

Technical application Semocore®	111
Technical application Semoflex® Drum	113
Mounting instructions Semoflex® Drum	114-115
Mounting instructions Semoflex® Roboschlepp®	117
Mounting instructions flat cables	118
Mounting instructions PVC lift control cables	119
Definition of terms	121
Technical application Semoflex® Baulift Semocore®	123
Mounting instructions Semoflex® Baulift for cable basket applications	124-125
Mounting instructions Semoflex® Baulift Special for cable trolley applications	127

Semocore®

Technical application

Focusing our idea „Baude Kabeltechnik GmbH your partner with development, competence and certified according to ISO 9001“ would like to present you our new core insulation concept (European Patent No. 0 809 258).

Design

„Semocore®“ is a core insulation based on polyester, developed from Baude Kabeltechnik GmbH. Due to the good electrical and mechanical quality of our special insulation „Semocore®“ without any connection or adhesion between finest wires and the core insulation (insulation lays like a tube around the wires so that stranded-wire-breaks like in the past can be avoided). The extruded core insulation has high stability, is elastic and remains resistant against mechanical shocks and bending-fatigue.

The advantage is the possibility of a production with reduced wall thickness of the conductors. An additional advantage of this concept is the good core capacity characteristic caused by the air-gap between conductor and insulation. The excellent sliding in-between the core insulation in connection with the sliding-ply to the next-core-layer or sheath, guarantees a cable with high flexibility and extreme small bending radius. The service periods of such designed cables are longer (approx. 3-5 times in comparison with PVC or rubber insulated cables).

Semoflex® Drum

Technical application

Focusing our idea: „Baude Kabeltechnik GmbH your partner with development, competence and certified according to ISO 9001“ would like to present you a new cable concept for drum reeling cables. Requirements regarding to the automation in production, environmental sensibility and the demand of longer service periods can be achieved. Special cables should be used for the transmission of energy and data. Especially cables with synthetic insulation based on polyester and a polyurethane outer sheath fulfil the electrical and mechanical requirements for such systems.

Extreme mechanical stresses as well as heat and cold, humidity, oil resistance, chemical liquids, high number of forced movements at minimal bending radius are only some stresses which reeling cables have to withstand. With this new cable concept Baude Kabeltechnik GmbH shows, that existing cable solutions for reeling cables based on rubber and PVC, can be replaced by a new cable generation with additional advantages, flame resistant, cold resistant, smaller outer diameter and reduced weight as well as longer service periods.

Cable design:

Conductor:	finest stranded 1,5 sqmm to 35 sqmm according to DIN VDE 0295 class 6 fine stranded 50 sqmm to 120 sqmm according to DIN VDE 0295 class 5
Insulation:	Semocore® core insulation
Core arrangement:	central textile filler cores twisted around in short lengths of lay
Wrapping:	fleece bandaging
Inner sheath:	polyurethane
Textile braid:	support textile braid
Outer sheath:	polyurethane, yellow
Dimensions:	number of cores and diameter according to customer's requirements

Technical data:

Nominal voltage:	0,6/1 kV
Insulation resistance:	>20 MOhm x km
Temperature range:	-40°C up to +80°C for flexible applications, outdoor installation is possible
Bending radius:	according to VDE 0298
Speed:	up to 250 m/min. Higher speed on request.

Design description

Due to the good electrical and mechanical quality of our special insulation „Semocore®“ without any connection or adhesion between wires and the core insulation (insulation lays like a tube around the wires so that stranded wire breaks like in the past can be avoided), smaller core wall thickness can be produced. The extruded core insulation has high stability, is elastic and remains resistant against mechanical shocks and bending fatigue. To guarantee the sliding of the core insulation under the inner sheath a fleece wrapping is adjusted. The nominal voltage 0,6/1kV requires an inner sheath. The cross stability (torsion strength) is realized through a textile braid between the inner and the outer sheath. The outer sheath consists of a slot-ductile, mat polyurethane (to reduce adhesive between PUR layers).

This cable complies with the EMC resistance (required since 1996) to electrical machines due to the special design and the mechanical stresses.

Advantages in comparison with earlier used reeling cables:

- reduction of approx. 40% cable diameter
- lower bending radius
- reduction of weight of approx. 40%
- test results owing to extreme conditions show a 5 time longer service period
- flame resistant
- oil resistant
- good chemical resistance

Transport systems can be designed easier and more compact with help of this cable generation. A longer service period can be guaranteed.

