

# Lift Control Cables



[www.sab-worldwide.com](http://www.sab-worldwide.com)



## The Company



## DIN EN ISO 9001

More than 60 years of experience in temperature measurement and control technique as well as in cable production have made a one man business a company with nearly 500 staff members. Our strength is not only the production of standard products but also the development and manufacturing of special products acc. to customers' specifications. Every year we manufacture more than 1500 special products on our customer's request. Every single product is a challenge for our technical team.

We at SAB Bröckskes see ourselves as manufacturer and service provider - in the sense of real partnership and customer oriented work. The quality of our products is known in more than 40 countries of the world. Our customers have tested our products intensively and confirm that they have a longer service life than others. In all product ranges we are certified acc. to ISO 9001:2008. Besides we established an environmental management system for our company acc. to ISO 14001:2004, an occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007 as well as an energy management system acc. to DIN EN ISO 50001:2011. And our future slogan is: **We go forward!**

### founded:

- 1947 by Peter Bröckskes sen.
- an independent, middle sized company

### CEO:

- Peter Bröckskes

### plant/location:

- in Viersen (lower Rhine) 110.000 m<sup>2</sup> company site
- manufacturing from copper conductor to outer sheath,
- own VDE proofed burnchamber and laboratory

### employees/workers:

- approx. 420 at the plant in Viersen, 500 worldwide

### yearly sales:

- approx. 95 Mio. € worldwide

### products:

- Special Cables   ■ Temperature Measurement   ■ Cable Harnessing

### certificates and approvals:

- quality management system acc. to ISO 9001:2008 for every manufacturing field
- environmental management system acc. to ISO 14001:2004
- occupational health and safety management acc. to NLF/ILO-OSH 2001 and OHSAS 18001:2007
- energy management system acc. to DIN EN ISO 50001:2011



**MIL, VDE, HAR, IEC, GL, DNV, BV, KR,  
ABS, NK, RINA, LR, CÉ**

## SAB Worldwide



From our central stock in Viersen-Süchteln or our external stocks we supply standard lengths as well as special dimensions, often within 24 hours. It is our strength to be at different places at the same time. This shows also our wide product range. Being always ready to deliver our products of constant quality is one of the premises at SAB BRÖCKSKES. Challenge, obligation - but also guarantee at the same time. This is your advantage - we are present whenever you need our assistance.



Viersen - Germany  
1947



Viersen - Germany  
1995



Bergeijk - Netherlands  
1995



Auxerre - France  
1996



Nantes - France  
1998



Fairfield - USA  
2001



Shanghai - China  
2004



Zapopan - Mexico  
2004



Chung-Buk - Korea  
2005



Faridabad - India  
2006

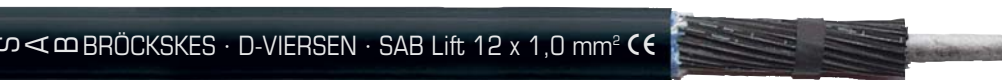


Taipei County - Taiwan  
2007



Yekaterinburg - Russia  
2012

## SAB Lift Lift control cable with sisal cord as suspension unit



Marking for SAB Lift: 37901210:

SAB BRÖCKSKES · D-VIERSEN · SAB Lift 12 x 1,0 mm² CE

### Construction:

|                          |   |
|--------------------------|---|
| <b>Conductor:</b>        | bare copper strands acc. to IEC 60228, EN 60228, DIN VDE 0295, class 6            |
| <b>Insulation:</b>       | special PVC   |
| <b>Colour code:</b>      | black cores with consecutive numbers acc. to EN 50334 and green-yellow earth wire |
| <b>Strain relief:</b>    | sisal cord  |
| <b>Stranding:</b>        | sisal cord as core, optimized twisting of the conductors in layers                |
| <b>Wrapping:</b>         | non-woven tape on each layer with overlap wrapping                                |
| <b>Supporting braid:</b> | special torsion protecting net  |
| <b>Sheath material:</b>  | special PVC   |
| <b>Sheath colour:</b>    | black (RAL 9005)  |

