Cable drag chains
closed system
Cable drag chain systems closed

SafeLine EFK 25G
page 317

SafeLine EFK 36G
page 318
Please use our selection table
Cables for cable drag chains
which follows after the cable drag chains.

  a) Control cables, screened and unscreened
  b) Elektronic data bus cables, screened and unscreened
  c) Servo and motor connection cables, screened and unscreened
  d) Environmentally-compatible cables, screened and unscreened

All cables are also in our main catalogue
"Cables and Wires"

Advantages:

• Subsequent laying of cables or changing the assignment:
The chain must be opened from the inside and outside curve. Pre-assembled cables can then be inserted easily.

• High stability:
Due to multiple and large stops. Large connecting bolts ensure better force absorbing capacity.

• Easy handling:
Only a screwdriver is needed to open the cable carrier.

• Quick adjustment of the chain lengths:
A simple length modification is also possible at any time in the installed condition.

• Fastening secured using metal inserts:
The cold flow characteristics are prevented in this way.

• Strain relief in the chain connector:
The strain relief is integrated in the chain connector. The cables are fixed using cable binders.

• Fastening variant using rotating chain connector:
Many variants are made possible using this option.

• Dividers:
Guarantee optimum cable routing.

• Can be recycled:
The plastic of the chain is completely recyclable.
Drag Chain Systems

to

HELUKABEL® GmbH
Sales department
Dieselstraße 8 – 12
D-71282 Hemmingen/Germany
Phone +49 7150 9209-393
Fax +49 7150 959225
E-Mail: vk_zubehoer@helukabel.de
www.helukabel.de

Inquiry

No. ____________________________
Date ____________________________

Requirement ___ pieces

User parameters

L = Total travel, R = Radius, H = Installation height, T = Separation, E = Distance of the conduit conveyance to the middle of the total travel

Internal height: mm
Internal width: mm

If the inner height or width are not known:

Filling

Cable type | Quantity | Outer diameter
--- | --- | ---

Radius: mm
If not known: Maximum overall height mm

Incoming supply:

- in the middle of the traverse path
- or mm from the middle of the traverse path

Length mm
If not known: Traverse path mm

Installation variants (see right)

Total stroke speed m/s

Speed up m/s²

Total stroke frequency x/h

Environmental effects

Tub existing

- yes Internal width mm
- no

Installation variants

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.
Cable installation in drag chains

The control cables in drag chains undertake an important task for the controlling and power technique, must be good synchronized with each other in the power chain systems. Further the installation of the cables and predection tubes in the power drag chains must be conducted with great care. An efficient usage upon accurate and exact cable installation. The following basic points should be noticed:

1. Where flat and round cables are mixed in one drag tray, then these should be installed loosely next to one another. The guide stays should be installed between the cables laid side by side. Try and avoid placing different sizes of round cables next to one another. Due to the limited space relationship cables arranged one above the other, frame stays are to be installed.

2. The cables must be installed with guide stays, dividers or in separate hole stays so as to move freely in the drag tray guides. As free space for the cables in the guide stay should be at least 10% of the cable Ø.

3. Always ensure that the cable can follow the drag trays motions without appearing to be forced.

4. If the cables are to be installed in the drag tray in layers then it is important to check upon installation that the cables are laid in such a way that they do not block eachother when the drag tray alters direction.

5. Cables should always be installed in nonkinking and nontwisting flat position into the drag trays. The cables must be reeled down tangential from the reels or drums; the cables should not be lifted up in twisted or looping form over head. Before the installation, the cables must be laid in straight and non-twisted form on plane surface. The cables must have an additional length of at least 10% of the whole length so that these can be laid freely without twisting in drag chains.

6. In case that is not possible to lay the cables as described under a, in order to lay several multi core high flexible cables with an outer diameter < 10 mm, we recommend the use of a guiding tube, in which these cables should loosely laied. This tube is than integrated into the drag system. The cross section of this tube has to be much larger as the sum of the cross sections of the cables. For the free movement of the flexible energy conduits, the guide or divider stays must be installed.

7. In case that pressure- or hydraulic tubes are integrated in a power drag system, those should be able to expand and to shrink under alternating charges without interrupting the functionality of the drag system.

8. In order to maintain a balanced running of the drag chain it is necessary to ensure that the weight of the cables inside is divided up evenly, with the heavier cables installed on the edges and the lighter types in the middle. All cables must be securely fixed at one end of the drag chain. Thus assuring that the cores are securely fastened to one side with the other, open, side allow-ing enough slack to take up the drag chain's motion.

Generally it is recommended, if possible, not to use cables with a multi layer construction, e.g. >25 cores, but to split the necessary number of conductors over several cables.

