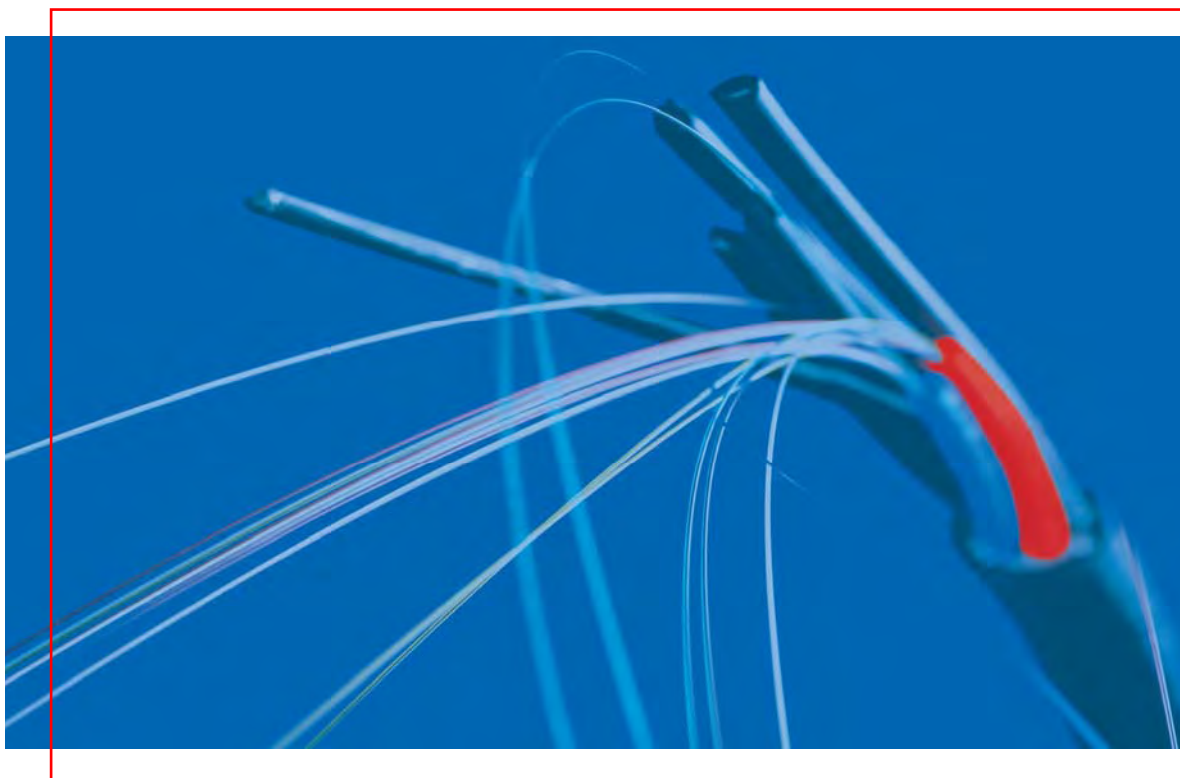




CABLE CATALOGUE

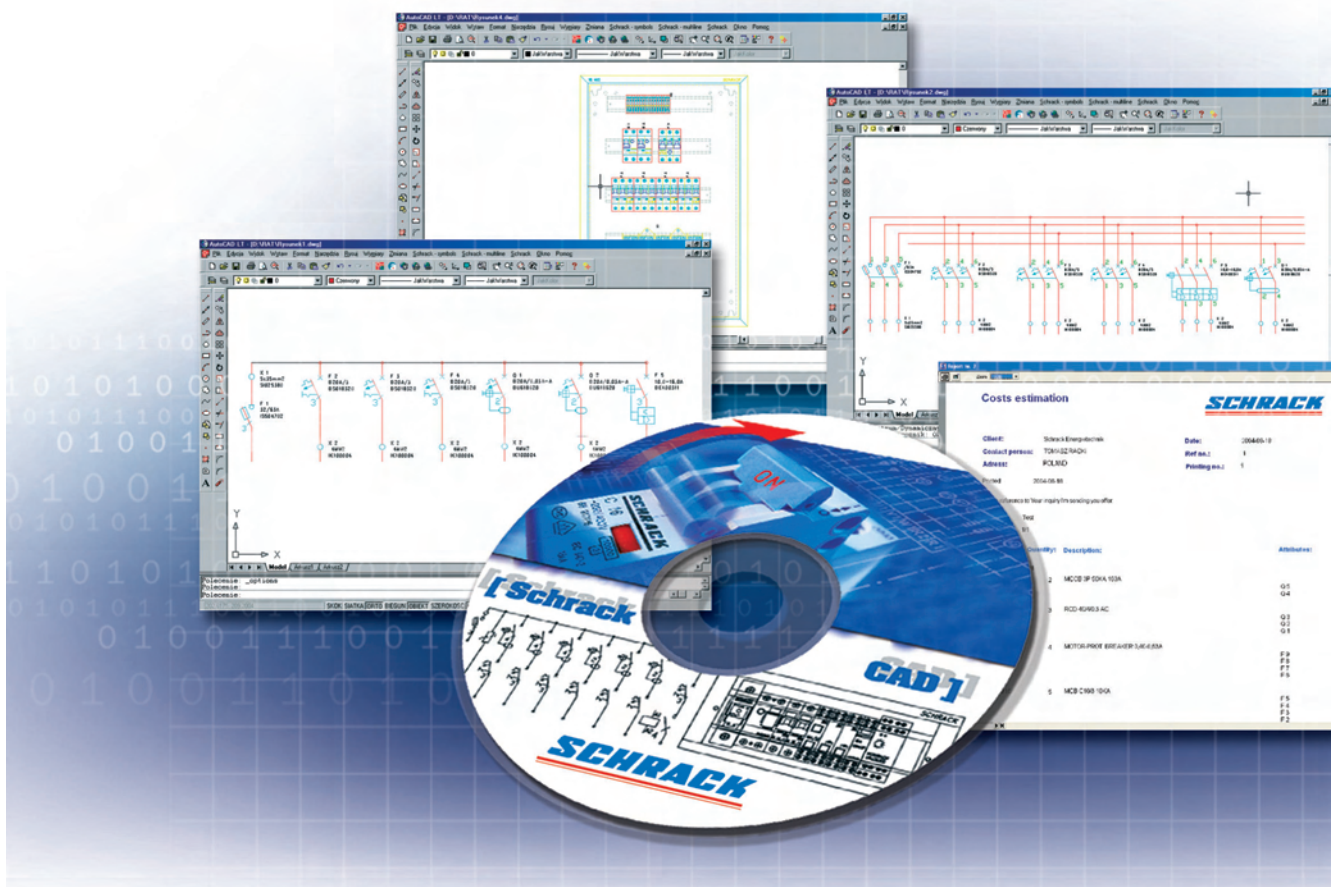
Schrack Energietechnik has consistently succeeded its precisely set goals since its foundation:

- Ensuring partnership and collaboration implementing complete solutions and delivering electrical equipment as well as telecommunication systems to all customers in the electric market
- Extending continuously the product range with dynamically developed new products within the company's efficient structure
- Offering products of the highest quality implementing permanently innovative technological solutions and investing in technological progresses and scientific researches

FROM DESIGN TO IMPLEMENTATION

■ Providing professional customer care by competent staff
While working to achieve these goals our attention focuses particularly on electrical designers who require comprehensive technical solutions and highest product quality in their day-to-day work in the field of electrical engineering and telecommunication.

The **Schrack-CAD** application supporting all AutoCAD versions has been developed for electrical designers. The application is based on expectations of design offices interviewed by our staff. Together with another application, the "Cost Estimate Application - CEA", it will be possible for customers to estimate costs creating electrical designs starting from a single-line/multi-line diagram to a switching substation assembly plan view.



Schrack CAD is a design tool, which includes about 4000 products of Schrack Energietechnik from switching substations to structural wiring systems.

■ SCHRACK CAD – DESIGN APPLICATION

There is a variety of independent software programmes for designing wiring systems in the market. Usually, these are separate applications created in the developers' parent countries. Currently, AutoCAD is the most popular computer software used by most of electrical designers to design wiring systems and switchboards. The AutoCAD's popularity results from its recording format and usage in all design-related lines: architects, mechanics and electricians use the same platform - AutoCAD. The Schrack Energietechnik has created an application which supports AutoCAD and is meant for the electrical designers who use AutoCAD. This application is an overlay, which enables the user to create a complete electrical design, in the accepted meaning of

the word - starting from a schematic design based on symbols, through semiautomatic generation of switching substation's plan view to automatic generation of list of components and cost estimate for the project.

The **Schrack CAD** overlay is developed in two versions:

- for the AutoCAD's versions R14 and LT (98, 2000/2000i/2002/2004)
- for full version of AutoCAD 98, 2000/2000i/2002/2004, 2005)

To enable the user to generate various reports and cost estimates a separate application called "The Cost Estimate Application - CEA" has been created to support all the AutoCAD versions.

■ SCHRACK CAD – FULL VERSION

To run the Schrack CAD overlay, the SCHRACK option should be selected from the AutoCAD's main menu. It is possible to access the Web site at www.schrack.com and import any file generated by the Cost Estimate Application - CEA to the AutoCAD's sheet from the main menu level. After clicking the SCHRACK option the main application window will open (Figure 1). The breakdown by main product line group and product type is included in the main application window in accordance with the product's main catalogue:

- Enclosures and distribution cabinets
- Protective circuit breakers
- Control units and switchgear
- Fusegear
- Terminating and connecting products (power distribution system - up to 3200 A)
- Contactors
- Power switches and disconnectors
- Surge protection
- Transformers and power supply units
- Meters and counters
- Relays
- Structural wiring (passive and active components and 19" enclosures)
- General electrical symbols

Totally, there are about 4000 products containing views, single-line and multi-line symbols in 12 main product line groups.

Last group 13 includes general electrical symbols that are used when designing wiring systems to enable the user to count up large quantities of switches, sockets, lighting fittings, etc. located on architectural plans. The Cost Estimate Application - CEA gives the user possibility to generate reports on quantities and prices of the electrical fittings used in the design. Each main product line group is divided into subgroups by using drop down menus down to the level where the product is selected. However, in the application's main menu you can decide a way in which you want to insert a given product to your design:

- instrument view - by choosing **View** (Figure 1)
- single-line symbol of instrument - by choosing **Symbol** (Figure 2)
- multi-line symbol of instrument - by choosing **Multi-Line symbol** (Figure 3)



Figure 1. Instrument view window.

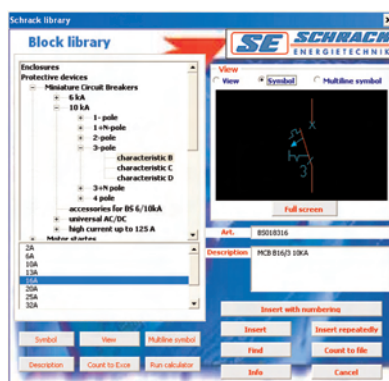


Figure 2. Instrument's single-line symbol view window.

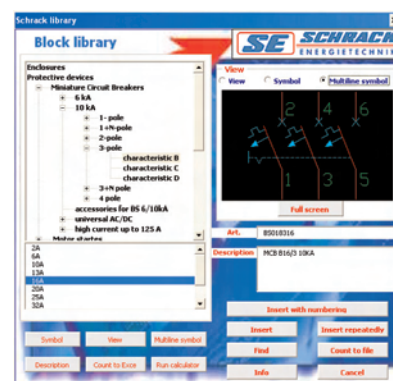


Figure 3. Instrument's multi-line symbol view window.

THE NEW GENERATION OF PROTECTION DEVICES



ACCESSORIES

- Enclosures, covers
- Shunt trip release
- Undervoltage release
- Signal contact
- Auxillary contact
- Remote switching units (FSE,FSA)
- Busbars

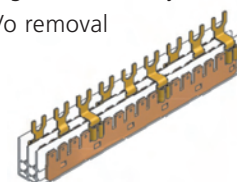
TIPS & TRICKS: NEW

Claw-type terminals on both sides (top and bottom) allow for better busbar usage Backplugging no longer possible to when connecting conductors through false terminal protection.



MODULE CONNECT

- Universal DIN rail
- can be plugged-in freely in 9 mm module intervals
- terminal tags can be freely configured w/o removal



AVAILABLE AS OF SUMMER 2005

- Rated voltage/frequency: 230 V/400 V AC, 50 Hz
- DC measuring voltage (for each pole with breaker): max. 48 V DC
- Rated breaking capacity: -5°C to +40°C
- Permitted back-up fuse: max. 125 AgL, >10 kA
- Selectivity class: 3
- Rated breaking capacity: 10 kA accord. to IEC/EN 60 898, max. 15 kA accord. to IEC 947-2 for series BMSI
- Degree of protection IP 20
- Tripping characteristic curve: B, C, D
- Service life: $\geq$ 8000 operations
- Window w/ contact position indicator, red/green for each pole

- Incorrect terminal protection (insulated)
- Terminal cross section: 1 mm to 25 mm
- Lift and Maulklemme both sides
- Special snap-on mounting for top-hat rails EN 50 022
- Finger and hand touch safe accord. to VBG 4 / EN-IEC 6
- Other changeable scales available upon request
- Meets demands of insulation coordination, distance between contacts $\geq$ 4mm
- Netzspannungsanschluß as required (top/bottom)
- Klemmenanzugsdrehmoment 2-2.4 Nm
- Can be installed anywhere
- High selectivity through low throughput energies
- High measuring currents see series BR

AVAILABLE AS OF SUMMER 2005

DC CONTACTORS

- Low-noise operation
- High mechanical service life
- Pull-in & stand-by power 2.9W
- Direct control with SPS
- Accessories same as for K3 series
- with integrated coil suppressor
- 4 coil terminals
- Power and auxiliary contactors
- climate-proof, ambient-temperature 40° to +90° C



PT SOCKETS WITH LOGICAL TERMINAL CONNECTION

- Socket with logical arrangement of control and load terminals
- Permanently installed screw-type terminals
- Retaining clip with eject function for relays 29 mm or 35 mm in height
- Second coil end A2 for light wiring

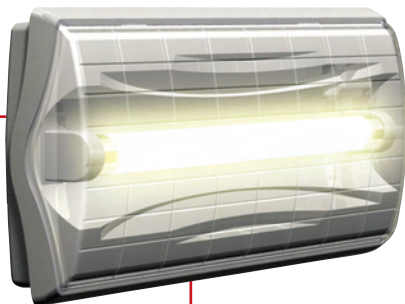


MCBS FOR INDUSTRIAL USE, 15 KA BMSI GENERATION

- Rated voltage/frequency: 230 V/400 V AC, 50 Hz
- Standard resolution: -5°C to +40°C
- Fuse: > 10 kA max. 125 AgL
- Selectivity class: 3
- Rated breaking capacity: 10 kA accord. to IEC/EN 60 898, 15 kA accord. to IEC/EN 60 947
- DC measuring voltage (for each pole with breaker): max. 48 V DC
- Degree of protection IP 20
- Tripping characteristic curves: B, C, D, Z, K, (S upon request)
- Service life: $\geq$ 8000 operations
- Window w/ contact position indicator, red/green for each pole
- Incorrect terminal protection (insulated)
- Cross section: 1 mm to 25 mm
- Lift and claw-type terminals both sides
- Mounting system: Special snap-on mounting for top-hat rails EN 50 022
- Finger and hand touch safe accord. to VBG 4 / EN/IEC 6
- Other changeable scales available upon request
- Meets demands of insulation coordination, distance between contacts $\geq$ 4mm
- Mains voltage connection as required (top/bottom)
- Terminal torque 2-2,4 Nm
- Can be installed anywhere
- Vibration-proof accord. to EN 61 373 (railway cars)
- Shock-proof accord. to IEC 68-2-27
- High selectivity through low throughput energies
- High measuring currents see series BR



SINGLE BATTERY LIGHTS: AESTETICA SERIES



- Mounting also possible on flammable surfaces
- Material: self-extinguishing plastic (EN 60598, UL 94)
- Wall-mounted, degree of protection: IP 40
- Rated voltage 230V, 50-60Hz
- Sealed, maintenance-free batteries (service life > 4 Jahre accord. to EN 60598-2-22, the device must be loaded for 24 hrs before first use.)
- Flat-battery monitor, LED load indicator
- Pictograms not part of delivery content.
- Continuous illumination model with energy-saving ECG
- Electronic control gear
- Wall- and roof mounting possible
- 6 W, 8 W light
- With double insulation
- Colour: white

RANGE OF APPLICATION

- Electronics
- Enclosures
- Industry



STABILIZED SINGLE-PHASE DC SUPPLYFULLY ENCAPSULATED, 1,5 TO 5 A

- Stabilized supply voltage and current
- Input range from 0,9 U_n to 1,1 U_n
- Input voltage 230 V 50/60 Hz or input voltage 400 V 50/60 Hz, others upon request
- Output voltage 24 V DC according to EN 61 558 / EN 61 131
- Residual ripple < 150m Vpp
- Thermal release on primary side, secondary electronic current limiter
- With double insulation
- LED function display
- Short-circuit and tamper-proof
- Self-cooling
- Operating temperature: -25° C to +40° C
- Storage temperature: -25° C to +65° C



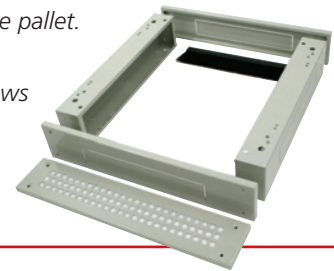
NETWORK FLOOR-MOUNTED ENCLOSURES & BASES

Featuring a stable frame construction, roof and floor assembly and doors as well as side and rear panels are powder-coated with a fine-grain surface structure. Perforations in the roof and floor assembly for auto-ventilation. The roof is equipped with a blank flange plate which can be replaced with a cable guide or fan assembly.

ADVANTAGES

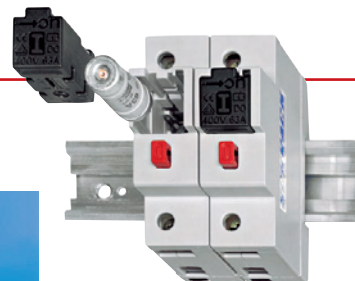
- Variety of models and extensive accessories
- Easy to install
- New design
- Excellent finishing
- Ideal for offices

- comes in widths 600 and 800 mm
- comes in depths 600, 800, 900 and 1000 mm
- comes in heights 15, 18, 22, 27, 32, 37, 42 and 45 MH
- 2 depth-adjustable 19" levels (front and rear)
- Doors pre-prepared with safety glass and lever handle for semicylinder (not included), door swing 180°
- Delivery completely assembled on a disposable pallet.
- Fully pre-earthed
- Mounting materials such as cage nuts, -screws and self-levelling feet enclosed
- Colour: light grey RAL 7035, Stand: blue RAL 5005



ARROW-FUSE-ON

- Switchable D02 fuse base, single-pole up to 63 A
- No screw cap but non-loosening plug
- Operation via push-button
- Permanently installed adaptor ring insert



MOTOR CONTROLLER/SOFT STARTER

APPLICATIONS SEMICONDUCTOR CONTACTORS

Heater controls:

- soldering equipment
- Plastic processing industry
- Galvanic industry
- Photo/film developers
- Film packaging
- Rubber industry

Lighting

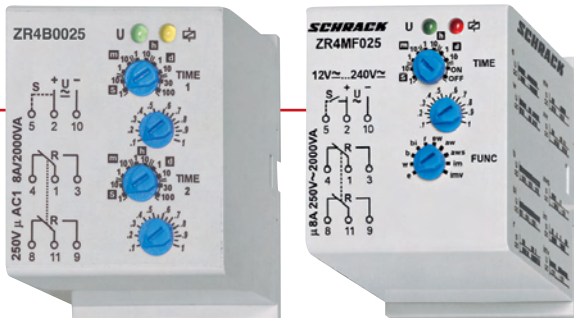
- Traffic lights
- Streetlights
- Floodlights in stadiums
- Outside factory lighting

- Power range enhanced to 45 kW
- "Soft Start and Stop" control in all 3 phases
- Warm-up current limited to 50-60%
- Reduction in mechanical shock for gears, conveyors, water pumps etc.
- Booting possible up to 60sec
- 100% switch-on duration, no restrictions on start/stop operations per hour



► PLUG-IN TIME RELAY ZR4

- Time range ZR4B0025: 0,1 s - 100 days
- Time range ZR4MF025: 0,1 s - 10 days / ON / OFF
- Variance: 5 % - mechanical setting
- Repeat accuracy: 0,2 % - stability
- Max. make current ZR4B0025: 10 A / < 3 s
- Max. make current ZR4MF025: 30 A / < 3 s
- Switch capacity ZR4B0025: 2000 VA / AC1, 192 W / DC
- Switch capacity ZR4MF025: 4000 VA / AC1, 384 W / DC
- Min switching capacity: DC 500 mW
- Load between S-A2: Yes
- Cannot connect fluorescent lamps at control contact
- Control terminals: 2-5
- Control pulse duration: min. 25 ms / max. unlimited
- Recovery time: max. 150 ms



► ACCESS CONTROL UNIT SMART ACCESS

► RANGE OF APPLICATION

- Companies
- Campsites and holiday home complexes
- Golf and yacht clubs

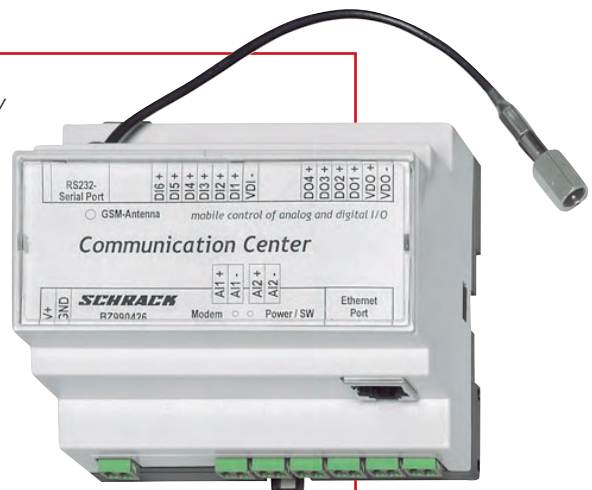


- ReadOnly (RO) terminal
- "Stand alone" device, i.e. no need for connection to PC or control unit is required.
- Customer transponders are individually programmable (cards or keyrings)
- Customer transponders can be used for several KCSA200 (doors)
- User roles possible
- Optional external antenna (KCSA.ANT) available
- Power supply either 12-24 V DC- or 12-15 V AC voltage (e.g. power supply LP7431C2)
- KCSA200 and KCSA.ANT comes as standard in flush-mounted housing, a wall-mounted enclosure (KCSA.APR) is optional for both devices.

► SCHRACK COMMUNICATION CENTER

The SCHRACK Communication Center is your ideal partner for remote monitoring and controlling your systems.

- Easily configured from your Internet browser- does not require any additional software
- Remotely configurable via a GSM modem using PPP
- Network connection and serial interface
- Integrated 900/1800 MHz GSM modem
- Low power consumption through low power support
- Monitoring via 2 analogue Pt100 and 6 digital inputs
- Ideal for remote monitoring of UR3 monitoring relay (see Relays chapter)
- Controls 4 digital outputs
- Alarms sent via email and SMS
- Compact enclosure for top-hat mounting
- Supply voltage 24 V; 0.5 A



Explanatory notes

Prices:

The indicated prices are noncommittal gross prices and do not represent a price recommendation for the retailer. They apply up to revocation excluding value added tax in terms of the "General delivery conditions for cable, sets and isolated wires".

Prices in boldface = standard or stock types

Prices in non-boldface = not standard types

Metal bases:

The listed prices are based on the following metal bases:

Copper: EUR 130,-- / 100 kg

Aluminium: EUR 100,-- / 100 kg

Lead: EUR 50,-- / 100 kg

The total sum including metals is calculated with the metal charges announced by the "Vereinigung der Kabel- und Leitungsindustrie Österreichs".

Alloy surcharge for compensating cables and extension cables: EUR / m and pair of conductors.

Surcharges for small quantities

With an order quantity up to 100 m per position a surcharge of EUR 15,-- is invoiced. From this surcharge coils in the standard version are excluded.

- Kabel und Leitungen bis 16mm² bei einer Bestellmenge unter 100 m pro Position
- Kabel und Leitungen ab 25mm² bei einer Bestellmenge unter 25 m pro Position

Mindermengenzuschlag:

Ein Mindermengenzuschlag in der Höhe von EUR 10,-- wird bei Bestellungen mit einem Bestellwert unter EUR 250,-- (vor Metallzuschlägen und Mwst.) verrechnet.

Dimensions and technical data:

Weights, dimensions and properties are only approximate. Errors are excepted in the text and illustrations, and the company reserves the right to make alterations in the technical design of its products. All former catalogues cease to be valid with this edition.

Length marking:

Cables can have a length marking (in meters) on the sheath, which is in conformity with the DIN VDE 0276. The deviation of the cable length, which is expelled by the length marking amounts up to 1 %, because this length marking is not appropriate for verification. An incomplete length marking cannot be asserted as fault.

Edition 01. 10. 2003

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		E-AY2Y	80
		E-A2Y	81
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	NYCWY		84
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	N2XSEY 6/10 KV	E-2XHCEY 6/10 KV	87
	N2XSY 10-30 KV	E-2XHCY 10-30 KV	88 / 89
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	NA2XS2Y 10-30 KV	E-A2XHC2Y 10-30 KV	90 / 91
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H07V-U (Ye)
H07V-R (Ym)

PVC Insulated Single Core Wire

according to DIN VDE 0281-3 / ÖVE - K41-3



Construction

Solid or stranded bare copper conductor, core insulation of PVC.

Application

For indoor fixed installations in dry locations in switchboards and distributors. Should be installed in surface mounted or embedded conduits, or directly on suitably insulated objects.

Temperature range

- 5°C till + 70°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction * (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H07V-U 450/750 V						
1,5	bla/blu/br	112,82	15	1 x 1,38	2,8	21
	gy	118,46	15	1 x 1,38	2,8	21
	gr/vio/wh/or/gn/ye/rd	124,09	15	1 x 1,38	2,8	21
2,5	bla/blu/br	188,53	25	1 x 1,78	3,4	34
	gy	197,96	25	1 x 1,78	3,4	34
	gr/vio/wh/or/rd	207,38	25	1 x 1,78	3,4	34
4	bla/blu	280,73	40	1 x 2,25	3,9	50
	gy/br/vio/gr	308,83	40	1 x 2,25	3,9	50
6	bla/blu/br	404,79	60	1 x 2,76	4,4	70
	gy/gr/vio	445,27	60	1 x 2,76	4,4	70
10	bla/blu	682,27	100	1 x 3,56	5,6	115
	gy/br/gr	750,50	100	1 x 3,56	5,6	115
H07V-R 450/750 V						
6	bla/blu/br/gr	553,00	60	7 x 1,05	4,6	70
	gy	608,30	60	7 x 1,05	4,6	70
10	bla/blu/br/gr	781,53	100	7 x 1,35	5,8	115
	gy	859,68	100	7 x 1,35	5,8	115
16	bla/blu	1.185,72	160	7 x 1,70	7,1	185
	gy/br/gr	1.304,29	160	7 x 1,70	7,1	185
25	bla	1.855,91	250	7 x 2,13	8,8	290
	blu/gy/br/gr	2.041,50	250	7 x 2,13	8,8	290
35	bla	2.525,98	350	7 x 2,52	10,0	390
	blu/gy/br/gr	2.778,58	350	7 x 2,52	10,0	390
50	bla	3.380,85	500	19 x 1,83	11,7	565
	blu/gy	3.718,94	500	19 x 1,83	11,7	565
70	bla	4.753,00	700	19 x 2,17	13,5	790
	blu/gy	5.228,29	700	19 x 2,17	13,5	790
95	bla	6.408,80	950	19 x 2,52	15,8	1050
	blu/gy	7.049,68	950	19 x 2,52	15,8	1050
120	bla	8.132,15	1200	37 x 2,03	17,4	1310
	gy	8.945,36	1200	37 x 2,03	17,4	1310
150	bla	9.775,24	1500	37 x 2,27	19,4	1620
	gy	10.752,76	1500	37 x 2,27	19,4	1620
185	bla	12.000,82	1850	37 x 2,52	22,0	1970
	gy	13.200,90	1850	37 x 2,52	22,0	1970
240	bla	15.617,32	2400	61 x 2,24	25,0	2550
	gy	17.179,05	2400	61 x 2,24	25,0	2550
300	bla	21.254,33	3000	61 x 2,50	27,0	3180
	gy	23.379,76	3000	61 x 2,50	27,0	3180

* data valid for the non-compacted conductor construction

Abbreviations: bla – black, blu – blue, br – brown, gy – green-yellow, rd – red, wh – white, vio – violet, or – orange, gn – green, gr – grey, lgr – light grey, ye – yellow, tra – transparent, gd – gold; l – light, d – dark

H05V-U (Yse)
H05V-K (Ysf)

PVC Insulated Single Core Wire

according to DIN VDE 0281-3 / ÖVE - K41-2



Construction

Solid or fine-stranded bare copper conductor, core insulation of PVC.

Application

For protected fixed installations inside appliances and in or on lighting fittings. However, for signal plants only it should be installed in surface mounted or embedded conduits.

Temperature range

- 5°C till + 70°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05V-U 300/500 V						
1	bla/blu/br/gr/vio/or/gn/ye/rd/gy	109,94	10,0	1 x 1,20	2,4	14
H05V-K 300/500 V						
0,5	bla/blu/dbl/br	103,29	5,0	16 x 0,21	2,2	10
	gy/gr/lgr/vio/wh/or/gn/ye/rd	105,28	5,0	16 x 0,21	2,2	10
0,75	bla/blu/dbl/br	120,36	7,5	24 x 0,21	2,4	13
	gy/gr/lgr/vio/wh/or/gn/ye/rd	131,20	7,5	24 x 0,21	2,4	13
1	bla/blu/dbl/br	138,63	10,0	32 x 0,21	2,6	16
	gy/gr/lgr/vio/wh/or/gn/ye/rd	150,96	10,0	32 x 0,21	2,6	16

H07V-K (Yf)

PVC Insulated Single Core Wire

according to DIN VDE 0281-3 / ÖVE - K41-3



Construction

Fine-stranded bare copper conductor, core insulation of PVC.

Application

For indoor fixed installations in dry locations in electrical equipment, switchboards and distributors. Should be installed in surface mounted or embedded conduits, for protected fixed installations in or on lighting fittings. Suitable for installations in machines for nominal voltages up to 1.000 V alternating current or up to 750 V to earth direct current. Cannot be used for installations under the wall surface.

Temperature range

- 5°C till + 70°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H07V-K 450/750 V						
1,5	bla/blu/hbl/dbl/br gy/gr/lgr/vio/wh/or/gn/ye/rd	182,12	15	30 x 0,26	3,1	23
		204,01	15	30 x 0,26	3,1	23
2,5	bla/blu/dbl/br gy/gr/lgr/vio/wh/or/gn/ye/rd	286,98	25	50 x 0,26	3,8	35
		305,15	25	50 x 0,26	3,8	35
4	bla/blu/dbl/br gy/gr/lgr/vio/wh/or/gn/ye/rd	439,26	40	56 x 0,31	4,4	51
		457,28	40	56 x 0,31	4,4	51
6	bla/blu/br gy/gr/lgr/vio/wh/gn/ye/rd	605,70	60	84 x 0,31	5,0	71
		623,09	60	84 x 0,31	5,0	71
10	bla/blu/br gy/gr/rd	1.147,77	100	80 x 0,41	6,4	125
		1.207,00	100	80 x 0,41	6,4	125
16	bla/blu/br gy/gr/rd	1.692,91	160	128 x 0,41	7,2	195
		1.728,12	160	128 x 0,41	7,2	195
25	bla blu/br/gy/rd	1.939,46	250	200 x 0,41	9,8	300
		2.133,41	250	200 x 0,41	9,8	300
35	bla blu/gy/rd	2.603,74	350	280 x 0,41	11,0	410
		2.864,11	350	280 x 0,41	11,0	410
50	bla blu/gy	3.945,28	500	400 x 0,41	13,5	585
		4.339,81	500	400 x 0,41	13,5	585
70	bla gy	5.738,00	700	356 x 0,51	15,5	810
		6.311,81	700	356 x 0,51	15,5	810
95	bla gy	7.688,21	950	485 x 0,51	18,0	1065
		8.457,03	950	485 x 0,51	18,0	1065
120	bla gy	9.295,43	1200	614 x 0,51	20,0	1335
		10.224,97	1200	614 x 0,51	20,0	1335
150	bla gy	11.891,96	1500	765 x 0,51	23,0	1650
		13.081,15	1500	765 x 0,51	23,0	1650
185	bla gy	14.591,31	1850	944 x 0,51	25,0	2040
		16.050,44	1850	944 x 0,51	25,0	2040
240	bla gy	18.685,43	2400	1225 x 0,51	27,0	2620
		20.553,97	2400	1225 x 0,51	27,0	2620

NYM (YM)**PVC Sheathed Wire**

according to DIN VDE 0250-204 / ÖVE - K41-4

**Construction**

Solid or stranded copper conductor, core insulation of PVC, cores are stranded, common core covering, PVC outer sheath.

Application

For installations on, in or under plastering in dry or humid locations, as well as in the open-air. Not suitable for laying directly in earth.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
NYM 300/500 V	J	O				
2 x 1,5		703,46	30	1 x 1,38	8,7	115
2 x 2,5		1.079,11	50	1 x 1,78	9,9	166
2 x 4		1.257,63	80	1 x 2,25	10,8	232
3 x 1,5	577,22	751,69	45	1 x 1,38	8,9	135
3 x 2,5	1.034,11	1.238,65	75	1 x 1,78	10,4	190
3 x 4	1.740,56	2.049,10	120	1 x 2,25	11,5	265
3 x 6	2.358,95		180	1 x 2,76	13,0	360
3 x 10 RE	3.778,67		300	1 x 3,56	16,0	570
4 x 1,5	738,22	926,25	60	1 x 1,38	9,6	160
4 x 2,5	1.426,45	1.646,01	100	1 x 1,78	11,2	230
4 x 4	1.960,73	2.255,58	160	1 x 2,25	13,2	330
4 x 6	2.469,15	2.821,89	240	1 x 2,76	14,8	490
4 x 10 RE	3.754,43	3.780,75	400	1 x 3,56	17,8	690
4 x 10 RM	4.215,61	4.202,52	400	7 x 1,35	18,0	700
4 x 16 RM	6.127,07	6.535,52	640	7 x 1,70	21,8	1080
5 x 1,5	879,48		75	1 x 1,38	10,3	190
5 x 2,5	1.574,62		125	1 x 1,78	12,1	270
5 x 4	2.340,52		200	1 x 2,25	14,7	420
5 x 6	3.704,83		300	1 x 2,76	16,1	550
5 x 10 RE	5.083,27		500	1 x 3,56	19,3	860
5 x 10 RM	5.653,74		500	7 x 1,35	20,0	880
5 x 16 RM	8.034,65		800	7 x 1,70	24,2	1340
7 x 1,5	1.961,25	2.300,06	105	1 x 1,38	11,3	240
10 x 1,5	3.332,78		150	1 x 1,38	14,7	330
12 x 1,5	3.881,70		180	1 x 1,38	16,0	365
7 x 2,5	3.256,45	3.582,18	175	1 x 1,78	14,5	324

(N)YM(St)

PVC Sheathed Wire with Screen (Bio Wire)

adapted to DIN VDE 0250-204 / ÖVE - K41-4



Construction

Solid copper conductor, core insulation of PVC, cores are stranded, common core covering, screen of plastic coated Al-tape with tinned drain wire, PVC outer sheath, grey (RAL 7035).

Application

Suitable where effective limitation of electro-magnetic interference fields is necessary, for installations in humid and wet locations, as well as in brickwork and concrete as a house wiring cable. Limited suitability for installations in open-air or in earth (only in protective conduits). Not suitable in areas with explosion hazard.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
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(N)YM(St)-J 300/500 V

3 x 1,5 / 1,5	1.414,04	53	1 x 1,38	10,5	174
4 x 1,5 / 1,5	1.689,34	68	1 x 1,38	11,5	184
5 x 1,5 / 1,5	1.883,84	83	1 x 1,38	12,0	228
7 x 1,5 / 1,5	2.562,52	113	1 x 1,38	13,0	263
3 x 2,5 / 1,5	1.784,16	83	1 x 1,78	12,0	217
4 x 2,5 / 1,5	2.187,54	108	1 x 1,78	13,0	256
5 x 2,5 / 1,5	2.386,91	133	1 x 1,78	13,5	296
5 x 4 / 1,5	3.506,33	208	1 x 2,25	16,5	439
5 x 10 / 1,5	7.208,03	508	1 x 3,56	21,5	841

(H)03VH-H (YZwL)

PVC Twin Wire

adapted to DIN VDE 0281-5 / ÖVE - K41-5



Construction

Fine-stranded bare copper conductor, cores are laid up in parallel and insulated together with PVC, one core insulation is corrugated, cores can be easily divided.

Application

Suitable in dry locations for connections of portable electrical appliances submitted to weak mechanical strength, like radio sets and lighting fittings - but not for heating devices.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
H03VH-H 300/300 V						
2 x 0,5	bla/br/wh/gr	250,70	10	30 x 0,16	2,2 x 5,0	22
2 x 0,75	bla/br/wh/gr	288,53	15	40 x 0,16	2,8 x 5,8	26

(N)YFAZ

PVC Twin Wire

adapted to DIN VDE 0250



Construction

Fine-stranded bare copper conductor, cores are laid up in parallel and insulated with PVC, divisible.

Application

Suitable in dry locations for connections of portable power consumers submitted to weak mechanical strength like light electrical hand-held equipment and in and on lighting units.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
(N)YFAZ 300/300 V						
2 x 0,5	wh	229,72	10	16 x 0,21	2,1 x 4,4	16
2 x 0,75	wh	248,94	15	24 x 0,21	2,3 x 5,0	22
2 x 1,0	wh	426,17	20	30 x 0,21	2,6 x 5,5	28
2 x 1,5	wh	603,40	30	30 x 0,26	2,8 x 6,0	37
2 x 2,5	wh	812,05	50	50 x 0,26	3,6 x 7,5	60
2 x 4	wh	1.433,16	80	56 x 0,31	4,6 x 9,5	101

Other colours on request.

LFZ-XY

PVC Twin Wire (Loudspeaker Wire)

according to Factory standard



Construction

Very fine-stranded bare copper conductor, cores are laid up in parallel and insulated with very soft PVC, cores are identified by a polarisation stripe.

Application

Suitable in dry locations for connections in communication technology, mainly for HIFI applications such as a loudspeaker connecting cable.

Temperature range

- 5°C till + 70°C

Core number nom. cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Conductor resistance Ohm/km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
LFZ-XY 300/300 V							
2 x 1,5	tra	877,62	30	23,0	189 x 0,10	3,1 x 6,5	41
2 x 2,5	tra	1.267,67	50	14,0	322 x 0,10	3,6 x 7,5	61
2 x 4,0	tra	2.067,20	80	9,0	513 x 0,10	5,0 x 10,2	104
2 x 6,0	tra	3.120,15	120	6,0	783 x 0,10	6,1 x 12,5	156
2 x 10,0	tra	5.313,93	200	3,5	1292 x 0,10	7,0 x 15,0	250

H03VV-F (YML)
A03VV-F (YML)
H03VVH2-F (YML fl.)

PVC Sheathed Wire PVC Sheathed Wire Flat

according to DIN VDE 0281-5 / ÖVE - K41-5



Construction

Fine-stranded bare copper conductor, cores are insulated and sheathed with PVC, round or flat design.

Application

Suitable in dry locations for connections of portable electrical appliances submitted to weak mechanical strength, like radio sets and lighting fittings - but not for heating devices.

Temperature range

- 5°C till + 70°C

Core number and nom. cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
H03VV-F 300/300 V						
2 x 0,5	lgr	332,60	10,0	16 x 0,21	5,0	38
3 G 0,5	lgr	408,48	15,0	16 x 0,21	5,3	44
	wh	449,32	15,0	16 x 0,21	5,3	44
4 G 0,5	lgr	616,00	20,0	16 x 0,21	5,5	46
2 x 0,75	lgr/wh/bla	377,22	15,0	24 x 0,21	5,2	48
	br	414,94	15,0	24 x 0,21	5,2	48
3 G 0,75	lgr/wh	469,22	22,5	24 x 0,21	5,5	57
	bla/br/gd	516,14	22,5	24 x 0,21	5,5	57
4 G 0,75	lgr	568,90	30,0	24 x 0,21	6,0	65
	wh/bla/br	625,79	30,0	24 x 0,21	6,0	65
A03VV-F 300/300 V						
5 G 0,75	lgr	766,56	37,5	24 x 0,21	6,8	82
	bla/wh	843,21	37,5	24 x 0,21	6,8	82
2 x 1	lgr	456,03	20,0	30 x 0,21	5,5	55
	wh/br	501,63	20,0	30 x 0,21	5,5	55
3 G 1	lgr/wh	659,17	30,0	30 x 0,21	6,0	60
	bla/br	725,09	30,0	30 x 0,21	6,0	60
4 G 1	lgr	766,19	40,0	30 x 0,21	6,5	72
	wh/bla	842,80	40,0	30 x 0,21	6,5	72
H03VVH2-F 300/300 V						
2 x 0,75	bla	306,40	15,0	24 x 0,21	4,4 x 5,6	33
	lgr/wh/br	337,07	15,0	24 x 0,21	4,4 x 5,6	33

H05VV-F (YMM)**A05VV-F (YMM)****PVC Sheathed Wire**

according to DIN VDE 0281-5 / ÖVE - K41-5

**Construction**

Fine-stranded bare copper conductor, cores are insulated with PVC and stranded, outer sheath of PVC.

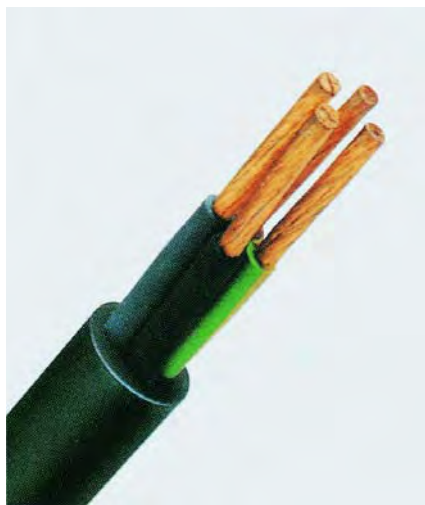
Application

Suitable in dry, humid and wet locations for connections of electrical appliances submitted to medium-level mechanical strength, like washing machines, refrigerators, etc. Suitable for heating appliances provided that there is no risk of contact with hot parts.

Temperature range

- 5°C till + 70°C

Core number and nom. cross section mm ²	Colours	Price figure EUR / km	Copper (approx. value) kg / km	Cond. construction diameter mm	Overall ca. ca. mm	Weight kg / km
H05VV-F 300/500 V						
2 x 0,75	lgr/wh/bla	475,05	15,0	24 x 0,21	6,4	58
2 x 1	lgr	521,47	20,0	30 x 0,21	6,8	67
	wh/bla	573,49	20,0	30 x 0,21	6,8	67
2 x 1,5	lgr	630,77	30,0	30 x 0,26	7,8	89
	wh/bla	700,67	30,0	30 x 0,26	7,8	89
2 x 2,5	lgr	1.054,68	50,0	50 x 0,26	9,1	134
	bla	1.171,72	50,0	50 x 0,26	9,1	134
3 G 0,75	lgr	563,96	22,5	24 x 0,21	7,0	64
	bla	910,33	22,5	24 x 0,21	7,0	64
3 G 1	lgr/wh	616,36	30,0	30 x 0,21	7,2	80
	bla/br	678,00	30,0	30 x 0,21	7,2	80
3 G 1,5	lgr	739,05	45,0	30 x 0,26	8,0	120
	wh/bla/br	813,47	45,0	30 x 0,26	8,0	120
3 G 2,5	lgr	1.265,80	75,0	50 x 0,26	9,7	175
	bla	1.392,17	75,0	50 x 0,26	9,7	175
4 G 0,75	lgr/wh/bla	835,36	30,0	24 x 0,21	7,4	79
4 G 1	lgr	863,74	40,0	30 x 0,21	7,8	94
	wh/bla	949,88	40,0	30 x 0,21	7,8	94
4 G 1,5	lgr	934,20	60,0	30 x 0,26	9,2	130
	wh/bla	1.037,09	60,0	30 x 0,26	9,2	130
4 G 2,5	lgr	1.610,12	100,0	50 x 0,26	11,0	200
	bla	1.770,39	100,0	50 x 0,26	11,0	200
4 G 4	lgr	2483,95	160,0	56 x 0,31	12,5	280
5 G 0,75	lgr/wh/bla	1.007,89	37,5	24 x 0,21	8,3	100
5 G 1	lgr	1.007,54	50,0	30 x 0,21	8,6	120
	wh/bla	1.108,17	50,0	30 x 0,21	8,6	120
5 G 1,5	lgr	1.134,38	75,0	30 x 0,26	10,5	170
	wh/bla	1.247,32	75,0	30 x 0,26	10,5	170
5 G 2,5	lgr	1.932,36	125,0	50 x 0,26	12,5	250
	wh/bla	2.124,76	125,0	50 x 0,26	12,5	250
5 G 4	lgr	3.445,28	200,0	56 x 0,31	14,0	350
A05VV-F 300/500 V						
7 G 1	lgr	1.686,78	70,0	30 x 0,21	9,0	150
7 G 1,5	lgr/bla	1.943,25	105,0	30 x 0,26	10,4	196
7 G 2,5	lgr	2.910,42	175,0	50 x 0,26	13,1	315
10 G 1,5	lgr	2.781,73	150,0	30 x 0,26	14,0	305
5 G 6	lgr	5.275,53	300,0	84 x 0,31	16,5	480

**Construction**

Fine-stranded bare copper conductor, cores are insulated with PVC and stranded, reinforced outer sheath of PVC, black or light grey (RAL 7035).

Application

For strong mechanical stress in dry and humid locations as well as outdoors.

Temperature range

- 5°C till + 70°C

Core number and nom. cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
YMS 450/750 V		J	O			
2 x 1,5	bla		1.081,48	30	30 x 0,26	109
3 x 1,5	bla	1.335,33	1.468,81	45	30 x 0,26	150
3 x 2,5	bla	1.703,24	1.873,39	75	50 x 0,26	210
4 x 1,5	bla	1.560,65	1.716,54	60	30 x 0,26	180
4 x 2,5	bla	2.101,63	2.311,57	100	50 x 0,26	250
4 x 4	bla	3.157,73	3.473,58	160	56 x 0,31	350
4 x 6	bla	4.475,37	4.922,81	240	84 x 0,31	470
4 x 10	bla	6.712,90	7.384,11	400	80 x 0,41	750
4 x 16	bla	9.817,52	10.799,29	640	128 x 0,41	1150
5 x 1,5	bla	2.000,25	2.200,22	75	30 x 0,26	210
5 x 2,5	bla	2.850,62	3.135,53	125	50 x 0,26	300
5 x 4	bla/lgr	4.106,98	4.517,68	200	56 x 0,31	430
5 x 6	bla/lgr	5.362,52	5.898,72	300	84 x 0,31	580
5 x 10	bla/lgr	9.385,02	10.323,41	500	80 x 0,41	900
5 x 16	bla	13.413,02	14.754,32	800	128 x 0,41	1340

H05RR-F (GML)

Rubber Sheathed Cable for Weak Mechanical Stress

according to DIN VDE 0282-4 / ÖVE - K40-4



Construction

Fine-stranded tinned or bare copper conductor, core insulation of rubber, cores are stranded, outer sheath of ordinary ethylene propylene rubber (NR), black.

Application

For general use in dry locations for connections of electrical apparatus submitted to weak mechanical strength, like vacuum cleaner, kitchen appliance, etc. Unsuitable for industrial and agricultural use.

Temperature range

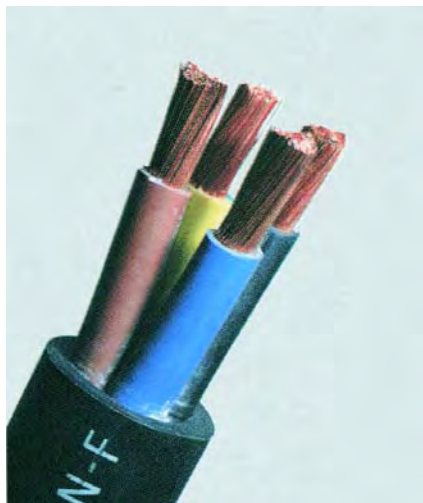
- 20°C till + 60°C

Core number and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05RR-F 300/500 V					
2 x 0,75	733,48	15,0	24 x 0,21	6,2	61
2 x 1	906,98	20,0	32 x 0,21	6,8	73
2 x 1,5	1.041,06	30,0	30 x 0,26	8,2	115
2 x 2,5	1.766,79	50,0	50 x 0,26	9,5	160
H05RR-F 300/500 V					
3 G 0,75	918,51	22,5	24 x 0,21	6,8	75
3 G 1	1.114,08	30,0	32 x 0,21	7,2	86
3 G 1,5	1.344,25	45,0	30 x 0,26	8,7	135
3 G 2,5	2.006,17	75,0	50 x 0,26	10,4	190
4 G 0,75	1.293,93	30,0	24 x 0,21	7,4	91
4 G 1	1.529,95	40,0	32 x 0,21	7,9	105
4 G 1,5	1.748,51	60,0	30 x 0,26	9,7	165
4 G 2,5	2.530,96	100,0	50 x 0,26	11,6	235
5 G 0,75	1.592,24	37,5	24 x 0,21	9,5	100
5 G 1,5	2.158,49	75,0	30 x 0,26	10,6	190
5 G 2,5	3.126,66	125,0	50 x 0,26	12,9	285

H07RN-F (GMSuö)
A07RN-F (GMSuö)

Rubber Sheathed Cable for Medium-Level Mechanical Stress

according to DIN VDE 0282-4 / ÖVE - K40-4



Construction

Fine-stranded tinned or bare copper conductor, EPR rubber insulation, cores are stranded for the multicore types, outer sheath of polychloroprene compound (EM2), black, abrasion and oil resistant, flame retardant.

Application

For general use in dry, humid and wet locations, for outdoor use, for agricultural applications or in locations subject to fire and explosion hazards. Also suitable for connections of industrial and workshop electrical equipment submitted to medium-level mechanical stress.

Can be used for fixed installations in temporary buildings as well as for connections of mobile machines and hoists.

Temperature range

In motion - 25°C till + 60°C

For fixed installation - 40°C till + 60°C

Number of cores and nominal cross section	Price	Copper figure	Cond. construction (approx. value)	Overall diameter		Weight
mm²	EUR / km	kg / km	mm	min. value	max. value	ca. kg / km
H07RN-F 450/750 V						
1 x 1,5	756,60	15	30 x 0,26	5,8	7,2	59
1 x 2,5	1.050,54	25	50 x 0,26	6,4	8,0	72
1 x 4	1.304,20	40	56 x 0,31	7,4	9,0	99
1 x 6	1.603,82	60	84 x 0,31	8,0	11,0	130
1 x 10	2.640,29	100	80 x 0,41	9,8	12,5	230
1 x 16	3.607,80	160	128 x 0,41	11,0	14,5	320
1 x 25	5.191,82	250	200 x 0,41	12,5	16,5	450
1 x 35	6.939,11	350	280 x 0,41	14,0	18,5	605
1 x 50	9.458,99	500	400 x 0,41	16,5	21,0	825
1 x 70	13.218,04	700	356 x 0,51	18,5	23,5	1090
1 x 95	17.054,51	950	485 x 0,51	21,0	26,0	1405
1 x 120	20.319,46	1200	614 x 0,51	23,5	28,5	1745
1 x 150	25.437,99	1500	765 x 0,51	26,0	31,5	2130
1 x 185	31.775,00	1850	944 x 0,51	27,5	34,5	2420
1 x 240	41.180,57	2400	1225 x 0,51	30,5	38,0	2980
2 x 1,5	1.744,17	30	30 x 0,26	9,0	11,5	135
2 x 2,5	2.487,58	50	50 x 0,26	10,5	13,5	195
2 x 4	3.588,85	80	56 x 0,31	12,0	15,0	270
2 x 6	4.604,62	120	84 x 0,31	13,5	18,5	350
3 G 1	1.579,46	30	32 x 0,21	8,6	11,5	130
3 G 1,5	1.878,18	45	30 x 0,26	9,6	12,5	165
3 G 2,5	2.704,70	75	50 x 0,26	11,5	14,5	235
3 G 4	3.767,62	120	56 x 0,31	13,0	16,0	320
3 G 6	4.980,90	180	84 x 0,31	14,5	20,0	495
3 G 10	8.605,38	300	80 x 0,41	20,0	25,5	880

Number of cores and nominal cross section	Price	Copper figure	Cond. construction (approx. value)	Overall diameter		Weight
				min. value	max. value	
mm ²	EUR / km	kg / km	mm	ca. mm		ca. kg / km
H07RN-F 450/750 V						
4 G 1,5	2.348,04	60	30 x 0,26	10,5	13,5	200
4 G 2,5	3.320,52	100	50 x 0,26	12,5	15,5	290
4 G 4	4.733,32	160	56 x 0,31	14,5	18,0	395
4 G 6	6.424,75	240	84 x 0,31	16,5	22,0	610
4 G 10	9.211,81	400	80 x 0,41	21,5	28,0	1060
4 G 16	13.282,56	640	128 x 0,41	24,5	32,0	1345
4 G 25	20.056,56	1000	200 x 0,41	29,5	37,5	1995
4 G 35	26.963,30	1400	280 x 0,41	33,0	42,0	2645
4 G 50	36.493,11	2000	400 x 0,41	38,0	48,5	3635
4 G 70	51.633,06	2800	356 x 0,51	43,0	54,5	4830
4 G 95	68.478,57	3800	485 x 0,51	49,0	60,5	6320
4 G 120	87.538,57	4800	614 x 0,51	53,0	65,5	7500
4 G 150	120.180,65	6000	765 x 0,51	58,5	74,0	9230
5 G 1,5	2.951,66	75	30 x 0,26	11,5	15,0	240
5 G 2,5	4.316,73	125	50 x 0,26	13,5	17,0	345
5 G 4	6.133,97	200	56 x 0,31	16,0	19,5	485
5 G 6	7.786,73	300	84 x 0,31	18,0	24,5	760
5 G 10	13.467,19	500	80 x 0,41	24,0	30,5	1300
5 G 16	17.533,16	800	128 x 0,41	27,0	35,5	1680
5 G 25	30.327,44	1250	200 x 0,41	32,5	41,5	2470
5 G 35	39.748,62	1750	280 x 0,41	37,0	50,0	3008
5 G 50	59.039,24	2500	400 x 0,41	42,5	58,0	4390
7 G 1,5	6.039,56	105	30 x 0,26	14,0	17,0	342
9 G 1,5	9.010,98	135	30 x 0,26	16,0	18,5	428
12 G 1,5	9.961,91	180	30 x 0,26	18,0	20,5	505
19 G 1,5	15.744,39	285	30 x 0,26	21,5	24,0	620
24 G 1,5	19.580,64	360	30 x 0,26	25,0	28,0	750
27 G 1,5	21.361,98	405	30 x 0,26	25,5	28,5	1077
7 G 2,5	7.918,09	175	50 x 0,26	16,0	19,0	485
12 G 2,5	14.847,39	300	50 x 0,26	21,0	24,0	799
19 G 2,5	21.048,32	475	50 x 0,26	25,0	29,0	1100
24 G 2,5	30.078,85	600	50 x 0,26	29,5	32,5	1250
7 G 4	14.557,89	280	56 x 0,31	19,0	21,5	703
12 G 4	21.508,62	480	56 x 0,31	25,0	28,0	1020
A07RN-F 450/750 V						
3 x 1,5	2.751,73	45	30 x 0,26	9,6	12,5	165
3 x 2,5	3.091,28	75	50 x 0,26	11,5	14,5	235
3 x 4	4.553,17	120	56 x 0,31	13,0	16,0	320
3 x 6	6.034,28	180	84 x 0,31	14,5	20,0	495
3 x 10	10.425,24	300	80 x 0,41	20,0	25,5	880
3 x 16	13.031,50	480	128 x 0,41	22,5	29,5	1090
3 x 25	18.879,26	750	200 x 0,41	26,5	34,0	1585
3 x 35	25.372,98	1050	280 x 0,41	29,5	38,0	2090
3 x 50	35.022,78	1500	400 x 0,41	34,5	44,0	2875
3 x 70	46.175,94	2100	356 x 0,51	39,0	49,5	3790
3 x 95	68.614,78	2850	485 x 0,51	44,4	54,0	4935
4 x 10	12.705,55	400	80 x 0,41	21,5	28,0	1060
4 x 16	16.828,88	640	128 x 0,41	24,5	32,0	1345
4 x 25	25.546,10	1000	200 x 0,41	29,5	37,5	1995
4 x 35	32.580,04	1400	280 x 0,41	33,0	42,0	2645
4 x 50	43.533,18	2000	400 x 0,41	38,0	48,5	3635
4 x 70	63.929,09	2800	356 x 0,51	43,0	54,5	4830
4 x 95	80.582,26	3800	485 x 0,51	49,0	60,5	6320

Rubber Sheathed Cable for High Mechanical Stress

according to DIN VDE 0250-812 / ÖVE - K40-54



Construction

Fine-stranded tinned copper conductor, EPR rubber insulation, cores are stranded for the more-core types and are layered for the multicore types, the protective conductor is placed into the outside layer, rubber inner sheath, outer sheath of polychloroprene (CR), yellow, abrasion and oil resistant, flame retardant.

Application

These cables are suitable for extreme mechanical stress in dry and humid locations for connections of heavy equipment. For mines and industrial use.

Temperature range

In motion - 25°C till + 80°C
For fixed installation - 40°C till + 80°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
NSSHöu-O 0,6/1 KV					
1 x 16	5.114,91	160	128 x 0,41	12	260
1 x 25	7.770,45	250	200 x 0,41	14	390
1 x 35	9.664,01	350	280 x 0,41	16	500
1 x 50	12.679,23	500	400 x 0,41	18	680
1 x 70	16.380,54	700	356 x 0,51	20	910
1 x 95	20.891,48	950	485 x 0,51	22	1160
1 x 120	25.733,72	1200	614 x 0,51	24	1460
1 x 150	33.053,08	1500	765 x 0,51	28	1850
1 x 185	39.021,59	1850	944 x 0,51	30	2280
1 x 240	53.059,19	2400	1225 x 0,51	33	2940
2 x 1,5	3.464,21	30	30 x 0,26	12	190
3 x 2,5	4.969,55	75	50 x 0,26	14	280
NSSHöu-J 0,6/1 KV					
3 x 1,5	3.982,08	45	30 x 0,26	13	220
3 x 2,5	4.969,55	75	50 x 0,26	14	280
4 x 1,5	4.525,97	60	30 x 0,26	13	250
4 x 2,5	6.192,28	100	50 x 0,26	16	380
4 x 4	8.292,29	160	56 x 0,31	18	500
4 x 6	10.645,99	240	84 x 0,31	19	610
4 x 10	15.180,05	400	80 x 0,41	23	950
4 x 16	20.951,79	640	128 x 0,41	28	1420
4 x 25	30.743,12	1000	200 x 0,41	34	2120
4 x 35	41.158,39	1400	280 x 0,41	37	2660
4 x 50	55.907,46	2000	400 x 0,41	44	3700
4 x 70	76.042,60	2800	356 x 0,51	47	4605
4 x 95	87.795,15	3800	485 x 0,51	54	6220
4 x 120	104.253,61	4800	614 x 0,51	60	7705
3 x 70 / 35	62.602,17	2450	356 x 0,51	48	4530
3 x 95 / 50	82.305,37	3350	485 x 0,51	55	6010

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
NSSHöu-J 0,6/1 KV					
5 x 1,5	5.535,28	75	30 x 0,26	14	300
7 x 1,5	9.383,33	105	30 x 0,26	18	466
10 x 1,5	12.670,34	150	30 x 0,26	21	584
5 x 2,5	7.266,58	125	50 x 0,26	17	440
7 x 2,5	9.751,97	175	50 x 0,26	18	500
10 x 2,5	14.493,62	250	50 x 0,26	22	715
12 x 2,5	15.559,37	300	50 x 0,26	24	810
18 x 2,5	22.949,06	450	50 x 0,26	29	1160
5 x 4	10.518,57	200	56 x 0,31	19	590
5 x 6	14.387,88	300	84 x 0,31	21	770
5 x 10	21.080,65	500	80 x 0,41	25	1130
5 x 16	28.255,79	800	128 x 0,41	31	1680
5 x 25	41.619,84	1250	200 x 0,41	37	2460

A07RN-R (GWuö / DSTL)**Rubber Insulated Single Core Cable****(House Pole Cable)**

according to ÖVE - K40

**Construction**

Stranded tinned copper conductor, EPR rubber insulation, outer sheath of polychloroprene (CR), black or blue, abrasion and oil resistant, flame retardant.

Application

In dry and wet locations as well as outdoors for fixed installations. Suitable for span widths up to 20 m as a house lead-in cable, also for appliances within easy reach.

Temperature range

- 20°C till + 80°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
A07RN-R 1 KV						
10 RM	bla	1.684,69	100	7 x 1,35	9,0	140
	blu	1.853,06	100	7 x 1,35	9,0	140
16 RM	bla	2.450,20	160	7 x 1,70	11,5	240
	blu	2.695,14	160	7 x 1,70	11,5	240
25 RM	bla	3.526,52	250	7 x 2,13	13,0	350
	blu	3.879,25	250	7 x 2,13	13,0	350
35 RM	bla	4.918,43	350	7 x 2,52	14,5	450
	blu	5.410,15	350	7 x 2,52	14,5	450
50 RM	bla	7.104,56	500	19 x 1,83	16,5	610
	blu	7.814,99	500	19 x 1,83	16,5	610
70 RM	bla	9.726,59	700	19 x 2,17	18,5	860

NSGAFöu (GHuöf)

Special Rubber Single Core Cable

according to DIN VDE 0250-602 / ÖVE - K40-52



Construction

Fine-stranded tinned copper conductor, EPR rubber insulation, outer sheath of polychloroprene, black, abrasion and oil resistant, flame retardant.