### Technical data:

|                                       |   |
|---------------------------------------|---|
| <b>Nominal voltage:</b>               | U <sub>0</sub> /U 300/500 V   |
| <b>Testing voltage:</b>               | conductor/conductor 2000 V  |
| <b>Min. bending radius:</b>           | 15 x d  |
| <b>Temperature range</b>              |   |
| fixed laying:                         | - 30/+70 °C   |
| flexible application:                 | - 15/+70 °C   |
| <b>Fire performance:</b>              | flame retardant and self-extinguishing acc. to IEC 60322-1-2 and EN 60332-1-2 |
| <b>Suspended height:</b>              | up to 60 m  |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                                  |

### Product advantages:

- long service life
- elevated economic efficiency
- flame retardant and self-extinguishing

| item no. | no. of cores x cross section<br>n x mm² | medium outer-ø<br>ø mm | copper figure<br>kg/km | cable weight<br>≈ kg/km | ohmic resistance at 20 °C<br>max. Ω/km |
|----------|---|------------------------|------------------------|-------------------------|--|
| 37900510 | 5 x 1,00                                | 11,1                   | 48,0                   | 150                     | 19,5                                   |
| 37900710 | 7 x 1,00                                | 11,6                   | 67,2                   | 179                     | 19,5                                   |
| 37900910 | 9 x 1,00                                | 13,0                   | 86,4                   | 226                     | 19,5                                   |
| 37901210 | 12 x 1,00                               | 15,4                   | 115,2                  | 308                     | 19,5                                   |
| 37901810 | 18 x 1,00                               | 20,7                   | 172,8                  | 480                     | 19,5                                   |
| 37902410 | 24 x 1,00                               | 20,7                   | 230,4                  | 549                     | 19,5                                   |
| 37903010 | 30 x 1,00                               | 21,9                   | 288,0                  | 653                     | 19,5                                   |
| 37901215 | 12 x 1,50                               | 18,2                   | 172,8                  | 419                     | 19,5                                   |
| 37905215 | 52 x 1,50                               | 34,3                   | 748,8                  | 1712                    | 19,5                                   |
| 37901225 | 12 x 2,50                               | 23,4                   | 288,0                  | 688                     | 19,5                                   |

Further dimensions or special constructions on request.



Possible on request!  
with total copper braiding  
with different conductor  
and sheath colours

**Note: Please pay attention to the installation guidelines!**



# SAB Lift ST

Lift control cable with steel center as suspension unit



BRÖCKSKES · D-VIERSEN · SAB Lift ST 12 x 1,0 mm<sup>2</sup> CE

Marking for SABIX Lift 37911210:

SAB BRÖCKSKES · D-VIERSEN · SAB Lift ST 12 x 1,0 mm<sup>2</sup> CE

## Construction:

|                          |   |
|--------------------------|---|
| <b>Conductor:</b>        | bare copper strands acc. to IEC 60228, EN 60228, DIN VDE 0295, class 6            |
| <b>Insulation:</b>       | special PVC   |
| <b>Colour code:</b>      | black cores with consecutive numbers acc. to EN 50334 and green-yellow earth wire |
| <b>Strain relief:</b>    | steel rope  |
| <b>Stranding:</b>        | steel rope as core, optimized twisting of conductors in layers                    |
| <b>Wrapping:</b>         | non-woven tape on each layer with overlap wrapping                                |
| <b>Supporting braid:</b> | special torsion protecting net  |
| <b>Sheath material:</b>  | special PVC   |
| <b>Sheath colour:</b>    | black (RAL 9005)  |

## Technical data:

|                                       |   |
|---------------------------------------|---|
| <b>Nominal voltage:</b>               | U <sub>0</sub> /U 300/500 V   |
| <b>Testing voltage:</b>               | conductor/conductor 2000 V  |
| <b>Min. bending radius:</b>           | 15 x d  |
| <b>Temperature range</b>              |   |
| fixed laying:                         | -30/+70 °C  |
| flexible application:                 | -15/+70 °C  |
| <b>Fire performance:</b>              | flame retardant and self-extinguishing acc. to IEC 60322-1-2 and EN 60332-1-2 |
| <b>Suspended height:</b>              | up to 200 m   |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                                  |

