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Flexible Control Cables

Flexible Control Cables

Since generations people try to build machines and plants which shall take on different functions. To raise, sink, slide, drill, transport and much more. And people attained fantastic results.

A

Today, we control, inform, weld, pack and transport automaticly by electric control and data cables.

These cables are necessary to ensure a frictionless flow of data and material. We are able to offer most of these cables: for many applications.

On the following pages we present cables for the corresponding applications.

If you cant find a suitable cable in our catalogue, we fabricate this special cable on request already from **100 m** (see special cables on page Q) or may be we can offer you a similar cable from our stock.

HELUKABEL® with one of the biggest stocks of special and standard cables in Germany with excellent logistics wants to prove itself each day.

Stocks in:

Hemmingen/Stuttgart, Neuenhagen/Berlin,
Pleißa/Chemnitz, Windsbach/Nürnberg.

Contents and Index

Description	Type	Page
A Control cables		
PVC control cables		
Flexible, black cores, number coded, with VDE Reg.-No.	JZ-500	A 1–A 2
Flexible, 2 approvals	Single 600 -J/-O	A 3
Flexible, black cores, number coded	JZ-600, JZ-750	A 5–A 9
Flexible, blue or red cores, number coded, with VDE Reg.-No.	JZ-500	A 10–A 13
Flexible, colour coded cores	JB-500	A 14
Flexible, colour coded cores, 750 V	JB-750	A 15
Flexible, orange cores, outer sheath orange	JZ-500 orange	A 16
Flexible, colour coded cores, outer sheath yellow	JB-750 yellow	A 17
Flexible, 2 approvals	JZ-602, UL-CSA	A 22–A 23
Flexible, 3 approvals	THREENORM JZ-603, UL-CSA-HAR	A 35
Flexible, 2 approvals	JZ-600, UL/CSA	A 77
PUR control cables		
Flexible, 2 approvals	JZ-602-PUR	A 24–A 25
Flexible, black cores, number coded, oil resistant	PURö-JZ	A 71–A 72
Flexible, black cores, number coded	JZ-500-PUR	A 70
Flexible, PVC inner jacket, cores number or colour coded	PUR-ORANGE/PUR-YELLOW	A 82–A 83
Flexible, special rubber-PUR, VDE approved	H05 BQ-F, H07 BQ-F (NGMH11Yö)	A 84
Cold-flexible, halogen-free	UNIPUR	A 85–A 86
High flexible, number coded cores, robust, oil resistant	PURö-JZ-HF	A 46–A 47
High flexible, special drag chain cable	MULTIFLEX 512-PUR	A 50
Flexible, 2 approvals	JZ-600 PUR UL/CSA	A 79
Screened PVC control cables		
Flexible, 2 approvals	Single 600-CY -J/-O	A 4
Flexible, number coded, copper screened, EMC-preferred type	JZ-600-Y-CY	A 7–A 8
Flexible, number coded cores, steel wire braiding, with VDE Reg.-No.	SY-JZ	A 18–A 19
Flexible, colour coded cores, steel wire braiding, with VDE Reg.-No.	SY-JB	A 20–A 21
Flexible, two approvals, copper screen, EMC-preferred type	JZ-602-CY, UL-CSA/JZ-602-C-PUR	A 26–A 28
Flexible, three approvals, copper screen	3 Approvals JZ 603-CY, UL-CSA-HAR	A 36
Flexible, 2 approvals	JZ-600 Y-CY, UL/CSA	A 78
Screened PUR control cables		
High flexible, number coded cores, copper screen, very robust, oil resistant	PURö-JZ-HF-YCP	A 48–A 49
High flexible, copper screen, special drag-chain cable	MULTIFLEX 512-C-PUR	A 51–A 52
Flexible, for extreme stress, copper screen	PUR-C-PUR	A 89
Flexible, very robust, copper screen, without inner jacket, EMC-preferred type	F-C-PURö-JZ	A 73–A 74
Flexible, very robust, copper screen, with inner jacket, EMC-preferred type	Yö-C-PURö-JZ	A 65–A 66
Cold-flexible, halogen-free	UNIPUR-CP	A 87–A 88
Core marking according to DIN 47100, copper screen	DATAPUR-C	A 90
Core marking according to DIN 47100, copper screen	SUPERTRONIC-C-PUR	A 44
Flexible, 2 approvals	JZ-600-YC-PUR UL/CSA	A 80
PVC cables for installation in drag chains		
High flexible, single core	Single 602-RC -J/O, UL-CSA	A 29
High flexible, number coded cores	JZ-602 RC, UL-CSA	A 31
High flexible, number coded cores, with VDE Reg.-No.	JZ-HF	A 40–A 41
Core marking according to DIN 47100	SUPERTRONIC-PVC	A 39
PVC cables, screened, for installation in drag chains		
High flexible, single core, copper screened	Single 602-RC-CY -J/O, UL-CSA	A 30
High flexible, number coded cores, copper screen	JZ-602 RC-CY, UL-CSA	A 33
High flexible, number coded cores, copper screen	JZ-602 RC-PUR	A 32
High flexible, number coded cores, copper screen, very robust, with VDE Reg.-No.	JZ-HF-CY	A 42
Core marking according to DIN 47100, copper screen	SUPERTRONIC-C-PVC	A 39
PUR cables for installation in drag chains		
High flexible, number coded cores, very robust, oil resistant	PURö-JZ-HF	A 46–A 47
High flexible, number coded, copper screened	JZ-602-C-PUR	A 34
High flexible, number coded cores, special cable	MULTIFLEX 512-PUR	A 50
Core marking according to DIN 47100	SUPERTRONIC-PURö	A 43
High flexible, number coded cores, 0,6/1 kV	TOPFLEX 611-PUR/TOPFLEX-611-C-PUR	A 68
PUR cables, screened, for installation in drag chains		
High flexible, number coded cores, copper screened, very robust, oil resistant	PURö-JZ-HF-YCP	A 48–A 49
High flexible, number coded cores, copper screened, special cable	MULTIFLEX 512-C-PUR	A 51–A 52
Core marking according to DIN 47100, copper screen	SUPERTRONIC-C-PURö/ SUPER-PAAR-TRONIC-C-PUR	A 44–A 45
Bio oil resistant		
Bio oil resistant, screened, high flexible	BIOFLEX-500/-C/-HF	A 92–A 95
Halogen-free cables		
High flexible	PUR-750	A 81
Microbes resistant	KOMPOFLEX JZ 500/KOMPOSPEED JZ-HF	A 96–A 101
Safety against high bending in drag chain systems		
High flexible, low tension	MULTISPEED	A 55–A 58
High flexible, low tension	MULTISPEED-TRONIC-PUR	A 53
High flexible, low tension, copper screened	MULTISPEED-TRONIC-C-PUR	A 54
High flexible, low tension	MULTISPEED UL/CSA	A 57–A 67
Intrinsic PVC cables		
Flexible, number coded cores, blue outer jacket, with VDE Reg.-No.	OZ-B, OZ-BL-CY	A 104–A 105



