KIEPE ELEKTRIK

Components for Pull Rope Systems

Leaflet No. **Kiepe 680**

APPLICATION

Pull ropes are used as actuators for operation of pull rope emergency stop switches along coveyor belts.

The Kiepe pull ropes and accessories are designed for the installation of the Kiepe pull rope emergency stop switches according to the standard requirements.

Within the European Union, these requirements mainly generate from DIN EN ISO 13850; EN/IEC 60 947-5-5 and EN 620.

After commissioning, the fulfilment of these requirements is a definite condition for the certification of EC conformity.

Dependent on the design of the emergency stop system, the length of the pull rope 1 can be up to 100 m and the distance between the pull rope supports up to 6 m.

FUNCTION

The pull rope emergency stop switch is actuated to switch off the conveyor belts, when the pull rope 1 is pulled in any direction or the pull rope breaks. Because the anchor hooks 3 take on the force of the tension springs 2 and the actuation forces of the pull rope, a stable substructure is essential.

The rope supports 6 bear and support the pull rope 1 over its entire length. They must be mounted at a specified distance and in a straight line to the release lever of the pull rope emergency stop switch.

The tension force of the tension springs 2 is adjusted to the selected pull rope emergency stop switch and can be readjusted by using turnbuckles or other tensioning elements 4.

Clamps 7 and thimbles 8 are used for securing the pull rope. Quick links 5 simplify the installation and the exchange of components.

TECHNICAL DATA

Designation	Pull rope system Actuator components of emergency stop devices
Actuation	Manual
Complies with	EN 620; DIN EN ISO 13850, DIN EN 60947-5-5, BGI 710
To be used for	Pull rope emergency stop switches PAS, LRS (single-sided pull rope installation) HEN, NTS, SEG; PRS (two-sided pull rope installation)
MECHANIC	
Pull Rope	Zinc coated steel wire; alternative stainless steel UV-stabilized, red PVC-coating Outer-Ø: 3 mm and 5 mm
Load capacity of substructure required	> 5,000 N
Installation position	horizontal up to 15°
Pull rope length	Up to 100 m (depending on design of emergency stop system)
Distance between rope supports	Maximum 6 m (depending on design of emergency stop system)
AMBIENT CONDITIONS IN ACCORDANCE TO DIN EN 60947-5-5	
Permissible ambient temperature	-25°C... + 70°C

SELECTION TABLE

1	Pull rope, steel cable, galvanized ∅ 3 mm; 50 m ∅ 3 mm; 100 m ∅ 3 mm; 500 m		94.045 731.011 94.045 731.021 94.045 731.031
	Pull rope, steel cable, galvanized ∅ 5 mm; 50 m ∅ 5 mm; 100 m ∅ 5 mm; 500 m		94.045 731.012 94.045 731.022 94.045 731.032
2	Tension spring HEN; SEG; NTS; PRS for pull rope ∅ 3 mm; 1.4310; X12CrNi177; ASTM 301		94.000 026.681
	Tension spring HEN; SEG; NTS; PRS for pull rope ∅ 5 mm; 1.4310; X12CrNi177; ASTM 301		94.000 026.683
	Tension spring PAS, LRS for pull rope ∅ 3 and 5 mm; 1.4301; X5CrNi18 ; ASTM 304		580.00.50.01.01
3	Anchor hook M10 x 120 mm; galvanized incl. 2 nuts + retaining washer		94.045 728.001
4	Tensioning element: Turnbuckle M6 x 100; 2 eyelets Adjustment range 100 mm		94.045 729.002
5	Quick link 7.5mm opening slot; 45 mm galvanized		94.047 870.001
6	Rope support: eyebolt M12 x 60 mm incl. 2 nuts + retaining washer		94.045 727.001
	Rope support: eyebolt M12 x 200 mm incl. 2 nuts + retaining washer		94.045 727.002
7	Clamp: U-shape clamp, galvanized for pull rope ∅ 3 mm – 5 mm		94.045 730.001
	Clamp: Oval clamp, galvanized for pull rope ∅ 3 mm		94.047 869.001
	Clamp: Oval clamp, galvanized for pull rope ∅ 5 mm		94.047 869.002
8	Thimble DIN 6899 BF, galvanized for pull rope ∅ 3 mm		135.13.01.01.01
	Thimble DIN 6899 BF, galvanized for pull rope ∅ 5 mm		135.13.01.01.02
9	Marking lable emergency stop for pull rope, according to DIN EN ISO 13850, 40x70, 1 role of 50 pieces		93.066 950.002
	Marking lable emergency stop for device, according to DIN EN ISO 13850, 40 x 50, reflective, self-adherent		94.066 950.001
20	Pulley M10 x 125; wheel 70 mm ∅, galvanized incl. 2 nuts		580.00.37.01.01