## Product advantages:

- highest hanging lengths
- long service life
- flame retardant and self-extinguishing

| item no. | no. of cores x cross section<br>n x mm <sup>2</sup> | medium outer-ø<br>ø mm | copper figure<br>kg/km | cable weight<br>≈ kg/km | ohmic resistance at 20 °C<br>max. Ω/km |
|----------|---|------------------------|------------------------|-------------------------|--|
| 37912407 | 24 x 0,75   | 17,1                   | 172,8                  | 417                     | 19,5                                   |
| 37910510 | 5 x 1,00  | 9,3                    | 48,0                   | 133                     | 19,5                                   |
| 37910710 | 7 x 1,00  | 10,4                   | 67,2                   | 174                     | 19,5                                   |
| 37910910 | 9 x 1,00  | 11,9                   | 86,4                   | 266                     | 19,5                                   |
| 37911210 | 12 x 1,00   | 14,8                   | 115,2                  | 375                     | 19,5                                   |
| 37911810 | 18 x 1,00   | 17,4                   | 172,8                  | 460                     | 19,5                                   |
| 37912410 | 24 x 1,00   | 17,6                   | 230,4                  | 536                     | 19,5                                   |
| 37913010 | 30 x 1,00   | 20,6                   | 172,8                  | 471                     | 19,5                                   |

Further dimensions or special constructions on request.



Possible on request!  
with total copper braiding  
with different conductor  
and sheath colours

**Note: Please pay attention to the installation guidelines!**

## SABIX® Lift Lift control cable with sisal cord as suspension unit



Marking for SABIX Lift ST 53902410:

SAB BRÖCKSKES · D-VIERSEN · SABIX Lift 24 x 1,0 mm² CE

Our halogen-free lift cables are used whenever there are highest safety requirements, especially in public buildings and institutions as for example department stores, hospitals, railway and airport institutions, etc.

### Construction:

|                          |   |
|--------------------------|---|
| <b>Conductor:</b>        | bare copper strands acc. to IEC 60228, EN 60228, DIN VDE 0295, class 6            |
| <b>Insulation:</b>       | special SABIX®  |
| <b>Colour code:</b>      | black cores with consecutive numbers acc. to EN 50334 and green-yellow earth wire |
| <b>Strain relief:</b>    | sisal cord  |
| <b>Stranding:</b>        | sisal cord as core, optimized twisting of the conductors in layers                |
| <b>Wrapping:</b>         | non-woven tape on each layer with overlap wrapping                                |
| <b>Supporting braid:</b> | special torsion protecting net  |
| <b>Sheath material:</b>  | thermoplastic special elastomer   |
| <b>Sheath colour:</b>    | black (RAL 9005)  |

### Technical data:

|                                       |  |
|---------------------------------------|--|
| <b>Nominal voltage:</b>               | Uo/U 300/500 V   |
| <b>Testing voltage:</b>               | conductor/conductor 2000 V   |
| <b>Min. bending radius:</b>           | 15 x d   |
| <b>Temperature range</b>              |  |
| fixed laying:                         | -40/+90 °C   |
| flexible application:                 | -30/+90 °C   |
| <b>Halogen-free:</b>                  | acc. to DIN VDE 0472 part 815 and IEC 60754-1                        |
| <b>Fire performance:</b>              | no flame propagation acc. to IEC 60332 + EN 60332 category C resp. D |
| <b>Suspended height:</b>              | up to 60 m   |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                         |

### Product advantages:

- halogen-free
- long service life
- elevated economic efficiency
- flame retardant and self-extinguishing

| item no. | no. of cores x cross section<br>n x mm² | medium outer-ø<br>ø mm | copper figure<br>kg/km | cable weight<br>≈ kg/km | ohmic resistance at 20 °C<br>max. Ω/km |
|----------|---|------------------------|------------------------|-------------------------|--|
| 53900510 | 5 x 1,00                                | 10,7                   | 48,0                   | 132                     | 19,5                                   |
| 53900710 | 7 x 1,00                                | 11,2                   | 67,2                   | 160                     | 19,5                                   |
| 53900910 | 9 x 1,00                                | 12,4                   | 86,4                   | 199                     | 19,5                                   |
| 53901210 | 12 x 1,00                               | 14,4                   | 115,2                  | 261                     | 19,5                                   |
| 53901810 | 18 x 1,00                               | 19,9                   | 172,8                  | 421                     | 19,5                                   |
| 53902410 | 24 x 1,00                               | 19,9                   | 230,4                  | 491                     | 19,5                                   |
| 53903010 | 30 x 1,00                               | 20,9                   | 288,0                  | 581                     | 19,5                                   |

Further dimensions or special constructions on request.