HELUKABEL VDE Reg.-Nr. 7032 JZ-500 25G1,5 QMM / 10110 300/500 V 001041117 CE

Technical data

- Control cables, special PVC
- Requirements adapted to DIN VDE 0245, 0281, 0293, 0295
- Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- Nominal voltage** U_0/U 300/500 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min. 20 MΩ·km
- Minimum bending radius** for permanent approx. 7,5 x cable Ø
- Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC60228 cl. 5
- Core insulation of special PVC Z 7225
- Black cores with continuous white numbering according to DIN VDE 0293 (also available with other core colours)
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Outer sheath of special PVC, TM2 to DIN VDE 0281 part 1 and HD 21.1, colour grey (RAL 7001)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as measuring and control cables in tool machines, conveyor belts, production lines in machinery production, in air-conditioning and in steel production. The cores have been numbered in such a way that there is no difficulty in recognising them, even if only a small piece of sheathing has been removed. The numbers have been underlined to avoid confusion. The earth core is laid in the outer layer. Selected PVC-compounds guarantee a good flexibility as well as an economic and fast installation.

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CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10001 OZ	2 x 0,5	4,8	9,6	40	20
10002	3 G 0,5	5,1	14,4	46	20
10003 OZ	3 x 0,5	5,1	14,4	46	20
10004	4 G 0,5	5,7	19,0	56	20
10005 OZ	4 x 0,5	5,7	19,0	56	20
10006	5 G 0,5	6,2	24,0	65	20
10007 OZ	5 x 0,5	6,2	24,0	65	20
10008	6 G 0,5	6,7	29,0	75	20
10009	7 G 0,5	7,4	33,6	80	20
10010 OZ	7 x 0,5	7,4	33,6	80	20
10011*	8 G 0,5	8,0	38,0	97	20
10172 OZ	8 x 0,5	8,0	38,0	97	20
10012	10 G 0,5	8,8	48,0	116	20
10013	12 G 0,5	9,1	58,0	135	20
10014 OZ	12 x 0,5	9,1	58,0	135	20
10015	14 G 0,5	9,5	67,0	150	20
10183	16 G 0,5	10,0	76,0	175	20
10016	18 G 0,5	10,7	86,0	196	20
10017	20 G 0,5	11,2	96,0	215	20
10018	21 G 0,5	11,8	101,0	240	20
10019	25 G 0,5	13,0	120,0	270	20
10020	30 G 0,5	13,5	144,0	310	20
10021	32 G 0,5	14,0	154,0	323	20
10022	34 G 0,5	14,5	163,0	362	20
10023	40 G 0,5	15,8	192,0	434	20
10024	42 G 0,5	15,8	202,0	449	20
10025	50 G 0,5	17,3	240,0	513	20
10169	52 G 0,5	17,3	252,0	534	20
10026	61 G 0,5	19,4	293,0	625	20
10027	65 G 0,5	19,4	312,0	682	20
10028	80 G 0,5	21,3	384,0	780	20
10029	100 G 0,5	23,7	480,0	980	20

