

For laying in energy chains only highly flexible cables with permissible bending radii and sufficient dynamic capacity suitable. The cables have to be laid twist free to move freely lengthwise. Cable on a reel should be unrolled in the reverse winding direction and placed in the extended state in the energy chain. For intermediate storage the lines are ideally laid out straight. The material relaxation occurs in this case facilitates a twist-free installation.

The distribution of the chain interior must prevent mutual interference between the wires with dividers or wrap clamping of different diameters safely, so that each line can move freely in the longitudinal direction (see design guidelines). In particular in the energy chain radius tensile stressed wires increase wear drastically and reduce the reliability. A fixation of the wires or a bundle of several lines using cable ties or the like within the energy chain can also cause damage.

Strain Relief

With long travel distances and high speeds the cables should be attached with strain relief only at the driver end. For free carrying energy chains recommend for aesthetic reasons, a strain relief on both ends. The distance of strain relief to the bending stressed area depends on the particulars of the line manufacturer. Hydraulic hoses have special needs. Special requirements apply to hydraulic and media hoses. Appropriate jacket material and the structural design are crucial for hydraulic hoses. The minimum bending radii specified by the manufacturer must be observed. If the hoses are fixed on both sides in the longitudinal direction of the chain, the hose line lengths may only be manufactured with minimal tolerances.

Integrated strain relief

In this space-saving type the strain relief is directly attached to the plastic dividers (PZ) in the first link of the energy chain (note the mounting direction of PZ!).

In order to avoid premature line wear caused by dynamic loads, a small excess length of the chain is recommended.

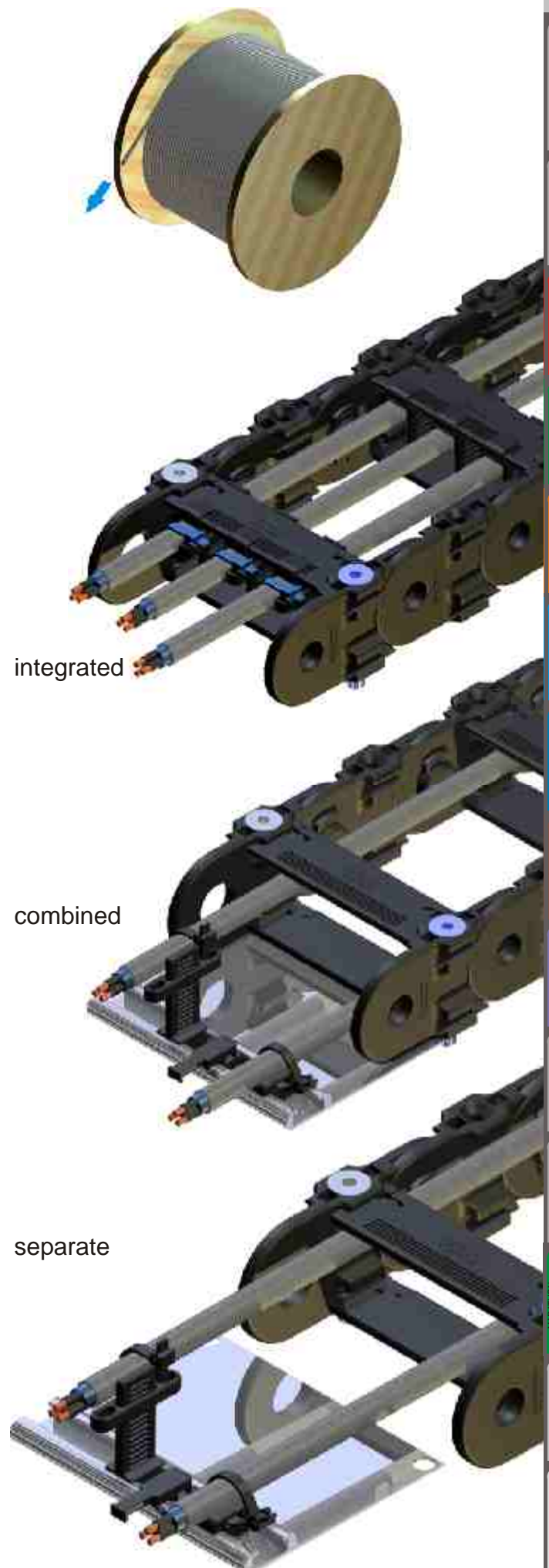
Combined strain relief

The combined strain relief combines the advantage of a sufficient distance from the bending line areas to the strain relief by the simple and space-saving installation of the integrated strain relief. The anchor profile is provided to the drilling dimensions of the energy chain and attached to the chain.