Application

This cable is suitable for track-bound vehicles and trackless trolley buses as well as for installations in dry locations, in switchboards and distributors up to 1.000 V as a short circuit and earth fault proof cable.

Temperature range

- 25°C till + 80°C

Admissible conductor temperature + 90°C

nominal cross section	Price	Copper figure	Cond. construction	Overall diameter	Weight
mm ²	EUR / km	kg / km	(approx. value) mm	ca. mm	ca. kg / km
NSGAFöu 1,8/3 KV					
1,5	1.101,40	15	30 x 0,26	6,1	60
2,5	1.315,03	25	50 x 0,26	6,6	75
4	1.692,93	40	56 x 0,31	7,0	90
6	1.984,11	60	84 x 0,31	7,5	120
10	3.089,53	100	80 x 0,41	9,9	180
16	4.234,97	160	126 x 0,41	10,9	250
25	5.874,60	250	196 x 0,41	13,1	380
35	7.569,07	350	276 x 0,41	15,0	480
50	10.122,51	500	396 x 0,41	16,0	620
70	13.142,71	700	360 x 0,51	18,0	870
95	16.745,11	950	475 x 0,51	20,3	1180
120	20.199,94	1200	608 x 0,51	22,5	1420
150	24.278,70	1500	756 x 0,51	25,0	1750
185	29.265,44	1850	925 x 0,51	27,5	2150
240	37.099,64	2400	1221 x 0,51	32,1	2800
300	45.489,89	3000	1530 x 0,51	34,0	3090

NSGAFöu 0,6/1 KV

price and delivery time as well as technical details on request

NSGAFöu 3,6/6 KV

price and delivery time as well as technical details on request

H01N2-D (GSfföu) H01N2-E

Welding Cable

according to DIN VDE 0282-6 / ÖVE - K40-6



Construction

Fine-stranded tinned or bare copper conductor, separator tape, outer sheath of polychloroprene (EM5), black, oil resistant and flame retardant.

H01N2-D: cable with normal flexibility

H01N2-E: cable with extreme high flexibility

Application

These cables are used in dry, humid and wet locations, as well as outdoors for machine and hand-welding equipment.

Temperature range

In motion - 25°C till + 80°C

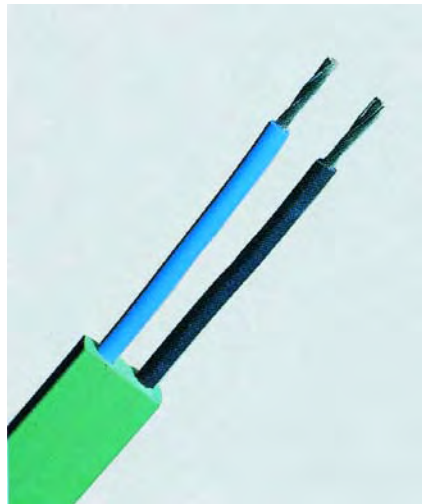
For fixed installation - 40°C till + 80°C

nominal cross section	Price	Copper figure	Wire diameter	Insulation thickness	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. mm	ca. kg / km
H01N2-D 100/100 V						
10	3.585,43	100	0,21	2,0	8,5	150
16	4.054,85	160	0,21	2,0	9,5	210
25	5.431,91	250	0,21	2,0	11,0	300
35	6.877,19	350	0,21	2,0	12,0	400
50	8.932,68	500	0,21	2,0	14,0	560
70	11.325,19	700	0,21	2,4	16,5	780
95	14.770,00	950	0,21	2,6	18,5	1010
120	17.704,51	1200	0,51	2,8	20,0	1250
150	22.868,38	1500	0,51	3,0	22,5	1570
H01N2-E 100/100 V						
16	4.460,34	160	0,16	1,2	8,0	180
25	5.975,11	250	0,16	1,2	9,5	270
35	7.564,87	350	0,16	1,2	10,5	370
50	10.897,93	500	0,16	1,5	12,5	530
70	13.816,68	700	0,16	1,5	14,5	710
95	18.019,52	950	0,16	1,8	16,5	960
120	21.599,46	1200	0,21	1,8	18,5	1180

H05RNH2-F

Illumination Flat Cable

according to DIN VDE 0282



Construction

Fine-stranded tinned copper conductor according to VDE 0295, ordinary ethylene propylene rubber (NR) or styrene-butadiene rubber (SBR) insulation, outer sheath of polychloroprene (CR), green, oil resistant and flame retardant.

Application

This cable is used in dry, humid and wet locations, as well as outdoors as a clamping cable for standardised lamp holders for the illumination of spaces and gardens.

Temperature range

In motion - 25°C till + 60°C
For fixed installation - 40°C till + 60°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
H05RNH2-F 300/500 V					
2 x 1,5	1.724,00	30	30 x 0,26	5,2 x 13,2	135



Construction

Fine-stranded tinned copper conductor according to VDE 0295, insulation of a rubber compound (GI1), core marking according to DIN VDE 0293. Cores are narrowly stranded and layered around a pilot core made of plastic or yarn threads, which are extruded with rubber. For the 4 and 5-core types the interstices of the cable are filled with yarn threads. Each layer is wrapped, inner sheath of rubber (5GM2). To protect the cable from torsion an open plaiting out of plastic threads is embedded in the outer sheath, rubber (5GM2) outer sheath, black, oil resistant and flame retardant.

Application

It is to be used in dry and humid locations as well as in the open-air for frequent reeling processes and when the cable is exposed to heavy tensile and torsion load as well as to forced bending as in the case of piped vehicles, line chains, drums or other mechanical equipment. Travel speed up to 120 m / min.

Temperature range

In motion - 35°C till + 80°C
For fixed installation - 45°C till + 80°C
Admissible conductor temperature + 90°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
NSHTöu(K)-J 0,6/1 KV					
4 x 1,5	6.284,89	60	44 x 0,21	15,0	290
5 x 1,5	7.505,05	75	44 x 0,21	17,5	320
7 x 1,5	10.320,54	105	44 x 0,21	20,5	460
12 x 1,5	13.400,65	180	44 x 0,21	23,5	820
18 x 1,5	19.017,47	270	44 x 0,21	27,5	980
24 x 1,5	24.057,95	360	44 x 0,21	31,0	1230
30 x 1,5	27.875,95	450	44 x 0,21	33,5	1500
4 x 2,5	8.873,72	100	73 x 0,21	18,0	385
5 x 2,5	10.953,97	125	73 x 0,21	20,5	460
7 x 2,5	13.492,16	175	73 x 0,21	22,5	600
12 x 2,5	20.218,19	300	73 x 0,21	27,5	1050
18 x 2,5	27.771,81	450	73 x 0,21	30,5	1360
24 x 2,5	36.963,47	600	73 x 0,21	33,5	1600
30 x 2,5	39.874,08	750	73 x 0,21	37,0	2110
25 x 1,5 + 5 x 1,5 C	41.181,01	566	44 x 0,21	40,0	2140
19 x 2,5 + 5 x 1,5 C	34.942,94	689	73 x 0,21	37,0	1940
4 x 4	11.836,09	160	75 x 0,26	21,0	520
4 x 6	14.805,73	240	119 x 0,26	23,5	660
4 x 10	19.835,07	400	196 x 0,26	28,5	970
4 x 16	25.485,58	640	210 x 0,31	31,0	1350
4 x 25	35.632,00	1000	336 x 0,31	36,5	1970
4 x 35	46.300,02	1400	475 x 0,31	41,5	2440
4 x 50	61.332,75	2000	684 x 0,31	48,0	3390
4 x 70	79.813,28	2800	551 x 0,41	52,5	4620
4 x 95	101.736,40	3800	722 x 0,41	60,0	6100
5 x 4	13.115,70	200	75 x 0,26	22,5	620
5 x 6	16.783,06	300	119 x 0,26	26,0	790
5 x 10	22.123,16	500	196 x 0,26	30,5	1210
5 x 16	27.570,45	800	210 x 0,31	34,5	1860

NSHTöu CORDAFLEX (SMK)

Rubber Sheathed Cable for Reeling Purposes

Crane Cable

according to DIN VDE 0250-814



Construction

Fine-stranded tinned copper conductor, PROTOLON insulated cores, stranding with short twists, inner sheath of a special compound PCP, anti-torsion braid made of polyester threads, in a vulcanised bond between the inner and outer sheath, outer sheath of wear- and tear-resistant PCP compound, yellow, oil-, weather- and water resistant.

Application

It is to be used as a connection cable for reeling purposes for very high mechanical loads on movable appliances, mobile line carriers, and piped vehicles as well as for vertical drum operation. It is also applicable for the scope of DIN VDE 0168 and 0118, for underground and open-cast mines.

Temperature range

In motion - 35°C till + 60°C

For fixed installation - 50°C till + 80°C

Admissible conductor temperature + 90°C

Number of cores and nominal cross section		Price	Copper figure	Cond. construction (approx. value)	Overall diameter min. max.		Weight
					value value		
mm²		EUR / km	kg / km	mm	ca. mm		ca. kg / km
NSHTöu-J 0,6/1 KV							
CORDAFLEX (SMK)							
5 x	1,5	10.198,45	75	50 x 0,21	13,0	14,6	280
7 x	1,5	14.229,52	105	50 x 0,21	15,2	17,2	385
12 x	1,5	18.353,88	180	50 x 0,21	21,4	23,4	710
24 x	1,5	32.204,65	360	50 x 0,21	23,8	26,8	990
4 x	2,5	12.398,14	100	80 x 0,21	13,2	14,8	305
7 x	2,5	18.723,40	175	80 x 0,21	16,6	18,6	510
12 x	2,5	27.224,02	300	80 x 0,21	23,4	25,4	920
18 x	2,5	36.853,02	450	80 x 0,21	23,3	25,3	1005
24 x	2,5	50.048,17	600	80 x 0,21	26,2	29,2	1320
30 x	2,5	53.020,78	750	80 x 0,21	29,4	32,4	1660
19 x	2,5 + 5 x 1 (C)	53.805,03	657	80 x 0,21	26,2	29,2	1290
25 x	2,5 + 5 x 1 (C)	62.411,39	812	80 x 0,21	29,4	32,4	1620
4 x	4	15.335,99	160	80 x 0,26	16,0	18,0	455
4 x	6	17.950,55	240	120 x 0,26	17,4	19,4	575
4 x	10	25.440,18	400	210 x 0,26	21,6	23,6	905
4 x	16	32.216,05	640	230 x 0,31	23,7	26,7	1240
4 x	25	48.430,46	1000	360 x 0,31	28,5	31,5	1850
3 x	35 + 3 x 16 / 3	62.627,06	1210	510 x 0,31	28,5	31,5	2160
3 x	50 + 3 x 25 / 3	84.254,79	1750	530 x 0,36	34,4	37,4	2850
3 x	70 + 3 x 35 / 3	109.448,71	2450	730 x 0,36	39,7	42,7	3920
3 x	95 + 3 x 50 / 3	146.526,57	3350	780 x 0,41	44,3	47,3	5020
3 x	120 + 3 x 70 / 3	159.955,30	4300	1000 x 0,41	51,0	55,0	6630

Rubber Control Cable with Supporting Element for Medium-Level Mechanical Loads

adapted to DIN VDE 0250



Construction

Fine-stranded bare copper conductor, core insulation of a rubber compound (GM), core marking according to DIN VDE 0293 tab. 1, cores are narrowly stranded and layered around a supporting element made of a bandaged cord serving as a stress relieving element, each layer is wrapped, outer sheath of rubber (5GM1), black, oil resistant and flame retardant.

Application

It is to be used in dry, humid and wet locations as well as in the open-air as a flexible power and control cable for medium-level mechanical loads. This cable is suitable for connecting movable parts of machine tools, material handling equipment and large machines.

Temperature range

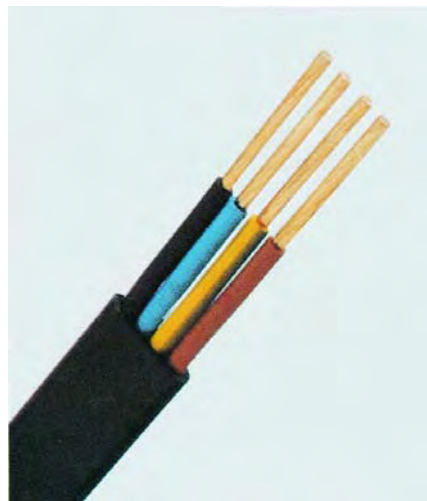
In motion - 25°C till + 60°C
For fixed installation - 40°C till + 60°C
Admissible conductor temperature + 90°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
FLGöu-J 300/500 V					
7 x 1,0	4.398,57	70	56 x 0,16	13,5	230
12 x 1,0	7.483,15	120	56 x 0,16	19,5	390
18 x 1,0	10.015,10	180	56 x 0,16	20,0	475
24 x 1,0	12.582,46	240	56 x 0,16	22,5	650
30 x 1,0	14.951,83	300	56 x 0,16	25,0	850
36 x 1,0	17.506,50	360	56 x 0,16	27,0	940
48 x 1,0	22.297,55	480	56 x 0,16	30,0	1210
61 x 1,0	28.736,80	610	56 x 0,16	34,0	1530
4 x 1,5	4.215,14	60	84 x 0,16	11,8	220
5 x 1,5	4.416,93	75	84 x 0,16	12,0	230
7 x 1,5	4.926,87	105	84 x 0,16	13,5	270
9 x 1,5	5.963,49	135	84 x 0,16	16,5	410
12 x 1,5	8.523,90	180	84 x 0,16	21,0	510
18 x 1,5	11.002,02	270	84 x 0,16	22,0	630
24 x 1,5	14.610,44	360	84 x 0,16	25,0	820
4 x 2,5	5.353,06	100	140 x 0,16	12,5	309
7 x 2,5	6.518,55	175	140 x 0,16	17,5	380
8 x 2,5	7.531,01	200	140 x 0,16	18,0	460
12 x 2,5	11.496,20	300	140 x 0,16	22,5	710
18 x 2,5	15.274,88	450	140 x 0,16	24,0	880
24 x 2,5	28.863,72	600	140 x 0,16	29,0	1200

NGFLGöu

Rubber Flat Cable for Medium-Level Mechanical Loads

according to DIN VDE 0250



Construction

Bare copper conductor, very fine-stranded up to 25 mm² and fine-stranded between 35 mm² and 120 mm² according to DIN VDE 0295, core insulation of a rubber compound (3GI3), core marking according to DIN VDE 0293 tab. 1, cores are laid up in parallel, groups of 2-4 cores are separated by a web, outer sheath of a rubber compound 5GM3, black, oil-resistant and flame retardant.

Application

It is to be used in dry, humid and wet locations as well as in the open-air as a flexible power and control cable for medium-level mechanical loads. This cable is suitable for connecting movable parts of machine tools, material handling equipment and large machines provided it is exposed to bending in only one plane.

Temperature range

In motion - 20°C till + 85°C
For fixed installation - 40°C till + 85°C
Admissible conductor temperature + 90°C

Number of cores and nominal cross section	Price	Copper figure	Cond. construction (approx. value)	Overall diameter		Weight
				min. value	max. value	
mm²	EUR / km	kg / km	mm	ca. mm		ca. kg / km
NGFLGöu-J 300/500 V						
4 x 1,5	2.895,98	60	84 x 0,16	5,4 x 15,0	6,4 x 18,5	155
5 x 1,5	3.725,48	75	84 x 0,16	5,4 x 19,5	6,4 x 23,0	190
7 x 1,5	4.949,75	105	84 x 0,16	5,4 x 25,0	6,4 x 30,0	265
8 x 1,5	5.958,57	120	84 x 0,16	5,4 x 27,5	6,4 x 32,0	295
10 x 1,5	7.304,82	150	84 x 0,16	6,0 x 35,5	7,0 x 41,5	405
12 x 1,5	8.943,95	180	84 x 0,16	6,0 x 42,0	7,0 x 48,5	480
24 x 1,5	22.744,28	360	84 x 0,16	11,5 x 51,0	13,5 x 56,0	1010
4 x 2,5	3.904,64	100	140 x 0,16	6,6 x 18,5	8,2 x 24,0	255
5 x 2,5	4.852,33	125	140 x 0,16	6,6 x 24,0	8,2 x 29,0	410
7 x 2,5	6.507,56	175	140 x 0,16	6,6 x 31,0	8,2 x 39,5	440
8 x 2,5	7.593,66	200	140 x 0,16	6,6 x 33,5	8,2 x 42,5	495
12 x 2,5	11.213,41	300	140 x 0,16	7,2 x 50,5	8,8 x 63,5	790
24 x 2,5	28.633,41	600	140 x 0,16	15,0 x 66,0	17,0 x 72,5	1690
4 x 4	5.812,25	160	224 x 0,16	7,9 x 22,5	9,6 x 28,0	380
4 x 6	7.679,11	240	192 x 0,21	8,5 x 24,5	10,4 x 31,0	490
4 x 10	10.469,11	400	320 x 0,21	9,9 x 30,0	12,1 x 38,0	750
4 x 16	16.440,04	640	512 x 0,21	11,5 x 35,0	14,0 x 44,0	1080
4 x 25	23.805,40	1000	800 x 0,21	13,1 x 41,5	15,7 x 51,0	1590
4 x 35	30.459,54	1400	280 x 0,41	14,8 x 47,0	18,0 x 58,5	2110
4 x 50	43.759,61	2000	400 x 0,41	17,2 x 55,0	21,0 x 69,0	2950
4 x 70	57.637,07	2800	356 x 0,51	19,5 x 62,5	23,7 x 78,0	4020
4 x 95	83.883,16	3800	485 x 0,51	22,0 x 71,0	26,9 x 89,0	5210
5 x 4	8.309,27	200	224 x 0,16	8,0 x 30,0	10,0 x 34,0	641
5 x 6	9.684,05	300	192 x 0,21	8,5 x 33,0	11,0 x 36,0	820
5 x 16	22.516,39	800	512 x 0,21	11,0 x 48,0	14,5 x 52,0	1580
5 x 25	31.301,58	1250	800 x 0,21	12,5 x 57,5	17,5 x 62,0	2390
7 x 4	10.745,51	280	224 x 0,16	7,9 x 37,0	9,6 x 46,5	655
7 x 6	15.984,42	420	192 x 0,21	8,5 x 41,0	10,4 x 51,5	840
7 x 10	24.222,47	700	320 x 0,21	9,9 x 50,5	12,1 x 63,5	1350

H07VVH6-F

PVC Flat Cable for Low and Medium-Level Mechanical Stresses

according to DIN VDE 0281



Construction

Fine-stranded bare copper conductor, core insulation of PVC, core marking according to DIN VDE 0293 tab. 1, cores are laid up in parallel, for types with more than 5 cores the cores are grouped and the groups are separated by a web, outer sheath of soft PVC, black.

Application

It is to be used in dry and humid locations but not in the open-air for low and medium-level mechanical loads. This cable is suitable for connecting movable parts of machine tools, material handling equipment and large machines provided it is exposed to bending in only one plane.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C
Admissible conductor temperature + 70°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall measures ca. mm	Weight ca. kg / km
H07VVH6-F 450/750 V					
4 G 1,5	1.296,05	60	30 x 0,26	5,0 x 15,0	150
4 G 2,5	2.025,96	100	50 x 0,26	5,7 x 18,5	215
4 G 4	2.932,19	160	56 x 0,31	6,9 x 21,5	320
4 G 6	3.937,37	240	84 x 0,31	7,6 x 24,5	430
4 G 10	7.031,99	400	80 x 0,41	9,6 x 31,0	690
4 G 16	9.945,73	640	128 x 0,41	10,9 x 35,5	970
4 G 25	16.785,47	1000	200 x 0,41	12,7 x 41,5	1405
4 G 35	22.394,16	1400	280 x 0,41	15,7 x 49,0	2035
4 G 50	29.549,26	2000	400 x 0,41	19,1 x 61,5	3000
4 G 70	41.378,11	2800	356 x 0,51	21,5 x 70,0	4100
5 G 1,5	1.614,15	75	30 x 0,26	5,0 x 18,0	180
5 G 2,5	2.616,66	125	50 x 0,26	5,7 x 22,0	260
5 G 4	3.906,74	200	56 x 0,31	6,9 x 26,0	390
5 G 6	6.132,94	300	84 x 0,31	7,6 x 29,5	530
7 G 1,5	2.268,16	105	30 x 0,26	5,0 x 27,0	265
7 G 2,5	3.467,76	175	50 x 0,26	5,7 x 33,5	385
7 G 4	5.123,31	280	56 x 0,31	6,9 x 38,0	560
7 G 6	8.025,52	420	84 x 0,31	7,6 x 43,0	750
8 G 1,5	2.555,64	120	30 x 0,26	5,0 x 30,0	295
8 G 2,5	3.887,17	200	50 x 0,26	5,7 x 37,5	430
10 G 1,5	3.240,44	150	30 x 0,26	5,0 x 36,0	355
10 G 2,5	5.564,38	250	50 x 0,26	5,7 x 44,0	530
12 G 1,5	3.707,46	180	30 x 0,26	5,0 x 41,0	415
12 G 2,5	5.706,43	300	50 x 0,26	5,7 x 51,0	610

XYMM K35

PVC Building Site Cable

adapted to ÖVE-K41



Construction

Fine-stranded copper conductors, core insulation of cold-resistant PVC, cores are stranded, outer sheath of PVC, which is flexible to cold temperatures.

Application

This cable is suitable for connecting electrical equipment particularly on building sites. It is used in dry and damp locations, outdoors and in areas with explosion hazard.

Temperature range

In motion - 35°C till + 70°C
For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
XYMM-J 450/750 V K35					
3 x 1,5	1.157,72	1.080,70	45	30 x 0,26	9,7
3 x 2,5	2.336,04	2.180,70	75	50 x 0,26	11,5
3 x 4	3.466,83	3.236,40	120	56 x 0,31	13,3
4 x 1,5	1.478,05	1.380,20	60	30 x 0,26	10,7
4 x 2,5	2.834,56	2.645,80	100	50 x 0,26	12,5
4 x 4	4.378,53	4.087,90	160	56 x 0,31	14,5
4 x 6	6.894,82	6.437,00	240	84 x 0,31	17,0
4 x 10	10.343,26	9.655,60	400	80 x 0,41	22,3
4 x 16	15.126,58	14.120,70	640	128 x 0,41	25,5
5 x 1,5	1.939,49	1.810,50	75	30 x 0,26	11,6
5 x 2,5	3.569,98	3.332,90	125	50 x 0,26	13,6
5 x 4	5.660,88	5.284,30	200	56 x 0,31	16,0
5 x 6	8.319,31	7.766,60	300	84 x 0,31	19,0
5 x 10	12.109,71	11.305,00	500	80 x 0,41	24,7
5 x 16	17.308,12	16.157,50	800	128 x 0,41	28,3

H05BQ-F
H07BQ-F
07BQ-F

Polyurethane Building Site Cable with Rubber Insulated Conductors

according to DIN VDE 0282-10



Construction

Fine-stranded tinned or bare copper conductors, core insulation of rubber compound EI 6, cores are stranded, common core covering, polyurethane outer sheath (11YM1), orange, oil resistant.

Application

This termination and connection cable with high mechanical stress-resistance can be used in dry, damp or wet rooms as well as in the open-air. It is ideal for application in industrial plants, building sites, in fact everywhere where extreme wear and tear resistance is required and where the cable is subjected to hard utilisation.

Temperature range

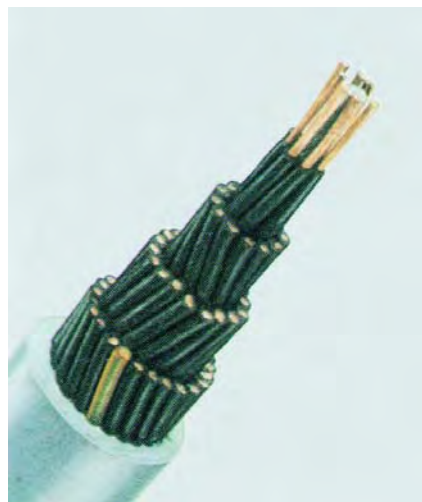
In motion - 30°C till + 80°C
For fixed installation - 40°C till + 80°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05BQ-F 300/500 V					
2 x 0,75	1.586,84	15,0	24 x 0,21	6,5	50
3 G 0,75	1.700,26	22,5	24 x 0,21	7,0	60
4 G 0,75	1.983,92	30,0	24 x 0,21	7,6	75
5 G 0,75	2.454,25	37,5	24 x 0,21	8,5	95
2 x 1	1.671,07	20,0	30 x 0,21	7,0	60
3 G 1	1.798,39	30,0	30 x 0,21	7,5	75
4 G 1	2.236,47	40,0	30 x 0,21	8,1	90
5 G 1	2.764,70	50,0	30 x 0,21	9,0	110
H07BQ-F 450/750 V					
2 x 1,5	2.036,79	30,0	30 x 0,26	8,5	85
3 G 1,5	2.291,69	45,0	30 x 0,26	9,0	105
4 G 1,5	2.928,48	60,0	30 x 0,26	10,0	135
5 G 1,5	3.278,76	75,0	30 x 0,26	11,0	165
3 G 2,5	3.537,04	75,0	50 x 0,26	10,5	155
4 G 2,5	4.079,98	100,0	50 x 0,26	11,8	200
5 G 2,5	5.243,61	125,0	50 x 0,26	13,1	245
4 G 4	6.657,44	160,0	56 x 0,31	13,0	275
5 G 4	8.572,16	200,0	56 x 0,31	14,0	350
4 G 6	8.958,59	240,0	84 x 0,31	15,5	380
5 G 6	11.703,23	300,0	84 x 0,31	17,2	485
5 G 10	16.264,29	500,0	80 x 0,41	23,2	962
5 G 16	22.564,98	800,0	128 x 0,41	27,1	1379
07BQ-F 450/750 V					
7 G 1,5	7.714,44	105,0	30 x 0,26	14,0	291
12 G 1,5	13.947,63	180,0	30 x 0,26	18,0	446
7 G 2,5	10.308,06	175,0	50 x 0,26	16,5	431
12 G 2,5	17.414,66	300,0	50 x 0,26	21,0	641

YSLY (LSYY)

PVC Control Cable

adapted to DIN VDE 0281-13



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of PVC, there is a green-yellow core in the outside layer, (not in OZ - types), all the other cores are black with consecutive white numbers (starting with 1 inside). Cores are stranded in layers, PVC outer sheath, grey (RAL 7001), increased oil resistant.

Application

In dry and damp locations for low and medium-level mechanical stress, but not in the open-air. To be used as a termination and connection cable in the control, measuring and signal technology. Suitable as a signal and impulse cable for control and inspection of industrial plants, production lines and machinery.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLY 300/500 V	JZ	OZ				
2 x 0,5		423,33	10,0	16 x 0,21	4,8	35
3 x 0,5	482,64	530,90	15,0	16 x 0,21	5,1	41
4 x 0,5	585,88	644,50	20,0	16 x 0,21	5,7	49
5 x 0,5	699,10	769,00	25,0	16 x 0,21	6,2	60
7 x 0,5	991,89	1.091,10	35,0	16 x 0,21	6,7	77
10 x 0,5	1.781,90	1.960,00	50,0	16 x 0,21	8,6	114
12 x 0,5	1.920,95	2.113,10	60,0	16 x 0,21	8,9	128
14 x 0,5	2.136,22		70,0	16 x 0,21	9,5	149
16 x 0,5	2.584,27		80,0	16 x 0,21	10,0	164
18 x 0,5	2.702,72		90,0	16 x 0,21	10,5	185
21 x 0,5	3.159,01		105,0	16 x 0,21	11,7	219
25 x 0,5	3.821,30		125,0	16 x 0,21	12,6	256
30 x 0,5	4.151,93		150,0	16 x 0,21	13,5	310
34 x 0,5	4.712,25		170,0	16 x 0,21	14,3	331
40 x 0,5	5.244,76		200,0	16 x 0,21	15,2	409
50 x 0,5	7.392,31		250,0	16 x 0,21	17,2	510
61 x 0,5	8.743,67		305,0	16 x 0,21	18,5	595
2 x 0,75		449,69	15,0	24 x 0,21	5,3	42
3 x 0,75	538,88	592,80	22,5	24 x 0,21	5,5	50
4 x 0,75	668,47	735,30	30,0	24 x 0,21	6,2	64
5 x 0,75	832,24	915,50	37,5	24 x 0,21	6,7	77
7 x 0,75	1.118,58	1.230,40	52,5	24 x 0,21	7,4	99
10 x 0,75	1.840,61	2.024,70	75,0	24 x 0,21	9,4	148
12 x 0,75	2.047,64	2.252,40	90,0	24 x 0,21	9,7	165
15 x 0,75	2.601,78		112,5	24 x 0,21	10,9	210
18 x 0,75	2.805,72		135,0	24 x 0,21	11,8	240
21 x 0,75	3.541,14		157,5	24 x 0,21	12,8	282
25 x 0,75	4.045,84		187,5	24 x 0,21	13,9	333
34 x 0,75	5.198,41		255,0	24 x 0,21	15,9	435
41 x 0,75	7.354,20		307,5	24 x 0,21	17,4	535
42 x 0,75	8.055,10		315,0	24 x 0,21	17,8	547
50 x 0,75	8.900,23		375,0	24 x 0,21	19,8	643
61 x 0,75	10.362,83		457,5	24 x 0,21	20,5	749
80 x 0,75	13.992,55		600,0	24 x 0,21	23,6	1005
38						



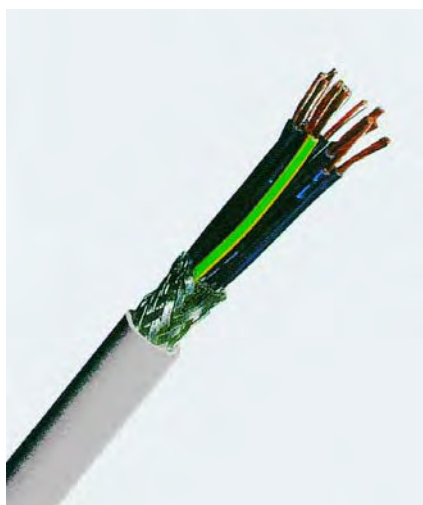
Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLY 300/500 V	JZ	OZ				
2 x 1 *		512,94	20	32 x 0,21	5,5	50
3 x 1 *	620,68	682,70	30	32 x 0,21	5,9	61
4 x 1 *	771,35	848,50	40	32 x 0,21	6,5	75
5 x 1 *	945,54	1.040,10	50	32 x 0,21	7,1	95
7 x 1	1.348,27	1.483,10	70	32 x 0,21	8,0	114
10 x 1	2.132,10		100	32 x 0,21	10,2	179
12 x 1	2.297,93		120	32 x 0,21	10,5	211
14 x 1	2.646,07		140	32 x 0,21	11,0	244
16 x 1	3.043,65		160	32 x 0,21	11,8	280
18 x 1	3.440,20		180	32 x 0,21	12,7	303
21 x 1	4.168,41		210	32 x 0,21	13,7	339
25 x 1	4.655,60		250	32 x 0,21	14,7	395
34 x 1	6.170,73		340	32 x 0,21	17,0	536
41 x 1	7.404,10		410	32 x 0,21	18,9	674
50 x 1	9.239,10		500	32 x 0,21	20,7	823
61 x 1	11.037,48		610	32 x 0,21	22,2	951
2 x 1,5 *		617,71	30	30 x 0,26	6,3	63
3 x 1,5 *	762,36	838,60	45	30 x 0,26	6,6	79
4 x 1,5 *	978,11	1.075,90	60	30 x 0,26	7,3	98
5 x 1,5 *	1.207,16	1.327,90	75	30 x 0,26	8,1	123
7 x 1,5	1.612,98	1.774,30	105	30 x 0,26	8,9	161
8 x 1,5	2.082,45		120	30 x 0,26	10,6	188
10 x 1,5	2.553,37		150	30 x 0,26	11,3	237
12 x 1,5	2.949,92		180	30 x 0,26	11,8	277
14 x 1,5	3.574,10		210	30 x 0,26	12,6	319
16 x 1,5	3.899,58		240	30 x 0,26	13,4	364
18 x 1,5	4.250,81		270	30 x 0,26	14,2	411
21 x 1,5	5.383,81		315	30 x 0,26	15,4	476
25 x 1,5	5.529,04		375	30 x 0,26	16,7	566
26 x 1,5	5.722,80		390	30 x 0,26	17,3	584
32 x 1,5	7.508,60		480	30 x 0,26	18,7	717
34 x 1,5	7.821,82		510	30 x 0,26	19,4	741
41 x 1,5	8.697,60		615	30 x 0,26	21,3	897
42 x 1,5	9.526,47		630	30 x 0,26	21,6	933
50 x 1,5	11.789,38		750	30 x 0,26	23,5	1102
61 x 1,5	13.978,13		915	30 x 0,26	25,2	1328
2 x 2,5		1.027,94	50	48 x 0,26	7,6	101
3 x 2,5 *	1.180,38	1.298,40	75	48 x 0,26	8,2	127
4 x 2,5 *	1.445,63		100	48 x 0,26	9,0	160
5 x 2,5 *	1.827,53		125	48 x 0,26	10,0	197
7 x 2,5	2.494,66	2.744,10	175	48 x 0,26	11,1	256
10 x 2,5	4.203,43		250	48 x 0,26	14,3	379
12 x 2,5	4.689,59		300	48 x 0,26	14,8	447
16 x 2,5	6.187,21		400	48 x 0,26	16,7	603
18 x 2,5	7.163,65		450	48 x 0,26	17,8	657
25 x 2,5	9.797,36		625	48 x 0,26	21,1	887
34 x 2,5	13.090,27		850	48 x 0,26	24,6	1231
2 x 4		1.862,40	80	56 x 0,31	9,0	138
3 x 4 *	2.280,42		120	56 x 0,31	9,7	181
4 x 4 *	2.470,97		160	56 x 0,31	10,7	230
5 x 4 *	3.110,60		200	56 x 0,31	11,8	287
7 x 4	4.286,86		280	56 x 0,31	13,1	375

* it is also available with coloured cores

Number of cores and nominal cross section mm²		Price	Copper figure kg / km	Wire construction (approx. value)	Overall diameter	Weight ca. kg / km	
		EUR / km		mm	ca. mm		
YSLY 300/500 V		JZ	OZ				
2 x 6			2.814,10	120	84 x 0,31	10,7	212
3 x 6		3.121,93		180	84 x 0,31	11,5	272
4 x 6 *		3.505,09		240	84 x 0,31	12,8	353
5 x 6 *		4.151,93		300	84 x 0,31	14,2	431
7 x 6		6.162,49		420	84 x 0,31	15,7	561
4 x 10 *		6.131,59		400	80 x 0,41	16,2	593
5 x 10 *		9.675,82		500	80 x 0,41	18,1	783
7 x 10		11.483,47		700	80 x 0,41	20,0	1080
4 x 16 *		8.957,91		640	128 x 0,41	19,1	897
5 x 16 *		12.424,89		800	128 x 0,41	21,5	1117
7 x 16		16.753,98		1120	128 x 0,41	23,5	1768
4 x 25 *		15.034,91		1000	200 x 0,41	23,5	1314
5 x 25 *		20.390,91		1250	200 x 0,41	26,2	1648
7 x 25		27.695,67		1750	200 x 0,41	29,0	2187
4 x 35 *		20.756,56		1400	280 x 0,41	26,4	1807
5 x 35 *		26.572,97		1750	280 x 0,41	29,6	2219
4 x 50 **		30.780,52		2000	400 x 0,41	31,8	2557
4 x 70 **		42.680,11		2800	350 x 0,51	36,2	3489
4 x 95 **		54.024,20		3800	485 x 0,51	42,1	4501
4 x 120 **		62.124,50		4800	580 x 0,51	46,5	5673

* it is also available with coloured cores

** it is only available with coloured cores, the type with black insulation and white number marking on request


Construction

Fine-stranded bare copper conductors, core insulation of PVC, there is a green-yellow core in the outside layer, (not in OZ - types), all the other cores are black with consecutive white numbers (starting with 1 inside), cores are stranded in layers and wrapped in a plastic foil, braiding of tinned copper round wires, PVC outer sheath, grey (RAL 7001), increased oil resistant.

Application

Suitable as a signal and impulse cable in the control, measuring and signal technology. The copper braiding optimises protection against external interferences, like electromagnetic fields and stray frequencies.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C

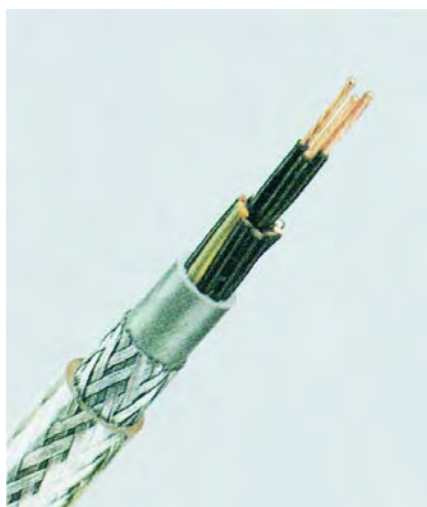
Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLCY 300/500 V	JZ	OZ				
2 x 0,5		1.258,66	36	16 x 0,21	5,6	45
3 x 0,5	1.333,85	1.367,00	43	16 x 0,21	5,9	55
4 x 0,5	1.511,01	1.552,38	49	16 x 0,21	6,4	73
5 x 0,5	1.688,17	1.746,57	57	16 x 0,21	7,0	91
7 x 0,5	2.160,94	2.238,94	69	16 x 0,21	7,6	127
12 x 0,5	3.323,81	3.503,82	104	16 x 0,21	9,8	208
18 x 0,5	4.016,06	4.244,96	141	16 x 0,21	11,6	261
25 x 0,5	5.283,90	5.606,30	211	16 x 0,21	13,5	354
2 x 0,75		1.332,82	43	24 x 0,21	6,2	56
3 x 0,75	1.500,71	1.548,07	52	24 x 0,21	6,5	70
4 x 0,75	1.685,08	1.746,97	61	24 x 0,21	7,0	96
5 x 0,75	1.883,87	1.960,83	72	24 x 0,21	7,8	157
7 x 0,75	2.387,54	2.492,24	89	24 x 0,21	8,4	168
10 x 0,75	3.546,29		121	24 x 0,21	10,4	217
12 x 0,75	3.961,38	4.162,51	138	24 x 0,21	10,9	231
18 x 0,75	5.312,74	5.593,38	211	24 x 0,21	12,8	314
21 x 0,75	5.988,42	6.329,36	237	24 x 0,21	13,8	382
25 x 0,75	6.888,64	7.274,40	280	24 x 0,21	15,2	434
34 x 0,75	8.657,15		346	24 x 0,21	17,1	529
2 x 1		1.383,29	51	32 x 0,21	6,5	83
3 x 1	1.610,92	1.663,33	62	32 x 0,21	6,7	111
4 x 1	1.885,93	1.953,57	74	32 x 0,21	7,4	131
5 x 1	2.160,94	2.254,73	88	32 x 0,21	8,1	155
7 x 1	2.760,40	2.880,33	112	32 x 0,21	8,8	190
12 x 1	4.380,59	4.601,75	185	32 x 0,21	11,5	286
18 x 1	5.779,33	6.120,37	268	32 x 0,21	13,8	393
25 x 1	7.357,29	7.818,31	354	32 x 0,21	16,0	658
34 x 1	9.297,81	9.909,27	458	32 x 0,21	18,4	759
50 x 1	13.588,79	14.486,67	671	32 x 0,21	22,0	994

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value)	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLCY 300/500 V	JZ	OZ				
2 x 1,5		1.692,29	65	30 x 0,26	7,1	97
3 x 1,5	1.920,95	1.986,68	82	30 x 0,26	7,6	124
4 x 1,5	2.263,94	2.348,71	100	30 x 0,26	8,2	166
5 x 1,5	2.606,93	2.715,69	119	30 x 0,26	9,0	192
7 x 1,5	3.292,91	3.434,69	154	30 x 0,26	9,8	245
12 x 1,5	4.932,67	5.225,07	268	30 x 0,26	13,0	365
18 x 1,5	6.553,89	6.959,61	373	30 x 0,26	15,5	556
25 x 1,5	8.393,47	8.935,96	530	30 x 0,26	18,0	737
34 x 1,5	11.828,52	12.567,56	686	30 x 0,26	20,9	966
50 x 1,5	16.456,31	17.530,41	1001	30 x 0,26	24,8	1342
2 x 2,5		2.501,87	92	50 x 0,26	8,5	161
3 x 2,5	2.745,98	2.850,81	118	50 x 0,26	9,0	187
4 x 2,5	3.075,58		147	50 x 0,26	9,9	241
5 x 2,5	3.405,18		176	50 x 0,26	11,0	274
7 x 2,5	4.486,68		253	50 x 0,26	12,0	344
12 x 2,5	7.004,00		408	50 x 0,26	15,9	407
4 x 4	5.644,40		248	56 x 0,31	11,6	307
5 x 4	6.059,49		288	56 x 0,31	12,8	373
4 x 6	6.679,55		343	84 x 0,31	14,0	402
5 x 6	7.833,15		403	84 x 0,31	15,5	506
4 x 10	11.595,74		535	80 x 0,41	17,2	747
5 x 10	12.915,17		635	80 x 0,41	19,3	861
4 x 16	16.386,27		800	128 x 0,41	20,0	1041
5 x 16 *	19.776,00		960	128 x 0,41	22,2	1289
4 x 25	27.181,30		1280	200 x 0,41	24,7	1460
5 x 25 *	28.540,40		1530	200 x 0,41		1840

* core colours according to VDE 0293 (coloured)

YSLYQY (LSYYQvY)**PVC Control Cable with Steel Wire Braiding**

adapted to DIN VDE 0281-13

**Construction**

Fine-stranded bare copper conductors, core insulation of PVC, there is a green-yellow core in the outside layer, (not in OZ - types), all the other cores are black with consecutive white numbers (starting with 1 inside), cores are stranded in layers, inner sheath of PVC, braiding of galvanised steel wires, PVC outer sheath, transparent, increased oil resistant.

Application

Used as a power and control cable with increased mechanical stress-resistance for rough operating conditions. This cable is also suitable for fixed installations in vehicles, machines and hoists, etc.

Temperature range

In motion - 5°C till + 70°C

For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLYQY 300/500 V	JZ	OZ				
3 x 0,5	1.113,60		15,0	16 x 0,21	9,2	128
4 x 0,5	1.295,30		20,0	16 x 0,21	9,7	144
5 x 0,5	1.403,90		25,0	16 x 0,21	10,2	158
7 x 0,5	1.719,00		35,0	16 x 0,21	10,8	185
10 x 0,5	2.699,50		50,0	16 x 0,21	12,7	249
12 x 0,5	2.717,70		60,0	16 x 0,21	13,0	268
16 x 0,5	3.056,70		80,0	16 x 0,21	14,0	318
21 x 0,5	3.661,90		105,0	16 x 0,21	15,6	385
25 x 0,5	4.300,20		125,0	16 x 0,21	17,6	459
30 x 0,5	4.551,40		150,0	16 x 0,21	18,5	500
34 x 0,5	4.926,90		170,0	16 x 0,21	19,6	582
40 x 0,5	5.483,90		220,0	16 x 0,21	21,9	712
50 x 0,5	7.186,10		250,0	16 x 0,21	23,1	803
61 x 0,5	7.771,40		305,0	16 x 0,21	24,2	911
2 x 0,75		1.231,30	15,0	24 x 0,21	9,5	129
3 x 0,75	1.333,10		22,5	24 x 0,21	9,8	138
4 x 0,75	1.438,50		30,0	24 x 0,21	10,4	163
5 x 0,75	1.575,30		37,5	24 x 0,21	11,0	187
7 x 0,75	2.008,20		52,5	24 x 0,21	11,7	215
10 x 0,75	3.040,40		75,0	24 x 0,21	13,9	294
12 x 0,75	3.132,40		90,0	24 x 0,21	14,2	322
18 x 0,75	4.066,30		135,0	24 x 0,21	16,5	444
21 x 0,75	4.913,60		157,5	24 x 0,21	17,4	486
25 x 0,75	5.313,10		187,5	24 x 0,21	19,8	587
32 x 0,75	6.301,60		240,0	24 x 0,21	21,0	664
40 x 0,75	7.389,20		300,0	24 x 0,21	22,8	764
50 x 0,75	9.299,30		375,0	24 x 0,21	25,6	1109
61 x 0,75	10.374,10		457,5	24 x 0,21	26,9	1152

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLYQY 300/500 V	JZ	OZ				
2 x 1		1.355,10	20,0	32 x 0,21	9,9	143
3 x 1	1.436,20		30,0	32 x 0,21	10,3	158
4 x 1	1.780,40		40,0	32 x 0,21	10,9	181
5 x 1	1.894,80		50,0	32 x 0,21	11,6	208
7 x 1	2.366,60		70,0	32 x 0,21	12,3	254
10 x 1	3.162,10		100,0	32 x 0,21	14,7	341
12 x 1	3.497,50		120,0	32 x 0,21	15,1	381
14 x 1	3.635,20		140,0	32 x 0,21	16,1	416
16 x 1	4.190,10		160,0	32 x 0,21	16,8	456
18 x 1	4.338,90		180,0	32 x 0,21	17,9	502
25 x 1	5.918,40		250,0	32 x 0,21	21,1	667
34 x 1	7.414,40		340,0	32 x 0,21	23,9	880
50 x 1	10.055,40		500,0	32 x 0,21	28,1	1155
61 x 1	11.952,50		610,0	32 x 0,21	29,5	1360
2 x 1,5		1.347,70	30	30 x 0,26	10,7	175
3 x 1,5	1.580,40		45	30 x 0,26	11,1	198
4 x 1,5	1.773,80		60	30 x 0,26	11,8	228
5 x 1,5	2.041,80		75	30 x 0,26	12,7	276
7 x 1,5	2.454,40		105	30 x 0,26	13,5	324
12 x 1,5	3.786,70		180	30 x 0,26	17,5	494
18 x 1,5	4.913,70		270	30 x 0,26	20,3	682
25 x 1,5	6.803,60		375	30 x 0,26	24,3	942
32 x 1,5	8.524,20		480	30 x 0,26	25,9	1111
34 x 1,5	9.037,00		510	30 x 0,26	26,7	1177
50 x 1,5	12.212,70		750	30 x 0,26	31,4	1609
61 x 1,5	13.970,40		915	30 x 0,26	33,9	1869
2 x 2,5		1.991,80	50	50 x 0,26	12,1	239
3 x 2,5	2.081,20		75	50 x 0,26	12,6	272
4 x 2,5	2.450,80		100	50 x 0,26	13,5	319
5 x 2,5	2.790,80		125	50 x 0,26	14,6	382
7 x 2,5	3.727,10		175	50 x 0,26	16,0	465
10 x 2,5	4.954,70		250	50 x 0,26	20,3	647
12 x 2,5	5.675,70		300	50 x 0,26	20,8	716
18 x 2,5	8.062,20		450	50 x 0,26	24,6	1027
25 x 2,5	10.477,30		625	50 x 0,26	29,4	1336
4 x 4	3.363,00		160	56 x 0,31	16,1	463
5 x 4	4.150,50		200	56 x 0,31	17,8	549
7 x 4	5.146,40		280	56 x 0,31	19,5	681
4 x 6	4.699,10		240	84 x 0,31	18,8	569
5 x 6	5.235,70		300	84 x 0,31	20,3	706
7 x 6	7.078,40		420	84 x 0,31	22,7	907
4 x 10	7.025,50		400	80 x 0,41	23,2	967
5 x 10	8.553,60		500	80 x 0,41	25,2	1153
7 x 10	12.229,80		700	80 x 0,41	28,5	1193
4 x 16	9.809,40		640	128 x 0,41	25,9	1317
5 x 16	11.526,10		800	128 x 0,41	29,0	1575
7 x 16	14.500,90		1120	128 x 0,41	31,3	1938
4 x 25	16.959,00		1000	200 x 0,41	32,2	2060
5 x 25	21.735,60		1250	200 x 0,41	36,0	2400
4 x 35	22.562,50		1400	280 x 0,41	36,0	2550
5 x 35	27.535,10		1750	280 x 0,41	39,0	3000
4 x 50	30.939,50		2000	400 x 0,41	43,0	3600
4 x 70	40.440,40		2800	356 x 0,51	47,0	4600

H05VV5-F

PVC Control Cable Oil Resistant

according to DIN VDE 0281-13



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of soft PVC, compound type YI2 according to VDE 0207 part 4, there is a green-yellow core in the outside layer, all the other cores are black with consecutive white numbers (starting with 1 inside), cores are stranded in layers with adjusted twisting (no central core), outer sheath of soft oil resistant PVC, compound type YM2 according to VDE 0207 part 5, grey (RAL 7001).

Application

In dry and damp locations for low and medium-level mechanical stress, but not in the open-air. To be used as a termination and connection cable in the control, measuring and signal technology. Suitable as a signal and impulse cable for control and inspection of industrial plants, production lines and machinery.

Temperature range

In motion - 5°C till + 70°C

For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05VV5-F 300/500 V					
2 x 0,75 *	483,20	15,0	24 x 0,21	6,0	52
3 G 0,75	615,30	22,5	24 x 0,21	7,0	62
4 G 0,75	765,30	30,0	24 x 0,21	7,6	78
5 G 0,75	1.095,70	37,5	24 x 0,21	8,9	105
7 G 0,75	1.648,20	52,5	24 x 0,21	10,6	150
12 G 0,75	2.308,60	90,0	24 x 0,21	12,8	213
18 G 0,75	3.097,90	135,0	24 x 0,21	15,0	301
25 G 0,75	4.710,20	187,5	24 x 0,21	18,4	462
34 G 0,75	6.058,10	255,0	24 x 0,21	21,2	625
50 G 0,75	8.693,70	375,0	24 x 0,21	24,6	845
61 G 0,75	10.533,00	457,5	24 x 0,21	27,8	1030
2 x 1 *	616,40	20,0	32 x 0,21	6,2	63
3 G 1	720,40	30,0	32 x 0,21	7,3	74
4 G 1	879,80	40,0	32 x 0,21	8,1	90
5 G 1	1.273,00	50,0	32 x 0,21	9,2	120
7 G 1	1.966,30	70,0	32 x 0,21	10,9	170
12 G 1	2.668,90	120,0	32 x 0,21	13,4	260
18 G 1	3.989,80	180,0	32 x 0,21	16,2	390
25 G 1	5.541,50	250,0	32 x 0,21	19,9	540
34 G 1	7.036,90	340,0	32 x 0,21	22,1	690
50 G 1	10.101,60	500,0	32 x 0,21	26,6	980
61 G 1	12.323,20	610,0	32 x 0,21	29,0	1160

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05VV5-F 300/500 V					
2 x 1,5 *	716,70	30	30 x 0,26	7,4	84
3 G 1,5	876,40	45	30 x 0,26	8,3	95
4 G 1,5	1.140,60	60	30 x 0,26	9,5	125
5 G 1,5	1.513,10	75	30 x 0,26	10,5	150
7 G 1,5	2.284,50	105	30 x 0,26	12,9	225
12 G 1,5	3.386,40	180	30 x 0,26	15,3	330
18 G 1,5	4.866,10	270	30 x 0,26	18,5	495
25 G 1,5	7.802,30	375	30 x 0,26	22,7	700
34 G 1,5	8.345,50	510	30 x 0,26	25,3	885
50 G 1,5	12.170,30	750	30 x 0,26	30,3	1270
61 G 1,5	15.057,00	915	30 x 0,26	33,3	1485
3 G 2,5	1.443,80	75	50 x 0,26	9,8	145
4 G 2,5	1.836,90	100	50 x 0,26	11,1	195
5 G 2,5	2.206,50	125	50 x 0,26	12,2	240
7 G 2,5	3.395,20	175	50 x 0,26	14,6	330
12 G 2,5	4.791,10	300	50 x 0,26	18,0	520
18 G 2,5	7.448,00	450	50 x 0,26	21,6	785
25 G 2,5	9.891,50	625	50 x 0,26	26,5	1070
4 G 4 *	3.052,80	160	56 x 0,31	11,6	280
5 G 4 *	3.701,50	200	56 x 0,31	14,1	340
7 G 4 *	4.568,70	280	56 x 0,31	15,1	445
4 G 6 *	4.343,50	240	84 x 0,31	16,8	450
5 G 6 *	4.791,10	300	84 x 0,31	18,4	550
7 G 6 *	6.052,00	420	84 x 0,31	20,5	715

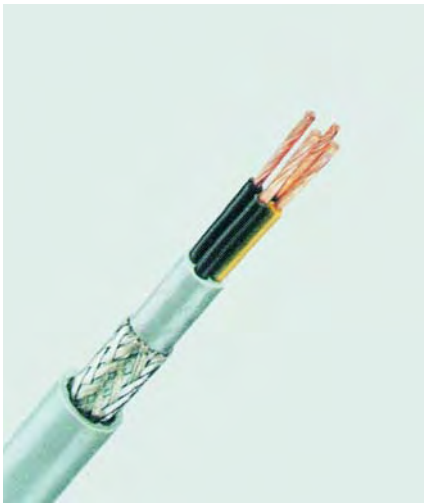
Also available with UL / CSA approbation.

* Adapted to VDE

H05VVC4V5-K

PVC Control Cable with Copper Braiding, Oil Resistant

according to DIN VDE 0281-13



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of soft PVC, compound type YI2 according to VDE 0207 part 4, there is a green-yellow core in the outside layer, all the other cores are black with consecutive white numbers (starting with 1 inside), cores are stranded in layers with adjusted twisting (no central core), grey inner sheath of soft PVC, compound type YM2 according to VDE 0207 part 5, braiding of tinned copper wires, outer sheath of soft oil resistant PVC, compound type YM2 according to VDE 0207 part 5.

Application

Suitable for dry, damp and wet locations but not in the open-air. It is used as a screened termination and connection cable in the control, measuring and signal technology. The copper braiding optimises protection against external interferences, like electromagnetic fields and stray frequencies. Suitable as a signal and impulse cable for control and inspection of industrial plants, machinery and working processes.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H05VVC4V5-K 300/500 V					
2 x 0,75 *	1.839,20	43	24 x 0,21	8,6	84
3 G 0,75	2.136,30	52	24 x 0,21	9,4	120
4 G 0,75	2.782,50	61	24 x 0,21	10,5	155
5 G 0,75	3.382,70	78	24 x 0,21	11,5	175
7 G 0,75	4.411,50	107	24 x 0,21	13,0	220
12 G 0,75	6.955,10	162	24 x 0,21	15,5	330
18 G 0,75	9.270,50	220	24 x 0,21	19,0	470
25 G 0,75	12.853,50	280	24 x 0,21	21,5	620
3 G 1	2.475,90	75	32 x 0,21	10,0	140
4 G 1	3.093,50	86	32 x 0,21	11,3	175
5 G 1	3.722,30	102	32 x 0,21	12,0	200
7 G 1	5.133,30	127	32 x 0,21	13,5	245
12 G 1	8.062,20	194	32 x 0,21	17,0	400
18 G 1	11.303,00	268	32 x 0,21	20,0	560
25 G 1	15.171,50	354	32 x 0,21	23,0	720
2 x 1,5 *	2.476,40	74	30 x 0,26	9,8	140
3 G 1,5	2.900,60	95	30 x 0,26	10,7	190
4 G 1,5	3.768,30	116	30 x 0,26	12,0	215
5 G 1,5	4.686,30	130	30 x 0,26	12,8	255
7 G 1,5	6.540,80	168	30 x 0,26	14,7	320
12 G 1,5	9.663,00	268	30 x 0,26	18,1	520
18 G 1,5	13.764,80	373	30 x 0,26	21,2	710
25 G 1,5	18.354,50	530	30 x 0,26	25,1	980
3 G 2,5	4.590,60	118	50 x 0,26	12,0	245
4 G 2,5	5.658,30	163	50 x 0,26	13,1	300
5 G 2,5	6.740,40	191	50 x 0,26	14,1	340
7 G 2,5	9.002,50	288	50 x 0,26	17,4	500
12 G 2,5	14.385,40	516	50 x 0,26	20,9	740
18 G 2,5	20.579,90	615	50 x 0,26	24,9	1055
25 G 2,5	26.410,60	897	50 x 0,26	29,2	1400

Also available with UL / CSA approbation.

* Adapted to VDE

YSLY-EB (intrinsically safe)

PVC Control Cable for Intrinsically Safe Circuits with Blue Outer Sheath

adapted to DIN VDE 0281-13



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of PVC, there is a green-yellow core in the outside layer, (not in OZ - types), all the other cores are black with consecutive white numbers (starting with 1 inside), cores are stranded in layers, PVC outer sheath, blue (RAL 5012), increased oil resistant.

Application

Suitable for dry, damp and wet locations as well as in areas with explosion hazard but not in the open-air. To be used as a connection and control cable for the application in intrinsically safe circuits for medium-level mechanical stress.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLY 300/500 V	JZ	OZ				
2 x 0,75		443,00	15,0	24 x 0,21	6,6	59
3 x 0,75	550,50	605,50	22,5	24 x 0,21	7,0	70
4 x 0,75	738,20	812,10	30,0	24 x 0,21	7,6	84
5 x 0,75	918,20	1.010,10	37,5	24 x 0,21	8,7	110
7 x 0,75	1.234,80	1.358,20	52,5	24 x 0,21	8,4	116
12 x 0,75	2.147,70	2.362,40	90,0	24 x 0,21	10,9	187
18 x 0,75	2.942,30	3.236,60	135,0	24 x 0,21	13,2	285
25 x 0,75	4.243,20	4.667,70	187,5	24 x 0,21	16,1	397
2 x 1		547,40	20,0	32 x 0,21	6,6	62
3 x 1	639,80	703,80	30,0	32 x 0,21	7,0	74
4 x 1	825,40	908,00	40,0	32 x 0,21	7,6	91
5 x 1	1.043,90	1.148,30	50,0	32 x 0,21	8,0	111
7 x 1	1.413,90	1.555,20	70,0	32 x 0,21	10,0	140
12 x 1	2.409,70		120,0	32 x 0,21	12,0	232
18 x 1	3.608,60		180,0	32 x 0,21	14,0	332
2 x 1,5		642,70	30,0	30 x 0,26	7,4	80
3 x 1,5	793,30	872,50	45,0	30 x 0,26	8,3	106
4 x 1,5	1.017,60	1.119,40	60,0	30 x 0,26	9,0	127
5 x 1,5	1.330,70	1.463,80	75,0	30 x 0,26	9,8	156
7 x 1,5	1.781,00		105,0	30 x 0,26	11,9	229
12 x 1,5	3.094,00		180,0	30 x 0,26	14,0	326
18 x 1,5	4.458,40		270,0	30 x 0,26	17,5	492
25 x 1,5	5.798,50		375,0	30 x 0,26	20,9	674

YSLCY-EB (intrinsically safe)

PVC Control Cable for Intrinsically Safe Circuits with Copper Braiding and Blue Outer Sheath

adapted to DIN VDE 0281-13



Construction

fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of PVC, cores are black with consecutive white numbers, cores are stranded in layers and wrapped in a plastic foil, braiding of tinned copper wires, PVC outer sheath, blue (RAL 5012), increased oil resistant.

Application

For dry, damp and wet locations as well as areas with explosion hazard - but not in the open-air. To be used as an MSR cable for the application in intrinsically safe circuits. The copper braiding optimises protection against external electrical and magnetic interferences. The cable is suitable for medium-level mechanical stress.

Temperature range

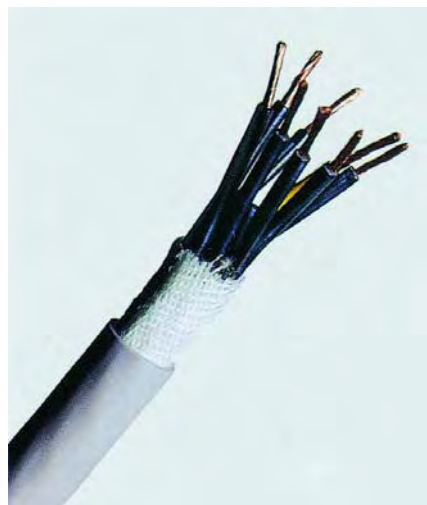
In motion - 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Number of cores and nominal cross section mm²	Price		Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
	EUR / km					
YSLCY 300/500 V	JZ	OZ				
2 x 0,75		1.428,10	43	24 x 0,21	6,7	56
3 x 0,75	1.663,60	1.716,10	52	24 x 0,21	7,0	70
4 x 0,75	1.868,40	1.937,00	61	24 x 0,21	7,6	95
5 x 0,75	2.089,60	2.176,10	72	24 x 0,21	8,2	130
7 x 0,75		2.764,20	89	24 x 0,21	9,5	168
12 x 0,75		4.384,80	138	24 x 0,21	12,0	232
18 x 0,75		5.892,20	211	24 x 0,21	13,9	315
25 x 0,75		7.663,10	280	24 x 0,21	16,5	435
2 x 1,5		1.813,10	65	30 x 0,26	8,5	97
3 x 1,5	2.129,80	2.202,50	82	30 x 0,26	8,9	125
4 x 1,5	2.510,60	2.604,50	100	30 x 0,26	9,7	165
5 x 1,5	2.891,30	3.012,00	119	30 x 0,26	10,7	193
7 x 1,5	3.652,30	3.809,50	154	30 x 0,26	11,5	245

S 80

PVC Cable Chain Cable

adapted to DIN VDE 0281



Construction

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of PVC, there is a green-yellow core (except for the 2-core types), all the other cores are black with consecutive white numbers (starting with 1 inside), specially adjusted layering with a fine cotton binding over the outside layer, PVC outer sheath with increased wall thickness, grey (RAL 7000), increased oil resistant.

Application

The flexible cable chain cable S 80 is best suited for application in moving machine parts, industrial robots, production lines, wood and packaging machines, machine tools, cable chains and automation systems.