If you have any further questions please call our special cable department.
SafeLine EFK 25G

Product range:
- Internal height 25 mm
- Internal width 26-125 mm
- Loading inside
- Links per metre: 33
- Chain separation: 30 mm
- Maximum cable diameter: 22 mm
- Maximum procedure path: max. 40 m
- Material: modified polyamide

Please order (per chain)
2 chain connectors.
You will automatically receive 1 with a drill-hole and 1 with a bolt.

Order number: 0250 026 060 0000

Determining the chain length
Length \( L = \frac{1}{2} (R + T + E) \)

The fixed point of the cable drag chain should be connected in the middle of the travel distance. This arrangement gives the shortest connection between the fixed point and the moving consumer and thus the most efficient chain length.
Please order (per chain) 2 chain connectors. You will automatically receive 1 with a drill-hole and 1 with a bolt.

Prices on request.

Technical modifications are subject to change without prior notice.
### Control Cable, screened and unscreened

The table indicates the main application.

In case of moving cables at higher speeds, over longer distances or higher cycling rates please contact our Technical Support.

Phone +49 7150 9209-0 or techsupport@helukabel.de

A cycle is a double lift: a representative sample has been tested and measured in our Test Workshop.

The cycle count is only valid when appropriate and professionally installed (see the installation advice; rules for connections, page 304, and under permitted environment conditions).

#### Selection table cables in drag chains

<table>
<thead>
<tr>
<th>Type</th>
<th>Application</th>
<th>Cable Structure</th>
<th>Technical Data</th>
<th>Resistance</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement Distance</td>
<td></td>
<td>Min. Bending Radius</td>
<td>Speed</td>
<td>Acceleration</td>
<td>Cycle</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>D=Outerdiameter max.</td>
<td>max.</td>
<td>min.</td>
<td>in</td>
</tr>
<tr>
<td>5 m</td>
<td></td>
<td>5 m (up to 50 cores)</td>
<td>5 m</td>
<td>2,5 m/s</td>
<td>5 m</td>
</tr>
<tr>
<td>10 m</td>
<td></td>
<td>10 m (up to 100 cores)</td>
<td>10 m</td>
<td>2,5 m/s</td>
<td>10 m</td>
</tr>
<tr>
<td>25 m</td>
<td></td>
<td>25 m (up to 500 cores)</td>
<td>25 m</td>
<td>2,5 m/s</td>
<td>25 m</td>
</tr>
<tr>
<td>50 m</td>
<td></td>
<td>50 m (up to 250 cores)</td>
<td>50 m</td>
<td>5 m/s</td>
<td>50 m</td>
</tr>
<tr>
<td>100 m</td>
<td></td>
<td>100 m (up to 250 cores)</td>
<td>100 m</td>
<td>5 m/s</td>
<td>100 m</td>
</tr>
<tr>
<td>450 m</td>
<td></td>
<td>450 m (up to 250 cores)</td>
<td>450 m</td>
<td>5 m/s</td>
<td>450 m</td>
</tr>
</tbody>
</table>

#### Other Technical Details can be found in the Product Pages of our Catalogue.

**Type Application Cable Structure Technical Data Resistance Standards**

- **Movement Distance**
  - 5 m
  - 10 m
  - 25 m
  - 50 m
  - 100 m
  - 450 m

- **Min. Bending Radius**
  - 5 m
  - 10 m
  - 25 m
  - 50 m
  - 100 m
  - 450 m

- **Speed**
  - 2,5 m/s
  - 5 m/s
  - 10 m/s
  - 20 m/s
  - 50 m/s

- **Acceleration**
  - 0,05 m/s
  - 0,05 m/s
  - 0,05 m/s

- **Cycle**
  - 5 m
  - 10 m

- **Core Insulation**
  - PVC special
  - TPE special
  - PUR special

- **Outer Sheath**
  - Cu-braid, Cu-layer
  - PVC special
  - PUR special
  - TPE special

- **Nominal Voltage**
  - 300/300 V
  - 300/500 V
  - 600 V/UL-CSA

- **Temperature Range in °C**
  - -40
  - -30
  - -20
  - -10
  - 0
  - 20
  - 40

- **Standards**
  - halogen-free
  - extensively oil resistant
  - oil resistant
  - flame retardant
  - radiation resistant at 80/100 Mrad
  - uv-rays

**Control Cable, screened and unscreened**

- **LZ-602 RC-C PUR**
  - Single 602 RC–J/-O single core
  - Single 602 RC–J/-O +CY single core
  - LZ-602 RC
  - LZ-602 RC PUR
  - LZ-602 RC-CY
  - LZ-HF
  - LZ-HF CY
  - MULTIFLEX® 600
  - MULTIFLEX® 600 C
  - PUR0-JZ-HF
  - PUR0-JZ-HF-YCP
  - MULTIFLEX® 512 PUR
  - MULTIFLEX® 512-C-PUR
  - MULTIFLEX® 512-PUR UL/CSA
  - MULTIFLEX® 512-C-PUR UL/CSA

The table continues on page 319.
**Selection table**  
Cables in drag chains

<table>
<thead>
<tr>
<th>Standards</th>
<th>Type Application</th>
<th>Cable Structure</th>
<th>Technical Data</th>
<th>Resistance</th>
<th>Other Technical Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Control Cable, screened and unscreened</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Selection Table Cables in Drag Chains</td>
</tr>
</tbody>
</table>

The table indicates the main application. In case of moving cables at higher speeds, over longer distances or higher cycling rates please contact our Technical Support.