This concept is VDE- (VDE – REG. – No. 6510), UL and CSA (Style 10246 / 20235) approved !

From 70 sqmm similar to VDE/CSA.

Semoflex® Drum

Mechanical properties / Bending radius

The bending radius refers to the maximum diameter of the cable. The following values have been defined for Semoflex® Drum applications according to DIN VDE 0298 part 3.

Cable diameter	< 20 mm	> 20 mm
Reeling operation	5 x d	6 x d
Roller deviations	7,5 x d	7,5 x d
Minimum distance at S-shaped deviations	20 x d	20 x d
Cables with optical conductors	250 mm	250 mm

Please contact us where dimensions are limited.
The service life will be reduced if the minimum used values are lower than those specified values.

Mechanical properties / Cable support grips

Application

Cable support grips are the safest and quickest device for a gentle and strain-relieved suspension of cables. Owing to the flexible braid the tensile force of the cable support grip will be transmitted along the length of the cable. A point load, e.g. at cable clamps which could break individual cores, does not exist anymore if cable support grips are used. Cable support grips can be used for the concentrated fixing of cables at outdoor transformers, switch cabinets, machines and equipment such as lifts, cranes etc. They are suitable for pulling cables.

Design

The cable support grips are braided. They consist of zinc plated steel for normal climatic conditions.

Mounting advices

You should fix the cable support grip with applicable fastening devices in case of glossy/smooth cable sheaths.

Technical data

Our technical data will be added as enclosure.

Cable support grips with 2 loops (KM 12/1 with 1 loop)

Part no.	Suited for cable diameter	Allowed loading kN	Breaking load kN	Braid length mm	Total length mm
KM 12/1	09 - 12	1,3	3,9	135	340
KM 15/2	12 - 15	2,1	6,3	180	400
KM 20/2	15 - 19	2,6	7,8	220	450
KM 25/2	19 - 25	2,6	7,8	275	530
KM 30/2	25 - 30	4,0	12,0	350	630
KM 40/2	30 - 40	5,8	17,4	370	680
KM 50/2	40 - 50	8,0	24,0	490	800
KM 60/2	50 - 60	8,0	24,0	500	840

Cable support grips with 2 loops, longitudinal with binding wire

KM 15/2 G	12 - 15	2,1	6,3	180	400
KM 20/2 G	15 - 19	2,6	7,8	220	450
KM 25/2 G	19 - 25	2,6	7,8	275	530
KM 30/2 G	25 - 30	4,0	12,0	350	630
KM 40/2 G	30 - 40	5,8	17,4	370	680
KM 50/2 G	40 - 50	8,0	24,0	490	800
KM 60/2 G	50 - 60	8,0	24,0	500	840
KM 70/2 G	60 - 70	10,6	31,8	520	890
KM 90/2 G	70 - 90	13,9	41,7	580	900

Semoflex® Drum

Mounting instructions

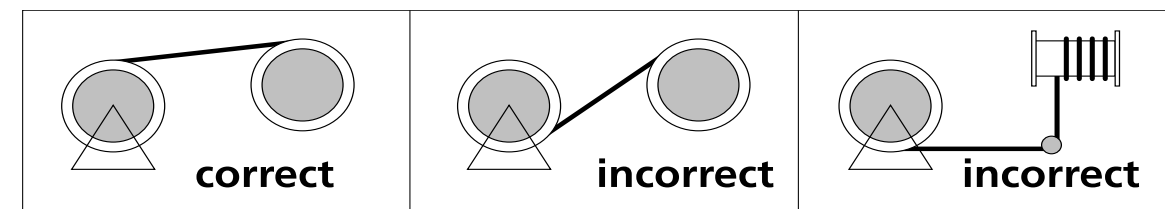
Supply, transportation

- When coiling the cables from drum to drum you should control the stocked drum which should be slowed down to prevent afterrunning and creating loops of cable
- The storage as well as the transport of drums should be vertical, the drums should be covered if stocked outdoors
- When coiling from rings you should allow for the minimum bending radius
- During the carriage the cable rings should be protected at building sites against deformation, the cable should be stocked flat
- The preferred bending direction is similar to the reeling direction of the drum or the ring

Mounting instructions

For the assembly of these cables you should follow strictly the following instructions:

- The delivered drum should be moved by service equipment to the building site. The drum should be lifted by the side of flanges and should not be rolled, only in exceptional circumstances
- The cable should be uncoiled only from rotary stocked drums and should be carried out from the top only
- If the cable is delivered on rings you should pull down the cable radially or the cable should be rolled off directly from the drum to the plant
- Do not turn round the cable in an S-form or in another direction



