

**(Channeling
POWER)** 

|
HELUKABEL Cables & Wires
Your One-Stop Solution Provider

Icons

Approvals / Standards



UL



CSA



HAR



VDE REG Number



SPAIN



EAC



CCC



CE



DNV-GL



IPA



DESINA

Properties / Applications



Halogen-Free



UV Radiation



Robust



Drag Chain



Torsion



Wind-Offshore



Meter Marking



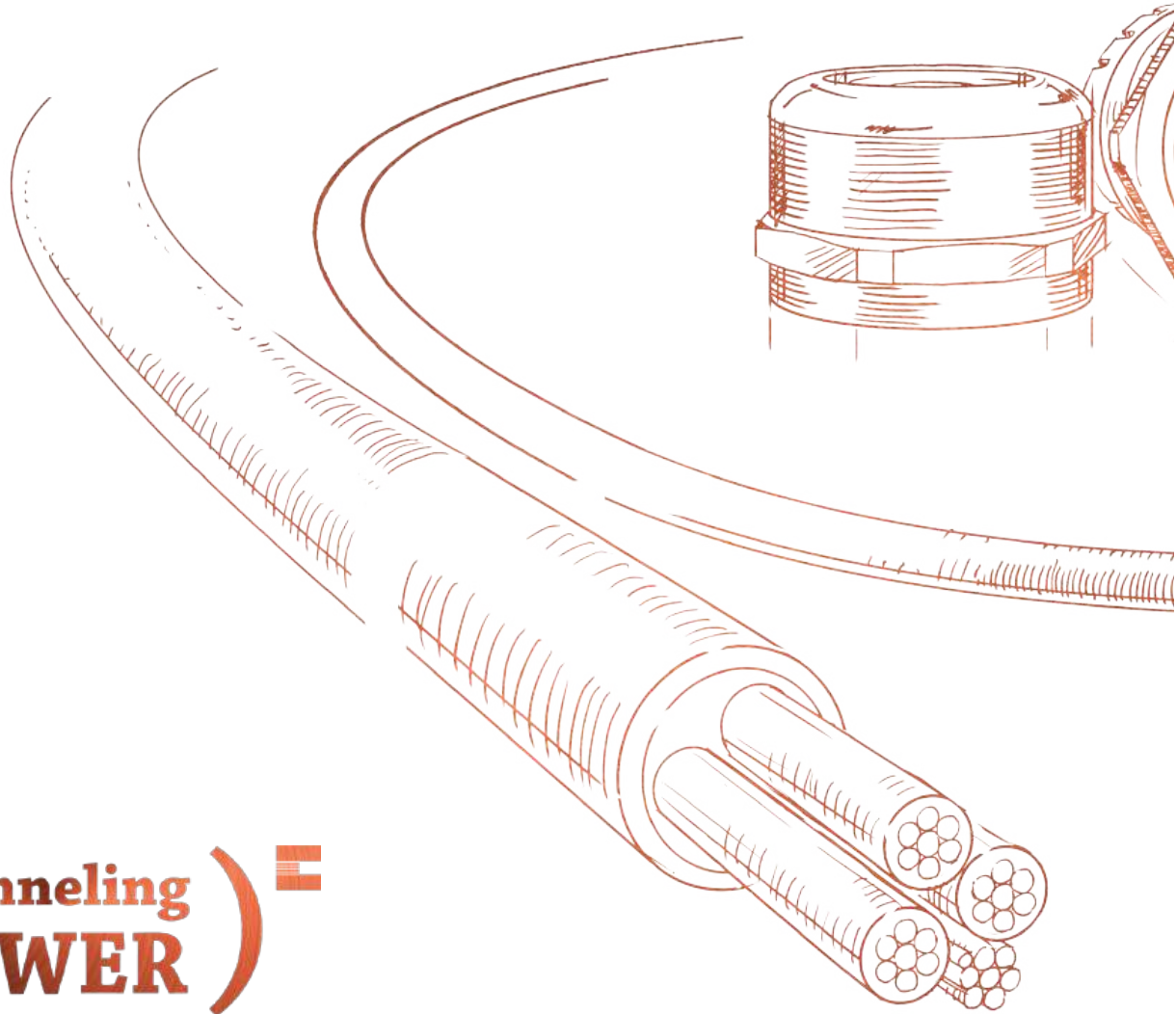
In Feet

Explanation of the icons used in the brochure:

The icons are intended to provide a general overview of material properties and certifications. For details, please refer to the information in the data sheets.

Contents

Content	Page
HELUKABEL – Channeling Power	02
HELUKABEL – Channeling Innovation	04
HELUKABEL – Channeling Logistics	06
HELUKABEL – Channeling Know-How	08
Flexible Control Cables	10
Data and Signal Cables	20
Allweather & Rubber Cables	26
Single Conductor Cables	28
Flat & ribbon Cables	32
Data Network & Bus Cables	33
Low Frequency Data Transmission Cables	36
Photovoltaic Cables & Connectors	42
Overview of Cables & Wires	47
Technical Information	51



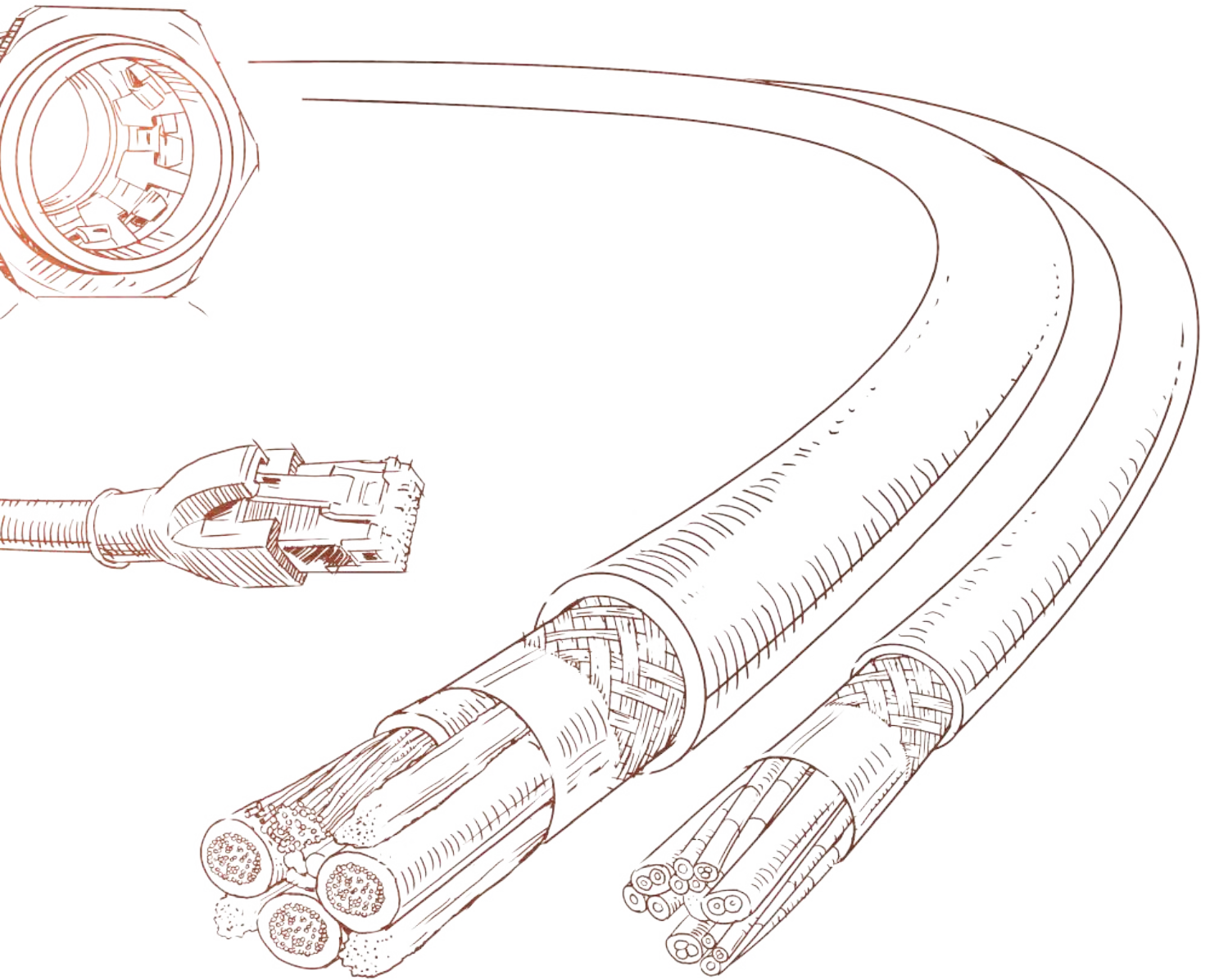
(Channeling POWER)

Cables are the vital supply lines of complex machines, plants, and systems. Whether operating under extreme mechanical stress, in the middle of the Arctic Ocean, in the scorching heat, or in the vastness of space – such conditions demonstrate what top-of-the-line cables can achieve.

We at HELUKABEL have made it our mission to bring energy and communication to our customers' destinations reliably and consistently at all times, and to make the

impossible, possible! "Channeling Power" succinctly summarizes this mission and is our commitment to customers.

Over 2,200 employees located at 63 sites across 39 countries work towards this common goal. We see it as our challenge to find the right cable solution for you every day, giving you the time to concentrate on more important things than cables and wires. This is where our products truly create value for you and your application.



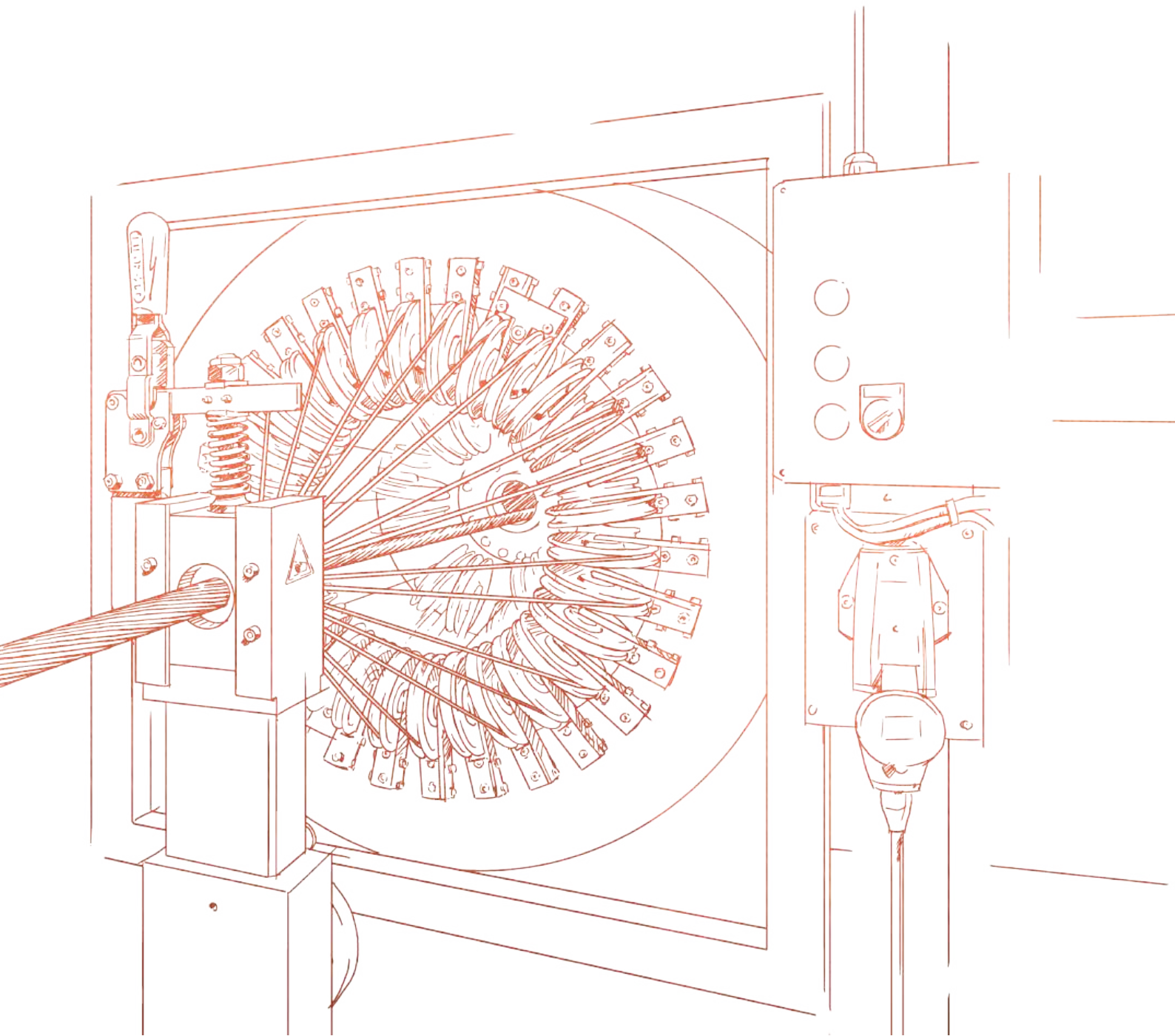
Channeling **INNOVATION**

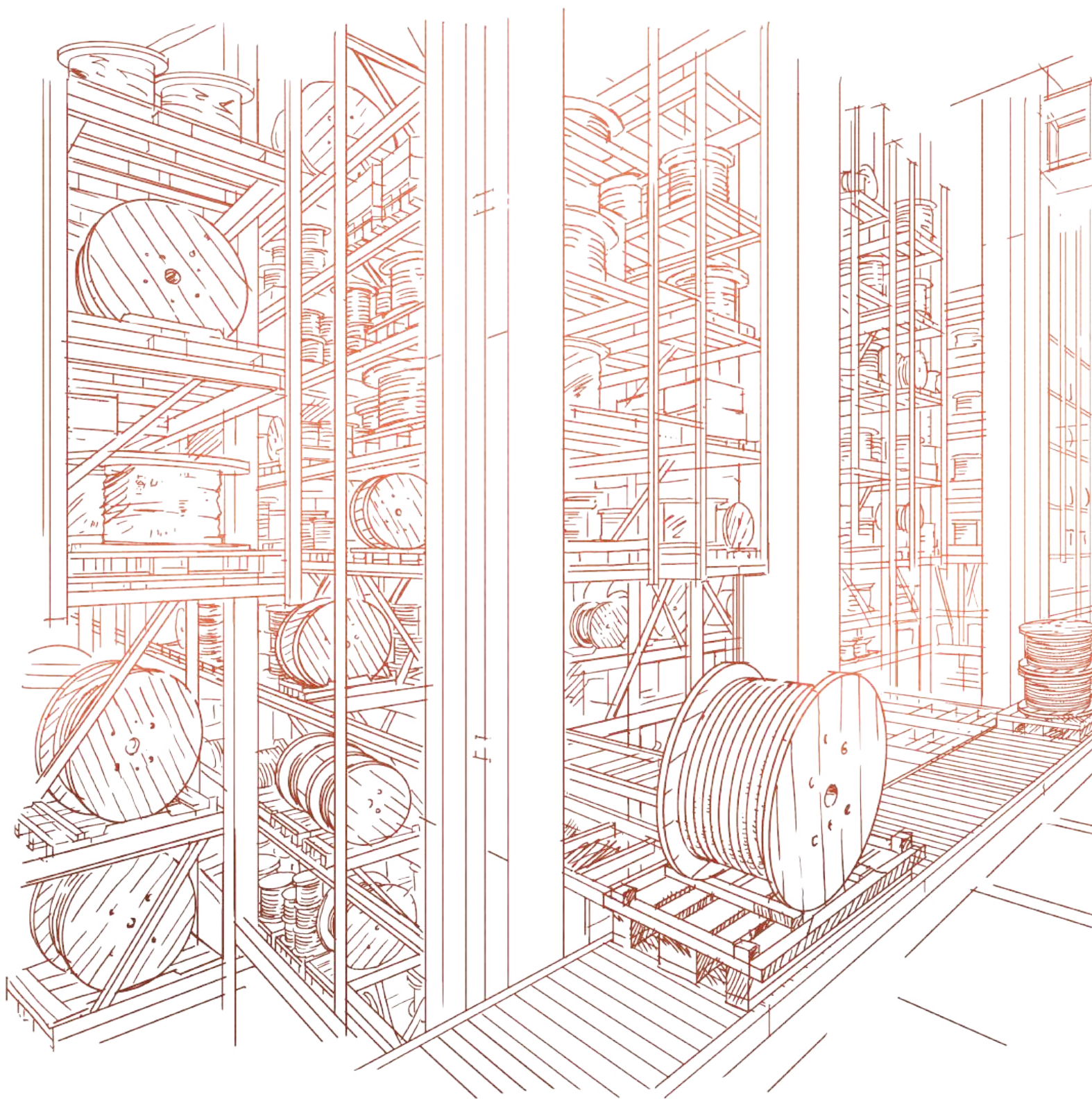


A cable is only as good as the minds that ask the right questions before it's made. We have a lot of bright minds at HELUKABEL who spend every day searching for intelligent answers. This is important because the challenges faced by modern cables and wires are multifaceted: for example, moving applications with more than ten million cycles, exposure to extreme mechanical and chemical loads, tricky bending radii and space-saving hybrid solutions. For each situation, HELUKABEL has answers

to help you. To ensure there are no issues during use, all newly developed products undergo rigorous testing at our R&D centre in Windsbach, near Nuremberg. Here we bend, pull, grind and ignite the cable for all it's worth. Our special aging ovens are time machines that simulate a cable's life cycle and far beyond. Our cables are tested to comply with national and international standards, and all results are signed and sealed.







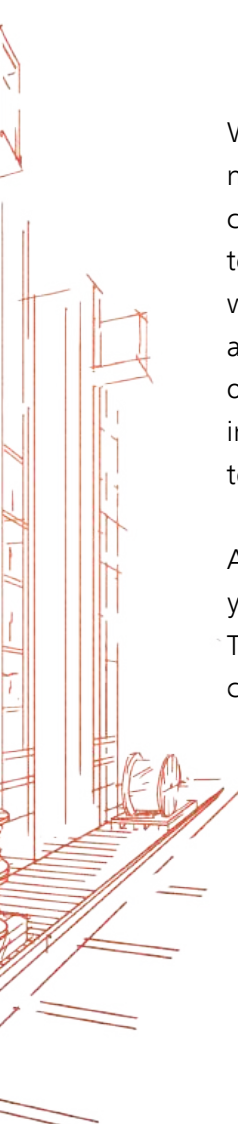
(Channeling LOGISTICS)



Where there's no cable there's no data nor electricity. When everything's going according to plan, cables are of little interest to anyone; but inevitably the day comes when a machine starts malfunctioning or a missing cable is holding up the completion of a project task. Whatever the situation in which problems occur, the time can be tense and critical for everyone involved.

At HELUKABEL, we try to remove the stress you're experiencing as quickly as possible. To this end, we built the biggest distribution centre for cable products in Europe.

With over 40,000 products stored in a fully automated, high-bay warehouse, we're ready to act upon your needs quickly and ship you the right cable at a moment's notice. Our "known shipper" status with the Federal Office of Civil Aviation means that your goods are checked in and pass security control directly at our warehouse, which speeds up the shipment process. On top of this, we have 32 additional warehouses on 5 continents so you can order your cables in Spanish, Russian, Chinese or in 23 other languages.