Temperature range

In motion + 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Minimum bending radius

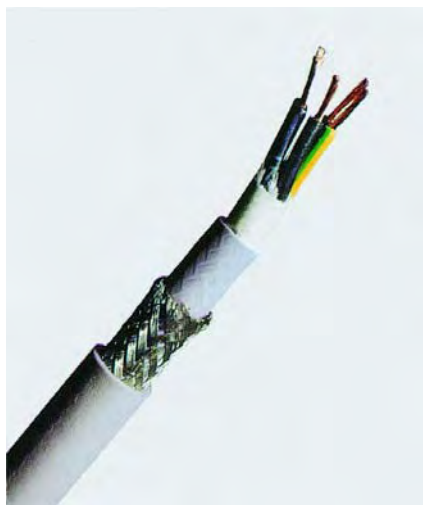
7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 80 300/500 V					
2 x 0,5	1.307,80	10,0	0,16	6,4	52
3 x 0,5	1.481,80	15,0	0,16	6,7	59
4 x 0,5	1.786,00	20,0	0,16	7,3	70
5 x 0,5	2.015,00	25,0	0,16	7,9	84
7 x 0,5	2.569,70	35,0	0,16	9,2	113
12 x 0,5	3.610,80	60,0	0,16	11,4	166
18 x 0,5	4.950,10	90,0	0,16	13,3	235
25 x 0,5	7.235,80	125,0	0,16	13,9	259
2 x 0,75	1.226,60	15,0	0,16	6,9	62
3 x 0,75	1.247,10	22,5	0,16	7,3	72
4 x 0,75	1.638,70	30,0	0,16	7,9	86
5 x 0,75	1.723,00	37,5	0,16	8,6	104
7 x 0,75	2.922,50	52,5	0,16	10,5	151
12 x 0,75	4.198,30	80,0	0,16	12,5	209
18 x 0,75	5.951,60	135,0	0,16	14,9	310
25 x 0,75	8.419,90	187,5	0,16	17,7	404
2 x 1	1.332,50	20,0	0,16	7,1	69
3 x 1	1.390,50	30,0	0,16	7,5	82
4 x 1	1.824,70	40,0	0,16	8,1	97
5 x 1	1.960,90	50,0	0,16	8,9	119
7 x 1	3.363,70	70,0	0,16	10,8	172
12 x 1	4.904,50	120,0	0,16	12,9	242
18 x 1	7.042,30	180,0	0,16	15,4	361
25 x 1	9.899,20	250,0	0,16	18,7	489
2 x 1,5	1.657,40	30,0	0,16	7,7	87
3 x 1,5	1.731,30	45,0	0,16	8,1	103
4 x 1,5	2.152,20	60,0	0,16	8,8	125
5 x 1,5	2.500,90	75,0	0,16	9,7	153
7 x 1,5	4.478,30	105,0	0,16	11,8	222
12 x 1,5	7.383,70	180,0	0,16	14,1	318
18 x 1,5	9.945,70	270,0	0,16	16,9	475
25 x 1,5	13.106,10	375,0	0,16	20,5	644

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 80 300/500 V					
2 x 2,5	3.202,90	50	0,16	9,5	132
3 x 2,5	4.018,50	75	0,16	10,5	169
4 x 2,5	4.931,90	100	0,16	11,4	203
5 x 2,5	6.002,90	125	0,16	12,5	249
7 x 2,5	8.691,40	175	0,16	15,1	357
12 x 2,5	13.626,10	300	0,16	18,7	532
18 x 2,5	19.101,90	450	0,16	22,2	786
25 x 2,5	26.185,60	625	0,16	26,9	1059
36 x 2,5	29.145,00	900	0,16	30,0	1463
44 x 2,5	40.072,30	1100	0,16	33,7	1743
52 x 2,5	46.708,90	1300	0,16	35,2	2019
65 x 2,5	58.250,40	1625	0,16	39,6	2524
2 x 4	5.529,30	80	0,16	11,9	206
3 x 4	6.971,00	120	0,16	12,6	255
4 x 4	8.622,70	160	0,16	13,7	312
5 x 4	10.068,00	200	0,16	15,5	389
7 x 4	13.743,80	280	0,16	18,2	536
2 x 6	6.153,40	120	0,21	13,7	287
3 x 6	7.688,70	180	0,21	14,5	363
4 x 6	9.383,90	240	0,21	15,8	436
5 x 6	11.048,10	300	0,21	17,3	529
7 x 6	15.123,70	420	0,21	20,9	756
4 x 10	17.894,60	400	0,21	20,9	734
5 x 10	21.296,30	500	0,21	23,0	885
4 x 16	24.336,50	640	0,21	23,3	1034
5 x 16	29.236,60	800	0,21	25,7	1257
4 x 25	36.730,10	1000	0,21	28,3	1536
5 x 25	44.018,00	1250	0,21	31,2	1869
4 x 35	61.991,10	1400	0,21	31,4	1993
5 x 35	75.659,90	1750	0,21	34,7	2435
4 x 50	107.743,20	2000	0,21	36,8	2810

S 80 C**PVC Cable Chain Cable with Copper Braiding**

adapted to DIN VDE 0281

**Construction**

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of PVC, there is a green-yellow core (except for the 2-core types), all the other cores are black with consecutive white numbers (starting with 1 inside), specially adjusted layering with a fine cotton binding over the outer layer, inner sheath of PVC, screen of tinned copper braiding, PVC outer sheath, grey (RAL 7000), increased oil resistant.

Application

The flexible cable chain cable S 80 C is best suited for the application in moving machine parts, industrial robots, wood and packaging machines, production lines, machine tools, cable chains and automation systems. The tinned copper braiding optimises protection against high-frequency external interference.

Temperature range

In motion + 5°C till + 70°C

For fixed installation - 40°C till + 70°C

Minimum bending radius

7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 80 C 300/500 V					
2 x 0,5	2.626,40	50	0,16	9,0	114
3 x 0,5	2.902,60	57	0,16	9,3	122
4 x 0,5	3.219,10	63	0,16	9,9	138
5 x 0,5	3.558,00	78	0,16	10,5	155
7 x 0,5	4.350,20	94	0,16	11,8	199
12 x 0,5	5.849,70	132	0,16	14,4	284
18 x 0,5	7.637,10	198	0,16	16,9	402
25 x 0,5	10.675,40	264	0,16	19,7	522
36 x 0,5	13.547,00	327	0,16	22,4	693
2 x 0,75	2.698,90	58	0,16	9,5	127
3 x 0,75	2.786,90	66	0,16	9,9	140
4 x 0,75	3.118,70	83	0,16	10,5	157
5 x 0,75	3.593,80	95	0,16	11,2	184
7 x 0,75	4.427,30	114	0,16	13,4	256
12 x 0,75	6.159,00	196	0,16	15,5	334
18 x 0,75	8.407,60	269	0,16	18,5	491
25 x 0,75	11.194,40	333	0,16	21,7	641
36 x 0,75	21.169,60	450	0,16	24,5	869
2 x 1	2.833,90	63	0,16	9,7	136
3 x 1	2.958,40	74	0,16	10,1	151
4 x 1	3.335,00	93	0,16	10,7	175
5 x 1	3.754,50	108	0,16	11,5	201
7 x 1	4.890,00	141	0,16	13,8	280
12 x 1	6.792,80	227	0,16	16,3	385
18 x 1	9.362,00	316	0,16	19,0	559
25 x 1	12.472,10	398	0,16	22,7	736
36 x 1	24.172,80	545	0,16	25,2	975

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 80 C 300/500 V					
2 x 1,5	3.314,20	82	0,16	10,3	157
3 x 1,5	3.498,90	98	0,16	10,7	181
4 x 1,5	4.112,60	118	0,16	11,4	206
5 x 1,5	4.778,60	136	0,16	12,3	242
7 x 1,5	6.616,70	178	0,16	14,8	342
12 x 1,5	9.752,30	313	0,16	17,7	492
18 x 1,5	12.389,90	411	0,16	20,5	685
25 x 1,5	16.374,60	556	0,16	24,9	947
36 x 1,5	31.185,00	734	0,16	27,7	1244
2 x 2,5	4.934,70	109	0,16	12,1	220
3 x 2,5	6.052,20	137	0,16	13,5	275
4 x 2,5	7.188,80	172	0,16	14,4	321
5 x 2,5	8.525,20	199	0,16	15,5	374
7 x 2,5	12.514,80	310	0,16	18,7	554
12 x 2,5	16.733,90	448	0,16	22,7	778
18 x 2,5	24.855,20	639	0,16	26,6	1108
25 x 2,5	32.790,90	834	0,16	31,3	1434
36 x 2,5	35.176,40	1126	0,16	34,8	1916

S 200

PUR Cable Chain Cable

adapted to DIN VDE 0282-1 and -10



Construction

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of TPE-E (thermoplastic polyester elastomer), there is a green-yellow core (except for the 2-core types), all the other cores are black with consecutive white numbers (starting with 1 inside), specially adjusted layering with a fine cotton binding over each layer, outer sheath of polyurethane according to VDE 0250 part 10 with rough surface (poor in adhesion), grey (RAL 7000), oil and abrasion resistant.

Application

This highly flexible cable chain cable S 200 is best suited for application in industrial branches such as industrial robots, handling gears, automation systems, wood and packaging machines, automobile industry, machine tools and high shelf building.

Temperature range

In motion - 40°C till + 70°C
For fixed installation - 50°C till + 70°C

Minimum bending radius

7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 200 300/500 V					
2 x 0,5	3.166,30	10,0	0,16	4,9	29
3 x 0,5	3.420,70	15,0	0,16	5,1	34
4 x 0,5	3.872,60	20,0	0,16	5,5	41
5 x 0,5	4.310,10	25,0	0,16	6,0	50
7 x 0,5	5.337,30	35,0	0,16	6,9	67
12 x 0,5	7.985,50	60,0	0,16	8,3	98
18 x 0,5	10.976,70	90,0	0,16	9,9	145
25 x 0,5	15.958,20	125,0	0,16	11,9	195
36 x 0,5	20.610,20	180,0	0,16	13,7	280
2 x 0,75	2.983,90	15,0	0,16	5,4	36
3 x 0,75	3.107,70	22,5	0,16	5,7	44
4 x 0,75	3.523,80	30,0	0,16	6,1	54
5 x 0,75	3.999,50	37,5	0,16	6,7	66
7 x 0,75	5.123,80	52,5	0,16	7,7	90
12 x 0,75	7.909,90	90,0	0,16	9,6	136
18 x 0,75	10.856,00	135,0	0,16	11,3	201
25 x 0,75	15.226,00	187,5	0,16	13,9	276
36 x 0,75	23.625,90	270,0	0,16	15,4	381

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 200 300/500 V					
2 x 1	3.353,70	20	0,16	5,8	44
3 x 1	3.458,00	30	0,16	6,1	55
4 x 1	3.995,70	40	0,16	6,6	67
5 x 1	4.548,80	50	0,16	7,2	82
7 x 1	5.914,10	70	0,16	8,4	113
12 x 1	9.112,50	120	0,16	10,4	173
18 x 1	12.703,70	180	0,16	12,3	256
25 x 1	17.641,90	250	0,16	15,1	352
30 x 1	24.091,10	300	0,16	15,8	417
36 x 1	27.793,40	360	0,16	17,0	496
2 x 1,5	4.143,20	30	0,16	6,4	58
3 x 1,5	4.248,00	45	0,16	6,7	73
4 x 1,5	4.890,00	60	0,16	7,3	90
5 x 1,5	5.842,60	75	0,16	8,0	111
7 x 1,5	8.422,30	105	0,16	9,6	158
12 x 1,5	12.523,70	180	0,16	11,9	243
18 x 1,5	17.076,80	270	0,16	14,2	364
25 x 1,5	23.634,60	375	0,16	17,1	492
36 x 1,5	37.335,80	540	0,16	19,2	694
2 x 2,5	6.717,70	50	0,16	8,0	91
3 x 2,5	7.696,70	75	0,16	8,5	115
4 x 2,5	9.064,60	100	0,16	9,4	146
5 x 2,5	11.716,90	125	0,16	10,4	181
7 x 2,5	15.612,70	175	0,16	12,4	256
12 x 2,5	24.744,30	300	0,16	15,8	403
18 x 2,5	33.476,80	450	0,16	18,6	595
25 x 2,5	45.147,50	625	0,16	22,7	811
2 x 4	9.561,70	80	0,16	9,8	138
3 x 4	10.933,90	120	0,16	10,4	177
4 x 4	12.975,60	160	0,16	11,3	220
5 x 4	15.599,30	200	0,16	12,5	276
2 x 6	10.687,10	120	0,21	11,2	197
3 x 6	12.113,40	180	0,21	11,9	250
4 x 6	14.775,90	240	0,21	13,4	322
5 x 6	16.980,70	300	0,21	14,8	403

S 200 C

PUR Cable Chain Cable with Copper Braiding

adapted to DIN VDE 0281-1 and -10



Construction

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of TPE-E (thermoplastic polyester elastomer), there is a green-yellow core (except for the 2-core types), all the other cores are black with consecutive white numbers (starting with 1 inside), specially adjusted layering with a fine cotton binding over each layer, inner sheath of special PVC, wrapping of fine cotton binding, screen of tinned copper braiding, another wrapping of fine cotton binding, outer sheath of polyurethane according to VDE 0250 part 818 with rough surface (poor in adhesion), grey (RAL 7001), oil and abrasion resistant.

Application

This highly flexible cable chain cable S 200 C is best suited for application in industrial robots, handling gears, automation systems, wood and packaging machines, the automobile industry, machine tools and high shelf building.

Temperature range

In motion - 30°C till + 70°C
For fixed installation - 50°C till + 70°C

Minimum bending radius

7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 200 C 300/500 V					
2 x 0,5	5.907,80	49	0,16	7,0	61
3 x 0,5	6.530,90	55	0,16	7,2	69
4 x 0,5	7.209,10	62	0,16	7,6	79
5 x 0,5	7.720,10	68	0,16	8,1	94
7 x 0,5	9.530,70	88	0,16	9,2	119
12 x 0,5	13.539,40	121	0,16	10,6	161
18 x 0,5	16.661,90	163	0,16	12,2	218
25 x 0,5	22.985,30	237	0,16	14,6	293
36 x 0,5	29.050,90	318	0,16	16,4	403
2 x 0,75	6.171,00	55	0,16	7,5	72
3 x 0,75	6.187,70	65	0,16	7,8	82
4 x 0,75	6.365,90	73	0,16	8,2	97
5 x 0,75	7.387,00	90	0,16	9,0	115
7 x 0,75	9.265,20	111	0,16	10,0	144
12 x 0,75	13.215,00	162	0,16	11,9	207
18 x 0,75	17.044,10	243	0,16	14,0	295
25 x 0,75	23.542,20	326	0,16	16,6	400
36 x 0,75	37.614,70	416	0,16	18,7	549

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 200 C 300/500 V					
2 x 1	6.603,40	62	0,16	7,9	83
3 x 1	6.653,10	73	0,16	8,2	97
4 x 1	7.391,50	92	0,16	8,9	115
5 x 1	8.530,50	103	0,16	9,5	134
7 x 1	10.263,90	130	0,16	10,7	176
12 x 1	15.063,30	194	0,16	12,9	252
18 x 1	19.657,10	291	0,16	15,0	356
25 x 1	27.557,80	393	0,16	18,4	516
36 x 1	43.540,90	537	0,16	20,3	674
2 x 1,5	7.670,80	82	0,16	8,5	97
3 x 1,5	7.719,00	98	0,16	9,0	119
4 x 1,5	9.087,80	117	0,16	9,6	141
5 x 1,5	10.159,50	134	0,16	10,3	171
7 x 1,5	13.789,60	177	0,16	11,9	227
12 x 1,5	19.421,00	290	0,16	14,5	338
18 x 1,5	25.701,20	410	0,16	16,9	488
25 x 1,5	35.909,30	555	0,16	20,4	669
36 x 1,5	56.741,20	732	0,16	23,0	906
2 x 2,5	12.694,20	109	0,16	10,3	140
3 x 2,5	13.778,70	135	0,16	10,8	171
4 x 2,5	16.381,00	171	0,16	11,7	210
5 x 2,5	18.282,60	198	0,16	12,9	255
7 x 2,5	23.419,40	285	0,16	15,1	352
12 x 2,5	33.621,40	443	0,16	18,9	561
18 x 2,5	46.056,50	633	0,16	22,3	798
25 x 2,5	61.040,50	830	0,16	26,6	1076
36 x 2,5	68.574,80	1119	0,16	29,4	1435
2 x 4	13.969,20	152	0,16	11,9	192
3 x 4	15.653,50	193	0,16	12,7	245
4 x 4	18.982,60	266	0,16	13,9	310
5 x 4	21.526,60	311	0,16	15,2	367
2 x 6	16.513,60	227	0,21	13,9	266
3 x 6	18.201,20	289	0,21	14,6	336
4 x 6	21.627,80	374	0,21	16,1	436
5 x 6	25.213,60	440	0,21	18,1	538

S 368 C

PUR Cable Chain Data Cable with Copper Braiding

adapted to DIN VDE 0812



Construction

Very fine-stranded bare copper conductors, core insulation of TPE-E (thermoplastic polyester elastomer), core marking adapted to DIN 47100, specially adjusted layering with a fine cotton binding over each layer, screen of tinned copper braiding, wrapping of fine cotton binding, outer sheath of polyurethane according to VDE 0250 part 407 with rough surface, grey (RAL 7032), oil and abrasion resistant.

Application

This highly flexible cable chain data cable S 368 C is best suited for different industrial areas such as machine construction, the automobile and communications industry as well as for steering, controlling and measuring machinery. It is particularly suited for machinery put to prolonged, flexible use, such as industrial scales. The copper braiding should be fully connected to optimise protection against high-frequency external interference (EMC).

Temperature range

In motion - 40°C till + 70°C
For fixed installation - 50°C till + 70°C

Minimum bending radius

7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 368 C 350 V					
2 x 0,14	2.911,10	11,0	0,11	3,9	20
3 x 0,14	3.164,90	12,0	0,11	4,0	21
4 x 0,14	3.385,70	15,0	0,11	4,3	25
5 x 0,14	3.797,50	17,0	0,11	4,5	28
7 x 0,14	4.887,90	21,0	0,11	5,1	36
12 x 0,14	6.753,40	32,0	0,11	5,9	48
14 x 0,14	7.226,10	35,0	0,11	6,1	52
18 x 0,14	8.520,80	43,0	0,11	6,7	65
24 x 0,14	10.743,00	55,0	0,11	7,7	81
27 x 0,14	11.801,90	60,0	0,11	7,8	87
32 x 0,14	13.252,90	67,0	0,11	8,3	99
2 x 0,25	3.196,30	15,0	0,11	4,2	24
3 x 0,25	3.418,50	17,0	0,11	4,4	27
4 x 0,25	3.715,60	20,0	0,11	4,6	31
5 x 0,25	4.154,40	24,0	0,11	4,9	37
7 x 0,25	5.545,30	31,0	0,11	5,6	47
12 x 0,25	7.603,60	46,0	0,11	6,6	65
14 x 0,25	8.182,30	53,0	0,11	6,8	73
18 x 0,25	9.554,20	65,0	0,11	7,5	90
24 x 0,25	12.519,20	84,0	0,11	8,8	116
27 x 0,25	13.408,30	92,0	0,11	9,0	125
32 x 0,25	14.986,00	107,0	0,11	9,5	145

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 368 C 350 V					
2 x 0,34	3.316,80	17,0	0,11	4,4	27
3 x 0,34	3.493,80	20,0	0,11	4,6	31
4 x 0,34	3.910,20	25,0	0,11	4,9	36
5 x 0,34	4.355,70	30,0	0,11	5,2	43
7 x 0,34	5.957,30	39,0	0,11	5,9	55
12 x 0,34	8.167,50	59,0	0,11	7,0	77
14 x 0,34	8.799,80	68,0	0,11	7,3	87
18 x 0,34	10.490,70	83,0	0,11	8,0	108
24 x 0,34	13.653,50	108,0	0,11	9,4	139
27 x 0,34	14.574,00	119,0	0,11	9,6	151
32 x 0,34	17.297,30	152,0	0,11	10,4	187
2 x 0,5	3.672,50	21,0	0,11	5,0	35
3 x 0,5	3.760,20	28,0	0,11	5,2	41
4 x 0,5	4.057,70	33,0	0,11	5,6	48
5 x 0,5	4.764,70	40,0	0,11	6,0	57
7 x 0,5	6.078,50	53,0	0,11	6,9	76
12 x 0,5	8.328,30	82,0	0,11	8,2	108
14 x 0,5	9.048,60	94,0	0,11	8,8	125
18 x 0,5	11.123,70	117,0	0,11	9,7	156
24 x 0,5	14.448,20	169,0	0,11	11,8	218
27 x 0,5	15.365,00	184,0	0,11	12,0	237
32 x 0,5	17.202,10	214,0	0,11	12,8	274
2 x 0,75	3.979,70	28,0	0,11	5,6	45
3 x 0,75	4.288,50	37,0	0,11	5,9	54
4 x 0,75	4.897,80	46,0	0,11	6,3	64
5 x 0,75	5.511,30	56,0	0,11	6,8	77
7 x 0,75	7.052,10	74,0	0,11	7,9	103
12 x 0,75	9.930,30	117,0	0,11	10,0	153
14 x 0,75	10.802,20	148,0	0,11	10,7	190
18 x 0,75	12.780,50	184,0	0,11	11,8	236
24 x 0,75	16.642,60	235,0	0,11	14,0	305
27 x 0,75	18.121,10	263,0	0,11	14,2	335
32 x 0,75	22.182,80	301,0	0,11	15,2	384

S 369 C TP

PUR Cable Chain Data Cable With Copper Braiding

adapted to DIN VDE 0812



Construction

Very fine-stranded bare copper conductors, core insulation of TPE-E (thermoplastic polyester elastomer), core marking adapted to DIN 47100, specially adjusted layering with a fine cotton binding over each layer, screen of tinned copper braiding, wrapping of fine cotton binding, outer sheath of polyurethane according to VDE 0250 part 407 with rough surface, grey (RAL 7032), oil and abrasion resistant.

Application

This highly flexible cable chain data cable S 368 C is best suited for different industrial areas such as machine construction, the automobile and communications industry as well as for steering, controlling and measuring machinery. It is particularly suited for machinery put to prolonged, flexible use, such as industrial scales. The copper braiding should be fully connected to optimise protection against high-frequency external interference (EMC).

Temperature range

In motion - 40°C till + 70°C
For fixed installation - 50°C till + 70°C

Minimum bending radius

7,5 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 369 C TP 350 V					
2 x 2 x 0,14	4.510,50	17	0,11	4,8	30
3 x 2 x 0,14	5.292,00	22	0,11	5,3	36
4 x 2 x 0,14	6.162,00	26	0,11	6,0	43
5 x 2 x 0,14	7.129,00	30	0,11	6,4	50
6 x 2 x 0,14	7.903,40	33	0,11	6,6	55
8 x 2 x 0,14	10.434,10	44	0,11	7,8	73
10 x 2 x 0,14	12.015,70	50	0,11	7,9	75
12 x 2 x 0,14	14.170,30	58	0,11	8,9	90
14 x 2 x 0,14	15.623,50	63	0,11	9,2	98
16 x 2 x 0,14	17.382,10	72	0,11	9,7	111
18 x 2 x 0,14	19.401,20	77	0,11	10,0	120
24 x 2 x 0,14	25.437,60	117	0,11	11,9	170
2 x 2 x 0,25	4.846,90	23	0,11	5,3	38
3 x 2 x 0,25	5.761,50	30	0,11	5,9	47
4 x 2 x 0,25	7.045,70	36	0,11	6,6	55
5 x 2 x 0,25	8.208,50	43	0,11	7,1	66
6 x 2 x 0,25	8.902,60	50	0,11	7,3	74
8 x 2 x 0,25	12.418,10	64	0,11	9,0	102
10 x 2 x 0,25	17.505,10	74	0,11	9,1	106
12 x 2 x 0,25	18.797,70	87	0,11	10,0	123
14 x 2 x 0,25	20.535,60	114	0,11	10,6	149
16 x 2 x 0,25	22.306,50	129	0,11	11,4	177
18 x 2 x 0,25	24.024,60	139	0,11	11,8	191
24 x 2 x 0,25	30.132,50	175	0,11	13,8	244

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
S 369 C TP 350 V					
2 x 2 x 0,34	5.235,40	27	0,11	5,6	43
3 x 2 x 0,34	6.171,10	35	0,11	6,2	53
4 x 2 x 0,34	7.383,70	45	0,11	7,1	65
5 x 2 x 0,34	8.683,10	56	0,11	7,8	79
6 x 2 x 0,34	9.643,10	63	0,11	7,8	87
8 x 2 x 0,34	14.074,10	81	0,11	9,6	121
10 x 2 x 0,34	18.240,00	95	0,11	9,7	127
12 x 2 x 0,34	20.306,10	125	0,11	11,3	167
14 x 2 x 0,34	21.924,60	145	0,11	11,8	187
16 x 2 x 0,34	23.793,10	158	0,11	12,3	207
18 x 2 x 0,34	26.479,50	177	0,11	12,7	229
24 x 2 x 0,34	32.784,00	224	0,11	14,7	292
2 x 2 x 0,5	5.494,10	36	0,11	6,6	59
3 x 2 x 0,5	6.310,00	50	0,11	7,3	74
4 x 2 x 0,5	7.604,80	64	0,11	8,4	92
5 x 2 x 0,5	10.549,70	77	0,11	9,3	113
6 x 2 x 0,5	11.023,80	87	0,11	9,5	126
8 x 2 x 0,5	15.330,40	129	0,11	11,8	190
10 x 2 x 0,5	18.438,50	150	0,11	12,2	199
12 x 2 x 0,5	20.683,60	175	0,11	13,8	241
2 x 2 x 0,75	6.345,30	50	0,11	7,4	78
3 x 2 x 0,75	7.703,20	69	0,11	8,4	99
4 x 2 x 0,75	9.861,70	87	0,11	9,9	125
5 x 2 x 0,75	11.495,10	119	0,11	11,3	169
6 x 2 x 0,75	12.664,90	139	0,11	11,6	192
8 x 2 x 0,75	19.273,20	175	0,11	14,0	262
10 x 2 x 0,75	21.736,40	210	0,11	14,5	281
12 x 2 x 0,75	25.032,00	269	0,11	16,4	351

SL 800 SL 801 C

Combined Composite Connection Cable with PUR Outer Sheath



Construction

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of TPE-E (thermoplastic polyester elastomer), there is a green-yellow core, all the other cores are black with consecutive white numbers according to VDE 0293, control conductors 0,75 mm² and 1,0 mm² are stranded in pairs, each pair is screened with aluminium foil and tinned copper drain wire 0,14 mm² and braided with tinned copper wires and wrapped in PETP-foil, the screened control pairs and the supply conductors are stranded in layers, wrapping of fine cotton binding, for the type SL 801 C an additional screen of tinned copper braiding, outer sheath of polyurethane according to VDE 0250 part 407 with rough surface, grey (RAL 7000), oil and abrasion resistant.

Application

This cable is well suited for flexible use in industries such as industrial robots, cable chains or machine and plant engineering. It is used for high mechanical stress in dry, damp and wet locations as well as at low temperatures as a connection cable for the power supply and as a signal and data cable for the steering and control of motors.

Temperature range

In motion - 40°C till + 70°C
For fixed installation - 50°C till + 70°C

Minimum bending radius

12 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
SL 800					
4 x 0,75 + 2 x (2x0,34)	13.048,80	68	0,16/0,11	10,5	121
4 x 1,50 + 2 x (2x0,75)	15.946,60	122	0,16	11,6	178
4 x 2,50 + 2 x (2x0,75)	19.064,90	162	0,16	13,7	244
4 x 4,00 + (2x0,75) + (2x1)	21.996,60	229	0,16	15,6	352
4 x 6,00 + (2x0,75) + (2x1)	24.763,90	309	0,21/0,16	18,3	473
4 x 10,00 + (2x0,75) + (2x1)	35.848,40	469	0,21/0,16	22,1	685
4 x 16,00 + 2 x (2x1)	45.831,90	716	0,21/0,16	25,2	993
4 x 25,00 + 2 x (2 x 1,5)	58.291,60	1100	0,21/0,16	29,9	1418
4 x 35,00 + 2 x (2 x 1,5)	74.171,10	1500	0,21/0,16	34,3	1895
SL 801 C					
4 x 0,75 + 2 x (2x0,34)	13.012,30	126	0,16/0,11	11,9	176
4 x 1,50 + 2 x (2x0,75)	17.559,00	194	0,16	14,9	268
4 x 2,50 + 2 x (2x0,75)	20.987,70	235	0,16	15,3	312
4 x 4,00 + 2 x (2x1)	25.331,20	344	0,16	17,3	445
4 x 6,00 + 2 x (2x1)	28.707,10	451	0,21/0,16	19,3	589
4 x 10,00 + 2 x (2x1)	42.026,10	624	0,21/0,16	23,4	804
4 x 16,00 + 2 x (2x1)	52.918,00	904	0,21/0,16	27,0	1134
4 x 25,00 + 2 x (2 x 1,5)	69.021,00	1307	0,21/0,16	31,2	1576
4 x 35,00 + 2 x (2 x 1,5)	106.501,60	1748	0,21/0,16	35,8	2079

SL 802 C
SL 803 C

Motor Feedback Cable with PUR Outer Sheath
Incremental Transmission Cable with PUR Outer Sheath



Construction

Very fine-stranded bare copper conductors according to VDE 0295 class 6, core insulation of TPE-E (thermoplastic polyester elastomer), cores are colour-coded, the motor feedback cable is stranded in layers, the incremental transmission cable is stranded in layers resp. in pairs, pairs are layered together, wrapping of cotton binding tape, screen of tinned copper braiding with copper drain wire 0,14 mm², another wrapping of fine cotton binding, outer sheath of polyurethane with rough surface, grey (RAL 7000), oil and abrasion resistant.

Application

These cables are used as highly flexible connection cables in speedo meters, brakes and pulse generators in machine and plant engineering. Moreover, they are well suited for flexible use in industrial robots and cable chains for extreme mechanical stress, also in dry, damp and wet locations as well as at low temperatures. These two types show different characteristics in relation to the steering of servo-motors. The motor feedback cable is used to regulate motor speed and indicate actual values. The incremental transmission cable controls positioning and processing.

Temperature range

In motion - 40°C till + 70°C
For fixed installation - 50°C till + 70°C

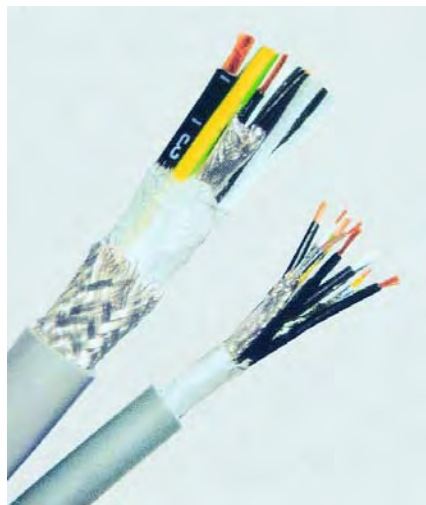
Minimum bending radius

FBL 10 x overall diameter
IGL 12 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
SL 802 C 500 V					
9 x 0,5	10.302,60	72	0,16	8,6	109
SL 803 C 350 V					
4 x 2 x 0,25 + 2 x 1,0	10.154,80	69	0,11/0,16	8,6	102
4 x 2 x 0,14 + 4 x 0,5	10.454,90	58	0,11/0,16	8,4	91
4 x 2 x 0,38 + 4 x 0,5	11.400,90	82	0,11/0,16	9,3	117
10 x 0,14 + 2 x 0,5	9.073,00	48	0,11/0,16	7,6	77
10 x 0,14 + 4 x 0,5	10.539,00	60	0,11/0,16	8,2	93
15 x 0,14 + 4 x 0,5	11.787,40	68	0,11/0,16	8,4	99
3 x (2 x 0,14 C) + 2 x 1	10.852,80	84	0,11/0,16	9,1	107
3 x (2 x 0,14 C) + 2 x (0,5 C)	11.954,60	91	0,11/0,16	9,3	113
3 x (2 x 0,14 C) + 3 x 2 x 0,25	13.452,20	82	0,11/0,16	9,8	118

SL 805 SL 806 C

Combined Composite Connection Cable with PVC Outer Sheath



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of the control conductors is of polyethylene and of the supply cores is of PVC, there is a green-yellow core, all the other cores are black with consecutive white numbers according to VDE 0293, control conductors 0,75 mm² and 1,0 mm² are stranded in pairs, each pair is screened with aluminium foil and tinned copper drain wire 0,14 mm², braided with tinned copper wires and wrapped with PETP-foil, the screened control pairs and the supply conductors are stranded in layers, wrapping of fine cotton binding, for the type SL 806 C an additional screen of tinned copper braiding, outer sheath of PVC, grey (RAL 7000), increased oil resistant.

Application

This cable is well suited for flexible use in machine and plant engineering. It is used for medium-level mechanical stress in dry, damp and wet locations. It serves as a connection cable for the power supply and as a signal and data cable for the steering and control of motors.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 30°C till + 70°C

Minimum bending radius

12 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
SL 805 500 V					
4 x 0,75 + 2 x (2x0,34)	7.594,90	72	0,21/0,16	11,4	154
4 x 1,50 + 2 x (2x0,75)	9.969,60	126	0,26/0,21	12,4	217
4 x 2,50 + 2 x (2x0,75)	10.978,90	166	0,26/0,21	15,0	294
4 x 4,00 + (2x0,75) + (2x1)	12.671,70	232	0,31/0,21	15,7	388
4 x 6,00 + (2x0,75) + (2x1)	15.279,30	312	0,31/0,21	16,8	475
4 x 10,00 + (2x0,75) + (2x1)	21.787,60	472	0,41/0,21	22,4	780
4 x 16,00 + 2 x (2x1)	29.144,20	717	0,41/0,21	25,4	1068
4 x 25,00 + 2 x (2x1)	40.967,10	1104	0,41/0,21	29,8	1594
4 x 35,00 + 2 x (2x1,5)	60.542,60	1504	0,41/0,26	33,9	2106
SL 806 C 500 V					
4 x 0,75 + 2 x (2x0,34)	9.613,30	131	0,21/0,16	12,3	192
4 x 1,50 + 2 x (2x0,75)	11.733,00	187	0,26/0,21	13,3	251
4 x 2,50 + 2 x (2x0,75)	13.056,70	240	0,26/0,21	15,8	338
4 x 4,00 + 2 x (2x1)	15.185,70	343	0,31/0,21	16,8	454
4 x 6,00 + 2 x (2x1)	17.853,50	427	0,31/0,21	17,9	541
4 x 10,00 + 2 x (2x1)	19.652,90	625	0,41/0,21	23,5	854
4 x 16,00 + 2 x (2x1)	34.650,90	902	0,41/0,21	26,5	1152
4 x 25,00 + 2 x (2x1,5)	48.343,30	1310	0,41/0,26	30,9	1669
4 x 35,00 + 2 x (2x1,5)	78.104,40	1748	0,41/0,26	35,0	2309

SL 807 C
SL 808 C

Motor Feedback Cable with PVC Outer Sheath
Incremental Transmission Cable with PVC Outer Sheath



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of polyethylene, cores are colour-coded, the motor feedback cable is stranded in layers, the incremental transmission cable is stranded in layers resp. in pairs, pairs are layered together, wrapping of PETP-foil, screen of tinned copper braiding with copper drain wire 0,14 mm², outer sheath of PVC, grey (RAL 7000), increased oil resistant.

Application

These cables are used as highly flexible connection cables in speedometers, brakes and pulse generators in machine and plant engineering for medium-level mechanical stress in dry, damp and wet locations. These two types show different characteristics in relation to the steering of servomotors. The motor feedback cable is used to regulate motor speed and indicate actual values. The incremental transmission cable controls positioning and processing.

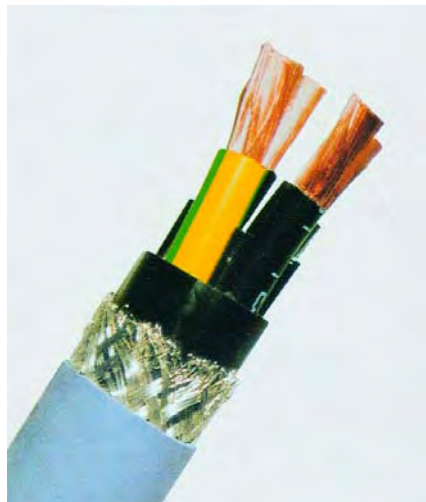
Temperature range

In motion - 5°C till + 70°C
For fixed installation - 30°C till + 70°C

Minimum bending radius

FBL 10 x overall diameter
IGL 12 x overall diameter

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
SL 807 C 500 V					
9 x 0,5	5.324,20	72	0,21	8,4	107
SL 808 C 350 V					
4 x 2 x 0,25 + 2 x 1,0	6.163,60	67	0,16/0,21	8,4	97
4 x 2 x 0,14 + 4 x 0,5	6.125,50	58	0,11/0,21	8,3	91
4 x 2 x 0,38 + 4 x 0,5	7.187,20	82	0,21/0,21	10,1	131
10 x 0,14 + 2 x 0,5	5.155,20	46	0,11/0,21	7,4	75
10 x 0,14 + 4 x 0,5	5.758,10	60	0,11/0,21	8,0	92
15 x 0,14 + 4 x 0,5	6.370,20	70	0,11/0,21	9,3	115
3 x (2 x 0,14 C) + 2 x 1	9.392,80	82	0,11/0,21	8,2	100
3 x (2 x 0,14 C) + 2 x (0,5 C)	10.647,10	86	0,11/0,21	8,2	100
3 x (2 x 0,14 C) + 3 x 2 x 0,25	12.737,20	79	0,11/0,16	9,4	110

**SLM
SLCM****PVC Composite Connection Cable
PVC Composite Connection Cable with Copper
Braiding****Construction**

fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of PVC, cores are stranded in layers, for SLCM there is a PVC inner sheath over the stranding and a screen of tinned copper braiding, PVC outer sheath, grey or black, increased oil resistant.

Application

These connection cables are well suited for fixed installations and for flexible use e.g. in machine and plant engineering for medium-level mechanical stress in dry, damp and wet locations. With the copper braiding electrical and magnetic interferences exerted on other cables and wires or adjacent electric components are effectively suppressed. They are especially suitable as supply cables between frequency converters and servomotors.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 30°C till + 70°C

Minimum bending radius

10 x overall diameter

Number of cores and nominal cross section mm²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
SLM 0,6/1 KV					
4 x 1,5	1.937,90	60	0,26	11,0	170
4 x 2,5	2.616,40	100	0,26	12,4	235
4 x 4	3.628,50	160	0,31	13,8	330
4 x 6	5.128,00	240	0,31	15,9	460
4 x 10	8.258,70	400	0,41	19,6	740
4 x 16	11.844,20	640	0,41	23,8	1125
4 x 25	18.340,90	1000	0,41	29,5	1708
5 x 1,5	2.317,50	75	0,26	12,0	195
5 x 2,5	3.111,50	125	0,26	13,2	280
5 x 4	4.450,70	200	0,31	15,1	415
5 x 6	6.083,10	300	0,31	17,6	555
5 x 10	9.154,50	500	0,41	20,9	875
5 x 16	12.794,30	800	0,41	25,9	1295
SLCM 0,6/1 KV					
4 x 1,5	4.044,60	101	0,26	12,0	230
4 x 2,5	4.548,10	158	0,26	13,5	310
4 x 4	6.938,50	258	0,31	16,0	490
4 x 6	8.037,30	345	0,31	19,0	630
4 x 10	10.845,00	521	0,41	21,5	860
4 x 16	15.724,80	810	0,41	25,5	1260
4 x 25	25.078,70	1268	0,41	30,0	1910
4 x 35	31.364,90	1752	0,41	33,0	2580
4 x 50	41.660,70	2475	0,41	37,0	3720
4 x 70	56.821,20	3132	0,41	41,0	4300
4 x 95	78.444,20	4198	0,41	47,0	5600

PVC Composite Connection Cable with Copper Braiding

adapted to DIN VDE 0281



Construction

Fine-stranded bare copper conductors according to VDE 0295 class 5, core insulation of polyethylene, foil, a concentric screen of tinned copper wires, PVC outer sheath, transparent.

Application

These composite connection cables are produced according to the European EMV Guidelines and are particularly suitable for plants and facilities with appliances and electrical equipment of which electromagnetic interference fields could have an undue influence on the surroundings. These connection cables are well suited for fixed installations and for flexible use in motive power engineering with frequency converting technology (e.g. machine and plant engineering) for medium-level mechanical loads in dry, damp and wet locations.

Temperature range

In motion + 5°C till + 70°C
For fixed installation - 40°C till + 70°C

Permissible temperature on the conductor

For steady load + 70°C
During short circuit + 160°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Largest single wire diameter mm	Overall diameter ca. mm	Weight ca. kg / km
2YSLCY-J 0,6/1 KV					
4 x 1,5	4.498,50	94	0,25	10,6	230
4 x 2,5	4.731,00	156	0,25	12,3	300
4 x 4	7.154,10	224	0,30	14,5	485
4 x 6	8.406,00	302	0,30	16,4	630
4 x 10	12.217,40	490	0,40	20,1	860
4 x 16	17.611,80	740	0,40	23,4	1290
4 x 25	27.335,80	1063	0,40	27,0	1860
4 x 35	33.952,60	1563	0,40	30,7	2610
4 x 50	44.718,60	2188	0,40	36,1	2950

**H07G-U
H07G-K****Rubber Insulated Single Core Wire
with Increased Heat-Resistance**

according to DIN VDE 0282-501

**Construction**

Solid or fine-stranded tinned copper conductor, insulation of a heat-resistant rubber compound.

Application

This wire is well suited for internal wiring in lamps, instruments, control panels and distributors in dry locations. Should be installed in surface mounted or embedded conduits.

Temperature range

Max. conductor service temperature + 110°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
H07G-U 450/750 V						
1,5	bla/br/blu/gy	404,60	15,0	1 x 1,38	3,0	25
2,5	bla/br/blu/gy	596,70	25,0	1 x 1,78	3,6	35
H07G-K 450/750 V						
0,75	bla	378,10	7,5	24 x 0,21	2,8	15
1	bla	419,20	10,0	32 x 0,21	2,9	20
1,5	bla	491,60	15,0	30 x 0,26	3,4	25
2,5	bla	721,60	25,0	50 x 0,26	4,0	40
4	bla	1.231,40	40,0	56 x 0,31	5,0	60
6	bla	1.317,50	60,0	84 x 0,31	5,5	80
10	bla	2.165,20	100,0	80 x 0,41	7,0	130
16	bla	3.180,10	160,0	126 x 0,41	8,0	210
25	bla	5.699,30	250,0	196 x 0,41	10,0	320
35	bla	7.306,80	350,0	276 x 0,41	11,5	420

Silicone Insulated Wire

adapted to DIN VDE 0250-1 and -502



Construction

Solid or fine-stranded tinned copper conductor, insulation of silicone (2GI1).

Application

This wire is well suited for internal wiring in lamps, instruments, control panels and distributors for low mechanical stress particularly at high ambient temperatures.

Temperature range

In motion	- 25°C till	+ 180°C
For fixed installation	- 40°C till	+ 180°C
Short-time use		+ 250°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
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SiA 300/500 V

0,5	bla/br/blu/sigrd	196,20	5,0	1 x 0,80	1,8	8
0,75	bla/br/blu/gy/gr/wh/sigrd	235,73	7,5	1 x 0,98	2,0	10
1	bla/br/blu/gy/wh/sigrd	267,42	10,0	1 x 1,13	2,2	13
1,5	bla/br/blu/gy/gr/wh/sigrd	343,58	15,0	1 x 1,38	2,6	20
2,5	bla/br/blu/gy/sigrd	506,71	25,0	1 x 1,78	3,2	32
4	bla/blu/gy	752,80	40,0	1 x 2,26	3,7	48
6	bla/br/blu/sigrd	1.287,39	60,0	1 x 2,76	4,2	68
10	bla	2.053,87	100,0	1 x 3,57	5,4	116

SiF 300/500 V

0,50	bla/br/blu/gy/gr/wh/sigrd	271,38	5,0	16 x 0,21	1,9	8
0,75	bla/br/blu/gy/gr/wh/sigrd	321,18	7,5	24 x 0,21	2,2	11
1	bla/br/blu/gy/gr/wh/sigrd	356,02	10,0	32 x 0,21	2,3	14
1,5	bla/br/blu/gy/gr/wh/sigrd	416,99	15,0	30 x 0,26	2,8	20
2,5	bla/br/blu/gy/gr/wh/sigrd	594,52	25,0	50 x 0,26	3,4	32
4	bla/br/blu/gy/gr/wh/sigrd	862,17	40,0	56 x 0,31	4,0	49
6	bla/br/blu/gy/gr/wh/sigrd	1.202,76	60,0	84 x 0,31	4,7	70
10	bla/br/blu/gy/gr/wh/sigrd	1.880,72	100,0	80 x 0,41	6,8	124
16	bla/br/blu/gy/gr/sigrd	2.816,18	160,0	128 x 0,41	7,8	188
25	bla/br/blu/gy/rdbbr	4.330,18	250,0	200 x 0,41	9,7	292
35	bla/rdbbr	5.671,02	350,0	280 x 0,41	10,9	391
50	bla/rdbbr	8.016,38	500,0	400 x 0,41	13,6	561
70	bla/rdbbr	11.130,55	700,0	356 x 0,51	15,6	761
95	bla/rdbbr	14.011,56	950,0	485 x 0,51	18,0	1042
120	bla/rdbbr	18.544,25	1200,0	614 x 0,51	19,5	1296
150	bla/rdbbr	24.109,45	1500,0	765 x 0,51	21,9	1612
185	bla/rdbbr	29.289,51	1850,0	944 x 0,51	24,8	1974
240	bla	38.734,70	2400,0	1225 x 0,51	26,7	2553

SiF / GL

Silicone Insulated Wire with Fibreglass Braiding

adapted to DIN VDE 0282-1 and -3



Construction

Fine-stranded tinned copper conductor, insulation of silicone (2GI1), impregnated fibreglass braiding.

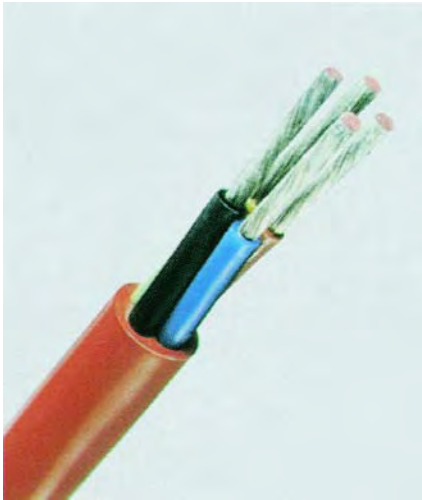
Application

This wire is well suited for internal wiring in lamps, instruments, control panels and distributors. It is used for high mechanical stress, as the fibreglass braiding protects the silicone insulation from mechanical damages. It is halogen-free and heat resistant.

Temperature range

In motion	- 25°C till + 180°C
For fixed installation	- 40°C till + 180°C
Short-time use	+ 250°C

Nominal cross section mm ²	Colours	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
SiF / GL 300/500 V						
0,50	wh	523,53	5,0	16 x 0,21	2,40	12
0,75	wh	593,53	7,5	24 x 0,21	2,70	15
1	wh	660,72	10,0	32 x 0,21	2,80	18
1,5	wh	736,14	15,0	30 x 0,26	3,30	26
2,5	wh	960,80	25,0	50 x 0,26	3,90	38
4	wh	1.326,60	40,0	56 x 0,31	4,50	55
6	wh	1.748,27	60,0	84 x 0,31	5,20	76
10	wh	2.841,49	100,0	80 x 0,41	7,30	136
16	wh	4.070,68	160,0	128 x 0,41	8,30	200
25	wh	5.906,91	250,0	200 x 0,41	10,20	311
35	wh	7.613,07	350,0	280 x 0,41	11,40	412
50	wh	10.187,22	500,0	400 x 0,41	14,10	583
70	wh	13.859,92	700,0	356 x 0,51	16,10	798
95	wh	16.805,53	950,0	495 x 0,51	18,50	1073
120	wh	24.005,00	1200,0	614 x 0,51	20,00	1329

**Construction**

Fine-stranded tinned copper conductor according to VDE 0295, core insulation of silicone (2GI1), cores are colour-coded up to 5 cores, above 6 cores they are black with consecutive white numbers, a green-yellow earth wire (except for the 2-core types), cores are stranded in layers, silicone outer sheath (2GM1), reddish brown.

Application

In dry, damp and wet locations as well as in the open-air for low mechanical stress, particularly at high ambient temperatures.

Temperature range

In motion	- 25°C till + 180°C
For fixed installation	- 40°C till + 180°C
Short-time use	+ 250°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
SiHF 300/500 V					
2 x 0,75	1543,34	15,0	24 x 0,21	6,4	57
3 x 0,75	1713,19	22,5	24 x 0,21	6,8	66
4 x 0,75	2252,39	30,0	24 x 0,21	7,8	67
5 x 0,75	2633,00	37,5	24 x 0,21	8,5	105
7 x 0,75	3184,34	52,5	24 x 0,21	9,5	130
2 x 1	1656,52	20,0	32 x 0,21	6,6	64
3 x 1	2070,84	30,0	32 x 0,21	7,4	81
4 x 1	2429,29	40,0	32 x 0,21	8,0	100
5 x 1	2890,56	50,0	32 x 0,21	8,8	121
7 x 1	3550,31	70,0	32 x 0,21	9,8	151
2 x 1,5	2048,60	30,0	30 x 0,26	8,0	87
3 x 1,5	2331,55	45,0	30 x 0,26	8,3	104
4 x 1,5	2788,94	60,0	30 x 0,26	9,0	127
5 x 1,5	3314,90	75,0	30 x 0,26	9,8	148
6 x 1,5	3874,64	90,0	30 x 0,26	10,6	181
7 x 1,5	3942,94	105,0	30 x 0,26	10,9	198
8 x 1,5	6702,31	120,0	30 x 0,26	11,7	240
12 x 1,5	7653,16	180,0	30 x 0,26	14,5	353
16 x 1,5	9500,71	240,0	30 x 0,26	16,7	445
24 x 1,5	14340,75	360,0	30 x 0,26	21,0	723
2 x 2,5	2982,08	50,0	50 x 0,26	9,5	137
3 x 2,5	3421,20	75,0	50 x 0,26	10,0	164
4 x 2,5	4060,17	100,0	50 x 0,26	11,0	200
5 x 2,5	4930,19	125,0	50 x 0,26	11,9	240
7 x 2,5	6076,75	175,0	50 x 0,26	13,1	300
12 x 2,5	13932,26	300,0	50 x 0,26	18,0	573
2 x 4	4206,90	80,0	50 x 0,31	11,3	191
3 x 4	4690,73	120,0	50 x 0,31	11,9	248
4 x 4	6021,95	160,0	50 x 0,31	13,3	329
5 x 4	7379,20	200,0	50 x 0,31	15,0	399
7 x 4	9853,18	280,0	50 x 0,31	16,2	486
3 x 6	6697,14	180,0	84 x 0,31	14,2	351
4 x 6	8647,91	240,0	84 x 0,31	16,2	462
5 x 6	10265,13	300,0	84 x 0,31	17,7	547
7 x 6	12831,85	420,0	84 x 0,31	19,8	694
4 x 10	13740,98	400,0	80 x 0,41	21,4	709
4 x 16	19840,54	640,0	128 x 0,41	24,0	1014
4 x 25	29659,61	1000,0	200 x 0,41	27,5	1557

SiHFP

Silicone Sheathed Cable with Steel Wire Braiding

adapted to DIN VDE 0250-1 and -816



Construction

Fine-stranded tinned copper conductor according to VDE 0295, core insulation of silicone (2GI1), cores are colour-coded up to 5 cores, above 6 cores they are black with consecutive white numbers, there is a green-yellow earth wire (except for the 2-core types), cores are stranded in layers, silicone outer sheath (2GM1), reddish brown, armouring of galvanised steel wire braiding.

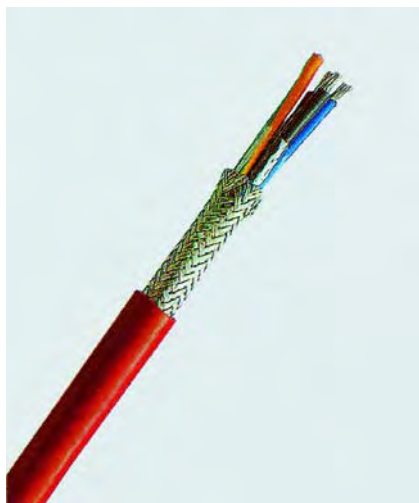
Application

In dry, damp and wet locations as well as in the open-air for low mechanical loads, particularly at high ambient temperatures. The armouring of galvanised steel wires protects the cable from mechanical damages.

Temperature range

In motion	- 25°C till	+ 180°C
For fixed installation	- 40°C till	+ 180°C
Short-time use		+ 250°C

Number of cores and nominal cross section mm²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
SiHFP 300/500 V					
2 x 0,75	2.427,80	15,0	24 x 0,21	7,5	107
3 x 0,75	2.546,60	22,5	24 x 0,21	7,8	114
4 x 0,75	3.040,20	30,0	24 x 0,21	9,0	120
5 x 0,75	3.374,00	37,5	24 x 0,21	9,8	175
7 x 0,75	3.937,60	52,5	24 x 0,21	10,6	208
2 x 1	2.453,20	20,0	32 x 0,21	7,6	121
3 x 1	2.848,60	30,0	32 x 0,21	8,5	145
4 x 1	3.181,10	40,0	32 x 0,21	9,3	158
5 x 1	3.622,80	50,0	32 x 0,21	10,2	201
7 x 1	4.232,60	70,0	32 x 0,21	11,3	231
2 x 1,5	2.833,50	30,0	30 x 0,26	9,0	153
3 x 1,5	3.053,50	45,0	30 x 0,26	9,3	168
4 x 1,5	3.549,60	60,0	30 x 0,26	10,2	208
5 x 1,5	4.072,20	75,0	30 x 0,26	11,5	235
7 x 1,5	4.771,10	105,0	30 x 0,26	12,0	293
12 x 1,5	9.475,80	180,0	30 x 0,26	14,9	385
2 x 2,5	3.737,70	50,0	50 x 0,26	10,7	221
3 x 2,5	4.200,90	75,0	50 x 0,26	11,2	224
4 x 2,5	4.857,00	100,0	50 x 0,26	12,2	295
5 x 2,5	5.669,10	125,0	50 x 0,26	13,0	343
7 x 2,5	6.807,70	175,0	50 x 0,26	14,0	416
2 x 4	4.906,00	80,0	50 x 0,31	12,5	292
3 x 4	5.378,20	120,0	50 x 0,31	13,1	338
4 x 4	6.842,20	160,0	50 x 0,31	14,4	445
5 x 4	8.059,60	200,0	50 x 0,31	16,2	526
3 x 6	7.290,20	180,0	84 x 0,31	15,7	415
4 x 6	9.283,00	240,0	84 x 0,31	17,7	602
5 x 6	10.435,60	300,0	84 x 0,31	19,2	697
4 x 10	14.073,00	400,0	80 x 0,41	22,6	880
4 x 16	17.953,60	640,0	128 x 0,41	25,2	1220
4 x 25	29.209,50	1000,0	200 x 0,41	30,4	1710

**Construction**

Fine-stranded tinned copper conductor according to VDE 0295, core insulation of silicone (2GI1), cores are colour-coded up to 5 cores, above 6 cores they are black with consecutive white numbers, there is a green-yellow earth wire (except for the 2-core types), cores are stranded in layers and wrapped with PETP foil, screen of tinned copper braiding, silicone outer sheath (2GM1), reddish brown.

Application

In dry, damp and wet locations as well as in the open-air for low mechanical loads, particularly at high ambient temperatures. The copper braiding optimises protection against high-frequency external interference.

Temperature range

In motion - 25°C till + 180°C

For fixed installation - 40°C till + 180°C

Short-time use + 250°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
SiFCuSi 300/500 V					
2 x 0,75	4.094,10	45	24 x 0,21	7,6	76
3 x 0,75	4.474,10	53	24 x 0,21	7,9	90
4 x 0,75	4.992,40	64	24 x 0,21	8,5	106
5 x 0,75	5.866,90	77	24 x 0,21	9,1	153
7 x 0,75	6.486,60	95	24 x 0,21	9,8	209
2 x 1	4.319,60	50	32 x 0,21	7,8	83
3 x 1	4.715,70	63	32 x 0,21	8,1	100
4 x 1	5.381,80	79	32 x 0,21	8,7	121
5 x 1	6.311,30	90	32 x 0,21	9,4	143
7 x 1	7.040,90	113	32 x 0,21	10,1	173
2 x 1,5	5.268,10	69	30 x 0,26	8,8	167
3 x 1,5	5.881,10	85	30 x 0,26	9,2	177
4 x 1,5	6.768,00	103	30 x 0,26	9,9	203
5 x 1,5	8.087,90	127	30 x 0,26	10,8	255
7 x 1,5	9.131,20	162	30 x 0,26	11,6	295
10 x 1,5	13.226,20	222	30 x 0,26	14,8	419
12 x 1,5	14.856,00	253	30 x 0,26	15,2	454
16 x 1,5	19.265,70	411	30 x 0,26	17,4	587
18 x 1,5	21.291,40	381	30 x 0,26	18,2	630
2 x 2,5	7.069,40	93	50 x 0,26	10,0	141
3 x 2,5	8.033,90	127	50 x 0,26	10,5	184
4 x 2,5	9.333,90	153	50 x 0,26	11,4	223
5 x 2,5	11.223,20	184	50 x 0,26	12,3	272
7 x 2,5	13.197,80	236	50 x 0,26	13,8	351

This type with an additional inner sheath is available on request.

NYY (E-YY)

PVC Insulated Single Core Cable

according to DIN VDE 0276-603 / ÖVE K603



Construction

Round conductor of solid or stranded copper wires, PVC insulation, black PVC outer sheath with normalised marking and meter marking.

Application

This power cable is suitable for fixed installations, preferably in cable ducts, indoors, outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

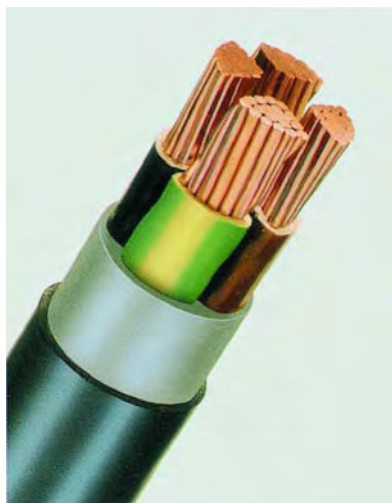
Number of cores and nominal cross section mm²	Price EUR / km	Copper figure kg / km	Overall diameter		Weight kg / km	Current carrying *	
			min. value	max. value ca. mm		ca. ground	air
							A
NYY-J 0,6/1 KV							
1 x 16 RE	1.392,45	160	11	13	250	107	89
1 x 25 RM	2.130,78	250	12	15	360	137	118
1 x 35 RM	2.904,60	350	13	16	460	165	145
1 x 50 RM	3.706,50	500	15	18	600	195	176
1 x 70 RM	5.054,78	700	16	19	810	239	224
1 x 95 RM	6.918,94	950	18	21	1080	287	271
1 x 120 RM	8.244,12	1200	20	23	1330	326	314
1 x 150 RM	9.981,66	1500	22	26	1620	366	361
1 x 185 RM	12.677,86	1850	24	28	1980	414	412
1 x 240 RM	16.553,72	2400	27	31	2560	481	484
NYY-O 0,6/1 KV							
1 x 16 RE	1.390,50	160	11	13	250	107	89
1 x 25 RM	1.957,00	250	12	15	360	137	118
1 x 35 RM	2.575,00	350	13	16	460	165	145
1 x 50 RM	3.326,90	500	15	18	600	195	176
1 x 70 RM	4.562,90	700	16	19	810	239	224
1 x 95 RM	6.210,90	950	18	21	1080	287	271
1 x 120 RM	7.467,50	1200	20	23	1330	326	314
1 x 150 RM	8.961,00	1500	22	26	1620	366	361
1 x 185 RM	11.381,50	1850	24	28	1980	414	412
1 x 240 RM	14.574,50	2400	27	31	2560	481	484
1 x 300 RM	18.849,00	3000	29	33	3180	542	549
1 x 400 RM	23.225,70	4000	33	38	4030	624	657
1 x 500 RM	29.410,70	5000	37	42	5120	689	749
1 x 630 RM	35.191,60	6300	41	45	6770	782	851

* trefoil touching arrangement

NYN (E-NN)

PVC Insulated Multicore Cable

according to DIN VDE 0276-603 / ÖVE K603



Construction

Round or sector-shaped conductor of solid or stranded copper wires, PVC insulation, common core covering or taping, black PVC outer sheath with normalised marking and meter marking.