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10030 OZ	2 x 0,75	5,2	14,4	46	18
10031*	3 G 0,75	5,5	21,6	54	18
10032 OZ	3 x 0,75	5,5	21,6	54	18
10033*	4 G 0,75	6,2	29,0	66	18
10034 OZ	4 x 0,75	6,2	29,0	66	18
10035	5 G 0,75	6,8	36,0	80	18
10036 OZ	5 x 0,75	6,8	36,0	80	18
10037	6 G 0,75	7,5	43,0	99	18
10177 OZ	6 x 0,75	7,5	43,0	99	18
10038	7 G 0,75	8,1	50,0	110	18
10039 OZ	7 x 0,75	8,1	50,0	110	18
10040	8 G 0,75	8,9	58,0	130	18
10173 OZ	8 x 0,75	8,9	58,0	130	18
10041	9 G 0,75	9,5	65,0	153	18
10042	10 G 0,75	9,6	72,0	162	18
10043*	12 G 0,75	9,9	86,0	179	18
10044 OZ	12 x 0,75	9,9	86,0	179	18
10045	14 G 0,75	10,6	101,0	214	18
10046	15 G 0,75	11,2	108,0	218	18
10047	18 G 0,75	11,9	130,0	257	18
10533	19 G 0,75	12,3	137,0	264	18
10048	20 G 0,75	12,6	144,0	286	18
10049	21 G 0,75	13,3	151,0	320	18
10050	25 G 0,75	14,5	180,0	365	18
10534	27 G 0,75	15,2	195,0	382	18
10051	32 G 0,75	15,6	230,0	455	18
10052	34 G 0,75	16,4	245,0	510	18
10182	37 G 0,75	17,2	260,0	537	18
10053	40 G 0,75	17,6	288,0	595	18
10054	41 G 0,75	17,6	296,0	607	18
10055	42 G 0,75	17,6	302,0	612	18
10056	50 G 0,75	19,8	360,0	735	18
10057	61 G 0,75	20,9	439,0	845	18
10178	65 G 0,75	21,5	468,0	895	18
10058	80 G 0,75	23,6	576,0	1070	18
10059	100 G 0,75	27,2	720,0	1322	18

For screened version see type HELUKABEL® F-CY-JZ in page C 11 – 12.

* These dimensions are also available with red resp. blue cores.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

¹) Please note the cleanroom qualification when ordering. Further informations on page 16.