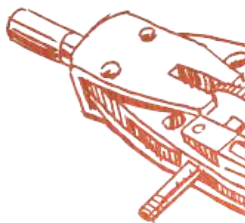
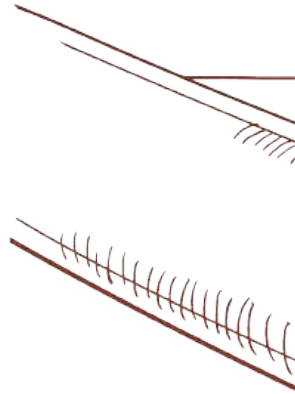
Channeling (KNOW-HOW)

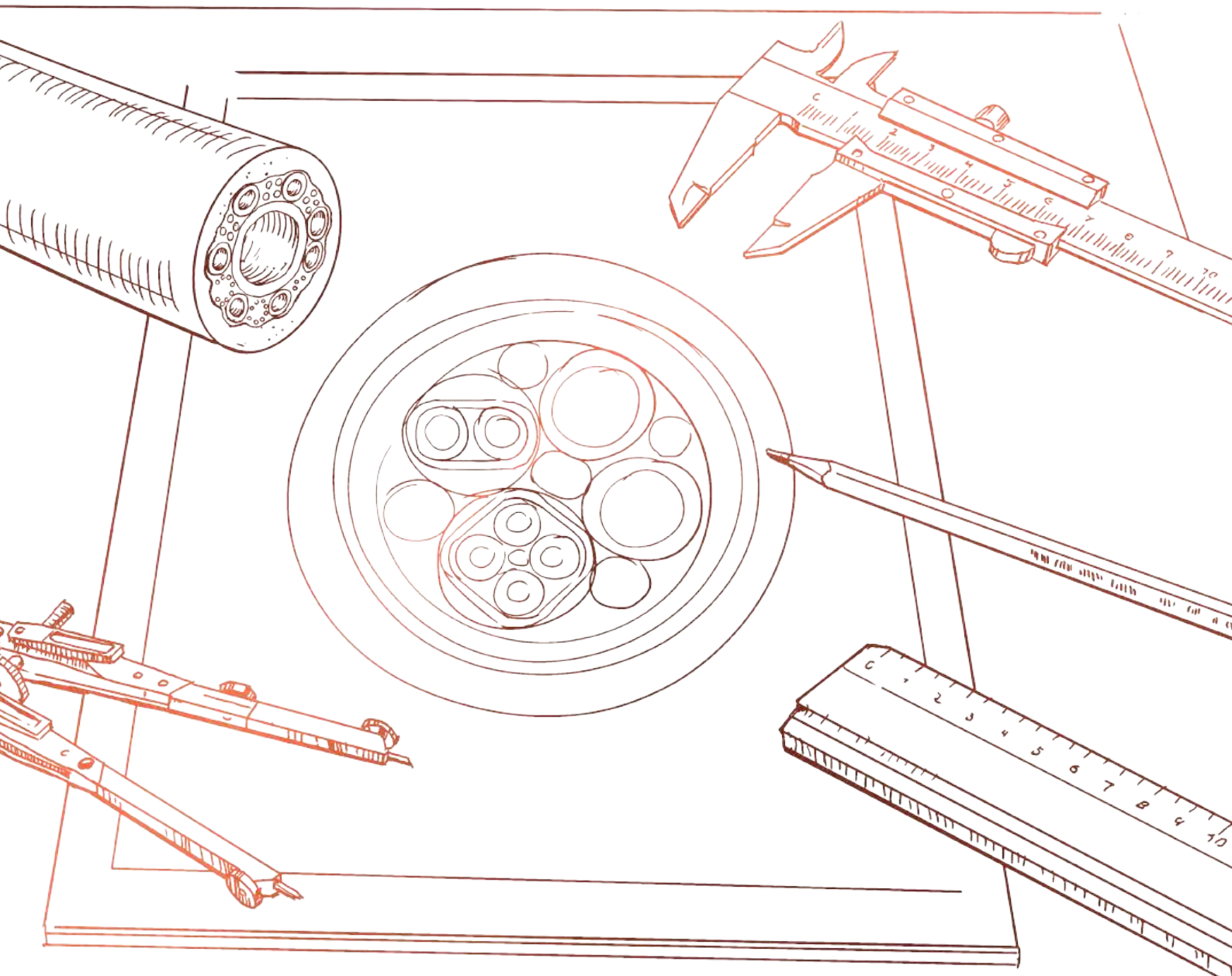
We are mighty proud of our portfolio of more than 33,000 stock items - and yet, among all these products, it still happens that a customer does not find the right solution for a specific application. Luckily, we have a strong backup plan for cases like these: HELUKABEL has in-house experienced specialists who can develop the optimum connection solution precisely tailored to your needs.

Depending on which electrical, chemical and mechanical properties your cable must fulfil in practice, we carefully determine all the parameters: from the cross-section of the conductor and its structure to the insulation and arrangement of the individual elements in the cable, to the shielding

and outer sheath. Only when a special cable truly meets all requirements are our engineers fully satisfied - so that you will be too. It's with this approach that we develop reliable solutions together with our customers, even for complex and unusual situations.

In such instances, the results range from small and inconspicuous to great and spectacular: special cables from HELUKABEL can be found, for example, in aerial ladders on fire engines, in sewer robots, tunnel boring machines, on oil platforms or in wind power and biogas plants. After all, when it comes to cables, wires and accessories, there's almost nothing we can't do.







HELUKABEL® <VDE-REG 7032> JZ-500 25G1,5 QMM / 10110 300/500 V CC

TECHNICAL DATA

PVC control and connection cable in alignment with DIN VDE 0285-525-2-51 / DIN EN 50525-2-51

Temperature range	flexible -15°C to +80°C fixed -40°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage core/core	4000 V
Breakdown voltage	8000 V
Minimum bending radius	flexible 7,5x Outer-Ø fixed 4x Outer-Ø

CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 class 5 / IEC 60228 class 5
- Core insulation: PVC, compound type Z 7225
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores,
G = with protective conductor GN-YE, in the outer layer,
x = without protective conductor (OZ)
- Cores stranded in layers with optimal lay lengths
- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)
- Sheath colour: grey (RAL 7001)
- Length marking: in metres

PROPERTIES

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10001	2 x 0.5	20	4.8	9.6	40.0
10002	3 G 0.5	20	5.1	14.4	46.0
10003	3 x 0.5	20	5.1	14.4	46.0
10004	4 G 0.5	20	5.5	19.0	56.0
10005	4 x 0.5	20	5.5	19.0	56.0
10006	5 G 0.5	20	6.2	24.0	65.0
10007	5 x 0.5	20	6.2	24.0	65.0
10008	6 G 0.5	20	6.7	29.0	75.0
10009	7 G 0.5	20	6.7	33.6	80.0
10010	7 x 0.5	20	6.7	33.6	80.0
10011	8 G 0.5	20	7.4	38.0	97.0
10172	8 x 0.5	20	7.4	38.0	97.0
10012	10 G 0.5	20	8.6	48.0	116.0
10013	12 G 0.5	20	9.1	58.0	135.0
10014	12 x 0.5	20	9.1	58.0	135.0
10015	14 G 0.5	20	9.5	67.0	150.0
10183	16 G 0.5	20	10.0	76.0	175.0
10016	18 G 0.5	20	10.7	86.0	196.0
10017	20 G 0.5	20	11.3	96.0	215.0
10018	21 G 0.5	20	11.3	101.0	240.0
10019	25 G 0.5	20	12.6	120.0	270.0
10020	30 G 0.5	20	13.5	144.0	310.0
10021	32 G 0.5	20	14.0	154.0	323.0
10022	34 G 0.5	20	14.7	163.0	362.0

- largely resistant to: oil, for details, see "Technical Information"
- conditionally suitable for drag chains
- conditionally torsional
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

APPLICATION

Used for flexible applications involving medium mechanical stress with free movement, without tensile stress and without forced motion control in dry, damp and wet rooms, however, not suitable for outdoor use. Used as a connection and control cable in machine tools, assembly lines and conveyor belts, production lines, in plant construction, air-conditioning technology, in smelters and steel mills. Select PVC compounds guarantee good flexibility, efficient and quick installation.

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- please note "cleanroom qualification" in your order
- VDE-Reg.-No. 7032

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10023	40 G 0.5	20	15.3	192.0	434.0
10024	42 G 0.5	20	15.8	202.0	449.0
10025	50 G 0.5	20	17.3	240.0	513.0
10169	52 G 0.5	20	17.3	252.0	534.0
10026	61 G 0.5	20	18.5	293.0	625.0
10027	65 G 0.5	20	19.2	312.0	682.0
10028	80 G 0.5	20	21.3	384.0	780.0
10029	100 G 0.5	20	23.8	480.0	980.0
10030	2 x 0.75	19	5.3	14.4	46.0
10031	3 G 0.75	19	5.6	21.6	54.0
10032	3 x 0.75	19	5.6	21.6	54.0
10033	4 G 0.75	19	6.3	28.8	66.0
10034	4 x 0.75	19	6.3	28.8	66.0
10035	5 G 0.75	19	6.9	36.0	80.0
10036	5 x 0.75	19	6.9	36.0	80.0
10037	6 G 0.75	19	7.7	43.0	99.0
10177	6 x 0.75	19	7.7	43.0	99.0
10038	7 G 0.75	19	7.7	50.0	110.0
10039	7 x 0.75	19	7.7	50.0	110.0
10040	8 G 0.75	19	8.3	58.0	130.0
10173	8 x 0.75	19	8.3	58.0	130.0
10041	9 G 0.75	19	9.1	65.0	153.0
10042	10 G 0.75	19	9.8	72.0	162.0
10043	12 G 0.75	19	10.1	86.0	179.0

JZ-500 / OZ-500



Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10044	12 x 0.75	19	10.1	86.0	179.0
10045	14 G 0.75	19	10.8	101.0	214.0
10046	15 G 0.75	19	11.4	108.0	218.0
10047	18 G 0.75	19	12.2	130.0	257.0
10533	19 G 0.75	19	12.2	137.0	264.0
10048	20 G 0.75	19	12.8	144.0	286.0
10049	21 G 0.75	19	12.8	151.0	320.0
10050	25 G 0.75	19	14.3	180.0	365.0
10534	27 G 0.75	19	14.5	195.0	382.0
10051	32 G 0.75	19	15.9	230.0	455.0
10052	34 G 0.75	19	16.7	245.0	510.0
10182	37 G 0.75	19	16.7	266.0	537.0
10053	40 G 0.75	19	17.3	288.0	595.0
10054	41 G 0.75	19	18.1	296.0	607.0
10055	42 G 0.75	19	18.1	302.0	612.0
10056	50 G 0.75	19	19.8	360.0	735.0
10057	61 G 0.75	19	21.2	439.0	845.0
10178	65 G 0.75	19	22.0	468.0	895.0
10058	80 G 0.75	19	24.3	576.0	1070.0
10059	100 G 0.75	19	27.1	720.0	1322.0
10060	2 x 1	18	5.6	19.2	60.0
10061	3 G 1	18	6.1	29.0	72.0
10062	3 x 1	18	6.1	29.0	72.0
10063	4 G 1	18	6.6	38.0	86.0
10064	4 x 1	18	6.6	38.0	86.0
10065	5 G 1	18	7.5	48.0	104.0
10066	5 x 1	18	7.5	48.0	104.0
10067	6 G 1	18	8.1	58.0	125.0
10068	7 G 1	18	8.1	67.0	141.0
10069	7 x 1	18	8.1	67.0	141.0
10070	8 G 1	18	9.0	77.0	175.0
10071	9 G 1	18	9.8	86.0	200.0
10180	10 G 1	18	10.6	96.0	217.0
10170	10 x 1	18	10.6	96.0	217.0
10072	12 G 1	18	10.9	115.0	230.0
10073	12 x 1	18	10.9	115.0	230.0
10074	14 G 1	18	11.5	134.0	271.0
10075	16 G 1	18	12.3	154.0	300.0
10076	18 G 1	18	12.9	173.0	343.0
10174	18 x 1	18	12.9	173.0	343.0
10197	19 G 1	18	12.9	182.0	355.0
10077	20 G 1	18	13.8	192.0	375.0
10184	20 x 1	18	13.8	192.0	375.0
10179	21 G 1	18	13.8	205.0	420.0
10175	24 G 1	18	15.4	230.0	440.0
10078	25 G 1	18	15.4	240.0	485.0
10176	25 x 1	18	15.4	240.0	485.0
10196	26 G 1	18	15.4	252.0	500.0
10198	27 G 1	18	15.4	259.0	534.0
10168	30 x 1	18	16.5	288.0	550.0
10079	34 G 1	18	17.9	326.0	650.0
10080	36 G 1	18	17.9	346.0	668.0
10199	37 G 1	18	17.9	355.0	701.0
10081	40 G 1	18	18.6	384.0	755.0
10167	40 x 1	18	18.6	384.0	755.0
10082	41 G 1	18	19.4	394.0	770.0
10083	42 G 1	18	19.4	403.0	810.0
10084	50 G 1	18	21.3	480.0	936.0
10085	56 G 1	18	22.1	538.0	920.0
10086	61 G 1	18	22.7	586.0	1100.0
10087	65 G 1	18	23.6	628.0	1180.0
10088	80 G 1	18	26.3	768.0	1294.0
10089	100 G 1	18	29.3	960.0	1644.0
10090	2 x 1.5	16	6.4	29.0	70.0
10091	3 G 1.5	16	6.8	43.0	90.0
10092	3 x 1.5	16	6.8	43.0	90.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10093	4 G 1.5	16	7.6	58.0	109.0
10094	4 x 1.5	16	7.6	58.0	109.0
10095	5 G 1.5	16	8.3	72.0	131.0
10096	5 x 1.5	16	8.3	72.0	131.0
10097	6 G 1.5	16	9.2	86.0	157.0
10098	7 G 1.5	16	9.2	101.0	184.0
10099	7 x 1.5	16	9.2	101.0	184.0
10100	8 G 1.5	16	10.1	115.0	216.0
11007735	8 x 1.5	16	10.1	115.0	216.0
10101	9 G 1.5	16	11.1	129.0	259.0
10181	10 G 1.5	16	12.0	144.0	275.0
10102	11 G 1.5	16	12.0	158.0	300.0
10103	12 G 1.5	16	12.4	173.0	309.0
10104	12 x 1.5	16	12.4	173.0	309.0
10105	14 G 1.5	16	13.0	202.0	345.0
10106	16 G 1.5	16	13.9	230.0	386.0
10107	18 G 1.5	16	14.8	259.0	440.0
10185	19 G 1.5	16	14.8	279.0	445.0
10108	20 G 1.5	16	15.6	288.0	490.0
10109	21 G 1.5	16	15.6	302.0	555.0
10110	25 G 1.5	16	17.6	360.0	620.0
10535	27 G 1.5	16	17.6	389.0	670.0
10111	32 G 1.5	16	19.5	461.0	790.0
10112	34 G 1.5	16	20.2	490.0	830.0
10536	37 G 1.5	16	20.2	533.0	892.0
10113	41 G 1.5	16	22.1	591.0	996.0
10114	42 G 1.5	16	22.1	605.0	1007.0
10115	50 G 1.5	16	24.2	720.0	1250.0
10116	56 G 1.5	16	25.1	806.0	1332.0
10117	61 G 1.5	16	25.8	878.0	1440.0
10187	65 G 1.5	16	26.9	936.0	1602.0
10118	80 G 1.5	16	29.8	1152.0	1871.0
10119	100 G 1.5	16	33.2	1440.0	2353.0
10120	2 x 2.5	14	7.8	48.0	112.0
10121	3 G 2.5	14	8.3	72.0	148.0
10122	3 x 2.5	14	8.3	72.0	148.0
10123	4 G 2.5	14	9.2	96.0	178.0
10124	4 x 2.5	14	9.2	96.0	178.0
10125	5 G 2.5	14	10.1	120.0	221.0
10126	5 x 2.5	14	10.1	120.0	221.0
10127	7 G 2.5	14	11.2	168.0	306.0
10128	7 x 2.5	14	11.2	168.0	306.0
10129	8 G 2.5	14	12.3	192.0	363.0
11007736	8 x 2.5	14	12.3	192.0	363.0
10548	10 G 2.5	14	14.8	240.0	429.0
10130	12 G 2.5	14	15.3	288.0	498.0
10131	14 G 2.5	14	16.2	336.0	569.0
10132	18 G 2.5	14	18.2	432.0	764.0
10133	21 G 2.5	14	19.4	504.0	914.0
10134	25 G 2.5	14	21.6	600.0	1044.0
10135	34 G 2.5	14	25.2	816.0	1470.0
10136	42 G 2.5	14	27.3	1008.0	1790.0
10137	50 G 2.5	14	30.0	1200.0	2095.0
10138	61 G 2.5	14	32.2	1464.0	2750.0
10139	100 G 2.5	14	41.4	2400.0	4450.0
10140	2 x 4	12	9.2	77.0	195.0
10141	3 G 4	12	9.7	115.0	230.0
10142	4 G 4	12	10.8	154.0	295.0
10143	5 G 4	12	12.1	192.0	361.0
10144	7 G 4	12	13.4	269.0	458.0
10145	8 G 4	12	14.7	307.0	590.0
10549	10 G 4	12	17.6	384.0	687.0
10146	12 G 4	12	18.2	461.0	790.0
10147	3 G 6	10	11.9	173.0	355.0
10148	4 G 6	10	13.2	230.0	424.0
10149	5 G 6	10	14.7	288.0	525.0

We reserve the right to make technical changes; the imprint in the image is purely exemplary

JZ-500 / OZ-500



Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10150	7 G 6	10	16.2	403.0	625.0
10151	3 G 10	8	14.8	288.0	540.0
10152	4 G 10	8	16.4	384.0	701.0
10153	5 G 10	8	18.3	480.0	858.0
10154	7 G 10	8	20.2	672.0	1106.0
10190	3 G 16	6	18.4	461.0	827.0
10155	4 G 16	6	20.4	614.0	1035.0
10156	5 G 16	6	22.8	768.0	1259.0
10157	7 G 16	6	25.2	1075.0	1780.0
10191	3 G 25	4	22.4	720.0	1186.0
10158	4 G 25	4	25.1	960.0	1582.0
10159	5 G 25	4	27.9	1200.0	1999.0
10160	7 G 25	4	30.8	1680.0	2825.0
10192	3 G 35	2	25.2	1008.0	1585.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
10161	4 G 35	2	27.9	1344.0	2105.0
10162	5 G 35	2	31.0	1680.0	2633.0
10193	3 G 50	1	29.9	1440.0	2550.0
10163	4 G 50	1	33.0	1920.0	2940.0
10188	5 G 50	1	37.0	2400.0	2936.0
10194	3 G 70	2/0	34.1	2016.0	3180.0
10164	4 G 70	2/0	37.9	2688.0	4090.0
10189	5 G 70	2/0	42.4	3360.0	5443.0
10195	3 G 95	3/0	39.6	2736.0	4680.0
10165	4 G 95	3/0	43.9	3648.0	5540.0
10333	5 G 95	3/0	49.0	4560.0	6931.0
10166	4 G 120	4/0	48.8	4608.0	7000.0
13139	4 G 150	300 kcmil	54.4	5760.0	8340.0
13140	4 G 185	350 kcmil	62.3	7104.0	9904.0

We reserve the right to make technical changes; the imprint in the image is purely exemplary



HELUKABEL® YSLY 300/500V 25 G 1,5 QMM ROHS CC

TECHNICAL DATA

PVC control and connection cable in alignment with DIN VDE 0285-525-2-51 / DIN EN 50525-2-51

Temperature range	flexible -15°C to +80°C fixed -40°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage core/core	4000 V
Breakdown voltage	8000 V
Minimum bending radius	flexible 7,5x Outer-Ø fixed 4x Outer-Ø

CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 class 5 / IEC 60228 class 5
- Core insulation: PVC, compound type Z 7225
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor (OZ)
- Cores stranded in layers with optimal lay lengths
- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)
- Sheath colour: grey (RAL 7001)
- Length marking: in metres

PROPERTIES

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11009830	2 x 0.5	20	4.8	9.6	40.0
11009831	3 G 0.5	20	5.1	14.4	46.0
11009832	3 x 0.5	20	5.1	14.4	46.0
11009833	4 G 0.5	20	5.5	19.0	56.0
11009834	4 x 0.5	20	5.5	19.0	56.0
11009835	5 G 0.5	20	6.2	24.0	65.0
11009836	5 x 0.5	20	6.2	24.0	65.0
18024501	6 G 0.5	20	6.7	29.0	75.0
11009837	7 G 0.5	20	6.7	33.6	80.0
18024504	7 x 0.5	20	6.7	33.6	80.0
11009839	8 G 0.5	20	7.4	38.0	97.0
18024505	8 x 0.5	20	7.4	38.0	97.0
18024500	10 G 0.5	20	8.6	48.0	116.0
11009841	12 G 0.5	20	9.1	58.0	135.0
18024506	12 x 0.5	20	9.1	58.0	135.0
18024508	14 G 0.5	20	9.5	67.0	150.0
18024510	16 G 0.5	20	10.0	76.0	175.0
11009847	18 G 0.5	20	10.7	86.0	196.0
18024513	20 G 0.5	20	11.3	96.0	215.0
11009853	21 G 0.5	20	11.3	101.0	240.0
11009857	25 G 0.5	20	12.6	120.0	270.0
18024502	30 G 0.5	20	13.5	144.0	310.0
18024514	32 G 0.5	20	14.0	154.0	323.0
18024515	34 G 0.5	20	14.7	163.0	362.0

- largely resistant to: oil, for details, see "Technical Information"
- conditionally suitable for drag chains
- conditionally torsional
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

APPLICATION

Used for flexible applications involving medium mechanical stress with free movement, without tensile stress and without forced motion control in dry, damp and wet rooms, however, not suitable for outdoor use. Used as a connection and control cable in machine tools, assembly lines and conveyor belts, production lines, in plant construction, air-conditioning technology, in smelters and steel mills. Select PVC compounds guarantee good flexibility, efficient and quick installation.