Fixing of the cable

- The cable has to be fixed through a clamp or a cable support grip
- When fixing the clips you should pay attention to the clamp, it should form the radius of the cable. Deformation or crushing of the cable should be avoided
- For applications with long wiring arrangements you should use a cable stocking in the axial area lengthwise to the drum. The cable stocking should guarantee there is no cable movement with the help of hose clips
- Remove any twist from the cable to ensure good installation, this is particularly important for vertical applications
- Always ensure there are 2 extra cable turns on the drum for security (in the pay-out condition this may not be needed)

Using the cable with roller guides

- In case of S-formed deviation the minimum distance between the reversing points should be 20 x cable diameter as minimum

Semoflex® Roboschlepp®

Installation instructions

- The delivered cable drum should be moved by suitable lifting equipment to the building site. The cable should not be rolled, only in exceptional circumstances
- Moving direction of the cable drum should be opposite to the uncoiled direction
- Cable drums should be stored vertically, the drums should be covered if stocked outdoors
- When coiling from drums you should not stop the drum suddenly
- The bending direction corresponds to the winding direction of drum / coil
- The coils of cable should be fitted with 2 of minimum 15 mm wide textile tape or similar materials (eventually PVC tapes)
- During transit the cable coils should be protected on building sites against deformation, the cable should be stocked flat
- If the cable is delivered as coils you should pull down the cable radially or the cable should be rolled off directly from the drum to the plant. Do not turn round the cable in an S-form or in another direction. Do not drag the cable along the ground
- The installation of the cable should not be carried out if temperatures are lower than -25°C

Cable in use

- Cable should be fixed with a strain relief at both ends of the drag chain and it should be fixed with 25 x cable diameter for minimum from the end point of the bending-moving
- Point clamping should be avoided, the strain relief should be carried out by the outer sheath. Crushing of the core bandage reduces the service life. The cable should not be moved till the connecting point
- Drag chain cables should be fitted to the drag chain and should be guided but not restricted. They should not be connected to other cables
- Each cable should be installed individually and should be fitted with separators between. The cable should have enough flexibility to move
- The minimum bending radius of the cable should not be contravened
- The braid of screened cables should be mounted with a fixing device to avoid any movement of the screen

Flat cables

Installation instructions

- After placing the required quantity of trolleys on the rail at the required distance of the station, it is important that the distance between two trolleys is larger than the thickness of two stacks of cables
- The installation of the cable on the supporting surface of the trolley begins with the weakest and finest cable of the stack
- By packing over and beside, you have to ensure the order of cables as described before. You also should ensure the equal distribution at the trolley
- Before the stack of cables is fixed on the trolley with help of special screws, the cables should be adjusted into a loop so that at the deepest point of the loop is a clearance between each cable of 6mm for minimum
- Within the loops of the stack of cables have to be avoided a tie up or a conglutination of cables because otherwise could appear possibly breaks of cores caused by upsetting deformations
- For loop depths high running speeds of the machine or possible strong winds such as loop clamps have to be used. Loop clamps should be fixed right and left side at the heaviest cable in a distance of about 1/3 from the central point while all the other cables should be leaded loosely in the clamp
- For cable stacks which only consist of control cables, it is recommended to use one or two cables in the highest layer with central carrier elements. In particular this is relevant for machines with running speeds of more than 60m/sec. or acceleration of more than 0,5m/sec.

Round PVC lift control cables

Installation instructions

- Move cable with suitable lifting equipment to place of installation, the cable should not be rolled, only in exceptional circumstances
- Moving direction into the opposite direction of de-reeling direction of the cable
- Cable drums should be stored vertically, the drums should be covered if stocked outdoors
- Do not stop the drum suddenly when de-reeling
- Bending direction corresponds to roll direction of drum / coil
- Serving the coils should be effected by 15 mm (minimum) width textile tapes or similar material (eventually PVC tapes)
- Protect cable against deformation during transportation and on construction sites, stock flat
- Cables should be pulled down radial from the coil or from the drum directly to the installation, do not turn around in S-form or at another level, do not drag along the ground
- Installation of the cable should not be carried out if temperatures are lower than -15°C
- Fixing of the cable with large clamps – length of the clamp 100 mm minimum, e.g.:
HRKA-0 for a cable HKYSTY 12 x 1 mm² or HKYSTY 18 x 1 mm²
HRKA-1 for a cable HKYSTY 24 x 1 mm²
- Combined possibilities of cable suspension:
Shaft-head - moving basket
Shaft-head - (centre of shaft) - moving basket
- It is recommendable to use two clamps in distance of 2 meters for maximum in case of higher slope altitude and further to facilitate the moveable correction of cables. If necessary, the lower clamp should be unscrewed
- The cable outer diameter has to be adapted to the clamping area
- The supporting structure of the cables should be fixed separately into the terminal box or the cables should be turned above the clamp and then turned over the rounded edge