Application

This power cable is suitable for fixed installations, preferably in cable ducts, indoors, outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section	Price		Copper figure	Overall diameter		Weight	Current carrying	
	mm ²	EUR / km		min. value	max. value		ground	air
			kg / km	ca. mm		kg / km	A	
NYN 0,6/1 KV		J**	O					
2 x 1,5 RE		793,10	30	11	13	190	32	20
2 x 2,5 RE		978,50	50	12	14	230	42	27
2 x 4 RE		1.637,7	80	13	15	310	54	37
2 x 6 RE		1.730,40	120	14	16	380	68	48
2 x 10 RE		2.472,00	200	16	18	510	80	66
2 x 16 RM		4.437,00	320	18	20	705	101	78
3 x 1,5 RE		927,00	45	11	14	210	26	18
3 x 2,5 RE		1.236,00	75	12	15	260	34	25
3 x 4 RE		1.812,80	120	14	17	360	44	34
3 x 6 RE		2.255,70	180	15	18	450	56	43
3 x 10 RE		3.296,00	300	17	20	610	75	60
3 x 10 RM		3.951,70	300	17	20	610	75	60
3 x 16 RE		4.789,50	480	19	22	840	98	80
3 x 16 RM		4.995,50	480	19	22	840	98	80
3 x 25 RM		7.261,50	750	23	30	1350	128	106
3 x 35 SM		8.394,50	1050	23	30	1460	157	131
3 x 50 SM		10.918,00	1500	26	33	2010	185	159
3 x 70 SM		15.347,00	2100	28	35	2620	228	202
3 x 95 SM		20.497,00	2850	32	40	3560	275	244
3 x 120 SM		25.441,00	3600	36	43	4310	313	282
3 x 150 SM		30.591,00	4500	40	47	5310	353	324
3 x 185 SM		38.419,00	5550	45	52	6630	399	371
3 x 240 SM		50.367,00	7200	50	57	8480	464	436
3 x 25 RM/16 RE		8343,00	910	24	30	1420	128	106
3 x 35 SM/16 RE		10.197,00	1210	24	31	1690	157	131
3 x 50 SM/25 RM		12.875,00	1750	28	35	2260	185	159
3 x 70 SM/35 SM		17.407,00	2450	31	38	2940	228	202
3 x 95 SM/50 SM		22.969,00	3350	37	44	3960	275	244
3 x 120 SM/70 SM		29.355,00	4300	40	48	4900	313	282
3 x 150 SM/70 SM		34.711,00	5200	44	52	5870	353	324
3 x 185 SM/95 SM		44.805,00	6500	49	57	7340	399	371
3 x 240 SM/120 SM		56.135,00	8400	56	64	9440	464	436
3 x 300 SM/150 SM		81.762,00	10500	63	71	11900	524	481

Number of cores and nominal cross section		Price		Copper figure	Overall diameter		Weight	Current carrying	
mm ²		EUR / km		kg / km	min. value	max. value	ca. kg / km	ground	air
					ca. mm			A	
NY	0,6/1 KV	J**	O						
4 x	1,5 RE	1.112,40	1.112,40	60	12	16	250	26	18
4 x	2,5 RE	1.503,80	1.503,80	100	13	17	310	34	25
4 x	4 RE	2.132,10	2.132,10	160	15	19	430	44	34
4 x	6 RE	2.636,80	2.636,80	240	16	20	540	56	43
4 x	10 RE	3.718,30	3.718,30	400	18	22	740	75	60
4 x	10 RM	4.346,60	4.346,60	400	18	22	740	75	60
4 x	16 RE	5.562,00	5.562,00	640	21	25	1030	98	80
4 x	16 RM	6.107,90	6.107,90	640	21	25	1030	98	80
4 x	25 RM	8.755,00	8.755,00	1000	25	32	1540	128	106
4 x	35 SM	11.536,00	11.536,00	1400	25	32	1800	157	131
4 x	50 SM	13.699,00	13.699,00	2000	29	36	2400	185	159
4 x	70 SM	19.261,00	19.261,00	2800	33	40	3310	228	202
4 x	95 SM	26.368,00	26.368,00	3800	38	45	4450	275	244
4 x	120 SM	32.445,00	32.445,00	4800	41	49	5450	313	282
4 x	150 SM	38.934,00	38.934,00	6000	46	54	6700	353	324
4 x	185 SM	48.410,00	48.410,00	7400	51	59	8300	399	371
4 x	240 SM	63.757,00	63.757,00	9600	58	66	10900	464	436
5 x	1,5 RE	1.339,00	1.339,00	75	13	16	280	*	*
5 x	2,5 RE	1.802,50		125	14	17	350	*	*
5 x	4 RE	2.585,30		200	16	19	500	*	*
5 x	6 RE	3.172,40		300	18	21	630	*	*
5 x	10 RE	4.738,00		500	20	23	880	*	*
5 x	10 RM	4.923,40		500	20	23	880	*	*
5 x	16 RE	6.901,00		800	22	25	1260	*	*
5 x	16 RM	7.601,40		800	22	25	1260	*	*
5 x	25 RM	12.051,00		1250	27	33	1890	*	*
5 x	35 RM	15.553,00		1750	30	36	2800	*	*
5 x	50 RM	20.806,00		2500	34	40	3560	*	*
5 x	70 RM	29.870,00		3500	41	47	4810	*	*
5 x	95 RM	40.479,00		4750	46	52	5385	*	*
5 x	120 RM	47.895,00		6000	51	57	6780	*	*

* The current carrying capacity of the cables depends on the number of cores loaded (see DIN VDE 0276-627).

** new colour coding see technical part page 170

NYN (E-YY)

PVC Insulated Control Cable

according to DIN VDE 0276-627 / ÖVE K23



Construction

Round or sector-shaped conductor of solid or stranded copper wires, PVC insulation, common core covering or taping, black PVC outer sheath with normalised marking and meter marking.

Application

This power cable is suitable for fixed installations, preferably in cable ducts, indoors, outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

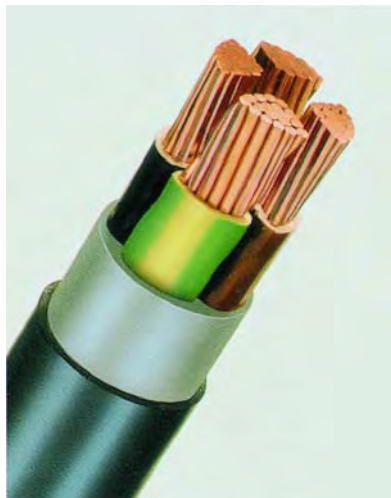
Number of cores and nominal cross section			Price	Copper figure	Overall diameter		Weight	Current carrying *	
					min. value	max. value		ca. ground	air
mm²			EUR / km	kg / km	ca. mm		kg / km	A	
NYN 0,6/1 KV			J	O					
7 x 1,5 RE		1.606,80	1.606,80	105	14	17	340	*	*
10 x 1,5 RE		2.420,50	2.420,50	150	17	21	460	*	*
12 x 1,5 RE		2.678,00	2.678,00	180	17	21	510	*	*
14 x 1,5 RE		2.987,00	2.987,00	210	18	22	560	*	*
16 x 1,5 RE		3.450,50	3.450,50	240	18	22	600	*	*
19 x 1,5 RE		3.862,50	3.862,50	285	20	25	690	*	*
21 x 1,5 RE		4.421,00		315	20	25	700	*	*
24 x 1,5 RE		5.047,00	5.047,00	360	23	28	860	*	*
30 x 1,5 RE		6.180,00		450	24	29	1000	*	*
40 x 1,5 RE		8.335,00		600	27	33	1260	*	*
52 x 1,5 RE		10.892,00		780	30	36	1450	*	*
61 x 1,5 RE		12.051,00		915	32	38	1680	*	*
7 x 2,5 RE		2.678,00	2.678,00	175	15	18	430	*	*
10 x 2,5 RE		3.914,00	3.914,00	250	18	22	590	*	*
12 x 2,5 RE		4.635,00	4.635,00	300	19	23	650	*	*
14 x 2,5 RE		5.253,00	5.253,00	350	20	24	730	*	*
16 x 2,5 RE		5.974,00	5.974,00	400	21	25	750	*	*
19 x 2,5 RE		6.798,00	6.798,00	475	22	26	800	*	*
21 x 2,5 RE		7.804,00		525	23	27	900	*	*
24 x 2,5 RE		8.137,00	8.137,00	600	25	30	1140	*	*
30 x 2,5 RE		10.403,00	10.403,00	750	27	32	1340	*	*
40 x 2,5 RE		11.386,00		1000	30	36	1720	*	*
52 x 2,5 RE		15.499,00		1300	34	40	2200	*	*
7 x 4 RE		3.512,30		280	18	21	600	*	*
7 x 6 RE		5.798,90		420	20	23	760	*	*
7 x 10 RE		8.343,00		700	22	25	1080	*	*

* The current carrying capacity of the cables depends on the number of cores loaded (see DIN VDE 0276-627).

E-Y2Y

PVC Insulated Cable with Copper Conductor and PE Outer Sheath

adapted to DIN VDE 0276-603 / ÖVE K603



Construction

Round or sector-shaped conductor of solid or stranded copper wires, PVC insulation, common core covering or taping, HD-PE outer sheath, black, shore hardness D 58 +/-2, with normalised marking and meter marking.

Application

This power cable is suitable for fixed installations, preferably in cable ducts, indoors, outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm ²	Price		Copper figure kg / km	Overall diameter		Weight ca. kg / km	Current carrying	
	EUR / km			min. value ca. mm	max. value		ground A	air
E-Y2Y 0,6/1 KV	J*	O						
4 x 6 RE	2.691,73	2.691,73	240	16	20	540	56	43
4 x 10 RE	3.705,81	3.705,81	400	18	22	740	75	60
4 x 10 RM	4.405,45	4.405,45	400	18	22	740	75	60
4 x 16 RE	5.544,05	5.544,05	640	21	25	1030	98	80
4 x 16 RM	6.245,89	6.245,89	640	21	25	1030	98	80
4 x 25 RM	9.006,73	9.006,73	1000	25	32	1540	128	106
4 x 35 SM	10.494,19	10.494,19	1400	25	32	1800	157	131
4 x 50 SM	13.955,34	13.955,34	2000	29	36	2400	185	159
4 x 70 SM	19.341,10	19.341,10	2800	33	40	3310	228	202

* new colour coding see technical part page 170



Construction

Round or sector-shaped conductor of solid or stranded aluminium wires, PVC insulation, common core covering or taping, black PVC outer sheath with normalised marking and meter marking.

Application

This power cable is suitable for fixed installations, preferably in cable ducts, indoors, outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section	Price		Alumi- nium figure kg / km	Overall diameter		Weight ca. kg / km	Current carrying	
	EUR / km			min. value ca. mm	max. value		ground	air
mm ²							A	
NAYY 0,6/1 KV	J*	O						
1 x 50 RM		2.386,46	147	13	17	330	151	131
1 x 120 RM		4.672,55	353	19	23	650	253	239
1 x 150 RM		5.504,32	441	21	25	780	284	273
1 x 185 RM		6.537,75	544	23	27	930	313	317
1 x 240 RM		8.136,17	706	26	30	1170	362	378
1 x 300 RM		10.512,00	882	29	33	1440	415	434
3 x 240/120 SM	31.481,15	31.481,15	2470	54	60	4200	364	338
4 x 25 RE	5.334,15	5.334,15	294	24	28	890	99	83
4 x 35 RE	6.421,45	6.421,45	412	27	31	1090	118	102
4 x 50 SE	7.627,01	7.627,01	588	28	33	1150	142	124
4 x 70 SE	10.177,78	10.177,78	823	33	38	1550	176	158
4 x 95 SE	12.928,78	12.928,78	1117	35	40	2010	211	190
4 x 120 SE	16.206,24	16.206,24	1411	41	46	2400	242	220
4 x 150 SE	19.058,11	19.058,11	1764	44	49	2910	270	252
4 x 25 RM	6.016,90	6.016,90	294	24	28	890	99	83
4 x 35 SM	6.921,07	6.921,07	412	28	32	1090	118	102
4 x 50 SM	8.202,79	8.202,79	588	30	34	1150	142	124
4 x 70 SM	10.916,82	10.916,82	823	33	38	1550	176	158
4 x 95 SM	14.099,25	14.099,25	1117	37	42	2010	211	190
4 x 120 SM	17.635,59	17.635,59	1411	43	48	2400	242	220
4 x 150 SM	20.278,42	20.278,42	1764	46	51	2910	270	252
4 x 185 SM	26.343,09	26.343,09	2176	52	57	3570	308	289
4 x 240 SM	33.523,09	33.523,09	2822	55	60	4380	363	339

* new colour coding see technical part page 170

E-AY2Y

PVC Insulated Cable with Aluminium Conductor and PE Outer Sheath

adapted to DIN VDE 0276-603 / ÖVE K603



Construction

Round or sector-shaped conductor of solid or stranded aluminium wires, PVC insulation, common core covering or taping, black HD-PE outer sheath, shore hardness D 58 +/-2, normalised marking and meter marking.

Application

This power cable is suitable for fixed installations in cable ducts outdoors, in water or underground if no mechanical damage is to be expected.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section mm²	Price		Alumi- nium figure kg / km	Overall diameter		Weight ca. kg / km	Current carrying	
	EUR / km			min. value ca. mm	max. value		ground A	air
E-AY2Y 0,6/1 KV	J*	O						
3 x 240 / 120 SM	32.677,68	32.677,68	2470	54	60	4100	364	338
4 x 25 RE	5.710,43	5.710,43	294	24	28	890	99	83
4 x 50 SE	8.201,77	8.201,77	588	28	33	1150	142	124
4 x 95 SE	13.348,47	13.348,47	1117	35	40	2010	211	190
4 x 150 SE	19.809,66	19.809,66	1764	44	49	2910	270	252
4 x 25 RM	6.401,43	6.401,43	294	24	28	890	99	83
4 x 35 SM	7.454,33	7.454,33	412	28	32	1090	118	102
4 x 50 SM	8.829,34	8.829,34	588	30	34	1150	142	124
4 x 95 SM	14.982,57	14.982,57	1117	37	42	2010	211	190
4 x 150 SM	21.088,99	21.088,99	1764	46	51	2910	270	252
4 x 185 SM	27.682,87	27.682,87	2176	52	57	3570	308	289
4 x 240 SM	34.710,68	34.710,68	2822	55	60	4380	363	339

* new colour coding see technical part page 170

E-A2Y

PE Insulated Overhead Line

according to ÖNORM E3600



Construction

Conductor of compacted and stranded aluminium wires, core insulation of polyethylene, cores are right-hand stranded, black, 1 - 3 cores are identified by ribs, and the fourth core is marked with the type description.

Application

This overhead line is particularly suited as a house pole cable outdoors, but not underground.

Temperature range

Ambient temperature + 35°C

Direct exposure to sunlight + 70°C

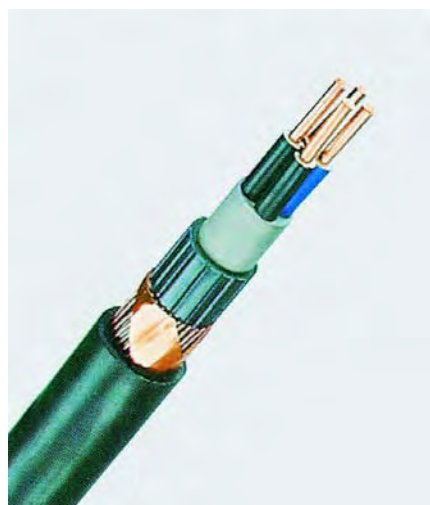
Admissible conductor temperature + 70°C

Number of cores and nominal cross section	Price	Aluminium figure	Diameter over insulation max.	Overall diameter of the stranded cores	Weight	Current carrying capacity
mm ²	EUR / km	kg / km	mm	mm	kg / km	A
E-A2Y 1 KV						
2 x 25 RM	1.825,71	147	9,5	18	210	80
4 x 25 RM	3.039,53	294	9,5	21	420	80
4 x 50 RM	4.502,14	588	12,5	28	740	125
4 x 70 RM	6.668,92	823	14,0	32	1000	160
4 x 95 RM	9.115,21	1117	16,0	37	1350	185

NYCY (E-YCY)

PVC Insulated Cable with Concentric Conductor

according to DIN VDE 0276-603 and -627 / ÖVE K603 and K23



Construction

Conductor of solid bare copper wire, PVC insulation, common core covering, concentric conductor of copper wires and copper tape, PVC outer sheath, black with normalised marking and meter marking.

Application

Underground, in water, outdoors, indoors and in cable ducts.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section	Price	Copper figure	Overall diameter		Weight	Current carrying capacity	
mm²	EUR / km	kg / km	min. value	max. value	ca. kg / km	ground	air
			ca. mm			A	
NYCY 0,6/1 KV							
2 x 1,5 RE / 1,5	1.958,85	54	12	16	215	26	18
2 x 2,5 RE / 2,5	2.286,71	83	14	18	275	34	25
2 x 4 RE / 4	2.900,51	128	15	19	365	44	34
2 x 6 RE / 6	3.482,79	190	16	20	455	56	43
3 x 1,5 RE / 1,5	1.975,84	73	13	17	235	26	18
3 x 2,5 RE / 2,5	2.363,41	113	14	18	290	34	25
3 x 4 RE / 4	3.079,01	168	16	20	415	44	34
3 x 6 RE / 6	3.779,17	250	17	21	500	56	43
4 x 1,5 RE / 1,5	2.191,24	88	14	18	270	26	18
4 x 2,5 RE / 2,5	2.626,39	138	15	19	360	34	25
4 x 4 RE / 4	3.571,43	208	17	21	460	44	34
4 x 6 RE / 6	4.355,83	309	18	22	580	56	43
5 x 1,5 RE / 1,5	2.443,88	103	15	19	310	*	*
5 x 2,5 RE / 2,5	3.080,46	163	17	21	460	*	*
NYCY Control Cable							
7 x 1,5 RE / 2,5	3.167,33	139	15	19	340	*	*
10 x 1,5 RE / 2,5	3.877,19	183	18	23	410	*	*
12 x 1,5 RE / 2,5	4.091,98	214	19	24	465	*	*
16 x 1,5 RE / 4	5.430,32	288	20	25	585	*	*
19 x 1,5 RE / 4	5.948,82	333	22	28	690	*	*
24 x 1,5 RE / 6	7.303,29	430	25	31	815	*	*
7 x 2,5 RE / 2,5	3.742,06	208	17	21	460	*	*
10 x 2,5 RE / 4	4.875,50	298	20	25	570	*	*
12 x 2,5 RE / 4	5.636,03	348	20	25	680	*	*
16 x 2,5 RE / 6	7.680,79	470	22	27	830	*	*
24 x 2,5 RE / 10	9.950,50	725	27	33	1240	*	*

Cable with blue outer sheath on request

* The current carrying capacity of the cables depends on the number of cores loaded (see DIN VDE 0276-627).

NYCY (E-YCY)

PVC Insulated Cable with Concentric Conductor Screen cross section 16 mm²

according to DIN VDE 0276-603 and -627 / ÖVE K603 and K23



Construction

Conductor of solid bare copper wire, PVC insulation, common core covering, 16 mm² concentric conductor of copper wires and copper tape, PVC outer sheath, black with normalised marking and meter marking.

Application

Underground, in water, outdoors, indoors and in cable ducts.

Temperature range

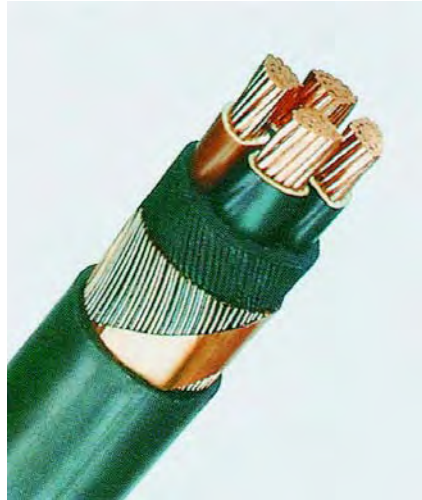
- 5°C till + 70°C

Number of cores and nominal cross section	Price	Copper figure	Overall diameter	Weight ca.	Current carrying capacity	
mm ²	EUR / km	kg / km	ca. mm	kg / km	ground	air
					A	A
NYCY 0,6/1 KV						
2 x 4 RE / 16	3.879,83	270	16	510	44	34
2 x 6 RE / 16	3.979,86	310	17	580	56	43
4 x 1,5 RE / 16	3.359,96	250	14	260	26	18
4 x 2,5 RE / 16	3.816,96	290	16	330	34	25
4 x 4 RE / 16	4.359,67	350	18	630	44	34
4 x 6 RE / 16	5.100,81	430	19	750	56	43
4 x 10 RE / 16	6.745,04	590	22	970	75	60
5 x 2,5 RE / 16	4.094,63	315	16	390	*	*
5 x 4 RE / 16	4.829,45	390	19	730	*	*
5 x 6 RE / 16	5.727,96	490	21	860	*	*
5 x 10 RM / 16	8.209,74	690	25	1200	*	*
5 x 16 RM / 16	11.220,94	990	29	1500	*	*
7 x 1,5 RE / 16	4.122,39	295	17	540	*	*
10 x 1,5 RE / 16	4.908,33	340	20	660	*	*
12 x 1,5 RE / 16	5.313,69	370	20	700	*	*
14 x 1,5 RE / 16	6.043,94	400	21	750	*	*
16 x 1,5 RE / 16	6.599,87	430	22	820	*	*
19 x 1,5 RE / 16	7.056,59	475	23	900	*	*
24 x 1,5 RE / 16	8.064,93	550	27	1110	*	*
30 x 1,5 RE / 16	9.667,64	640	28	1260	*	*
7 x 2,5 RE / 16	4.965,64	365	18	630	*	*
10 x 2,5 RE / 16	6.020,11	440	21	800	*	*
12 x 2,5 RE / 16	6.671,46	490	22	890	*	*
14 x 2,5 RE / 16	7.197,77	540	23	980	*	*
16 x 2,5 RE / 16	8.163,60	590	24	1100	*	*
19 x 2,5 RE / 16	8.314,28	665	26	1180	*	*
24 x 2,5 RE / 16	10.317,50	790	29	1450	*	*
30 x 2,5 RE / 16	12.674,25	940	31	1630	*	*

* The current carrying capacity of the cables depends on the number of cores loaded (see DIN VDE 0276-627).

NYCWX**PVC Insulated Cable with Concentric Conductor**

according to DIN VDE 0276-603 / ÖVE K603

**Construction**

Conductor of solid or stranded bare copper wire, PVC insulation, common core covering, concentric conductor of copper wires and copper tape applied helically, PVC outer sheath, black with normalised marking and meter marking.

Application

Underground, in water, outdoors, indoors and in cable ducts.

Temperature range

- 5°C till + 70°C

Number of cores and nominal cross section	Price	Copper figure	Overall diameter		Weight	Current carrying capacity	
			min. value	max. value		ground	air
mm²	EUR / km	kg / km	ca. mm		kg / km	A	
NYCWX 0,6/1 KV							
2 x 10 RE / 10	3992,30	325	18	22	600	75	60
3 x 10 RE / 10	4683,59	425	19	23	750	75	60
3 x 16 RE / 16	6374,22	670	21	25	1040	98	80
3 x 25 RM / 16	9952,94	940	25	31	1450	128	106
3 x 35 SM / 16	11092,56	1240	25	32	1610	157	131
3 x 50 SM / 25	14912,05	1795	28	35	2160	185	159
3 x 70 SM / 35	19868,30	2510	32	39	2940	228	202
3 x 95 SM / 50	26203,09	3433	37	44	3980	275	244
3 x 120 SM / 70	33609,47	4413	40	47	4930	313	282
3 x 150 SM / 70	38032,48	5313	44	51	5880	353	324
3 x 185 SM / 95	47727,02	6649	49	56	7410	399	371
3 x 240 SM / 120	61471,20	8585	56	63	9460	464	436
3 x 25 RM / 25	10476,56	1045	25	31	1540	128	106
3 x 35 SM / 35	12599,16	1460	25	32	1820	157	131
3 x 50 SM / 50	16310,15	2083	28	35	2400	185	159
3 x 70 SM / 70	22174,80	2913	33	40	3260	228	202
3 x 95 SM / 95	29353,09	3949	37	44	4420	275	244
3 x 120 SM / 120	37159,85	4985	41	48	5410	313	282
3 x 150 SM / 150	43398,99	6219	45	52	6650	353	324
4 x 10 RE / 10	6071,62	525	20	24	880	75	60
4 x 16 RE / 16	7978,77	829	23	27	1240	98	80
4 x 25 RM / 16	10851,19	1190	27	34	1750	128	106
4 x 35 SM / 16	13875,06	1590	28	35	2020	157	131
4 x 50 SM / 25	17783,00	2295	32	39	2730	185	159
4 x 70 SM / 35	25052,09	3210	36	43	3760	228	202
4 x 95 SM / 50	33285,89	4383	42	49	5060	275	244
4 x 120 SM / 70	39502,56	5613	46	53	6250	313	282
4 x 150 SM / 70	46577,15	6813	50	57	7560	353	324
4 x 185 SM / 95	57977,51	8499	55	62	9750	396	363
4 x 240 SM / 120	75912,95	10913	60	67	12500	459	429

Copper Rope

according to DIN 48201



Construction

Stranded bare or tinned copper conductor, according to IEC 228, class 2.

Application

For connecting to ground in power installations.

Nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Cond. construction * (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
Copper rope bare					
16	911,10	160	7 x 1,70	5,1	143
25	1.443,50	250	7 x 2,10	6,3	219
35	2.001,90	350	7 x 2,50	7,5	310
50	2.837,20	500	7 x 3,00	9,0	447
50	2.837,20	500	19 x 1,80	9,0	438
70	3.957,00	700	19 x 2,10	10,5	597
95	5.486,80	950	19 x 2,50	12,5	846
120	6.747,60	1200	19 x 2,80	14,0	1061
150	8.352,20	1500	37 x 2,25	15,7	1337
185	10.515,70	1850	37 x 2,50	17,5	1651
240	13.398,90	2400	61 x 2,25	20,2	2208
Copper rope tinned					
16	1.002,30	160	7 x 1,70	5,1	143
25	1.587,90	250	7 x 2,10	6,3	219
35	2.202,10	350	7 x 2,50	7,5	310
50	3.120,90	500	7 x 3,00	9,0	447
50	3.120,90	500	19 x 1,80	9,0	438
70	4.352,70	700	19 x 2,10	10,5	597
95	6.035,40	950	19 x 2,50	12,5	846
120	7.422,40	1200	19 x 2,80	14,0	1061
150	9.187,50	1500	37 x 2,25	15,7	1337
185	11.567,30	1850	37 x 2,50	17,5	1651
240	14.738,70	2400	61 x 2,25	20,2	2208

* data only valid for the non-compacted conductor construction

NYFGY (E-YFGY)

Three-core PVC Insulated Cable with Flat Wire Armour

according to DIN VDE 0271 / ÖVE - K23



Construction

Conductor of stranded bare copper wires, PVC insulation, common core covering, armour of galvanised flat steel wires and counter helix, red PVC outer sheath with normalised marking and meter marking.

Application

To be laid directly in ground, in water, outdoors, indoors and in cable ducts if increased mechanical protection is required or if greater tensile stresses are to be expected during installation and operation.

Temperature range

- 5°C till + 70°C

Admissible conductor temperature + 70°C

Admissible short circuit temperature + 160°C

(for the duration of max. 5 s)

Number of cores and nominal cross section	Price	Copper figure	Overall diameter		Weight	Current carrying capacity	
			min. value	max. value		ground	air
mm²	EUR / km	kg / km	ca. mm		kg / km	A	
NYFGY 3,6/6 KV							
3 x 25 RM	13.185,60	750	36	42	2640	126	105
3 x 35 SM	14.116,30	1050	36	43	2730	158	131
3 x 50 SM	17.024,90	1500	38	46	3220	187	157
3 x 70 SM	21.384,60	2100	41	49	4010	230	197
3 x 95 SM	27.513,50	2850	45	53	4930	275	241
3 x 120 SM	31.815,50	3600	48	56	5810	313	277
3 x 150 SM	37.994,10	4500	51	59	6770	352	316
3 x 185 SM	46.294,40	5550	55	64	7960	397	362
3 x 240 SM	56.205,10	7200	59	68	9850	460	427

N2XSEY (E-2XHCEY)

Three-core XLPE Insulated Cable with PVC Outer Sheath

according to DIN VDE 0276-620 / ÖVE - K620



Construction

Conductor of stranded bare copper wires, inner layer of semi-conducting material, insulation of cross-linked polyethylene (XLPE), outer layer of semi-conducting material, semi-conducting tape, copper wires and copper tape applied helically over each individual core, inner covering over laid-up cores, red PVC outer sheath with normalised marking and meter marking.

Application

To be laid directly in ground, in water, outdoors, indoors and in cable ducts e.g. in industrial and switchboard plants.

Temperature range

- 5°C till + 70°C

Admissible conductor temperature + 90°C

Admissible short circuit temperature + 250°C

(for the duration of max. 5 s)

Number of cores and nominal cross section	Price	Copper figure	Overall diameter		Weight	Current carrying	
			min. value	max. value		capacity ground	air
mm²	EUR / km	kg / km	ca. mm		kg / km	A	
N2XSEY 6/10 KV							
3 x 35 RM / 16	22.422,10	1260	46	49	2380	178	173
3 x 50 RM / 16	26.640,10	1690	49	52	2600	210	206
3 x 70 RM / 16	32.714,50	2290	52	56	3350	256	257
3 x 95 RM / 16	41.613,40	3040	56	60	4200	307	313
3 x 120 RM / 16	48.549,30	3790	60	64	5050	349	360
3 x 150 RM / 25	56.328,80	4795	65	68	6000	392	410
3 x 185 RM / 25	64.348,40	5845	67	70	7200	443	469
3 x 240 RM / 25	77.843,50	7495	72	76	9000	513	553

N2XSY (E-2XHCY)
NA2XSY (E-A2XHCY)

XLPE Insulated Single-Core Cable with PVC Outer Sheath

according to DIN VDE 0276-620 / ÖVE - K620



Construction

Conductor of stranded bare copper or aluminium wires, inner layer of semi-conducting material, insulation of cross-linked polyethylene (XLPE), outer layer of semi-conducting material, conducting tape, copper wires and copper tape applied helically, separator tape, red PVC outer sheath with normalised marking and meter marking.

Application

To be laid directly in ground, outdoors, indoors and in cable ducts.

Temperature range

- 5°C till + 70°C

Admissible conductor temperature + 90°C

Admissible short circuit temperature + 250°C

(for the duration of max. 5 s)

Number of cores and nominal cross section	Price	Aluminium figure	Copper figure	Overall diameter		Weight	Current carrying *	
				min. value	max. value		capacity ground	air
mm²	EUR / km	kg / km	kg / km	ca. mm		ca. kg / km		A
N2XSY 6/10 KV								
1 x 35 RM / 16	6.821,30	--	540	23	28	900	187	195
1 x 50 RM / 16	7.466,40	--	690	24	29	1050	220	234
1 x 70 RM / 16	8.693,30	--	890	26	31	1300	269	292
1 x 95 RM / 16	10.275,60	--	1140	27	32	1600	321	354
1 x 120 RM / 16	12.191,00	--	1390	29	34	1850	364	407
1 x 150 RM / 25	14.327,30	--	1795	30	35	2200	405	460
1 x 185 RM / 25	16.618,00	--	2145	32	37	2600	457	527
1 x 240 RM / 25	20.078,80	--	2695	34	39	3150	528	621
1 x 300 RM / 25	23.773,80	--	3295	36	40	3750	593	709
1 x 400 RM / 35	30.497,60	--	4410	40	45	4650	665	815
1 x 500 RM / 35	38.779,70	--	5410	43	48	5750	739	921
NA2XSY 6/10 KV								
1 x 35 RM / 16	6.535,10	103	190	23	28	700	144	164
1 x 50 RM / 16	7.093,70	147	190	24	29	750	171	181
1 x 70 RM / 16	8.000,00	206	190	26	31	850	209	226
1 x 95 RM / 16	9.074,20	279	190	27	32	950	249	275
1 x 120 RM / 16	10.251,70	353	190	29	34	1050	283	317
1 x 150 RM / 25	11.593,50	441	295	30	35	1300	316	359
1 x 185 RM / 25	13.072,90	544	295	32	37	1400	358	412
1 x 240 RM / 25	15.230,00	706	295	34	39	1650	416	489
1 x 300 RM / 25	17.480,50	882	295	36	40	1850	469	559
1 x 400 RM / 35	22.217,10	1176	410	40	45	2300	532	651

* trefoil touching arrangement

Number of cores and nominal cross section	Price	Aluminium figure	Copper figure	Overall diameter		Weight	Current carrying *	
				min. value	max. value		capacity ground	air
mm²	EUR / km	kg / km	kg / km	ca. mm		ca. kg / km		A
N2XSY 12/20 KV								
1 x 35 RM / 16	10.451,80	--	540	27	32	1100	189	199
1 x 50 RM / 16	11.295,90	--	690	28	33	1250	223	238
1 x 70 RM / 16	17.048,70	--	890	30	35	1450	273	296
1 x 95 RM / 16	14.771,10	--	1140	31	36	1750	325	358
1 x 120 RM / 16	17.048,70	--	1390	33	38	2050	368	412
1 x 150 RM / 25	19.464,40	--	1795	34	39	2400	410	466
1 x 185 RM / 25	22.259,20	--	2145	36	41	2800	463	532
1 x 240 RM / 25	25.295,30	--	2695	39	44	3400	534	627
1 x 300 RM / 25	28.818,90	--	3295	41	46	4000	601	715
1 x 400 RM / 35	34.119,20	--	4410	44	49	4950	674	819
1 x 500 RM / 35	45.180,50	--	5410	47	52	6050	750	927
NA2XSY 12/20 KV								
1 x 50 RM / 16	9.738,00	147	190	28	33	950	173	184
1 x 70 RM / 16	10.443,00	206	190	30	35	1050	211	229
1 x 95 RM / 16	11.411,00	279	190	31	36	1150	252	278
1 x 120 RM / 16	12.530,20	353	190	33	38	1300	287	320
1 x 150 RM / 25	13.935,00	441	295	34	39	1500	320	363
1 x 185 RM / 25	15.660,70	544	295	36	41	1650	362	415
1 x 240 RM / 25	17.723,60	706	295	39	44	1850	421	493
1 x 300 RM / 25	20.410,50	882	295	41	46	2100	474	563
1 x 400 RM / 35	26.059,30	1176	410	44	49	2550	538	652
N2XSY 18/30 KV								
1 x 50 RM / 16	15.867,50	--	690	33	38	1450	226	241
1 x 70 RM / 16	17.248,70	--	890	35	40	1700	276	299
1 x 95 RM / 16	18.983,80	--	1140	36	41	2050	329	362
1 x 120 RM / 16	20.903,50	--	1390	38	43	2300	373	416
1 x 150 RM / 25	23.148,70	--	1795	39	44	2700	415	469
1 x 185 RM / 25	25.879,40	--	2145	41	46	3100	468	536
1 x 240 RM / 25	29.060,00	--	2695	43	48	3700	541	630
1 x 300 RM / 25	32.544,60	--	3295	46	51	4350	608	717
1 x 400 RM / 35	37.586,20	--	4410	49	54	5300	684	823
1 x 500 RM / 35	50.363,50	--	5410	52	57	6450	762	929
NA2XSY 18/30 KV								
1 x 50 RM / 16	13.858,10	147	190	33	38	1150	175	187
1 x 70 RM / 16	14.472,50	206	190	35	40	1300	214	232
1 x 95 RM / 16	15.516,00	279	190	36	41	1450	256	281
1 x 120 RM / 16	16.805,00	353	190	38	43	1550	290	323
1 x 150 RM / 25	18.278,10	441	295	39	44	1800	324	365
1 x 185 RM / 25	19.998,50	544	295	41	46	1950	366	418
1 x 240 RM / 25	21.866,30	706	295	43	48	2200	426	494
1 x 300 RM / 25	23.836,10	882	295	46	51	2450	479	564
1 x 400 RM / 35	26.511,20	1176	410	49	54	2900	545	654

* trefoil touching arrangement

N2XS2Y (E-2XHC2Y)
NA2XS2Y (E-A2XHC2Y)

XLPE Insulated Single-Core Cable with PE Outer Sheath

according to DIN VDE 0276-620 / ÖVE - K620



Construction

Conductor of stranded bare copper or aluminium wires, inner layer of semi-conducting material, insulation of cross-linked polyethylene (XLPE), outer layer of semi-conducting material, conducting tape, copper wires and copper tape applied helically, separator tape, black polyethylene outer sheath with normalised marking and meter marking.

Application

To be laid directly in ground, outdoors, indoors and in cable ducts.

Temperature range

- 20°C till + 80°C

Admissible conductor temperature + 90°C

Admissible short circuit temperature + 250°C

(for the duration of max. 5 s)

Number of cores and nominal cross section	Price	Aluminium figure	Copper figure	Overall diameter		Weight	Current carrying *	
				min. value	max. value		capacity ground	air
mm²	EUR / km	kg / km	kg / km	ca. mm		ca. kg / km	A	
N2XS2Y 6/10 KV								
1 x 35 RM / 16	6.821,30	--	540	23	28	800	187	195
1 x 50 RM / 16	7.466,40	--	690	24	29	950	220	234
1 x 70 RM / 16	8.693,30	--	890	26	31	1150	269	292
1 x 95 RM / 16	10.275,60	--	1140	27	32	1450	321	354
1 x 120 RM / 16	12.191,00	--	1390	29	34	1700	364	407
1 x 150 RM / 25	14.327,30	--	1795	30	35	2050	405	460
1 x 185 RM / 25	16.618,00	--	2145	32	37	2450	457	527
1 x 240 RM / 25	20.078,80	--	2695	34	39	3000	528	621
1 x 300 RM / 25	23.773,80	--	3295	36	40	3600	593	709
1 x 400 RM / 35	30.497,60	--	4410	40	45	4500	665	815
1 x 500 RM / 35	38.779,70	--	5410	43	48	5550	739	921
NA2XS2Y 6/10 KV								
1 x 35 RM / 16	6.535,10	103	190	23	28	600	144	151
1 x 50 RM / 16	7.093,70	147	190	24	29	650	171	181
1 x 70 RM / 16	8.000,00	206	190	26	31	750	209	226
1 x 95 RM / 16	9.074,20	279	190	27	32	850	249	275
1 x 120 RM / 16	10.251,70	353	190	29	34	950	283	317
1 x 150 RM / 25	11.593,50	441	295	30	35	1150	316	359
1 x 185 RM / 25	13.072,90	544	295	32	37	1300	358	412
1 x 240 RM / 25	15.230,00	706	295	34	39	1500	416	489
1 x 300 RM / 25	17.480,50	882	295	36	40	1700	469	559
1 x 400 RM / 35	22.217,10	1176	410	40	45	2100	532	651

* trefoil touching arrangement

Number of cores and nominal cross section	Price	Aluminium figure	Copper figure	Overall diameter		Weight	Current carrying *	
				min. value	max. value	ca.	ground	air
mm²	EUR / km	kg / km	kg / km	ca. mm		kg / km	A	
N2XS2Y 12/20 KV								
1 x 35 RM / 16	10.451,80	--	540	27	32	950	189	199
1 x 50 RM / 16	11.295,90	--	690	28	33	1100	223	238
1 x 70 RM / 16	12.801,40	--	890	30	35	1350	273	296
1 x 95 RM / 16	14.771,10	--	1140	31	36	1650	325	358
1 x 120 RM / 16	17.048,70	--	1390	33	38	1900	368	412
1 x 150 RM / 25	19.464,40	--	1795	34	39	2300	410	466
1 x 185 RM / 25	22.259,20	--	2145	36	41	2650	463	532
1 x 240 RM / 25	25.295,30	--	2695	39	44	3250	534	627
1 x 300 RM / 25	28.818,90	--	3295	41	46	3850	601	715
1 x 400 RM / 35	34.119,20	--	4410	44	49	4750	674	819
1 x 500 RM / 35	45.180,50	--	5410	47	52	5850	750	927
NA2XS2Y 12/20 KV								
1 x 50 RM / 16	9.738,00	147	190	28	33	800	173	184
1 x 70 RM / 16	10.443,00	206	190	30	35	900	211	229
1 x 95 RM / 16	11.411,00	279	190	31	36	1050	252	278
1 x 120 RM / 16	12.530,20	353	190	33	38	1150	287	320
1 x 150 RM / 25	13.935,00	441	295	34	39	1350	320	363
1 x 185 RM / 25	15.660,70	544	295	36	41	1500	362	415
1 x 240 RM / 25	17.723,60	706	295	39	44	1700	421	493
1 x 300 RM / 25	20.410,50	882	295	41	46	1950	474	563
1 x 400 RM / 35	26.059,30	1176	410	44	49	2350	538	652
N2XS2Y 18/30 KV								
1 x 50 RM / 16	15.867,50	--	690	33	38	1350	226	241
1 x 70 RM / 16	17.248,70	--	890	35	40	1550	276	299
1 x 95 RM / 16	18.983,80	--	1140	36	41	1900	329	362
1 x 120 RM / 16	20.903,50	--	1390	38	43	2150	373	416
1 x 150 RM / 25	23.148,70	--	1795	39	44	2550	415	469
1 x 185 RM / 25	25.879,40	--	2145	41	46	2950	468	536
1 x 240 RM / 25	29.060,00	--	2695	43	48	3500	541	630
1 x 300 RM / 25	32.544,60	--	3295	46	51	4150	608	717
1 x 400 RM / 35	37.586,20	--	4410	49	54	5050	684	823
1 x 500 RM / 35	50.363,50	--	5410	52	57	6200	762	929
NA2XS2Y 18/30 KV								
1 x 50 RM / 16	13.858,10	147	190	33	38	1050	175	187
1 x 70 RM / 16	14.472,50	206	190	35	40	1150	214	232
1 x 95 RM / 16	15.516,00	279	190	36	41	1250	256	281
1 x 120 RM / 16	16.805,00	353	190	38	43	1400	290	323
1 x 150 RM / 25	18.278,10	441	295	39	44	1600	324	365
1 x 185 RM / 25	19.998,50	544	295	41	46	1750	366	418
1 x 240 RM / 25	21.866,30	706	295	43	48	2000	426	494
1 x 300 RM / 25	23.836,10	882	295	46	51	2250	479	564
1 x 400 RM / 35	26.511,20	1176	410	49	54	2700	545	654

* trefoil touching arrangement

N2XS(F)2Y (E-2XHCJ2Y)
NA2XS(F)2Y (E-A2XHCJ2Y)

Single-Core XLPE Insulated Cable with PE Outer Sheath, longitudinally watertight
according to DIN VDE 0276-620 / ÖVE - K620



Construction

Conductor of stranded bare copper or aluminium wires, inner layer of semi-conducting material, insulation of cross-linked polyethylene (XLPE), screen of semi-conducting compound, semi-conducting swellable tape, screen of copper wires and anti-twist tape, black polyethylene outer sheath, with normalised marking and meter marking.

Application

To be laid direct in ground, outdoors, indoors and in cable ducts.

Temperature range

- 20°C till + 80°C

Admissible conductor temperature + 90°C

Admissible short circuit temperature + 250°C

(for the duration of max. 5 s)

Number of cores and nominal cross section mm²	Price EUR / km	Aluminium figure kg / km	Copper figure kg / km	Overall diameter		Weight ca. kg / km	Current carrying *	
				min. value	max. value ca. mm		ground	air
								A
N2XS(F)2Y 6/10 KV								
1 x 50 RM / 16	9.458,70	--	690	24	29	950	220	234
1 x 70 RM / 16	10.729,40	--	890	26	31	1150	269	292
1 x 95 RM / 16	12.375,30	--	1140	27	32	1450	321	354
1 x 120 RM / 16	14.356,00	--	1390	29	34	1700	364	407
1 x 150 RM / 25	16.569,60	--	1795	30	35	2050	405	460
1 x 185 RM / 25	18.969,70	--	2145	32	37	2450	457	527
1 x 240 RM / 25	22.594,50	--	2695	34	39	3000	528	621
1 x 300 RM / 25	26.474,20	--	3295	36	41	3600	593	709
1 x 400 RM / 35	33.487,70	--	4410	40	45	4500	665	815
1 x 500 RM / 35	42.078,50	--	5410	43	48	5550	739	921
NA2XS(F)2Y 6/10 KV								
1 x 35 RM / 16	8.477,00	103	190	23	28	600	144	151
1 x 50 RM / 16	9.067,60	147	190	24	29	670	171	181
1 x 70 RM / 16	10.017,30	206	190	26	31	770	209	226
1 x 95 RM / 16	11.154,50	279	190	27	32	880	249	275
1 x 120 RM / 16	12.396,70	353	190	29	34	950	283	317
1 x 150 RM / 25	13.815,10	441	295	30	35	1150	316	359
1 x 185 RM / 25	15.402,80	544	295	32	37	1250	358	412
1 x 240 RM / 25	17.722,50	706	295	34	39	1500	416	489
1 x 300 RM / 25	20.155,80	882	295	36	41	1700	469	559
1 x 400 RM / 35	25.179,40	1176	410	40	45	2100	532	651
1 x 500 RM / 35	32.767,40	1470	410	43	48	2450	602	767

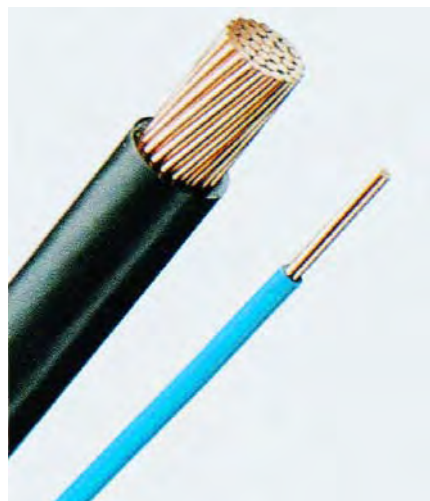
* trefoil touching arrangement

Number of cores and nominal cross section	Price	Aluminium figure	Copper figure	Overall diameter		Weight	Current carrying *	
				min. value	max. value		capacity ground	air
mm²	EUR / km	kg / km	kg / km	ca. mm		ca. kg / km	A	
N2XS(F)2Y 12/20 KV								
1 x 35 RM / 16	12.649,00	--	540	27	32	950	189	199
1 x 50 RM / 16	13.522,30	--	690	28	33	1100	223	238
1 x 70 RM / 16	15.079,40	--	890	30	35	1350	273	296
1 x 95 RM / 16	17.105,40	--	1140	31	36	1650	325	358
1 x 120 RM / 16	19.451,10	--	1390	33	38	1900	368	412
1 x 150 RM / 25	21.952,80	--	1795	34	39	2300	410	466
1 x 185 RM / 25	24.855,60	--	2145	36	41	2650	463	532
1 x 240 RM / 25	28.053,30	--	2695	39	44	3250	534	627
1 x 300 RM / 25	31.768,20	--	3295	41	46	3850	601	715
1 x 400 RM / 35	37.373,50	--	4410	44	49	4750	674	819
1 x 500 RM / 35	48.748,60	--	5410	47	52	5850	750	927
NA2XS(F)2Y 12/20 KV								
1 x 50 RM / 16	11.943,60	147	190	28	33	820	173	184
1 x 70 RM / 16	12.699,90	206	190	30	35	930	211	229
1 x 95 RM / 16	13.723,70	279	190	31	36	1050	252	278
1 x 120 RM / 16	14.910,20	353	190	33	38	1150	287	320
1 x 150 RM / 25	16.400,70	441	295	34	39	1350	320	363
1 x 185 RM / 25	18.232,80	544	295	36	41	1500	362	415
1 x 240 RM / 25	20.456,30	706	295	39	44	1750	421	493
1 x 300 RM / 25	23.332,40	882	295	41	46	2000	474	563
1 x 400 RM / 35	29.283,40	1176	410	44	49	2350	538	652
1 x 500 RM / 35	41.081,80	1470	410	47	52	2800	609	766
N2XS(F)2Y 18/30 KV								
1 x 120 RM / 16	23.618,30	--	1390	38	43	2150	373	416
1 x 150 RM / 25	25.944,70	--	1795	39	44	2550	415	469
1 x 185 RM / 25	28.781,50	--	2145	41	46	2950	468	536
1 x 240 RM / 25	32.125,60	--	2695	43	48	3500	541	630
1 x 300 RM / 25	35.798,80	--	3295	46	51	4150	608	717
1 x 400 RM / 35	41.157,40	--	4410	49	54	5050	684	823
1 x 500 RM / 35	54.311,60	--	5410	52	57	6200	762	929
NA2XS(F)2Y 18/30 KV								
1 x 50 RM / 16	16.376,90	147	190	33	38	1100	175	187
1 x 70 RM / 16	17.049,40	206	190	35	40	1200	214	232
1 x 95 RM / 16	18.137,90	279	190	36	41	1350	256	281
1 x 120 RM / 16	19.494,80	353	190	38	43	1450	290	323
1 x 150 RM / 25	21.048,00	441	295	39	44	1700	324	365
1 x 185 RM / 25	22.873,60	544	295	41	46	1850	366	418
1 x 240 RM / 25	24.903,40	706	295	43	48	2050	426	494
1 x 300 RM / 25	27.060,20	882	295	46	51	2350	479	564
1 x 400 RM / 35	33.960,70	1176	410	49	54	2800	545	654
1 x 500 RM / 35	47.647,20	1470	410	52	57	3200	616	764

* trefoil touching arrangement

H05Z-U
H07Z-U
H07Z-R
Halogen-Free Single Core Wire

according to DIN VDE 0282-9


Construction

 Solid and above 6 mm² stranded bare or tinned copper conductor, insulated with cross-linked polyolefin-copolymerisate (HI3), flame retardant and halogen-free.

Application

This wire is well suited for internal wiring in switchboards, appliances, and lighting fittings as well as for house installations but not for outdoors.

Temperature range

- 20°C till + 80°C

Admissible conductor temperature + 90°C

Nominal cross section	Colours	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight	Calorific potential
mm²		EUR / km	kg / km	mm	ca. mm	ca. kg / km	kWh/m
H05Z-U 300/500 V							
0,5	bla/br/blu gy	352,25	5,0	1 x 0,80	2,2	9	0,22
		387,55	5,0	1 x 0,80	2,2	9	0,22
0,75	bla/br/blu gy	379,09	7,5	1 x 0,98	2,4	11	0,23
		416,96	7,5	1 x 0,98	2,4	11	0,23
1	bla/br/blu gy	399,23	10,0	1 x 1,13	2,6	14	0,26
		440,08	10,0	1 x 1,13	2,6	14	0,26
H07Z-U 450/750 V							
1,5	bla/br/blu gy	441,41	15,0	1 x 1,38	3,0	20	0,37
		485,57	15,0	1 x 1,38	3,0	20	0,37
2,5	bla/br/blu gy	537,78	25,0	1 x 1,78	3,4	30	0,44
		591,55	25,0	1 x 1,78	3,4	30	0,44
4	bla/br/blu gy	641,93	40,0	1 x 2,25	4,1	45	0,52
		706,07	40,0	1 x 2,25	4,1	45	0,52
H07Z-R 450/750 V							
6	bla/br/blu gy	760,18	60,0	7 x 1,05	4,5	65	0,61
		836,16	60,0	7 x 1,05	4,5	65	0,61
10	bla/br/blu gy	1.148,89	100,0	7 x 1,35	5,4	110	0,74
		1.263,82	100,0	7 x 1,35	5,4	110	0,74
16	bla/br/blu gy	1.967,65	160,0	7 x 1,70	7,0	170	1,00
		2.164,45	160,0	7 x 1,70	7,0	170	1,00

Other dimensions and colours on request.

H05Z-K H07Z-K

Halogen-Free Single Core Wire

according to DIN VDE 0282-9



Construction

fine-stranded bare or tinned copper conductor, insulated with cross-linked polyolefin-copolymerisate (HI3), flame retardant and halogen-free, polymer compound according to VDE 207, part 23 HI 1.

Application

This wire is well suited for internal wiring in switchboards, appliances, lighting fittings as well as for house installations, but not for outdoors.

Temperature range

- 20°C till + 90°C

Admissible conductor temperature + 90°C

Nominal cross section	Colours	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight	Calorific potential
mm ²		EUR / km	kg / km	mm	ca. mm	ca. kg / km	kWh/m
H05Z-K 300/500 V							
0,5	bla/br/blu gy/gr	357,97 393,68	5,0 5,0	16 x 0,21 16 x 0,21	2,4 2,4	9 9	0,23 0,23
0,75	bla/br/blu gy/gr	389,54 428,48	7,5 7,5	24 x 0,21 24 x 0,21	2,6 2,6	11 11	0,26 0,26
1	bla/br/blu gy/gr	415,89 457,40	10,0 10,0	32 x 0,21 32 x 0,21	2,8 2,8	14 14	0,29 0,29
H07Z-K 450/750 V							
1,5	bla/br/blu gy/rd/gr	455,33 500,90	15,0 15,0	30 x 0,26 30 x 0,26	3,3 3,3	20 20	0,40 0,40
2,5	bla/br/blu gy/gr	632,16 695,46	25,0 25,0	50 x 0,26 50 x 0,26	3,8 3,8	30 30	0,49 0,49
4	bla/br/blu gy/gr	881,24 969,49	40,0 40,0	56 x 0,31 56 x 0,31	4,6 4,6	45 45	0,59 0,59
6	bla/br/blu gy/gr	1.149,88 1.264,89	60,0 60,0	84 x 0,31 84 x 0,31	5,2 5,2	65 65	0,71 0,71
10	bla/br/blu gy/gr	1.637,69 1.801,51	100,0 100,0	80 x 0,41 80 x 0,41	6,2 6,2	110 110	0,89 0,89
16	bla/br/blu gy/gr	2.049,35 2.254,35	160,0 160,0	128 x 0,41 128 x 0,41	7,1 7,1	170 170	1,20 1,20
25	bla gy	3.172,47 3.479,71	250,0	200 x 0,41	10,0	260	1,80
35	bla	3.913,01	350,0	280 x 0,41	11,9	360	2,20
50	bla gy	5.285,87 5.814,40	500,0	400 x 0,41	13,7	510	2,90
70	bla	7.178,61	700,0	356 x 0,51	16,4	710	3,70
95	bla	9.145,60	950,0	485 x 0,51	19,2	915	4,30

Other dimensions and colours on request.

NHXMH**Halogen-Free Sheathed Wire with Improved Fire Behaviour**

according to DIN VDE 0250-214

**Construction**

Solid or stranded bare copper conductor, insulated with cross-linked polyethylene (2X11), core colours according to VDE 0293, cores are stranded, above 7 cores they are also layered, common core covering of a halogen-free filling compound, outer sheath of a halogen-free compound HM2, light grey (RAL 7035) with black marking.

Application

To be installed in buildings or industrial plants where many people and goods are concentrated. As they don't develop corrosive and halogen gases under the impact of fire, and the smoke and fume generation is also minimal, the damage caused is much smaller. They are destined for the installation on, in and under the wall-surface in dry, humid and wet locations as well as in brickwork or outdoors but not directly into the earth.

Temperature range

During laying - 5°C till + 70°C
 After laying - 40°C till + 70°C
 Admissible conductor temperature + 70°C

Number of cores and Nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Conductor construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km	Calorific potential kWh/m
NHXMH 300/500 V						
2 x 1,5	1.572,39	30	1 x 1,38	8,5	110	0,36
3 x 1,5	1.735,80	45	1 x 1,38	8,7	126	0,42
3 x 2,5	2.185,16	75	1 x 1,78	9,5	167	0,47
4 x 1,5	2.134,12	60	1 x 1,38	9,5	150	0,47
4 x 2,5	2.688,96	100	1 x 1,78	10,5	200	0,56
4 x 4	3.333,96	160	1 x 2,25	12,5	300	0,78
4 x 6	4.216,70	240	1 x 2,76	14,0	395	0,94
4 x 10 RE	6.243,73	400	1 x 3,56	18,0	680	1,30
4 x 16 RM	10.724,50	640	7 x 1,70	22,0	1030	1,80
5 x 1,5	2.625,82	75	1 x 1,38	10,0	175	0,56
5 x 2,5	3.366,11	125	1 x 1,78	11,0	235	0,64
5 x 4	4.289,45	200	1 x 2,25	14,0	350	0,98
5 x 6	5.302,61	300	1 x 2,76	15,0	480	1,10
5 x 10 RE	7.204,84	500	1 x 3,56	21,0	830	1,50
5 x 16 RM	13.849,10	800	7 x 1,70	24,0	1280	2,20
7 x 1,5	3.062,01	105	1 x 1,38	10,7	214	0,64
10 x 1,5 *	3.842,90	150	1 x 1,38	11,6	264	0,95
12 x 1,5 *	4.365,93	180	1 x 1,38	12,9	354	1,00

* Adapted to VDE.

Remark: Halogen-free according to DIN VDE 0472-813.
 Corrosiveness of combustion gases (halogen content) according to DIN VDE 0472-813
 Fire behaviour (nonflammability) according to DIN VDE 0472-804, test C.

HSLH

Halogen-Free Control Cable with Improved Fire Behaviour - FRNC



Construction

Stranded bare copper wires, VDE 0295 class 5, there is a green-yellow core (not in OZ - types), all the other cores are black with consecutive white numbers, core insulation and outer sheath are of halogen-free polyolefin-copolymer with improved fire behaviour, sheath colour is light grey.

Application

For installations in dry, damp and wet locations, but not outdoors. These cables are used for fix or for flexible applications – but not with high tensile load or for forced bending.

Temperature range

During laying	- 25°C till + 70°C
After laying	- 40°C till + 80°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section mm ²	Price EUR / km	Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
HSLH 300/500 V					
2 x 0,75	1.401,70	15,0	24 x 0,21	5,7	53
3 x 0,75	1.774,30	22,5	24 x 0,21	6,0	63
4 x 0,75	1.833,00	30,0	24 x 0,21	6,5	77
5 x 0,75	2.159,90	37,5	24 x 0,21	7,1	94
7 x 0,75	3.247,50	52,5	24 x 0,21	7,5	116
12 x 0,75	4.405,30	90,0	24 x 0,21	10,2	187
18 x 0,75	7.092,10	135,0	24 x 0,21	11,9	285
25 x 0,75	9.405,70	187,5	24 x 0,21	13,85	397
2 x 1	1.434,90	20,0	32 x 0,21	6,1	62
3 x 1	1.766,00	30,0	32 x 0,21	6,4	74
4 x 1	2.142,90	40,0	32 x 0,21	7,0	91
5 x 1	2.452,90	50,0	32 x 0,21	7,6	111
7 x 1	3.404,40	70,0	32 x 0,21	8,1	140
12 x 1	5.093,10	120,0	32 x 0,21	11,1	232
18 x 1	7.585,80	180,0	32 x 0,21	13,4	332
25 x 1	10.461,50	250,0	32 x 0,21	15,4	464
2 x 1,5	1.737,70	30,0	30 x 0,26	6,9	84
3 x 1,5	2.042,60	45,0	30 x 0,26	7,3	102
4 x 1,5	2.465,40	60,0	30 x 0,26	7,9	125
5 x 1,5	3.144,80	75,0	30 x 0,26	8,9	154
7 x 1,5	4.345,70	105,0	30 x 0,26	9,8	193
12 x 1,5	6.971,90	180,0	30 x 0,26	13,2	323
18 x 1,5	10.210,40	270,0	30 x 0,26	15,9	479
25 x 1,5	13.845,20	375,0	30 x 0,26	18,5	678
34 x 1,5	19.175,90	510	30 x 0,26	22,0	922
2 x 2,5	2.470,50	50,0	48 x 0,26	8,5	123
3 x 2,5	3.007,20	75,0	48 x 0,26	9,0	151
4 x 2,5	4.087,20	100,0	48 x 0,26	10,0	188
5 x 2,5	4.698,00	125,0	48 x 0,26	11,0	234
7 x 2,5	6.279,30	175,0	48 x 0,26	12,7	306
12 x 2,5	10.261,10	300,0	48 x 0,26	16,0	508
4 x 4	6.714,90	160,0	56 x 0,31	12,8	301
5 x 4	8.305,00	200,0	56 x 0,31	14,5	355
4 x 6	9.689,40	240,0	84 x 0,31	14,6	380
5 x 6	11.679,50	420,0	84 x 0,31	16,4	490
5 x 10	19.935,60	500,0	80 x 0,41	22,4	840

HSLCH**Halogen-Free Control Cable with EMV-Optimised Braided Screen and Improved Fire Behaviour - FRNC****Construction**

Fine-stranded bare copper wires acc. to VDE 0295 class 5, there is a green-yellow core (not in OZ - types), all the other cores are black with consecutive white numbers, screen of tinned copper wire braiding, core insulation and outer sheath are of halogen-free polyolefin-copolymer with improved fire behaviour, sheath colour is light grey.

Application

For installations in dry, damp and wet locations but not outdoors. These cables are used for fix or for flexible applications – but not with high tensile load and for forced bending. Suitable as a signal and impulse cable in the control, measuring and signal technology. The copper braiding optimises protection against external interferences, like electro-magnetic fields and stray frequencies.