Continuation ►

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10060 OZ	2x1	5,5	19,2	60	17
10061*	3G1	6,0	29,0	72	17
10062 OZ	3x1	6,0	29,0	72	17
10063*	4G1	6,6	38,4	86	17
10064 OZ	4x1	6,6	38,4	86	17
10065*	5G1	7,2	48,0	104	17
10066 OZ	5x1	7,2	48,0	104	17
10067	6G1	8,0	58,0	125	17
10068*	7G1	8,6	67,0	141	17
10069 OZ	7x1	8,6	67,0	141	17
10070*	8G1	9,4	77,0	175	17
10071	9G1	10,1	86,0	200	17
10180	10G1	10,4	96,0	217	17
10170 OZ	10x1	10,4	96,0	217	17
10072*	12G1	10,7	115,0	230	17
10073 OZ	12x1	10,7	115,0	230	17
10074*	14G1	11,3	134,0	271	17
10075	16G1	12,0	154,0	300	17
10076*	18G1	12,7	173,0	343	17
10174 OZ	18x1	12,7	173,0	343	17
10197	19G1	13,0	182,0	355	17
10077	20G1	13,5	192,0	375	17
10184 OZ	20x1	13,5	192,0	375	17
10179	21G1	14,1	205,0	420	17
10175	24G1	14,7	236,0	440	17
10078*	25G1	15,6	240,0	485	17
10176 OZ	25x1	15,6	240,0	485	17
10196	26G1	15,6	252,0	500	17
10198	27G1	15,8	259,0	534	17
10168 OZ	30x1	16,0	308,0	550	17
10079*	34G1	17,4	326,0	650	17
10080	36G1	17,4	346,0	668	17
10199	37G1	18,4	355,0	701	17
10081	40G1	18,9	384,0	755	17
10167 OZ	40x1	18,9	384,0	755	17
10082	41G1	18,9	394,0	770	17
10083	42G1	18,9	403,0	810	17
10084*	50G1	21,0	480,0	936	17
10085	56G1	21,5	538,0	920	17
10086	61G1	22,2	586,0	1100	17
10087	65G1	22,8	628,0	1180	17
10088	80G1	25,4	768,0	1294	17
10089	100G1	28,2	960,0	1644	17
10090* OZ	2x1,5	6,3	29,0	70	16
10091*	3G1,5	6,7	43,0	90	16
10092 OZ	3x1,5	6,7	43,0	90	16
10093*	4G1,5	7,3	58,0	109	16
10094 OZ	4x1,5	7,3	58,0	109	16
10095*	5G1,5	8,2	72,0	131	16
10096 OZ	5x1,5	8,2	72,0	131	16
10097	6G1,5	8,9	86,0	157	16
10098*	7G1,5	9,8	101,0	184	16
10099 OZ	7x1,5	9,8	101,0	184	16
10100	8G1,5	10,6	115,0	216	16
10101	9G1,5	11,5	129,0	259	16
10181	10G1,5	11,7	144,0	275	16
10102	11G1,5	12,1	158,0	300	16
10103*	12G1,5	12,1	173,0	309	16
10104 OZ	12x1,5	12,1	173,0	309	16
10105	14G1,5	12,9	202,0	345	16
10106	16G1,5	13,6	230,0	386	16
10107*	18G1,5	14,5	259,0	440	16
10185	19G1,5	15,2	279,0	445	16
10108	20G1,5	15,2	288,0	490	16
10109	21G1,5	16,1	302,0	555	16
10110*	25G1,5	17,8	360,0	620	16
10535	27G1,5	19,0	389,0	670	16
10111*	32G1,5	19,1	461,0	790	16
10112*	34G1,5	19,8	490,0	830	16
10536	37G1,5	20,2	533,0	892	16
10113	41G1,5	21,0	576,0	996	16
10114	42G1,5	21,4	605,0	1007	16
10115	50G1,5	23,7	720,0	1250	16
10116	56G1,5	25,0	806,0	1332	16
10117	61G1,5	25,3	878,0	1440	16
10187	65G1,5	26,0	936,0	1602	16

Note

Important for assemblers: We supply any "desired length" of stranded cores without outer sheath, core insulation colour acc. RAL 5010 with number combination acc. customers requirement.

* These dimensions are also available with red resp. blue cores.

** Available in colour coded version only. HELUKABEL®-JB.

G = with green-yellow earth core X = without green-yellow earth core (OZ)

For screened version see type HELUKABEL® F-CY-JZ in page C 11 – 12.

PVC cables will be changed to lead free PVC successively.