Cable in use

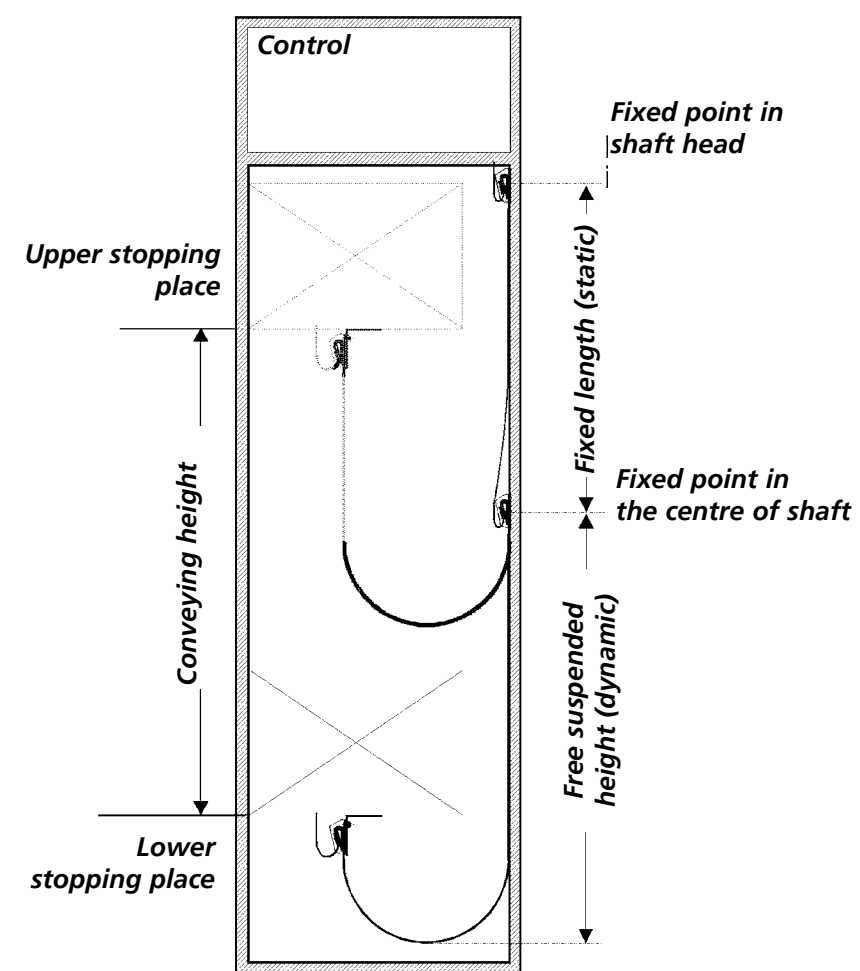
- In case of parallel installation it is recommended to use a cable with equal number of cores as well as equal cross section
- Cables should be freely suspended and should be turned off during 12 hours
- Cables should be suspended perpendicular as well as parallel and furthermore they must be individually fixed
- The exit areas should be arranged right angles to the bending area of cable
- Polished discharging areas have to be guaranteed in the area of movement of cables
- Distance of suspension points:
Hoisting wall up to mounting of driving basket approx. 400-800 mm is the highest naturally bending diameter. In case of high acceleration or speed, the bending diameter is adjusted

Attention:

Roll off against the hoisting wall or undesired veer can be caused if the loop diameters are too big or too small !!!