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- please note "cleanroom qualification" in your order

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024516	40 G 0.5	20	15.3	192.0	434.0
18024517	42 G 0.5	20	15.8	202.0	449.0
18024522	50 G 0.5	20	17.3	240.0	513.0
18024523	52 G 0.5	20	17.3	252.0	534.0
18024524	61 G 0.5	20	18.5	293.0	625.0
18024525	65 G 0.5	20	19.2	312.0	682.0
18024526	80 G 0.5	20	21.3	384.0	780.0
18024527	100 G 0.5	20	23.8	480.0	980.0
11009859	2 x 0.75	19	5.3	14.4	46.0
11009860	3 G 0.75	19	5.6	21.6	54.0
11009861	3 x 0.75	19	5.6	21.6	54.0
11009862	4 G 0.75	19	6.3	28.8	66.0
11009863	4 x 0.75	19	6.3	28.8	66.0
11009864	5 G 0.75	19	6.9	36.0	80.0
18024528	5 x 0.75	19	6.9	36.0	80.0
18024531	6 G 0.75	19	7.7	43.0	99.0
18024532	6 x 0.75	19	7.7	43.0	99.0
11009866	7 G 0.75	19	7.7	50.0	110.0
18024533	7 x 0.75	19	7.7	50.0	110.0
18024534	8 G 0.75	19	8.3	58.0	130.0
18024535	8 x 0.75	19	8.3	58.0	130.0
18024536	9 G 0.75	19	9.1	65.0	153.0
18024503	10 G 0.75	19	9.8	72.0	162.0
11009870	12 G 0.75	19	10.1	86.0	179.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024537	12 x 0.75	19	10.1	86.0	179.0
18024538	14 G 0.75	19	10.8	101.0	214.0
18024539	15 G 0.75	19	11.4	108.0	216.0
11009874	16 G 0.75	19	11.4	115.2	219.0
11009876	18 G 0.75	19	12.2	130.0	257.0
18024541	19 G 0.75	19	12.2	137.0	264.0
18024542	20 G 0.75	19	12.8	144.0	286.0
11009882	21 G 0.75	19	12.8	151.0	320.0
11009886	25 G 0.75	19	14.3	180.0	365.0
18024545	27 G 0.75	19	14.5	195.0	382.0
18024546	32 G 0.75	19	15.9	230.0	455.0
18024547	34 G 0.75	19	16.7	245.0	510.0
18024548	37 G 0.75	19	16.7	266.0	537.0
18024549	40 G 0.75	19	17.3	288.0	595.0
18024550	41 G 0.75	19	18.1	296.0	607.0
18024551	42 G 0.75	19	18.1	302.0	612.0
18024552	50 G 0.75	19	19.8	360.0	735.0
18024553	61 G 0.75	19	21.2	439.0	845.0
18024554	65 G 0.75	19	22.0	468.0	895.0
18024555	80 G 0.75	19	24.3	576.0	1070.0
18024556	100 G 0.75	19	27.1	720.0	1322.0
11009888	2 x 1	18	5.6	19.2	60.0
11009889	3 G 1	18	6.1	29.0	72.0
11009890	3 x 1	18	6.1	29.0	72.0
11009891	4 G 1	18	6.6	38.0	86.0
11009892	4 x 1	18	6.6	38.0	86.0
11009893	5 G 1	18	7.5	48.0	104.0
11009894	5 x 1	18	7.5	48.0	104.0
18024509	6 G 1	18	8.1	58.0	125.0
11009895	7 G 1	18	8.1	67.0	141.0
11009896	7 x 1	18	8.1	67.0	141.0
11009897	8 G 1	18	9.0	77.0	175.0
18024557	9 G 1	18	9.8	86.0	200.0
18024511	10 G 1	18	10.6	96.0	217.0
18024512	10 x 1	18	10.6	96.0	217.0
11009899	12 G 1	18	10.9	115.0	230.0
11009900	12 x 1	18	10.9	115.0	230.0
18024559	14 G 1	18	11.5	134.0	271.0
18024561	16 G 1	18	12.3	154.0	300.0
11009905	18 G 1	18	12.9	173.0	343.0
18024562	18 x 1	18	12.9	173.0	343.0
18024563	19 G 1	18	12.9	182.0	355.0
18024564	20 G 1	18	13.8	192.0	375.0
18024565	20 x 1	18	13.8	192.0	375.0
11009911	21 G 1	18	13.8	205.0	420.0
18024566	24 G 1	18	15.4	230.0	440.0
11009915	25 G 1	18	15.4	240.0	485.0
18024567	25 x 1	18	15.4	240.0	485.0
18025047	26 G 1	18	15.4	252.0	500.0
18024568	27 G 1	18	15.4	259.0	534.0
18024569	30 x 1	18	16.5	288.0	550.0
18024518	34 G 1	18	17.9	326.0	650.0
18024570	36 G 1	18	17.9	346.0	668.0
18024571	37 G 1	18	17.9	355.0	701.0
18024572	40 G 1	18	18.6	384.0	755.0
18024573	40 x 1	18	18.6	384.0	755.0
18024579	41 G 1	18	19.4	394.0	770.0
18024580	42 G 1	18	19.4	403.0	810.0
18024581	50 G 1	18	21.3	480.0	936.0
18024582	56 G 1	18	22.1	538.0	920.0
18024583	61 G 1	18	22.7	586.0	1100.0
18024584	65 G 1	18	23.6	628.0	1180.0
18024585	80 G 1	18	26.3	768.0	1294.0
18024984	100 G 1	18	29.3	960.0	1644.0
11009917	2 x 1.5	16	6.4	29.0	70.0
11009918	3 G 1.5	16	6.8	43.0	90.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11009919	3 x 1.5	16	6.8	43.0	90.0
11009920	4 G 1.5	16	7.6	58.0	109.0
11009921	4 x 1.5	16	7.6	58.0	109.0
11009922	5 G 1.5	16	8.3	72.0	131.0
18024985	5 x 1.5	16	8.3	72.0	131.0
18024519	6 G 1.5	16	9.2	86.0	157.0
11009924	7 G 1.5	16	9.2	101.0	184.0
11009925	7 x 1.5	16	9.2	101.0	184.0
11009926	8 G 1.5	16	10.1	115.0	216.0
18024986	8 x 1.5	16	10.1	115.0	216.0
18024520	9 G 1.5	16	11.1	129.0	259.0
18024521	10 G 1.5	16	12.0	144.0	275.0
18024987	11 G 1.5	16	12.0	158.0	300.0
11009928	12 G 1.5	16	12.4	173.0	309.0
18024988	12 x 1.5	16	12.4	173.0	309.0
11009930	14 G 1.5	16	13.0	202.0	345.0
11009932	16 G 1.5	16	13.9	230.0	386.0
11009934	18 G 1.5	16	14.8	259.0	440.0
18024989	19 G 1.5	16	14.8	279.0	445.0
18024990	20 G 1.5	16	15.6	288.0	490.0
11009940	21 G 1.5	16	15.6	302.0	555.0
11009944	25 G 1.5	16	17.6	360.0	620.0
18024991	27 G 1.5	16	17.6	389.0	670.0
18024529	32 G 1.5	16	19.5	461.0	790.0
18024992	34 G 1.5	16	20.2	490.0	830.0
18024993	37 G 1.5	16	20.2	533.0	892.0
18024994	41 G 1.5	16	22.1	591.0	996.0
18024995	42 G 1.5	16	22.1	605.0	1007.0
18024996	50 G 1.5	16	24.2	720.0	1250.0
18024997	56 G 1.5	16	25.1	806.0	1332.0
18024998	61 G 1.5	16	25.8	878.0	1440.0
18024999	65 G 1.5	16	26.9	936.0	1602.0
18025000	80 G 1.5	16	29.8	1152.0	1871.0
18025001	100 G 1.5	16	33.2	1440.0	2353.0
11009946	2 x 2.5	14	7.8	48.0	112.0
11009947	3 G 2.5	14	8.3	72.0	148.0
18025002	3 x 2.5	14	8.3	72.0	148.0
11009949	4 G 2.5	14	9.2	96.0	178.0
18025003	4 x 2.5	14	9.2	96.0	178.0
11009951	5 G 2.5	14	10.1	120.0	221.0
18025004	5 x 2.5	14	10.1	120.0	221.0
11009953	7 G 2.5	14	11.2	168.0	306.0
18025005	7 x 2.5	14	11.2	168.0	306.0
11009955	8 G 2.5	14	12.3	192.0	363.0
18025006	8 x 2.5	14	12.3	192.0	363.0
18025007	10 G 2.5	14	14.8	240.0	429.0
11009957	12 G 2.5	14	15.3	288.0	498.0
18025008	14 G 2.5	14	16.2	336.0	569.0
18025009	18 G 2.5	14	18.2	432.0	764.0
18025010	21 G 2.5	14	19.4	504.0	914.0
18025011	25 G 2.5	14	21.6	600.0	1044.0
18025012	34 G 2.5	14	25.2	816.0	1470.0
18025013	42 G 2.5	14	27.3	1008.0	1790.0
18025014	50 G 2.5	14	30.0	1200.0	2095.0
18025015	61 G 2.5	14	32.2	1464.0	2750.0
18025016	100 G 2.5	14	41.4	2400.0	4450.0
18025017	2 x 4	12	9.2	77.0	195.0
11009975	3 G 4	12	9.7	115.0	230.0
11009976	4 G 4	12	10.8	154.0	295.0
11009977	5 G 4	12	12.1	192.0	361.0
18025018	7 G 4	12	13.4	269.0	458.0
18025019	8 G 4	12	14.7	307.0	590.0
18025020	10 G 4	12	17.6	384.0	687.0
18025021	12 G 4	12	18.2	461.0	790.0
18025022	3 G 6	10	11.9	173.0	355.0
11009979	4 G 6	10	13.2	230.0	424.0

We reserve the right to make technical changes; the imprint in the image is purely exemplary

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024574	5 G 6	10	14.7	288.0	525.0
18025023	7 G 6	10	16.2	403.0	625.0
18025024	3 G 10	8	14.8	288.0	540.0
18024575	4 G 10	8	16.4	384.0	701.0
18024578	5 G 10	8	18.3	480.0	858.0
18025025	7 G 10	8	20.2	672.0	1106.0
18025026	3 G 16	6	18.4	461.0	827.0
18024576	4 G 16	6	20.4	614.0	1035.0
18025027	5 G 16	6	22.8	768.0	1259.0
18025028	7 G 16	6	25.2	1075.0	1780.0
18025029	3 G 25	4	22.4	720.0	1186.0
18024577	4 G 25	4	25.1	960.0	1582.0
18025030	5 G 25	4	27.9	1200.0	1999.0
18025031	7 G 25	4	30.8	1680.0	2825.0
18025032	3 G 35	2	25.2	1008.0	1585.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18025033	4 G 35	2	27.9	1344.0	2105.0
18025034	5 G 35	2	31.0	1680.0	2633.0
18025035	3 G 50	1	29.9	1440.0	2550.0
18025036	4 G 50	1	33.0	1920.0	2940.0
18025037	5 G 50	1	37.0	2400.0	2936.0
18025038	3 G 70	2/0	34.1	2016.0	3180.0
18025039	4 G 70	2/0	37.9	2688.0	4090.0
18025040	5 G 70	2/0	42.4	3360.0	5443.0
18025041	3 G 95	3/0	39.6	2736.0	4680.0
18025042	4 G 95	3/0	43.9	3648.0	5540.0
18025043	5 G 95	3/0	49.0	4560.0	6931.0
18025044	4 G 120	4/0	48.8	4608.0	7000.0
18025045	4 G 150	300 kcmil	54.4	5760.0	8340.0
18025046	4 G 185	350 kcmil	62.3	7104.0	9904.0

F-CY-JZ / F-CY-OZ / F-DY-OZ

EMC-preferred type



HELUKABEL® <VDE-REG 7034> F-CY-JZ 7G0,75 QMM / 16349 300/500 V CE

TECHNICAL DATA

PVC control and connection cable in alignment with DIN VDE 0285-525-2-51 / DIN EN 50525-2-51

Temperature range	flexible -10°C to +80°C fixed -40°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage core/core	4000 V
Test voltage core/screen	2000 V
Breakdown voltage	8000 V
Mutual capacitance core/core	at 800 Hz 0.5 - 2.5 mm ² : approx. 150 pF/m
Mutual capacitance core/screen	at 800 Hz 0.5 - 2.5 mm ² : approx. 270 pF/m
Coupling resistance	at 30 MHz, approx. 250 Ohm/km
Minimum bending radius	flexible 10x Outer-Ø fixed 5x Outer-Ø

■ CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: PVC, compound type Z 7225
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor (OZ)
- Cores stranded in layers with optimal lay lengths
- Foil wrapping
- Screen:
 - 1 core(s): helically wound tinned copper wires, approx. coverage 85 %
 - 2 - 100 core(s): braided screen of tinned copper wires, approx. coverage 85 %
- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)

F-DY-OZ, helically wound tinned copper wires

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16531	1 x 0.5	20	3.7	15.0	41.0
16557	1 x 0.75	19	4.0	19.0	44.0
16050	1 x 1	18	4.1	21.0	47.0

F-CY-JZ / F-CY-OZ, braided screen of tinned copper wires

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16320	2 x 0.5	20	5.7	35.0	45.0

- Sheath colour: grey (RAL 7001)
- Length marking: in metres

■ PROPERTIES

- largely resistant to: oil, for details, see "Technical Information"
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

■ APPLICATION

For flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not outside; to be used as control and connecting cable in control and regulation technology, in the tool and machine building industry, in computer systems, as well as a signal cable in the electronic industry. A stabilizing foil separator between wire bound and braid reduces the outer diameter essentially and allows for smaller bending radius as well as lower weights. The disturbance free transmission of signals and impulses is ensured due to the high degree of screening. EMC = Electromagnetic Compatibility; in order to optimise EMC properties, we recommend a double-sided and all-round large contact area of the copper braiding.

■ NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- please note "cleanroom qualification" in your order
- 2 - 100 core(s): VDE-Reg.-No. 7034

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16074	1 x 1.5	16	4.4	27.0	70.0
16097	1 x 2.5	14	5.2	39.0	50.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16321	3 G 0.5	20	6.0	42.0	55.0

F-CY-JZ / F-CY-OZ / F-DY-OZ

EMC-preferred type



F-CY-JZ / F-CY-OZ, braided screen of tinned copper wires

Part no.	No. cores x cross-sec. mm²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16533	3 x 0.5	20	6.0	42.0	55.0
16322	4 G 0.5	20	6.5	47.0	61.0
16534	4 x 0.5	20	6.5	47.0	61.0
16323	5 G 0.5	20	6.9	56.0	74.0
16535	5 x 0.5	20	6.9	56.0	74.0
16324	6 G 0.5	20	7.6	67.0	89.0
16536	6 x 0.5	20	7.6	67.0	89.0
16325	7 G 0.5	20	7.6	69.0	98.0
16537	7 x 0.5	20	7.6	69.0	98.0
16326	8 G 0.5	20	8.4	80.0	117.0
16538	8 x 0.5	20	8.4	80.0	117.0
16327	10 G 0.5	20	9.5	94.0	135.0
16539	10 x 0.5	20	9.5	94.0	135.0
16328	12 G 0.5	20	9.8	108.0	157.0
16540	12 x 0.5	20	9.8	108.0	157.0
16329	14 G 0.5	20	10.4	116.0	190.0
16541	14 x 0.5	20	10.4	116.0	190.0
16330	16 G 0.5	20	10.9	129.0	210.0
16542	16 x 0.5	20	10.9	129.0	210.0
16331	18 G 0.5	20	11.4	145.0	217.0
16543	18 x 0.5	20	11.4	145.0	217.0
16332	20 G 0.5	20	12.2	172.0	240.0
16544	20 x 0.5	20	12.2	172.0	240.0
16333	21 G 0.5	20	12.2	188.0	250.0
16545	21 x 0.5	20	12.2	188.0	250.0
16334	24 G 0.5	20	13.7	235.0	300.0
16546	24 x 0.5	20	13.7	235.0	300.0
16335	25 G 0.5	20	13.7	240.0	314.0
16547	25 x 0.5	20	13.7	240.0	314.0
16336	30 G 0.5	20	14.4	295.0	360.0
16548	30 x 0.5	20	14.4	295.0	360.0
16337	32 G 0.5	20	15.1	301.0	425.0
16549	32 x 0.5	20	15.1	301.0	425.0
16165	34 G 0.5	20	15.6	312.0	433.0
16550	34 x 0.5	20	15.6	312.0	433.0
16338	36 G 0.5	20	15.6	318.0	446.0
16551	36 x 0.5	20	15.6	318.0	446.0
16339	40 G 0.5	20	16.4	343.0	475.0
16552	40 x 0.5	20	16.4	343.0	475.0
16490	41 G 0.5	20	17.0	348.0	486.0
16340	50 G 0.5	20	18.5	406.0	573.0
16553	50 x 0.5	20	18.5	406.0	573.0
16341	61 G 0.5	20	19.6	508.0	653.0
16554	61 x 0.5	20	19.6	508.0	653.0
16342	80 G 0.5	20	22.5	680.0	784.0
16555	80 x 0.5	20	22.5	680.0	784.0
16343	100 G 0.5	20	25.0	804.0	995.0
16556	100 x 0.5	20	25.0	804.0	995.0
16344	2 x 0.75	19	6.2	40.0	59.0
16345	3 G 0.75	19	6.6	52.0	66.0
16559	3 x 0.75	19	6.6	52.0	66.0
16346	4 G 0.75	19	7.1	60.0	77.0
16560	4 x 0.75	19	7.1	60.0	77.0
16347	5 G 0.75	19	7.8	71.0	93.0
16561	5 x 0.75	19	7.8	71.0	93.0
16348	6 G 0.75	19	8.4	80.0	113.0
16562	6 x 0.75	19	8.4	80.0	113.0
16349	7 G 0.75	19	8.4	91.0	130.0
16563	7 x 0.75	19	8.4	91.0	130.0
16350	8 G 0.75	19	9.5	110.0	145.0
16564	8 x 0.75	19	9.5	110.0	145.0
16351	10 G 0.75	19	10.7	137.0	180.0
16565	10 x 0.75	19	10.7	137.0	180.0
16353	12 G 0.75	19	11.1	142.0	202.0

Part no.	No. cores x cross-sec. mm²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16566	12 x 0.75	19	11.1	142.0	202.0
16354	14 G 0.75	19	11.5	180.0	225.0
16567	14 x 0.75	19	11.5	180.0	225.0
16355	16 G 0.75	19	12.3	200.0	275.0
16568	16 x 0.75	19	12.3	200.0	275.0
16356	18 G 0.75	19	12.9	212.0	292.0
16569	18 x 0.75	19	12.9	212.0	292.0
16447	19 G 0.75	19	12.9	230.0	308.0
16570	19 x 0.75	19	12.9	230.0	308.0
16357	20 G 0.75	19	13.9	238.0	320.0
16571	20 x 0.75	19	13.9	238.0	320.0
16358	21 G 0.75	19	13.9	246.0	378.0
16572	21 x 0.75	19	13.9	246.0	378.0
16359	24 G 0.75	19	15.4	270.0	435.0
16573	24 x 0.75	19	15.4	270.0	435.0
16360	25 G 0.75	19	15.4	281.0	415.0
16574	25 x 0.75	19	15.4	281.0	415.0
16361	27 G 0.75	19	15.7	304.0	435.0
16575	27 x 0.75	19	15.7	304.0	435.0
16362	30 G 0.75	19	16.4	320.0	450.0
16576	30 x 0.75	19	16.4	320.0	450.0
16363	32 G 0.75	19	17.0	342.0	484.0
16577	32 x 0.75	19	17.0	342.0	484.0
16166	34 G 0.75	19	17.8	345.0	502.0
16578	34 x 0.75	19	17.8	345.0	502.0
16364	36 G 0.75	19	17.8	350.0	535.0
16579	36 x 0.75	19	17.8	350.0	535.0
16448	37 G 0.75	19	17.8	361.0	592.0
16580	37 x 0.75	19	17.8	361.0	592.0
16365	40 G 0.75	19	18.4	369.0	610.0
16581	40 x 0.75	19	18.4	369.0	610.0
16491	41 G 0.75	19	19.3	400.0	622.0
16366	50 G 0.75	19	21.0	461.0	777.0
16582	50 x 0.75	19	21.0	461.0	777.0
16367	61 G 0.75	19	22.3	540.0	900.0
16583	61 x 0.75	19	22.3	540.0	900.0
16368	80 G 0.75	19	25.7	711.0	1210.0
16584	80 x 0.75	19	25.7	711.0	1210.0
16369	100 G 0.75	19	28.5	900.0	1445.0
16585	100 x 0.75	19	28.5	900.0	1445.0
16370	2 x 1	18	6.5	50.0	65.0
16371	3 G 1	18	6.9	60.0	80.0
16052	3 x 1	18	6.9	60.0	81.0
16372	4 G 1	18	7.6	71.0	98.0
16053	4 x 1	18	7.6	71.0	98.0
16373	5 G 1	18	8.2	88.0	127.0
16054	5 x 1	18	8.2	88.0	127.0
16374	6 G 1	18	9.0	97.0	144.0
16055	6 x 1	18	9.0	97.0	144.0
16375	7 G 1	18	9.0	111.0	158.0
16056	7 x 1	18	9.0	111.0	158.0
16376	8 G 1	18	10.0	127.0	197.0
16057	8 x 1	18	10.0	127.0	197.0
16377	10 G 1	18	11.3	150.0	232.0
16058	10 x 1	18	11.3	150.0	232.0
16378	12 G 1	18	11.9	184.0	260.0
16059	12 x 1	18	11.9	184.0	260.0
16379	14 G 1	18	12.4	196.0	302.0
16060	14 x 1	18	12.4	196.0	302.0
16380	16 G 1	18	13.0	209.0	346.0
16061	16 x 1	18	13.0	209.0	345.0
16381	18 G 1	18	14.0	260.0	380.0
16062	18 x 1	18	14.0	260.0	380.0
16352	19 G 1	18	14.0	280.0	412.0