**Possible on request!**  
with total copper braiding  
with different conductor  
and sheath colours

**Note: Please pay attention to the installation guidelines!**

## SABIX® Lift ST Lift control cable with steel center as suspension unit



BRÖCKSKES · D-VIERSEN · SABIX Lift ST 30 x 1,0 mm

Marking for SABIX Lift ST 53913010:  
SAB BRÖCKSKES · D-VIERSEN · SABIX Lift ST 30 x 1,0 mm² CE

Our halogen-free lift cables are used whenever there are highest safety requirements, especially in public buildings and institutions as for example department stores, hospitals, railway and airport institutions, etc.

### Construction:

|                          |   |
|--------------------------|---|
| <b>Conductor:</b>        | bare copper strands acc. to IEC 60228, EN 60228, DIN VDE 0295, class 6            |
| <b>Insulation:</b>       | special SABIX®  |
| <b>Colour code:</b>      | black cores with consecutive numbers acc. to EN 50334 and green-yellow earth wire |
| <b>Strain relief:</b>    | steel rope  |
| <b>Stranding:</b>        | steel rope as core, optimized twisting of conductors in layers                    |
| <b>Wrapping:</b>         | non-woven tape on each layer with overlap wrapping                                |
| <b>Supporting braid:</b> | special torsion protecting net  |
| <b>Sheath material:</b>  | thermoplastic special elastomer   |
| <b>Sheath colour:</b>    | black (RAL 9005)  |

### Technical data:

|                                       |  |
|---------------------------------------|--|
| <b>Nominal voltage:</b>               | Uo/U 300/500 V   |
| <b>Testing voltage:</b>               | conductor/conductor 2000 V   |
| <b>Min. bending radius:</b>           | 15 x d   |
| <b>Temperature range</b>              |  |
| fixed laying:                         | -40/+90 °C   |
| flexible application:                 | -30/+90 °C   |
| <b>Halogen-free:</b>                  | acc. to DIN VDE 0472 part 815 and IEC 60754-1                        |
| <b>Fire performance:</b>              | no flame propagation acc. to IEC 60332 + EN 60332 category c resp. D |
| <b>Suspended height:</b>              | up to 200 m  |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                         |

### Product advantages:

- halogen-free
- highest hanging lengths
- long service life
- flame retardant and self-extinguishing

| item no. | no. of cores x cross section<br>n x mm² | medium outer-ø<br>ø mm | copper figure<br>kg/km | cable weight<br>≈ kg/km | ohmic resistance at 20 °C<br>max. Ω/km |
|----------|---|------------------------|------------------------|-------------------------|--|
| 53910510 | 5 x 1,00                                | 8,7                    | 48,0                   | 115                     | 19,5                                   |
| 53910710 | 7 x 1,00                                | 9,8                    | 67,2                   | 153                     | 19,5                                   |
| 53910910 | 9 x 1,00                                | 11,5                   | 86,4                   | 246                     | 19,5                                   |
| 53911210 | 12 x 1,00                               | 14,0                   | 115,2                  | 338                     | 19,5                                   |
| 53911810 | 18 x 1,00                               | 16,6                   | 172,8                  | 412                     | 19,5                                   |
| 53912410 | 24 x 1,00                               | 16,8                   | 230,4                  | 488                     | 19,5                                   |
| 53913010 | 30 x 1,00                               | 19,8                   | 288,0                  | 663                     | 19,5                                   |

Further dimensions or special constructions on request.