Temperature range

During laying - 25°C till + 70°C
 After laying - 40°C till + 80°C
 Admissible conductor temperature + 90°C

Number of cores and nominal cross section mm²	Price EUR / km	Copper figure kg / km	Wire construction (approx. value) mm	Overall diameter ca. mm	Weight ca. kg / km
HSLCH 300/500 V					
2 x 0,75	1.769,10	43	24 x 0,21	6,7	53
3 x 0,75	2.064,70	52	24 x 0,21	7,0	63
4 x 0,75	2.552,60	61	24 x 0,21	7,5	77
5 x 0,75	3.111,10	72	24 x 0,21	8,1	94
7 x 0,75	4.202,50	89	24 x 0,21	8,7	116
12 x 0,75	6.474,50	138	24 x 0,21	11,4	187
18 x 0,75	8.941,80	211	24 x 0,21	13,3	285
25 x 0,75	12.736,10	280	24 x 0,21	16,0	397
2 x 1	1.904,10	51	32 x 0,21	7,1	62
3 x 1	2.460,00	62	32 x 0,21	7,4	74
4 x 1	2.970,90	74	32 x 0,21	8,0	91
5 x 1	3.945,80	88	32 x 0,21	8,7	111
7 x 1	4.728,50	112	32 x 0,21	9,3	140
12 x 1	7.331,60	185	32 x 0,21	12,3	232
18 x 1	10.712,40	268	32 x 0,21	14,7	332
25 x 1	15.032,80	354	32 x 0,21	17,7	464
2 x 1,5	2.597,60	65	30 x 0,26	8,0	84
3 x 1,5	3.038,00	82	30 x 0,26	8,4	102
4 x 1,5	3.852,30	100	30 x 0,26	9,1	125
5 x 1,5	4.583,00	119	30 x 0,26	9,9	154
7 x 1,5	7.103,70	154	30 x 0,26	11,1	193
12 x 1,5	9.844,70	268	30 x 0,26	14,7	323
18 x 1,5	14.229,10	373	30 x 0,26	17,3	479
25 x 1,5	20.222,10	530	30 x 0,26	21,0	678
2 x 2,5	3.910,90	92	48 x 0,26	9,7	123
3 x 2,5	4.550,10	118	48 x 0,26	10,2	151
4 x 2,5	5.727,20	147	48 x 0,26	11,1	188
5 x 2,5	6.569,10	176	48 x 0,26	12,1	234
7 x 2,5	8.671,30	253	48 x 0,26	13,9	306

N2XH

Halogen-Free Cable with Improved Fire Behaviour

according to DIN VDE 0276-604



Construction

Solid or stranded bare copper conductor, insulation of halogen-free and cross-linked polyethylene compound, common core covering, outer sheath of flame retardant and halogen-free polymer compound, black.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Temperature range

During laying	- 5°C till + 70°C
After laying	- 40°C till + 70°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section	Price	Copper figure (approx. value)	Conductor construction	Overall diameter ca.	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	kg / km
N2XH 0,6/1 KV	J	O			
1 x 16 RE	3.403,05	160	1 x 4,51	12,0	270
1 x 25 RM	4.722,26	250	7 x 2,13	14,0	380
1 x 35 RM	5.669,80	350	7 x 2,52	15,0	490
1 x 50 RM	7.261,74	500	19 x 1,83	16,0	620
1 x 70 RM	9.373,77	700	19 x 2,17	18,0	830
1 x 95 RM	11.892,59	950	19 x 2,52	20,0	1200
1 x 120 RM	14.192,68	1200	37 x 2,03	22,0	1500
1 x 150 RM	17.283,81	1500	37 x 2,27	24,0	1700
1 x 185 RM	20.856,92	1850	37 x 2,52	26,0	2200
1 x 240 RM	26.277,13	2400	61 x 2,24	29,0	2750
1 x 300 RM	32.536,60	3000	61 x 2,50	33,0	3300
2 x 1,5 RE	2.671,54	30	1 x 1,38	12,0	180
2 x 2,5 RE	3.129,38	50	1 x 1,78	12,0	210
2 x 4 RE	3.609,88	80	1 x 2,25	13,0	270
2 x 6 RE	4.232,25	120	1 x 2,76	14,0	340
2 x 10 RE	5.511,56	200	1 x 3,56	16,0	450
2 x 16 RE	7.227,57	320	1 x 4,51	18,0	600
3 x 1,5 RE	2.708,45	45	1 x 1,38	12,0	200
3 x 2,5 RE	3.349,75	75	1 x 1,78	13,0	250
3 x 4 RE	3.979,29	120	1 x 1,25	14,0	330
3 x 6 RE	5.061,49	180	1 x 2,76	15,0	410
3 x 10 RE	6.688,45	300	1 x 3,56	16,0	550
3 x 16 RE	8.873,60	480	1 x 4,51	20,0	790
3 x 25 RM	13.692,50	750	7 x 2,13	24,0	1200
3 x 35 RM	16.508,23	1050	7 x 2,52	27,0	1600
3 x 50 RM	21.727,64	1500	19 x 1,83	29,0	1800

Number of cores and nominal cross section	Price	Copper	Conductor figure (approx. value)	Overall construction	Weight diameter
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
N2XH 0,6/1 KV	J	O			
3 x 50/ 25 RM	24.645,59	1750	19 x 1,83	32,0	2200
3 x 70/ 35 RM	31.144,81	2450	19 x 2,17	37,0	2950
3 x 95/ 50 RM	39.542,72	3350	19 x 2,52	41,0	3900
3 x 120/ 70 RM	48.683,83	4300	37 x 2,03	45,0	4800
3 x 150/ 70 RM	58.110,16	5200	37 x 2,27	49,0	5750
3 x 185/ 95 RM	71.450,44	6500	37 x 2,52	55,0	7200
3 x 240/120 RM	91.878,50	8400	61 x 2,24	62,0	9150
4 x 1,5 RE	3.128,26	60	1 x 1,38	13,0	230
4 x 2,5 RE	3.840,19	100	1 x 1,78	14,0	290
4 x 4 RE	4.573,29	160	1 x 2,25	15,0	380
4 x 6 RE	5.845,82	240	1 x 2,76	16,0	490
4 x 10 RE	7.976,06	400	1 x 3,56	18,0	670
4 x 16 RE	10.818,81	640	1 x 4,51	20,0	930
4 x 25 RM	17.318,11	1000	7 x 2,13	26,0	1450
4 x 35 RM	20.781,79	1400	7 x 2,52	29,0	1900
4 x 50 RM	27.562,00	2000	19 x 1,83	32,0	2300
4 x 70 RM	36.933,77	2800	19 x 2,17	37,0	3200
4 x 95 RM	47.296,02	3800	19 x 2,52	41,0	4200
4 x 120 RM	58.517,82	4800	37 x 2,03	45,0	4300
4 x 150 RM	70.765,66	6000	37 x 2,27	50,0	6350
5 x 1,5 RE	3.801,48	75	1 x 1,38	14,0	270
5 x 2,5 RE	4.739,01	125	1 x 1,78	15,0	340
5 x 4 RE	5.475,16	200	1 x 2,25	16,0	450
5 x 6 RE	6.871,77	300	1 x 2,76	17,0	560
5 x 10 RE	9.144,98	500	1 x 3,56	19,0	790
5 x 16 RE	12.244,64	800	1 x 4,51	22,0	1150
5 x 25 RM	20.771,89	1250	7 x 2,13	27,0	1420
7 x 1,5 RE	4.568,67	105	1 x 1,38	14,0	310
10 x 1,5 RE	5.877,84	150	1 x 1,38	17,0	420
12 x 1,5 RE	6.728,35	180	1 x 1,38	18,0	460
14 x 1,5 RE	7.553,89	210	1 x 1,38	20,0	540
19 x 1,5 RE	9.455,22	285	1 x 1,38	21,0	650
24 x 1,5 RE	11.189,80	360	1 x 1,38	22,0	760
30 x 1,5 RE	13.349,72	450	1 x 1,38	24,0	900
7 x 2,5 RE	5.569,82	175	1 x 1,78	15,0	400
10 x 2,5 RE	7.329,45	250	1 x 1,78	18,0	540
12 x 2,5 RE	8.421,97	300	1 x 1,78	19,0	600
14 x 2,5 RE	9.612,02	350	1 x 1,78	20,0	670
19 x 2,5 RE	12.099,91	475	1 x 1,78	22,0	840
24 x 2,5 RE	14.523,68	600	1 x 1,78	25,0	1050
30 x 2,5 RE	17.439,53	750	1 x 1,78	27,0	1230

N2XCH

Halogen-Free Cable with Concentric Conductor with Improved Fire Behaviour

according to DIN VDE 0276-604



Construction

Solid or stranded bare copper conductor, insulation of halogen-free and cross-linked polyethylene compound, common core covering, concentric conductor formed by copper wires with counter helix of copper tape, outer sheath of flame retardant and halogen-free polymer compound, black.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Temperature range

During laying	- 5°C till + 70°C
After laying	- 40°C till + 70°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
N2XCH 0,6/1 KV					
2 x 1,5 RE / 1,5	4.283,89	54	1 x 1,38	13,0	260
2 x 2,5 RE / 2,5	4.793,30	83	1 x 1,78	13,0	270
3 x 1,5 RE / 1,5	4.540,61	73	1 x 1,38	13,0	240
3 x 2,5 RE / 2,5	5.308,92	113	1 x 1,78	14,0	290
3 x 4 RE / 4	6.330,92	168	1 x 2,25	15,0	380
3 x 6 RE / 6	8.060,73	250	1 x 2,76	16,0	470
3 x 10 RE / 10	9.932,27	425	1 x 3,56	18,0	640
3 x 16 RE / 16	13.347,92	670	1 x 4,51	20,0	920
3 x 25 RM / 25	18.975,61	1045	7 x 2,13	25,0	1430
3 x 35 RM / 35	23.912,43	1460	7 x 2,52	29,0	1900
4 x 1,5 RE / 1,5	4.752,16	88	1 x 1,38	14,0	260
4 x 2,5 RE / 2,5	5.611,45	138	1 x 1,78	15,0	330
4 x 4 RE / 4	6.843,77	208	1 x 2,25	16,0	440
4 x 6 RE / 6	8.811,69	309	1 x 2,76	17,0	550
4 x 10 RE / 10	11.042,20	525	1 x 3,56	19,0	760
4 x 16 RE / 16	14.908,71	829	1 x 4,51	22,0	1130
4 x 25 RM / 16	22.794,84	1190	7 x 2,13	28,0	1700
4 x 35 RM / 16	25.700,92	1590	7 x 2,52	31,0	2150
4 x 50 RM / 25	32.745,58	2295	19 x 1,83	34,0	2600
4 x 70 RM / 35	43.098,15	3210	19 x 2,17	40,0	3550
4 x 95 RM / 50	55.870,20	4383	19 x 2,52	45,0	4800
4 x 120 RM / 70	67.769,18	5613	37 x 2,03	51,0	6500
4 x 150 RM / 70	81.663,33	6813	37 x 2,27	56,0	7950
4 x 185 RM / 95	103.387,06	8499	37 x 2,52	63,0	9850
4 x 240 RM / 120	119.055,68	10985	61 x 2,24	68,0	12900
7 x 1,5 RE / 2,5	6.037,09	139	1 x 1,38	15,0	360
12 x 1,5 RE / 2,5	8.244,08	214	1 x 1,38	19,0	530
30 x 1,5 RE / 6	16.787,13	520	1 x 1,38	25,0	1020
7 x 2,5 RE / 2,5	7.131,61	208	1 x 1,78	17,0	450
12 x 2,5 RE / 4	10.300,52	348	1 x 1,78	21,0	700
30 x 2,5 RE / 10	20.489,65	875	1 x 1,78	28,0	1400

NHXX E 30**Halogen-Free Cable with
Circuit Integrity of 30 Minutes**

according to DIN VDE 0266-2 and DIN 4102-12

**Construction**

Solid or stranded bare copper conductor, insulation of a halogen-free cross-linked polymeric compound, common core covering, outer sheath of flame retardant and halogen-free polymer compound, orange.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Circuit integrity of 30 minutes (system) and insulation integrity of 180 minutes.

Temperature range

During laying - 5°C till + 70°C

After laying - 40°C till + 70°C

Admissible conductor temperature + 90°C

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXX E 30 0,6/1 KV	J	O			
1 x 16 RE	4.698,39	160	1 x 4,51	10,0	230
1 x 25 RM	6.464,33	250	7 x 2,13	11,0	340
1 x 35 RM	7.898,94	350	7 x 2,52	12,0	440
1 x 50 RM	9.655,36	500	19 x 1,83	14,0	620
1 x 70 RM	12.493,23	700	19 x 2,17	16,0	850
1 x 95 RM	15.263,37	950	19 x 2,52	18,0	1100
1 x 120 RM	17.903,36	1200	37 x 2,03	19,0	1350
1 x 150 RM	20.622,32	1500	37 x 2,27	22,0	1650
1 x 185 RM	24.731,75	1850	37 x 2,52	24,0	2200
1 x 240 RM	31.564,95	2400	61 x 2,24	27,0	2800
1 x 300 RM	35.679,49	3000	61 x 2,50	30,0	3400
2 x 1,5 RE	4.392,10	30	1 x 1,38	12,0	180
2 x 2,5 RE	4.805,50	50	1 x 1,78	13,0	210
2 x 4 RE	6.025,43	80	1 x 2,25	14,0	260
2 x 6 RE	7.650,66	120	1 x 2,76	15,0	320
2 x 10 RE	10.611,98	200	1 x 3,56	16,0	440
2 x 16 RE	12.589,36	320	1 x 4,51	19,0	620
3 x 1,5 RE	4.843,20	45	1 x 1,38	13,0	200
3 x 2,5 RE	5.832,53	75	1 x 1,78	14,0	250
3 x 4 RE	7.331,29	120	1 x 1,25	15,0	320
3 x 6 RE	9.194,81	180	1 x 2,76	16,0	400
3 x 10 RE	11.695,01	300	1 x 3,56	18,0	550
3 x 16 RM	14.194,57	480	1 x 4,51	20,0	800
3 x 25 RM	21.538,19	750	7 x 2,13	23,0	1200
3 x 35 RM	30.488,27	1050	7 x 2,52	28,0	1813
3 x 50 RM	33.336,67	1500	19 x 1,83	30,0	2369
3 x 70 RM	41.349,64	2100	19 x 2,17	33,0	3152
3 x 95 RM	53.996,28	2850	19 x 2,52	39,0	4169

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXH E 30 0,6/1 KV	J O				
3 x 25/ 16 RM	27.664,06	910	7 x 2,13	26,0	1524
3 x 35/ 16 RM	31.203,92	1210	7 x 2,52	27,0	1700
3 x 50/ 25 RM	35.495,72	1750	19 x 1,83	31,0	2250
3 x 70/ 35 RM	45.069,57	2450	19 x 2,17	36,0	3200
3 x 95/ 50 RM	59.619,83	3350	19 x 2,52	41,0	4200
3 x 120/ 70 RM	75.681,86	4300	37 x 2,03	46,0	5300
3 x 150/ 70 RM	92.011,39	5200	37 x 2,27	49,0	6300
3 x 185/ 95 RM	111.999,67	6500	37 x 2,52	56,0	7900
3 x 240/120 RM	141.866,48	8400	61 x 2,24	64,0	10200
4 x 1,5 RE	5.347,42	60	1 x 1,38	14,0	240
4 x 2,5 RE	6.334,26	100	1 x 1,78	15,0	300
4 x 4 RE	9.672,11	160	1 x 2,25	17,0	400
4 x 6 RE	11.644,85	240	1 x 2,76	18,0	500
4 x 10 RE	15.590,14	400	1 x 3,56	20,0	680
4 x 16 RM	24.690,68	640	1 x 4,51	23,0	1000
4 x 25 RM	33.005,58	1000	7 x 2,13	26,0	1500
4 x 35 RM	39.554,71	1400	7 x 2,52	28,0	2297
4 x 50 RM	52.392,25	2000	19 x 1,83	33,0	2972
4 x 70 RM	66.456,70	2800	19 x 2,17	37,0	3914
4 x 95 RM	80.846,38	3800	19 x 2,52	43,0	5397
4 x 120 RM	107.236,99	4800	37 x 2,03	47,0	6906
4 x 150 RM	128.789,06	6000	37 x 2,27	53,0	7725
5 x 1,5 RE	8.220,02	75	1 x 1,38	15,0	280
5 x 2,5 RE	9.507,48	125	1 x 1,78	17,0	350
5 x 4 RE	13.310,90	200	1 x 2,25	18,0	450
5 x 6 RE	14.933,09	300	1 x 2,76	20,0	560
5 x 10 RE	19.580,39	500	1 x 3,56	21,0	840
5 x 16 RM	29.994,77	800	1 x 4,51	23,0	1200
5 x 25 RM	39.491,17	1250	7 x 2,13	29,0	1800
7 x 1,5 RE	9.507,48	105	1 x 1,38	16,0	410
10 x 1,5 RE	12.172,81	150	1 x 1,38	19,0	620
12 x 1,5 RE	13.532,22	180	1 x 1,38	20,0	680
14 x 1,5 RE	16.119,53	210	1 x 1,38	21,0	750
19 x 1,5 RE	22.565,38	285	1 x 1,38	23,0	900
24 x 1,5 RE	27.064,93	360	1 x 1,38	26,0	1100
30 x 1,5 RE	31.854,69	450	1 x 1,38	28,0	1300
7 x 2,5 RE	11.915,60	175	1 x 1,78	20,0	540
10 x 2,5 RE	14.629,17	250	1 x 1,78	25,0	710
12 x 2,5 RE	16.085,62	300	1 x 1,78	26,0	800
14 x 2,5 RE	17.786,63	350	1 x 1,78	27,0	900
19 x 2,5 RE	25.308,02	475	1 x 1,78	28,0	1150
24 x 2,5 RE	30.508,65	600	1 x 1,78	34,0	1400
30 x 2,5 RE	36.083,89	750	1 x 1,78	36,0	1600

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 30 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

NHXCH E 30

Halogen-free Cable with Concentric Conductor and Circuit Integrity of 30 Minutes

according to DIN VDE 0266-2 and DIN 4102-12



Construction

Solid or stranded bare copper conductor, insulation of a halogen-free cross-linked polymeric compound, common core covering, concentric conductor formed by copper wires with counter helix of copper tape, outer sheath of flame retardant and halogen-free polymer compound, orange.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Circuit integrity of 30 minutes (system) and insulation integrity of 180 minutes.

Temperature range

During laying	- 5°C till + 70°C
After laying	- 40°C till + 70°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXCH E 30 0,6/1 KV					
2 x 1,5 RE / 1,5	5.857,55	54	1 x 1,38	15,0	250
2 x 2,5 RE / 2,5	6.529,82	83	1 x 1,78	16,0	280
3 x 1,5 RE / 1,5	6.699,82	73	1 x 1,38	15,0	250
3 x 2,5 RE / 2,5	7.271,59	113	1 x 1,78	16,0	320
3 x 4 RE / 4	8.903,84	168	1 x 2,25	17,0	400
3 x 6 RE / 6	11.426,70	250	1 x 2,76	18,0	500
3 x 10 RE / 10	14.089,97	425	1 x 3,56	20,0	750
3 x 16 RE / 16	17.824,81	670	1 x 4,51	23,0	1100
3 x 25 RM / 16	24.641,81	940	7 x 2,13	27,0	1500
3 x 35 RM / 16	32.382,37	1240	7 x 2,52	30,0	1900
3 x 50 RM / 25	40.243,49	1795	19 x 1,83	33,0	2300
3 x 70 RM / 35	52.894,86	2510	19 x 2,17	38,0	3200
3 x 95 RM / 50	67.658,88	3433	19 x 2,52	44,0	4200
3 x 120 RM / 70	85.473,87	4413	37 x 2,03	48,0	5350
3 x 150 RM / 70	98.816,26	5313	37 x 2,27	53,0	6400
3 x 185 RM / 95	122.671,01	6649	37 x 2,52	58,0	7900
3 x 240 RM / 120	136.990,97	8585	61 x 2,24	65,0	9800

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXCH E 30 0,6/1 KV					
4 x 1,5 RE / 1,5	7.548,30	88	1 x 1,38	17,0	300
4 x 2,5 RE / 2,5	8.327,70	138	1 x 1,78	18,0	400
4 x 4 RE / 4	10.308,48	208	1 x 2,25	19,0	470
4 x 6 RE / 6	12.757,73	309	1 x 2,76	21,0	600
4 x 10 RE / 10	18.428,73	525	1 x 3,56	23,0	850
4 x 16 RE / 16	24.306,78	829	1 x 4,51	26,0	1250
4 x 25 RM / 16	30.981,19	1190	7 x 2,13	30,0	1800
4 x 35 RM / 16	37.407,43	1590	7 x 2,52	33,0	2300
4 x 50 RM / 25	45.269,59	2295	19 x 1,83	37,0	3000
4 x 70 RM / 35	55.945,41	3210	19 x 2,17	42,0	4200
4 x 95 RM / 50	74.700,39	4383	19 x 2,52	47,0	5700
4 x 120 RM / 70	97.413,70	5613	37 x 2,03	53,0	7200
4 x 150 RM / 70	114.792,84	6813	37 x 2,27	58,0	8700
4 x 185 RM / 95	141.217,86	8499	37 x 2,52	65,0	10500
4 x 240 RM / 120	168.940,97	10985	61 x 2,24	70,0	14000
7 x 1,5 RE / 2,5	10.724,90	139	1 x 1,38	18,0	480
10 x 1,5 RE / 2,5	14.708,74	183	1 x 1,38	22,0	630
12 x 1,5 RE / 2,5	17.224,89	214	1 x 1,38	22,0	700
16 x 1,5 RE / 4	21.406,14	280	1 x 1,38	23,0	850
21 x 1,5 RE / 4	27.810,60	384	1 x 1,38	25,0	1050
24 x 1,5 RE / 6	31.703,14	430	1 x 1,38	29,0	1200
30 x 1,5 RE / 6	35.483,50	520	1 x 1,38	31,0	1400
7 x 2,5 RE / 2,5	12.739,32	208	1 x 1,78	20,0	600
10 x 2,5 RE / 4	16.853,64	298	1 x 1,78	24,0	800
12 x 2,5 RE / 4	19.541,08	348	1 x 1,78	24,0	900
16 x 2,5 RE / 6	23.421,14	470	1 x 1,78	26,0	1100
21 x 2,5 RE / 6	29.039,14	595	1 x 1,78	29,0	1350
24 x 2,5 RE / 10	35.195,31	725	1 x 1,78	32,0	1500
30 x 2,5 RE / 10	41.473,32	875	1 x 1,78	34,0	1800

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 30 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

NHXX E 90**Halogen-Free Cable with
Circuit Integrity of 90 Minutes**

according to DIN VDE 0266-3 and DIN 4102-12

**Construction**

Solid or stranded bare copper conductor, insulation of a halogen-free cross-linked polymeric compound, common core covering, flame protective wrapping, outer sheath of flame retardant and halogen-free polymer compound, orange.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Circuit integrity of 90 minutes (system) and insulation integrity of 180 minutes.

Temperature range

During laying	- 5°C till + 70°C
After laying	- 40°C till + 70°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXX E 90 0,6/1 KV					
1 x 16 RE	10.659,45	160	1 x 4,51	12,5	273
1 x 25 RM	14.938,67	250	7 x 2,13	14,0	412
1 x 35 RM	22.697,62	350	7 x 2,52	16,0	530
1 x 50 RM	26.979,21	500	19 x 1,83	17,0	700
1 x 70 RM	29.895,43	700	19 x 2,17	19,0	922
1 x 95 RM	38.305,06	950	19 x 2,52	20,0	1205
1 x 120 RM	46.836,62	1200	37 x 2,03	22,0	1514
1 x 150 RM	55.748,70	1500	37 x 2,27	24,0	1782
1 x 185 RM	69.698,62	1850	37 x 2,52	26,0	2194
1 x 240 RM	83.340,01	2400	61 x 2,24	29,0	2848
1 x 300 RM	108.420,81	3000	61 x 2,50	32,0	3703
2 x 1,5 RE	11.148,03	30	1 x 1,38	15,0	280
2 x 2,5 RE	11.729,42	50	1 x 1,78	16,0	320
2 x 4 RE	12.825,30	80	1 x 2,25	17,0	380
2 x 6 RE	14.745,08	120	1 x 2,76	18,0	450
2 x 10 RE	18.012,95	200	1 x 3,56	20,0	600
2 x 16 RE	28.784,92	320	1 x 4,51	22,0	800
3 x 1,5 RE	11.625,56	45	1 x 1,38	16,0	300
3 x 2,5 RE	13.717,84	75	1 x 1,78	17,0	380
3 x 4 RE	14.490,89	120	1 x 1,25	18,0	450
3 x 6 RE	16.464,10	180	1 x 2,76	19,0	550
3 x 10 RE	20.899,93	300	1 x 3,56	21,0	750
3 x 16 RM	33.461,61	480	1 x 4,51	23,0	1000
3 x 25 RM	53.304,60	750	7 x 2,13	28,0	1500
3 x 35 RM	60.935,80	1050	7 x 2,52	31,0	1900
3 x 50 RM	69.045,12	1500	19 x 1,83	33,0	2400
3 x 70 RM	79.906,37	2100	19 x 2,17	35,0	3152
3 x 95 RM	100.757,63	2850	19 x 2,52	39,0	4169

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXX E 90 0,6/1 KV					
3 x 25/ 16 RM	47.226,16	910	7 x 2,13	27,0	1524
3 x 35/ 16 RM	59.250,69	1210	7 x 2,52	31,0	2000
3 x 50/ 25 RM	64.657,16	1750	19 x 1,83	36,0	2700
3 x 70/ 35 RM	79.942,64	2450	19 x 2,17	40,0	3600
3 x 95/ 50 RM	103.003,10	3350	19 x 2,52	46,0	4800
3 x 120/ 70 RM	128.770,62	4300	37 x 2,03	51,0	6000
3 x 150/ 70 RM	170.055,51	5200	37 x 2,27	54,0	7000
3 x 185/ 95 RM	210.913,08	6500	37 x 2,52	61,0	8800
3 x 240/120 RM	245.698,08	8400	61 x 2,24	68,0	11300
4 x 1,5 RE	13.594,14	60	1 x 1,38	17,0	350
4 x 2,5 RE	15.513,71	100	1 x 1,78	18,0	420
4 x 4 RE	16.970,52	160	1 x 2,25	19,0	550
4 x 6 RE	19.340,61	240	1 x 2,76	20,0	650
4 x 10 RE	25.456,19	400	1 x 3,56	23,0	900
4 x 16 RM	42.210,48	640	1 x 4,51	26,0	1200
4 x 25 RM	58.748,55	1000	7 x 2,13	30,0	1800
4 x 35 RM	66.019,03	1400	7 x 2,52	32,0	2297
4 x 50 RM	78.932,15	2000	19 x 1,83	35,0	2972
4 x 70 RM	97.516,77	2800	19 x 2,17	39,0	3914
4 x 95 RM	130.388,28	3800	19 x 2,52	43,0	5397
4 x 120 RM	159.079,20	4800	37 x 2,03	49,0	6906
4 x 150 RM	223.624,18	6000	37 x 2,27	53,0	7725
5 x 1,5 RE	15.968,97	75	1 x 1,38	18,0	400
5 x 2,5 RE	19.311,52	125	1 x 1,78	19,0	480
5 x 4 RE	21.385,41	200	1 x 2,25	21,0	600
5 x 6 RE	24.881,86	300	1 x 2,76	22,0	750
5 x 10 RE	30.211,63	500	1 x 3,56	25,0	1100
5 x 16 RM	50.469,17	800	1 x 4,51	28,0	1400
5 x 25 RM	71.163,45	1250	7 x 2,13	30,5	2081
7 x 1,5 RE	20.855,47	105	1 x 1,38	20,0	480
10 x 1,5 RE	32.571,85	150	1 x 1,38	25,0	700
12 x 1,5 RE	34.545,21	180	1 x 1,38	26,0	800
14 x 1,5 RE	40.700,87	210	1 x 1,38	28,0	780
19 x 1,5 RE	59.087,55	285	1 x 1,38	28,0	950
24 x 1,5 RE	63.851,89	360	1 x 1,38	30,0	1200
30 x 1,5 RE	82.303,51	450	1 x 1,38	33,0	1350
7 x 2,5 RE	26.450,37	175	1 x 1,78	22,0	600
10 x 2,5 RE	36.098,91	250	1 x 1,78	27,0	850
12 x 2,5 RE	41.166,81	300	1 x 1,78	28,0	900
14 x 2,5 RE	44.546,55	350	1 x 1,78	29,0	960
19 x 2,5 RE	63.924,00	475	1 x 1,78	32,0	1250
24 x 2,5 RE	76.538,31	600	1 x 1,78	35,0	1580
30 x 2,5 RE	89.431,45	750	1 x 1,78	37,0	1750

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 90 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

NHXCH E 90

Halogen-Free Cable with Concentric Conductor and Circuit Integrity of 90 Minutes

according to DIN VDE 0266-3 and DIN 4102-12



Construction

Solid or stranded bare copper conductor, insulation of a halogen-free cross-linked polymeric compound, common core covering, concentric conductor formed by copper wires with counter helix of copper tape, flame protective wrapping, outer sheath of flame retardant and halogen-free polymer compound, orange.

Application

Safety cables are used in all locations where a high degree of protection against fire and fire-damage has to be provided for human life and equipment and are, therefore, subject to high security requirements. These cables may be used indoors and outdoors. They may not be installed directly into the ground and into the water. Safety cables are considered as protectively insulated.

Circuit integrity of 90 minutes (system) and insulation integrity of 180 minutes.

Temperature range

During laying	- 5°C till + 70°C
After laying	- 40°C till + 70°C
Admissible conductor temperature	+ 90°C

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXCH E 90 0,6/1 KV					
2 x 1,5 RE / 1,5	12.995,97	54	1 x 1,38	16,0	300
2 x 2,5 RE / 2,5	13.722,35	83	1 x 1,78	17,0	350
3 x 1,5 RE / 1,5	14.914,37	73	1 x 1,38	17,0	320
3 x 2,5 RE / 2,5	16.065,18	113	1 x 1,78	18,0	380
3 x 4 RE / 4	18.262,70	168	1 x 2,25	19,0	480
3 x 6 RE / 6	20.915,40	250	1 x 2,76	20,0	600
3 x 10 RE / 10	24.781,79	425	1 x 3,56	23,0	850
3 x 16 RM / 16	33.105,24	670	1 x 4,51	26,0	1200
3 x 25 RM / 25	49.267,24	1045	7 x 2,13	30,0	1700
3 x 35 RM / 35	59.088,08	1460	7 x 2,52	32,0	2200
3 x 50 RM / 50	68.644,58	2083	19 x 1,83	37,0	2900
3 x 70 RM / 70	94.020,34	2913	19 x 2,17	42,0	3900
3 x 95 RM / 95	125.735,97	3949	19 x 2,52	48,0	5200
3 x 120 RM / 120	155.433,57	4985	37 x 2,03	52,0	6400
3 x 150 RM / 70	179.339,22	5313	37 x 2,27	56,0	7100
3 x 185 RM / 95	220.370,43	6649	37 x 2,52	62,0	8800
3 x 240 RM / 120	251.459,52	8585	61 x 2,24	70,0	11300

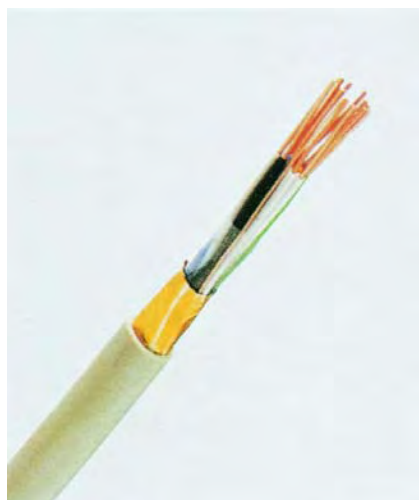
Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Overall diameter	Weight
mm ²	EUR / km	kg / km	mm	ca. mm	ca. kg / km
NHXCH E 90 0,6/1 KV					
4 x 1,5 RE / 1,5	18.559,95	88	1 x 1,38	18,0	450
4 x 2,5 RE / 2,5	19.716,97	138	1 x 1,78	19,0	500
4 x 4 RE / 4	22.167,59	208	1 x 2,25	21,0	600
4 x 6 RE / 6	24.518,34	309	1 x 2,76	22,0	750
4 x 10 RE / 10	31.436,02	525	1 x 3,56	25,0	1100
4 x 16 RM / 16	44.593,54	829	1 x 4,51	29,0	1500
4 x 25 RM / 16	59.416,61	1190	7 x 2,13	32,0	2000
4 x 35 RM / 16	66.095,02	1590	7 x 2,52	35,0	2500
4 x 50 RM / 25	76.022,85	2295	19 x 1,83	40,0	3300
4 x 70 RM / 35	99.701,48	3210	19 x 2,17	44,0	4400
4 x 95 RM / 50	135.118,78	4383	19 x 2,52	52,0	6100
4 x 120 RM / 70	167.701,14	5613	37 x 2,03	57,0	7500
4 x 150 RM / 70	200.976,80	6813	37 x 2,27	62,0	9000
4 x 185 RM / 95	255.120,05	8499	37 x 2,52	68,0	11000
4 x 240 RM / 120	327.467,62	10985	61 x 2,24	76,0	14500
7 x 1,5 RE / 2,5	26.690,09	139	1 x 1,38	22,0	600
10 x 1,5 RE / 2,5	36.844,88	183	1 x 1,38	25,0	700
12 x 1,5 RE / 2,5	40.878,97	214	1 x 1,38	27,0	750
16 x 1,5 RE / 4	52.319,04	280	1 x 1,38	29,0	900
21 x 1,5 RE / 4	68.085,58	384	1 x 1,38	31,0	1100
24 x 1,5 RE / 6	77.767,06	430	1 x 1,38	34,0	1300
30 x 1,5 RE / 6	93.447,86	520	1 x 1,38	36,0	1500
7 x 2,5 RE / 2,5	30.051,68	208	1 x 1,78	22,0	650
10 x 2,5 RE / 4	41.036,31	298	1 x 1,78	27,0	900
12 x 2,5 RE / 4	45.694,60	348	1 x 1,78	28,0	950
16 x 2,5 RE / 6	58.047,12	470	1 x 1,78	30,0	1200
21 x 2,5 RE / 6	76.326,29	595	1 x 1,78	33,0	1400
24 x 2,5 RE / 10	87.588,36	725	1 x 1,78	37,0	1700
30 x 2,5 RE / 10	105.402,00	875	1 x 1,78	39,0	1900

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 90 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

J-H(ST)H ... Bd

Halogen-Free and Flame Retardant Telecommunication Cable

according to DIN VDE 0815



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of a halogen-free compound (HI2), cores are stranded to form star quads and 5 quads are stranded to bundles, bundles are identified by coloured plastic tapes, one layer of a halogen-free foil, static screen of plastic coated aluminium foil with drain wire, wrapping with a protective foil, outer sheath of a halogen-free compound, flame retardant, grey.

Application

These installation cables are suitable for fixed installations in telecommunication and are to be used in locations with fire hazard to reduce damage in case of fire.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km	100 MOhm x km
Operating capacity	max.	120 nF/km	120 nF/km
Attenuation at 800 Hz	ca.	1,5 dB/km	1,2 dB/km
Capacitance coupling for 100 m	max.	200 pF	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
J-H(ST)H ... Bd 300 V					
2 x 2 x 0,6	1.539,83	13	1,0	5,2	60
4 x 2 x 0,6	2.304,98	24	1,0	7,5	90
6 x 2 x 0,6	2.890,24	36	1,0	8,0	115
10 x 2 x 0,6	3.872,49	59	1,0	9,8	144
16 x 2 x 0,6	5.176,66	93	1,0	11,4	200
20 x 2 x 0,6	5.956,22	116	1,0	12,5	233
24 x 2 x 0,6	6.758,72	139	1,0	13,6	280
30 x 2 x 0,6	7.949,64	172	1,0	14,9	320
40 x 2 x 0,6	9.739,72	228	1,0	17,0	405
50 x 2 x 0,6	11.523,00	285	1,4	19,1	485
60 x 2 x 0,6	13.126,13	342	1,4	20,2	660
80 x 2 x 0,6	16.316,99	455	1,6	23,5	820
100 x 2 x 0,6	19.530,48	568	1,6	25,9	920
2 x 2 x 0,8	2.288,08	21	1,0	6,7	77
4 x 2 x 0,8	3.501,43	41	1,0	9,9	123
6 x 2 x 0,8	4.467,69	62	1,0	10,4	152
10 x 2 x 0,8	6.264,14	103	1,2	12,8	220
16 x 2 x 0,8	8.733,45	164	1,4	18,0	290
20 x 2 x 0,8	10.288,51	203	1,4	19,0	350
24 x 2 x 0,8	11.716,58	243	1,4	19,3	405
30 x 2 x 0,8	13.802,62	304	1,4	20,1	495
40 x 2 x 0,8	16.925,78	404	1,4	21,2	635
50 x 2 x 0,8	20.049,19	505	1,6	24,9	788
60 x 2 x 0,8	23.157,61	606	1,6	27,2	1020
80 x 2 x 0,8	29.517,04	807	1,8	29,9	1270
100 x 2 x 0,8	35.920,89	1008	2,0	35,7	1520

JB-H(ST)H ... Bd

Halogen-Free and Flame Retardant Fire Alarm Cable

adapted to DIN VDE 0815



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of a halogen-free compound (HI2), cores are stranded to form star quads and 5 quads are stranded to bundles, bundles are identified by coloured plastic tapes, one layer of a halogen-free foil, static screen of plastic coated aluminium foil with drain wire, wrapping with a protective foil, outer sheath of a halogen-free compound, flame retardant, red with the marking "BRANDMELDEKABEL" (fire alarm cable).

Application

These installation cables are suitable for fixed installations in fire detection circuits. They should be used in locations with fire hazard to reduce damage in case of fire.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	120 nF/km
Attenuation at 800 Hz	ca.	1,2 dB/km
Capacitance coupling for 100 m	max.	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JB-H(ST)H ... Bd 300 V					
1 x 2 x 0,8	2.114,65	11	1,0	6,5	60
2 x 2 x 0,8	2.288,08	21	1,0	6,7	77
4 x 2 x 0,8	3.501,43	41	1,0	9,9	123
6 x 2 x 0,8	4.467,69	62	1,0	10,4	152
10 x 2 x 0,8	6.264,14	103	1,2	12,8	220
16 x 2 x 0,8	8.733,45	164	1,4	18,0	290
20 x 2 x 0,8	10.288,51	203	1,4	19,0	350
24 x 2 x 0,8	11.716,58	243	1,4	19,3	405
30 x 2 x 0,8	13.802,62	304	1,4	20,1	495
40 x 2 x 0,8	16.925,78	404	1,4	21,2	635
50 x 2 x 0,8	20.049,19	505	1,6	24,9	788
60 x 2 x 0,8	23.157,61	606	1,6	27,2	1020
80 x 2 x 0,8	29.517,04	807	1,8	29,9	1270
100 x 2 x 0,8	35.920,89	1008	2,0	35,7	1520

JE-H(ST)H ... Bd E 30

Halogen-Free and Flame Retardant Installation Cable for Industrial Electronics with Circuit Integrity of 30 Minutes

according to DIN VDE 0815 and DIN 4102-12



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of a halogen-free elastomer compound, cores are stranded to pairs, 4 pairs are stranded to form bundles and the bundles are stranded in layers, bundles are identified by coloured plastic tapes, static screen of plastic coated metal foil with a solid tinned drain wire, wrapping with a protective foil, outer sheath of a halogen-free flame retardant polymer compound, orange.

Application

These installation cables are suitable for fixed installations in telecommunication. They are to be used in locations with fire hazard and where an insulation integrity of at least 180 minutes and a circuit integrity of at least 30 minutes are required.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	120 nF/km
Attenuation at 800 Hz	ca.	1,2 dB/km
Capacitance coupling for 100 m	max.	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JE-H(ST)H ... Bd E 30 225 V					
2 x 2 x 0,8	6.306,15	25	1,0	7,5	76
4 x 2 x 0,8	10.472,39	45	1,0	10,9	130
8 x 2 x 0,8	16.948,98	85	1,2	14,5	232
12 x 2 x 0,8	23.479,61	126	1,2	17,1	318
16 x 2 x 0,8	28.520,79	166	1,4	19,6	430
20 x 2 x 0,8	35.958,75	206	1,4	21,5	514

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 30 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

Halogen-Free and Flame Retardant Installation Cable for Fire Detection Circuits with Circuit Integrity of 30 Minutes

according to DIN VDE 0815 and DIN 4102-12



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of a halogen-free elastomer compound, cores are stranded to pairs, 4 pairs are stranded to form bundles and the bundles are stranded in layers, bundles are identified by coloured plastic tapes, static screen of plastic coated metal foil with a solid tinned drain wire, wrapping with a protective foil, outer sheath of a halogen-free flame retardant polymer compound, red, with the marking 'BRANDEKABEL' (fire alarm cable).

Application

These installation cables are suitable for fixed installations in fire detection circuits. They are to be used in locations with fire hazard and where an insulation integrity of at least 180 minutes and a circuit integrity of at least 30 minutes are required.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	120 nF/km
Attenuation at 800 Hz	ca.	1,2 dB/km
Capacitance coupling for 100 m	max.	200 pF

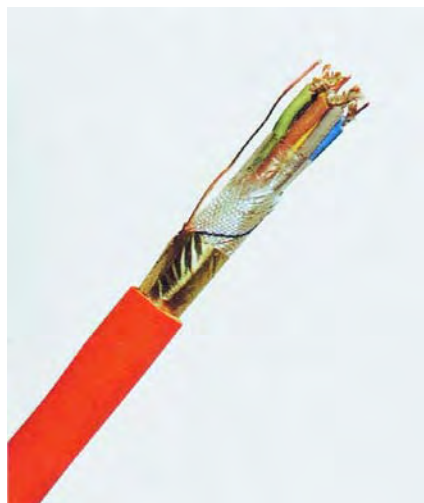
Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JB-H(ST)H ... Bd E 30 225 V					
2 x 2 x 0,8	6.306,15	25	1,0	7,5	76
4 x 2 x 0,8	10.472,39	45	1,0	10,9	130
8 x 2 x 0,8	16.948,98	85	1,2	14,5	232
12 x 2 x 0,8	23.479,61	126	1,2	17,1	318
16 x 2 x 0,8	28.520,79	166	1,4	19,6	430
20 x 2 x 0,8	35.958,75	206	1,4	21,5	514

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 30 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

JE-H(ST)H ... Bd E 90

Halogen-Free and Flame Retardant Installation Cables for Industrial Electronics with Circuit Integrity of 90 Minutes

according to DIN VDE 0815 and DIN 4102-12



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of a halogen-free elastomer compound, cores are stranded to pairs, 4 pairs are stranded to form bundles and the bundles are stranded in layers, bundles are identified by coloured plastic tapes, static screen of plastic coated metal foil with a solid tinned drain wire, wrapping with a protective foil, outer sheath of a halogen-free flame retardant polymer compound, orange. It is also available in red with the marking 'BRANDMELDEKABEL' (fire alarm cable).

Application

These installation cables are suitable for fixed installations in telecommunication. They are to be used in locations with fire hazard and where an insulation integrity of at least 180 minutes and a circuit integrity of at least 90 minutes are required.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	120 nF/km
Attenuation at 800 Hz	ca.	1,2 dB/km
Capacitance coupling for 100 m	max.	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JE-H(ST)H ... Bd E 90 225 V					
2 x 2 x 0,8	7.791,87	25	1,0	10,7	135
4 x 2 x 0,8	12.938,62	45	1,0	15,0	190
8 x 2 x 0,8	20.943,86	85	1,2	18,0	310
12 x 2 x 0,8	29.008,68	126	1,2	20,0	420
16 x 2 x 0,8	37.476,29	166	1,4	22,5	490
20 x 2 x 0,8	44.421,89	206	1,4	25,0	560
JB-H(ST)H ... Bd E 90 225 V					
2 x 2 x 0,8	7.791,87	25	1,0	10,7	135
4 x 2 x 0,8	12.938,62	45	1,0	15,0	190
8 x 2 x 0,8	20.943,86	85	1,2	18,0	310
12 x 2 x 0,8	29.008,68	126	1,2	20,0	420
16 x 2 x 0,8	37.476,29	166	1,4	22,5	490
20 x 2 x 0,8	44.421,89	206	1,4	25,0	560

Remark: Insulation integrity under the impact of flames > 180 min. according to DIN VDE 0472-814 / 8.83
function integrity of electrical cable installations > 90 min. according to DIN 4102-12.
in compliance with VDE 0107 and 0108.

JB-YY JB-Y(ST)Y

Fire Alarm Cable

according to DIN VDE 0815



Construction

JB-YY

Solid bare copper conductors (diameter 0.8 mm), core insulation of PVC, cores are stranded, outer sheath of red PVC with the marking "BRANDMELDEKABEL" (Fire alarm cable).

JB-Y(ST)Y

Solid bare copper conductors (diameter 0.8 mm), core insulation of PVC, cores are stranded to pairs and the pairs are stranded in layers, one layer of plastic foil, static screen of plastic coated aluminium foil with a drain wire, outer sheath of red PVC with the marking "BRANDMELDEKABEL" (Fire alarm cable).

Application

They are suitable for fixed installation indoors and are used for fire detection circuits.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	100 nF/km
Capacitance coupling for 100 m	max.	300 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JB-YY 300 V					
2 x 0,8	432,60	10	1,0	4,8	35
3 x 0,8	523,24	15	1,0	5,2	44
4 x 0,8	633,45	20	1,0	5,5	50
JB-Y(ST)Y 300 V					
1 x 2 x 0,8	708,43	11	1,0	5,7	41
2 x 2 x 0,8	791,83	21	1,0	6,4	60
4 x 2 x 0,8	1.359,28	41	1,0	9,5	100
5 x 2 x 0,8	1.854,10	52	1,0	9,8	123
6 x 2 x 0,8	2.098,82	62	1,0	10,7	145
10 x 2 x 0,8	2.732,08	103	1,0	13,2	220
12 x 2 x 0,8	3.522,54	123	1,0	14,3	255
20 x 2 x 0,8	4.627,28	203	1,2	17,1	390
30 x 2 x 0,8	7.131,71	304	1,2	20,4	570
40 x 2 x 0,8	9.199,82	404	1,4	23,0	730
50 x 2 x 0,8	11.383,05	505	1,4	26,0	920

F-vYAY

Installation Cable for Telecommunication

according to ÖVE - K35 / 1997



Construction

Solid tinned copper conductor (diameter 0.5 mm), core insulation of PVC, cores are stranded to pairs and the pairs are stranded in concentric layers, one layer of plastic foil, copper drain wire (diameter 0.5 mm), static screen of aluminium foil, PVC outer sheath, grey.

Application

They are suitable for fixed installation indoors and are used for telecommunication purposes.

Temperature range

In motion - 5°C till + 50°C

For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	196,6 Ohm/km
Insulation resistance	min	500 MOhm x km
Operating capacity	max.	100 nF/km
Transversal crosstalk coupling		
for 100 m at 800 Hz	K9 = 150 pF (100 %), 100 pF (80 %)	
2paired cables	K1 = 500 pF (100 %)	

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
F-vYAY 200 V_{eff} / 300 V -					
2 x 2 x 0,5 paired	691,85	10	0,8	5	25
3 x 2 x 0,5	774,08	14	0,8	6	35
5 x 2 x 0,5	1.085,07	22	0,8	7	45
6 x 2 x 0,5	1.368,58	25	0,8	7	55
10 x 2 x 0,5	1.657,07	41	0,8	8	75
12 x 2 x 0,5	1.846,57	49	0,8	9	100
15 x 2 x 0,5	2.131,47	61	0,8	9	105
20 x 2 x 0,5	2.809,85	80	0,8	10	135
25 x 2 x 0,5	3.561,74	100	0,8	12	170
30 x 2 x 0,5	3.990,22	120	0,8	13	190
40 x 2 x 0,5	5.097,32	159	1,0	14	250
50 x 2 x 0,5	6.001,88	198	1,0	15	310
60 x 2 x 0,5	7.115,99	237	1,0	16	365
100 x 2 x 0,5	11.570,41	396	1,0	20	580

F-YAY

Installation Cable for Telecommunication

according to ÖVE - K35 / 1997



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of PVC, cores are stranded to pairs and the pairs are stranded in concentric layers, one layer of plastic foil, copper drain wire (diameter 0.5 mm), static screen of aluminium foil, PVC outer sheath, grey.

Application

They are suitable for fixed installation indoors and are used for telecommunication purposes.

Temperature range

In motion - 5°C till + 50°C

For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	135,8 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	500 MOhm x km	500 MOhm x km
Operating capacity	max.	100 nF/km	100 nF/km
Transversal crosstalk coupling			
for 100 m at 800 Hz	K9	200 pF (100 %)	150 pF (80 %)
2paired cables	K1	500 pF (100 %)	

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
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F-YAY 200 V_{eff} / 300 V -

2 x 2 x 0,6 paired	714,44	13	1,0	6,0	35
3 x 2 x 0,6	841,88	19	1,0	7,0	45
5 x 2 x 0,6	1.179,07	30	1,0	8,0	60
6 x 2 x 0,6	1.361,57	36	1,0	8,5	70
10 x 2 x 0,6	1.892,61	59	1,0	10,5	100
12 x 2 x 0,6	2.083,69	72	1,0	11,0	130
15 x 2 x 0,6	2.453,81	87	1,0	11,5	135
20 x 2 x 0,6	3.110,14	115	1,2	12,5	170
25 x 2 x 0,6	3.951,01	140	1,2	15,0	225
30 x 2 x 0,6	4.560,95	172	1,2	15,5	250
40 x 2 x 0,6	5.741,47	228	1,2	17,0	325
50 x 2 x 0,6	7.096,57	285	1,4	19,0	400
60 x 2 x 0,6	8.288,19	342	1,4	20,5	465
100 x 2 x 0,6	14.106,09	568	1,6	25,0	760

F-YAY 200 V_{eff} / 300 V -

2 x 2 x 0,8 paired	1230,77	21	1,0	7,0	60
3 x 2 x 0,8	1371,60	32	1,0	8,5	80
5 x 2 x 0,8	1795,92	52	1,0	9,5	120
6 x 2 x 0,8	2059,97	62	1,0	10,5	140
10 x 2 x 0,8	3028,21	103	1,2	13,5	220
15 x 2 x 0,8	3951,02	153	1,2	15,0	290
20 x 2 x 0,8	5100,66	203	1,2	16,5	370
30 x 2 x 0,8	7422,95	304	1,4	20,0	550
40 x 2 x 0,8	10217,97	404	1,4	22,5	700
50 x 2 x 0,8	12775,78	505	1,6	25,5	880
100 x 2 x 0,8	25174,10	1008	1,8	33,2	1490

J-Y(ST)Y**Installation Cable for Telecommunication**

according to DIN VDE 0815

**Construction**

Solid bare copper conductors (diameter 0.6 mm), core insulation of PVC, cores are stranded to pairs and the pairs are stranded in layers, one layer of plastic foil, static screen of plastic coated aluminium foil with drain wire, PVC outer sheath, grey.

Application

They are suitable for fixed installation indoors and are used for telecommunication purposes.

Temperature range

In motion - 5°C till + 50°C

For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	100 MOhm x km	100 MOhm x km
Operating capacity	max.	100 nF/km	100 nF/km
Capacitance coupling for 100 m	max.	300 pF	300 pF

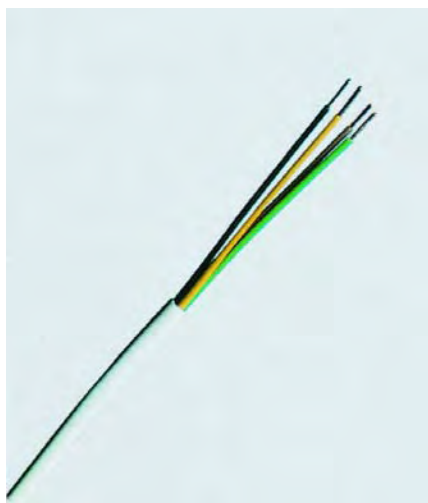
Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
J-Y(ST)Y 300 V					
2 x 2 x 0,6 *	476,93	13	1,0	5,5	40
3 x 2 x 0,6	686,77	19	1,0	6,5	50
4 x 2 x 0,6	814,54	24	1,0	7,0	60
5 x 2 x 0,6	1.024,51	30	1,0	7,5	70
6 x 2 x 0,6	1.144,39	36	1,0	7,5	80
10 x 2 x 0,6	1.519,48	59	1,0	9,0	110
12 x 2 x 0,6	1.800,44	72	1,0	9,5	130
16 x 2 x 0,6	2.245,64	93	1,0	10,5	160
20 x 2 x 0,6	2.736,20	116	1,0	11,5	190
30 x 2 x 0,6	3.900,97	172	1,2	13,5	280
40 x 2 x 0,6	5.034,38	228	1,2	15,0	350
50 x 2 x 0,6	6.188,34	285	1,2	17,0	430
60 x 2 x 0,6	7.229,83	342	1,2	18,0	500
100 x 2 x 0,6	11.481,20	568	1,4	23,5	820
1 x 2 x 0,8	566,75	11	1,0	5,7	41
2 x 2 x 0,8 *	633,47	21	1,0	7,0	60
3 x 2 x 0,8	934,66	31	1,0	8,5	80
4 x 2 x 0,8	1.087,42	41	1,0	9,0	100
5 x 2 x 0,8	1.483,28	52	1,0	9,5	120
6 x 2 x 0,8	1.679,05	62	1,0	10,5	140
10 x 2 x 0,8	2.185,66	103	1,0	13,5	220
12 x 2 x 0,8	2.818,03	123	1,0	14,0	250
16 x 2 x 0,8	3.457,40	164	1,2	15,5	310
20 x 2 x 0,8	3.701,82	203	1,2	16,5	370
30 x 2 x 0,8	5.705,37	304	1,2	20,0	550
40 x 2 x 0,8	7.359,84	404	1,4	22,5	700
50 x 2 x 0,8	9.106,44	505	1,4	25,5	880
60 x 2 x 0,8	10.672,37	606	1,6	27,0	1050
100 x 2 x 0,8	17.564,94	1008	1,8	36,0	1700

* star quad twisting

YYSCH
YR

PVC Insulated Telecommunication Cable

adapted to ÖVE - K50 / 1984 resp. according to factory standard



Construction

Solid bare copper conductors (diameter 0.6 mm), core insulation of PVC, cores laid up in parallel up to 4 cores or are stranded above 5 cores, PVC outer sheath.

YYSCH ivory or grey, YR white.

Application

For indoor installation in conduits, cable ducts or on the wall surface. This cable is suitable for the application in intercom communicators but not admissible in HV installations.

Temperature range

- 5°C till + 70°C

Number of cores and nominal diameter mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Weight ca. kg / km
YYSCH 65V_{eff}				
2 x 0,6	176,13	5,6	3,0	15
3 x 0,6	212,18	8,4	3,2	18
4 x 0,6	269,86	11,2	3,4	21
5 x 0,6	419,21	14,0	3,7	26
6 x 0,6	498,52	16,8	4,0	31
10 x 0,6	935,24	28,0	6,0	53
16 x 0,6	1.312,22	45,0	6,8	75
26 x 0,6	2.141,37	73,0	8,2	110
YR 200 V				
2 x 0,8	402,30	10	4,8	35
3 x 0,8	487,10	15	5,0	40
4 x 0,8	589,30	20	5,5	50
5 x 0,8	777,50	25	5,9	60
6 x 0,8	829,40	30	6,4	70
8 x 0,8	1.029,90	40	6,9	85
10 x 0,8	1.280,60	50	8,1	100

F-vYDvY

Telephone Modem Cable - BTX Cable

adapted to ÖVE - K50 / 1984



Construction

Solid tinned copper conductors, core insulation of special PVC, the four cores (red, green, black, blue) are stranded, one layer of plastic foil, twisted braid of tinned copper wires (diameter 0.1 mm), a special PVC outer sheath, yellow.

Application

For fixed installations in all types of plants with interference and radiation hazard of the audio and communication engineering. It is used as a data connection cable as well as a modem cable.

Temperature range

- 5°C till + 70°C

Electrical properties at 20°C

Conductor resistance	max.	98 Ohm / km
Screen resistance	max.	70 Ohm / km
Capacity	max.	120 nF/km
Capacitance coupling	max.	500 pF / 100 m
Impedance at 0,1 - 2 MHz	ca.	850 Ohm

Number of cores and nominal diameter mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Weight ca. kg / km
F-vYDvY 300 V_{eff}				
4 x 0,5 / 1	590,21	20	3,5	30

F-2YA2Y

Plastic Insulated Telecommunication Cable for Local Networks



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of polyethylene, cores are stranded to star quads and the quads are stranded in concentric layers, one layer of plastic foil, tinned copper drain wire (diameter 0.5 mm), static screen of aluminium foil, polyethylene outer sheath, black.

Application

They are suitable for the installation into the earth, in conduits, cable ducts and are used as network cables in industrial and operational plants, mainly in low-frequency installations.

Temperature range

- 20°C till + 70°C

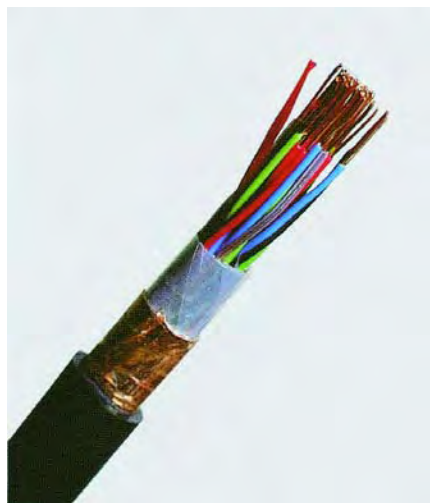
Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	10.000 MOhm x km	10.000 MOhm x km
Operating capacity	max.	55 nF/km	55 nF/km
Capacitance coupling for 300 m at 800 Hz			
Crosstalk coupling	K ₁ , K ₉ till K ₁₂	1500 pF (100 %)	800 pF (97 %)
Earth coupling	e ₁ , e ₂	1500 pF (100 %)	800 pF (97 %)

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight kg / km
F-2YA2Y 200 V_{eff} / 300 V					
2 x 2 x 0,6	967,17	13	1,8	8,0	50
6 x 2 x 0,6	1.816,92	36	1,8	10,5	95
10 x 2 x 0,6	2.481,27	59	1,8	12,0	135
20 x 2 x 0,6	3.690,49	115	1,8	15,5	220
30 x 2 x 0,6	4.860,57	172	1,8	17,0	300
40 x 2 x 0,6	6.129,53	228	1,8	18,0	370
50 x 2 x 0,6	7.168,80	285	1,8	20,5	450
60 x 2 x 0,6	8.294,59	342	1,8	21,5	520
80 x 2 x 0,6	10.646,08	455	2,0	23,0	660
100 x 2 x 0,6	12.542,31	568	2,0	27,0	850
2 x 2 x 0,8	1.635,64	22	1,8	9,0	70
6 x 2 x 0,8	2.625,47	62	1,8	12,0	135
10 x 2 x 0,8	3.595,73	103	1,8	14,0	200
20 x 2 x 0,8	5.768,00	203	1,8	19,0	350
30 x 2 x 0,8	6.812,42	304	1,8	22,0	490
40 x 2 x 0,8	8.693,20	404	1,8	23,0	600
50 x 2 x 0,8	10.506,00	504	2,0	26,0	720
60 x 2 x 0,8	12.160,18	606	2,0	27,0	850
80 x 2 x 0,8	15.647,76	807	2,0	30,0	1100
100 x 2 x 0,8	18.768,66	1008	2,0	33,0	1400

F-2YC2Y

Plastic Insulated Telecommunication Cable for Local Networks



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of polyethylene, cores are stranded to star quads and the quads are stranded in concentric layers, one layer of plastic foil, tinned copper drain wire (diameter 0.5 mm), static screen of copper tape, polyethylene outer sheath, black.

Application

They are suitable for the installation into the earth, in conduits, cable ducts and are used as network cables in industrial and operational plants, mainly in low-frequency installations.

Temperature range

- 20°C till + 70°C

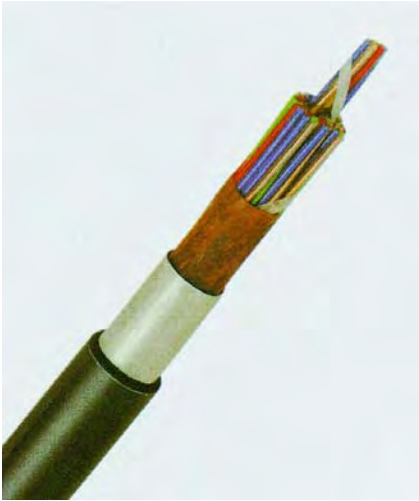
Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	10.000 MOhm x km	10.000 MOhm x km
Operating capacity	max.	55 nF/km	55 nF/km
Capacitance coupling			
for 300 m at 800 Hz			
Crosstalk coupling	K1 ,K9 till K12	1500 pF (100 %)	800 pF (97 %)
Earth coupling	e1, e2	1500 pF (100 %)	800 pF (97 %)

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight kg / km
F-2YC2Y 200 V_{eff} / 300 V -					
2 x 2 x 0,6	1.186,56	31,5	1,8	8,0	65
6 x 2 x 0,6	2.187,72	70,0	1,8	10,5	115
10 x 2 x 0,6	2.843,83	97,0	1,8	12,0	165
20 x 2 x 0,6	4.460,93	173,0	1,8	16,0	260
30 x 2 x 0,6	5.518,74	242,0	1,8	17,5	340
40 x 2 x 0,6	6.887,61	304,5	1,8	18,5	410
50 x 2 x 0,6	7.885,68	370,5	1,8	21,0	520
60 x 2 x 0,6	8.869,33	433,0	1,8	22,0	590
80 x 2 x 0,6	11.388,71	556,0	2,0	24,0	740
100 x 2 x 0,6	14.978,26	682,0	2,0	27,5	910
2 x 2 x 0,8	1.904,55	50,0	1,8	9,0	80
6 x 2 x 0,8	3.093,03	104,5	1,8	12,0	165
10 x 2 x 0,8	4.044,76	160,0	1,8	14,0	235
20 x 2 x 0,8	6.393,06	279,0	1,8	19,5	400
30 x 2 x 0,8	7.779,29	392,0	1,8	22,0	540
40 x 2 x 0,8	9.692,19	500,5	1,8	23,0	660
50 x 2 x 0,8	11.422,42	614,5	2,0	26,0	850
60 x 2 x 0,8	14.053,79	725,0	2,0	27,5	960
80 x 2 x 0,8	16.717,79	937,0	2,0	30,5	1200
100 x 2 x 0,8	19.958,63	1161,0	2,0	33,5	1460

F-2YJA2Y

Plastic Insulated Telecommunication Cable for Local Networks, transversely and longitudinally water-proof



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of polyethylene, cores are stranded to star quads, core identification for a quad natural (black in a tracer quad), red, green, blue, the quads are stranded in concentric layers, the interstices of the cable are filled with jelly, one layer of plastic oil, screen of laminated aluminium tape, polyethylene outer sheath bonded to the aluminium tape (composite-layer sheath), black.

Application

They are suitable for the installation into the earth, in conduits, cable ducts and are used as network cables in industrial and operational plants, mainly in low-frequency installations.

