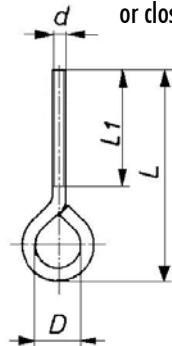
## Rope Clips

**SKL5** Rope clip for the 5mm pull cord, zinc-coated

**SKL3** Rope clip for the 3mm pull cord, zinc-coated

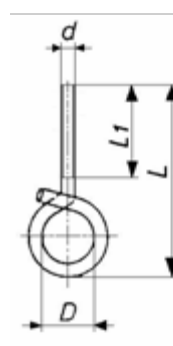
## Eyebolts, Rope Loops

**SH...** Rope loops for support of the pull cords in intervals not longer than 4m, available in different sizes as well as with open or closed loops, zinc-coated



### Rope Loop closed

| Type          | d   | L   | L1 | D (mm) |
|---------------|-----|-----|----|--------|
| <b>SH0</b>    | M6  | 80  | 55 | 10     |
| <b>SH0-VA</b> | M6  | 80  | 55 | 10     |
| <b>SH2</b>    | M10 | 130 | 85 | 14     |
| <b>SH4</b>    | M8  | 90  | 55 | 23     |
| <b>SH4-VA</b> | M8  | 90  | 55 | 23     |
| <b>SH5</b>    | M12 | 100 | 55 | 17     |



### Rope Loop open

| Type          | d   | L   | L1 | D (mm) |
|---------------|-----|-----|----|--------|
| <b>SH1</b>    | M8  | 70  | 25 | 27     |
| <b>SH1-VA</b> | M8  | 70  | 25 | 27     |
| <b>SH3</b>    | M10 | 120 | 55 | 27     |
| <b>SH6</b>    | M12 | 180 | 60 | 27     |
| <b>SH7</b>    | M8  | 170 | 70 | 25     |
| <b>SH7-VA</b> | M8  | 170 | 70 | 25     |

## Cable Glands

**KV-M25K** Cable gland M25x1,5 made of polyamide, with strain relief

**KV-M25MS** Cable gland M25x1,5 made of nicked brass

**KV-M25Z** Cable gland M25x1,5 made of nicked brass, with strain relief