¹) Please note the cleanroom qualification when ordering. Further informations on page 16.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10118	80G1,5	29,0	1152,0	1871	16
10119	100G1,5	32,5	1440,0	2353	16
10120 OZ	2x2,5	7,6	48,0	112	14
10121	3G2,5	8,3	72,0	148	14
10122 OZ	3x2,5	8,3	72,0	148	14
10123	4G2,5	9,1	96,0	178	14
10124 OZ	4x2,5	9,1	96,0	178	14
10125	5G2,5	10,2	120,0	221	14
10126 OZ	5x2,5	10,2	120,0	221	14
10127	7G2,5	12,1	168,0	306	14
10128 OZ	7x2,5	12,1	168,0	306	14
10129	8G2,5	13,2	192,0	363	14
10130	12G2,5	15,2	288,0	498	14
10131	14G2,5	16,1	336,0	569	14
10132	18G2,5	18,1	432,0	764	14
10133	21G2,5	20,4	504,0	914	14
10134	25G2,5	22,2	600,0	1044	14
10135	34G2,5	25,1	816,0	1470	14
10136	42G2,5	27,2	1008,0	1790	14
10137	50G2,5	30,0	1200,0	2095	14
10138	61G2,5	32,0	1464,0	2750	14
10139	100G2,5	41,0	2400,0	4450	14
10140 OZ	2x4	9,2	77,0	195	12
10141	3G4	9,9	115,0	230	12
10142	4G4	11,0	154,0	295	12
10143	5G4	12,1	192,0	361	12
10144	7G4	13,3	269,0	458	12
10145	8G4	15,9	307,0	590	12
10146	12G4	18,3	461,0	790	12
10147	3G6	11,7	173,0	355	10
10148	4G6	13,0	230,0	424	10
10149	5G6	14,5	288,0	525	10
10150	7G6	16,0	403,0	625	10
10151	3G10	15,0	288,0	540	8
10152	4C10	16,8	384,0	701	8
10153	5G10	18,7	480,0	858	8
10154	7G10	20,6	672,0	1106	8
10190	3G16	17,6	461,0	827	6
10155	4C16	19,7	614,0	1035	6
10156	5C16	21,9	768,0	1259	6
10157	7C16	24,4	1075,0	1780	6
10191	3G25	22,5	720,0	1186	4
10158	4C25	25,2	960,0	1582	4
10159	5G25	27,9	1200,0	1999	4
10160	7G25	31,0	1680,0	2825	4
10192**	3G35	25,2	1008,0	1585	2
10161**	4C35	28,0	1344,0	2105	2
10162**	5C35	29,3	1680,0	2633	2
10193**	3G50	29,9	1440,0	2550	1
10163**	4C50	33,4	1920,0	2940	1
10188**	5G50	37,2	2400,0	3936	1
10194**	3G70	37,0	2016,0	3180	2/0
10164**	4C70	41,2	2688,0	4090	2/0
10189**	5G70	46,0	3360,0	5443	2/0
10195**	3G95	41,0	2736,0	4680	3/0
10165**	4C95	46,0	3648,0	5540	3/0
10333**	5G95	50,5	4560,0	6931	3/0
10166**	4C120	50,3	4608,0	7000	4/0
13139**	4C150	57,0	5760,0	8340	300 kcmil
13140**	4C185	63,5	7104,0	9904	350 kcmil

¹) Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.



HELUKABEL® Single 600 -J/-O

Special Single Core Cable, UL-CSA approved 0,6/1 kV



Technical data

- Special PVC control cable according to UL-Style 10107 and CSA AWM I/II AB, adapted to DIN VDE 0281 part 3, DIN VDE 0281 part 13, to UL-Std. 758
- **Temperature range**
 - flexing – 5°C bis +80°C
 - fixed installation –40°C bis +80°C
- **Permissible operating temperature** max. 80°C at conductor
- **Nominal voltage** U₀/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** 7,5x cable Ø – flexing
- **Radiation resistance** up to 80x10⁶ cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- 1. Core insulation of special PVC, TI2 to DIN VDE 0281 part 1 and UL-Std. 1581 class 43, colour black or green-yellow
- 2. Core insulation (jacket) of special PVC, TM2 to DIN VDE 0821 part 1 and UL Std. 1581 class 43, colour black (RAL 9005)
- Chemical Resistance – see table Technical informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1

Application

PVC Single cores suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial- or as under-water cable.

These two norms approved single cores designed for exportorientated machinery manufacturer for machine tools, conveyor belts and production lines.

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CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores cross-sec. mm ²	AWG-No.*)	Core colour	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
10881	1 G 6	10	gn-ye	7,8	58	118
10882	1 x 6	10	black	7,8	58	118
10883	1 G 10	8	gn-ye	9,0	96	180
10884	1 x 10	8	black	9,0	96	180
10885	1 G 16	6	gn-ye	10,0	154	250
10886	1 x 16	6	black	10,0	154	250
10887	1 G 25	4	gn-ye	11,6	240	370
10888	1 x 25	4	black	11,6	240	370
10889	1 G 35	2	gn-ye	13,0	336	490
10890	1 x 35	2	black	13,0	336	490
10891	1 G 50	1	gn-ye	16,0	480	665
10892	1 x 50	1	black	16,0	480	665
10893	1 G 70	2/0	gn-ye	17,1	672	910
10894	1 x 70	2/0	black	17,1	672	910

Part No.	No. cores cross-sec. mm ²	AWG/kcmil No.*)	Core colour	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
10895	1 G 95	3/0	gn-ye	19,5	912	1195
10896	1 x 95	3/0	black	19,5	912	1195
10897	1 G 120	4/0	gn-ye	22,3	1152	1545
10898	1 x 120	4/0	black	22,3	1152	1545
10899	1 G 150	300	gn-ye	25,8	1440	1750
10900	1 x 150	300	black	25,8	1440	1750
10901	1 G 185	350	gn-ye	28,6	1776	2320
10902	1 x 185	350	black	28,6	1776	2320
10903	1 G 240	500	gn-ye	31,4	2304	2960
10904	1 x 240	500	black	31,4	2304	2960

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.