Temperature range

- 20°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	5000 MOhm x km	5000 MOhm x km
Operating capacity at 800 Hz	max.	52 nF/km	52 nF/km

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight kg / km
F-2YJA2Y 200 V_{eff} / 300 V-					
6 x 2 x 0,6	1.912,71	34	1,8	12	130
10 x 2 x 0,6	2.732,59	57	1,8	14	185
20 x 2 x 0,6	3.929,45	113	1,8	18	320
30 x 2 x 0,6	5.056,27	170	1,8	20	420
40 x 2 x 0,6	6.125,41	226	1,8	21	520
50 x 2 x 0,6	7.270,77	283	1,8	24	650
60 x 2 x 0,6	8.413,04	334	1,8	25	740
80 x 2 x 0,6	10.670,80	453	2,0	29	960
100 x 2 x 0,6	13.035,68	566	2,0	32	1180
6 x 2 x 0,8	2.998,33	60	1,8	14	190
10 x 2 x 0,8	3.894,43	101	1,8	16	270
20 x 2 x 0,8	6.329,27	201	1,8	21	450
30 x 2 x 0,8	7.660,20	302	1,8	24	700
40 x 2 x 0,8	9.245,28	402	1,8	26	860
50 x 2 x 0,8	11.347,51	503	2,0	30	1100
60 x 2 x 0,8	13.404,42	604	2,0	31	1240

A-2Y(L)2Y St III Bd

Plastic Insulated Telecommunication Cable for Local Networks

according to DIN VDE 0816



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of polyethylene, cores are stranded to star quads and the quads are stranded in bundles, one layer of plastic foil, static screen of plastic-laminated aluminium tape, polyethylene outer sheath, black.

Application

They are suitable for the installation into the earth, in conduits, cable ducts and are used as network cables in industrial and operational plants, mainly in low-frequency installations.

Temperature range

- 20°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	5 GOhm x km	5 GOhm x km
Operating capacity at 800 Hz	max.	52 nF/km	55 nF/km

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight kg / km
A-2Y(L)2Y 225 V					
2 x 2 x 0,6	1.391,30	13	1,8	9	80
6 x 2 x 0,6	2.067,40	36	1,8	13	140
10 x 2 x 0,6	2.593,30	59	1,8	14	190
20 x 2 x 0,6	3.891,40	115	1,8	17	310
30 x 2 x 0,6	4.907,20	172	1,8	20	430
40 x 2 x 0,6	5.901,80	228	1,8	22	545
50 x 2 x 0,6	6.788,30	285	1,8	24	660
70 x 2 x 0,6	8.618,40	398	2,0	27	895
100 x 2 x 0,6	11.356,00	568	2,0	31	1225
150 x 2 x 0,6	15.716,20	852	2,2	37	1780
200 x 2 x 0,6	20.217,70	1135	2,2	42	2315
2 x 2 x 0,8	1.748,80	22	1,8	10	100
6 x 2 x 0,8	2.547,90	62	1,8	14	195
10 x 2 x 0,8	3.416,70	103	1,8	16	275
20 x 2 x 0,8	5.141,60	203	1,8	20	475
30 x 2 x 0,8	6.650,10	304	1,8	23	665
40 x 2 x 0,8	8.008,40	404	2,0	27	860
50 x 2 x 0,8	9.501,80	505	2,0	29	1050
70 x 2 x 0,8	12.074,10	706	2,0	33	1420
100 x 2 x 0,8	15.956,70	1008	2,2	39	1985
150 x 2 x 0,8	22.219,10	1512	2,6	47	2935
200 x 2 x 0,8	29.052,40	2015	2,6	53	3825

A-2YF(L)2Y St III Bd

Plastic Insulated Telecommunication Cable for Local Networks, transversely and longitudinally water-proof

according to DIN VDE 0816



Construction

Solid bare copper conductors (diameter 0.6 mm or 0.8 mm), core insulation of polyethylene, cores are stranded to star quads and the quads are stranded in bundles, the interstices of the cable are continuously filled with jelly, one layer of plastic foil, static screen of plastic-laminated aluminium tape, polyethylene outer sheath, black.

Application

They are suitable for the installation into the earth, in conduits, cable ducts and are used as network cables in industrial and operational plants, mainly in low-frequency installations.

Temperature range

- 20°C till + 70°C

Electrical properties at 20°C

		0,6	0,8
Conductor loop resistance	max.	130 Ohm/km	73,2 Ohm/km
Insulation resistance	min.	1,5 GOhm x km	1,5 GOhm x km
Operating capacity at 800 Hz	max.	52 nF/km	55 nF/km

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight kg / km
A-2YF(L)2Y 225 V					
2 x 2 x 0,6	1.682,90	13	1,8	9	80
6 x 2 x 0,6	2.486,70	36	1,8	13	140
10 x 2 x 0,6	3.173,36	59	1,8	14	190
20 x 2 x 0,6	4.649,87	115	1,8	17	310
30 x 2 x 0,6	6.010,68	172	1,8	20	430
40 x 2 x 0,6	7.159,00	228	1,8	22	545
50 x 2 x 0,6	8.289,99	285	1,8	24	660
70 x 2 x 0,6	10.609,61	398	2,0	27	895
100 x 2 x 0,6	14.184,34	568	2,0	31	1225
150 x 2 x 0,6	20.725,90	852	2,2	37	1780
200 x 2 x 0,6	26.311,50	1135	2,2	42	2315
2 x 2 x 0,8	2.088,50	22	1,8	10	100
6 x 2 x 0,8	3.072,78	62	1,8	14	195
10 x 2 x 0,8	4.111,14	103	1,8	16	275
20 x 2 x 0,8	6.342,36	203	1,8	20	475
30 x 2 x 0,8	8.214,72	304	1,8	23	665
40 x 2 x 0,8	10.293,88	404	2,0	27	860
50 x 2 x 0,8	11.899,15	505	2,0	29	1050
70 x 2 x 0,8	15.417,83	706	2,0	33	1420
100 x 2 x 0,8	20.673,94	1008	2,2	39	1985
150 x 2 x 0,8	30.389,80	1512	2,6	47	2935
200 x 2 x 0,8	38.753,70	2015	2,6	53	3825
250 x 2 x 0,8	47.699,20	2520	2,6	59	4850

2YCFGY 2YALGY

HF – Coaxial Cable 75 Ohm, SAT - conform



Construction

Solid bare copper conductor (0.7 mm), core insulation of polyethylene (PE), longitudinally applied Cu or aluminium foil, wide-meshed copper screen, PVC outer sheath, white.

Application

It is to be applied in dry and humid locations as an aerial cable for community- and cable television networks. SAT-conform.

Temperature range

- 5°C till + 70°C

TYPE		2YCFGY 0,7 / 4,4		2YCFGY 0,7 / 4,6	
Electrical properties at 20°C					
Wave resistance	Z _L	Ohm	75 ± 3	75 ± 3	
Attenuation	α _{nom}				
100 MHz	dB / 100 m	8,4	8,2		
	300 MHz	dB / 100 m	16,0	15,7	
	450 MHz	dB / 100 m	19,5	19,0	
	850 MHz	dB / 100 m	27,1	26,7	
	1000 MHz	dB / 100 m	30,9	30,4	
	1350 MHz	dB / 100 m	37,2	36,6	
Velocity factor		v/c	0,67	0,66	
Screening factor		dB	min. 75	min. 75	
Nominal DC resistance	Inner conductor	Ohm / km	max. 47,0	max. 43,0	
	Outer conductor	Ohm / km	max. 23,0	max. 19,0	
Bending radius in mm			30,0	30,0	
TYPES	Price	Copper figure	Overall diameter	Weight	
	EUR / km	kg / km	ca. mm	ca. kg / km	
2YCFGY					
0,7 / 4,4	601,50	17,8	6,5	45	
0,7 / 4,6	750,60	17,8	6,8	46	
2YALGY					
0,7 / 4,4	601,50	17,8	6,5	44	

2YAFCY O2YAFCY

HF – Coaxial Cable 75 Ohm, SAT - conform



Construction

2YAFCY 0,75/4,8

solid bare copper conductor (0.75 mm), core insulation of polyethylene (PE), (diameter 4.8 mm), longitudinally applied aluminium foil, wide-meshed tinned copper braiding, PVC outer sheath, white.

Construction as for KOKA 712 AL.

O2YAFCY 1,0/4,5

solid bare copper conductor (1.0 mm), core insulation of foam PE, (diameter 4.5 mm), longitudinally applied aluminium foil, wide-meshed tinned copper braiding, PVC outer sheath, white.

Construction as for Sat 2000.

Application

It is to be applied in dry and humid locations as an aerial cable for community- and cable television networks. SAT-conform.

Temperature range

- 5°C till + 70°C

TYPE			2YAFCY 0,75/4,8	O2YAFCY 1,0/4,5
Electrical properties at 20°C				
Wave resistance	Z_L	Ohm	75 ± 3	75 ± 3
Attenuation	α_{nom}			
	100 MHz	dB / 100 m	8,8	6,4
	300 MHz	dB / 100 m	15,0	11,1
	450 MHz	dB / 100 m	17,5	13,8
	862 MHz	dB / 100 m	25,8	19,1
	1000 MHz	dB / 100 m	28,5	21,9
	1350 MHz	dB / 100 m	34,4	25,8
	1750 MHz	dB / 100 m	40,2	29,7
	2050 MHz	dB / 100 m	45,8	33,4
	2250 MHz	dB / 100 m	49,0	35,6
	2500 MHz	dB / 100 m	51,2	36,8
Screening factor		dB	min. 75	min. 75
Nominal DC resistance	Inner conductor	Ohm / km	max. 131	max. 22
	Outer conductor	Ohm / km	max. 20	max. 18,5
Bending radius in mm			30,0	40

TYPES	Price	Copper figure	Overall diameter	Weight
	EUR / km	kg / km	ca. mm	ca. kg / km
2YAFCY				
0,75/4,8	668,80	13	7,0	47
O2YAFCY				
1,0/4,5	807,40	14	6,5	44

RG 58 C/U RG 213 /U

Coaxial Cable 50 Ohm

according to US-Standard MIL - C - 17



Construction

RG 58 C/U

Tinned and fine-stranded copper conductor (19 x 0.18), insulation of polyethylene (PE), (diameter 2.95 mm), a tinned copper braid, outer sheath of PVC, black.

RG 213 /U

Stranded bare copper conductor (7 x 0.76), core insulation of polyethylene (PE), (diameter 7.25 mm), a bare copper braid, outer sheath of PVC, black.

Application

For indoor installation as well as in industrial areas in conduits and cable ducts, for transmission of high frequency signals and power.

Temperature range

- 35°C till + 80°C

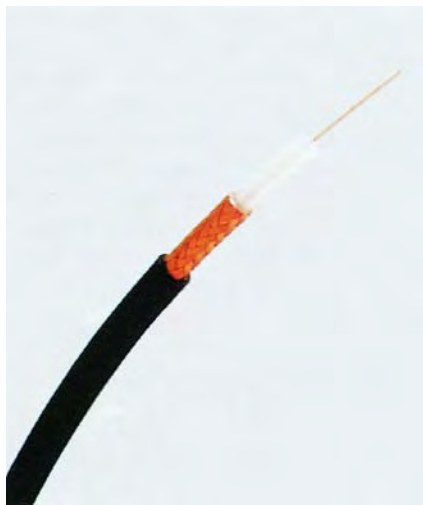
RG - Type			58 C/U	213 /U
Electrical / thermal parameters				
Frequency range	$f_{\max}$	GHz	3	3
Wave resistance	Z_L	Ohm	50 ± 2	50 ± 2
Attenuation	α_{nom}			
	10 MHz	dB / 100 m	4,6	1,8
	20 MHz	dB / 100 m	6,6	2,8
	50 MHz	dB / 100 m	10,7	4,4
	100 MHz	dB / 100 m	15,3	6,8
	200 MHz	dB / 100 m	22,8	9,7
	500 MHz	dB / 100 m	37,0	16,2
	800 MHz	dB / 100 m	48,8	21,5
	1000 MHz	dB / 100 m	55,5	24,5
Capacity	C	nF / km	100,0	100,0
Rel. velocity of propagation	V_{rel}	%	67,0	67,0
Insulation resistance	R_{ISO}	MOhm x km	$\geq 10^5$	$\geq 10^5$
Electric strength	50 Hz	kV_{eff}	5,0	10,0
Peak operating voltage		kV_s	2,5	5,2

RG - Type	Price	Copper figure	Overall diameter	Weight
	EUR / km	kg / km	ca. mm	ca. kg / km
58 C/U	900,22	19	5,0	35
58 C/U für Erdverlegung	1.081,90	19	5,0	35
58 C/U halogenfrei	1.899,90	19	5,0	35
213 /U	2.071,33	85	10,3	154

RG 59 B/U RG 11 A/U

Coaxial Cable 75 Ohm

according to US-Standard MIL - C - 17



Construction

RG 59 B/U

Steel-cored copper conductor, diameter 0.58 mm, core insulation of polyethylene (PE), (diameter 3.7 mm), a bare copper braid, outer sheath of PVC, black.

RG 11 A/U

Tinned and stranded copper, conductor (7 x 0.4), core insulation of polyethylene (PE), (diameter 7.25 mm), a bare copper braid, outer sheath of PVC, black.

Application

For indoor installation as well as in industrial areas in conduits and cable ducts, for transmission of high frequency signals and power.

Temperature range

- 35°C till + 80°C

RG - Type			59 B/U	11 A/U
Electrical / thermal parameters				
Frequency range	$f_{\max}$	GHz	3	3
Wave resistance	Z_L	Ohm	75 ± 3	75 ± 3
Attenuation	α_{nom}			
	10 MHz	dB / 100 m	3,3	2,3
	20 MHz	dB / 100 m	4,7	3,3
	50 MHz	dB / 100 m	7,5	5,3
	100 MHz	dB / 100 m	11,1	7,7
	200 MHz	dB / 100 m	16,8	11,2
	500 MHz	dB / 100 m	27,0	18,5
	800 MHz	dB / 100 m	35,1	24,3
	1000 MHz	dB / 100 m	39,2	27,7
Capacity	C	nF / km	68,0	68,0
Rel. velocity of propagation	V_{rel}	%	67,0	67,0
Insulation resistance	R_{ISO}	MOhm x km	$> 10^5$	$> 10^5$
Electric strength	50 Hz	kV _{eff}	7,0	10,0
Peak operating voltage		kV _s	3,5	5,2

RG - Type	Price	Copper figure	Overall diameter	Weight
	EUR / km	kg / km	ca. mm	ca. kg / km
59 B/U	857,99	24	6,2	51
59 C/U für Erdverlegung	1.032,10	24	6,2	51
59 C/U halogenfrei	1.812,00	24	6,2	51
11 A/U	2.189,78	56	10,2	125

RG 62 A/U RG 71 B/U

Coaxial Cable 93 Ohm

according to US-Standard MIL - C - 17



Construction

RG 62 A/U	RG 71 B/U
Steel-cored copper conductor	Steel-cored copper conductor
diameter 0.64 mm, core insulation of polyethylene/air (PE/air) (diameter 3.7 mm), bare copper braid, outer sheath of PVC, black.	diameter 0.64 mm, core insulation of polyethylene/air (PE/air) (diameter 3.7 mm), double screen of tinned copper braid, outer sheath of PVC, black.

Application

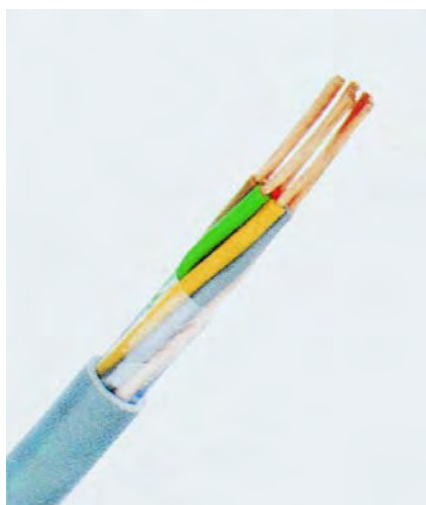
For indoor installation as well as in industrial areas in conduits and cable ducts, for transmission of high frequency signals and power.

Temperature range

- 35°C till + 80°C (RG 62 A/U)
- 50°C till + 70°C (RG 71 B/U)

RG - Type			62 A/U	71 B/U
Electrical / thermal parameters				
Frequency range	$f_{\max}$	GHz	3	3
Wave resistance	Z_L	Ohm	93 ± 3	93 ± 3
Attenuation	α_{nom}			
	1 MHz	dB / 100 m	0,95	0,95
	10 MHz	dB / 100 m	3,0	3,0
	100 MHz	dB / 100 m	9,0	9,0
	400 MHz	dB / 100 m	18,0	18,0
Capacity	C	nF / km	43,0	43,0
Rel. velocity of propagation	V_{rel}	%	83,0	83,0
Insulation resistance	R_{ISO}	MOhm x km	$> 10^5$	$> 10^5$
Electric strength	50 Hz	kV_{eff}	3,0	3,0
Peak operating voltage		kV_s	1,1	1,5

RG - Type	Price	Copper figure	Overall diameter	Weight
	EUR / km	kg / km	ca. mm	ca. kg / km
62 A/U	857,99	23	6,15	55
71 B/U	1.396,68	45	6,22	59

**Construction**

Fine-stranded bare copper conductors, core insulation of PVC, cores are coloured and stranded in layers, colour-code according to DIN 47100, PVC outer sheath, grey.

Application

To be installed in dry and humid rooms and used as a termination and connection cable in the control, measuring and signal technology.

Temperature range

In motion - 5°C till + 70°C

For fixed installation - 20°C till + 70°C

Electrical properties at 20°C

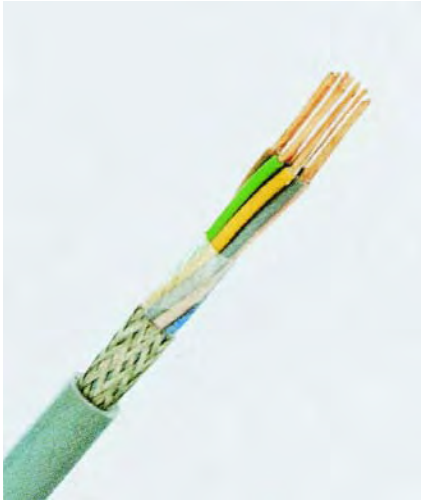
Insulation resistance min. 100 MOhm x km

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Conductor resistance max.	Overall diameter ca.	Weight ca.
mm ²	EUR / km	kg / km	mm	Ohm/km	mm	kg / km
LiYY 350 V						
2 x 0,14	238,30	2,8	18 x 0,10	138,0	3,3	12
3 x 0,14	328,10	4,2	18 x 0,10	138,0	3,5	17
4 x 0,14	380,80	5,6	18 x 0,10	138,0	3,7	19
5 x 0,14	464,50	7,0	18 x 0,10	138,0	4,0	22
6 x 0,14	531,00	8,4	18 x 0,10	138,0	4,3	25
7 x 0,14	558,20	9,8	18 x 0,10	138,0	4,5	27
8 x 0,14	729,20	11,2	18 x 0,10	138,0	4,7	30
10 x 0,14	857,50	14,0	18 x 0,10	138,0	5,4	35
12 x 0,14	985,60	16,8	18 x 0,10	138,0	5,6	43
14 x 0,14	1.115,90	19,6	18 x 0,10	138,0	5,9	48
16 x 0,14	1.227,60	22,4	18 x 0,10	138,0	6,2	52
18 x 0,14	1.341,70	25,2	18 x 0,10	138,0	6,9	65
21 x 0,14	1.590,70	29,4	18 x 0,10	138,0	7,6	77
24 x 0,14	1.789,70	33,6	18 x 0,10	138,0	8,3	89
27 x 0,14	1.999,30	37,8	18 x 0,10	138,0	8,5	97
30 x 0,14	2.164,80	42,0	18 x 0,10	138,0	8,8	106
32 x 0,14	2.262,60	44,8	18 x 0,10	138,0	9,1	112
36 x 0,14	2.518,40	50,4	18 x 0,10	138,0	9,3	127
2 x 0,25	342,40	5,0	14 x 0,16	75,5	4,5	25
3 x 0,25	403,30	7,5	14 x 0,16	75,5	4,8	29
4 x 0,25	503,00	10,0	14 x 0,16	75,5	5,1	31
5 x 0,25	564,10	12,5	14 x 0,16	75,5	5,5	38
6 x 0,25	586,10	15,0	14 x 0,16	75,5	5,8	42
7 x 0,25	686,30	17,5	14 x 0,16	75,5	6,0	48
8 x 0,25	926,90	20,0	14 x 0,16	75,5	6,2	54
10 x 0,25	1.148,60	25,0	14 x 0,16	75,5	7,2	65
12 x 0,25	1.370,20	30,0	14 x 0,16	75,5	7,5	75
14 x 0,25	1.518,80	35,0	14 x 0,16	75,5	8,0	84
16 x 0,25	1.631,50	40,0	14 x 0,16	75,5	8,4	95
18 x 0,25	1.773,80	45,0	14 x 0,16	75,5	8,8	101
20 x 0,25	2.025,90	50,0	14 x 0,16	75,5	9,3	127
24 x 0,25	2.467,70	60,0	14 x 0,16	75,5	9,5	140
30 x 0,25	2.853,20	75,0	14 x 0,16	75,5	10,2	172
36 x 0,25	3.349,10	90,0	14 x 0,16	75,5	10,8	190

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Conductor resistance max.	Overall diameter ca.	Weight ca.
mm ²	EUR / km	kg / km	mm	Ohm/km	mm	kg / km
LiYY 350 V						
2 x 0,34	356,70	6,8	19 x 0,16	57,5	4,8	28
3 x 0,34	450,20	10,2	19 x 0,16	57,5	5,0	30
4 x 0,34	545,30	13,6	19 x 0,16	57,5	5,3	40
5 x 0,34	675,70	17,0	19 x 0,16	57,5	5,3	44
6 x 0,34	717,10	20,4	19 x 0,16	57,5	5,8	52
7 x 0,34	828,90	23,8	19 x 0,16	57,5	6,2	60
8 x 0,34	1.069,30	27,2	19 x 0,16	57,5	6,5	66
10 x 0,34	1.349,90	34,0	19 x 0,16	57,5	7,8	77
12 x 0,34	1.497,10	40,8	19 x 0,16	57,5	8,0	88
14 x 0,34	1.681,80	47,6	19 x 0,16	57,5	8,5	100
16 x 0,34	1.822,80	54,4	19 x 0,16	57,5	8,7	114
18 x 0,34	2.099,70	61,2	19 x 0,16	57,5	9,5	135
21 x 0,34	2.533,30	71,4	19 x 0,16	57,5	10,3	151
24 x 0,34	2.736,90	81,6	19 x 0,16	57,5	11,3	171
30 x 0,34	3.333,70	102,0	19 x 0,16	57,5	12,0	224
32 x 0,34	3.559,00	108,8	19 x 0,16	57,5	12,4	239
36 x 0,34	3.672,70	122,4	19 x 0,16	57,5	12,9	265
2 x 0,5	394,30	10,0	16 x 0,21	37,8	4,8	23
3 x 0,5	506,60	15,0	16 x 0,21	37,8	5,2	31
4 x 0,5	655,30	20,0	16 x 0,21	37,8	6,0	39
5 x 0,5	918,70	25,0	16 x 0,21	37,8	6,2	43
6 x 0,5	969,00	30,0	16 x 0,21	37,8	6,3	47
7 x 0,5	1.014,20	35,0	16 x 0,21	37,8	6,5	70
8 x 0,5	1.279,10	40,0	16 x 0,21	37,8	7,5	78
10 x 0,5	1.543,70	50,0	16 x 0,21	37,8	8,1	92
12 x 0,5	1.669,70	60,0	16 x 0,21	37,8	9,0	122
16 x 0,5	2.148,70	80,0	16 x 0,21	37,8	10,0	146
18 x 0,5	2.396,80	90,0	16 x 0,21	37,8	10,2	159
21 x 0,5	3.085,40	105,0	16 x 0,21	37,8	10,5	180
24 x 0,5	3.292,90	120,0	16 x 0,21	37,8	12,5	221
30 x 0,5	3.893,30	150,0	16 x 0,21	37,8	13,5	267
36 x 0,5	4.544,90	180,0	16 x 0,21	37,8	14,5	315
2 x 0,75	490,20	15,0	24 x 0,21	25,3	5,6	54
3 x 0,75	626,30	22,5	24 x 0,21	25,3	6,0	66
4 x 0,75	817,10	30,0	24 x 0,21	25,3	6,9	78
5 x 0,75	1.025,70	37,5	24 x 0,21	25,3	7,5	100
7 x 0,75	1.379,40	52,5	24 x 0,21	25,3	8,2	120
8 x 0,75	2.080,90	60,0	24 x 0,21	25,3	9,0	138
12 x 0,75	2.514,60	90,0	24 x 0,21	25,3	11,1	192

Electronic Control Cable with Tinned Copper Braiding

adapted to DIN VDE 0812



Construction

Fine-stranded bare conductors, core insulation of PVC, cores are coloured and stranded in layers, colour-code according to DIN 47100, one layer of plastic foil, braid of tinned copper wires (with an optical coverage of ca. 80 %), PVC outer sheath, grey.

Application

To be installed in dry and humid rooms and used as a termination and connection cable in the control, measuring and signal technology.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 20°C till + 70°C

Electrical properties at 20°C

Insulation resistance min. 100 MOhm x km

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Conductor resistance max.	Overall diameter ca.	Weight ca.
mm ²	EUR / km	kg / km	mm	Ohm/km	mm	kg / km
LiYCY 350 V						
2 x 0,14	611,75	13	18 x 0,10	138,0	3,9	20
3 x 0,14	745,09	15	18 x 0,10	138,0	4,1	24
4 x 0,14	813,99	17	18 x 0,10	138,0	4,3	28
5 x 0,14	980,14	20	18 x 0,10	138,0	4,7	34
6 x 0,14	1.089,23	23	18 x 0,10	138,0	5,2	40
7 x 0,14	1.103,11	25	18 x 0,10	138,0	5,2	41
8 x 0,14	1.247,16	26	18 x 0,10	138,0	5,9	52
10 x 0,14	1.602,86	30	18 x 0,10	138,0	6,5	57
12 x 0,14	1.727,80	33	18 x 0,10	138,0	6,9	72
14 x 0,14	1.996,70	36	18 x 0,10	138,0	7,1	78
16 x 0,14	2.219,93	42	18 x 0,10	138,0	7,5	87
18 x 0,14	2.272,12	54	18 x 0,10	138,0	7,8	98
20 x 0,14	2.538,02	61	18 x 0,10	138,0	8,1	105
21 x 0,14	2.683,30	63	18 x 0,10	138,0	8,9	118
24 x 0,14	2.861,76	77	18 x 0,10	138,0	9,3	125
25 x 0,14	2.967,59	79	18 x 0,10	138,0	9,5	129
27 x 0,14	3.168,80	88	18 x 0,10	138,0	9,5	134
30 x 0,14	3.455,80	102	18 x 0,10	138,0	9,7	143
32 x 0,14	3.466,32	110	18 x 0,10	138,0	10,1	151
36 x 0,14	3.732,99	121	18 x 0,10	138,0	10,4	169
40 x 0,14	4.110,63	131	18 x 0,10	138,0	11,1	185
44 x 0,14	5.348,40	144	18 x 0,10	138,0	11,5	196
50 x 0,14	4.982,89	157	18 x 0,10	138,0	11,9	213
52 x 0,14	6.320,90	162	18 x 0,10	138,0	11,9	218
1 x 0,25	709,30	12	14 x 0,16	75,5	4,0	21
2 x 0,25	678,34	15	14 x 0,16	75,5	4,2	25
3 x 0,25	760,26	18	14 x 0,16	75,5	4,4	29
4 x 0,25	891,54	22	14 x 0,16	75,5	4,7	36
5 x 0,25	1.085,11	26	14 x 0,16	75,5	5,3	44
6 x 0,25	1.260,95	30	14 x 0,16	75,5	5,7	52
7 x 0,25	1.311,77	35	14 x 0,16	75,5	5,7	53

Number of cores and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Conductor resistance max.	Overall diameter ca.	Weight ca.
mm ²	EUR / km	kg / km	mm	Ohm/km	mm	kg / km
LiYCY 350 V						
8 x 0,25	1.740,31	36	14 x 0,16	75,5	6,8	77
10 x 0,25	1.865,51	44	14 x 0,16	75,5	7,3	84
12 x 0,25	2.187,54	50	14 x 0,16	75,5	7,5	92
14 x 0,25	2.617,03	67	14 x 0,16	75,5	7,8	104
16 x 0,25	2.781,55	74	14 x 0,16	75,5	8,6	123
18 x 0,25	2.991,50	81	14 x 0,16	75,5	9,0	133
21 x 0,25	3.491,60	90	14 x 0,16	75,5	9,7	153
24 x 0,25	3.714,10	119	14 x 0,16	75,5	10,2	168
27 x 0,25	4.292,10	126	14 x 0,16	75,5	10,4	180
32 x 0,25	4.747,32	144	14 x 0,16	75,5	11,1	205
36 x 0,25	5.306,70	158	14 x 0,16	75,5	11,5	225
40 x 0,25	6.007,59	170	14 x 0,16	75,5	12,6	259
50 x 0,25	7.458,18	206	14 x 0,16	75,5	13,6	305
2 x 0,34	727,18	18	19 x 0,16	57,5	5,0	34
3 x 0,34	813,21	22	19 x 0,16	57,5	5,2	40
4 x 0,34	1.013,99	26	19 x 0,16	57,5	5,6	49
5 x 0,34	1.209,37	32	19 x 0,16	57,5	6,3	61
7 x 0,34	1.489,41	40	19 x 0,16	57,5	7,0	81
8 x 0,34	1.752,14	45	19 x 0,16	57,5	7,9	103
10 x 0,34	1.947,00	66	19 x 0,16	57,5	8,9	118
12 x 0,34	2.385,32	72	19 x 0,16	57,5	9,1	131
16 x 0,34	2.809,23	91	19 x 0,16	57,5	10,0	161
18 x 0,34	3.191,60	112	19 x 0,16	57,5	10,5	181
24 x 0,34	4.407,40	145	19 x 0,16	57,5	12,0	223
1 x 0,5	857,60	14	16 x 0,21	37,8	3,3	20
2 x 0,5	1.178,35	24	16 x 0,21	37,8	5,3	39
3 x 0,5	1.292,92	32	16 x 0,21	37,8	5,6	49
4 x 0,5	1.464,73	37	16 x 0,21	37,8	6,2	60
5 x 0,5	1.636,37	55	16 x 0,21	37,8	6,9	81
6 x 0,5	1.756,42	63	16 x 0,21	37,8	7,4	94
7 x 0,5	2.095,25	68	16 x 0,21	37,8	7,4	98
8 x 0,5	2.336,04	80	16 x 0,21	37,8	8,8	130
10 x 0,5	2.797,15	93	16 x 0,21	37,8	9,5	141
12 x 0,5	3.061,25	103	16 x 0,21	37,8	9,8	157
14 x 0,5	3.624,50	120	16 x 0,21	37,8	10,0	169
16 x 0,5	3.634,36	133	16 x 0,21	37,8	10,7	200
18 x 0,5	4.208,40	147	16 x 0,21	37,8	11,2	221
20 x 0,5	4.331,97	165	16 x 0,21	37,8	11,2	234
24 x 0,5	4.750,49	181	16 x 0,21	37,8	13,3	284
1 x 0,75	1.048,50	17	24 x 0,21	25,3	3,5	24
2 x 0,75	1.248,79	32	24 x 0,21	25,3	5,9	49
3 x 0,75	1.454,53	40	24 x 0,21	25,3	6,4	63
4 x 0,75	1.633,54	60	24 x 0,21	25,3	7,1	85
5 x 0,75	1.826,95	72	24 x 0,21	25,3	7,7	102
7 x 0,75	2.315,13	92	24 x 0,21	25,3	8,7	134
8 x 0,75	2.662,44	104	24 x 0,21	25,3	9,2	150
1 x 1	939,60	19	32 x 0,21	19,5	3,9	29
2 x 1	1.295,74	50	32 x 0,21	19,5	6,3	58
3 x 1	1.562,16	60	32 x 0,21	19,5	6,8	81
4 x 1	1.828,49	74	32 x 0,21	19,5	7,2	98
5 x 1	2.094,99	89	32 x 0,21	19,5	8,0	120
2 x 1,5	1.592,84	57	29 x 0,25	13,3	7,1	80
3 x 1,5	1.842,12	74	29 x 0,25	13,3	7,5	102
4 x 1,5	2.236,98	92	29 x 0,25	13,3	8,2	128
5 x 1,5	2.616,25	111	29 x 0,25	13,3	9,2	162

LiYCY paired

Paired Electronic Control Cable with Tinned Copper Braiding

adapted to DIN VDE 0812



Construction

Fine-stranded bare conductors, core insulation of PVC, cores are coloured and stranded to pairs and the pairs are stranded in layers, colour-coding according to DIN 47100, one layer of plastic foil, braid of tinned copper wires (with an optical coverage of ca. 80 %), PVC outer sheath, grey.

Application

To be installed in dry and humid rooms and used as a termination and connection cable in the control, measuring and signal technology.

Temperature range

In motion - 5°C till + 70°C

For fixed installation - 20°C till + 70°C

Electrical properties at 20°C

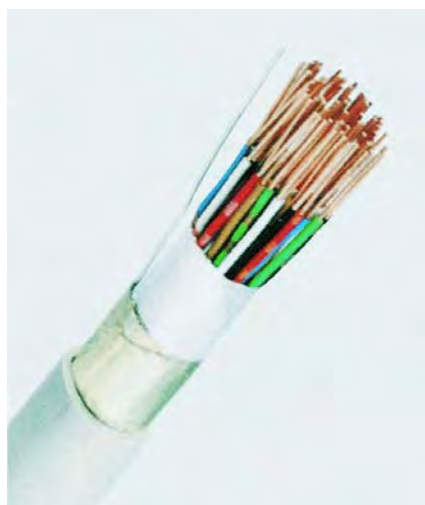
Insulation resistance	min.	100 MOhm x km
Capacity	max.	120 nF / km
Attenuation at 800 Hz	ca.	2,3 dB / km (0,14 mm ²)
	ca.	1,9 dB / km (0,25 mm ²)
	ca.	1,5 dB / km (0,34 mm ²)
	ca.	1,3 dB / km (0,50 mm ²)
	ca.	1,1 dB / km (0,75 mm ²)

Number of pairs and nominal cross section	Price	Copper figure	Conductor construction (approx. value)	Conductor loop resistance	Overall diameter ca.	Weight ca.
mm ²	EUR / km	kg / km	mm	Ohm/km	mm	kg / km
LiYCY paired 350 V						
2 x 2 x 0,14	1.122,90	24	18 x 0,10	276,0	5,0	44
3 x 2 x 0,14	1.267,04	27	18 x 0,10	276,0	5,6	53
4 x 2 x 0,14	1.546,31	41	18 x 0,10	276,0	6,1	60
5 x 2 x 0,14	1.784,87	46	18 x 0,10	276,0	6,5	80
6 x 2 x 0,14	1.984,79	54	18 x 0,10	276,0	7,2	85
7 x 2 x 0,14	2.025,32	57	18 x 0,10	276,0	7,8	92
8 x 2 x 0,14	2.244,52	59	18 x 0,10	276,0	8,3	115
10 x 2 x 0,14	2.768,44	68	18 x 0,10	276,0	9,0	130
12 x 2 x 0,14	3.131,26	82	18 x 0,10	276,0	9,4	160
14 x 2 x 0,14	3.696,90	88	18 x 0,10	276,0	10,0	180
16 x 2 x 0,14	4.018,09	97	18 x 0,10	276,0	10,6	220
2 x 2 x 0,25	1.293,95	28	14 x 0,16	151,0	6,8	55
3 x 2 x 0,25	1.587,61	44	14 x 0,16	151,0	6,9	68
4 x 2 x 0,25	1.827,55	57	14 x 0,16	151,0	7,5	77
5 x 2 x 0,25	2.570,24	63	14 x 0,16	151,0	7,9	80
6 x 2 x 0,25	2.735,97	68	14 x 0,16	151,0	8,6	100
8 x 2 x 0,25	3.253,54	86	14 x 0,16	151,0	9,3	118
10 x 2 x 0,25	3.725,02	115	14 x 0,16	151,0	11,4	165
2 x 2 x 0,34	1.528,65	45	19 x 0,16	115,0	6,6	52
3 x 2 x 0,34	1.807,24	54	19 x 0,16	115,0	7,2	73
4 x 2 x 0,34	2.085,74	67	19 x 0,16	115,0	8,0	90
2 x 2 x 0,5	1.555,90	52	16 x 0,21	75,6	8,0	87
3 x 2 x 0,5	1.845,03	67	16 x 0,21	75,6	9,0	109
4 x 2 x 0,5	2.195,94	83	16 x 0,21	75,6	10,1	139
5 x 2 x 0,5	2.600,40	100	16 x 0,21	75,6	11,3	164
6 x 2 x 0,5	3.008,89	112	16 x 0,21	75,6	12,1	197
8 x 2 x 0,5	4.841,24	132	16 x 0,21	75,6	13,2	207
12 x 2 x 0,5	6.265,35	196	16 x 0,21	75,6	15,1	306
2 x 2 x 0,75	2.337,76	68	24 x 0,21	50,6	8,6	106
3 x 2 x 0,75	2.756,87	85	24 x 0,21	50,6	9,5	140
4 x 2 x 0,75	3.286,36	124	24 x 0,21	50,6	10,8	179
6 x 2 x 0,75	4.343,80	145	24 x 0,21	50,6	12,5	246

JE-Y(ST)Y ... Bd

Cable for Industrial Electronics

according to DIN VDE 0815



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of PVC, cores are stranded to pairs, four pairs are stranded to bundles, the bundles are marked by a numbered helix (Z) or by coloured rings on the insulation sheaths of the cores (Si), one layer of plastic foil, static screen of plastic coated aluminium foil with drain wire, PVC outer sheath, grey.

Application

Cables for industrial electronics are suitable for fixed installations in dry and humid rooms.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	73,2 Ohm / km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	100 nF / km
Capacitance coupling for 100 m	max.	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JE-Y(ST)Y ... Bd 225 V					
2 x 2 x 0,8 *	743,31	25	1,0	6,0	60
4 x 2 x 0,8	1.296,90	45	1,0	8,5	95
8 x 2 x 0,8	2.140,84	85	1,0	11,0	160
12 x 2 x 0,8	2.912,84	126	1,0	13,0	235
16 x 2 x 0,8	3.636,90	166	1,2	14,5	295
20 x 2 x 0,8	4.356,11	206	1,2	16,0	355
24 x 2 x 0,8	5.177,46	246	1,2	18,0	430
32 x 2 x 0,8	7.075,06	327	1,4	20,0	555
40 x 2 x 0,8	7.956,90	407	1,4	22,0	670
80 x 2 x 0,8	14.883,87	809	1,6	30,0	1290

* star quad twisting

**Construction**

Stranded bare copper conductors with 0.5 mm² (diameter 7 x 0.30 mm), core insulation of PVC, cores are stranded to pairs, four pairs are stranded to bundles, the bundles are marked by a numbered helix (Z) or by coloured rings on the insulation sheaths of the cores (Si), one layer of plastic foil, braid of tinned copper wires (with an optical coverage of ca. 80 %), PVC outer sheath, grey.

Application

Cables for industrial electronics are suitable for fixed installations in dry and humid rooms.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	78,4 Ohm / km
Insulation resistance	min.	100 MOhm x km
Operating capacity	max.	100 nF / km
Capacitance coupling for 100 m	max.	200 pF

Number of pairs and nominal conductor diameter mm	Price EUR / km	Copper figure kg / km	Thickness of the outer sheath ca. mm	Overall diameter ca. mm	Weight ca. kg / km
JE-LiYCY ... Bd 225 V					
2 x 2 x 0,5 *	2.206,97	51	1,0	7,0	85
4 x 2 x 0,5	3.312,83	87	1,0	9,5	145
8 x 2 x 0,5	5.165,36	144	1,0	12,0	225
12 x 2 x 0,5	6.592,38	196	1,2	14,5	315
16 x 2 x 0,5	7.788,83	249	1,2	16,0	385
20 x 2 x 0,5	9.168,36	299	1,2	17,5	460
24 x 2 x 0,5	10.381,04	348	1,2	19,5	550
32 x 2 x 0,5	12.756,18	444	1,4	21,5	680
40 x 2 x 0,5	17.507,98	537	1,4	24,0	845

* star quad twisting

RS-2YCY ... PiMF

Pairwise Screened Data Transmission Cable with Overall Bare Copper Braiding



Construction

Stranded bare copper conductors with 0.5 mm² (diameter 7 x 0.30 mm), core insulation of polyethylene (PE), core colours are white and black in each pair, cores are stranded to pairs, each pair is screened with a static screen of plastic coated aluminium foil with drain wire, the pairs are stranded in concentric layers, one layer of plastic foil, overall braid of bare copper wires, PVC outer sheath, grey. For installation in earth with a reinforced PVC outer sheath, black.

Application

These transmission cables are to be installed in dry and humid rooms. They are used in data processing and process controlling for high-speed transmission.

Temperature range

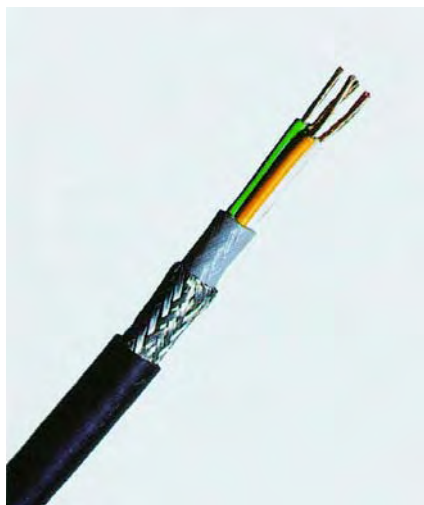
In motion - 5°C till + 50°C
For fixed installation - 20°C till + 70°C

Electrical properties at 20°C

Conductor loop resistance	max.	78,4 Ohm / km
Insulation resistance	min.	10,0 GOhm x km
Operating capacity at 800 Hz	max.	65,0 nF / km
near-end crosstalk attenuation at 60 Hz	min.	78 dB / 500 m
Impedance at	1 KHz	465 Ohm
	10 KHz	155 Ohm
	100 KHz	115 Ohm
Attenuation at	1 KHz	0,9 dB / km
	10 KHz	2,4 dB / km
	100 KHz	4,5 dB / km

Number of pairs and nominal cross section	Price	Copper figure	Overall diameter	Weight
mm ²	EUR / km	ca. kg / km	ca. mm	kg / km
RS-2YCY ... PiMF 350 V				
2 x 2 x 0,5	2.640,00	77	7,6	100
3 x 2 x 0,5	3.239,10	92	8,8	120
4 x 2 x 0,5	3.655,10	112	9,5	145
6 x 2 x 0,5	5.253,90	154	11,6	210
8 x 2 x 0,5	6.468,40	188	12,4	270
10 x 2 x 0,5	8.215,20	246	14,5	330
12 x 2 x 0,5	9.679,00	294	15,8	375
16 x 2 x 0,5	12.606,70	352	18,2	420
20 x 2 x 0,5	15.142,60	412	20,4	510
24 x 2 x 0,5	18.148,80	490	21,0	690

Plastic Insulated Low-Frequency Cable with Copper Braiding



Construction

Fine-stranded bare conductors, core insulation of PVC, core colours are brown, white, green and yellow, cores are stranded, inner sheath of PVC, braid of bare copper wires, PVC outer sheath, black.

Application

To be installed in dry and humid rooms as termination and connection cable in the low-frequency and studio technology.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 20°C till + 70°C

Electrical properties at 20°C

		0,5 mm ²	0,75 mm ²
Conductor resistance	max.	39 Ohm / km	26 Ohm / km
Capacity	ca.	120 pF / km	130 pF / km

Number of pairs and nominal conductor cross section mm ²	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Weight ca. kg / km
YMLCM 350 V				
2 x 0,5	1.071,20	20	6,5	45
2 x 0,75	1.380,20	30	6,9	70
3 x 0,75	1.565,60	50	7,4	90
4 x 0,75	1.725,25	60	7,9	110
5 x 0,75	1.915,80	72	8,9	125

J-Y(St)Y EIB

MSR Installation Cable with Static Screen



Construction

Solid bare copper conductors (diameter 0.8 mm), core insulation of PVC, core colours of circuit 1: a-core red, b-core black; of circuit 2: a-core white, b-core yellow, a and b core of the same circuit are opposite, cores are stranded to form a star quad (min. 5 twists/m), one layer of plastic foil, static screen of plastic coated aluminium foil with drain wire, PVC outer sheath, light grey (RAL 7035) or green.

Application

The installation in, on and under the wall surface, in dry, humid and wet locations as well as outdoors (if protected) is admissible. As BUS-installation cable (EIB-installation bus) it may be used in HV and LV installations, as control and instrumentation cable (MSR-cable) in HV installations. The screened installation cable is suitable for the transmission of measuring data, for the installation in the processing and for the application in the field of the control technology.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 30°C till + 70°C
Max. 70°C on the conductor

Properties at 20°C			ISDN	
Conductor resistance			max.	130 Ohm / km
Insulation resistance			min.	100 MOhm x km
Operating capacity at 800 Hz			max.	100 nF / km
Capacitance coupling for 100 m			max.	300 pF
Wave resistance Z	0,01 -	0,1 MHz		110 ± 15 Ohm
	0,1 -	1,0 MHz		85 ± 10 Ohm
	1,0 -	5,0 MHz		75 ± 3 Ohm
Wave attenuation α	0,01 -	0,1 MHz	max.	12 dB / km
	0,1 -	1,0 MHz	max.	50 dB / km
	1,0 -	5,0 MHz	max.	95 dB / km
	5,0 -	16,0 MHz	max.	150 dB / km
Near-end crosstalk attenuation at	0,01 -	0,1 MHz	min.	75 dB
	0,1 -	1,0MHz	min.	65 dB
	1,0 -	5,0MHz	min.	60 dB
	5,0 -	16,0MHz	min.	55 dB
Test voltage	core/core			1 KV, 5 min.
	core and screen to the surface of the sheath			4 KV, 1 min.

Number of pairs and nominal conductor cross section mm ²	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Weight ca. kg / km
J-Y(St)Y EIB 250/250 V _{eff} 2 x 2 x 0,8	743,41	21	6,1	54

**Aufbau**

Blanke, eindrähige Kupferleiter AWG 22, Aderisolation aus Foam-Skin PE, Aderfarben rot – grün; 2 Adern + 2 Beiläufe gemeinsam verseilt, Abschirmung aus Al-PETP Verbundfolie längseinlaufend und verzinnem Cu-Geflecht mit ca.80% Bedeckungsgrad., Außenmantel aus PVC, violett (RAL 4001).

Verwendung

Zur Verlegung auf und unter Putz in trockenen, feuchten und nassen Räumen sowie im Freien (bei geschützter Verlegung). Wird als Anschluss- und Verbindungsleitung im Maschinenbau z.B. als Verbindungsleitung zwischen Bussegmenten verwendet.

Temperature range

Operating temperature - 40°C bis + 70°C

Properties at 20°C

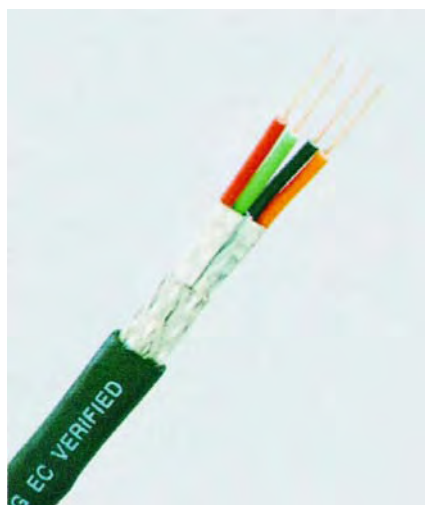
Conductor resistance		max.	57,1 Ohm / km
Isulation resistance		mind.	1 GOhm x km
Capacity nom.			30 nF/km
Wave resistance			150 ± 10%
Attenuation	9,6 kHz	max.	2,5 dB / km
	38,4 kHz	max.	4,0 dB / km
	4,0 MHz	max.	22,0 dB / km
	16,0 MHz	max.	42,0 dB / km
Test voltage			3600 V, 3 min.
Bending radius			125mm.

Number of pairs and nominal conductor cross section mm ²	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Weight ca. kg / km
02YS(ST)CY 250/250				
1 x 2 x 0,64/2,45	2130,00	27	7,7	54

IBM TYP 1A

Installation Cable for IBM Cabling Systems

IBM Part.-Nr. 33G2772



Construction

Solid bare copper conductor AWG 22, (0.64 mm diameter), foam-polyethylene insulation, core diameter 2.3 mm, cores are stranded to pairs, colour sequence 1. pair rd/gn, 2. pair or/bla, pairs are screened individually with a plastic-laminated aluminium foil, overall screen of tinned copper braiding with an optical coverage of ca. 70 %, outer sheath of PVC, black, flame-retardant with a white marking.

Application

It is to be applied indoors on the wall or in the floor as well as in cable ducts as a data transmission cable for IBM-LAN systems and EC-approved "non plenum type".

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Properties at 20°C

ISDN

Conductor resistance			max.	57,1 Ohm / km
Insulation resistance			min.	16,0 GOhm x km
Wave resistance			ca.	150 Ohm
Wave attenuation at	4	MHz	max.	22 dB / km
	16	MHz	max.	44 dB / km
	20	MHz	max.	49 dB / km
	62,5	MHz	max.	97,5 dB / km
	100	MHz	max.	123 dB / km
	300	MHz	max.	214 dB / km
Capacity			ca.	28 nF / km
Capacitance unbalance			max.	1,0 nF / km
Near-end crosstalk attenuation at 9,6 KHz -	5	MHz	min.	58 dB
	16	MHz	min.	50 dB
	100	MHz	min.	39 dB
	300	MHz	min.	31 dB

Number of pairs and nominal diameter mm	Price EUR / km	Copper figure kg / km	Overall measures ca. mm	Weight ca. kg / km
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IBM TYP 1A

2 x 2 x 0,64	1.382,00	38	7,6 x 11,9	102
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2Y2YCY

IBM-Twinax Cable

IBM Part. Nr. 7362211



Construction

Stranded tinned copper conductor (1), AWG 20, (7 x 0.32 mm diameter), stranded bare copper conductor (2), AWG 20, (7 x 0.32 mm diameter), core insulation of polyethylene (PE), cores are stranded, inner sheath of polyethylene (PE), screen of tinned copper braiding with an optical coverage of ca. 95 %, outer sheath of polyvinylchloride (PVC), black.

Application

It is to be applied indoors as a BUS-installation cable in the data transmission engineering.

Temperature range

In motion - 5°C till + 50°C
For fixed installation - 30°C till + 70°C

Properties at 20°C

ISDN

Conductor loop resistance	ca.	63 Ohm / km
Insulation resistance	min.	10 GOhm x km
Capacity	ca.	50 nF / km
Wave resistance at 10 MHz	ca.	105 Ohm
Wave attenuation at 10 MHz	max.	23 dB / km

Number of pairs and nominal dimensions	Price	Copper figure	Overall measures	Weight
mm	EUR / km	kg / km	ca. mm	ca. kg / km
2Y2YCY				
1 x 2 x AWG 20/7	1.804,58	51	8	98

J-2Y(St)Y St III ... Bd

ISDN Cable

adapted to DIN VDE 0816/0815



Construction

Solid bare copper conductor, 0.6 mm diameter, core insulation of solid PE, plastic foil, colour sequence adapted to VDE 0815, cores are stranded to star quads, overall screen of plastic laminated aluminium foil, with a tinned drain wire (0.6 mm diameter), PVC outer sheath, grey, flame retardant according to DIN VDE 0472 part 804 test B and IEC 332-1.

Application

This ISDN cable is to be used as a termination and connection cable for the transmission of analogue to digital signals up to 16 MHz. It is suitable for ISDN applications in this frequency range such as BTX or fax. Peculiarity of this cable is the cores, which are stranded to star quads.

Please, consider our laying instructions in the technical part of this catalogue!

Temperature range

In motion	- 5°C	till + 70°C
For fixed installation	- 20°C	till + 70°C

Properties at 20°C

ISDN

Loop resistance in Ohm / 100m		max.	13,0
Insulation resistance in GOhm x km		min.	5,0
Operating capacity in nF / km			48,0
Rel. velocity of propagation ca.			0,66
Wave resistance (1-100 MHz) in Ohm $\pm$ 15 %			100,0
Test AC voltage in V			800,0
Wave attenuation in dB / 100m at	1,0 MHz		2,8
	4,0 MHz		4,7
	10,0 MHz		6,5
	16,0 MHz		7,8
Min. near-end crosstalk attenuation in dB at	1,0 MHz		30,0
	10,0 MHz		30,0
Coupling resistance at 10,0 MHz in mOhm / m		<	200,0
Bending radius in n x cable diameter			15,0

Number of pairs and nominal dimensions mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force da N	Weight ca. kg / km
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J-2Y(St)Y St III ... Bd

2 x 2 x 0,6	440,60	15	4,9	680	7	42
4 x 2 x 0,6	779,20	26	6,9	880	13	79
6 x 2 x 0,6	1.280,60	39	7,0	1110	18	85
10 x 2 x 0,6	1.730,10	61	9,2	1350	30	103
20 x 2 x 0,6	2.751,80	121	11,9	2600	58	111
30 x 2 x 0,6	4.749,10	179	14,5	3460	85	217
40 x 2 x 0,6	5.915,60	239	16,2	4250	115	300
50 x 2 x 0,6	6.733,70	298	18,2	5340	140	378
60 x 2 x 0,6	8.710,30	356	19,6	6120	170	476
80 x 2 x 0,6	11.667,10	474	22,1	8020	230	555
100 x 2 x 0,6	12.491,90	592	24,7	9520	280	740

LAN 200U flex

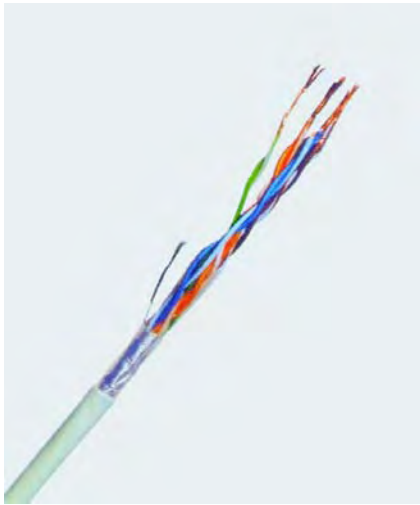
UTP

LAN 200 flex

UTP-S / FTP / S-UTP

Patch Cable for Local Networks, Unscreened Patch Cable for Local Networks, Foil-Tape Shielded Category 5e

according to ISO/IEC 11801, EN 50173, EN 50288-3-2 und EN 50288-2-2



Construction

Stranded bare copper conductor, solid PE insulation, coloured cores, colour sequence according to IEC 708, cores are stranded to pairs, pairs are stranded to bundles, LAN 100 U flex is unscreened, LAN 100 flex is shielded with a plastic-laminated aluminium foil, outer sheath of PVC, grey, flame-retardant according to DIN VDE 0472 part 804 test B and IEC 332-1 as well as of a halogen-free polymer compound.

Application

It is used for the wiring of electrical appliance-connections as a patch-, jumper-, switch- or connection cable. It is applied in switchboards or for data termination equipment.

Please, consider our laying instructions in the technical part of this catalogue!

Temperature range

In motion	0°C	till + 50°C
For fixed installation	- 20°C	till + 60°C

Properties at 20°C		LAN 200 U flex	LAN 200 flex	mind. CAT 5e
Loop resistance in Ohm / 100m		max. 29,0	max. 29,0	-
Insulation resistance in GOhm x km		min. 5,0	min. 5,0	-
Operating capacity in nF / km		50,0	50,0	-
Rel. velocity of propagation ca.		0,66	0,66	-
Wave resistance (1-100 MHz) in Ohm $\pm$ 15 %		100,0	100,0	100,0
Test a.c. voltage in		700,0	700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	2,8	2,8	3,2
	4,0 MHz	5,9	5,9	6,5
	10,0 MHz	8,7	8,7	9,9
	16,0 MHz	11,8	11,8	12,3
	20,0 MHz	12,6	12,6	13,8
	31,25 MHz	16,3	16,3	17,7
	62,5 MHz	22,0	22,0	25,6
	100,0 MHz	29,2	29,2	33,0
	200,0 MHz	38,0	38,0	-
	250,0 MHz	40,2	40,2	-
Min. near-end crosstalk attenuation in dB at	1,0 MHz	70,3	70,3	65,3
	10,0 MHz	55,3	55,3	50,3
	20,0 MHz	50,8	50,8	45,8
	100,0 MHz	40,3	40,3	35,3
	250,0 MHz	34,3	34,3	-
Coupling resistance at 10,0 MHz in mOhm / m		30,0	30,0	max 100,0
Bending radius in n x cable diameter		8,0	8,0	-

Number of pairs and nominal dimensions mm		Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
LAN 200U flex							
4 x 2 x AWG 26	FRNC	1.024,20	15	4,9	400	30	24
4 x 2 x AWG 26		1.135,30	15	4,9	350	30	24
LAN 200 flex							
4 x 2 x AWG 26	FRNC	1.492,92	15	5,2	400	30	30
4 x 2 x AWG 26		1.576,73	15	5,2	350	30	31

LAN 200C flex

UTP-SC / S-FTP / SC-UTP

LAN 450 flex

STP-C / S-STP / C-STP

Patch Cable for Local Networks

Category 5e / Category 6

according to ISO/IEC 11801, EN 50173, EN 50288-2-2 und EN 50288-5-2



Construction

Stranded bare copper conductor, foam-skin-PE-insulation (LAN 300 flex) or solid PE-insulation (LAN 100 C flex), coloured cores, colour sequence according to IEC 708, cores are stranded to pairs, pairwise screening of plastic-laminated aluminium foil for LAN 300 flex, pairs are stranded to bundles, overall screening of plastic-laminated aluminium foil and a tinned copper braiding, outer sheath of PVC, flame retardant according to DIN VDE 0472 part 804 test B and IEC 332-1 or of a halogen-free polymer compound.

Application

It is used for the wiring of electrical appliance-connections as a patch-, jumper-, switch- or connection cable. It is applied in switchboards or for data termination equipment.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion	0°C	till + 50°C
For fixed installation	- 20°C	till + 60°C

Properties at 20°C		LAN 200C flex	min.CAT 5e	LAN 450 flex	min.CAT 6
Loop resistance in Ohm / 100m		max. 29,0	-	max. 29,0	-
Insulation resistance in GOhm x km		mind. 5,0	-	mind. 5,0	-
Operating capacity in nF / km		50,0	-	45,0	-
Rel. velocity of propagation ca.		0,66	-	0,78	-
Wave resistance (1-100 MHz) in Ohm $\pm$ 15 %		100,0	100,0	100	100,0
Test a.c. voltage in		700,0	-	700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	2,8	3,2	2,8	3,2
	4,0 MHz	5,9	6,5	5,5	5,9
	10,0 MHz	8,7	9,9	8,7	9,0
	16,0 MHz	11,8	12,3	11,1	11,4
	20,0 MHz	12,6	13,8	12,5	12,8
	31,25 MHz	16,3	17,7	14,7	15,5
	62,5 MHz	22,0	25,7	21,8	22,5
	100,0 MHz	29,2	33,0	27,7	28,5
	200,0 MHz	38,0	n.def.	39,8	40,5
	250,0 MHz	40,2	n.def.	44,1	45,0
	300,0 MHz	-	n.def.	50,2	n.def.
	450,0 MHz	-	n.def.	67,8	n.def.
Min. near-end crosstalk attenuation in dB at	1,0 MHz	70,3	65,3	80,0	66,0
	10,0 MHz	55,3	50,3	80,0	59,3
	20,0 MHz	50,8	45,8	80,0	54,8
	100,0 MHz	40,3	35,3	69,5	44,3
	250,0 MHz	34,3	n.def.	63,5	38,3
Coupling resistance at 10,0 MHz in mOhm / m		25,0	max. 100	5,0	-
Bending radius in n x cable diameter		8,0	-	8,0	-

Number of pairs and nominal dimensions		Price	Copper figure	Overall diameter	Fire intensity	Tensile force	Weight
mm		EUR / km	kg / km	ca. mm	MJ / km	da N	kg / km
LAN 200C flex							
4 x 2 x AWG 26		1.913,40	22	6,0	570	16	42
4 x 2 x AWG 26	FRNC	2.236,50	22	6,0	530	16	43
LAN 450 flex							
4 x 2 x AWG 26		2.204,00	22	5,9	570	16	48
4 x 2 x AWG 26	FRNC	2.890,60	22	5,9	530	16	49

LAN 200U

UTP

Data Transmission Cable for Local Networks, Unscreened Category 5e

according to ISO / IEC 11801, EN 50173 und EN 50288-3-1



Construction

Solid bare copper conductor, 0.5 mm diameter, PE insulation, coloured cores, colour sequence according to IEC 708, cores are stranded to pairs, pairs are stranded to bundles, outer sheath of PVC, flame-retardant according to DIN VDE 0472 part 804 test B and IEC 332-1

Application

This installation cable is to be applied for horizontal laying in cable ducts and conduits in telecommunications and data transmission systems.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion	0°C	till + 50°C
For fixed installation	- 20°C	till + 60°C

Properties at 20°C

LAN 200 U

mind. CAT 5e

Loop resistance in Ohm / 100m		max. 19,0	
Insulation resistance in GOhm x km		mind. 5,0	-
Operating capacity in nF / km		50,0	-
Rel. velocity of propagation ca.		0,66	-
Wave resistance (1-100 MHz) in Ohm $\pm$ 15 %		100,0	100,0
Test a.c. voltage in		700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	1,9	2,1
	4,0 MHz	3,6	4,1
	10,0 MHz	5,8	6,5
	16,0 MHz	7,4	8,2
	20,0 MHz	8,3	9,3
	31,25 MHz	10,5	11,7
	62,5 MHz	15,0	17,0
	100,0 MHz	19,0	22,0
	200,0 MHz	27,0	n.def.
	250,0 MHz	30,0	n.def.
Min. near-end crosstalk attenuation in dB at	1,0 MHz	70,3	65,3
	10,0 MHz	55,3	50,3
	20,0 MHz	50,8	45,8
	100,0 MHz	40,3	35,3
Coupling resistance at 10,0 MHz in mOhm / m		60,0	-
Bending radius in n x cable diameter		8,0	-

Number of pairs and nominal dimensions mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
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LAN 200U

4 x 2 x AWG 24		739,80	17	4,9	340	80	26
4 x 2 x AWG 24	FRNC	877,00	17	4,9	310	80	26

LAN 200U duplex

2 x (4 x 2 x AWG 24)		1480,00	34	4,9 x 10,0	680	80	52
2 x (4 x 2 x AWG 24)	FRNC	439,00	34	4,9 x 10,0	620	80	52

LAN 200
LAN 200 duplex
UTP-S / FTP / S-UTP

**Data Transmission Cable for Local Networks
with Overall Shielding, Category 5e**

according to ISO / IEC 11801, EN 50173 und EN 50288-2-1



Construction

Solid bare copper conductor with 0.5 mm or 0.6 mm diameter, foam-skin-PE insulation, cores are coloured, colour sequence according to IEC 708, cores are stranded to pairs, pairs are twisted to bundles, plastic foil, overall shielding of plastic-laminated aluminium foil with a tinned drain wire (0.5 mm diameter), outer sheath of PVC, flame-retardant according to DIN VDE 0472 part 804 test B and IEC 332-1 or of a halogen-free polymer compound.