Possible on request!  
with total copper braiding  
with different conductor  
and sheath colours

**Note: Please pay attention to the installation guidelines!**

## PVC Flat cables · H05VVH6-F



ES · D-VIERSEN · <VDE> <HAR> H05VVH6-F 24G0,75 mm² CE



Marking for PVC Flat cable 02142407:

SAB BRÖCKSKES · D-VIERSEN · <VDE> <HAR> H05VVH6-F 24G0,75 mm² CE

### Construction:

|                         |  |
|-------------------------|--|
| <b>Conductor:</b>       | bare copper strands acc. to IEC 60228, EN 60228, VDE 0295, class 5 |
| <b>Insulation:</b>      | PVC  |
| <b>Colour code:</b>     | black with white numbers and green-yellow earth wire               |
| <b>Stranding:</b>       | cores parallel side by side in groups                              |
| <b>Sheath material:</b> | PVC  |
| <b>Sheath colour:</b>   | black (RAL 9005)   |

### Technical data:

|                                       |   |
|---------------------------------------|---|
| <b>Nominal voltage:</b>               | U <sub>0</sub> /U 300/500 V   |
| <b>Min. bending radius:</b>           | 10 x d  |
| <b>Temperature range</b>              |   |
| fixed laying:                         | -40 °C/+70 °C   |
| flexible application:                 | 0 °C/+70 °C   |
| <b>Fire performance:</b>              | flame retardant and self-extinguishing acc. to IEC 60332-1-2 + EN 60332-1-2 |
| <b>Oil resistance:</b>                | acc. to internal standard   |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                                |

| item no. | no. of cores<br>x cross section<br>n x mm² | largest<br>single wire<br>ø mm | dimension<br>width x height<br>approx. mm | copper<br>figure<br>kg/km | cable<br>weight<br>≈ kg/km |
|----------|--|--------------------------------|---|---------------------------|----------------------------|
| 02140607 | 6 x 0,75                                   | 0,21                           | 17,8 x 4,2                                | 43,2                      | 137                        |
| 02140907 | 9 x 0,75                                   | 0,21                           | 25,8 x 4,2                                | 64,8                      | 200                        |
| 02141207 | 12 x 0,75                                  | 0,21                           | 39,1 x 4,2                                | 86,4                      | 260                        |
| 02141607 | 16 x 0,75                                  | 0,21                           | 43,5 x 4,2                                | 115,2                     | 342                        |
| 02141807 | 18 x 0,75                                  | 0,21                           | 48,4 x 4,2                                | 129,6                     | 382                        |
| 02142007 | 20 x 0,75                                  | 0,21                           | 53,9 x 4,2                                | 144,0                     | 425                        |
| 02142407 | 24 x 0,75                                  | 0,21                           | 64,3 x 4,2                                | 172,8                     | 509                        |
| 02140410 | 4 x 1,0                                    | 0,21                           | 12,7 x 4,3                                | 38,4                      | 105                        |
| 02140510 | 5 x 1,0                                    | 0,21                           | 15,3 x 4,3                                | 48,0                      | 129                        |
| 02140610 | 6 x 1,0                                    | 0,21                           | 18,4 x 4,3                                | 57,6                      | 154                        |
| 02140910 | 9 x 1,0                                    | 0,21                           | 26,7 x 4,3                                | 86,4                      | 225                        |
| 02141210 | 12 x 1,0                                   | 0,21                           | 34,3 x 4,3                                | 115,2                     | 292                        |
| 02141610 | 16 x 1,0                                   | 0,21                           | 45,1 x 4,3                                | 153,6                     | 386                        |
| 02141810 | 18 x 1,0                                   | 0,21                           | 50,2 x 4,3                                | 172,8                     | 430                        |
| 02142010 | 20 x 1,0                                   | 0,21                           | 55,9 x 4,3                                | 192,0                     | 479                        |
| 02142410 | 24 x 1,0                                   | 0,21                           | 66,7 x 4,3                                | 230,4                     | 572                        |

Other dimensions and colours are possible on request.