SELECTION TABLE – CORROSION RESISTANT ALLOYS

1	Pull rope stainless steel ∅ 3 mm; 50 m, 100 m, 500 m ∅ 5 mm; 50 m, 100 m, 500 m 1.4401; X5CrNiMo; ASTM 316		136.04.07.02.01 136.04.07.03.01
2	Tension spring HEN; SEG; NTS; PRS for pull rope ∅ 3 mm; 1.4310; X12CrNi177; ASTM 301		94.000 026.681
	Tension spring HEN; SEG; NTS; PRS for pull rope ∅ 5 mm; 1.4310; X12CrNi177; ASTM 301		94.000 026.683
	Tension spring PAS, LRS for pull rope ∅ 3 und 5 mm; 1.4301; X5CrNi18 ; ASTM 304		580.00.50.01.01
3	Anchor hook M8 x 120 mm; incl. 2 nuts 1.4301; X5CrNi18; ASTM 304		94.045 728.002
4	Tensioning element: Turnbuckle M6; 1 hook, 1 eyelet Adjustment range 100 mm 1.4571; X6CrNiMoTi17; ASTM 316 Ti		215.23.80.02.01
6	Rope support: eyebolt M12 x 80 mm incl. 2 nuts and 2 washers 1.4301; X5CrNi18; ASTM 304		780.33.32.71.49
7	Clamp: U-shape clamp for pull rope ∅ 3 mm 1.4571; X6CrNiMoTi17; ASTM 316 Ti		215.23.80.01.01
	Clamp: U-shape clamp for pull rope ∅ 5 mm 1.4571; X6CrNiMoTi17; ASTM 316 Ti		215.23.80.01.02

MOUNTING

Anchor hook 3 and rope support 6 have to be lineary installed to the substructure of the conveying system as seen in the mounting diagram.

A stable substructure must be provided by the client. The rope support must be mounted using the distances approved for the installation.

Emergency Stop switches with two-sided pull rope installation are mounted centred between the anchor hooks 3 of the pull rope.

Emergency Stop switches with single-sided pull rope installation are equipped with an integrated spring which results in only one tension spring being necessary.

The tension spring 2 is connected to the anchor hook 3. The tensioning element 4 can now either be attached to the tension spring or to the pull rope emergency stop switch.

The pull rope is then secured and run up to the pull rope emergency stop switch through the rope supports.

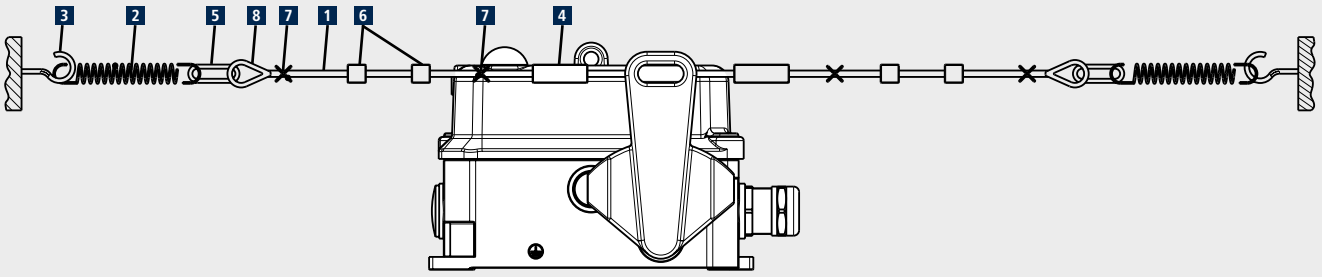
The pull rope is tensioned according to the operating instructions and fixed with clamps 7.

The tensioning element 4 is used in order to adjust the operating point of the tensioning spring. The tension spring 2 must be under symmetrical tension in case of two-sided installed pull rope.

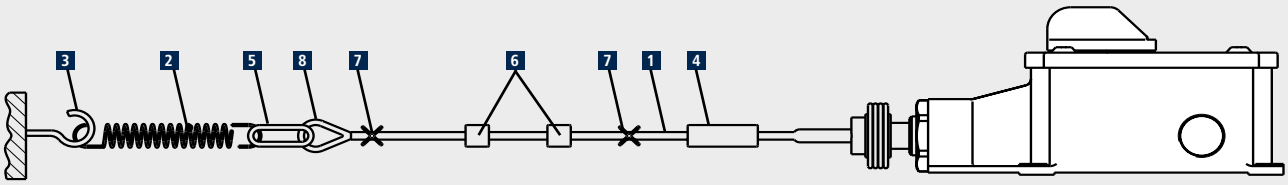
Functionallity must be tested after the tension spring 2 has been adjusted:

- The pull rope must be freely operational in any direction.
- Actuation force and stroke of the pull rope must comply with the standard guidelines.
- When simulation a tear or break of the pull rope, the connected pull rope emergency stop switch must trigger.
- The operator at the switch's pull rope must have a clear view of the full operating length.

MOUNTING DIAGRAM



Two-sided pull rope installation



Single-sided pull rope installation

1 Pull rope
2 Tension spring
3 Anchor hook
4 Tensioning element
5 Quick link
6 Rope support
7 Clamp
8 Thimble

Subject to change without notice.

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