Technical data

- Special PVC control cable according to UL-Style 10107 and CSA AWM I/II AB, adapted to DIN 0281 part 3, DIN VDE 0281 part 13, to UL-Std. 758
- **Temperature range**
 - flexing – 5°C bis +80°C
 - fixed installation –40°C bis +80°C
- **Permissible operating temperature** max. 80°C at conductor
- **Nominal voltage** U₀/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** 7,5x cable Ø
- **Coupling resistance** max. 250 Ohm/km
- **Radiation resistance** up to 80x10⁶ cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- 1. Core insulation of special PVC, T12 to DIN VDE 0281 part 1 and UL-Std. 1581 class 43 colour black or green-yellow
- Tinned copper braided screening, coverage approx. 85%
- 2. Core insulation of special PVC, TM2 to DIN VDE 0281 part 1 and UL Std. 1581 class colour black (RAL 9005)
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1

Application

PVC Single cores suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial-or as under-water cable.

These two norms approved single cores designed for exportorientated machinery manufacturer for machine tools, conveyor belts and production lines.

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

*EMC = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores cross-sec. mm²	AWG-No.*)	Core colour	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
10910	1G6	10	gn-ye	7,8	72	140
10911	1x6	10	black	7,8	72	140
10912	1G10	8	gn-ye	9,5	130	230
10913	1x10	8	black	9,5	130	230
10914	1G16	6	gn-ye	10,5	190	300
10915	1x16	6	black	10,5	190	300
10916	1G25	4	gn-ye	12,0	260	420
10917	1x25	4	black	12,0	260	420
10918	1G35	2	gn-ye	14,4	405	615
10919	1x35	2	black	14,4	405	615
10920	1G50	1	gn-ye	16,4	560	825
10921	1x50	1	black	16,4	560	825
10922	1G70	2/0	gn-ye	17,4	780	1090
10923	1x70	2/0	black	17,4	780	1090

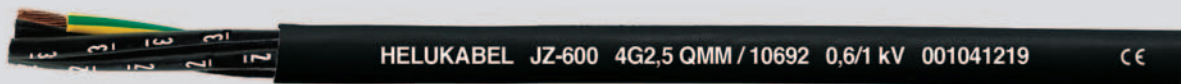
Part No.	No. cores cross-sec. mm²	AWG/kcmil No.*)	Core colour	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
10924	1G95	3/0	gn-ye	21,2	1030	1395
10925	1x95	3/0	black	21,2	1030	1395
10926	1G120	4/0	gn-ye	23,0	1285	1770
10927	1x120	4/0	black	23,0	1285	1770
10928	1G150	300	gn-ye	26,1	1430	1930
10929	1x150	300	black	26,1	1430	1930
10930	1G185	350	gn-ye	27,5	1940	2635
10931	1x185	350	black	27,5	1940	2635
10932	1G240	500	gn-ye	32,2	2530	3380
10933	1x240	500	black	32,2	2530	3380

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.



Technical data

- Special PVC control cables
- Adapted to DIN VDE 0262/12.95 and DIN VDE 0281 part 13, with insulation thickness for 1 kV type
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Power rating** as per DIN VDE 0298
- **Minimum bending radius** for permanent approx. 7,5 x cable Ø
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, as per DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Black cores with white figure imprints to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Separating foil
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 colour black (RAL 9005)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

Wiring cable for measuring and controlling purposes in tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial- or as underwater cable. The cores have been numbered in such a way that the numbers are easily identifiable, even if the cable has only been stripped back a few cm. The core numbers have been underlined to avoid confusion. The earth core is located in the outer layer. The black, special PVC outer sheath is resistant to the ultra violet radiation. Mainly used in South-European, Eastern and Arabian countries.