**Note: Please pay attention to the installation guidelines!**



## PVC Flat cables · H05VVH6-F



BRÖCKSKES · D-VIERSEN · <VDE> <HAR> H07VVH6-F 12G1,5 mm<sup>2</sup> C

Marking for PVC Flat cable 02491215:

SAB BRÖCKSKES · D-VIERSEN · <VDE> <HAR> H07VVH6-F 12 x 1,5 mm<sup>2</sup> CE

### Construction:

|                         |   |
|-------------------------|---|
| <b>Conductor:</b>       | bare copper strands acc. to IEC 60228, EN 60228, VDE 0295, class 5  |
| <b>Insulation:</b>      | PVC   |
| <b>Colour code:</b>     | coloured acc. to HD 308 (VDE 0293 part 308); black cores with consecutive numbers acc. to EN 50334 from 6 cores; green-yellow earth wire from 3 cores |
| <b>Stranding:</b>       | cores parallel side by side in groups   |
| <b>Sheath material:</b> | PVC   |
| <b>Sheath colour:</b>   | black (RAL 9005)  |

### Technical data:

|                                       |   |
|---------------------------------------|---|
| <b>Nominal voltage:</b>               | U <sub>0</sub> /U 450/750 V   |
| <b>Min. bending radius:</b>           | 10 x d  |
| <b>Temperature range</b>              |   |
| fixed laying:                         | -40 °C/+70 °C   |
| flexible application:                 | 0 °C/+70 °C   |
| <b>Fire performance:</b>              | flame retardant and self-extinguishing acc. to IEC 60332-1-2 + EN 60332-1-2 |
| <b>Oil resistance:</b>                | acc. to internal standard   |
| <b>Absence of harmful substances:</b> | acc. to RoHS directive of the European Union                                |

| item no. | no. of cores<br>x cross section<br>n x mm <sup>2</sup> | largest<br>single wire<br>ø mm | dimension<br>width x height<br>approx. mm | copper<br>figure<br>kg/km | cable<br>weight<br>≈ kg/km |
|----------|--|--------------------------------|---|---------------------------|----------------------------|
| 02490415 | 4 x 1,50   | 0,26                           | 15,3 x 5,2                                | 57,6                      | 145                        |
| 02490715 | 7 x 1,50   | 0,26                           | 25,6 x 5,2                                | 100,8                     | 250                        |
| 02490815 | 8 x 1,50   | 0,26                           | 28,6 x 5,2                                | 115,2                     | 283                        |
| 02491215 | 12 x 1,50  | 0,26                           | 41,9 x 5,2                                | 172,8                     | 421                        |
| 02490425 | 4 x 2,50   | 0,26                           | 18,3 x 5,8                                | 96,0                      | 206                        |
| 02491225 | 12 x 2,50  | 0,26                           | 50,7 x 5,8                                | 288,0                     | 604                        |
| 02491240 | 12 x 4,00  | 0,31                           | 57,4 x 6,8                                | 460,8                     | 858                        |
| 02490460 | 4 x 6,00   | 0,31                           | 22,7 x 7,3                                | 230,4                     | 377                        |
| 02490560 | 5 x 6,00   | 0,31                           | 27,5 x 7,3                                | 288,0                     | 439                        |
| 02490570 | 5 x 10,0   | 0,41                           | 35,7 x 9,3                                | 480,0                     | 807                        |
| 02490490 | 4 x 25,0   | 0,41                           | 42,5 x 12,9                               | 960,0                     | 1407                       |

Other dimensions and colours are possible on request.

**Note: Please pay attention to the installation guidelines!**

## Installation instructions of lift control cables **SAB Lift, SAB Lift ST, SABIX® Lift and SABIX® Lift ST**

### Application and use in buildings

1. In case that the cables are placed in shafts, two different methods are recommended:
  - *Placement of cables from machine room*  
The placement of the cables from the machine room has to be executed in a way that the cable is led into the shaft in winding direction. In order to avoid upsetting deformation, it is advisable that a second person is in the pit and enables a perfect installation with the help of a cord.
  - *Placement of the cables from the shank pit or the first stop*  
Herewith, the winding direction for unwinding has to be observed.  
Note: With both methods the pulling-in of the cables has to be done with a minimum of bend. In order to avoid torsion or buckling, the placement of the cable has to be done carefully.
2. In order to guarantee a torsion-free installation, the cable has to be suspended freely for 12 h in the shaft before being finally fixed. The lower cable end is not allowed to lie on or to be in contact with the pit sole. If the cable is longer, the lower cable end (min. 0.3 m above the sole) must be looped or put up with a weight. Any material can be used as weight but it should not come to more than 15 % of the cable weight. After having been suspended the cables shall be marked parallel towards the shaft wall and on the same side. Thus a twist-free fixing of the cable is afterwards possible.