Other technical details can be found in the Product Pages of our Catalogue.

The cycle count is only valid when appropriate and professionally installed (see the installation advice, rules for connections, page 304, and under permitted environment conditions).
## Elektronik-Data-BUS-Cables, screened and unscreened

The table indicates the main application.

In case of moving cables at higher speeds, over longer distances or higher cycling rates please contact our Technical Support.

Phone +49 7150 9209-0 or techsupport@helukabel.de

A cycle is a double lift: a representative sample has been tested and measured in our Test Workshop.

The cycle count is only valid when appropriate and professionally installed (see the installation advice; rules for connections, page 304, and under permitted environment conditions.)

### Selection table

<table>
<thead>
<tr>
<th>Type</th>
<th>Movement Distance</th>
<th>Min. Bending Radius</th>
<th>Speed</th>
<th>Accelration</th>
<th>Cycle</th>
<th>Core Insulation</th>
<th>Outer Sheath</th>
<th>Nominal Voltage</th>
<th>Temperature Range in °C</th>
<th>Resistance</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPERTRONIC-PVC</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>300/300 V</td>
<td>-5 to 70 °C</td>
<td>1 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC-C-PVC</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>300/500 V</td>
<td>-5 to 70 °C</td>
<td>5 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC 510 PVC</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>600 V/UL-CSA</td>
<td>-5 to 70 °C</td>
<td>10 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC 510 C-PVC</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>50 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC-PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>100 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC-C-PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>500 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC 530 PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>1000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPERTRONIC 530 C PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>5000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPER-PAAR-TRONIC-C-PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>5000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>SUPER-PAAR-TRONIC 540 C PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>5000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>MULTISPEED-TRONIC-PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>MULTISPEED-TRONIC-C-PURö</td>
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<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
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<tr>
<td>S FTP Drag chain 4x2xAWG 24 PUR</td>
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<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
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</tr>
<tr>
<td>PROFIBUS L21x20 PUR</td>
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<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>PROFIBUS CAN, high flexible</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>I-BUS Drag chain</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>PROFIBUS CAN, high flexible</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>PROFIBUS CAN, high flexible</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>PROFIBUS CAN, high flexible</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
<tr>
<td>TOPGEA 512 PUR</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
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<tr>
<td>Tachofeedback-Cable-C-PURö</td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>25 m</td>
<td>50 m</td>
<td>PVC</td>
<td>PVC</td>
<td>1000 V</td>
<td>-5 to 70 °C</td>
<td>10000 Mio</td>
<td>halogen-free</td>
</tr>
</tbody>
</table>
Selection table  Cables in drag chains

The table indicates the main application. In case of moving cables at higher speeds, over longer distances or higher cycling rates please contact our Technical Support.

Other Technical Details can be found in the Product Pages of our Catalogue.

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A cycle is a double lift: a representative sample has been tested and measured in our test Workshop. The cycle count is only valid when appropriate and professionally installed (see the installation advice, rules for connections, page 304, and under permitted environment conditions).
Selection table  
Cables in drag chains

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<table>
<thead>
<tr>
<th>Type</th>
<th>Application</th>
<th>Cable Structure</th>
<th>Technical Data</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Movement Distance</td>
<td>Min. Bending Radius</td>
<td>Speed</td>
<td>Accelera-</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>D=Outerdiameter</td>
<td>max</td>
<td>tion</td>
</tr>
<tr>
<td></td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>30 m</td>
</tr>
<tr>
<td></td>
<td>5 m</td>
<td>10 m</td>
<td>15 m</td>
<td>30 m</td>
</tr>
</tbody>
</table>

Other Technical Details can be found in the Product Pages of our Catalogue.

Environment friendly Cables, screened and unscreened

Ship Cables

The table indicates the main application. In case of moving cables at higher speeds, over longer distances or higher cycling rates please contact our Technical Support. Phone +49 7150 9209-0 or techsupport@helukabel.de.
A cycle is a double lift: a representative sample has been tested and measured in our Test Workshop. The cycle count is only valid when appropriately and professionally installed (see the installation advice, rules for connections, page 304, and under permitted environment conditions).