The lateral insertion and extraction of strain relief elements is through the C-profile.

Separate strain relief

The separate strain relief is recommended for high dynamic loads and large line diameters. A sufficient distance of the strain relief to the moved line areas and length compensations are easy to implement. In this variant the lateral insertion and extraction of the strain relief elements with no installation work on the cable carrier is possible.

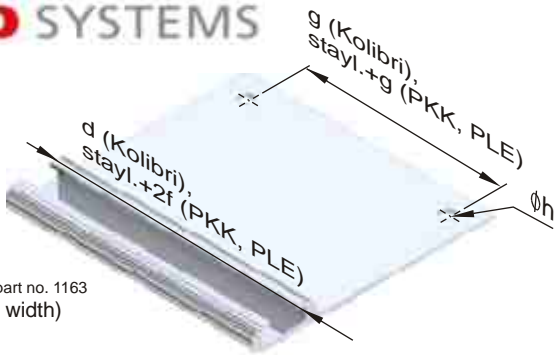


STRAIN RELIEF

anchor profile ZLP

The aluminum anchor profile is used to mount various strain relief elements. Both the distance to the energy chain as well as the positioning of the strain relief elements can be easily designed. The length of the anchor profile and the drilling dimensions are determined by the dimensions of the energy chain.

ZLP XX part no. 1163
(xx = chain width)



strain relief stay ZLS

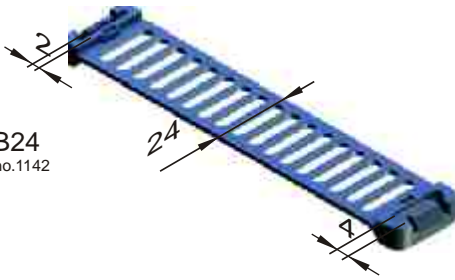
The strain relief stay was developed for anchoring the blue ribbon and the cable anchor. The design of the strain relief stay is closely based on the plastic divider (PZ). It is installed laterally into the anchor profile or a commercially available C-profile and can add several strain relief elements through the stay.



blue ribbon ZLB 24

The Blue Ribbon is a special ekd cable tie with a 24 mm wide cable mounting. The Blue Ribbon can be locked on the strain relief stay or the plastic divider (2mm, 4mm). Cables with diameters of 7 mm up to 35 mm can be fixed single or multiple (s-shaped) with the Blue Ribbon.

ZLB24 part no. 1142

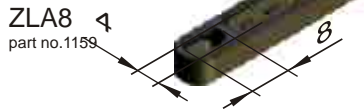


Ø7 < D < Ø35

cable anchor ZLA 8

Connect the lines with standard cable ties to the cable anchor (single or double slide) and push on the plastic divider.

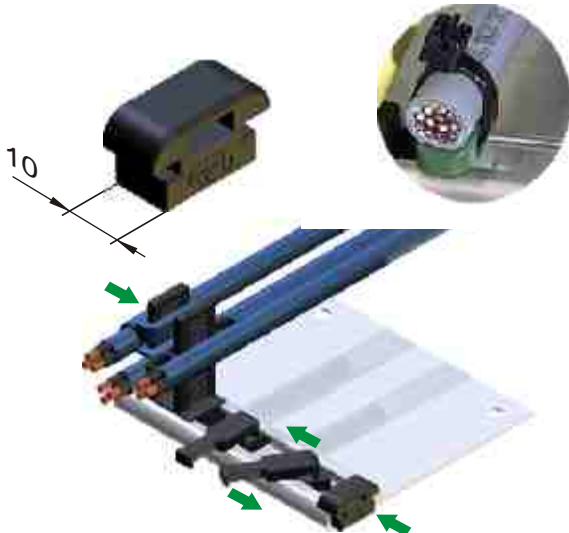
A multi-layer connection of wires with this is as easy as possible, with the simple removal to carry out maintenance work.



sliding anchor ZLS 10

The line is mounted with commercially available cable ties at the sliding anchor which is inserted into the aluminum C-profile. The simple movement of the sliding anchor provides a generous assembly space.

