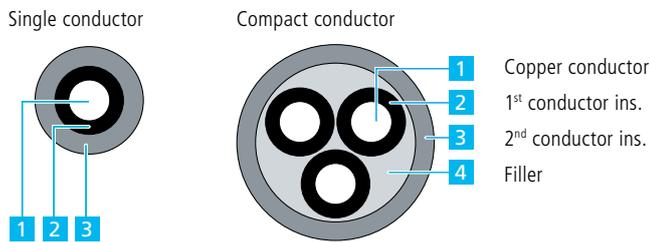




Ropes with electrical conductors

Our wire ropes with integrated electrical conductors do not only suspend your loads, but in addition they transmit control signals and electrical power. In their standard design, these ropes are equipped with one or more electrical conductors. Wire ropes meeting special requirements can be individually designed and manufactured according to your needs.

Structure of the insulation material with single or compact conductors

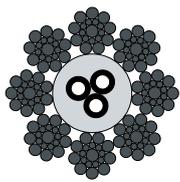


The Properties

- The mechanical properties of the ropes will not be changed by the installation of electrical conductors
- The sensitivity to lateral pressures will be larger, as the insulation of the conductors can transmit only small lateral pressures without damage
- Accordingly, the choice of end fittings is largely limited
- End fittings generating no or only little lateral pressure are suitable, such as stay spirals, white metal cones with hot or cold cast, or drum fasteners. Wedge sockets, clamping plates and special rope clips are suitable only under certain conditions.

cross-section conductor mm ²	Max. voltage permanent V	Max. current permanent A	Min. disruptive voltage permanent V	Resistance values at 20°C max temp acc. to UL 1581 Ω / km
0,60	220	4	>5000	36,7
0,75	220	6	>5000	29,1
0,96	220	6	>5000	23,2

At ambient temperature of 40°C



8x17 S-DC 1960 B sZ
6x19 S-DC 1960 B sZ
8x19 S-DC 1960 B sZ

Core with electrical conductor, galvanized steel wire, 1960 N/mm², right-hand ordinary lay; non-twisting

Electrical Conductor

Two variants of the electrical conductor are recommended:

The insulated single conductor can be assembled to form a composite conductor or placed singly at different locations in the rope. The compact conductor contains a specific number of conductors and in most cases is designed specifically for one application. The better dimensional accuracy and the easier processing are contrasted with higher production costs and the fact that not all rope constructions are suitable for the compact conductor.

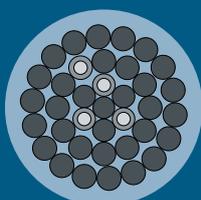
The insulating materials need not only insulate the conductor electrically, but also withstand the mechanical stresses. Once a conductor breaks down and shorts out, the function of the rope drive will be strongly affected and the rope should be discarded. That means: In normal operation short-circuits must not occur prior to the point when the rope has to be discarded. Insulation materials such as polyamide, polyurethane or compounds are specifically suitable for insulations exposed to high mechanical stresses, whereas the soft classical insulation materials such as polypropylene and polyethylene achieve values 2 to 3 times higher in the disruptive discharge test. The correct design and composition of the insulation is essential for a proper and reliable function during the entire service life of the rope. Copper strands in different cross-sections are suitable as electrical conductors.



Art.	Rope ø	Structure/ load bearing wires	cross-section conductor Cu mm ²	Art. conductor	MBF kN	WGT 100 m kg
61550	6,5	6x19 / 114	1x0,96	61448	29,80	16,00
40197	6,5	8x17 / 136	3x0,60	45317	24,87	15,00
10542	7,0	6x19 / 114	1x0,96	61448	35,27	19,60
10540	7,0	8x19 / 152	3x0,60	45317	32,23	17,90
29474	8,0	8x19 / 152	3x0,60	29496	39,77	21,70
62475	8,4	8x19 / 152	3x0,75	45317	45,20	24,60
40191	8,7	8x19 / 152	3x0,60	62524	46,89	26,10
29472	9,0	8x19 / 152	3x0,60	29496	47,60	27,00
63971	9,0	8x19 / 152	1x0,96	62526	53,20	30,50
63973	10,0	6x19 / 114	3x0,60	29495	66,85	36,80
62476	10,3	6x19 / 114	3x0,75	62474	73,40	40,50
62945	10,5	8x19 / 152	5x0,60	62947	71,45	41,00
63972	12,0	6x19 / 114	3x0,60	29498	98,31	54,15
62952	12,0	8x19 / 152	3x0,75	69620	93,02	51,00
62953	12,0	8x19 / 152	3x0,96	69621	93,02	51,00

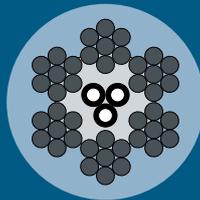
Examples for ways of installing the electrical conductors

The rope application determines the rope construction that may be used:



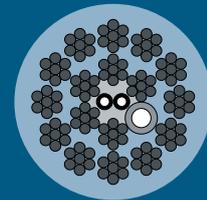
Spiral ropes

or static or virtually static applications



Stranded ropes

for all normal rope drives



Spiral ropes with round strands

for rope drives requiring a rotation resistant rope