We reserve the right to make technical changes; the imprint in the image is purely exemplary

Continued on next page

F-CY-JZ / F-CY-OZ / F-DY-OZ

EMC-preferred type



F-CY-JZ / F-CY-OZ, braided screen of tinned copper wires

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16382	20 G 1	18	14.9	317.0	440.0
16063	20 x 1	18	14.9	317.0	440.0
16383	24 G 1	18	16.5	320.0	493.0
16064	24 x 1	18	16.5	320.0	495.0
16384	25 G 1	18	16.5	349.0	534.0
16065	25 x 1	18	16.5	349.0	534.0
16439	27 G 1	18	16.9	400.0	562.0
16385	28 G 1	18	17.6	408.0	595.0
16066	28 x 1	18	17.6	408.0	595.0
16386	30 G 1	18	17.6	441.0	616.0
16067	30 x 1	18	17.6	441.0	616.0
16387	34 G 1	18	19.0	486.0	741.0
16068	34 x 1	18	19.0	486.0	741.0
16446	37 G 1	18	19.0	519.0	790.0
16388	40 G 1	18	19.7	510.0	835.0
16069	40 x 1	18	19.7	510.0	835.0
16492	41 G 1	18	20.6	531.0	843.0
16389	50 G 1	18	22.4	625.0	1025.0
16070	50 x 1	18	22.4	625.0	1025.0
16390	61 G 1	18	23.8	702.0	1205.0
16071	61 x 1	18	23.8	702.0	1200.0
16391	80 G 1	18	27.4	920.0	1445.0
16072	80 x 1	18	27.4	920.0	1440.0
16392	100 G 1	18	30.6	1120.0	1613.0
16073	100 x 1	18	30.6	1120.0	1610.0
16393	2 x 1.5	16	7.1	63.0	88.0
16394	3 G 1.5	16	7.7	80.0	100.0
16076	3 x 1.5	16	7.7	80.0	100.0
16395	4 G 1.5	16	8.3	97.0	126.0
16077	4 x 1.5	16	8.3	97.0	126.0
16396	5 G 1.5	16	9.2	119.0	160.0
16078	5 x 1.5	16	9.2	119.0	160.0
16397	7 G 1.5	16	9.9	147.0	208.0
16079	7 x 1.5	16	9.9	147.0	208.0
16398	8 G 1.5	16	11.2	170.0	244.0
16080	8 x 1.5	16	11.2	170.0	244.0
16399	10 G 1.5	16	12.7	193.0	315.0
16081	10 x 1.5	16	12.7	193.0	316.0
16400	12 G 1.5	16	13.5	267.0	338.0
16082	12 x 1.5	16	13.5	267.0	338.0
16401	14 G 1.5	16	14.1	283.0	383.0
16083	14 x 1.5	16	14.1	283.0	383.0
16402	16 G 1.5	16	15.0	315.0	424.0
16084	16 x 1.5	16	15.0	315.0	424.0
16403	18 G 1.5	16	15.7	374.0	479.0
16085	18 x 1.5	16	15.7	374.0	479.0
16449	19 G 1.5	16	15.7	386.0	508.0
16404	20 G 1.5	16	16.7	396.0	545.0
16086	20 x 1.5	16	16.7	396.0	545.0
16405	21 G 1.5	16	16.7	425.0	560.0
16406	24 G 1.5	16	18.5	458.0	690.0
16087	24 x 1.5	16	18.5	458.0	690.0
16407	25 G 1.5	16	18.5	526.0	705.0
16088	25 x 1.5	16	18.5	526.0	705.0
16450	27 G 1.5	16	19.1	531.0	774.0
16408	28 G 1.5	16	19.7	541.0	810.0
16089	28 x 1.5	16	19.7	541.0	810.0
16409	30 G 1.5	16	19.7	555.0	830.0
16090	30 x 1.5	16	19.7	555.0	830.0
11018804	31 G 1.5	16	20.8	569.0	797.0
16410	35 G 1.5	16	21.3	645.0	890.0
16091	35 x 1.5	16	21.3	645.0	890.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
16451	37 G 1.5	16	21.3	674.0	945.0
16411	40 G 1.5	16	22.3	725.0	1060.0
16092	40 x 1.5	16	22.3	725.0	1060.0
16493	41 G 1.5	16	23.1	801.0	1071.0
16412	50 G 1.5	16	25.5	885.0	1290.0
16093	50 x 1.5	16	25.5	885.0	1440.0
16413	61 G 1.5	16	27.1	1100.0	1705.0
16094	61 x 1.5	16	27.1	1100.0	1700.0
16414	80 G 1.5	16	31.1	1324.0	2010.0
16095	80 x 1.5	16	31.1	1324.0	2000.0
16415	100 G 1.5	16	34.5	1641.0	2505.0
16096	100 x 1.5	16	34.5	1641.0	2500.0
16416	2 x 2.5	14	8.5	96.0	130.0
16417	3 G 2.5	14	9.2	144.0	167.0
16099	3 x 2.5	14	9.2	144.0	167.0
16418	4 G 2.5	14	10.0	148.0	195.0
16100	4 x 2.5	14	10.0	148.0	195.0
16419	5 G 2.5	14	11.0	181.0	223.0
16101	5 x 2.5	14	11.0	181.0	223.0
16420	7 G 2.5	14	12.1	255.0	344.0
16102	7 x 2.5	14	12.1	255.0	344.0
16421	10 G 2.5	14	15.7	340.0	460.0
16438	12 G 2.5	14	16.4	441.0	570.0
16103	12 x 2.5	14	16.4	441.0	522.0
16452	18 G 2.5	14	19.3	570.0	681.0
16422	2 x 4	12	10.5	120.0	185.0
16423	3 G 4	12	11.1	174.0	240.0
16105	3 x 4	12	11.1	174.0	240.0
16424	4 G 4	12	12.3	230.0	310.0
16106	4 x 4	12	12.3	230.0	310.0
16425	5 G 4	12	13.8	273.0	385.0
16107	5 x 4	12	13.8	273.0	400.0
16426	7 G 4	12	15.1	316.0	500.0
16108	7 x 4	12	15.1	316.0	500.0
16427	2 x 6	10	11.9	173.0	268.0
16428	3 G 6	10	12.6	240.0	330.0
16110	3 x 6	10	12.6	240.0	330.0
16429	4 G 6	10	14.2	305.0	415.0
16111	4 x 6	10	14.2	305.0	415.0
16430	5 G 6	10	15.6	439.0	509.0
16112	5 x 6	10	15.6	439.0	509.0
16431	7 G 6	10	17.1	505.0	672.0
16113	7 x 6	10	17.1	505.0	672.0
16432	2 x 10	8	15.3	255.0	425.0
16433	3 G 10	8	16.5	350.0	500.0
16115	3 x 10	8	16.5	350.0	500.0
16434	4 G 10	8	18.2	535.0	783.0
16116	4 x 10	8	18.2	535.0	783.0
16435	5 G 10	8	20.0	592.0	856.0
16117	5 x 10	8	20.0	592.0	856.0
16436	7 G 10	8	22.1	810.0	1305.0
16118	7 x 10	8	22.1	810.0	1300.0
16458	3 G 16	6	19.0	585.0	795.0
16457	3 x 16	6	19.0	585.0	795.0
16440	4 G 16	6	21.0	740.0	880.0
16437	5 G 16	6	23.1	895.0	1295.0
16441	4 G 25	4	26.4	1140.0	1570.0
16442	5 G 25	4	29.0	1380.0	1965.0
16443	4 G 35	2	29.0	1576.0	2070.0
16444	5 G 35	2	32.3	1930.0	2690.0
16445	4 G 50	1	34.8	2155.0	3015.0

We reserve the right to make technical changes; the imprint in the image is purely exemplary



HELUKABEL® YSLCY 10 x 0.75QMM / 18024599 300/500V 900020240101 CE AI

TECHNICAL DATA

PVC control and connection cable in alignment with DIN VDE 0285-525-2-51 / DIN EN 50525-2-51

Temperature range	flexible -10°C to +80°C fixed -40°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage core/core	4000 V
Test voltage core/screen	2000 V
Breakdown voltage	8000 V
Mutual capacitance core/core	at 800 Hz 0.5 - 2.5 mm ² : approx. 150 pF/m
Mutual capacitance core/screen	at 800 Hz 0.5 - 2.5 mm ² : approx. 270 pF/m
Coupling resistance	at 30 MHz, approx. 250 Ohm/km
Minimum bending radius	flexible 10x Outer-Ø fixed 5x Outer-Ø

■ CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: PVC, compound type Z 7225
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor (OZ)
- Cores stranded in layers with optimal lay lengths
- Foil wrapping
- Screen:
2 - 100 core(s): braided screen of tinned copper wires, approx. coverage 70 %

- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)
- Sheath colour: grey (RAL 7001)
- Length marking: in metres

■ PROPERTIES

- largely resistant to: oil, for details, see "Technical Information"
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

■ APPLICATION

For flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not outside; to be used as control and connecting cable in control and regulation technology, in the tool and machine building industry, in computer systems, as well as a signal cable in the electronic industry. A stabilizing foil separator between wire bound and braid reduces the outer diameter essentially and allows for smaller bending radius as well as lower weights. The disturbance free transmission of signals and impulses is ensured due to the high degree of screening. EMC = Electromagnetic Compatibility; in order to optimise EMC properties, we recommend a double-sided and all-round large contact area of the copper braiding.

■ NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- please note "cleanroom qualification" in your order
- 2 - 100 core(s): VDE-Reg.-No. 7034

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024595	2 x 0.75	19	6.2	40.0	59.0
18024596	3 G 0.75	19	6.6	52.0	66.0
18024597	4 x 0.75	19	7.1	60.0	77.0
18024598	7 x 0.75	19	8.4	91.0	130.0
18024599	10 x 0.75	19	10.7	137.0	180.0
18024603	12 x 0.75	19	11.1	142.0	202.0
18024600	18 x 0.75	19	12.9	212.0	292.0
18024601	25 x 0.75	19	15.4	281.0	415.0
18024602	2 x 1	18	6.5	50.0	65.0
18024588	4 x 1	18	7.6	71.0	98.0
18024586	2 x 1.5	16	7.1	63.0	88.0
18024587	3 x 1.5	16	7.7	80.0	100.0
18024590	4 G 1.5	16	8.3	97.0	126.0
18024604	12 x 1.5	16	13.5	267.0	338.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024591	4 G 2.5	14	10.0	148.0	195.0
18024592	4 G 4	12	12.3	230.0	310.0

TRONIC (LiYY)

colour code DIN 47100, meter marking



HELUKABEL® LiYY 10x0,25 QMM

TECHNICAL DATA

Special-PVC data cables

Temperature range	flexible -5°C to +70°C fixed -40°C to +80°C
Peak operating voltage	≥ 0.25 mm ² : 500 V (not for high power current installation purposes)
Test voltage core/core	1500 V
Insulation resistance	min. 10 MOhm x km
Capacitance	(approx. value) at 800 Hz 120 pF/m
Inductance	approx. 0.7 mH/km

■ CABLE STRUCTURE

- Copper wire bare, from 0.5 mm² to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of special PVC
- Core identification to DIN 47100, without colour repetition
- Cores stranded in layers with optimal lay-length
- Outer sheath of special PVC
- Sheath colour grey (RAL 7001)
- With meter marking

■ PROPERTIES

- Oil resistant, oil-/chemical resistance
- The materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1

■ APPLICATION

These cables are used for flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, wherever the construction requirements call for a minimum outer diameter, LiYY is the suitable cable to use. This applies especially to such areas as tool making and machine industries as well as electronic, computer, measurement and control sectors.

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
1802906	2 x 0.25	24	3.8	4.8	17.3
1803006	3 x 0.25	24	4.0	7.2	21.7
1803106	4 x 0.25	24	4.5	9.6	26.3
1803206	5 x 0.25	24	4.9	12.0	31.7
1803306	6 x 0.25	24	5.1	14.4	38.8
1803406	7 x 0.25	24	5.1	16.8	40.0
1803506	8 x 0.25	24	6.2	19.2	54.7
1803606	10 x 0.25	24	6.8	24.0	62.0
1803706	12 x 0.25	24	7.0	28.8	70.3
1803906	16 x 0.25	24	7.7	38.4	90.1
1805706	2 x 0.34	22	4.2	6.8	25.0
1805806	3 x 0.34	22	4.4	9.8	30.0
1805906	4 x 0.34	22	4.8	13.1	36.2
1808506	2 x 0.5	20	4.7	9.6	32.2
1808606	3 x 0.5	20	5.0	14.4	36.4
1808706	4 x 0.5	20	5.6	19.2	56.6
1808806	5 x 0.5	20	6.1	24.4	65.5
1808906	6 x 0.5	20	6.9	28.8	72.6

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
1809006	7 x 0.5	20	6.9	33.6	75.9
1809106	8 x 0.5	20	8.0	38.4	100.7
1809206	10 x 0.5	20	8.6	48.0	102.4
1809306	12 x 0.5	20	8.9	58.0	120.0
1810406	2 x 0.75	19	5.1	14.4	39.8
1809706	3 x 0.75	19	5.6	21.6	51.2
1809806	4 x 0.75	19	6.1	28.8	63.4
1809906	5 x 0.75	19	6.9	36.0	79.1
1810006	7 x 0.75	19	7.5	50.4	95.8
1810506	8 x 0.75	19	8.7	58.0	127.9
1810606	10 x 0.75	19	9.4	72.0	142.0
1810706	12 x 0.75	19	10.1	86.4	171.1
1811006	2 x 1.0	18	5.6	19.2	43.7
1811106	3 x 1.0	18	5.9	29.0	61.2
TBA	4 x 1.0	18	6.4	38.4	74.2
1811206	2 x 1.5	16	6.2	29.0	63.4
1811306	3 x 1.5	16	6.8	43.0	82.4

LiY-CY

flexible, CU-screened, colour coded to DIN 47100, EMC friendly, meter marking



HELUKABEL® LiY-CY 4x0,25 QMM

TECHNICAL DATA

Special-PVC data cables

Temperature range	flexible -5°C to +70°C fixed -40°C to +80°C
Peak operating voltage	500 V (not for high power current installation purposes)
Test voltage core/core	1500 V
Insulation resistance	min. 10 MOhm x km
Capacitance	(approx. value) at 800 Hz 120 pF/m
Inductance	approx. 0.7 mH/km

- Sheath colour grey (RAL 7001)
- With meter marking

PROPERTIES

- Oil resistant, oil-/chemical resistance
- The materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1

CABLE STRUCTURE

- Copper wire bare, from 0.5 mm² to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of special PVC
- Core identification to DIN 47100, without colour repetition
- Cores stranded in layers with optimal lay-length
- Foil wrapping
- Tinned, copper braided screen
- Outer sheath of special PVC

APPLICATION

These cables are used for flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, wherever the construction requirements call for a minimum outer diameter, LiY-CY is the suitable cable to use. This applies especially to such areas as tool making and machine industries as well as electronic, computer, measurement and control sectors. The extremely small outer diameter make suitable for miniature plugs etc. To optimize the EMC features we recommend a large round contact of the copper braiding on both ends.

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
2002906	2 x 0.25	24	4.3	15.8	31
2003006	3 x 0.25	24	4.5	18.6	36
2003106	4 x 0.25	24	4.8	22.0	40
2003206	5 x 0.25	24	5.3	26.5	51
2008306	6 x 0.25	24	5.7	32.4	58
2003306	7 x 0.25	24	5.7	35.0	64
2003406	8 x 0.25	24	6.3	42.1	82
2003506	10 x 0.25	24	7.2	49.9	85
2003606	12 x 0.25	24	7.3	58.0	90
2003706	14 x 0.25	24	7.9	62.0	99
2003806	16 x 0.25	24	8.3	67.0	124
2003906	18 x 0.25	24	9.1	78.0	143
2005606	2 x 0.34	22	4.9	18.0	30
2005706	3 x 0.34	22	5.6	22.0	37
2005806	4 x 0.34	22	6.3	28.0	48
1600206	2 x 0.5	20	5.3	29.0	45
1600306	3 x 0.5	20	5.6	39.0	55
1600406	4 x 0.5	20	6.3	46.0	61
1600506	5 x 0.5	20	6.8	52.0	76
1600606	6 x 0.5	20	7.3	66.0	89
1600706	7 x 0.5	20	7.3	68.0	98
1600806	8 x 0.5	20	8.0	80.0	117
1600906	10 x 0.5	20	9.4	93.0	135
1601006	12 x 0.5	20	9.6	117.0	157
1601106	14 x 0.5	20	10.1	122.0	190
1601206	16 x 0.5	20	10.6	129.0	210
1601306	18 x 0.5	20	10.7	152.0	217
1602606	2 x 0.75	19	5.8	38.0	59
1602706	3 x 0.75	19	6.3	50.0	66

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
1602806	4 x 0.75	19	6.8	57	77
1602906	5 x 0.75	19	7.4	70	93
1603006	6 x 0.75	19	8.1	87	113
1603106	7 x 0.75	19	8.2	96	130
1603206	8 x 0.75	19	9.0	110	145
1603306	10 x 0.75	19	10.3	140	180
1603406	12 x 0.75	19	10.5	151	202
1603506	14 x 0.75	19	11.3	167	225
1603606	16 x 0.75	19	11.8	183	275
1603706	18 x 0.75	19	12.6	207	292
1647506	2 x 1	18	6.4	46	65
1647606	3 x 1	18	6.7	56	80
1647706	4 x 1	18	7.2	69	98
1647806	5 x 1	18	8.0	89	127
1647906	6 x 1	18	8.6	105	144
1648006	7 x 1	18	8.6	111	158
1648106	8 x 1	18	9.4	130	197
1648206	10 x 1	18	11.2	140	232
1648306	12 x 1	18	11.4	168	260
1650006	2 x 1.5	16	7.0	63	88
1650106	3 x 1.5	16	7.4	76	100
1650206	4 x 1.5	16	8.1	98	126
1650306	5 x 1.5	16	9.2	116	160
1650406	6 x 1.5	16	9.9	140	192
1650506	7 x 1.5	16	9.9	152	208
1650606	8 x 1.5	16	10.8	172	244
1650706	10 x 1.5	16	13.0	193	315
1650806	12 x 1.5	16	13.0	254	338

LiY-CY (TP)

flexible, Cu-screened, colour coded to DIN 47100, EMC friendly, meter marking



TECHNICAL DATA

Special-PVC data cables

Temperature range	flexible -5°C to +70°C fixed -40°C to +80°C
Peak operating voltage	500 V (not for high power current installation purposes)
Test voltage core/core	1500 V
Insulation resistance	min. 10 MOhm x km
Capacitance	(approx. value) at 800 Hz 120 pF/m
Inductance	approx. 0.7 mH/km

CABLE STRUCTURE

- Copper wire bare, from 0.5 mm² to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of special PVC
- Core identification to DIN 47100, without colour repetition
- Cores stranded in layers with optimal lay-length
- Foil wrapping
- Tinned, copper braided screen
- Outer sheath of special PVC

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
2103406	2 x 2 x 0.25	24	6.3	25.0	50.72
2103506	3 x 2 x 0.25	24	7.1	39.6	67.10
2103606	4 x 2 x 0.25	24	7.6	44.9	76.95
2103706	5 x 2 x 0.25	24	7.8	55.0	98.00
1700106	2 x 2 x 0.5	20	7.9	48.1	79.45
1700206	3 x 2 x 0.5	20	8.7	73.7	101.45
1700306	4 x 2 x 0.5	20	9.4	82.0	121.20
1700406	5 x 2 x 0.5	20	9.9	105.0	148.00

- Sheath colour grey (RAL 7001)
- With meter marking

PROPERTIES

- Oil resistant, oil-/chemical resistance
- The materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1

APPLICATION

The data control cables are used for flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air. LiY-CY (TP) is well suited for use in areas subject to signal interference. The high level of screening reduces substantially the effects of electrical disturbances from parallel running wiring etc. The copper screening is also often used as an "earth". The twisted pairs conform favourable cross-talk attenuation values.