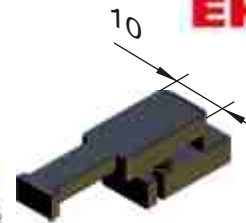
ZLS10 part no. 1160



horn stay ZHS 10

The horn stay ZHS10 is transversely inserted into the anchor profile and locked by a 90 ° rotation. It is therefore permanently positioned in the anchor profile. The line is mounted with cable ties at the horn stay.

ZHS10
part.no.1407



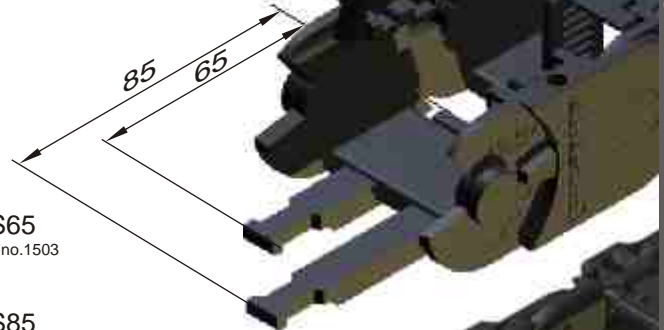
The horn stay HS 65 and HS 85 are components of the integrated strain relief for the rigid version of the chain series Kolibri. HS 55 and HS 75 are for the standard versions of the chain series Kolibri.

For the series PKK the horn stay HS 220 and HS 320 deliverable.

The horn stays are attached to the stay of the chain connecting link.

HS65
part.no.1503

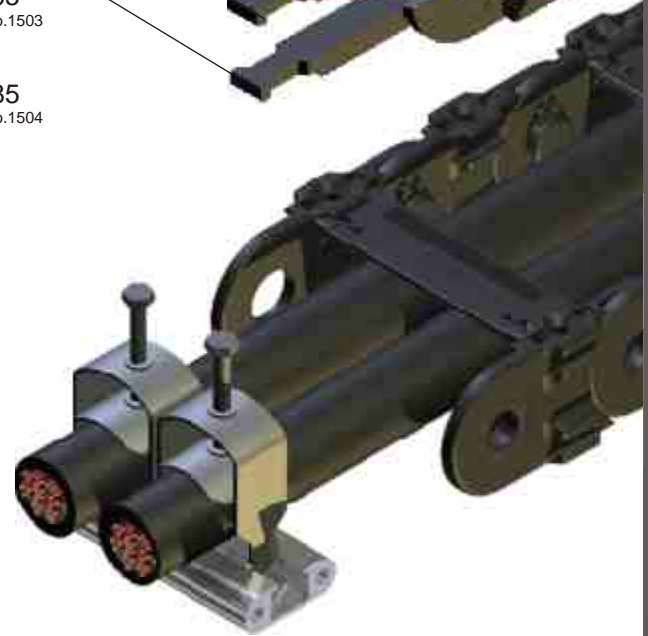
HS85
part.no.1504



yoke clamps

Commercial yoke clamps can be used as a separate strain relief and are mounted with the aluminum C-profile of the SLE 520 or SLE 320 in front of the energy chain connectors.

As an integrated strain relief they are inserted directly into the first and last chain link of the SLE and PLE.



General operating and safety instructions

Energy chains are technical products which are designed and sized as part of an engineering-design according to a specific use. Dealing with this products in accordance with the generally recognized rules of operating and safety rules have to be followed in dealing with these products. Observe the accident prevention regulations. Additional requirements, such as when operating in hazardous areas are to take into account.

Electrical conductiv energy chains have to be grounded in every case.

Proper use requires the observance of the dimension limits of the energy chains. The following experiences from practice shows errors can lead to significant functional impairment or damage of energy chains:

- Improper handling of the energy chain for transport and assembly due to weight load of the energy chain, especially an unsupported application.
- Contamination from such items as coarse shavings can cause damage to zour lines.

If this can not be avoided in the operating in abrasive conditions such as abrasive dust entry or vibrations, so trough appropriate design and inspection intervals, particularly in unsupervised, automated operating systems to avoid unexpected machine failure.