Application

This installation cable is to be applied for horizontal laying in cable ducts and conduits in telecommunications and data transmission systems.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion	0°C	till + 50°C
For fixed installation	- 20°C	till + 60°C

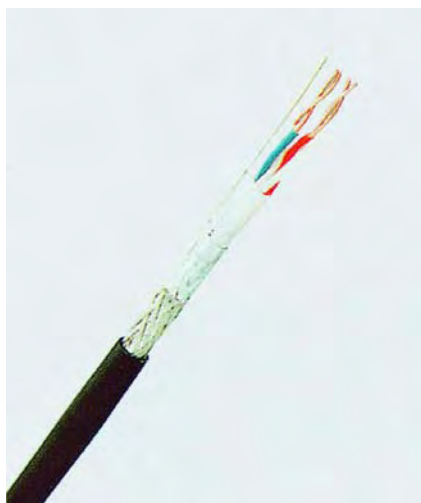
Properties at 20°C		LAN 200	min. CAT 5e
Loop resistance in Ohm / 100m		max. 19,0	
Insulation resistance in GOhm x km		mind. 5,0	-
Operating capacity in nF / km		50,0	-
Rel. velocity of propagation ca.		0,66	-
Wave resistance (1-100 MHz) in Ohm ± 15 %		100,0	100,0
Test a.c. voltage in		700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	1,9	2,1
	4,0 MHz	3,6	4,1
	10,0 MHz	5,8	6,5
	16,0 MHz	7,4	8,2
	20,0 MHz	8,3	9,3
	31,25 MHz	10,5	11,7
	62,5 MHz	15,0	17,0
	100,0 MHz	19,0	22,0
	200,0 MHz	27,0	n.def.
	250,0 MHz	30,0	n.def.
Min. near-end crosstalk attenuation in dB at	1,0 MHz	70,3	65,3
	10,0 MHz	55,3	50,3
	20,0 MHz	50,8	45,8
	100,0 MHz	40,3	35,3
Coupling attenuation in dB		60,0	-
Coupling resistance at 10,0 MHz in mOhm / m		25,0	-
Bending radius in n x cable diameter		8,0	-

Number of pairs and nominal dimensions mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
LAN 200						
4 x 2 x AWG 24	1.069,52	18	6,0	500	80	41
4 x 2 x AWG 24 FRNC	1.267,64	18	6,0	420	80	43
LAN 200 duplex						
2 x (4 x 2 x AWG 24)	2.155,92	36	6,0 x 12,2	1000	30	82
2 x (4 x 2 x AWG 24)	2.514,97	36	6,0 x 12,2	860	30	86

LAN 200C
LAN 200C plus
LAN 200C duplex
 UTP-SC / S-FTP / SC-UTP

**Data Transmission Cable for Local Networks
 with Overall Shielding, Category 5e**

according to ISO / IEC 11801, EN 50173 und EN 50288-2-1



Construction

Solid bare copper conductor with 0.5 mm or 0.6 mm diameter, foam-skin-PE insulation, cores are coloured, colour sequence according to IEC 708, cores are stranded to pairs, pairs are twisted to bundles, plastic foil, overall shielding of plastic-laminated aluminium foil with a tinned drain wire (0.5 mm diameter) and of a tinned copper braiding, outer sheath of PVC, flame-retardant according to DIN VDE 0472 part 804 test B and IEC 332-1 or of a halogen-free polymer compound.

Application

This installation cable is to be applied for horizontal laying in cable ducts and conduits in telecommunications and data transmission systems.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion - 5°C till + 70°C
 For fixed installation - 20°C till + 70°C

Properties at 20°C		LAN 200C		LAN 200C plus		min. CAT 5e
Loop resistance in Ohm / 100m		max.	19,0	max.	13,0	-
Insulation resistance in GOhm x km		mind.	5,0	mind.	5,0	-
Operating capacity in nF / km			50,0		45,0	-
Rel. velocity of propagation ca.			0,66		0,78	-
Wave resistance (1-100 MHz) in Ohm $\pm$ 15 %			100,0		100,0	100,0
Test a.c. voltage in			700,0		700,0	-
Wave attenuation in dB / 100m at	1,0 MHz		1,9		1,8	2,1
	4,0 MHz		3,6		3,5	4,1
	10,0 MHz		5,8		5,4	6,5
	16,0 MHz		7,4		6,8	8,2
	20,0 MHz		8,3		7,7	9,3
	31,25 MHz		10,5		10,0	11,7
	62,5 MHz		15,0		13,5	17,0
	100,0 MHz		19,0		17,1	22,0
	200,0 MHz		27,0		25,5	n.def.
	250,0 MHz		30,0		28,5	n.def.
Min. near-end crosstalk attenuation in dB at	1,0 MHz		70,3		68,0	65,3
	10,0 MHz		55,3		53,0	50,3
	20,0 MHz		50,8		48,0	45,8
	100,0 MHz		40,3		38,0	35,3
Coupling resistance at 10,0 MHz in mOhm / m			25,0		5,0	max 100,0
Bending radius in n x cable diameter			8,0		8,0	-

Number of pairs and nominal dimensions mm		Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
LAN 200C							
4 x 2 x AWG 24	FRNC	1.399,69	32	6,5	520	95	60
4 x 2 x AWG 24		1.825,32	32	6,5	440	95	63
LAN 200C plus							
4 x 2 x 0,6	FRNC	1.775,79	45	7,2	520	95	69
4 x 2 x 0,6		2.132,78	45	7,2	440	95	72
LAN 200C duplex							
2 x (4 x 2 x AWG 24)	FRNC	2.964,16	64	6,5 x 13,2	1040	95	120
2 x (4 x 2 x AWG 24)		3.851,16	64	6,5 x 13,2	880	95	126

LAN 450

S-STP / S-STP / C-STP



Data Transmission Cable for Local Networks with Pairwise Screening and Overall Shielding, Cat. 5

according to ISO / IEC 11801, EN 50173 und EN 50288-5-1

Construction

Solid bare copper conductor with 0.64 mm or 0.55 mm diameter, foam-skin-PE insulation, cores are coloured, colour sequence according to IEC 708, cores are stranded to pairs, pairwise shielding of plastic-laminated aluminium foil with a tinned drain wire (0.6 mm diameter), overall shielding of a tinned copper braiding, outer sheath of PVC, flame-retardant according to DIN VDE 0472 part 804 test B and IEC 332-1 or of a halogen-free polymer compound.

Application

This installation cable is to be applied for horizontal laying in cable ducts and conduits in telecommunications and data transmission systems. Due to the construction with individually screened pairs, with an ACR of min. 39 dB at 300 MHz, the LAN 300 cables offer an excellent transmission capacity. Durch die Konstruktion mit einzeln durch Metallfolien geschirmten Paaren bietet das LAN 450 eine hervorragende Übertragungskapazität und übertrifft alle Forderungen der Kategorie 6.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion - 5°C till + 70°C
For fixed installation - 20°C till + 70°C

Properties at 20°C		LAN 450	max. CAT 6
Loop resistance in Ohm / 100m		max. 13,0	-
Insulation resistance in GOhm x km		mind. 5,0	-
Operating capacity in nF / km		45,0	-
Rel. velocity of propagation ca.		0,78	-
Wave resistance (1-100 MHz) in Ohm + 15 %		100,0	100,0
Test a.c. voltage in		700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	1,8	2,1
	4,0 MHz	3,7	3,8
	10,0 MHz	5,8	6,0
	16,0 MHz	7,4	7,6
	20,0 MHz	8,3	8,5
	62,5 MHz	14,8	15,5
	100,0 MHz	18,8	19,9
	200,0 MHz	26,8	29,2
	250,0 MHz	30,1	33,0
	300,0 MHz	33,0	-
	450,0 MHz	41,0	-
Min. near-end crosstalk attenuation in dB at	1,0 MHz	80,0	66,0
	10,0 MHz	80,0	59,3
	20,0 MHz	80,0	54,8
	100,0 MHz	69,5	44,3
	300,0 MHz	62,0	-
	450,0 MHz	59,6	-
Coupling resistance at 10,0 MHz in mOhm / m		5,0	max 100,0
Bending radius in n x cable diameter		8,0	-

Number of pairs and nominal dimensions mm	Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
LAN 450						
4 x 2 x AWG 23		1.977,17	44	8,0	650	74
4 x 2 x AWG 23	FRNC	2.257,63	44	8,0	580	76
LAN 450 duplex						
2x(4 x 2 x AWG 23)		3.954,40	88	8,0x16,0	1300	148
2x(4 x 2 x AWG 23)	FRNC	4.515,30	88	8,0x16,0	1160	152
150						

LAN 600
LAN 900
LAN 1200
 STP-C / S-STP / C-STP

Data Transmission Cable for Local Networks with Pairwise Screening and Overall Shielding, according to a Draft of Category 7

nach ISO / IEC 11801, EN 50173, IEC 61156-5 und EN 50288-4-1



Construction

Solid bare copper conductor with 0.55 mm or 0.64 mm diameter, foam-skin-PE insulation, cores are coloured, colour sequence according to IEC 708, cores are stranded to pairs, pairwise shielding of plastic-laminated aluminium foil with a tinned drain wire (0.6 mm diameter), overall shielding of a tinned copper braiding, outer sheath a halogen-free polymer compound.

Application

This installation cable is to be applied for horizontal laying in cable ducts and conduits in telecommunications and data transmission systems.

Please, consider our laying instructions in the technical part of this catalogue.

Temperature range

In motion - 5°C till + 70°C
 For fixed installation - 20°C till + 70°C

Properties at 20°C		LAN 600		LAN 900		LAN 1200 max. CAT 7	
Loop resistance in Ohm / 100m		max. 16,5		max. 13,0		max. 11,5	-
Insulation resistance in GOhm x km		mind. 5,0		mind. 5,0		mind. 5,0	-
Operating capacity in nF / km		43,0		43,0		40,0	-
Rel. velocity of propagation ca.		0,78		0,78		0,80	-
Wave resistance (1-100 MHz) in Ohm + 15 %		100,0		100,0		100,0	-
Test a.c. voltage in		700,0		700,0		700,0	-
Wave attenuation in dB / 100m at	1,0 MHz	1,9		1,9		1,6	2,1
	10,0 MHz	5,7		5,6		4,7	6,0
	20,0 MHz	8,1		7,9		6,7	8,5
	100,0 MHz	18,5		18,2		15,5	19,0
	200,0 MHz	26,8		26,4		22,6	27,0
	300,0 MHz	33,3		32,7		28,2	33,0
	600,0 MHz	48,9		48,3		41,7	50,0
Min. near-end crosstalk attenuation in dB at	900,0 MHz	-		56,0		54,0	-
	1200,0 MHz	-		-		62,6	-
	1,0 MHz	100,0		90,0		100,0	80,0
	10,0 MHz	100,0		90,0		100,0	80,0
	100,0 MHz	90,0		84,0		89,0	71,0
	300,0 MHz	82,0		73,0		78,0	64,0
	600,0 MHz	76,0		70,0		75,0	60,0
Coupling resistance at 10,0 MHz in mOhm / m	900,0 MHz	-		65,0		70,0	-
	1200,0 MHz	-		-		65,0	-
		10,0		5,0		5,0	max 100,0
Bending radius in n x cable diameter		8,0		8,0		10,0	-

Number of pairs and nominal dimensions mm		Price EUR / km	Copper figure kg / km	Overall diameter ca. mm	Fire intensity MJ / km	Tensile force N	Weight ca. kg / km
LAN 600							
4 x 2 x AWG 23		2.513,70	44	8,0	650	100	74
4 x 2 x AWG 23	FRNC	2.890,80	44	8,0	580	100	76
LAN 900							
4 x 2 x AWG 23		2.645,99	44	8,0	650	110	74
4 x 2 x AWG 23	FRNC	3.021,30	44	8,0	580	110	76
LAN 1200							
4 x 2 x AWG 22	FRNC	3.193,50	52	8,7	745	130	94

A-DQ(ZN)2Y A-DQ(ZN)B2Y



Light Dielectric Outdoor Cable with or without Non-Metallic Rodent Protection

Construction

Central bundle core, for types with max. 12 fibres the interstices are filled with a filling compound (in case of stranded core structures up to 60 fibres the bundle cores are stranded around a stress relieving element), non-metallic stress relieving elements (aramid yarns), additional swellable material (swelling tape or swellable emulsion), PE outer sheath.

Application

This metal-free optical fibre outdoor cable is suitable for installations directly into the earth or in conduits in telecommunications and data processing systems. The stranded design (nxm) is available till 60 fibres, and with a multifunctionally used reinforced glass roving braiding as a non-metallic stress relieving element and an armour for rodent protection.

Type designation

e.g.: A-DQ(ZN)2Y 12 G50/125

Temperature range

- 25°C till + 70°C during transport and storage
- 5°C till + 50°C during laying
- 20°C till + 60°C in operation

Mechanical data and prices (single-mode on request)

Type	Price EUR/km	Overall diameter ca. mm	Weight kg/km	Bending radius dynamic mm	Crush strength permanent N/dm	Tractive force N
A-DQ(ZN)2Y						
4 G50/125	3.723,00	8,7	82	400	1000	2000
8 G50/125	5.721,10	8,7	82	400	1000	2000
12 G50/125	7.685,10	8,7	82	400	1000	2000
16 G50/125	11.613,10	11,3	112	226	1000	3000
24 G50/125	16.309,60	11,3	112	226	1000	3000
4 G62,5/125	4.431,80	8,7	82	400	1000	2000
8 G62,5/125	7.002,00	8,7	82	400	1000	2000
12 G62,5/125	9.905,30	8,7	82	400	1000	2000
16 G62,5/125	15.079,90	11,3	112	226	1000	3000
24 G62,5/125	21.347,60	11,3	112	226	1000	3000
A-DQ(ZN)B2Y						
4 G50/125	4.098,70	10,2	102	400	1000	2500
8 G50/125	6.148,10	10,2	102	400	1000	2500
12 G50/125	8.026,70	10,2	102	400	1000	2500
16 G50/125	12.467,00	12,6	112	252	1000	3700
24 G50/125	17.026,80	12,6	112	252	1000	3700
4 G62,5/125	4.781,80	10,2	102	400	1000	2500
8 G62,5/125	7.514,30	10,2	102	400	1000	2500
12 G62,5/125	10.246,80	10,2	102	400	1000	2500
16 G62,5/125	15.797,20	12,6	112	252	1000	3700
24 G62,5/125	22.201,50	12,6	112	252	1000	3700

90 E
 90 N
 90 P
 90 C

PVC Insulated Compensating and Extension Cable

according to DIN 43710 / 43713 / 43714 resp. IEC 584



Construction

Solid or fine-stranded conductor with 1.5 mm² or 0.22 mm², conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of PVC, oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves either as an outer covering or is embedded between the inner and the outer sheath.

Application

These cables are suitable for installations in dry, humid and wet locations as temperature measuring cables for areas such as the plastic industry in machine engineering, industrial oven construction as well as blast furnace plants in the steel industry. PVC-, fibreglass- and asbestos-substitute insulated or sheathed compensating and extension cables are not suitable for open-air use except for the PVC-sheathed solid conductor type, which can be used for underground laying, too.

Temperature range

In motion - 5°C till + 70°C
 For fixed installation - 25°C till + 70°C

Type		Price	Material	For	Conductor	Form	Overall	Weight
Number of cores			acc. to	thermo-	construction		diameter	
cross section			DIN43713	couple			measures	ca.
mm²		EUR / km			mm		ca. mm	kg / km
90E 9L	2 x 1,5	4.621,90	Fe-CuNi	Typ L	48 x 0,20	rund	7,0	79
90N 9L	2 x 1,5	4.621,90	SoNiCr-SoNi	Typ K	48 x 0,20	rund	7,0	79
90P 9L	2 x 1,5	4.621,90	SoPtRh-SoPt	Typ S	48 x 0,20	rund	7,0	79
90C 9L	2 x 1,5	4.621,90	Cu-CuNi	Typ U	48 x 0,20	rund	7,0	79
90E 9-022	2 x 0,22	2.426,50	Fe-CuNi	Typ L	7 x 0,20	rund	4,0	22
90N 9-022	2 x 0,22	2.426,50	SoNiCr-SoNi	Typ K	7 x 0,20	rund	4,0	22
90P 9-022	2 x 0,22	2.426,50	SoPtRh-SoPt	Typ S	7 x 0,20	rund	4,0	22
90C 9-022	2 x 0,22	2.426,50	Cu-CuNi	Typ U	7 x 0,20	rund	4,0	22
90E 12L	2 x 1,5	3.466,50	Fe-CuNi	Typ L	48 x 0,20	oval	4,3 x 7,0	69
90N 12L	2 x 1,5	3.466,50	SoNiCr-SoNi	Typ K	48 x 0,20	oval	4,3 x 7,0	69
90P 12L	2 x 1,5	3.466,50	SoPtRh-SoPt	Typ S	48 x 0,20	oval	4,3 x 7,0	69
90C 12L	2 x 1,5	3.466,50	Cu-CuNi	Typ U	48 x 0,20	oval	4,3 x 7,0	69
90E 12D	2 x 1,5	2.773,10	Fe-CuNi	Typ L	1 x 1,38	oval	4,2 x 6,8	61
90N 12D	2 x 1,5	2.773,10	SoNiCr-SoNi	Typ K	1 x 1,38	oval	4,2 x 6,8	61
90P 12D	2 x 1,5	2.773,10	SoPtRh-SoPt	Typ S	1 x 1,38	oval	4,2 x 6,8	61
90C 12D	2 x 1,5	2.773,10	Cu-CuNi	Typ U	1 x 1,38	oval	4,2 x 6,8	61
90. 9-4L	4 x 1,5	6.932,90	E/N/P/C		48 x 0,20	rund	8,1	119
90. 9-6L	6 x 1,5	9.243,90	E/N/P/C		48 x 0,20	rund	10,1	184
90. 9-12L	12 x 1,5	19.643,40	E/N/P/C		48 x 0,20	rund	13,2	312
90. 9-16L	16 x 1,5	25.420,90	E/N/P/C		48 x 0,20	rund	15,1	419
90. 9-20L	20 x 1,5	28.887,40	E/N/P/C		48 x 0,20	rund	16,7	520
90. 9-24L	24 x 1,5	36.975,90	E/N/P/C		48 x 0,20	rund	19,0	614
90. 9-32L	32 x 1,5	49.686,40	E/N/P/C		48 x 0,20	rund	20,9	793
90. 9-36L	36 x 1,5	54.308,40	E/N/P/C		48 x 0,20	rund	22,1	904
90. 9-40L	40 x 1,5	61.241,40	E/N/P/C		48 x 0,20	rund	24,1	1032

Steel wire braiding for mechanical protection as well as other cross sections, core numbers and norms on request.

90 E**90 N****90 P****90 C**

PVC Insulated Compensating and Extension Cable with Screening

according to DIN 43710 / 43713 / 43714 resp. IEC 584



Construction

solid or fine-stranded conductor with 1.5 mm² or 0.22 mm², conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded and wrapped in a PETP foil, screening of tinned copper braiding or of an aluminium foil with drain wire, outer sheath of PVC, sheath colour according to the element-type.

Application

Solid or fine-stranded conductor with 1.5 mm² or 0.22 mm², conductor material according to the element-type, core insulation of PVC, core colours according to the element-type, cores are stranded and wrapped in a PETP foil, screening of tinned copper braiding or of an aluminium foil with drain wire, outer sheath of PVC, sheath colour according to the element-type.

Temperature range

In motion - 5°C till + 70°C

For fixed installation - 25°C till + 70°C

Type	Price	Material	For	Conductor	Form	Overall	Weight
Number of cores		acc. to	thermo-	construction		diameter	
cross section		DIN43713	couple			measures	ca.
mm ²	EUR / km			mm		ca. mm	kg / km

Compensating cable with copper braiding

90E 5L	2 x 1,5	5.661,90	Fe-CuNi	Typ L	48 x 0,20	rund	8,1	93
90N 5L	2 x 1,5	5.661,90	SoNiCr-SoNi	Typ K	48 x 0,20	rund	8,1	93
90P 5L	2 x 1,5	5.661,90	SoPtRh-SoPt	Typ S	48 x 0,20	rund	8,1	93
90C 5L	2 x 1,5	5.661,90	Cu-CuNi	Typ U	48 x 0,20	rund	8,1	93
90E 5-022	2 x 0,22	2.542,00	Fe-CuNi	Typ L	7 x 0,20	rund	4,9	31
90N 5-022	2 x 0,22	2.542,00	SoNiCr-SoNi	Typ K	7 x 0,20	rund	4,9	31
90P 5-022	2 x 0,22	2.542,00	SoPtRh-SoPt	Typ S	7 x 0,20	rund	4,9	31
90C 5-022	2 x 0,22	2.542,00	Cu-CuNi	Typ U	7 x 0,20	rund	4,9	31

Compensating cable with aluminium foil screening

90E 20L	2 x 1,5	4.621,90	Fe-CuNi	Typ L	48 x 0,20	rund	8,0	75
90N 20L	2 x 1,5	4.621,90	SoNiCr-SoNi	Typ K	48 x 0,20	rund	8,0	75
90P 20L	2 x 1,5	4.621,90	SoPtRh-SoPt	Typ S	48 x 0,20	rund	8,0	75
90C 20L	2 x 1,5	4.621,90	Cu-CuNi	Typ U	48 x 0,20	rund	8,0	75
90E 20D	2 x 1,5	4.044,10	Fe-CuNi	Typ L	1 x 1,38	rund	8,2	82
90N 20D	2 x 1,5	4.044,10	SoNiCr-SoNi	Typ K	1 x 1,38	rund	8,2	82
90P 20D	2 x 1,5	4.044,10	SoPtRh-SoPt	Typ S	1 x 1,38	rund	8,2	82
90C 20D	2 x 1,5	4.044,10	Cu-CuNi	Typ U	1 x 1,38	rund	8,2	82
90. 20-4D	4 x 1,5	6.932,90	E/N/P/C		1 x 1,38	rund	10,8	137
90. 20-6D	6 x 1,5	10.399,40	E/N/P/C		1 x 1,38	rund	12,4	186
90. 20-12D	12 x 1,5	18.487,90	E/N/P/C		1 x 1,38	rund	16,3	362
90. 20-16D	16 x 1,5	23.109,80	E/N/P/C		1 x 1,38	rund	16,8	423
90. 20-20D	20 x 1,5	30.042,90	E/N/P/C		1 x 1,38	rund	20,3	542
90. 20-24D	24 x 1,5	34.664,90	E/N/P/C		1 x 1,38	rund	22,5	638
90. 20-28D	28 x 1,5	40.442,40	E/N/P/C		1 x 1,38	rund	24,2	749
90. 20-30D	30 x 1,5	42.753,40	E/N/P/C		1 x 1,38	rund	24,2	788
90. 20-32D	32 x 1,5	46.219,90	E/N/P/C		1 x 1,38	rund	25,1	847
90. 20-36D	36 x 1,5	50.841,90	E/N/P/C		1 x 1,38	rund	26,0	944
90. 20-40D	40 x 1,5	56.619,40	E/N/P/C		1 x 1,38	rund	26,0	1001

Other cross sections, core numbers and norms on request.

90 E
90 N
90 P
90 C

Silicone Insulated Compensating and Extension Cable with or without Steel Wire Braiding

according to DIN 43710 / 43713 / 43714 resp. IEC 584



Construction

Fine-stranded conductor with 1.5 mm², conductor material according to the element-type, core insulation of silicone (2GI1), core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of silicone (2GM1), oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves as an outer covering.

Application

Fine-stranded conductor with 1.5 mm², conductor material according to the element-type, core insulation of silicone (2GI1), core colours according to the element-type, cores are stranded or laid in parallel, outer sheath of silicone (2GM1), oval or round, sheath colour according to the element-type. In case of types with steel wire braiding the braiding serves as an outer covering.

Temperature range

In motion - 25°C till + 180°C
For fixed installation - 25°C till + 180°C
Short-time use till + 200°C

Type	Price	Material	For	Conductor	Form	Overall	Weight	
Number of cores		acc. to	thermo-	construction		diameter		
cross section		DIN43713	couple			measures	ca.	
mm²	EUR / km			mm		ca. mm	kg / km	
90E 15L	2 x 1,5	8.550,60	Fe-CuNi	Typ L	48 x 0,20	rund	7,7	76
90N 15L	2 x 1,5	8.550,60	SoNiCr-SoNi	Typ K	48 x 0,20	rund	7,7	76
90P 15L	2 x 1,5	8.550,60	SoPtRh-SoPt	Typ S	48 x 0,20	rund	7,7	76
90C 15L	2 x 1,5	8.550,60	Cu-CuNi	Typ U	48 x 0,20	rund	7,7	76
90E 3Ln	2 x 1,5	6.124,10	Fe-CuNi	Typ L	48 x 0,20	oval	5,2 x 7,4	62
90N 3Ln	2 x 1,5	6.124,10	SoNiCr-SoNi	Typ K	48 x 0,20	oval	5,2 x 7,4	62
90P 3Ln	2 x 1,5	6.124,10	SoPtRh-SoPt	Typ S	48 x 0,20	oval	5,2 x 7,4	62
90C 3Ln	2 x 1,5	6.124,10	Cu-CuNi	Typ U	48 x 0,20	oval	5,2 x 7,4	62

Compensating cable with steel wire braiding

90E 15LP	2 x 1,5	9.821,60	Fe-CuNi	Typ L	48 x 0,20	rund	7,8	105
90N 15LP	2 x 1,5	9.821,60	SoNiCr-SoNi	Typ K	48 x 0,20	rund	7,8	105
90P 15LP	2 x 1,5	9.821,60	SoPtRh-SoPt	Typ S	48 x 0,20	rund	7,8	105
90C 15LP	2 x 1,5	9.821,60	Cu-CuNi	Typ U	48 x 0,20	rund	7,8	105
90E 4Ln	2 x 1,5	7.164,00	Fe-CuNi	Typ L	48 x 0,20	oval	6,0 x 8,2	85
90N 4Ln	2 x 1,5	7.164,00	SoNiCr-SoNi	Typ K	48 x 0,20	oval	6,0 x 8,2	85
90P 4Ln	2 x 1,5	7.164,00	SoPtRh-SoPt	Typ S	48 x 0,20	oval	6,0 x 8,2	85
90C 4Ln	2 x 1,5	7.164,00	Cu-CuNi	Typ U	48 x 0,20	oval	6,0 x 8,2	85

Other cross sections, core numbers and norms on request.

90 E
90 N
90 P
90 C

Silicone Insulated Compensating and Extension Cable with Screening

according to DIN 43710 / 43713 / 43714 resp. IEC 584



Construction

Solid or fine-stranded conductor with 1.5 mm², conductor material according to the element-type, core insulation of silicone (2GI1), core colours according to the element-type, cores are stranded and wrapped in a PETP-foil, screening of an aluminium foil with drain wire, outer sheath of silicone (2GM1), sheath colour according to the element-type.

Application

These cables are suitable for installations in dry, humid and wet locations as temperature measuring cables for areas such as the plastic industry in machine engineering, industrial oven construction as well as blast furnace plants in the steel industry. PVC-, fibreglass- and asbestos-substitute insulated or sheathed compensating and extension cables are not suitable for open-air use except for the PVC-sheathed solid conductor type, which can be used for underground laying, too.

Temperature range

In motion	- 25°C till + 180°C
For fixed installation	- 25°C till + 180°C
Short-time use	till + 200°C

Type		Price	Material	For	Conductor	Form	Overall	Weight
Number of cores			acc. to	thermo-	construction		diameter	
cross section			DIN43713	couple			measures	ca.
mm ²		EUR / km			mm		ca. mm	kg / km
90E 6L	2 x 1,5	8.088,40	Fe-CuNi	Typ L	48 x 0,20	rund	8,0	94
90N 6L	2 x 1,5	8.088,40	SoNiCr-SoNi	Typ K	48 x 0,20	rund	8,0	94
90P 6L	2 x 1,5	8.088,40	SoPtRh-SoPt	Typ S	48 x 0,20	rund	8,0	94
90C 6L	2 x 1,5	8.088,40	Cu-CuNi	Typ U	48 x 0,20	rund	8,0	94
90E 6D	2 x 1,5	7.741,80	Fe-CuNi	Typ L	1 x 1,38	rund	7,8	92
90N 6D	2 x 1,5	7.741,80	SoNiCr-SoNi	Typ K	1 x 1,38	rund	7,8	92
90P 6D	2 x 1,5	7.741,80	SoPtRh-SoPt	Typ S	1 x 1,38	rund	7,8	92
90C 6D	2 x 1,5	7.741,80	Cu-CuNi	Typ U	1 x 1,38	rund	7,8	92

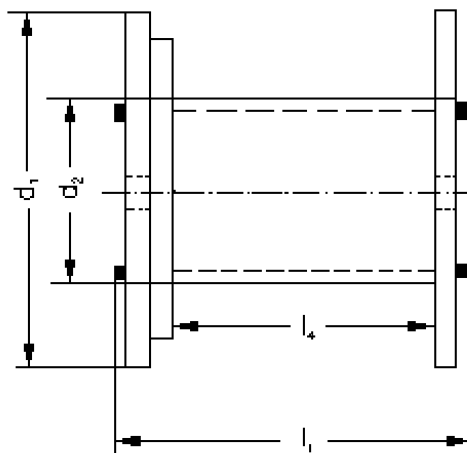
Other cross sections, core numbers as well as insulation materials (e.g. fibreglass, teflon) and norms on request.

Special constructions according to customers' wishes can also be produced.

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Dimensions, weights and prices



Drum code	Flange diameter d1	Core diameter d2	Overall width l1	Winding width l4	Weight of drum ca.	Pawn	Lagging costs
	mm	mm	mm	mm	kg	EUR	EUR
KTG – plastic reels							
070	710	355	510	400	15	57,00	
080	800	400	510	400	16	74,00	
090	900	450	680	560	23	99,00	
100	1000	500	704	560	32	116,00	
KTG – standard wooden drums							
051	500	150	470	410	8	20,00	
061	630	150	390	315	13	28,00	7,60
071	710	355	520	400	25	38,00	10,20
081	800	400	520	400	31	48,00	11,60
091	900	450	690	560	47	62,00	13,80
101	1000	500	710	560	71	88,00	15,30
121	1250	630	890	670	144	166,00	37,40
141	1400	710	890	670	175	199,00	42,90
161	1600	800	1100	850	280	326,00	58,90
181	1800	1000	1100	840	380	423,00	79,90
201	2000	1250	1350	1045	550	627,00	111,20
221	2240	1400	1450	1140	710	798,00	149,00
250	2500	1400	1450	1140	875	959,00	186,80
251	2500	1600	1450	1130	900	959,00	186,80
281	2800	1800	1635	1280	1175	1.314,00	186,80
KTG – Wooden drums with steel rims							
078	710	355	520	400	28	43,30	
120	1250	630	890	670	165	189,50	
140	1400	710	890	670	199	235,80	
160	1600	800	1100	850	309	372,20	
180	1800	1000	1100	840	413	479,90	
200	2000	1000	1350	1060	600	695,10	
205	2000	1250	1350	1045	588	706,50	
220	2240	1120	1350	1050	750	864,90	
225	2240	1400	1450	1140	753	864,90	
255	2500	1400	1450	1140	923	1.030,90	
256	2500	1250	1350	1045	925	1.313,60	

Capacity of Cable Drums

Cable	Lengths in m for drums with identification code and for drum sizes												
Ø	061	071	081	091	101	121	141	161	181	201	221	250	251
6	1113	2024	2755										
7	845	1481	2340										
8	637	1064	1463	2731									
9	472	892	1152	2202	2866								
10	386	677	980	1768	2349								
11	314	564	761	1404	1912								
12	253	468	643	1206	1540								
13	237	385	542	1032	1339	2727							
14		364	454	881	1159	2265	2967						
15		297	430	749	1000	1991	2479						
16		239	358	632	860	1756	2205						
17		228	294	603	736	1545	1959						
18		218	281	505	705	1355	1737						
19		172	228	485	599	1184	1535	2722					
20		165	219	402	576	1139	1352	2435	2831				
21		159	211	387	485	991	1304	2172	2527				
22		122	167	315	468	856	1145	1931	2248				
23		117	161	304	389	827	999	1869	2172	2953			
24		113	156	294	377	709	967	1657	1927	2608			
25		110	151	285	365	688	839	1608	1867	2522			
26		80	116	226	299	668	814	1419	1650	2218			
27		78	113	221	290	567	700	1244	1450	2150	2861		
28		76	109	215	282	551	681	1211	1409	1879	2777		
29		73	106	209	226	462	663	1180	1371	1826	2450		2976
30		71	103	162	220	450	564	1028	1197	1583	2383		2893
31			76	157	214	438	550	1003	1166	1540	2089		2558
32			74	153	209	428	537	866	1009	1500	2035	2978	2491
33			72	150	204	352	451	846	985	1289	1984	2908	2428
34				146	158	344	441	828	962	1257	1726	2605	2134
35				108	154	336	431	707	824	1227	1685	2547	2083
36				105	151	329	422	692	806	1041	1646	2271	2035
37				103	148	265	348	678	788	1017	1418	2223	1774
38					144	259	341	664	772	994	1386	1969	1735
39					107	254	334	560	653	972	1356	1930	1697
40					105	249	327	549	640	812	1328	1892	1486
41					102	244	264	539	627	795	1130	1664	1435
42					100	190	259	529	615	779	1107	1633	1406
43						187	254	437	511	763	1085	1603	1199
44						183	249	430	502	749	1064	1574	1175
45						180	245	422	492	611	890	1373	1153
46						177	240	415	484	600	874	1349	1131
47						174	187	408	475	589	858	1326	1110
48						129	184	330	386	578	842	1144	931
49						127	181	325	380	568	828	1125	914
50						125	178	319	373	558	878	1107	898
51						123	175	314	367	442	666	1089	883
52						121	172	310	361	435	655	1072	869
53							170	305	356	428	644	912	713
54							126	230	280	421	634	898	701
55							124	235	276	414	624	885	690
56							122	232	271	408	614	872	679
57							121	228	267	401	488	860	668
58							119	225	263	304	480	719	658
59							117	222	260	300	473	709	649
60								219	256	295	466	699	639
61								216	252	291	460	689	609
62								161	190	287	453	680	501

Drum Assignment

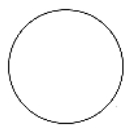
The smallest admissible drum core diameter with reference to cable and wire types.

Types	Smallest drum core diameter
Wires for fixed installation	
Single core wires	$20 \times D_A$
Sheathed wires single core	$20 \times D_A$
Sheathed wires multicore	$15 \times D_A$
Flexible wires	$12 \times D_A$
Cable plastic insulated	
Single core ≤ 6 kV	$20 \times D_A$
Single core ≥ 10 kV	$25 \times D_A$
Stranded, including 95 mm ² ≤ 1 kV	$15 \times D_A$
Stranded, including 95 mm ² ≥ 6 kV	$20 \times D_A$
Stranded, including 95 mm ² ≥ 20 kV	$25 \times D_A$
Stranded, larger 95 mm ² ≤ 10 kV	$20 \times D_A$
Stranded, larger 95 mm ² ≥ 20 kV	$25 \times D_A$
Multicore ≤ 1 kV	$15 \times D_A$
Telecommunication cables and installation cables for telecommunications systems	
Plastic cables	$20 \times D_A$
Installation cables	$20 \times D_A$
Paper insulated cables with lead outer sheath	
Single core ≤ 10 kV	$25 \times D_A$
Single core ≥ 10 kV	$30 \times D_A$
Stranded, unarmoured ≥ 6 kV	$25 \times D_A$
Stranded, armoured ≥ 6 kV	$20 \times D_A$
Three-core SL type cable armoured > 10 kV	$20 \times D_A$

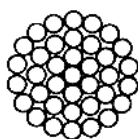
D_A = cable or wire diameter

Conductor Construction for Insulated Cables and Wires

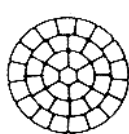
Conductor construction



circular
solid
RE



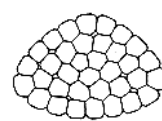
circular
stranded
RM



circular
stranded
compacted
RM



sector-shaped
solid
SE



sector-shaped
stranded
SM

Construction and Conductor Resistance

Circular copper conductor

Nominal cross section mm ²			Solid (class 1) max. conductor diameter mm	stranded (class 2)				
				not compacted		compacted		
Max. conductor resistance at 20° C				number of single wires (min.)	max. conductor diameter	number of single wires (min.)	conductor diameter	
	bare Ohm / km	metal sheathed Ohm / km					min. mm	max. mm
0,5	36,0	36,7	0,9	7	1,1			
0,75	24,5	24,8	1,0	7	1,2			
1	18,1	18,2	1,2	7	1,4			
1,5	12,1	12,2	1,5	7	1,7			
2,5	7,41	7,56	1,9	7	2,2			
4	4,61	4,7	2,4	7	2,7			
6	3,08	3,11	2,9	7	3,3			
10	1,83	1,84	3,7	7	4,2			
16	1,15	1,16	4,6	7	5,3			
25	0,727	0,734		7	6,6	6	5,6	6,5
35	0,524	0,529		7	7,9	6	6,6	7,5
50	0,387	0,391		19	9,1	6	7,7	8,6
70	0,268	0,270		19	11,0	12	9,3	10,2
95	0,193	0,195		19	12,9	15	11,0	12,0
120	0,153	0,154		37	14,5	18	12,5	13,5
150	0,124	0,126		37	16,2	18	13,9	15,0
185	0,0991	0,100		37	18,0	30	15,5	16,8
240	0,0754	0,0762		61	20,6	34	17,8	19,2
300	0,0601	0,0607		61	23,1	34	20,0	21,6
400	0,0470	0,0475		61	26,1	53	22,9	24,6
500	0,0366	0,0369		61	29,2	53	25,7	27,6
630	0,0283	0,0286		91	33,2	53	29,3	32,5
800	0,0221	0,0224		91	37,6	-	-	-
1000	0,0176	0,0177		91	42,2	-	-	-

Sector-shaped copper conductor

nominal cross-section mm ²	max. conductor resistance at 20° C Ohm / km	stranded (class 2) compacted number of single wires (min.)	nominal cross-section mm ²	max. conductor resistance at 20° C Ohm / km	stranded (class 2) compacted number of single wires (min.)
25	-	-	150	0,124	18
35	0,524	6	185	0,0991	30
50	0,387	6	240	0,0754	34
70	0,268	12	300	0,0601	34
95	0,193	15	400	0,0470	53
120	0,153	18	500	-	-

Fine-stranded and very fine-stranded copper conductor

nominal cross-section mm ²	max. conductor resistance at 20° C		max. conductor diameter	number and largest diameter of single wires	
	bare Ohm / km	metal heated Ohm / km		fine-stranded (class 5) mm	very fine-stranded (class 6) mm
0,5	39,0	40,1	1,1	12 x 0,21	28 x 0,16
0,75	26,0	26,7	1,3	24 x 0,21	42 x 0,16
1	19,5	20,0	1,5	32 x 0,21	56 x 0,16
1,5	13,3	13,7	1,8	30 x 0,26	84 x 0,16
2,5	7,98	8,21	2,6	50 x 0,26	140 x 0,16
4	4,95	5,09	3,2	56 x 0,31	224 x 0,16
6	3,30	3,39	3,9	84 x 0,31	192 x 0,21
10	1,91	1,95	5,1	80 x 0,41	320 x 0,21
16	1,21	1,24	6,3	128 x 0,41	512 x 0,21
25	0,780	0,795	7,8	200 x 0,41	800 x 0,21
35	0,554	0,565	9,2	280 x 0,41	1120 x 0,21
50	0,386	0,393	11,0	400 x 0,41	705 x 0,31
70	0,272	0,277	13,1	356 x 0,51	990 x 0,31
95	0,206	0,210	15,1	485 x 0,51	1340 x 0,31
120	0,161	0,164	17,0	614 x 0,51	1690 x 0,31
150	0,129	0,132	19,0	765 x 0,51	2123 x 0,31
185	0,106	0,108	21,0	944 x 0,51	1470 x 0,41
240	0,0801	0,0817	24,0	1225 x 0,51	1905 x 0,41
300	0,0641	0,0654	27,0	1530 x 0,51	2385 x 0,41
400	0,0486	0,0495	31,0	2035 x 0,51	-
500	0,0384	0,0391	35,0	1768 x 0,61	-

Aluminium conductor

nominal cross-section mm ²	max. conductor resistance at 20° C Ohm / km	circular conductor (class 2) stranded, compacted			sector-shaped conductor (class 2) stranded, compacted
		number of single wires (min.)	conductor diameter		number of single wires (min.)
			min. mm	max. mm	
25	1,20	6	5,6	6,5	6
35	0,868	6	6,6	7,5	6
50	0,641	6	7,7	8,6	6
70	0,443	12	9,3	10,2	12
95	0,320	15	11,0	12,0	15
120	0,253	15	12,5	13,5	15
150	0,206	15	13,9	15,0	15
185	0,164	30	15,5	16,8	30
240	0,125	30	17,8	19,2	30
300	0,100	30	20,0	21,6	30
400	0,0778	53	22,9	24,6	53
500	0,0605	53	25,7	27,6	-
630	0,0469	53	29,3	32,5	-

1) Single core circular conductors (class 1) are permissible till 300 mm². The diameter of the non-compacted conductor from 25 mm² till 630 mm² is to be taken from DIN VDE 0295.

2) Single core sector-shaped conductors (class 1) are permissible from 50 mm² till 240 mm².

Conversion Table for AWG Solid Wires

Comparison between the metrical and the American standard cross sections

AWG No.	Wire-Ø mm	Wire cross section	Cond. resist. max. Ohm/km	AWG No.	Wire-Ø mm	Wire cross section	Cond. resist. max. Ohm/km
28	0,320	0,0804	229	14	1,628	2,0867	8,50
27	0,363	0,1018	181	13	1,829	2,6270	7,30
26	0,404	0,1257	146	12	2,052	3,3080	5,75
25	0,455	0,1590	114	11	2,304	4,1680	4,54
24	0,511	0,2043	84	10	2,588	5,2620	3,59
23	0,574	0,2642	67	9	2,906	6,3200	2,99
22	0,643	0,3217	54	8	3,268	8,3870	2,25
21	0,724	0,3959	43	7	3,665	10,5510	1,79
20	0,813	0,5153	34	6	4,115	13,2890	1,42
19	0,912	0,6504	27	5	4,620	16,7660	1,12
18	1,024	0,8171	21	4	5,189	21,1490	0,89
17	1,151	1,0387	16,90	3	5,827	26,6850	0,70
16	1,290	1,3070	13,50	2	6,543	33,6240	0,56
15	1,450	1,6513	10,60	1	7,348	42,4090	0,44

Insulation and Sheath Materials

Overview of the most important polymers used in cable technology

thermoplastics (plastomere)		cross-linked thermoplaste		thermoplastic elastomere		elastomere		duroplastics (duromere)	
PVC	polyvinyl chloride	VPE (XLPE)	cross-linked polyethylene		blends of polyolefines and rubber	NR	natural rubber	EP	epoxy resin
PE	polyethylene		cross-linked ethylene- copolymer		three mass- polymer (styrol-alkylen- styrol)	EPM	ethylene- propylene- rubber compounds	PUR	polyurethane resin
EVA	ethylene-vinyl acetate- copolymer compounds (VA < 30%)				thermoplastic polyurethane and polyester	SBR	styrol-butadiene rubber compounds		
EEA	ethylene- alkylacrylate- copolymer compounds. e.g.: ethylene-ethyl- acrylate					EPDM	ethylene- propylene- terpolymer rubber compounds		
EBA	ethylene-butyl- acrylate								
PP	polypropylene					IIR	butyl rubber		
PA	polyamide					CR	polychloroprene compounds		
ETFE	ethylene- tetrafluoric- ethylen- copolymer					EVA	ethylene- vinylacetate- copolymer compounds (VA > 30%)x		
FEP	tetrafluorethylene- hexafluor- propylene- copolymer					CSM	chlorosulfonated polyethylene compounds		
						CM	chlorinated polyethylene compounds		
						SiK	silicone rubber		
						ECO	epichlorhydrin rubber compounds		
						NBR	nitril-butadiene- rubber compounds		

Mechanical, Thermal, Electrical and Chemical Properties of Insulation and Sheath Materials

Designations				Properties (guide values)													
sym-bols	chemical	VDE	permissible operating temperature to VDE C°	mechanical			thermal			electrical			chemical resistance (guide values)				
				tensile strength	elongation	resistance to abrasion	behaviour at low temp-eratures	flame resistance	emission of corrosive gases during a combustion	specific volume resistance	permittivity constant	factor of loss	oils - fats	solvents	diluted acids	water	
	thermoplastics																
PVC	polyvinyl chloride compounds	Y	70-105	12,5-25	125-350	average to good	moderate to good	average to good	hydrogen-chlorid	10 ¹² - 10 ¹⁵	4,0-6,5	10 ⁻² -10 ⁻³	moderate to average	moderate	good	average to good	average to good
LDPE	low-density polyethylene	2Y	70,00	10-20	400-600	average to good	good	bad	-	> 10 ¹⁶	2,25-2,6	~ 10 ⁻⁴	average	average to good	very good	very good	very good
HPE	high-density polyethylene	2X	90,00	25-40	500-1000	good	good	bad	-	> 10 ¹⁶	2,4-2,5	~ 10 ⁻⁴	average	average to good	very good	very good	very good
VPE	cross-linked polyethylene	2X	90,00	12,5-20	300-450	average to good	good	bad	-	~ 10 ¹⁶	2,3-2,6	~ 10 ⁻⁴	average	average to good	very good	very good	very good
	foamed polyethylene	02Y	70,00	8-12	350-500	-	good	bad	-	~ 10 ¹⁷	~ 1,6	~ 10 ⁻⁴	average	average to good	very good	very good	very good
PA	polyamide	4Y	80,00	50-60	50-200	very good	good	good	-	~ 10 ¹⁵	~ 4,0	~ 10 ⁻² -10 ⁻³	very good	good	very good	average	average
PUR	polyurethane	11Y	80,00	35-50	500-700	very good	good	moderate to average	-	~ 10 ¹²	~ 6,0	~ 10 ⁻²	good	good	moderate	average to good	average to good
	elastomere																
NR	natural rubber	G	60,00	5,0-10,0	300-600	moderate to average	very good	bad	-	**	**	**	bad	bad	average	average to good	average to good
SBR	stiarol-butadiene rubber comp.																
SiR	silicone rubber	2G	180,00	5,0-10,0	300-600	moderate	very good	moderate-good	-	~ 10 ⁻¹⁵	~ 3,0	~ 10 ⁻³	good	bad	moderate	very good	very good
EPR	ethylene-propylene rubber compounds	3G	90,00	5,0-10,0	300-500	moderate to average	good	moderate-bad	-	~ 10 ¹² - 10 ⁻¹⁵	3,0 - 3,8	~ 10 ⁻² -10 ⁻³	moderate to average	moderate	good	very good to good	very good to good
EVM	ethylene-vinylacetate-copolymer compounds	4G	120,00	8,0-12,0	200-350	moderate to average	good	moderate to average	-	~ 10 ¹³	~ 6,0	~ 10 ⁻²	moderate to average	moderate	average	good to average	good to average
CR	polychloroprene compounds	5G	60-90	5,0-20,0	500-800	average to good	moderate -good	good	hydrogen-chlorid	**	**	**	good-very good	average	good	moderate	moderate
CM	chlorinated polyethylene compounds	9G	80-100	8,0-20,0	350-650	average to good	moderate	good	hydrogen-chlorid	**	**	**	good-very good	average	good	moderate	moderate
CSM	chlorosulfonated polyethylene compounds	6G	100,00	8,0-20,0	400-700	average to good	moderate	good	hydrogen-chlorid	**	**	**	good-very good	average	good	moderate	moderate
	special compounds																
	cross-linked flame retardant halogen-free polymer comp.	H	70-90	5,0-1,2	> 125	moderate to average	average	good - very good	-	-10 ¹³ - 10 ¹⁴	~ 4	10 ⁻² -10 ⁻³	moderate to average	moderate	good	good	good
	flame retardant halogen-free polymer compounds, not cross-linked	H	70-90	5,0-1,2	> 125	moderate to average	average	good	-	-10 ¹² - 10 ¹⁴	~ 4	~ 10 ⁻³	average	average	good	average to good	average to good

Abbreviations key for wires according to harmonized requirements

		1. part	2. part	3. part
mark of specification and rated voltage	mark of specification			
	harmonized type	H		
	acknowledged national type	A		
	rated voltage U_0 / U			
	100 / 100 V	01		
	300 / 300 V	03		
	300 / 500 V	05		
	450 / 750 V	07		
	structure of the wires			
	insulation			
structure of the wires	PVC standard till + 70 °C	V		
	PVC heat resistant till + 90 °C	V2		
	PVC cold resistant till - 25 °C	V3		
	PVC cross-linked	V4		
	natural and / or synthetic rubber till + 60 °C	R		
	ethylene-propylene rubber till + 90 °C	B		
	synthetic rubber (EVA) till + 110 °C	G		
	silicone rubber heat resistant till + 180 °C	S		
	cross-linked halogen-free compound	Z		
	halogen-free thermoplastic compound	Z1		
	sheath			
	PVC standard till + 60 °C	V		
	PVC heat resistant till + 90 °C	V2		
	PVC cold resistant till - 25 °C	V3		
	PVC cross-linked	V4		
	PVC oil resistant	V5		
	polyurethane	Q		
	natural and / or synthetic rubber till + 60 °C	R		
	polychloroprene rubber till + 60 °C	N		
	special polychloroprene rubber compound	N2		
	synthetic rubber (EVA) till + 110 °C	G		
	fibreglass braid	J		
	textile braid	T		
	textile braid with flame retardant compound	T2		
	special constructions			
	divisible flat cable	H		
	indivisible flat cable	H2		
	flat cable acc. to HD 359 with ≥ 3 cores	H6		
	spiral cables	H8		
	supporting element (textile or metal)	D3		
	copper braid screen	C4		
	construction of conductor			
	solid	-U		
	stranded	-R		
	fine-stranded for fixed installations	-K		
	fine-stranded for flexible installations	-F		
	very fine-stranded for flexible installations	-H		
	fine-stranded conductor for welding cables	-D		
	very fine-stranded conductor for welding cables	-E		
number of cores and nominal cross section	number of cores	...		
	earth conductor			
	without earth conductor	X		
	with earth conductor (yellow green)	G		
	nominal cross section in mm ²	...		

Examples for abbreviations

H07V-U 1,5 black	PVC Insulated Single Core Wire 1,5 mm ² , black with solid conductor
H07RN-F 3 G 2,5	Rubber Sheathed Cable, 3 cores, 2,5 mm ² , with earth conductor yellow green
H03VV-F 2 x 0,75	PVC Sheathed Wire, 2 cores, 0,75 mm ²

Abbreviations key for cables

constructing components	abbreviations		remark
	VDE	ÖVE	
National standard	N	-	
Adapted to the national standard	(N)	E-	E ... energy cable
conductor			
- of copper	-	-	no sign
- of aluminium	A	A	
Insulation			
- mass-impregnated paper	-	P	
- polyvinyl chloride (PVC)	Y	Y	
- polyethylene (PE)	2Y	2Y	
- cross-linked polyethylene (VPE)	2X	2X	
- cross-linked polymer (flame retardant, halogen-free)	HX	-	
Concentric conductor of copper			
- applied helically	C	C	
- applied in waveconal formation	CW	-	
Screen of copper			
- for single core cables or	S	C	XLPE power cables
for multicore cables with a common screen	SE	CE	
- for multicore cables with a screen over each individual core	S(F)	CJ	
- longitudinally watertight			
Screen of paper insulation and common metal sheath for multicore cables (H-cables)	H	H	
Metal sheath of lead			
- for single core and multicore cables	K	M	
with a common sheath	EK	ME	
- for 3-core screened SL cables with an anti-corrosion protection on each sheath			
Polymer laminated sheath			
- longitudinally and radially with aluminium tape tightly bonded to the PE sheath	(FL)2Y	JA2Y	
Plastic sheath and inner protection			
- PVC sheath or extruded PVC protection	Y	Y	cross-linked polymer not cross-linked polymer
- PVC (reinforced sheath)	YV	Y3V	
- PE sheath	2Y	2Y	
- PE (reinforced sheath)	2YV	2Y3V	
- FRNC	HX	NG	
- FRNC	H	NY	
Armour			
- steel tape	B	B	
- flat steel tape	F	F	
- round steel tape	R	R	
- counter helix of galvanized steel tape	G	G	
- Aldrey-circular conductors	R(AY)	R(AY)	
Overall protection			
- serving of compounded jute yam	A	U	
- further materials: compare inner protection			
Constructions			
- with green yellow earth wire	-J	-J	with protective conductor
- with green yellow earth wire, without blue wire – colours: gy, bl, bl, br		-JN	with protective conductor
- without yellow green earth wire	-O	-O	without protective conductor
- core colouring with numbers – construction J	-JZ	-JZ	with protective conductor
- core colouring with numbers – construction O	-OZ	-OZ	without protective conductor
Conductor design			
- circular solid	RE	RE	compacted or incompact
- circular stranded	RM	RM	
- fine stranded	F	F	
- sector-shaped solid	SE	SE	
- sector-shaped stranded	SM	SM	

Cables are designated with

- type abbreviation
- number of cores and nominal cross section in mm²
- form of the main conductor
- if applicable nominal cross section of the screen or the concentric conductor in mm²
- nominal voltage in KV

Cables are not designated with

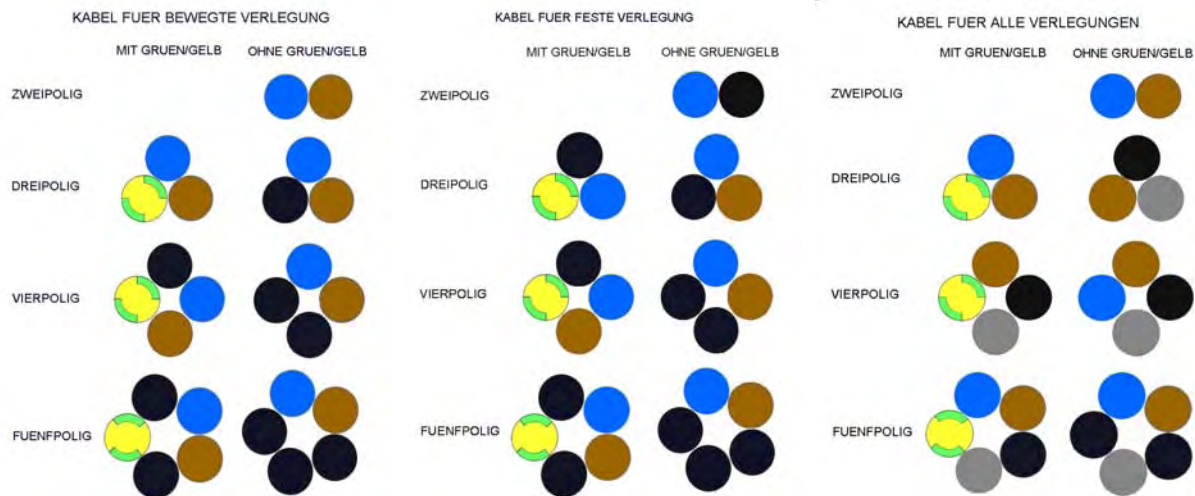
- copper conductor
- insulation of impregnated paper
- inner and outer conducting layer for cables with plastic insulation
- common core covering
- filling material
- inner serving of compounded jute yarn

Abbreviations key for telecommunication cables

Construction components	VDE	ÖVE
Type		
- telecommunication cable	-	F
- outdoor cable	A	-
- outdoor cable with special construction for lightning protection	AB	-
- mining cable	G	-
- installation cable	J	-
- signal cable	S	-
Tinned conductor	-	v
Core insulation		
- PVC, polyvinyl chloride	Y	Y
- PE, polyethylene	2Y	2Y
- foamed PE, foamed polyethylene	O2Y	-
Stranding components		
- stranded in pairs	P	-
- stranded in pairs with an individual static screen	P(ST)	-
- pairs in a metal foil	PiMF	-
- coaxial pair	KxP	-
- multiple twin-quad stranding	DM	-
- star quad with use of phantom circuits	St	-
- star quad for short-range cables	STI	-
- star quad in subscriber's cables	STIII	-
- stranding in layers	Lg	-
- stranding in bundles	Bd	-
Armouring and screening		
- screen of copper tape over a PE inner sheath	K	-
- screen of copper tape	-	C
- screen of plastic coated aluminium foil	St	A
- earth wire	-	E
Sheath and protection sheath		
- lead sheath	M	-
- lead sheath with a hardening addition	Mz	-
- PVC sheath or protection sheath	Y	Y
- reinforced PVC protection sheath	Yv	Y3V
- PE sheath or protection sheath	2Y	2Y
- reinforced PE protection sheath	2Yv	2Y3V
- composite-layer sheath	(L)2Y	A2Y
- longitudinally and radially with aluminium tape tightly bonded to the PE sheath	(FL)2Y	JA2Y
- protection sheath made of jute and viscous mass	c	-
- filling of the interstices with petrol jelly	F	J
- steel tape	-	B
- flat wire	-	F
- counter helix	-	R
- round wire	-	G
Supporting element	-	T

Aderkennzeichnung von Kabeln und Leitungen

Aktuelles Schema der Aderfarben gem. Harmonisierungsdokument HD 308 S1	Neues Schema der Aderfarben gem. Harmonisierungsdokument HD 308 S2
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Ab sechspolig:

- J - Ausführung: 1 Ader grün-gelb, weitere Adern schwarz mit Zahlendruck
- O - Ausführung: alle Adern schwarz mit Zahlendruck

Ausnahmen:

- a) 4adrig mit grün-gelb alternativ nur für bestimmte Anwendungen: grün-gelb, blau, braun, schwarz
- b) 3adrig ohne grün-gelb alternativ nur für bestimmte Anwendungen: blau, braun, schwarz

Was sind die wesentlichen Neuerungen bei dem neuen System ?

Die wesentliche Neuerung ist die Einführung der Aderfarbe „grau“ für einen Außenleiter. Die Farben und die Farbfolgen in den Kabeln sind aus den oben angeführten Tabellen ersichtlich. **Unverändert ist die Regelung der Aderfarben für Schutzleiter und Neutralleiter, nämlich grün-gelb und blau.**

DIN VDE 0293-308 (VDE 0293 Teil 308): 2003-01 sieht 2 Ausnahmen vor, wobei diese Varianten mit der Fußnote „a)“ bzw. „b)“ nur für bestimmte Anwendungen einsetzbar sind. Diese spezielle Anwendungen sind in DIN EN 60446 (VDE 0198): 1999-10, im Abschnitt 3.2.2 festgelegt. Danach darf für bestimmte Anwendungen, vorausgesetzt, dass keine Verwechslungsgefahr besteht und kein Neutralleiter im System vorhanden ist, die blaue Ader als Außenleiter verwendet werden. Außer Blau darf aber keine andere Farbe für den Neutralleiter verwendet werden. In diesem Farbsystem ist die Farbe Hellblau generell durch Blau ersetzt worden.

Übergangsphase zwischen altem und neuem System bei der Kennzeichnung der Adern von Kabeln und Leitungen durch Farben

Die Normung sorgt in der Regel für vergleichbare Produkte. Bei Bezug auf Produktnormen bei Verträgen kann daher auf Angaben eines großen Teils von Details verzichtet werden. Es gibt aber Ausnahmen, nämlich für den Fall von Übergangsfristen bei überarbeiteten Normen oder „Normenersatz“ bedingt durch Harmonisierung. Hier gelten für den vereinbarten Zeitraum des Übergangs die alten und die neuen Festlegungen gleichwertig. Letzteres trifft auch für die Aderkennzeichnung von Kabeln und Leitungen zu. Durch die Harmonisierung der Aderfarben von Kabeln und Leitungen durch die Normengremien der Installationstechnik, ist der Kabelindustrie der Zeitraum 01.10.2001 bis 01.04.2006 gewährt worden, ihre Produktpalette auf die neuen Aderfarben umzustellen und Lagerbestände mit der alten Kennzeichnung abzubauen.

Anwender der Kabel und Leitungen sowie der Handel haben während der Übergangsfrist die Möglichkeit, begonnene Projekte mit den jeweils verwendeten Produkten zu Ende zu führen und Lagerbestände entsprechend zu reduzieren. Seitens des Elektrohandwerks ist signalisiert worden, dass es bei der Umstellung keine Schwierigkeiten geben wird. Die Kabelhersteller beabsichtigen, die Umstellung so schnell wie möglich vorzunehmen, können aber aus den unterschiedlichen betrieblichen Gegebenheiten keinen gemeinsamen Umstellungstermin nennen. Grobe Zielsetzung hierfür ist Ende 2003, so dass ab dem 01.01.2004 der Anteil der Produkte mit der neuen Aderkennzeichnung im Markt deutlich zunehmen wird.