To optimize the EMC features we recommend a large round contact of the copper braiding on both ends.

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
1701206	2 x 2 x 0.75	19	8.5	58.0	99.49
1701306	3 x 2 x 0.75	19	9.4	84.0	123.16
1701406	4 x 2 x 0.75	19	10.7	108.0	158.74
1701506	5 x 2 x 0.75	19	10.8	126.0	189.00
1705006	2 x 2 x 1	18	9.0	84.0	106.45
1705106	3 x 2 x 1	18	10.4	96.0	151.50
1705206	4 x 2 x 1	18	11.3	121.0	183.51

PAAR-TRONIC-Li-2YCY

low capacitance, EMC-preferred type



TECHNICAL DATA

PVC data cable

Temperature range	flexible -5°C to +70°C fixed -30°C to +80°C
Peak operating voltage	250 V (not for high power current installation purposes)
Test voltage core/core	2000 V
Test voltage core/screen	1000 V
Conductor resistance at 20°C	0.22 mm ² : max. 93.0 Ohm/km 0.34 mm ² : max. 57.5 Ohm/km 0.5 mm ² : max. 39.3 Ohm/km
Mutual capacitance core/core	at 800 Hz 2 - 4 pairs: approx. 72 pF/m 8 - 10 pairs: approx. 60 pF/m
Crosstalk attenuation	at 1 MHz, 50.00 dB at 10 MHz, 40.00 dB (approx. value)
Inductance	approx. 0.66 mH/km
Coupling resistance	at 30 MHz, approx. 250 Ohm/km
Minimum bending radius	flexible 12x Outer-Ø fixed 7.5x Outer-Ø

■ CABLE STRUCTURE

- Copper wire bare, stranded
- Wire structure:
0.22 mm²: 7 x 0.2
0.34 mm²: 7 x 0.25
0.5 mm²: 7 x 0.3
- Core insulation: PE acc. to DIN VDE 0819-103 / DIN EN 50290-2-23 (compound type LD/MD)
- Core identification acc. to DIN 47100 (paired stranding), colour coded
- x = without protective conductor
- Cores stranded in pairs with optimal lay lengths, Pairs stranded in layers with optimal lay lengths

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
21111	2 x 2 x 0.22	24	6.3	26.0	48.0
21112	3 x 2 x 0.22	24	6.6	31.0	66.0
21113	4 x 2 x 0.22	24	7.2	38.0	82.0
21114	8 x 2 x 0.22	24	9.6	62.0	123.0
21115	10 x 2 x 0.22	24	10.4	79.0	165.0
21117	2 x 2 x 0.34	22	7.5	35.0	68.0
21118	3 x 2 x 0.34	22	7.9	44.0	77.0
21119	4 x 2 x 0.34	22	8.6	53.0	95.0

- Foil wrapping
- Drain wire, tinned copper
- Screen: braided screen of tinned copper wires, approx. coverage 85%
- Outer sheath: PVC acc. to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1 (compound type TM2)
- Sheath colour: grey (RAL 7001)
- Length marking: in metres

■ PROPERTIES

- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2
- certifications and approvals: EAC

■ APPLICATION

PE-insulated data cable with twisted pairs, for interference-free transmission of data and signals over longer distances. The twisted-pair lay-up prevents electrical unbalances within the cable and this thus effectively suppresses cross-talking effects. The high transmission rates are particularly suitable for RS 422 and RS 485 interfaces; suitable for fixed installations in dry, damp and wet rooms, but not outdoors. EMC = Electromagnetic Compatibility; in order to optimise EMC properties, we recommend a double-sided and all-round large contact area of the copper braiding.

■ NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
21120	8 x 2 x 0.34	22	11.9	86.0	158.0
21121	10 x 2 x 0.34	22	13.4	104.0	195.0
21123	2 x 2 x 0.5	20	8.0	49.0	74.0
21124	3 x 2 x 0.5	20	8.5	60.0	109.0
21125	4 x 2 x 0.5	20	9.4	73.0	128.0
21126	8 x 2 x 0.5	20	13.3	124.0	223.0
21127	10 x 2 x 0.5	20	14.4	155.0	265.0

RE-Y(St)Y

flexible instrumentation cable



TECHNICAL DATA

Temperature range	up to +70°C
Peak operating voltage	300 / 500V
Test voltage core/core	2000 V
Insulation resistance	19.5 Ω/KM
Capacitance	250 nF/km
Cross-talk attenuation	min. 0.88 dB/km at 60 kHz
L/R ratio	< 25 uH/Ω
Minimum bending radius	5x cable Ø

■ CABLE STRUCTURE

- Bare copper-conductor, to IEC 60228 cl. 5
- Core insulation of PVC
- Cores coloured = Black and White cores
- Cores twisted with optimum pitch
- Cores stranded in layer
- Foil wrapping
- Electrostatic screen (St) of plastics-coated metal foil

- Tinned drain-wire
- Outer sheath of PVC, black or blue
- With meter marking

■ TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1

■ PROPERTIES

- The electrostatic screen protect the screened cables againsts outer electrostatic interference fields

■ APPLICATION

Instrumentation cables are used in data processing and process control. Instrumentation cables are suitable for fixed installations in damp locations, in open spaces and for underground laying.

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Weight kg/km, approx.
18024410	1 x 2 x 0.75	19	6.6	58.0
18024412	2 x 2 x 0.75	19	10.0	116.0
18024420	1 x 2 x 1	18	7.0	67.0
18024422	2 x 2 x 1	18	10.3	138.0
18024430	1 x 2 x 1.5	16	7.7	89.0
18024432	2 x 2 x 1.5	16	11.8	159.0

RE-2X(St)YSWAY-fl

Armoured instrumentation cable



TECHNICAL DATA

Temperature range	up to 70°C
Operating peak voltage	300 / 500V
Test Voltage	2000V
Conductor DC Resistance	12.3Ω/km at 20°C
Mutual capacitance	150 nF/km
Insulation resistance	MΩ.km at 20°C > 1000
Cross-talk attenuation	min. 0.88 dB/km at 60 kHz
L/R ratio	< 40 uH/Ω

■ CABLE STRUCTURE

- Bare copper conductor, to IEC 60228 cl.2
- Core insulation of XLPE
- Cores coloured = Black and White cores
- Cores twisted with optimum pitch
- Cores stranded in layer
- Foil wrapping
- Electrostatic screen (St) of plastics-coated metal foil
- Tinned drain-wire
- Galvanized steel armoured 0.9mm of nominal diameter helically placed over the separation sheath
- Outer sheath of flame retardant PVC
- With meter marking

■ PROPERTIES

- The electrostatic screen protect the screened cables against outer electrostatic interference fields

■ TESTS

- self-extinguishing and flame retardant acc. to IEC 60332-1

■ Application

Instrumentation cables are used in data processing and process control. Armoured instrumentation cables are suitable for fixed installations in damp locations, in open spaces and for underground laying.

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Weight kg/km, approx.
18024957	1 x 2 x 1.5	12.3	285.0
18024958	2 x 2 x 1.5	16.2	445.0

H07RN-F

oil-resistant, weather-resistant



TECHNICAL DATA

Rubber connection cable, H07RN-F acc. to DIN VDE 0285-525-2-21 / DIN EN 50525-2-21; 07RN-F in alignment with DIN VDE 0285-525-2-21 / DIN EN 50525-2-21

Temperature range	flexible -25°C to +60°C fixed -30°C to +60°C
Permissible operating temperature of the conductor	+60°C
Nominal voltage	AC U ₀ /U 450/750 V
Max. permissible operating voltage	alternating current (AC) conductor/earth 476 V three-phase alternating current (AC) conductor/conductor 825 V direct current (DC) conductor/earth 619 V direct current (DC) conductor/conductor 1238 V
Test voltage core/core	2500 V
Tensile stress	during installation and operation, 15 N/mm ²
Minimum bending radius	fixed 4x Outer-Ø flexible, guidance via roles 7.5x Outer-Ø flexible, winding on drums 5x Outer-Ø

- Core identification acc. to DIN VDE 0293-308, 1 core(s): black
2 - 5 core(s): colour coded
7 - 37 core(s): black cores with consecutive labeling in white digits
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor
- Cores stranded in layers with optimal lay lengths
- Outer sheath: rubber acc. to DIN VDE 0207-363-2-1 / DIN EN 50363-2-1 (compound type EM2)
- Sheath colour: black

PROPERTIES

- resistant to: oil, weathering effects
- for outdoor use

TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2
- oil-resistant acc. to DIN VDE 0473-811-404 / DIN EN 60811-404 / IEC 60811-404

APPLICATION

Heavy duty, rubber sheathed cable for use with medium mechanical stress in dry, damp, wet rooms, in agricultural premises and outdoors. Suitable for equipment in commercial operations, e.g. heating plates, hand lamps, electric tools such as drills or circular saws. For fixed installation on plaster as well as in temporary constructions. When installed in pipes or similar enclosed systems, the use of the cable is permitted up to and including 1000 V AC voltage or up to 750 V DC voltage against earth.

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only

CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: rubber acc. to DIN VDE 0207-363-1 / DIN EN 50363-1 (compound type E14)

H07RN-F

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer-Ø min - max mm	Cu-weight kg/km	Weight kg/km, approx.
37019	2 x 1	18	7.7 - 10.0	19.0	98.0
37027	3 G 1	18	8.3 - 10.7	29.0	130.0
37044	4 G 1	18	9.2 - 11.9	38.0	150.0
37001	1 x 1.5	16	5.7 - 7.1	14.4	58.0
37020	2 x 1.5	16	8.5 - 11.0	29.0	135.0
37028	3 G 1.5	16	9.2 - 11.9	43.0	165.0
37080	3 x 1.5	16	9.2 - 11.9	43.0	165.0
37045	4 G 1.5	16	10.2 - 13.1	58.0	200.0
37061	5 G 1.5	16	11.2 - 14.4	72.0	240.0
37092	7 G 1.5	16	14.7 - 18.7	101.0	375.0
37093	12 G 1.5	16	17.6 - 22.4	175.0	460.0
37095	24 G 1.5	16	24.3 - 30.7	346.0	1015.0
37002	1 x 2.5	14	6.3 - 7.9	24.0	71.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer-Ø min - max mm	Cu-weight kg/km	Weight kg/km, approx.
37021	2 x 2.5	14	10.2 - 13.1	48.0	193.0
37029	3 G 2.5	14	10.9 - 14.0	72.0	235.0
37081	3 x 2.5	14	10.9 - 14.0	72.0	235.0
37046	4 G 2.5	14	12.1 - 15.5	96.0	290.0
37062	5 G 2.5	14	13.3 - 17.0	120.0	345.0
37079	7 G 2.5	14	17.1 - 21.8	168.0	520.0
37096	12 G 2.5	14	20.6 - 26.2	288.0	760.0
37097	18 G 2.5	14	24.4 - 30.9	432.0	850.0
37099	24 G 2.5	14	28.8 - 36.4	576.0	1390.0
37003	1 x 4	12	7.2 - 9.0	38.0	100.0
37022	2 x 4	12	11.8 - 15.1	77.0	280.0
37030	3 G 4	12	12.7 - 16.2	115.0	320.0
37082	3 x 4	12	12.7 - 16.2	115.0	320.0

H07RN-F

oil-resistant, weather-resistant



H07RN-F

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	Weight kg/km, approx.
37047	4 G 4	12	14.0 - 17.9	154.0	395.0
37063	5 G 4	12	15.6 - 19.9	192.0	485.0
37004	1 x 6	10	7.9 - 9.8	58.0	130.0
37023	2 x 6	10	13.1 - 16.8	115.0	330.0
37031	3 G 6	10	14.1 - 18.0	173.0	420.0
37083	3 x 6	10	14.1 - 18.0	173.0	495.0
37048	4 G 6	10	15.7 - 20.0	230.0	540.0
37064	5 G 6	10	17.5 - 22.2	288.0	650.0
37005	1 x 10	8	9.5 - 11.9	96.0	230.0
37024	2 x 10	8	17.7 - 22.6	192.0	586.0
37032	3 G 10	8	19.1 - 24.2	288.0	810.0
37084	3 x 10	8	19.1 - 24.2	288.0	880.0
37049	4 G 10	8	20.9 - 26.5	384.0	950.0
37089	4 x 10	8	20.9 - 26.5	384.0	1065.0
37065	5 G 10	8	22.9 - 29.1	480.0	1200.0
37006	1 x 16	6	10.8 - 13.4	154.0	290.0
37025	2 x 16	6	20.2 - 25.7	307.0	810.0
37033	3 G 16	6	21.8 - 27.6	461.0	1050.0
37085	3 x 16	6	21.8 - 27.6	461.0	1095.0
37050	4 G 16	6	23.8 - 30.1	614.0	1260.0
37066	5 G 16	6	26.4 - 33.3	768.0	1550.0
37007	1 x 25	4	12.7 - 15.8	240.0	420.0
37026	2 x 25	4	24.3 - 30.7	480.0	1160.0
37034	3 G 25	4	26.1 - 33.0	720.0	1250.0
37086	3 x 25	4	26.1 - 33.0	720.0	1450.0
37051	4 G 25	4	28.9 - 36.6	960.0	1860.0
37090	4 x 25	4	28.9 - 36.6	960.0	1995.0
37067	5 G 25	4	32.0 - 40.4	1200.0	2250.0
37008	1 x 35	2	14.3 - 17.9	336.0	530.0
37035	3 G 35	2	29.3 - 37.1	1008.0	1900.0
37087	3 x 35	2	29.3 - 37.1	1008.0	1900.0
37052	4 G 35	2	32.5 - 41.1	1344.0	2380.0

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	Weight kg/km, approx.
37068	5 G 35	2	35.7 - 45.1	1680.0	2750.0
37009	1 x 50	1	16.5 - 20.6	480.0	750.0
37036	3 G 50	1	34.1 - 42.9	1440.0	2600.0
37088	3 x 50	1	34.1 - 42.9	1440.0	2600.0
37053	4 G 50	1	37.7 - 47.5	1920.0	3190.0
37091	5 G 50	1	41.8 - 53.0	2400.0	3950.0
37010	1 x 70	2/0	18.6 - 23.3	672.0	960.0
37037	3 G 70	2/0	38.4 - 48.3	2016.0	3400.0
37054	4 G 70	2/0	42.7 - 54.0	2688.0	4260.0
37154	5 G 70	2/0	47.5 - 60.0	3360.0	4740.0
37011	1 x 95	3/0	20.8 - 26.0	912.0	1250.0
37038	3 G 95	3/0	43.3 - 54.0	2736.0	4450.0
37055	4 G 95	3/0	48.4 - 61.0	3648.0	5600.0
34090	5 G 95	3/0	54.0 - 67.0	4560.0	6600.0
37012	1 x 120	4/0	22.8 - 28.6	1152.0	1560.0
37039	3 G 120	4/0	47.4 - 60.0	3456.0	5180.0
37056	4 G 120	4/0	53.0 - 66.0	4608.0	6830.0
37013	1 x 150	300 kcmil	25.2 - 31.4	1440.0	1900.0
37040	3 G 150	300 kcmil	52.0 - 66.0	4320.0	6500.0
37057	4 G 150	300 kcmil	58.0 - 73.0	5760.0	8320.0
37014	1 x 185	350 kcmil	27.6 - 34.4	1776.0	2300.0
37041	3 G 185	350 kcmil	57.0 - 72.0	5328.0	7860.0
37058	4 G 185	350 kcmil	64.0 - 80.0	7104.0	9800.0
37015	1 x 240	500 kcmil	30.6 - 38.3	2304.0	2950.0
37042	3 G 240	500 kcmil	65.0 - 82.0	6912.0	10224.0
37059	4 G 240	500 kcmil	72.0 - 91.0	9216.0	12100.0
37016	1 x 300	600 kcmil	33.5 - 41.9	2880.0	3600.0
37043	3 G 300	600 kcmil	72.0 - 90.0	8640.0	12620.0
37060	4 G 300	600 kcmil	80.0 - 101.0	11520.0	15200.0
37017	1 x 400	750 kcmil	37.4 - 46.8	3840.0	4600.0
37018	1 x 500	1000 kcmil	41.3 - 52.0	4800.0	6000.0

H05V-K

PVC single core, finely stranded



TECHNICAL DATA

PVC single core, H05V-K acc. to DIN VDE 0285-525-2-31 / DIN EN 50525-2-31, IEC 60227-3; 07V-K in alignment with

Temperature range	flexible -5°C to +70°C fixed -30°C to +80°C
Nominal voltage	AC U ₀ /U 300/500 V
Test voltage	2000 V
Insulation resistance	min. 10 MΩm x km
Minimum bending radius	fixed insatallation 4x core Ø
Radiation resistance	up to 80x10 ⁶ cJ/kg (up to 80 Mrad)

TESTS

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

APPLICATION

These single cores are determined for the installation to the inside of apparatus as well as for the protective laying to the lightings, in dry rooms, in production facilities, switch and distributor boards, in tubes, under and surface mounting of plasters.

CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: PVC acc. to DIN VDE 0207-363-3 / DIN EN 50363-3 (compound type T11)
- Core identification: see table

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- The following colours are recommended: black, white, blue, grey, brown, red, orange, turquoise, violet and pink. Exceptions are the colours green and yellow; these are only permitted if the safety regulations allows. Green is permitted for the identification of luminous decorative chains.

PROPERTIES

- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

H05V-K Coil in cardboard box (100m)

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max	Cu-weight kg/km	black (RAL 9005)	green-yellow	blue (RAL 5015)	brown (RAL 8003)	red (RAL 3000)	white (RAL 9003)	grey (RAL 7001)	violet (RAL 4005)	yellow (RAL 1021)
				Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	
0.5	20	2.1 - 2.5	4.8	2908106	2908206	2908306	2908406	2908506	2908606	2908706	2908806	2908906
0.75	19	2.2 - 2.7	7.2	2909706	2909806	2909906	2910006	2910106	2910206	2910306	2910406	2910506
1	18	2.4 - 2.8	9.6	2911306	2911406	2911506	2911606	2911706	2911806	2911906	2912006	2912106

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	pink (RAL 3015)	green (RAL 6018)	dark blue (RAL 5010)	orange (RAL 2003)	ultram.blue (RAL 5002)
				Part no.	Part no.	Part no.	Part no.	Part no.
0.5	20	2.1 - 2.5	4.8	2909006	2909106	2909306	2909406	2638606
0.75	19	2.2 - 2.7	7.2	2910606	2910706	2910906	2911006	2638706
1	18	2.4 - 2.8	9.6	2912206	2912306	2912506	2912606	2638806

H07V-K

PVC single core, finely stranded



TECHNICAL DATA

PVC single core, H07V-K acc. to DIN VDE 0285-525-2-31 / DIN EN 50525-2-31, IEC 60227-3; 07V-K in alignment with DIN VDE 0285-525-2-31 / DIN EN 50525-2-31, IEC 60227-3

Temperature range	flexible +5°C to +70°C fixed -30°C to +80°C
Nominal voltage	AC U ₀ /U 450/750 V
Test voltage	2500 V
Minimum bending radius	fixed <8 mm: 4x Outer-ø 8-12 mm: 5x Outer-ø >12 mm: 6x Outer-ø

■ CABLE STRUCTURE

- Copper wire bare, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation: PVC acc. to DIN VDE 0207-363-3 / DIN EN 50363-3 (compound type T11)
- Core identification: see table

■ PROPERTIES

- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

■ TESTS

- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

■ APPLICATION

Installation in electrical conduits, on or under plaster or similar enclosed systems. Suitable for protected and fixed installation in lighting systems or switching and control devices up to and including 1000 V AC voltage or up to 750 V DC voltage against earth. Not suitable for direct laying in cable ladders and cable trays, except as a potential equalization cable.

■ NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- Approved core colours: black, green-yellow, blue, brown, red, white, grey, violet, orange, pink

H07V-K Coil in cardboard box (100m)

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	black (RAL 9005)	green-yellow	blue (RAL 5015)	brown (RAL 8003)	red (RAL 3000)	white (RAL 9003)	grey (RAL 7001)	violet (RAL 4005)	yellow (RAL 1021)
				Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	
1.5	16	2.8 - 3.4	14.4	2912906	2913006	2913106	2913206	2913306	2913406	2913506	2913606	2913706
2.5	14	3.4 - 4.1	24.0	2914506	2914606	2914706	2914806	2914906	2915006	2915106	2915206	2915306
4	12	3.9 - 4.8	38.0	2916106	2916206	2916306	2916406	2916506	2916606	2916706	2916806	2916906
6	10	4.4 - 5.3	58.0	2917706	2917806	2917906	2918006	2918106	2918206	2918306	2918406	2918506

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	pink (RAL 3015)	green (RAL 6018)	dark blue (RAL 5010)	orange (RAL 2003)	ultram.blue (RAL 5002)
				Part no.	Part no.	Part no.	Part no.	Part no.
1.5	16	2.8 - 3.4	14.4	2913806	2913906	2914106	2914206	2639506
2.5	14	3.4 - 4.1	24.0	2915406	2915506	2915706	2915806	2639606
4	12	3.9 - 4.8	38.0	2917006	2917106	2917306	2917406	2639706
6	10	4.4 - 5.3	58.0	2918606	2918706	2918906	2919006	2639806

We reserve the right to make technical changes; the imprint in the image is purely exemplary

H07V-K / 07V-K

PVC single core, finely stranded



H07V-K Drum

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	black (RAL 9005)	green-yellow	blue (RAL 5015)	brown (RAL 8003)	red (RAL 3000)	white (RAL 9003)	grey (RAL 7001)	violet (RAL 4005)	orange (RAL 2003)
				Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	
10	8	5.7 - 6.8	96.0	2682506	2682606	2682706	2682806	2682906	2683006	2683106	2683206	2683306
16	6	6.7 - 8.1	154.0	2684106	2684206	2684306	2684406	2684506	2684606	2684706	2684806	2684906
25	4	8.4 - 10.2	240.0	2685706	2685806	2685906	2686006	2686106	2686206	2686306	2686406	2686506
35	2	9.7 - 11.7	336.0	2687306	2687406	2687506	2687606	2687706	2687806	2687906	2688006	2688106
50	1	11.5 - 13.9	480.0	2688906	2689006	2689106	2689206	2689306	2689406	2689506	2689606	2689706
70	2/0	13.2 - 16.0	672.0	2690506	2690606	2690706	2690806	2690906	2691006	2691106	2691206	2691306
95	3/0	15.1 - 18.2	912.0	2692106	2692206	2692306	2692406	2692506	2692606	2692706	2692806	2692906
120	4/0	16.7 - 20.2	1152.0	2930506	2930606	2930706	2930806	2930906	2931006	2931106	2931206	2931306
150	300 kcmil	18.6 - 22.5	1440.0	2932106	2932206	2932306	2932406	2932506	2932606	2932706	2932806	2932906
185	350 kcmil	20.6 - 24.9	1776.0	2933706	2933806	2933906	2934006	2934106	2934206	2934306	2934406	2934506
240	500 kcmil	23.5 - 28.4	2304.0	2935306	2935406	2935506	2935606	2935706	2935806	2935906	2936006	2936106

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	pink (RAL 3015)	green (RAL 6018)	dark blue (RAL 5010)	orange (RAL 2003)
				Part no.	Part no.	Part no.	Part no.
10	8	5.7 - 6.8	96.0	2683406	2683506	2683706	2683806
16	6	6.7 - 8.1	154.0	2685006	2685106	2685306	2685406
25	4	8.4 - 10.2	240.0	2686606	2686706	2686906	2687006
35	2	9.7 - 11.7	336.0	2688206	2688906	2688506	2688606
50	1	11.5 - 13.9	480.0	2689806	2689906	2690106	2690206
70	2/0	13.2 - 16.0	672.0	2691406	2691506	2691706	2691806
95	3/0	15.1 - 18.2	912.0	2693006	2693106	2693306	2693406
120	4/0	16.7 - 20.2	1152.0	2931406	2931506	2931706	2931806
150	300 kcmil	18.6 - 22.5	1440.0	2933006	2933106	2933306	2933406
185	350 kcmil	20.6 - 24.9	1776.0	2934606	2934706	2934906	2935006
240	500 kcmil	23.5 - 28.4	2304.0	2936206	2936306	2936506	2936606

We reserve the right to make technical changes; the imprint in the image is purely exemplary

LSOH

single core, halogen free



TECHNICAL DATA

Single cores for low emission of smoke and corrosive gases in case of fire

Temperature range	permissible working temperature at conductor +90°C
Nominal voltage	U ₀ /U 600/1000 V
Test voltage	3500 V
Minimum bending radius	approx. 10x Ø

- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- Comply to IEC 60502-1

TESTS

- Behaviour in fire self-extinguishing and flame retardant to IEC 60754 & IEC 60332-3C (equivalent DIN VDE 0472 part 804 test method B)
- Some density acc. to DIN EN 61034-1+2/IEC 61034-1+2

CABLE STRUCTURE

- Bare Cu-conductor, finewire stranded according to cl.5, IEC 60228
- Core insulation of Low smoke halogen free compound
- Core identification see table below
- **LSOH** = Low Smoke Zero Halogen

APPLICATION

Halogen-free single-core wires are used for installation in dry environments for wiring up lighting fixtures and units where valuable assets are to be protected from further damage resulting from fire. These cables are suitable for laying in tubes on and under plaster, as well as in closed installation ducts.

LSOH, suitable for protected, permanent laying in or on lighting installations or switching and control equipment up to 1000 V.

PROPERTIES

LSOH

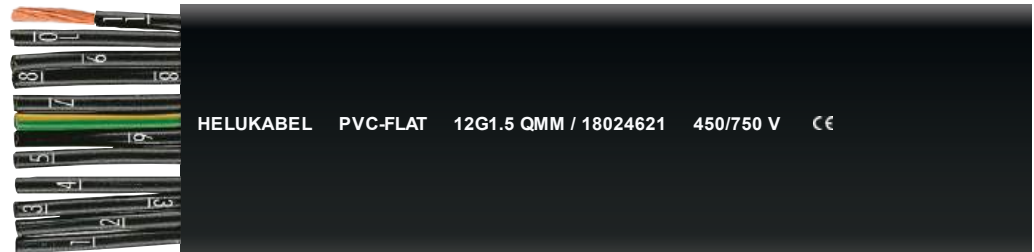
Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	black	green-yellow	blue	brown	red	white	grey	violet	yellow
				Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.	Part no.
0.5	20	2.3 - 2.7	10.9	5287206	5287306	5287406	5287506	5287606	5287706	5287806	5287906	5288006
0.75	19	2.6 - 3.0	13.0	5288106	5288206	5288306	5288406	5288506	5288606	5288706	5288806	5288906
1	18	2.7 - 3.1	16.0	5289006	5289106	5289206	5289306	5289406	5289506	5289606	5289706	5289806
1.5	16	3.0 - 3.4	23.0	5176806	5176906	5177006	5177106	5177206	5177306	5177406	5177506	5177606
2.5	14	3.4 - 3.8	33.0	5177706	5177806	5177906	5178006	5178106	5178206	5178306	5178406	5178506
4	12	4.2 - 4.8	53.0	5178606	5178706	5178806	5178906	5179006	5179106	5179206	5179306	5179406
6	10	4.8 - 5.4	74.0	5179506	5179606	5179706	5179806	5179906	5180006	5180106	5180206	5180306
10	8	5.7 - 6.3	120.0	5180406	5180506	5180606	-	-	-	-	-	-
16	6	6.6 - 7.4	180.0	5181306	5181406	5181506	5181606	-	-	-	-	-
25	4	8.1 - 9.1	275.0	5182206	-	-	-	-	-	-	-	-
35	2	10.9 - 12.1	380.0	5183106	-	-	-	-	-	-	-	-
50	1	12.9 - 14.3	527.0	5184006	-	-	-	-	-	-	-	-
70	2/0	14.9 - 16.5	748.0	5184906	-	-	-	-	-	-	-	-
95	3/0	16.8 - 18.6	983.0	5185806	-	-	-	-	-	-	-	-

Cross-sec. mm ²	AWG, approx.	Outer-ø min - max mm	Cu-weight kg/km	pink	green	dark blue	orange	ultram.blue
				Part no.	Part no.	Part no.	Part no.	Part no.
0.5	20	2.3 - 2.7	10.9	-	-	5294506	5294606	5307106
0.75	19	2.6 - 3.0	13.0	-	-	5294706	5294806	5307206
1	18	2.7 - 3.1	16.0	-	5289(G)06	5294906	5295006	5307306
1.5	16	3.0 - 3.4	23.0	-	5177(G)06	5295106	5295206	5307406
2.5	14	3.4 - 3.8	33.0	-	5178(G)06	5295306	5295406	5307506
4	12	4.2 - 4.8	53.0	-	5179(G)06	5295506	5295606	5307606
6	10	4.8 - 5.4	74.0	-	5180(G)06	5295706	5295806	5307706

We reserve the right to make technical changes; the imprint in the image is purely exemplary

Flat Cable

300/500 V and 450/750 V



TECHNICAL DATA

Special PVC-flat cable adapted to EN 50214 / DIN VDE 0283-2

Temperature range	flexible -5°C to +70°C fixed -40°C to +80°C
Nominal voltage	up to 1 mm ² U ₀ /U 300/500 V from 1.5 mm ² U ₀ /U 450/750 V
Test voltage	up to 1 mm ² 2000 V up to 1.5 mm ² 2500 V
Minimum bending radius	10x cable thickness
Radiation resistance	up to 80x10 cJ/kg (up to 80 Mrad)

■ CABLE STRUCTURE

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of PVC, compound type T12 to DIN VDE 0207-363-3 / DIN EN 50363-3
- Core identification to DIN VDE 0293
 - up to 5 cores coloured
 - from 6 cores, black with continuous white numbering
- Cores laying parallel
- GN-YE conductor
- Outer sheath of special PVC compound type TM2 to DIN VDE 0207-363-4-1 / DIN EN 50363-4-1
- Sheath colour black (RAL 9005)

■ PROPERTIES

- Oil resistant
- Extremely small bending radius
- High flexibility
- Minimum waste of space

- Outer sheath of special PVC compound type TM2 to

■ TESTS

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

■ APPLICATION

PVC type of flat cables are used mainly as trailing cable for crane installations, floor conveyer systems and shelf control units.

Installation notes

Cables reels with flat cables must be transported in standing position on the flange. A bending flexibility can be achieved on a plane surface. For this purpose, the corresponding fitting instructions should be followed.

- Put the cable trolley on the guiding rail or upon carrier beam and push them together at the starting point. The distance between the bedding surface of two cable trolleys must be wider than the double thickness of a cable-packet
- During the packaging performance, it must be started with the smaller cross section which lays on the bedding surface and will be builded successively so that the biggest cross section is laying on the top.
- Further, be careful of a symmetrical load distribution
- In case of multicore flat cables with small cross section, smaller than 2.5 mm², is very critical due to its low tensile stress. In such case, you should add 10% reserve wire for calculation.

■ NOTES

- G = with green-yellow conductor
- AWG sizes are approximate equivalent values. The actual cross section is in mm².

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer dimension, app. mm	Cu-weight kg/km	Weight kg/km, approx.
18024605	3 G 1	18	4.6 x 10.7	25.8	91.8
18024606	4 G 1	18	4.6 x 13.2	34.3	115.7
18024607	5 G 1	18	4.6 x 17.0	42.9	147.7
18024608	6 G 1	18	4.6 x 19.5	51.5	171.6
18024609	9 G 1	18	4.6 x 28.3	77.3	251.3
18024610	10 G 1	18	4.6 x 30.9	85.8	275.2
18024611	12 G 1	18	4.6 x 35.9	103.0	323.1
18024612	16 G 1	18	4.6 x 47.3	137.4	426.7
18024613	18 G 1	18	4.6 x 52.3	154.5	474.6
18024614	20 G 1	18	4.6 x 58.6	171.7	530.4
18024615	24 G 1	18	4.6 x 70.0	206.0	634.1
18024616	4 G 1.5	16	5.1 x 15.1	49.7	151.1
18024617	5 G 1.5	16	5.1 x 19.4	62.1	192.9
18024618	7 G 1.5	16	5.1 x 26.8	86.9	266.9
18024619	8 G 1.5	16	5.1 x 28.4	99.3	289.6
18024620	10 G 1.5	16	5.1 x 35.8	124.2	363.6
18024621	12 G 1.5	16	5.1 x 41.8	149.0	428.1
18024622	16 G 1.5	16	5.1 x 55.7	198.7	571.0
18024623	24 G 1.5	16	5.1 x 82.4	298.0	848.1

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer dimension, app. mm	Cu-weight kg/km	Weight kg/km, approx.
18024624	4 G 2.5	14	5.9 x 19.0	82.8	220.6
18024625	5 G 2.5	14	5.9 x 24.3	103.5	282.0
18024626	7 G 2.5	14	5.9 x 33.5	144.9	392.5
18024627	8 G 2.5	14	5.9 x 35.8	165.6	428.4
18024628	12 G 2.5	14	5.9 x 52.6	248.3	641.4
18024629	16 G 2.5	14	5.9 x 69.3	331.1	849.2
18024630	24 G 2.5	14	5.9 x 102.9	496.7	1264.7
18024631	4 G 4	12	6.9 x 21.3	133.1	313.8
18024632	5 G 4	12	6.9 x 27.3	166.3	399.2
18024633	7 G 4	12	6.9 x 38.2	232.9	558.1
18024634	4 G 6	10	7.5 x 23.7	199.1	408.8
18024635	5 G 6	10	7.5 x 30.3	248.9	518.6
18024636	7 G 6	10	7.5 x 42.4	348.4	725.2

LAN Cable

Category 6 23 AWG PVC

HELUKAT® 250
U /UTP



Cable structure

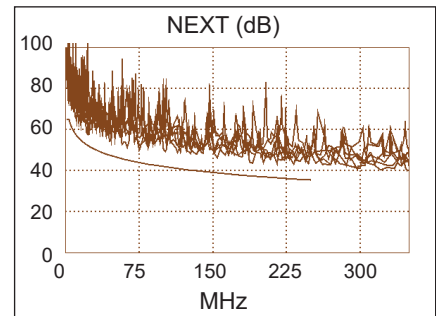
Inner conductor Ø: Conductor material:
Core insulation:
Core colours:
Shielding 1:
Screen over stranding element:
Screen 1 over stranding: Screen 2 over stranding: Outer sheath material:
Outer diameter:
Outer sheath colour:

U/UTP 4x2xAWG 23/ 1 PVC

0.54 ± 0,01 mm
Copper, bare
HDPE
whbu/bu, whog/og, whgn/gn, whbn/bn
Polyester foil over stranded bundle
-
-
PVC
app. 5.60 ± 0,20 mm
Grey (RAL 7035 or similar)

Electrical data

Characteristic impedance: 100 Ohm ± 15 ohm at 1 to 100 MHz
100 Ohm ± 20 Ohm at 101 to 350 MHz
Conductor DC Resistance at 20°C: <90 Ohm/km max.
Mutual capacitance: 50 nF/km nom.
Rel. propagation velocity: 70 %



Typical values

Frequency (MHz)	10	20	62.5	100	250
Attenuation (db/100m)	5.45	7.85	14.3	18.7	30.9
Next (db)	64.3	59.8	52.4	49.3	43.3
ACR (db)	58.85	51.95	38.1	30.6	12.4

Technical data

Weight: app. 46 kg/km
bending radius, repeated: 55 mm
Operating temperature range min.: -20°C
Operating temperature range max.: +60°C
Caloric load, approx. value: 0.68 MJ/m
Copper weight: 17.4 kg/km

Norms

Acc. to ISO/IEC 11801, Acc. to EN 50173, Acc. to ANSI/TIA 568-C.2, Category 6, Flame-retardant acc. to IEC 60332-1

Application

HELUKAT® 250 data cables are used in the tertiary, but also in the secondary level of a network. They are characterized by large performance reserves and outstanding performance. They can be used to implement services such as Gigabit Ethernet, Fast Ethernet, Ethernet, ATM155, FDDI, token ring 4/16 Mbit/s, or ISDN absolutely trouble-free. Likewise, the mechanical characteristics are perfectly suited for the application in tight cable channels and platforms due to their optimized construction.

Part no.

18024721, U/UTP 4x2xAWG23/1 PVC (UTP)

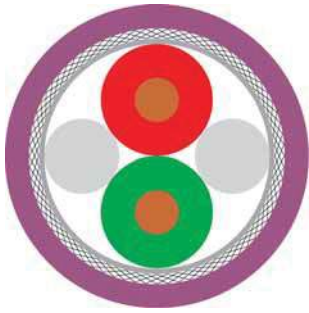
Dimensions and specifications may be changed without prior notice.

BUS Cables

Profibus L2



Indoor



Type Cable structure

Inner conductor diameter:
Core insulation:
Core colours:
Stranding element:
Shielding 1:
Shielding 2:
Total shielding:
Outer sheath material:
Cable external diameter:
Outer sheath colour:

Fixed installation, indoor 1x2x0.64 mm

Copper, bare (AWG 22/1)
Foam-skin-PE
rd, gn
2 cores + fillers
Mylar
Al-Foil
Cu braid, tinned annealed
PVC
app. 8 mm \pm 0.30 mm
Violet similar to RAL 4001

Electrical data

Characteristic impedance:
Conductor resistance, max.:
Insulation resistance, min.:
Mutual capacitance:
Test voltage:

150 Ohm \pm 10 %
115 Ohm/km
1 GOhm x km
30 nF/km nom.
1.5 kV

Technical data

Weight:
Operating temperature range min.:
Operating temperature range max.:

app. 70 kg/km
-5°C
+70°C

Norms

Applicable standards:

Profibus acc. to DIN 19245 T3 and EN50170
Flame-retardant acc. to IEC 60332-1-2

Application

HELUKABEL® Profibus L2 Indoor is designed for fixed indoor installation in Profibus industrial networks.

Part no.

8144806, Profibus L2

Industrial Ethernet

PROFnet Type A

HELUKAT[®]

fixed installed + robust



Type Cable structure

Inner conductor diameter:
Core insulation:
Core colours:
Stranding element:
Shielding 1:
Inner sheath material:
Shielding 2:
Total shielding:
Outer sheath material:
Cable external diameter:
Outer sheath colour:

Fixed installation, indoor 2x2x0.64 mm

Copper, bare (AWG 22/1)
PE
wh, ye, bu, og
Star quad
Polyester foil over stranded bundle
PVC
Polyester foil, aluminium-lined
Cu braid, tinned
PVC
app. 6.5 mm ± 0.2 mm
Green similar to RAL 6018

Electrical data

Characteristic impedance: 100 Ohm ± 15 ohm at 1 to 100 MHz
Conductor resistance, max.: 62 Ohm/km
Insulation resistance, min.: 0.5 GOhm x km
Loop resistance: 115 Ohm/km max.
Mutual capacitance: 50 nF/km nom.
Test voltage: 2 kV

Typical values

Frequency (MHz)	10	16	62.5	100
Attenuation (dB/100m)	5.2	6.9	15.0	19.5
Next (db)	70.0	65.0	55.0	50.0
ACR (db)	64.8	58.1	40.0	30.5

Technical data

Weight: app. 67 kg/km
bending radius, repeated: 65 mm
Operating temperature range min.: -40°C
Operating temperature range max.: +80°C
Caloric load, approx. value: 0.34 MJ/m
Copper weight: 32.00 kg/km

Norms

Applicable standards: PROFnet Guideline
Acc. to ISO/IEC 11801
Acc. to EN 50173
Category 5e
Flame-retardant acc. to IEC 60332-1

Application

HELUKAT[®] PROFnet Type A Cat 5e for fixed installation in industrial networks, rugged. It guarantees excellent transmission characteristics and may be used even under the harshest conditions. The cable listed here corresponds to PROFnet Type A; this means the version with PVC sheath is designed for normal fixed installations and the version with PU sheath is for difficult fixed installations in harsh industrial environments.

Part no.

18024720, PROFnet type A (SK)

HELUKABEL HELUDATA

for low frequency data transmission, UL style 2092



HELUKABEL HELUDATA UL 2092 1 x 2 x 22AWG

TECHNICAL DATA

PVC to UL-Style
UL-Style 2092

Temperature range	-20°C to +60°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 79 pF/m (22 AWG) C / C: approx. 79 pF/m (18 AWG) C / S: approx. 154 pF/m (22 AWG) C / S: approx. 145 pF/m (18 AWG)
Inductance	approx. 0.65 mH/km (22 AWG) approx. 0.60 mH/km (18 AWG)
Characteristic Impedance	65 Ohm (22 AWG) 60 Ohm (18 AWG)

- Aluminium foil screening
- Tinned copper drain-wire
- Core identification - black, natural
- PVC outer sheath
- Sheath colour chrome grey (RAL 7032)

PROPERTIES

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies
- Ideal solution where flexibility and a high degree of screening is required

TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1-2

APPLICATION

These cables are suitable for use in internal wiring for audio, transmission measurement and control signals with minimum noise. They are used for laying in dry and damp environment.

CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Core insulation of PE
- Cores twisted together

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11000611	1 x 2 x 22 AWG	4.5	10.3	29.0

HELUKABEL HELUDATA

for low frequency data transmission, UL style 2464



HELUKABEL HELUDATA UL 2464 1X2X16 AWG

TECHNICAL DATA

PVC to UL-Style
UL-Style 2464

Temperature range	-30°C to +105°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 200 pF/m C / S: approx. 370 pF/m
Inductance	approx. 0.65 mH/km
Characteristic Impedance	100 Ohm

■ CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Core insulation of SR-PVC
- Cores twisted together
- Overall screen of aluminium foil

- Tinned annealed copper drain-wire
- Core identification
 - 1 Pair : black / white
- Sheath colour black (RAL 9005)

■ PROPERTIES

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies

■ TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1-2

■ APPLICATION

These cables are suitable for use in instrumentation, industrial automation and process control application. They are used for dry and damp environment. The insulation of the cable improves the UV-resistant and impervious to moisture penetration.

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11000620	1 x 2 x 16 AWG	6.7	35.6	70.1

HELUKABEL HELUDATA

for low frequency data transmission, UL style 2919 PE



HELUKABEL HELUDATA UL 2919 1X2X24 AWG

TECHNICAL DATA

PVC to UL-Style
UL-Style 2919

Temperature range	-30°C to +80°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 42 pF/m C / S: approx. 76 pF/m
Inductance	approx. 0.65 mH/km
Characteristic Impedance	120 ohm

- Tinned annealed copper braiding
- PVC outer sheath
- Colour: pebble grey, RAL 7032
- Core insulation colour:
Pair 1: wh/bu stripe + bu/wh stripe
Pair 2: wh/og stripe + og/wh stripe

PROPERTIES

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies is required
- Low capacitance, double screened
- Excellent shielding against internal and external interference

■ CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Core insulation of PE
- Cores twisted together
- Aluminium / Mylar screening
- Tinned annealed copper drain-wire

APPLICATION

- This cable is suitable for wiring of data systems with high transmission rates. It is designed for use as Data Highway (DH) RS 232, RS 422, and RS 485 interface which is suitable for use as control and instrumentation cables. The cable is suitable for flexible and static laying in dry and damp locations.

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11005140	1 x 2 x 24 AWG	5.9	21.33	46.0
11005141	2 x 2 x 24 AWG	8.8	32.9	86.0
TBA	1 x 2 x 20 AWG	6.7	TBA	TBA

HELUKABEL HELUDATA

for low frequency data transmission, UL style 2919 FPE



TECHNICAL DATA

PVC to UL-Style
UL-Style 2919 FPE

Temperature range	-30°C to +80°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 42.5 pF/m C / S: approx. 72 pF/m
Inductance	approx. 0.70 mH/km
Characteristic Impedance	100 Ohm

■ CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Foam PE insulation
- Cores twisted together
- Overall screening of aluminium laminated plastic foil
- Tinned copper drain-wire
- PVC outer sheath

- Sheath colour grey (RAL 7005)
- Core insulation colour:
Pair 1: wh/bu stripe + bu/wh stripe
Pair 2: wh/og stripe + og/wh stripe
Pair 3: wh/gn stripe + gn/wh stripe
Pair 4: wh/bn stripe + bn/wh stripe

■ PROPERTIES

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies
- Low capacitance
- Flexible for use in environment where space is a constraint
- Flame retardant in acc. to IEC 60332-1-2

■ APPLICATION

This cable is suitable for wiring of data systems with high transmission rates. It is designed for use as Data Highway (DH) RS 232, and RS 422 interface which is suitable for static laying in dry and damp locations.

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024379	2 x 2 x 24 AWG	6.3	10.5	44.9
18024380	4 x 2 x 24 AWG	7.1	18.5	55.0

HELUKABEL HELUDATA

for low frequency data transmission, UL style 20276



TECHNICAL DATA

PVC to UL-Style
UL-Style 20276

Temperature range	-20°C to +60°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 115 pF/m C / S: approx. 203 pF/m
Inductance	approx. 0.55 mH/km
Characteristic Impedance	45 Ohm

- PVC outer sheath
- Sheath colour grey (RAL 7005)

PROPERTIES

- Pair screening, offers optimum protection against external interference at medium and high frequencies
- Twisted cores and individual pair shielding ensure high Near End Cross Talk attenuation

TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1-2

CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Core insulation of PE
- Cores twisted together
- Individual pair aluminium foil screening
- Tinned copper drain-wire

APPLICATION

This cable is suitable for use in wiring data systems with high transmission rates. Especially designed for use as control and instrumentation cables. For static laying in dry and damp environment.

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
1100630	2 x 2 x 22 AWG	4.3	20.5	28.4
18024862	4 x 2 x 22 AWG	6.5	30.2	57.9

HELUKABEL Li2Y(ST)Y

for low frequency data transmission, UL style 2092



HELUKABEL Li2Y(ST)Y 2092 E170315 XXXVII AWM 60°C 300V 1 x 2 x 18 AWG / 18024890

TECHNICAL DATA

PVC to UL-Style
UL-Style 2092

Temperature range	-20°C to +60°C
Operating peak voltage	300V
Test Voltage	1000V
Insulation resistance	min. 2 GOhm x km
Capacitance	C / C: approx. 79 pF/m (22 AWG) C / C: approx. 79 pF/m (18 AWG) C / S: approx. 154 pF/m (22 AWG) C / S: approx. 145 pF/m (18 AWG)
Inductance	approx. 0.65 mH/km (22 AWG) approx. 0.60 mH/km (18 AWG)
Characteristic Impedance	65 Ohm (22 AWG) 60 Ohm (18 AWG)

- Aluminium foil screening
- Tinned copper drain-wire
- Core identification - black, natural
- PVC outer sheath
- Sheath colour chrome grey (RAL 7032)

PROPERTIES

- 100% screen coverage, offers optimum protection against external interference at medium and high frequencies
- Ideal solution where flexibility and a high degree of screening is required

TESTS

- PVC self-extinguishing and flame retardant acc. to IEC 60332-1-2

APPLICATION

These cables are suitable for use in internal wiring for audio, transmission measurement and control signals with minimum noise. They are used for laying in dry and damp environment.

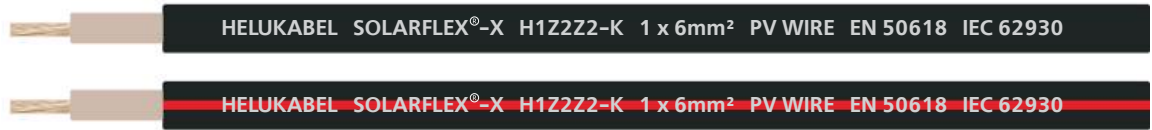
CABLE STRUCTURE

- Multi-wire strands of tinned copper wires
- Core insulation of PE
- Cores twisted together

Part no.	No. cores x cross-sec. mm ²	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
18024889	1 x 2 x 18 AWG	5.7	20.7	45.0

SOLARFLEX®-X H1Z2Z2-K

1500 V DC



TECHNICAL DATA

Cross-linked single core cable acc. to DIN VDE 0283-618 / DIN EN 50618

Temperature range fixed -40°C to +90°C

Permissible operating temperature of the conductor +120°C

Nominal voltage AC U₀/U 1000/1000 V
DC U₀/U 1500/1500 V

Test voltage 6500 V

Minimum bending radius fixed 5x Outer-Ø

CABLE STRUCTURE

- Copper wire tinned, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
- Core insulation made of low smoke halogen free E-beam irradiation crosslinked polyolefin (XLPO) insulation
- Outer sheath made of low smoke halogen free E-beam irradiation crosslinked polyolefin (XLPO) sheath
- Sheath colour: see table below

PROPERTIES

- resistant to: UV radiation, ozone, weathering effects, water
- for outdoor use
- direct burial
- halogen-free

TESTS

- halogen-free acc. to DIN VDE 0482-754-1 / DIN EN 60754-1 / IEC 60754-1
- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2
- smoke density acc. to DIN VDE 0482-1034-1+2 / DIN EN 61034-1+2 / IEC 61034-1+2
- UV-resistant acc. to DIN VDE 0283-618 / DIN EN 50618 Appendix E
- ozone-resistant acc. to DIN VDE 0283-618 / DIN EN 50618
- weather-resistant acc. to DIN VDE 0283-618 / DIN EN 50618 Appendix E
- water-resistant acc. to DIN VDE 0285-525-2-21 / DIN EN 50525-2-21 Appendix E
- DC Voltage resistance of the insulation acc. to DIN VDE 0283-618 / DIN EN 50618 Tab. 2
- Certifications: TÜV Rheinland IEC 62930, EN 50618

APPLICATION

SOLARFLEX®-X H1Z2Z2-K is used for wiring solar modules. Suitable for direct burial; recommendation: laying in pipes. Not suitable for permanent installation in water. The maximum permissible DC voltage of the system in which the cable is installed must not exceed 1.8 kV. The cable is suitable for use in and on devices and systems with protective insulation (protection class II).

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only

No. cores x cross-sec. mm ²	AWG, approx.	Outer-Ø min - max mm	Conductor Ø app. mm	Weight kg/km, approx.	black	black with red stripe
					Part no.	Part no.
1 x 2.5	14	5.1	1.95	45.0	18054265	18054293
1 x 4	12	5.5	2.45	60.0	18054160	18054294
1 x 6	10	6.1	3.00	80.0	18054161	18054292
1 x 10	8	7.2	4.00	126.0	18054266	-
1 x 16	6	8.8	5.35	170.0	18054267	-
1 x 25	4	10.8	6.80	270.0	18054268	-
1 x 35	2	12.4	8.10	365.0	18054269	-

No. cores x cross-sec. mm ²	Current carrying capacity of PV cables in accordance to the installation (T=60°C)			Max conductor DC resistance
	Single cable free in air (A)	Single cable on surface (A)	2 cable adjacent on surface (A)	Tinned copper (Ω/km)
1 x 2.5	42	40	33	8.21
1 x 4	57	54	45	5.09
1 x 6	72	69	58	3.39
1 x 10	98	96	80	1.95
1 x 16	132	130	107	1.24
1 x 25	183	174	138	0.795
1 x 35	227	215	171	0.565

We reserve the right to make technical changes; the imprint in the image is purely exemplary

APPENDIX

Use and type of installation for application in photovoltaic (HD 60364-7-712). For fixed installation indoors and outdoors. Installation of walls, walkways, pipes, conduits, and similar systems. The cables are suitable for use with Class II

■ CHEMICAL PROPERTIES

Halogen-free	acc. to EN 50525-1 Annex B (EN 50267-2-1, EN 50267-2-2, IEC 60754-1, IEC 60754-2)
Low Smoke Emission	acc. to IEC 61034, EN 61034 (Light Transmittance > 60%)
Weather resistance	Ozone resistance: acc. to EN 60811-403 Test Method A, EN 50396 clause 8.1.3 Test Method B Weathering/UV resistance: acc. to EN50618 Annex E, EN 50289-4-17 (Method A), EN ISO 4892-1/-2 tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights
Acid and alkaline resistance	acc. to EN 50618:2014 Annex B: 7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide) as for EN 60811-404
Resistance to fire	Flame propagation acc. to EN 60332-1-2 (Single Cable Flame Test) According to: EN 50399 Common test methods for cables under fire conditions Heat release and smoke production measurement on cables during flame spread test, UNI EN 13051-6 Flammability class: Dca Smoke emission class: s2 Drip particle class: d2

■ MECHANICAL PROPERTIES

Tensile strength and elongation	for insulation and sheath before ageing acc. to EN 50618 Annex B (test acc. To EN 60811-501). tensile strength ≥ 8 N/mm ² elongation at break for insulation and sheath $\geq 125\%$
Shrinkage test on sheath	acc. to EN 50618, Table 2: <2% (test acc. to EN 60811-503)
Dynamic Penetration Test	acc. to EN 50618
Durability of Print	acc. to EN 50618 (test acc. to EN 50396)
Direct Burial	Impact test resistance of single conductor type USE and USE-2 cables (acc. to UL854) Rodent resistance safety can be optimized by utilizing protective hoses and cables with spinning or braid metallic coatings
Long term resistance of insulation to d.c	acc. to EN 50618, Table 2 test acc. to EN 50395 clause 9: Cable immersed in water containing 1% NaCl for 240h ; Water temperature: 85°C \pm 5; Voltage applied: 1.8 kV D.C.
Water resistance	AD8 category acc. to DIN VDE 0285-525-2-21 / DIN EN 50525-2-21 Appendix E

■ THERMAL PROPERTIES

Lifetime	acc. to EN 50618 : 25 years the cables are designed to operate at a normal max conductor temperature of 90°C, but for a maximum of 20,000 hours with conductor temperature of 120°C at a max. ambient temperature of 90°C is permitted. (test according to EN 60216-1 and EN 60216-2)
Max. short circuit temperature	250°C (for 5 sec.)
Resistance to cold	EN 50618, Table 2: Cold Bending Test at -40°C acc. to EN 60811-504; Cold Elongation Test at -40°C acc. to EN 60811-505; Cold Impact Test at -40°C acc. to EN 50618 Annex C and EN 60811-506. Damp-Heat Test Acc. to EN 50618, Table 2 (test acc. to EN 60068-2-78) : 90°C for 1,000h and min. 85% humidity



TECHNICAL DATA

Cross-linked single core cable in alignment with EN 50618

Temperature range fixed -40°C to +90°C
Permissible operating temperature of the conductor +120°C

Nominal voltage AC U0/U 1000/1000 V
 DC U0/U 1500/1500 V

Test voltage 6500 V

Minimum bending radius 5 x outer-Ø

- CABLE STRUCTURE**
- Copper wire tinned, finely stranded acc. to DIN VDE 0295 Class 5 / IEC 60228 Class 5
 - Core insulation: cross-linked compound
 - x = without protective conductor
 - Outer sheath: thermoset compound
 - Sheath colour: see table

- PROPERTIES**
- resistant to: UV radiation, ozone, weathering effects, water
 - for outdoor use
 - direct burial
 - halogen-free

- TESTS**
- halogen-free acc. to DIN VDE 0482-754-1 / DIN EN 60754-1 / IEC 60754-1
 - flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-3-24 / IEC 60332-3-24
 - smoke density acc. to DIN VDE 0482-1034-1+2 / DIN EN 61034-1+2 / IEC 61034-1+2
 - UV-resistant acc. to DIN VDE 0283-618 / DIN EN 50618 Appendix E
 - ozone-resistant acc. to DIN VDE 0283-618 / DIN EN 50618
 - weather-resistant acc. to DIN VDE 0283-618 / DIN EN 50618 Appendix E
 - DC Voltage resistance of the insulation acc. to DIN VDE 0283-618 / DIN EN 50618 Tab. 2
 - CPR-class: Cca s1a,d0,a2

■ APPLICATION

SOLARFLEX® MB LSOH Cca is used for wiring solar modules. Suitable for direct burial; recommendation: laying in pipes. Not suitable for permanent installation in water. The maximum permissible DC voltage of the system in which the cable is installed must not exceed 1.8 kV. The cable is suitable for use in and on devices and systems with protective insulation (protection class II).

- NOTES**
- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only

No. cores x cross-sec. mm ²	AWG, approx.	Outer-Ø min - max mm	Cu-weight kg/km	Weight kg/km, approx.	blue	red	black
					Part no.	Part no.	Part no.
1 x 4	12	5,5	38,4	60,0	18126081	18126085	18126083
1 x 6	10	6,1	57,6	80,0	18126082	18126086	18126084
1 x 10	8	7,2	96,0	126,0	-	-	18126075
1 x 16	6	8,8	153,6	170,0	-	-	18126076
1 x 25	4	10,8	240,0	270,0	-	-	18126077
1 x 35	2	12,4	336,0	365,0	-	-	18126078

APPENDIX

Use and type of installation for application in photovoltaic (HD 60364-7-712). For fixed installation indoors and outdoors. Installation of walls, walkways, pipes, conduits, and similar systems. The cables are suitable for use with Class II

■ CHEMICAL PROPERTIES

Halogen-free	acc. to EN 50525-1 Annex B (EN 50267-2-1, EN 50267-2-2, IEC 60754-1, IEC 60754-2)
Low Smoke Emission	acc. to IEC 61034, EN 61034 (Light Transmittance > 84%)
Weather resistance	Ozone resistance: acc. to EN 60811-403 Test Method A, EN 50396 clause 8.1.3 Test Method B Weathering/UV resistance: acc. to EN50618 Annex E, EN 50289-4-17 (Method A), EN ISO 4892-1/-2 tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights
Acid and alkaline resistance	acc. to EN 50618:2014 Annex B: 7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide) as for EN 60811-404
Resistance to fire	Flame propagation acc. to EN 60332-1-2 (Single Cable Flame Test) & EN 60332-3-24 (Bundled Cable Flame Test) According to: EN 50399 Common test methods for cables under fire conditions Heat release and smoke production measurement on cables during flame spread test, UNI EN 13051-6 Flammability class: Cca Smoke emission class: s1a Drip particle class: d0

■ MECHANICAL PROPERTIES

Tensile strength and elongation	for insulation and sheath before ageing acc. to EN 50618 Annex B (test acc. To EN 60811-501). tensile strength ≥ 8 N/mm ² elongation at break for insulation and sheath $\geq 125\%$
Shrinkage test on sheath	acc. to EN 50618, Table 2: <2% (test acc. to EN 60811-503)
Dynamic Penetration Test	acc. to EN 50618
Durability of Print	acc. to EN 50618 (test acc. to EN 50396)
Direct Burial	Impact test resistance of single conductor type USE and USE-2 cables (acc. to UL854) Rodent resistance safety can be optimized by utilizing protective hoses and cables with spinning or braid metallic coatings
Long term resistance of insulation to d.c	acc. to EN 50618, Table 2 test acc. to EN 50395 clause 9: Cable immersed in water containing 1% NaCl for 240h ; Water temperature: 85°C \pm 5; Voltage applied: 1.8 kV D.C.