### Hanging up of the cable

1. If the cables are pulled into the shaft, they have to be unwound tangentially from the drum. An axial unwinding from the drum causes torsions of the cable and finally can lead to operational disturbances.
2. The free space between lift cabin and shaft bottom shall be big enough and has to be fully used for the loop height of the cable. The cables have to be suspended at the lift cabin in the course of the natural bow.
3. A natural hanging diameter of the loop has to be guaranteed.

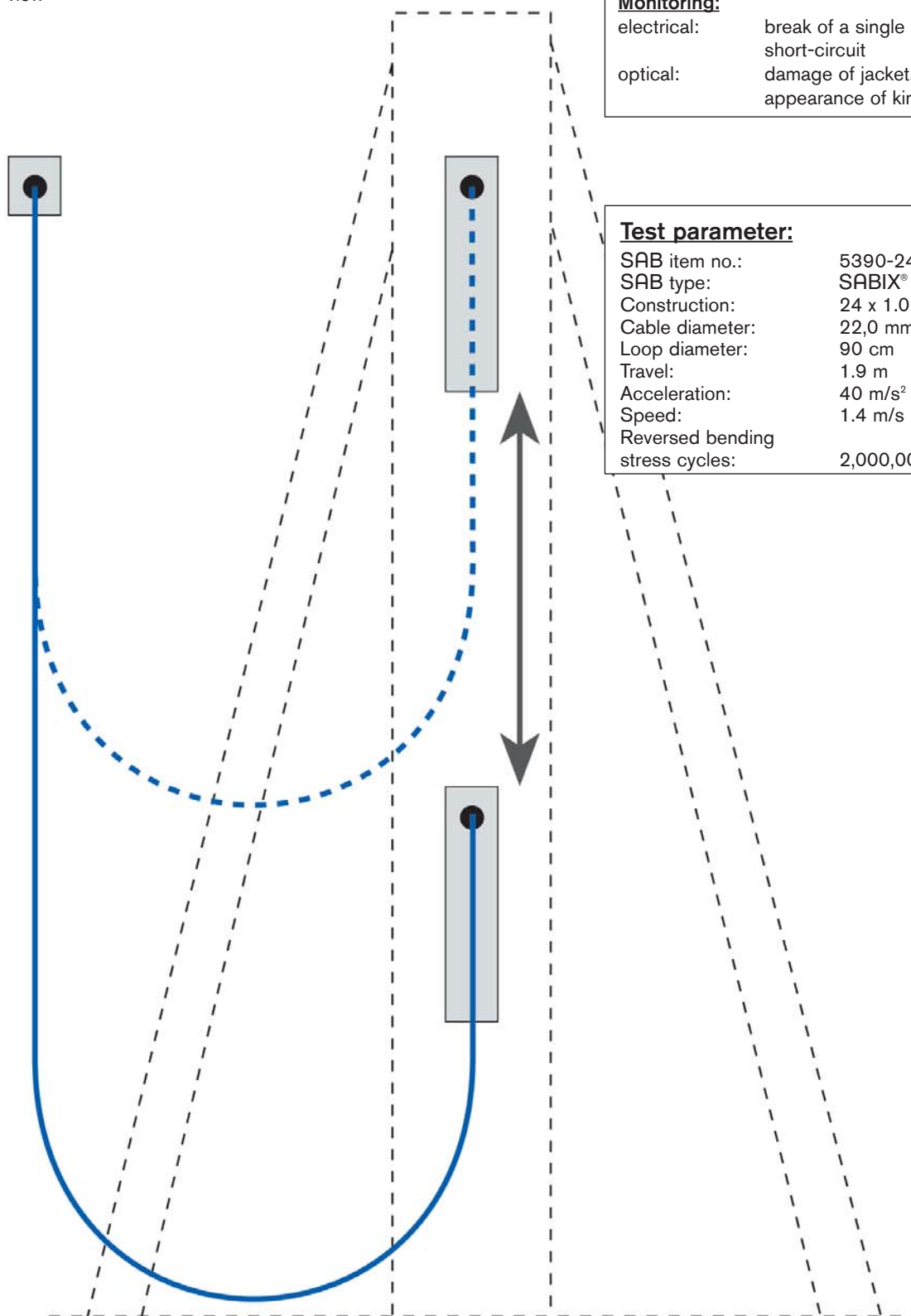
### Fixing of the cables

1. At any rate large-surface clamps have to be used for the fixing of the cable. The sheath shall not be squeezed, the clamp must be seated firmly on a large surface. There should be at least one suspension at the shaft head and at the lift cabin. Additionally the carrying element has to be supported separately (at both cable ends). In case that the suspended cable length is more than 40 m, an additional suspension should be in the middle of the shaft.
2. The fixing point at the shaft wall has to be at least 2 m above the middle of the travel. At the same time the fixing points of the cables at the lift or at the shaft wall have to be arranged rectangular towards the runoff plane of the cable and with the same distance parallel to the rail axis.
3. With unsteady running behaviour that means the cable moves out of the fall line during operation, the control cable has to be slightly twisted at one of the fixing points until a perfect run of the cable is given.  
Note: Additionally the run of the cable has to be controlled again after the initial operation of the lift.
4. If the lift installation requires the installation of several control cables, it is recommended due to operational reasons that the individual cables have to be hung up in a way that the different loops have a level difference of approx. 15 cm (hang up step-by-step).
5. The cables are not allowed to be tied up over their suspended length, as otherwise their free run is impeded.

### General notes

1. The cables are only allowed to be applied with temperature ranges mentioned in their specifications.