Colour-Coding for Electronic Cables LiYY and LiYCY, acc. to DIN 47100

Core stranding				Pairwise stranding				
Core number	Core colour	Core number	Core colour	Pair number			colour of cores	
							a-core	b-core
1	white	23	white-red	1	23	45	white	brown
2	brown	24	brown-red	2	24	46	green	yellow
3	green	25	white-black	3	25	47	grey	pink
4	yellow	26	brown-black	4	26	48	blue	red
5	grey	27	grey-green	5	27	49	black	violet
6	pink	28	yellow-grey	6	28	50	grey-pink	red-blue
7	blue	29	pink-green	7	29	51	white-green	brown-green
8	red	30	yellow-pink	8	30	52	white-yellow	yellow-brown
9	black	31	green-blue	9	31	53	white-grey	grey-brown
10	violet	32	yellow-blue	10	32	54	white-pink	pink-brown
11	grey-pink	33	green-red	11	33	55	white-blue	brown-blue
12	blue-red	34	yellow-red	12	34	56	white-red	brown-red
13	white-green	35	green-black	13	35	57	white-black	brown-black
14	brown-green	36	yellow-black	14	36	58	grey-green	yellow-grey
15	white-yellow	37	grey-blue	15	37	59	pink-green	yellow-pink
16	yellow-brown	38	pink-blue	16	38	60	green-blue	yellow-blue
17	white-grey	39	grey-red	17	39	61	green-red	yellow-red
18	grey-brown	40	pink-red	18	40	62	green-black	yellow-black
19	white-pink	41	grey-black	19	41	63	grey-blue	pink-blue
20	pink-brown	42	pink-black	20	42	64	grey-red	pink-red
21	white-blue	43	blue-black	21	43	65	grey-black	pink-black
22	brown-blue	44	red-black	22	44	66	blue-black	red-black

For more cores than listed the colour sequence is repeated.

The first colour is the basic colour, the second colour is the colour of the ring marking. The distance between two rings is appr. 7 mm.

The colour sequence for the 4-core type differs from this pattern because the colours are white, yellow, brown and green

JE-LiYCY and JE-Y(ST)Y acc. DIN 57815

pair	1	2	3	4
a-core	blue	grey	green	white
b-core	red	yellow	brown	black

The cores are marked with the basic colour of the insulation, which is repeated in the same sequence at each bundle.

Identification of the bundles - variant 1 "Bd Z"

The bundles (4 pairs each) are clearly to be identified by a number helix.

Identification of the bundles - variant 2 "Bd Si"

bundle-No.	Colour of rings	Group of rings	helix
1	pink	I	-
2		II	
3		III	
4		IIII	
5	orange	I	-
6		II	
7		III	
8		IIII	
9	violet	I	-
10		II	
11		III	
12		IIII	
13	pink	I	blue
14		II	
15		III	
16		IIII	
17	orange	I	red
18		II	
19		III	
20		IIII	

The bundles are counted from inside to outside.

Coil identification (coil groups)



Core Colouring of the Telecommunication Cables according to VDE

J-Y(ST)Y	J-YY
For the 2-paired installation cables: 1. pair a-core red, b-core black 2. pair a-core white, b-core yellow For all other cables: a-core at the 1st pair of each layer red, at all the other pairs white b-core blue, yellow, green, brown, black, colours are repeated It is to be counted from outside to inside.	The cores are to be identified by rings. 1. circuit a-core without rings b-core ■ ■ ■ 2. circuit a-core ■ ■ ■ ■ ■ b-core ■ ■ ■ ■ ■ The basic colours of the insulation sheath of the 5 star quads of a bundle quad 1 red quad 2 green quad 3 grey quad 4 yellow quad 5 white The tracer bundles are marked by a red helix.

Layer Stranding of Installation Cables J-Y(ST)Y

Number of pairs	Number of pairs in layers					
	1	2	3	4	5	6
2	2					
4	4					
5	6					
10	2	8				
16	5	11				
20	1	6	13			
24	2	8	14			
30	4	10	16			
40	1	7	13	19		
50	4	10	15	21		
60	1	6	12	18	23	
100	2	8	14	20	25	31

A-2Y(L)2Y	A-2YF(L)2Y
The cores are to be identified by rings.	The cores are to be identified by rings.
1. circuit a-core without rings	1. circuit a-core without rings
b-core ■ ■ ■	b-core ■ ■ ■
2. circuit a-core ■ ■ ■ ■	2. circuit a-core ■ ■ ■ ■
b-core ■ ■ ■ ■ ■ ■	b-core ■ ■ ■ ■ ■ ■
The basic colours of the insulation sheath of the 5 star quads of a basic bundle:	The basic colours of the insulation sheath of the 5 star quads of a basic bundle:
quad 1 red quad 2 green quad 3 grey quad 4 yellow quad 5 white	quad 1 red quad 2 green quad 3 grey quad 4 yellow quad 5 white
The tracer bundles are marked by a red helix.	The tracer bundles are marked by a red helix.

Core Colouring of the Telecommunication Cables according to ÖVE

YR *
YYSch *
JB-YY *
* core colours according to the factory norm

F-vYAY, F-YAY						
Core number	colour of a-core	colour of b-core				
		blue	yellow	green	brown	black
1 ... 5	white-blue	1	2	3	4	5
6 ... 10	white-yellow	6	7	8	9	10
11 ... 15	white-green	11	12	13	14	15
16 ... 20	white-brown	16	17	18	19	20
21 ... 25	white-black	21	22	23	24	25
26 ... 30	red-blue	26	27	28	29	30
31 ... 35	red-yellow	31	32	33	34	35
36 ... 40	red-green	36	37	38	39	40
41 ... 45	red-brown	41	42	43	44	45
46 ... 50 *	red-black	46	47	48	49	50

* from the 51st pair the colour sequence is repeated.

F-2YA2Y, F-2YC2Y, F-2YJA2Y	
The cores are stranded in star quads. Two opposite cores of a quad build a talking circuit.	
Core identification in a quad:	
1. circuit	a-core ... natural b-core ... red
2. circuit	c-core ... green d-core ... blue
One quad is marked as a tracer quad with a black a-core in each layer.	

Core Colouring of the Data Transmission Cables Category 5

Colour-code according to IEC 708-1

Cable element		Colour of the insulation sheath		
	a-core		b-core	
1	white (-blue)		blue	
2	white (-orange)		orange	
3	white (-green)		green	
4	white (-brown)		brown	
5	white		grey	
6	red		blue	
7	red		orange	
8	red		green	
9	red		brown	
10	red		grey	
It is to be counted in pairs (till 10 pairs)				
Cable element		Colour of the insulation sheath		
	a-core	b-core	c-core	d-core
1	white	blue	turquoise	violet
2	white	orange	turquoise	violet
3	white	green	turquoise	violet
4	white	brown	turquoise	violet
5	white	grey	turquoise	violet
It is to be counted in quads (till 5 quads)				

Guidelines for the laying of cables in cable chains

The laying of cables in cable chains has to be done carefully. In general the following points have to be considered:

1. It is recommended to lay the cables separately side by side. If cables with different diameters are laid on top of each other or side by side, we recommend the use of separators.
2. Cables with an outer diameter < 10 mm which cannot be installed with separators, should be loosely placed in a guide hose in the cable chain. The section of the hose has to be considerably bigger than the sum of all cable sections.
3. The cables should be movable in the separator. There must be 10 % free space between the cable diameters and the internal dimensions of the chain for safety reasons.
4. Please observe that the cables pass the bend radius without being forced. In case of several cable layers, the cables need a corresponding clearance among each other in the bend.
5. A torsion-free laying of the cables in the cable chain is of the essence (irrotational). Therefore, the cables have to be unwound from drums or coils before being installed. (Do not lift off the cables in loops.)
6. The weight arrangement in the chain or in the links has to be done symmetrically. Heavy cables have to be laid towards the outside of the chain and the smaller ones in the middle.
7. All cables have to be strain-relieved at the fixed point and at the driving feature. It should be noted that there is only large-surface pressure on the outer sheath. Careful clamping avoids any squeezing of the conductors and at the same time any displacement of the cable.
8. In general only cable chain cables should be used. The allowed bending radius has to be strictly observed.
9. The following standards have to be considered for the installation and grouping of cables in cable chains:
DIN VDE 0100
DIN VDE 0113

Hints about transport, storage and laying of data transmission cables according to category 5, category 6 and category 7

LAN cables should be protected from damages and moisture.

Following advice has to be observed for the use of these cables:

- Careful transport (the cable reel is not to be exposed to mechanical stresses)
- Proper storage
- Cable ends should be terminated
- Suitable storage and laying temperatures
- Cable routes should be properly chosen and controlled before installation (smoothing, burring, adaptation of the diversion radii)
- The use of appropriate tools
- Permissible bending radii and pulls are to be kept (data according to the relevant table)
- Cables can only be unwound from rotating drums, never over the flange or off the coils, to avoid damages caused by torsion
- Covers are to be fastened onto pressure relief systems and not directly onto the cable itself
- Flat cables should be bent over the smaller diameter
- In order to keep the EMV requirements (EN 55022), it is necessary to fully connect the screens

Permissible Bending Radii for Laying

For energy wires

Type	Nominal voltage till 0.6/1 KV			Nom. voltage over 0.6/1 KV
Wires for fixed installation	Overall diameter d of the cable or thickness d of a flat cable			
	till 10 mm	above 10 till 25 mm	above 25 mm	
for fixed installations	4 d	4 d	4 d	6 d
for forming	1 d	2 d	3 d	4 d

Type	Nominal voltage till 0.6/1 KV				Nom. voltage over 0.6/1 KV
For flexible applications	Overall diameter d of the cable or thickness d of a flat cable				
	till 8 mm	over 8 till 12 mm	over 12 till 20 mm	over 20 mm	
for fixed installations	3 d	3 d	4 d	4 d	6 d
in motion	3 d	4 d	5 d	5 d	10 d
at entry	3 d	4 d	5 d	5 d	10 d
for forced bendings ¹⁾ , such as					
for reeling operation	5 d	5 d	5 d	6 d	12 d
for piped vehicle operation	3 d	4 d	5 d	5 d	10 d
for cable chains	4 d	4 d	5 d	5 d	10 d
for roller guidance system	7,5 d	7,5 d	7,5 d	7,5 d	15 d

¹⁾ The suitability for this operation must be ensured by special construction characteristics.

For energy cables

Cable type	plastic insulated cables				paper insulated cables with lead sheath	
	more-core and multicore		single-core		more-core and multicore	single-core
	1 kV		1 kV			
	till	ex	till	ex		
non-armoured	12.DA	15.DA	15.DA	15.DA	15.DA	25.DA
armoured	15.DA	15.DA	15.DA	15.DA	15.DA	25.DA

DA = overall diameter of the cable

For telecommunication cables and installation cables for telecommunications systems

Cable type	Minimal bending radius in mm
installation cable (e.g. FvYAY. FYAY. J-Y(ST)Y, etc.)	7.5 x DA
telecommunication cable for earth laying (e.g. F-2YA2Y. A-2YF(L)2Y, etc.)	10.0 x DA
DA = overall diameter of the cable	

Permissible Laying Temperatures

For laying the temperatures of power cables shouldn't fall below:

- paper-insulated cable + 5°C
- plastic-insulated cable with PVC sheath - 5°C
- XLPE-insulated cable with PE sheath - 20°C

At lower temperatures the cables must be adequately warmed up beforehand. This can be done by storing them in a heated area (approx. 20°C) for several days or by means of special hot air equipment.

Permissible Pulls for Laying

When laying power cables by machine, particular attention must be paid to the permissible tensile forces. The formulae for obtaining these values are given in table 34.

pulling method	construction of cables	tensile force
pulling head on the conductors	all types of cables	$F = A \cdot 50 \text{ N/mm}^2$ (cable with Cu conductor) $F = A \cdot 30 \text{ N/mm}^2$ (cable with aluminium conductor)
with cable stocking	all wire-armoured cables (e.g. NYFGY, NAYFGY, etc.)	$F = K \cdot D^2$ ($K=9 \text{ N/mm}^2$)
	cables with metal sheath, without tension-proof armour e.g. NKBA, NYKY, NAKLEY, etc.)	$F = K \cdot D^2$ (single-sheathed cable $K=3 \text{ N/mm}^2$)
	(e.g. NEKEBA, NAEKEBA, etc.)	(3-core single lead sheath cable $K=1 \text{ N/mm}^2$)
	plastic cables without metal sheath, plastic cables without armour (e.g. NYY, NYSY, NYSEY, NYCWY, NA2XS2Y, etc.)	$F = A \cdot 50 \text{ N/mm}^2$ (Cu conductor) $F = A \cdot 30 \text{ N/mm}^2$ (aluminium conductor)

If three single-core cables are laid simultaneously with a common cable stocking, the same max. pulling forces as they are applicable for single-core cables, are valid. For 3 laid single-core cables the calculation of the permissible pulling forces is based on 3 cables, whereas it is based on 2 cables if the 3 single-core cables are not laid-up.

A = total conductor cross-section in mm^2 (without screen and concentric protective conductor)
D = outside diameter of cable in mm

Current-Carrying Capacity and Voltage Drop for Cable 1 - 30 KV

Group rating factors for cables laid in ground

Ground temperature 20°C ¹⁾
 Thermal resistivity 1.0 K . m/W ¹⁾
 Distance between cables or systems 7 cm ¹⁾
 Single-core cables laid in trefoil touching arrangement

Load factor 0.7

Insulation	Types of cables	Number of cables/systems				
		2	4	6	8	10
paper	belted cables 1-6 KV	0.86	0.72	0.65	0.61	0.58
	belted cables 10 KV	0.89	0.75	0.68	0.64	0.61
	3-core SL cables 10 KV	0.86	0.72	0.65	0.61	0.58
	3-core SL cables 20 und 30 KV	0.89	0.75	0.68	0.64	0.61
	single-core cables 20 und 30 KV	0.85	0.70	0.63	0.58	0.56
PVC	multicore cables 1-6 KV	0.86	0.71	0.64	0.60	0.57
	three-core cables 10 KV	0.87	0.71	0.63	0.59	0.54
	single-core cables 1-6 KV	0.85	0.70	0.63	0.59	0.56
	single-core cables 10 KV	0.83	0.66	0.57	0.53	0.49
XLPE	multicore cables 1-30 KV	0.85	0.70	0.63	0.59	0.56
	single-core cables 1-30 KV	0.85	0.70	0.63	0.58	0.56

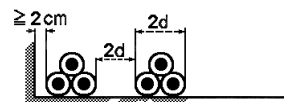
Load factor 1.0

Insulation	Types of cables	Number of cables/systems					
		1	2	4	6	8	10
paper	belted cables 1-6 KV	0.82	0.66	0.52	0.47	0.43	0.40
	belted cables 10 KV	0.82	0.68	0.55	0.50	0.46	0.43
	3-core SL cables 10 KV	0.81	0.66	0.52	0.46	0.43	0.40
	3-core SL cables 20 und 30 KV	0.82	0.68	0.55	0.50	0.46	0.43
	single-core cables 20 und 30 KV	0.78	0.64	0.50	0.45	0.41	0.40
PVC	multicore cables 1-6 KV	0.81	0.66	0.52	0.46	0.43	0.40
	three-core cables 10 KV	0.82	0.67	0.51	0.45	0.41	0.37
	single-core cables 1-6 KV	0.79	0.65	0.51	0.46	0.42	0.40
	single-core cables 10 KV	0.78	0.62	0.47	0.40	0.36	0.33
XLPE	multicore cables 1-30 KV	0.83	0.67	0.53	0.47	0.44	0.41
	single-core cables 1-30 KV	0.81	0.66	0.52	0.47	0.43	0.41

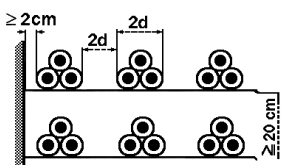
¹⁾ For other conditions the rating factors should be calculated according to VDE 0298 part 2.

Group rating factors for single-core cables in air

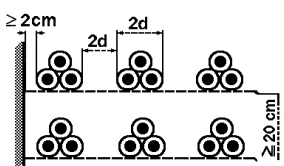
Single-core cable in air, trefoil formation



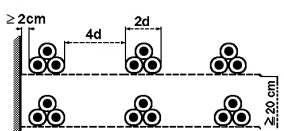
Arrangement of cables Cables laid in trefoil formation = 2d
Distance from the wall ≥ 2 cm



Number of systems laid in flat formation	1	2	3
Laid on the ground	0.95	0.90	0.88



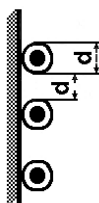
Laid on cable troughs (restricted air circulation)	Number of troughs			
	1	0.95	0.90	0.88
	2	0.90	0.85	0.83
	3	0.88	0.83	0.81
	6	0.86	0.81	0.79



Laid on cable racks	Number of racks			
	1	1.00	0.98	0.96
	2	1.00	0.95	0.93
	3	1.00	0.94	0.92
	6	1.00	0.93	0.90

Arrangement where reduction
of current is not necessary

This applies only when the cable temperature has no effect on the ambient
temperature.



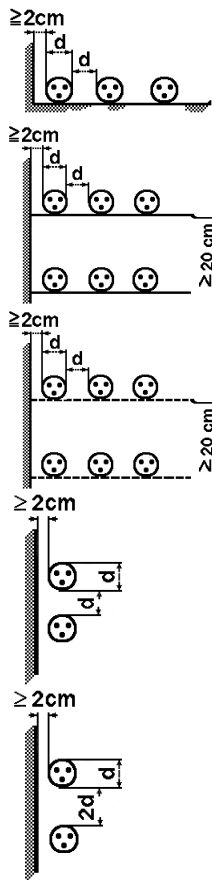
Number of systems laid one above the other	1	2	3
Arranged on structures or on the wall	0.89	0.86	0.84

Rating factors for variation in ambient temperature

Temperature °C	10	15	20	25	30	35	40	45	50
XLPE cables	1,15	1,12	1,08	1,04	1,0	0,96	0,91	0,87	0,82
PVC cables	1,22	1,17	1,12	1,06	1,0	0,94	0,87	0,79	0,71
Insulated overhead line 0,6/1kV-12/20kV	1,21	1,17	1,13	1,09	1,04	1,00	0,94	0,88	0,85
Paper-insulated cables 3-core belted type 0,6/1kV-3,6/6kV 6/10kV	1,05 1,0	1,05 1,0	1,05 1,0	1,05 1,0	1,0 1,0	0,95 0,93	0,89 0,85	0,84 0,76	0,77 0,65
Single core -, 3-core screened 0,6/1kV-3,6/6kV 6/10kV 12/20kV 18/30kV	1,05 1,06 1,0 1,0	1,05 1,06 1,0 1,0	1,05 1,06 1,0 1,0	1,05 1,06 1,0 1,0	1,0 1,0 1,0 1,0	0,95 0,94 0,93 0,91	0,89 0,87 0,85 0,82	0,84 0,79 0,76 0,71	0,77 0,71 0,65 0,58

Group rating factors for multicore cables laid in air

Multicore cables in air



Arrangement of cables

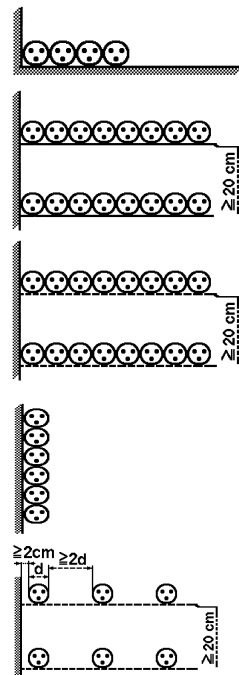
Distance = Cable diameter d
Distance from the wall $\geq 2 \text{ cm}$

Number of cables side by side		1	2	3	6	9
Laid on the ground		0.95	0.90	0.88	0.85	0.84
	Number of troughs					
Laid on cable troughs	1	0.95	0.90	0.88	0.85	0.84
(restricted air circulation)	2	0.90	0.85	0.83	0.81	0.80
	3	0.88	0.83	0.81	0.79	0.78
	6	0.86	0.81	0.79	0.77	0.76
	Number of racks					
Laid on cable racks	1	1.00	0.98	0.96	0.93	0.92
	2	1.00	0.95	0.93	0.90	0.89
	3	1.00	0.94	0.92	0.89	0.88
	6	1.00	0.93	0.90	0.87	0.86
Number of cables laid one above the other		1	2	3	6	9
Arranged on structures or on the wall		1.00	0.93	0.90	0.87	0.86
Arrangement where reduction of current is not necessary.	Number of cables laid side by side is not restricted.					
This applies only when the cable temperature has no effect on the ambient temperature.						

Multicore cables in air

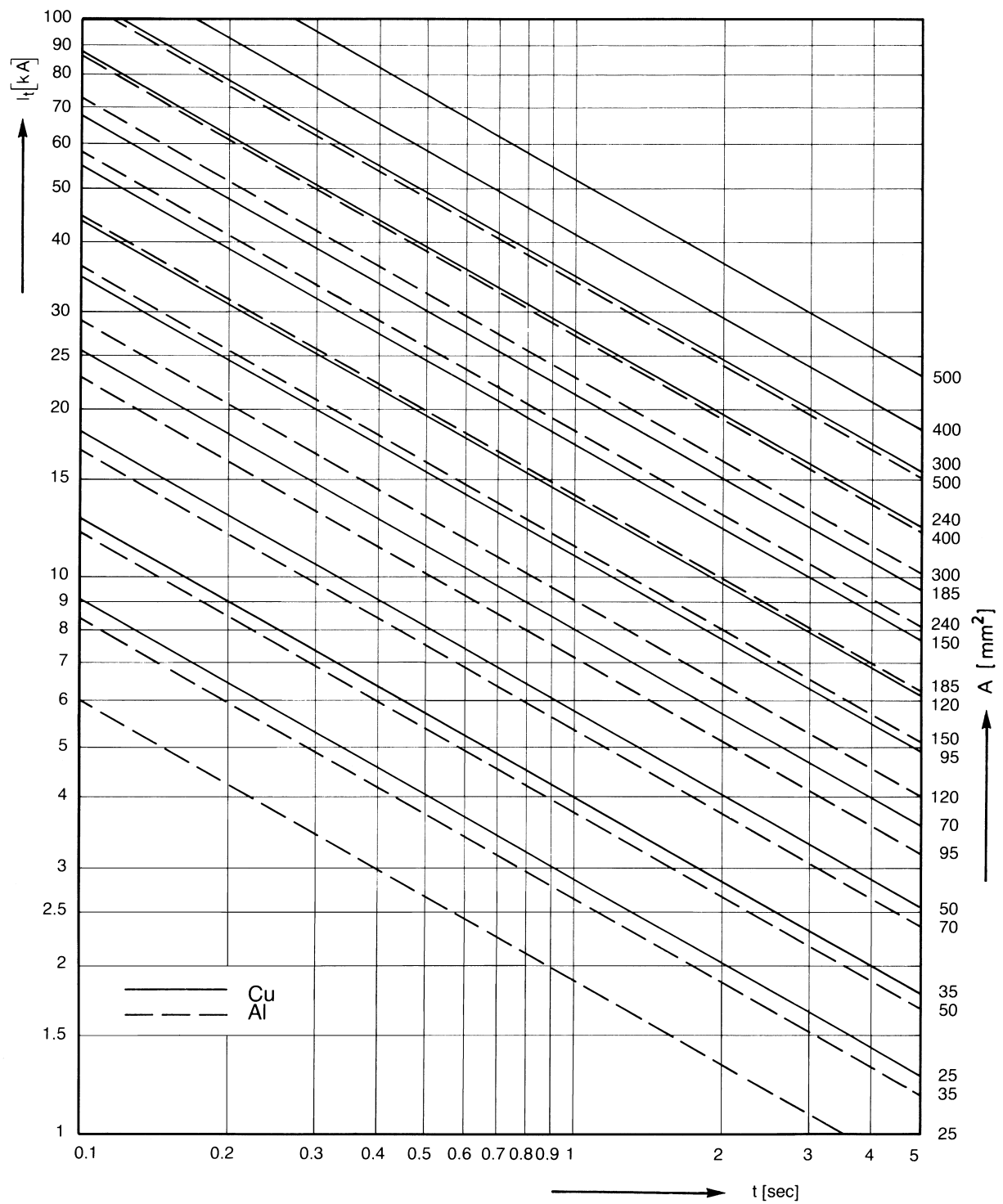
Arrangement of cables

Cables touching each other
Cable in contact with the wall

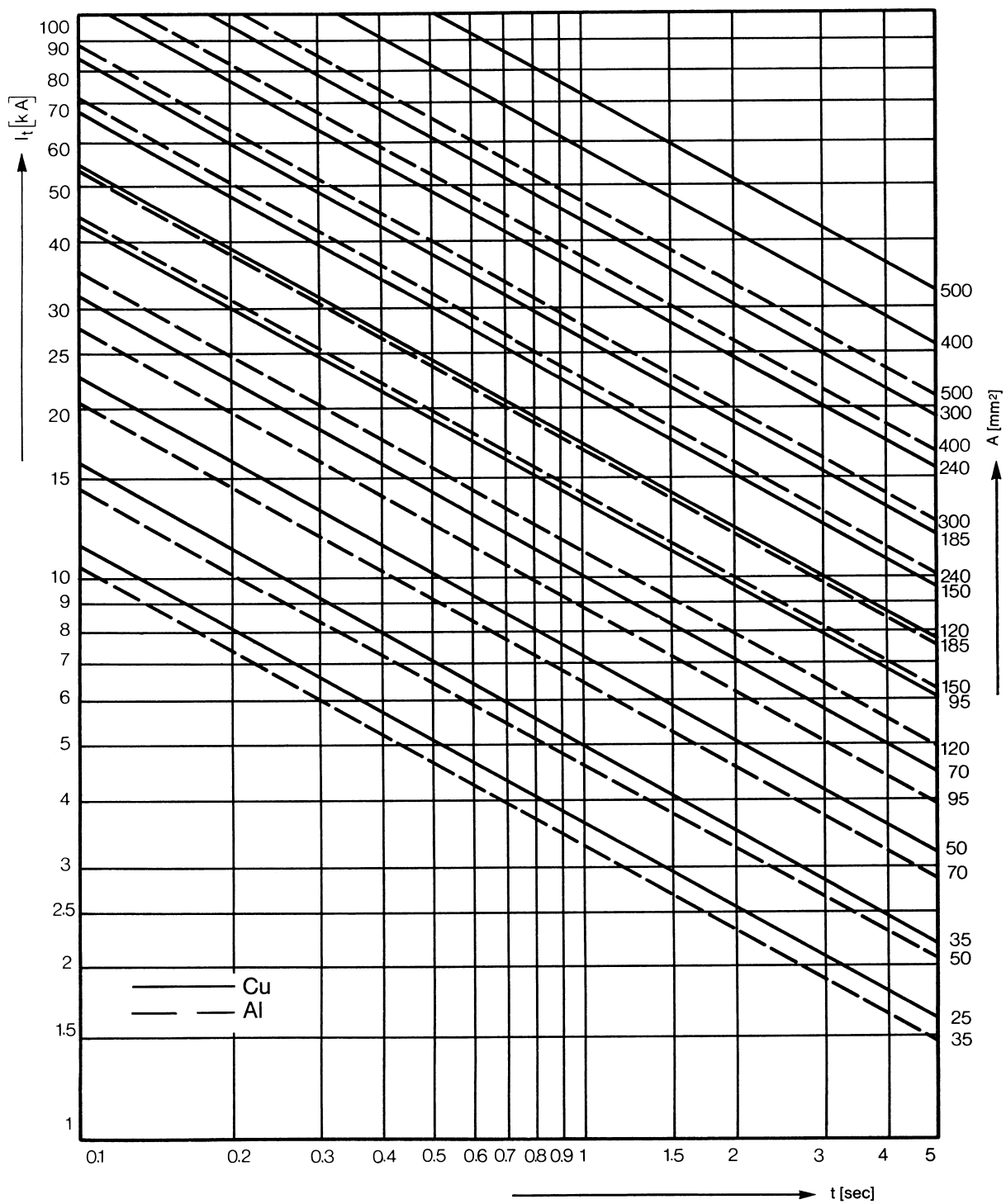


Number of cables side by side		1	2	3	6	9
Laid on the ground		0.90	0.84	0.80	0.75	0.73
Laid on cable troughs	Number of troughs					
(restricted air circulation)	1	0.95	0.84	0.80	0.75	0.73
	2	0.95	0.80	0.76	0.71	0.69
	3	0.95	0.78	0.74	0.70	0.68
	6	0.95	0.76	0.72	0.68	0.66
Laid on cable racks	Number of racks					
(air circulation is restricted	1	0.95	0.84	0.80	0.75	0.73
by the cable)	2	0.95	0.80	0.76	0.71	0.69
	3	0.95	0.78	0.74	0.70	0.68
	6	0.95	0.76	0.72	0.68	0.66
Number of cables laid one above the other						
		1	2	3	6	9
Arranged on structures						
or on the wall		0.95	0.78	0.73	0.68	0.66
Arrangement where reduction		Number of cables laid side by side is not restricted.				
of current is not necessary						
This applies only when the cable temperature has no effect on the ambient temperature.						

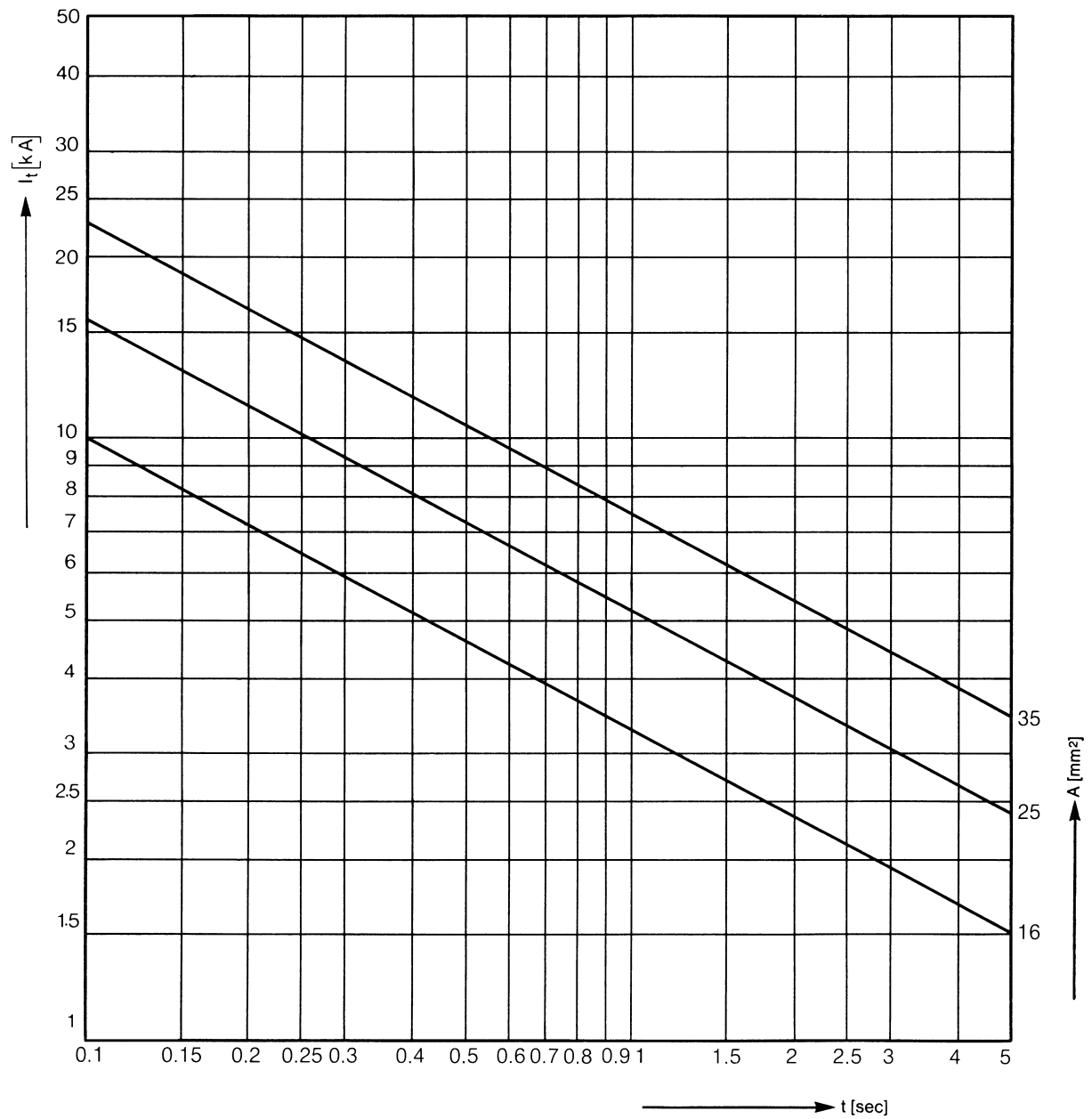
Permissible Short-Circuit Current for PVC-Insulated Cables for 1 – 10 KV



Permissible Short-Circuit Current for XLPE-Insulated Cables for 1 – 30 KV



Permissible Short-Circuit Current for Various Cross Sections of Screens

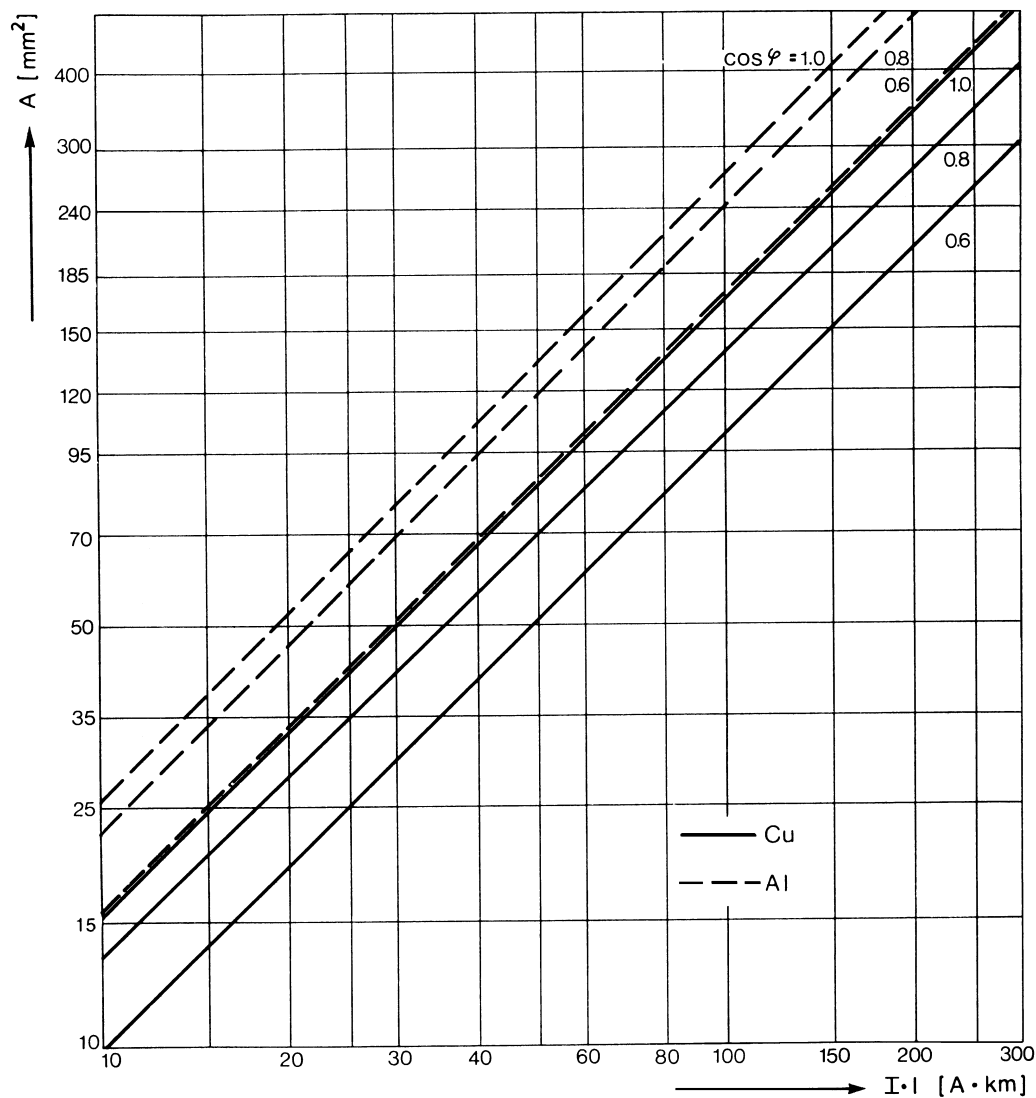


cross sections of
conductor
mm²
35 ... 120
150 ... 300
400 ... 500

screen
mm²
16
25
35

Voltage Drop at Low Voltage Cables

Spannungsabfall: 5%
 Betriebsspannung: 220/380 V
 Leitertemperatur: 70°C



In many cases especially for large cross sections the inductive voltage drop must be taken into consideration.

General formula for three phase systems:

$$e = \frac{100 \cdot \sqrt{3} \cdot I \cdot l}{U} (R \cdot \cos \varphi + X \cdot \sin \varphi)$$

U = Phase to phase voltage (V)

e = voltage drop (%)

I = Current loading (A)

l = Length of cable (km)

R = Resistance (Ω/km)

X = Inductance (Ω/km)

Current-Carrying Capacity of Wires

Advised values for the current-carrying capacity of wires

The listed values of the following tables are based on a simplified version of DIN VDE 0298 part 4. The given values are only approximate. For borderline cases it should be strictly calculated according to DIN VDE. The cable section has to be chosen according to the carrying capacity of the cable in an undisturbed service.

Undisturbed service means that cables are used for their intended purpose not exceeding the allowed operating temperature and the highest permissible conductor temperature. Normally this means 2 loaded conductors for 2- and 3-core wires, and 3 loaded conductors for 4- and 5-core wires. This should be also be planned in advance for multicore cables applied in electro-installation conduits.

The ambient temperature is the temperature of the surrounding air, without any load on the respective cable. Should the air temperature rise due to the dissipating heat of the wires, the conversion factors are to be observed. Additional heating like solar radiation has to be considered resp. avoided. The use of covers requires an undisturbed air circulation.

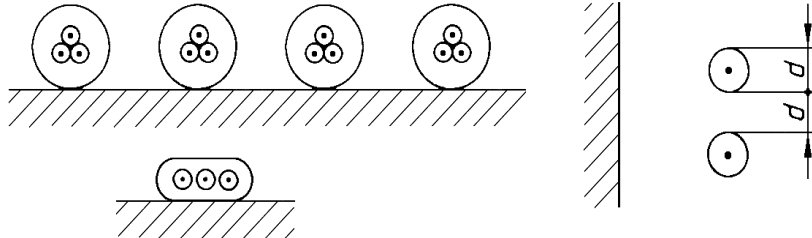
Conversion factors for deviating ambient temperatures

Insulation material	PVC	EPR	PVC	EVA	SIR
admissible operating temperature	70°C	80°C and 90°C	90°C	120°C	180°C
ambient temperature °C	conversion factor		conversion factor		
10	1,22	1,18	-	-	-
15	1,17	1,14	-	-	-
20	1,12	1,10	-	-	-
25	1,06	1,05	-	-	-
30	1,00	1,00	-	-	-
35	0,94	0,95	-	-	-
40	0,87	0,89	-	-	-
45	0,79	0,84	-	-	-
50	0,71	0,77	1,00	1,00	1,00
55	0,61	0,71	0,94	1,00	1,00
60	0,50	0,63	0,87	1,00	1,00
65	-	0,55	0,79	1,00	1,00
70	-	0,45	0,71	1,00	1,00
75			0,61	1,00	1,00
80			0,50	1,00	1,00
85			0,35	1,00	1,00
90			-	1,00	1,00
95			-	0,91	1,00
100			-	0,82	1,00
105			-	0,71	1,00
110			-	0,58	1,00
115			-	0,41	1,00
120			-	-	1,00
125			-	-	1,00
130			-	-	1,00
135			-	-	1,00
140			-	-	1,00
145			-	-	1,00
150			-	-	1,00
155			-	-	0,91
160			-	-	0,82
165			-	-	0,71
170			-	-	0,58
175			-	-	0,41

Wires for Fixed Installation and Flexible Wires

Insulation material	PVC	EPR	EPR	PVC	EVA	SIR
Admissible operating temperature ¹⁾	70°C	80°C	90°C	90°C ²⁾	120°C ²⁾	180°C ²⁾
Number of loaded cores	2 or 3	2 or 3	2 or 3	1	1	2 or 3

Art of laying

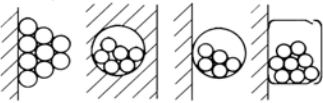
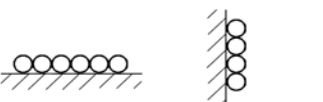
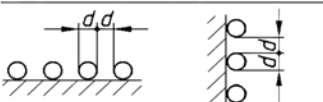
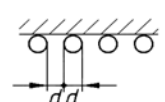


Nominal cross section copper conductor mm ²	Carrying capacity				
	A	A	A	A	A
0,5	7	-	-	11	7
0,75	12	14	14	15	12
1	15	17	17	15	15
1,5	18	21	21	24	18
2,5	26	30	30	42	26
4	34	41	41	42	34
6	44	53	53	54	44
10	61	74	74	73	61
16	82	99	99	98	82
25	108	131	131	129	108
35	135	162	162	158	135
50	168	202	202	198	168
70	207	250	250	245	207
95	250	301	301	292	250
120	292	352	352	344	292
150	-	-	-	391	335
185	-	-	-	448	382
240	-	-	-	528	453
300	-	-	-	608	523
400	-	-	-	726	-
500	-	-	-	830	-

¹⁾ according to DIN VDE 0298 part 4 current values for 90°C are not yet available

²⁾ according to DIN VDE 0298 part 4 / 2.88

Conversion Factors for the Grouping of Cables ¹⁾

Anordnung	Number of multicore cables or number of alternating and rotary current circuits for single-core cables (2 and 3 current carrying conductors)															
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20	
Verlegeart	Laid in bundles directly on the wall, on the floor, in electro-installation ducts or conduits and on or in the wall															
	1,0	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,48	0,45	0,43	0,41	0,39	0,38	
Single-layer on the wall or on the floor in contact with one another																
	1,0	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70							
Single-layer on the wall or on the floor. Distance between two cables: diameter of cable																
	1,0	0,94	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	
Single-layer under the ceiling in contact with one another																
	0,95	0,81	0,72	0,68	0,66	0,64	0,63	0,62	0,61							
Single-layer under the ceiling. Distance between two cables: diameter of cable																
	0,95	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	

¹⁾ according to IEC TC 64 (Sec) 261. edition March 1979

Remarks:

For the application of these conversion factors for the values mentioned on page 210, the number of loaded conductors, the cable type and the art of laying must be in agreement. If multiple core cables with 2 or 3 loaded cores are grouped together, a conversion factor for the total number of grouped cables should be chosen and applied for the current carrying capacity of cables with 2 or 3 loaded cores. If 'n' numbers of cores are loaded in the grouping of single-core cables, then the conversion factor for 2/2 or n/3 circuits should be chosen and applied for the current carrying capacity of cables with 2 or 3 loaded cores.

o - symbol for a single-core or multicore cable

Conversion factors for multicore cables with conductor cross sections till 10 mm²

Number of the loaded cores (n)	Conversion factors
5	0,75
7	0,65
10	0,55
14	0,50
19	0,45
24	0,40
40	0,35
61	0,30

Conversion factors for rolled up wires

number of layers	1	2	3	4
conversion factors	0,80	0,61	0,49	0,42

Permissible short-circuit temperatures and rated short-circuit current density for cables

insulation material ²⁾	permissible operating temperature	permissible short-circuit temperature	conductor temperature at the beginning of short-circuit °C												
			180	165	150	135	120	105	90	80	70	60	50	40	30
-	°C	°C	rated short-circuit density (1 s) in A/mm ²												
soldered connections	-	160	-	-	36	58	74	87	100	107	115	122	129	136	143
tinned copper	-	200	49	65	79	91	102	112	122	128	135	141	147	153	159
PVC	70	160 ¹⁾	-	-	-	-	-	-	-	-	115	122	129	136	143
EPR	90	250 ¹⁾	-	-	-	-	-	-	143	148	154	159	165	170	176
PVC	90	160 ²⁾	-	-	-	-	-	-	100	107	115	122	129	136	143
EVA	120	250 ³⁾	-	-	-	-	126	135	143	148	154	159	165	170	176
SIR	180	350 ³⁾	132	139	146	153	160	166	73	178	182	187	191	196	201

1) These values are taken from IEC 724 1982 and the script IEC 20 A WG (Sec) 106, March 1983.

2) PVC polyvinyl chloride, EVA ethylene-vinylacetat-copolymer, SIR silicone rubber, EPR ethylene-propylene rubber compound

3) These values are taken from IEC 724 edition 1982 and the script IEC 20 A (Sec) 154, edition August 1986.

Permissible current-carrying capacity for cables for reeling operation

Current carrying capacity (A) at 30°C ambient temperature for 3 and 4-core rubber sheathed cables. Because of higher conductor boundary temperatures, higher current-carrying capacity values can be given. The values mentioned below conform to DIN VDE 0298 part 4 table 9.

phase conductor cross section mm ²	1 cable lying on surfaces	1 layer spiral and rolling drum	Cables on drums	
			2 layers rolling drums	3 layers rolling drums
1,5	21	17	13	10
2,5	30	24	18	15
4	41	33	25	20
6	53	42	32	26
10	74	60	45	36
16	99	79	60	49
25	131	105	80	65
35	162	130	99	80
50	202	162	124	100
70	250	200	153	124
95	301	241	184	149
120	352	281	215	174
150	404	323	247	200

Conversion factors for multicore rubber sheathed cables

number of loaded cores	conversion factor
5	0,75
7	0,65
10	0,55
14	0,50
19	0,45
24	0,40
40	0,35
61	0,30

Conversion factors for different ambient temperatures

ambient temperature °C	25	30	35	40	50	60	70
conversion factor	1,04	1,0	0,96	0,91	0,82	0,71	0,58

Additional Product Range

according to national and international norms

Insulated power lines

PVC combined control cables, highly flexible, cold resistant

Neoprene control cables with screening

Neoprene and PVC flat cables with screening

Lift and elevator cables

Rubber-insulated and sheathed cables for

- longwall face illumination

- reeling

- coal cutting machines

- application in water

- special applications

Trailing cables for

- hoists

- electric power supply on building sites

- large cranes

- winning machines

Insulated power cables

Paper-insulated lead-sheathed cables with Cu and Al conductor

Plastic-insulated lead-sheathed cables

Plastic-insulated cables with steel armour of flat/round wires

Plastic-insulated cables with Al-conductor and Cu-screening

Marine cables

Cables and wires for telecommunication

Telecommunications cable with armouring

Telecommunications cable with lead sheath

Signal, measuring and switchboard cables

Mining signal and telephone cables

Metal charges

1. six months of 2002

01. January	Cu: EUR
	Alu: EUR
16. January	Cu: EUR
	Alu: EUR
01. February	Cu: EUR
	Alu: EUR
16. February	Cu: EUR
	Alu: EUR
01. March	Cu: EUR
	Alu: EUR
16. March	Cu: EUR
	Alu: EUR
01. April	Cu: EUR
	Alu: EUR
16. April	Cu: EUR
	Alu: EUR
01. May	Cu: EUR
	Alu: EUR
16. May	Cu: EUR
	Alu: EUR
01. June	Cu: EUR
	Alu: EUR
16. June	Cu: EUR
	Alu: EUR

2. six months of 2002

01. July	Cu: EUR
	Alu: EUR
16. July	Cu: EUR
	Alu: EUR
01. August	Cu: EUR
	Alu: EUR
16. August	Cu: EUR
	Alu: EUR
01. September	Cu: EUR
	Alu: EUR
16. September	Cu: EUR
	Alu: EUR
01. October	Cu: EUR
	Alu: EUR
16. October	Cu: EUR
	Alu: EUR
01. November	Cu: EUR
	Alu: EUR
16. November	Cu: EUR
	Alu: EUR
01. December	Cu: EUR
	Alu: EUR
16. December	Cu: EUR
	Alu: EUR

1. six months of 2003

01. January	Cu: EUR
	Alu: EUR
16. January	Cu: EUR
	Alu: EUR
01. February	Cu: EUR
	Alu: EUR
16. February	Cu: EUR
	Alu: EUR
01. March	Cu: EUR
	Alu: EUR
16. March	Cu: EUR
	Alu: EUR
01. April	Cu: EUR
	Alu: EUR
16. April	Cu: EUR
	Alu: EUR
01. May	Cu: EUR
	Alu: EUR
16. May	Cu: EUR
	Alu: EUR
01. June	Cu: EUR
	Alu: EUR
16. June	Cu: EUR
	Alu: EUR

2. six months of 2003

01. July	Cu: EUR
	Alu: EUR
16. July	Cu: EUR
	Alu: EUR
01. August	Cu: EUR
	Alu: EUR
16. August	Cu: EUR
	Alu: EUR
01. September	Cu: EUR
	Alu: EUR
16. September	Cu: EUR
	Alu: EUR
01. October	Cu: EUR
	Alu: EUR
16. October	Cu: EUR
	Alu: EUR
01. November	Cu: EUR
	Alu: EUR
16. November	Cu: EUR
	Alu: EUR
01. December	Cu: EUR
	Alu: EUR
16. December	Cu: EUR
	Alu: EUR

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General Terms of Delivery

issued by the Austrian Electrical and Electronics Industry Association

1 Scope

1.1. These General Terms shall govern legal transactions between business enterprises, namely the delivery of commodities and, mutatis mutandis, the rendering of services. Software transactions are with precedence governed by the Software Conditions issued by the Austrian Electrical and Electronics Industry Association, assembly work by the Terms and Conditions for Assembly Work issued by the Austrian Power Current and Light Current Engineering Industry and/or (where applicable) the Terms and Conditions for the Assembly of Electrical Equipment used in Medicine issued by the Austrian Electrical and Electronics Industry.

1.2 Any departure from the terms and conditions mentioned in 1.1 above shall be valid only if expressly accepted in writing by Seller.

2 Submission of offers

2.1. Seller's offers shall be deemed offers without engagement.

2.2 Tender documents and project documentation must not be duplicated nor made available to third parties without the permission of Seller. They may be claimed back at any time and shall be returned to Seller immediately if the order is placed elsewhere

3 Conclusion of contract

3.1 The contract shall be deemed concluded upon written confirmation by Seller of an order received or upon dispatch of a delivery.

3.2 Particulars appearing in catalog, folders etc. as well as any oral or written statements shall only be binding if Seller makes express reference to them in the confirmation of the order.

3.3 Subsequent amendments of or additions to the contract shall be subject to written confirmation

4. Prices

4.1. Prices shall be quoted ex works or ex Seller's warehouse excluding packing and packaging, loading and turnover tax. Buyer shall be liable for any and all charges, taxes or other duties levied in respect of delivery. If the terms of delivery include transport to a destination designated by Buyer, transport costs as well as the cost of any transport insurance desired by Buyer shall be borne by the latter. Delivery does not, however, include unloading and subsequent handling. Packaging materials will be taken back only by express agreement

4.2. Seller reserves the right to modify prices if the order placed is not in accordance with the offer submitted.

4.3 Prices are based on costs obtaining at the time of the first quotation. In the event that the costs have increased by the time of delivery, Seller shall have the right to adjust prices accordingly

4.4 In carrying out repair orders, Seller shall provide all services deemed expedient and shall charge Buyer for the same on the basis of the work input and/or expenditures required. The same holds for any services or additional services the expediency of which becomes apparent only as the repair order is executed. In such an event special notification of Buyer shall not be required.

4.5. Expenses for estimates of costs of repair and maintenance or for expert valuations shall be invoiced to Buyer.

5 Delivery

5.1 The period allowed for delivery shall commence at the latest of the following dates

- a) the date of order confirmation by Seller;
- b) the date of fulfillment by Buyer of all the conditions, technical, commercial and other, for which he is responsible;
- c) the date of receipt by Seller of a deposit or security due before delivery of the goods in question.

5.2 Buyer shall obtain whatever licences or approvals may be required from authorities or third parties for the construction of plant and equipment. If the granting of such licences or approvals is delayed for

any reason the delivery period shall be extended accordingly.

5.3 Seller may carry out, and charge Buyer for, partial or advance deliveries. If delivery on call is agreed upon, the commodity shall be deemed called off at the latest one year after the order was placed.

5.4 In case of unforeseeable circumstances or circumstances beyond the parties control, such as all cases of force majeure, which impede compliance with the agreed period of delivery, the latter shall be extended in any case for the duration of such circumstances; these include in particular armed conflicts, official interventions and prohibitions, delays in transport or customs clearance, damages in transit, energy shortage and raw materials scarcity, labor disputes, and default on performance by a major component supplier who is difficult to replace. The aforesaid circumstances shall be deemed to prevail irrespective of whether they affect Seller or his subcontractor(s).

5.5 If a contractual penalty for default of delivery was agreed upon by contracting parties when the contract was concluded, it shall be executed as follows, and any deviations concerning individual items shall not affect the remaining provisions:

Where delay in performance can be shown to have occurred solely through the fault of Seller, Buyer may claim for each completed week of delay an indemnity of at most one half of one per cent, a total of no more than 5 %, however, of the value of that part of the goods to be delivered which cannot be used on account of Seller's failure to deliver an essential part thereof, provided the Buyer has suffered a damage to the aforesaid extent.

Assertion of rights of damages exceeding this extent is precluded.

6 Passage of risk and Place of performance

6.1 Enjoyment and risk shall pass to Buyer at the time of departure of the goods ex works or ex warehouse regardless of the terms of quotation (such as carriage paid, C.I.F. etc.) agreed upon. This provision also includes the case of shipment being effected, organised and supervised by Seller and the case of delivery being made in connection with assembly work to be undertaken by Seller.

6.2 For services the place of performance shall be the place at which the service is rendered; the risk in respect of such services or any part thereof that may have been agreed upon shall pass to Buyer at the time the services have been rendered

7 Payment

7.1 Unless otherwise agreed, one third of the purchase price shall fall due at the time of receipt by Buyer of the order confirmation of Seller, one third after half the delivery period has elapsed and the balance at the time of delivery. Irrespective thereof the turnover tax comprised in the amount of the invoice shall be paid within 30 days of the invoice date.

7.2 In the case of part settlements the individual part payments shall fall due upon receipt of the respective invoices. The same shall apply to amounts invoiced for additional deliveries or resulting from additional agreements beyond the scope of the original contract, irrespective of the terms of payment agreed upon for the principal delivery. .

7.3 Payment shall be made without any discount free Seller's domicile in the agreed currency. Drafts and checks shall be accepted on account of payment only, with all interest, fees and charges in connection therewith (such as collection and discounting charges) to be borne by Buyer.

7.4 Buyer shall not be entitled to withhold or offset payment on the grounds of any warranty claims or other counterclaims.

7.5 Payment shall be deemed to have been effected on the date at which the amount in question is at Seller's disposal.

7.6 If Buyer fails to meet the terms of payment or any other obligation arising from this or other transactions, Seller may without prejudice to his other rights

- a) suspend performance of his own obligations until payments have been made or other obligations fulfilled, and exercise his right to extend the period of delivery to a reasonable extent,

b) call in debts arisen from this or any other transactions and charge default interest amounting to 1.25 % per month plus turnover tax for these amounts beginning with the due dates, unless Seller proves costs exceeding this.

In any case Seller has the right to invoice all expenses arising prior to a lawsuit, especially reminder charges and lawyer's fees.

7.7 Discounts or bonuses are subject to complete payment in due time.

7.8 Seller retains title to all goods delivered by him until receipt of all amounts invoiced including interests and charges.

Buyer herewith assigns his claim out of a resale of conditional commodities, even if they are processed, transformed or combined with other commodities, to Seller to secure the latter's purchase money claim, and he undertakes to make a corresponding entry in his books or on his invoices. Upon request Buyer has to notify the assigned claim and the debtor thereof to Seller, and to make all information and material required for his debt collection available and to notify the assignment to the third-party debtor. If the goods are attached or otherwise levied upon, Buyer shall draw attention to Seller's title and immediately inform Seller of the attachment or levy.

8 Warranty and acceptance of obligation to repair defects

8.1 Once the agreed terms of payment have been complied with, Seller shall, subject to the conditions hereunder, remedy any defect existing at the time of acceptance of the article in question whether due to faulty design, material or manufacture, that impairs the functioning of said article. From particulars appearing in catalogues, folders, promotional literature as well as written or oral statements, which have not been included in the agreement, no warranty obligations may be deduced.

8.2 Unless special warranty periods operate for individual items the warranty period shall be 12 months. These conditions shall also apply to any goods supplied, or services rendered in respect of goods supplied, that are firmly attached to buildings or the ground. The warranty period begins at the point of passage of risk acc. to paragraph 6.

8.3 The foregoing warranty obligations are conditional upon the Buyer giving immediate notice in writing of any defects that have occurred. Buyer shall prove immediately the presence of a defect, in particular he shall make available immediately to Seller all material and data in his possession. Upon receipt of such notice Seller shall, in the case of a defect covered by the warranty under 8.1 above, have the option to replace the defective goods or defective parts thereof or else to repair them on Buyer's premises or have them returned for repair, or to grant a fair and reasonable price reduction.

8.4 Any expenses incurred in connection with rectifying defects (e.g. expenses for assembly and disassembly, transport, waste disposal, travel and site-to-quarters time) shall be borne by Buyer. For warranty work on Buyer's premises Buyer shall make available free of charge any assistance, hoisting gear, scaffolding and sundry supplies and incidentals that may be required. Replaced parts shall become the property of Seller. .

8.5 If an article is manufactured by Seller on the basis of design data, design drawings, models or other specifications supplied by Buyer, Seller's warranty shall be restricted to non-compliance with Buyer's specifications.

8.6 Seller's warranty obligation shall not extend to any defects due to assembly and installation work not undertaken by Seller, inadequate equipment, or due to non-compliance with installation requirements and operating conditions, overloading of parts in excess of the design values stipulated by Seller, negligent or faulty handling or the use of inappropriate materials, nor for defects attributable to material supplied by Buyer. Nor shall Seller be liable for damage due to acts of third parties, atmospheric discharges. Excess voltage and chemical influences. The warranty does not cover the replacement of parts subject to natural wear and tear. Seller accepts no warranty for the sale of used goods.

8.7 The warranty shall lapse immediately if, without written consent of Seller, Buyer himself or a third party not expressly authorised undertakes modifications or repairs on any items delivered.

8.8 Claims acc. to § 933b ABGB are struck by the statute of limitation with lapse of the period mentioned under point 8.2.

8.9 The provisions of sub-paragraphs 8.1 to 8.7 shall apply, mutatis mutandis, to all cases where the obligation to repair defects has to be accepted for other reasons laid down by law.

9 Withdrawal from contract

9.1 Buyer may withdraw from the contract only in the event of delays caused by gross negligence on the part of Seller and only after a reasonable period of grace has elapsed. Withdrawal from contract shall be notified in

writing by registered mail.

9.2 Irrespective of his other rights Seller shall be entitled to withdraw from the contract

a) if the execution of delivery or the inception or continuation of services to be rendered under the contract is made impossible for reasons within the responsibility of Buyer and if the delay is extended beyond a reasonable period of grace allowed;

b) if doubts have arisen as to Buyer's creditworthiness and if same fails, on Seller's request, to make an advance payment or to provide adequate security prior to delivery, or

c) if, for reasons mentioned in 5.4, the period allowed for delivery is extended by more than half of the period originally agreed or by at least 6 months.

9.3 For the reasons given above withdrawal from the contract shall also be possible in respect of any outstanding part of the delivery or service contracted for.

9.4 If bankruptcy proceedings are instituted against any contracting party or an application for bankruptcy proceedings against that party is not granted for insufficiency of assets, the other party may withdraw from the contract without allowing a period of grace.

9.5 Without prejudice to Seller's claim for damages including expenses arising prior to a lawsuit, upon withdrawal from contract any open accounts in respect of deliveries made or services rendered in whole or in part shall be settled according to contract. This provision also covers deliveries or services not yet accepted by Buyer as well as any preparatory acts performed by Seller. Seller shall, however, have the option alternatively to require the restitution of articles already delivered.

9.6 Withdrawal from contract shall have no consequences other than those stipulated above.

10 Liability

10.1 Outside the scope of the Product Liability Act, Seller shall be liable only if the damage in question is proved to be due to intentional acts or acts of gross negligence, within the limits of statutory provisions. Seller shall not be liable for damage due to acts of ordinary negligence nor for consequential damages or damages for economic losses, loss of savings or interest or damage resulting from third-party claims against buyer.

10.2 Seller shall not be liable for damages in case of non-compliance with instructions for assembly, commissioning and operation (such as are contained in instructions for use) or non-compliance with licensing requirements.

10.3 Claims that exceed the contractual penalties that were agreed on are excluded from the respective title.

11 Assertion of Claims

All claims to which Buyer is entitled must be asserted in court within three years from passage of risk as specified under paragraph 6, unless shorter limits of time are prescribed by law, otherwise claims shall become forfeited.

12 Industrial property rights and copyrights

12.1 Buyer shall indemnify Seller and hold him harmless against any claims for any infringement of industrial property rights raised against him if Seller manufactures an article pursuant to any design data, design drawings, models or other specifications made available to him by Buyer.

12.2 Design documents such as plans and drawings and other technical specifications as well as samples, catalogues, prospectuses, pictures and the like shall remain the intellectual property of Seller and are subject to the relevant statutory provisions governing reproduction, imitation, competition etc. The provisions of 2.2 above shall also cover design documents.

13 General

Should individual provisions of the contract or of these provisions be invalid the validity of the other provisions shall not be affected. The invalid provision shall be replaced by a valid one, which comes as close to the target goal as possible.

14 Jurisdiction and applicable law

Any litigations arising under the contract including litigations over the existence or non-existence thereof shall fall within the exclusive jurisdiction of the competent court at Seller's domicile; the competent court of the Bezirksgericht Innere Stadt, Vienna, shall have exclusive jurisdiction if Seller is domiciled in Vienna. The contract is subject to Austrian law excluding the referral rules. Application of the UN Convention on Contracts for the International Sale of Goods is renounced.

Edition Jänner 2002

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