- Mutually similar loop of cables
- Lateral distance of cables against hoisting wall, doors, counterbalance, driving basket etc. at least 150 mm
- Distance between loop point and shaft floor should be at least 1 meter
- Do not bind the cables together
- After the installation of lift, the movement of cables should be checked and if necessary the movement should be modified

Definition of terms



Semoflex® Baulift

According our motto „Baude Kabeltechnik, your partner with competence in design and certified according to ISO 9001“, we would like to present our new solutions for lifts in construction areas. The automation at working places, environmental consciousness, longer service-life and higher conveyer heights require components which are adapted to the requirements. Special cables are ideally suited for the transmission of energy and data. Cables with plastic insulations made of polyester and a polyurethane outer sheath fulfil the mechanical and electrical requirements of such systems. Extreme operations in cold and hot surroundings, wet areas, oil resistance, chemicals, high bending cycles with minimum bending radius are only some of the stresses which construction lifts have to withstand.

Semocore®

Core insulation concept with European Patent No. 0 809 258

Design description

„Semocore®“ is a core insulation based on polyester, developed by Baude Kabeltechnik GmbH. Due to the good electrical and mechanical quality of our special insulation „Semocore®“ without any connection or adhesion between finest wires and the core insulation (insulation lays like a tube around the wires so that stranded-wire-breaks like in the past can be avoided). The extruded core insulation has high stability, is elastic and remains resistant against mechanical shocks and bending-fatigue.

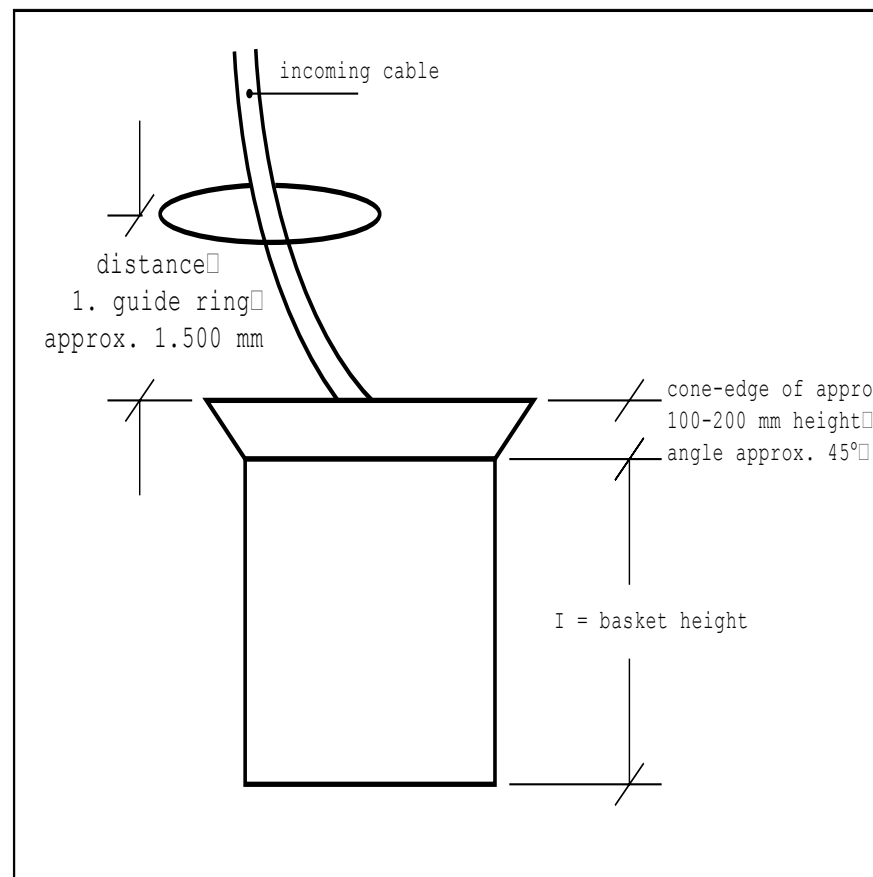
The advantage is the possibility of a production with reduced wall thickness of the conductors. An additional advantage of this concept is the good core capacity characteristic caused by the air-gap between conductor and insulation. The excellent gliding quality of the core insulation one beneath the other and in connection with the gliding-foils to the lying above compound or sheath guarantees a cable with flexibility and extreme small bending radius. The service periods of such designed cables are longer (approx. 3-5 times in comparison with PVC or rubber insulated cables).

Advantages in comparison with standard cables

- Reduction of the cable diameter and therefore smaller bending radius can be obtained
- Reduction of weight
- Higher conveyer height for lifts

Transport systems can be designed easier and more compact with help of this cable generation. A longer service-life can be guaranteed.