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CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10550 OZ	2 x 0,5	6,4	9,6	56	20
10551	3 G 0,5	6,8	14,4	68	20
10552 OZ	3 x 0,5	6,8	14,4	68	20
10553	4 G 0,5	7,6	19,0	100	20
10554 OZ	4 x 0,5	7,6	19,0	100	20
10555	5 G 0,5	8,2	24,0	117	20
10556 OZ	5 x 0,5	8,2	24,0	117	20
10557	6 G 0,5	9,1	29,0	126	20
10558	7 G 0,5	9,8	33,6	138	20
10559 OZ	7 x 0,5	9,8	33,6	138	20
10560*	8 G 0,5	10,7	38,0	150	20
10561 OZ	8 x 0,5	10,7	38,0	150	20
10562	10 G 0,5	11,6	48,0	176	20
10563	12 G 0,5	12,2	58,0	200	20
10564 OZ	12 x 0,5	12,2	58,0	200	20
10565	14 G 0,5	12,8	67,0	230	20
10566	16 G 0,5	13,7	76,0	250	20
10567	18 G 0,5	14,4	86,0	276	20
10568	20 G 0,5	15,3	96,0	293	20
10569	21 G 0,5	16,0	96,0	305	20
10570	25 G 0,5	17,2	120,0	335	20
10571	30 G 0,5	18,0	144,0	348	20
10572	32 G 0,5	18,9	154,0	355	20
10573	34 G 0,5	19,8	163,0	520	20
10574	40 G 0,5	21,2	192,0	590	20
10575	42 G 0,5	21,2	202,0	595	20
10576	50 G 0,5	23,4	240,0	715	20
10577	52 G 0,5	24,3	252,0	740	20
10578	61 G 0,5	26,0	293,0	840	20
10579	65 G 0,5	26,8	312,0	880	20
10580	80 G 0,5	28,9	384,0	960	20
10581	100 G 0,5	33,5	480,0	1050	20

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10582 OZ	2 x 0,75	6,8	14,4	66	18
10583*	3 G 0,75	7,2	21,6	74	18
10584 OZ	3 x 0,75	7,2	21,6	74	18
10585*	4 G 0,75	8,0	29,0	126	18
10586 OZ	4 x 0,75	8,0	29,0	126	18
10587	5 G 0,75	8,8	36,0	140	18
10588 OZ	5 x 0,75	8,8	36,0	140	18
10589	6 G 0,75	9,7	43,0	170	18
10590 OZ	6 x 0,75	9,7	43,0	170	18
10591	7 G 0,75	10,7	50,0	190	18
10592 OZ	7 x 0,75	10,7	50,0	190	18
10593	8 G 0,75	11,5	58,0	212	18
10594 OZ	8 x 0,75	11,5	58,0	212	18
10595	9 G 0,75	12,5	65,0	227	18
10596	10 G 0,75	12,7	72,0	238	18
10597*	12 G 0,75	13,1	86,0	257	18
10598 OZ	12 x 0,75	13,1	86,0	257	18
10599	14 G 0,75	13,9	101,0	286	18
10600	15 G 0,75	14,7	108,0	319	18
10601	18 G 0,75	15,6	130,0	362	18
10602	20 G 0,75	16,6	144,0	394	18
10603	21 G 0,75	17,3	151,0	422	18
10604	25 G 0,75	18,9	180,0	486	18
10605	32 G 0,75	20,5	230,0	595	18
10606	34 G 0,75	21,5	245,0	638	18
10607	37 G 0,75	21,5	260,0	696	18
10608	40 G 0,75	23,2	288,0	726	18
10609	41 G 0,75	23,2	296,0	750	18
10610	42 G 0,75	23,2	302,0	770	18
10611	50 G 0,75	25,6	360,0	895	18
10612	61 G 0,75	28,2	439,0	1070	18
10613	65 G 0,75	29,0	468,0	1110	18
10614	80 G 0,75	31,4	576,0	1500	18
10615	100 G 0,75	36,2	720,0	1889	18

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Cable types UL/CSA approved

- HELUKABEL JZ-600 UL/CSA/JZ-600-Y-CY UL/CSA see pages A 77 – A 78
- HELUKABEL JZ-600 PUR/JZ-600-Y-CPUR see pages A 79 – A 80

Continuation ►

* These dimensions are also available with red resp. blue cores.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