■ THERMAL PROPERTIES

Max. short circuit temperature	250°C (for 5 sec.)
Resistance to cold	EN 50618, Table 2: Cold Bending Test at -40°C acc. to EN 60811-504; Cold Elongation Test at -40°C acc. to EN 60811-505; Cold Impact Test at -40°C acc. to EN 50618 Annex C and EN 60811-506. Damp-Heat Test Acc. to EN 50618, Table 2 (test acc. to EN 60068-2-78) : 90°C for 1,000h and min. 85% humidity

QC4.10 Male & Female Connector



TECHNICAL DATA

Snap in-locking type

Temperature range -40°C to +85°C
Rated Voltage IEC 1500V
Rated current 41A, 46A, 55A
 (4mm², 6mm², 10mm²)

Contact resistance ≤0.5 mΩ

Breaking force Min. 80N

Life test plug 50 times

Protection classification IP68

TUV certificate number R50353779

Material

- Male and Female housing: PPE
- Cable nut: PA66
- Gasket: Silica gel
- O ring: Silica gel
- Metal plug: Tinned T2 copper
- Metal socket: Tinned T2 copper

MC4 male cable coupler

Part no.	Designation	Cross section mm ²	Cable Ø mm
18024705	QC4.10 male cable connector	4 - 6	5.6 - 6.8
18024672	QC4.10 male cable connector	10	6.6 - 8.7

MC4 female cable coupler

Part no.	Designation	Cross section mm ²	Cable Ø mm
18024706	QC4.10 female cable connector	4 - 6	5.6 - 6.8
18024673	QC4.10 female cable connector	10	6.6 - 8.7

Overview of Cables & Wires

PVC SHEATHED CABLES

UNSHIELDED



JZ-500
flexible, number coded, meter marking



JB-500
flexible, colour coded, meter marking



JZ-600
flexible, number coded, 0,6/1 kV, meter marking



TRONIC (LiYY)
flexible, colour coded to DIN 47100, meter marking

SHIELDED



F-CY-JZ
flexible, Cu-screened, EMC-preferred type, meter marking



Y-CY-JB
flexible, Cu-screened, transparent, EMC-preferred type, meter marking

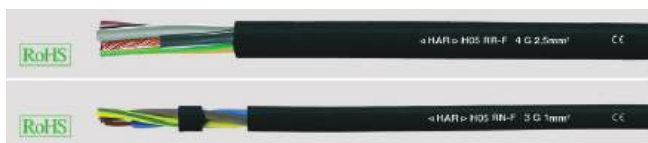


JZ-600-Y-CY
flexible, number coded, 0,6/1 kV, Cu-screened, meter marking, EMC-preferred type



TRONIC-CY (LiY-CY)
flexible, Cu-screened, colour coded to DIN 47100, EMC-preferred type, meter marking

RUBBER SHEATHED CABLES



H05RN-F / H07 RN-F
rubber-sheathed cable



YELLOWFLEX
wear-resistant, meter marking

Overview of Cables & Wires

PUR SHEATHED CABLES

UNSHIELDED



JZ-500 PUR
tear and coolant resistant, meter marking



PURö-JZ
tear and coolant resistant,
increased oil resistant, meter marking



UNIPUR®
flexible at low temperature, with customer
markings, halogen-free, wear resistant, robust,
meter marking

SHIELDED



JZ-500-FC-PUR
EMC-preferred type, tear and coolant resistant,
screened, without inner sheath, meter marking



F-C-PURö-JZ
tear and coolant resistant, Cu-screened,
without inner sheath, EMC-preferred type,
increased oil resistant, meter marking



UNIPUR®-CP
flexible at low temperature, with customer
markings, halogen-free, wear resistant, robust,
screened, EMC-preferred type, meter marking

BUILDING AUTOMATION CABLES



HELUDATA UL 2919 PE/FPE
for low frequency data transmission
for Data Highway



HELUDATA UL 20276
for low frequency data with
high transmission rate



HELUDATA UL 2092
for internal wiring, control signals,
HVAC cables



HELUDATA UL 2464
for instrumentation, industrial automation
and process control application

Overview of Cables & Wires

HEAT-RESISTANT CABLES SHIELDED



SiHF-GL/P
silicon multicore cable, steel braiding,
halogen-free



SiHF-C-Si
silicon multicore cable, halogen free, Cu-screened
EMC-preferred type, meter marking



THERMFLEX® 180 EWKF
halogen-free, silicone multicore cable,
meter marking



THERMFLEX® 180 EWKF-C
silicone multicore cable, screened, halogen-free,
EMC-preferred type, meter marking



H05SS-F / H05SST-F
heat-resistant multicore cable



SiF / SiFF
silicon singles cores, halogen-free

HALOGEN-FREE CONTROL CABLES UNSHIELDED



JZ-500 HMH
flexible control cable, halogen-free, extremely
fire resistant, oil resistant, meter marking



JZ-500 HMH-C
flexible control cable, halogen-free, extremely
fire resistant, oil resistant, Cu-screened,
EMC-preferred type, meter marking



JZ-600 HMH
flexible control cable, halogen-free, extremely
fire resistant, oil resistant, 0,6/1 kV,
meter marking



JZ-600 HMH-C
flexible control cable, halogen-free, extremely
fire resistant, oil resistant, 0,6/1 kV, screened,
EMC-preferred type, meter marking

Overview of Cables & Wires

HIGHLY FLEXIBLE CONTROL CABLES (FOR USE IN DRAG CHAINS)

UNSHIELDED



SUPERTRONIC®-PVC
special cable for drag chains, meter marking



JZ-HF
control cable for drag chains, high flexible, number coded, oil resistant, meter marking



MULTISPEED® 500-PVC
high flexible, safety against high bending in drag chain systems, oil resistant, low torsion, meter marking



MULTIFLEX 512®-PUR
special cable for drag chains, halogen-free, meter marking

SHIELDED



SUPERTRONIC®-C-PVC
special cable for drag chains, EMC-preferred type, meter marking



JZ-HF-CY
high flexible, screened control cable for drag chains, oil resistant, EMC-preferred type, meter marking



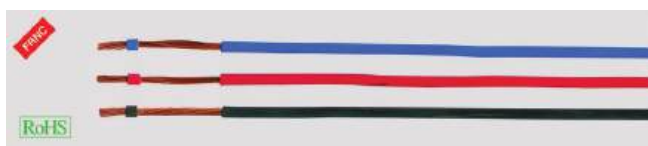
MULTISPEED® 500-C-PVC
high flexible, safety against high bending in drag chain systems, oil resistant, low torsion, screened, EMC-preferred type, meter marking



MULTIFLEX 512®-C-PUR
special cable for drag chains, halogen-free, screened, EMC-preferred type, meter marking

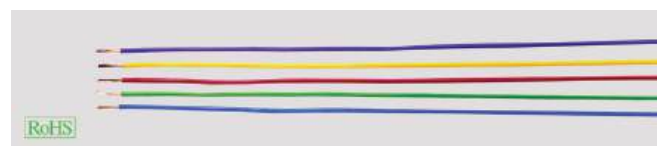
SINGLE CORES

HALOGEN-FREE



H05Z-K / H07Z-K / LS0H
rubber insulated single core, halogen-free

PVC SINGLE CORES



H05V-K / (H)07V-K
PVC-single cores, fine wire stranded

Current Ratings (General)

for flexible cables, for non-existing cables types in previous tables

The indicated values stated in the following table considered as guiding values in an abbreviate form.
In critical situation the DIN VDE recommendations should be considered.

Ambient temperature up to 30°C

Nominal cross-section mm ²	Group 1	Group 2	Group 3
	power rating A	power rating A	power rating A
0,05	1	1	2
0,14	2	2	3,5
0,25	4	4,5	6
0,34	6	6	9
0,5	9	9	12
0,75	12	12	15
1	15	15	19
1,5	18	18	24
2,5	26	26	32
4	34	34	42
6	44	44	54
10	61	61	73
16	82	82	98
25	108	108	129
35	135	135	158
50	168	168	198
70	207	207	245
95	250	250	292
120	292	292	344
150	335	335	391
185	382	382	448
240	–	453	528
300	–	523	608
400	–	–	726

- group 1 One or more single core cables and insulated wires laid in duct i. e. PVC-sheathed single cores H 03V. ./H 05V. ./H 07V. .
- group 2 Multi core cables, i. e. light PVC-sheathed cables, flexible cables, metal-clad wiring cables in open or ventilated conduits.

- group 3 Single core cables, laid open in air with a spacing at least equal to cable diameter, such as single core wirings for switch- and distribution cabinets and rail line distributors.

Conversion factors for deviating ambient temperatures:

Ambient temperature over 30°C

Ambient temperature °C	Conversion factors, applied to the above current ratings table	
	Rubber insulation Permissible operating temp. at conductor Conversion factors up to 60°C	PVC insulation Permissible operating temp. at conductor Conversion factors up to 70°C
over 30 bis 35	0,91	0,94
over 35 bis 40	0,82	0,87
over 40 bis 45	0,71	0,79
over 45 bis 50	0,58	0,71
over 50 bis 55	0,41	0,61
over 55 bis 60	–	0,50
over 60 bis 65	–	0,35

VDE approval see inside back cover

Ambient temperature over 50°C (heat-resistant)

Permissible operating temperature at conductor Conversion factors up to 90°C		Permissible operating temperature at conductor Conversion factors up to 110°C	
over 50 bis 55	0,94	over 50 bis 55	1,00
over 55 bis 60	0,87	over 55 bis 60	1,00
over 60 bis 65	0,79	over 60 bis 65	1,00
over 65 bis 70	0,71	over 65 bis 70	1,00
over 70 bis 75	0,61	over 70 bis 75	1,00
over 75 bis 80	0,50	over 75 bis 80	1,00
over 80 bis 85	0,35	over 80 bis 85	0,91
over 85 bis 90	–	over 85 bis 90	0,82
		over 90 bis 95	0,71
		over 95 bis 100	0,58
		over 100 bis 105	0,41
		over 105 bis 110	–

STRAND MAKE-UP (acc. to DIN VDE 0295, IEC 60228)

The number of wires in columns 3-7 is not binding. According to DIN VDE 0295 is the maximum single wire diameter for the construction of the conductor cross section and the maximum conductor resistance value shall prevail.

cross section mm ²	stranded wires	multistranded wires	fine wires	extra-fine wires			
	class 2 DIN VDE 0295		class 5 DIN VDE 0295	class 6 DIN VDE 0295			
	column 1	column 2	column 3	column 4	column 5	column 6	column 7
	Number ³⁾ single of wires x wire Ø mm	Number single of wires x wire Ø mm	Number ¹⁾ single ²⁾ of wires x wire Ø mm	Number ¹⁾ single ²⁾ of wires x wire Ø mm	Number ¹⁾ single of wires x wire Ø mm	Number ¹⁾ single of wires x wire Ø mm	Number ¹⁾ single of wires x wire Ø mm
0,05						~14 x 0,07	~26 x 0,05
0,08							~40 x 0,05
0,09						~24 x 0,07*	
0,14			~18 x 0,1	~18 x 0,1	~18 x 0,1	~36 x 0,07	~72 x 0,05
0,25			~14 x 0,15	~32 x 0,1	~32 x 0,1	~65 x 0,07	~128 x 0,05
0,34		7 x 0,25	~19 x 0,15	~42 x 0,1	~42 x 0,1	~88 x 0,07	~174 x 0,05
0,38		7 x 0,27	~12 x 0,2	~21 x 0,15	~48 x 0,1	~100 x 0,07	~194 x 0,05
0,5	7 x 0,30	7 x 0,30	~16 x 0,2	~28 x 0,15	~64 x 0,1	~131 x 0,07	~256 x 0,05
0,75	7 x 0,37	7 x 0,37	~24 x 0,2	~42 x 0,15	~96 x 0,1	~195 x 0,07	~384 x 0,05
1,0	7 x 0,43	7 x 0,43	~32 x 0,2	~56 x 0,15	~128 x 0,1	~260 x 0,07	~512 x 0,05
1,5	7 x 0,52	7 x 0,52	~30 x 0,25	~84 x 0,15	~192 x 0,1	~392 x 0,07	~768 x 0,05
2,5	7 x 0,67	19 x 0,41	~50 x 0,25	~140 x 0,15	~320 x 0,1	~651 x 0,07	~1280 x 0,05
4	7 x 0,85	19 x 0,52	~56 x 0,3	~224 x 0,15	~512 x 0,1	~1040 x 0,07	
6	7 x 1,05	19 x 0,64	~84 x 0,3	~192 x 0,2	~768 x 0,1	~1560 x 0,07	
10	7 x 1,35	49 x 0,51	~80 x 0,4	~320 x 0,2	~1280 x 0,1	~2600 x 0,07	
16	7 x 1,70	49 x 0,65	~128 x 0,4	~512 x 0,2	~2048 x 0,1		
25	7 x 2,13	84 x 0,62	~200 x 0,4	~800 x 0,2	~3200 x 0,1		
35	7 x 2,52	133 x 0,58	~280 x 0,4	~1120 x 0,2			
50	19 x 1,83	133 x 0,69	~400 x 0,4	~705 x 0,3			
70	19 x 2,17	189 x 0,69	~356 x 0,5	~990 x 0,3			
90	19 x 2,52	259 x 0,69	~485 x 0,5	~1340 x 0,3			
120	37 x 2,03	336 x 0,67	~614 x 0,5	~1690 x 0,3			
150	37 x 2,27	392 x 0,69	~765 x 0,5	~2123 x 0,3			
185	37 x 2,52	494 x 0,69	~944 x 0,5	~1470 x 0,4			
240	37 x 2,87	627 x 0,70	~1225 x 0,5	~1905 x 0,4			
300	61 x 2,50	790 x 0,70	~1530 x 0,5	~2385 x 0,4			
400	61 x 2,89		~2035 x 0,5				
500	61 x 3,23		~1768 x 0,6				
630	91 x 2,97		~2228 x 0,6				



Class 1



Class 2



Class 5



Class 6

* Alternative: 19x0,08

¹⁾The number of individual wires are without obligation.

²⁾The diameters of the single wires for each conductor are not allowed to exceed the value stated to DIN VDE 0295. The single wires of a stranded conductor must have all the same nominal diameters.

³⁾Minimum-number of single wires of stranded conductor (up to 35mm²). The single wires of a stranded conductor must have all the same nominal diameters.

²⁾ Note: permissible maximal diameter of single wires:

nominal value mm	maximal value mm
0,2	0,21
0,25	0,26
0,3	0,31
0,4	0,41
0,5	0,51
0,6	0,61

COLOUR CODE ACCORDING TO DIN 47100

with colour repetition from core no. 45 and above

Electronic control and computer cable: **single cores** stranding

The insulation of the conductor gives the first basic colour. The codes of the multi-coloured identification are combined with a basic colour and colour rings. The second and third colour is printed on the basic colour as a form of ring.

The ring width is 2–3 mm. A less unsharpness on the edge of the identification colour and a minor pledging of both half-rings are permitted.

The cores are to be counted continuously through all layers at the same direction, beginning with the outer layer towards inside.

No. Basic-Ring-colours	No. Basic-Ring-colours	No. Basic-Ring-colours	No. Basic-Ring-colours
1 white	17 white-grey	33 green-red	45 white
2 brown	18 grey-brown	34 yellow-red	46 brown
3 green	19 white-pink	35 green-black	47 green
4 yellow	20 pink-brown	36 yellow-black	48 yellow
5 grey	21 white-blue	37 grey-blue	49 grey
6 pink	22 brown-blue	38 pink-blue	50 pink
7 blue	23 white-red	39 grey-red	51 blue
8 red	24 brown-red	40 pink-red	52 red
9 black	25 white-black	41 grey-black	53 black
10 violet	26 brown-black	42 pink-black	54 violet
11 grey-pink	27 grey-green	43 blue-black	55 grey-pink
12 red-blue	28 yellow-grey	44 red-black	56 red-blue
13 white-green	29 pink-green		57 white-green
14 brown-green	30 yellow-pink		58 brown-green
15 white-yellow	31 green-blue		59 white-yellow
16 yellow-brown	32 yellow-blue		60 yellow-brown
			61 white-grey

COLOUR CODE ADAPTED* TO DIN 47100

without colour repetition

No. Basic-Ring-colours	No. Basic-Ring-colours	No. Basic-Ring-colours	No. Basic-Ring-colours
1 white	17 white-grey	33 green-red	45 white-brown-black
2 brown	18 grey-brown	34 yellow-red	46 yellow-green-black
3 green	19 white-pink	35 green-black	47 grey-pink-black
4 yellow	20 pink-brown	36 yellow-black	48 red-blue-black
5 grey	21 white-blue	37 grey-blue	49 white-green-black
6 pink	22 brown-blue	38 pink-blue	50 brown-green-black
7 blue	23 white-red	39 grey-red	51 white-yellow-black
8 red	24 brown-red	40 pink-red	52 yellow-brown-black
9 black	25 white-black	41 grey-black	53 white-grey-black
10 violet	26 brown-black	42 pink-black	54 grey-brown-black
11 grey-pink	27 grey-green	43 blue-black	55 white-pink-black
12 red-blue	28 yellow-grey	44 red-black	56 pink-brown-black
13 white-green	29 pink-green		57 white-blue-black
14 brown-green	30 yellow-pink		58 brown-blue-black
15 white-yellow	31 green-blue		59 white-red-black
16 yellow-brown	32 yellow-blue		60 brown-red-black
			61 black-white

* deviation to DIN, without colour repetition, from core no. 45 and above

PAIR-COLOUR CODE ACCORDING TO DIN 47100

with colour repetition

Electronic control and computer cable: **pair** stranding

The insulation of the conductor gives the first basic colour. The codes of the multi-coloured identification are combined with a basic colour and colour rings. The second colour is printed on the basic colour as a form of ring. The ring width is 2–3 mm. A less unsharpness on the edge of the identification colour and a minor pledging of both half-rings are permitted.

The cores are to be counted continuously through all layers at the same direction, beginning with the outer layer towards inside.

Pair-stranding				colour
Pair-no.	core			
1	23	45	a	white
			b	brown
2	24	46	a	green
			b	yellow
3	25	47	a	grey
			b	pink
4	26	48	a	blue
			b	red
5	27	49	a	black
			b	violet
6	28	50	a	grey-pink
			b	red-blue
7	29	51	a	white-green
			b	brown-green
8	30	52	a	white-yellow
			b	yellow-brown
9	31	53	a	white-grey
			b	grey-brown
10	32	54	a	white-pink
			b	pink-brown
11	33	55	a	white-blue
			b	brown-blue

Pair-stranding				colour
Pair-no.	core			
12	34	56	a	white-red
			b	brown-red
13	35	57	a	white-black
			b	brown-black
14	36	58	a	grey-green
			b	yellow-grey
15	37	59	a	pink-green
			b	yellow-pink
16	38	60	a	green-blue
			b	yellow-blue
17	39	61	a	green-red
			b	yellow-red
18	40	62	a	green-black
			b	yellow-black
19	41	63	a	grey-blue
			b	pink-blue
20	42	64	a	grey-red
			b	pink-red
21	43	65	a	grey-black
			b	pink-black
22	44	66	a	blue-black
			b	red-black

Colour code as per DIN 47002

YV-Equipment wires
(for twin colour cables, the base colour is underlined)

ws	white	br	brown
gn	green	ge	yellow
gr	grey	rs	pink
bl	blue	rt	red
sw	black	vi	violet
wsbr	<u>white</u> -brown	wsgn	<u>white</u> -green
wsge	<u>white</u> -yellow	wsbl	<u>white</u> -blue
wsrt	<u>white</u> -red	wssw	<u>white</u> -black
brgn	<u>brown</u> -green	brge	<u>brown</u> -yellow
brbl	<u>brown</u> -blue	brsw	<u>brown</u> -black
gnge	<u>green</u> -yellow	gnrt	<u>green</u> -red
gnsw	<u>green</u> -black	gebl	<u>yellow</u> -blue
gert	<u>yellow</u> -red	gesw	<u>yellow</u> -black
grrt	<u>grey</u> -red	grsw	<u>grey</u> -black
rssw	<u>pink</u> -black	rsvi	<u>pink</u> -violet
blrt	<u>blue</u> -red	rtsw	<u>red</u> -black
virt	<u>violet</u> -red		

Colour code for YR-Bell Sheathed Cables

2 x 0,8:	bk, bu
3 x 0,8:	bk, bu, bn
4 x 0,8:	bk, bu, bn, ye
5 x 0,8:	bk, bu, bn, ye, gn
6 x 0,8:	bk, bu, bn, ye, gn, vt
8 x 0,8:	bk, bu, bn, ye, gn, vt, wh, og
10 x 0,8:	bk, bu, bn, ye, gn, vt, wh, og, tr, gy
12 x 0,8:	bk, bu, bn, ye, gn, vt, wh, og, tr, gy, rd, lbu
14 x 0,8:	bk, bu, bn, ye, gn, vt, wh, og, tr, gy, rd, lbu, cog, lgn
16 x 0,8:	bk, bu, bn, ye, gn, vt, wh, og, tr, gy, rd, lbu, cog, lgn, lrd, lye

Conversion Chart, mm² to AWG

mm ²	AWG
0.14	26
0.25	24
0.34	22
0.5	20
0.75	19
1	18
1.5	16

mm ²	AWG
2.5	14
4	12
6	10
10	8
16	6
25	4
35	2

mm ²	AWG
50	1
70	2/0
95	3/0
120	4/0
150	300 kcmil
185	350 kcmil
240	500 kcmil

Conversion Chart, Celcius (°C) to Fahrenheit (°F)

Celcius (°C)	Fahrenheit (°F)
-50 °C	-58 °F
-40 °C	-40 °F
-30 °C	-22 °F
-20 °C	-13 °F
-10 °C	14 °F
-5 °C	23 °F
0 °C	32 °F

Celcius (°C)	Fahrenheit (°F)
50 °C	122 °F
60 °C	140 °F
70 °C	158 °F
80 °C	176 °F
90 °C	194 °F
105 °C	221 °F
150 °C	302 °F

Conversion Chart, Meter (m) to Foot/Feet (ft)

Meter (m)	Foot/Feet (ft)
1 m	3.28 ft
2 m	6.56 ft
5 m	16.4 ft
10 m	32.8 ft
20 m	65.62 ft
30 m	98.43 ft

Meter (m)	Foot/Feet (ft)
50 m	164.04 ft
100 m	328.08 ft
200 m	656.16 ft
300 m	984.25 ft
500 m	1640.42 ft
1000 m	3280.84 ft

Conversion Chart, Kilogram (kg) to Pound (lbs)

Kilogram (kg)	Pound (lbs)
1 kg	2.2 lbs
2 kg	4.41 lbs
5 kg	11.02 lbs
10 kg	22.04 lbs
20 kg	44.09 lbs
30 kg	66.13 lbs

Kilogram (kg)	Pound (lbs)
50 kg	110.23 lbs
100 kg	220.46 lbs
200 kg	440.92 lbs
300 kg	661.38 lbs
500 kg	1102.31 lbs
1000 kg	2204.62 lbs

**(Channeling
POWER)** 

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