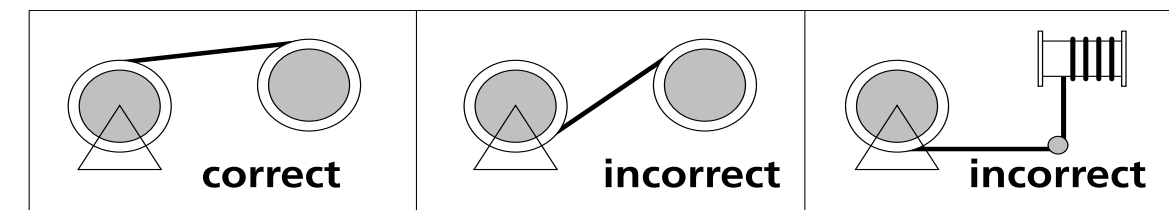
**Semoflex® Baulift for basket applications with a conveyer height of 120 meters.
If the conveyer height is higher than 110 m, we recommend an additional cable concept,
Special Semoflex® Baulift which was designed for trolley applications.**



Semoflex® Baulift for cable basket applications

General advices

- The delivered drum should be moved with service equipment to the place of application
- The delivered drum should not be rolled
- The cable should be uncoiled by rotary stocked drums and should be carried out from top only
- Do not stop the drum too hard by de-reeling
- Thereby the cable should be guided stretched, do not turn round in another direction and the cable should not be slid over edges



- The cable has to be installed twist-free. You should pay attention to the feeding point where the cable also should be connected twist-free
- During the installation do not turn round the cable in S-form or at another level
- The mounting of cable should not be done at temperatures lower than -25°C

Premises for cable basket applications

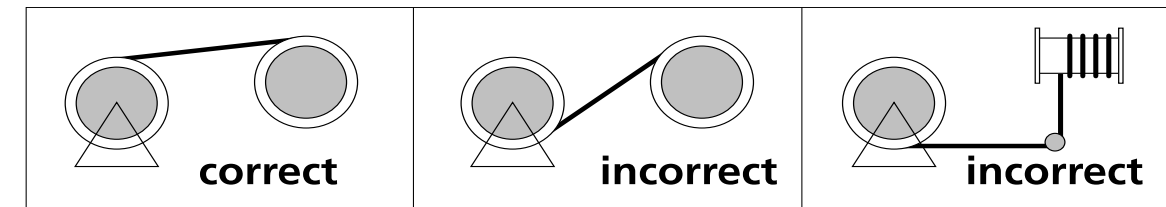
- The inner diameter of cable basket should not be smaller < than 600 mm
- The minimum diameter amounts to 30 x cable diameter
- The cable should be coiled as ring to insert into the cable basket taking into account the minimum bending radius of cable. In case of bigger cable lengths the cable should be inserted into the cable basket directly from the drum
- The cable should be installed corresponding to the stranding direction clockwise
- First guidance ring should be installed for minimum 1.500 mm over the basket inflow
- The cable should be installed with round cable clamps or similar accessories
- At the upper cable basket should be planed a funnel-formed edge of approximately 100-200 mm height and with an angle of approximately 45° to avoid a set-up of cable in case of windy/stormy weather
- The cable basket should be high enough because of the insert total length of cable which should be laid approximately 300 mm among the upper basket edge

Other stresses will be chargeable to the duration of operating ability.

Semoflex® Baulift Special for cable trolley applications

General advices

- The delivered drum should be moved with service equipment to the place of application
- The delivered drum should not been rolled
- The cable should be uncoiled by rotary stocked drums and should be carried out from top only
- Do not stop the drum too hard by de-reeling
- Thereby the cable should be guided stretched, do not turn round in another direction and the cable should not be slid over edges



- The cable has to be installed twist-free. You should pay attention to the feeding point where the cable also should be connected twist-free
- During the installation do not turn round the cable in S-form or at another level
- The mounting of cable should not been done at temperatures lower than -25°C

Cable in use

- The diameter of the deflection sheave has to comply for minimum 15 x the outer diameter of the installed cable
- Details of cable diameters should be taken from our technical delivery conditions (please see our catalogue)
- In case of S-formed deviation the minimum distance between the reversing points of 20 x cable diameter should not fall short
- The running surface of deflection sheave should be developed as valley with suitably radius
- The radius has to be 1-2 mm bigger than the half cable diameter of the applied cable
- A tolerance of the deflection sheaves and guide sheaves should be guaranteed of approximately 5-10 mm
- Do not squeeze or deform the cable in the guide sheaves

Any discrepancies of the mounting instructions will be chargeable to the service life of cables.