2. The inner bending radius is not allowed to be lower than the cable diameter mentioned in the specification. Furthermore, the given bending radius of the cable (equally mentioned in the cable specification) has to be kept.
3. The max. hang up length is dependant on the corresponding carrying element in the cable (mentioned in the cable specification) and is not allowed to be exceeded.
4. In order to reach a perfect and long service life of the lift control cables, they have to be treated and installed with the utmost care.

schematic view



## **Monitoring:**

|             |  |
|-------------|--|
| electrical: | break of a single core<br>short-circuit  |
| optical:    | damage of jacket,<br>appearance of kinks |

## **Test parameter:**

|                                    |                          |
|------------------------------------|--------------------------|
| SAB item no.:                      | 5390-2410                |
| SAB type:                          | SABIX® Lift              |
| Construction:                      | 24 x 1.0 mm <sup>2</sup> |
| Cable diameter:                    | 22,0 mm                  |
| Loop diameter:                     | 90 cm                    |
| Travel:                            | 1.9 m                    |
| Acceleration:                      | 40 m/s <sup>2</sup>      |
| Speed:                             | 1.4 m/s                  |
| Reversed bending<br>stress cycles: | 2,000,000                |



## FLEXIBLE CABLES

- Halogen-free cables   ■ Cable track cables
- Servo motor cables   ■ ETFE, FEP, PFA cables
- Bus cables   ■ Torsion cables
- Hybrid and special cables   ■ Control and connection cables
- Data cables   ■ Besilen® (Silicone) cables
- Compensating and extension cables   ■ Tray cables

## TEMPERATURE MEASUREMENT

- Protecting armatures and gauge slides
- Mineral insulated thermocouples and Mineral insulated resistance thermometers
- Temperature measurement in plastic processing industry/Hot runner technique
  - Diesel thermocouples   ■ Probe with stainless steel sleeve
  - Temperature measurement in test vehicles
  - Measurement techniques

## CABLE HARNESSING

- Harnessed cables acc. to customer's specification
  - Harnessed cable track cables
  - Helix cables   ■ Cable harnesses
- Harnessed motor and transmission cables for Siemens and Indramat drives