HELUKABEL® JZ-600 number coded, flexible 0,6/1 kV



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10616 OZ	2x1	7,4	19,2	80	17
10617*	3G1	8,0	29,0	96	17
10618 OZ	3x1	8,0	29,0	96	17
10619*	4G1	8,8	38,4	100	17
10620 OZ	4x1	8,8	38,4	100	17
10621*	5G1	9,8	48,0	130	17
10622 OZ	5x1	9,8	48,0	130	17
10623	6G1	10,8	58,0	150	17
10624*	7G1	11,7	67,0	170	17
10625 OZ	7x1	11,7	67,0	170	17
10626*	8G1	12,8	77,0	230	17
10627	9G1	13,9	86,0	250	17
10628	10G1	14,1	96,0	270	17
10629 OZ	10x1	14,1	96,0	270	17
10630*	12G1	14,5	115,0	290	17
10631 OZ	12x1	14,5	115,0	290	17
10632*	14G1	15,5	134,0	320	17
10633	16G1	16,5	154,0	360	17
10634*	18G1	17,3	173,0	405	17
10635 OZ	18x1	17,3	173,0	405	17
10636	20G1	18,4	192,0	450	17
10637 OZ	20x1	18,4	192,0	480	17
10638	21G1	19,4	205,0	510	17
10639	24G1	20,3	236,0	550	17
10640*	25G1	21,1	240,0	570	17
10641 OZ	25x1	21,1	240,0	570	17
10642	26G1	21,1	252,0	590	17
10643 OZ	30x1	22,0	308,0	650	17
10644*	34G1	24,0	326,0	750	17
10645	36G1	24,0	346,0	790	17
10646	40G1	25,9	384,0	850	17
10647 OZ	40x1	25,9	384,0	850	17
10648	41G1	25,9	394,0	890	17
10649	42G1	25,9	403,0	900	17
10650*	50G1	28,5	480,0	1100	17
10651	56G1	29,3	538,0	1190	17
10652	61G1	31,4	586,0	1266	17
10653	65G1	32,5	628,0	1560	17
10654	80G1	34,8	768,0	1810	17
10655	100G1	40,1	960,0	1950	17
10656 OZ	2x1,5	8,4	29,0	95	16
10657*	3G1,5	9,1	43,0	112	16
10658 OZ	3x1,5	9,1	43,0	112	16
10659*	4G1,5	9,9	58,0	139	16
10660 OZ	4x1,5	9,9	58,0	139	16
10661*	5G1,5	11,0	72,0	170	16
10662 OZ	5x1,5	11,0	72,0	170	16
10663	6G1,5	12,3	86,0	190	16
10664*	7G1,5	13,3	101,0	225	16
10665 OZ	7x1,5	13,3	101,0	225	16
10666	8G1,5	14,5	115,0	250	16
10667	9G1,5	15,7	130,0	280	16
10668	10G1,5	15,9	144,0	300	16
10669	11G1,5	16,6	158,0	330	16
10670*	12G1,5	16,6	173,0	370	16
10671 OZ	12x1,5	16,6	173,0	370	16
10672	14G1,5	17,4	202,0	400	16
10673	16G1,5	18,5	230,0	450	16
10674*	18G1,5	19,7	259,0	520	16
10675	19G1,5	20,9	279,0	550	16
10676	20G1,5	20,9	288,0	600	16
10677	21G1,5	22,0	302,0	600	16
10678*	25G1,5	23,9	360,0	730	16
10679*	32G1,5	26,0	461,0	880	16
10680*	34G1,5	27,2	490,0	950	16
10681	40G1,5	29,3	576,0	990	16
10682	42G1,5	29,5	605,0	1120	16
10683	50G1,5	32,5	720,0	1400	16
10684	56G1,5	33,5	806,0	1530	16
10685	61G1,5	35,7	878,0	1700	16
10686	65G1,5	36,8	936,0	1900	16

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10687	80G1,5	39,9	1152,0	2300	16
10688	100G1,5	45,6	1440,0	2700	16
10689 OZ	2x2,5	9,4	48,0	160	14
10690	3G2,5	9,9	72,0	175	14
10691 OZ	3x2,5	9,9	72,0	175	14
10692	4G2,5	11,1	96,0	203	14
10693 OZ	4x2,5	11,1	96,0	203	14
10694	5G2,5	12,4	120,0	251	14
10695 OZ	5x2,5	12,4	120,0	251	14
10696	7G2,5	15,0	168,0	330	14
10697 OZ	7x2,5	15,0	168,0	330	14
10698	8G2,5	16,1	192,0	400	14
10699	12G2,5	18,4	288,0	553	14
10700	14G2,5	19,6	336,0	630	14
10701	18G2,5	22,0	432,0	795	14
10702	21G2,5	24,6	504,0	930	14
10703	25G2,5	26,9	600,0	1110	14
10704	34G2,5	30,4	816,0	1450	14
10705	42G2,5	33,0	1008,0	1750	14
10706	50G2,5	36,2	1200,0	2100	14
10707	61G2,5	40,1	1464,0	2540	14
10708	100G2,5	49,0	2400,0	3850	14
10709 OZ	2x4	11,4	77,0	180	12
10710	3G4	12,3	115,0	230	12
10711	4G4	13,8	154,0	310	12
10712	5G4	15,3	192,0	410	12
10713	7G4	16,8	269,0	540	12
10714	8G4	20,0	307,0	710	12
10715	12G4	22,9	461,0	860	12
10716	3G6	14,1	173,0	370	10
10717	4G6	15,6	230,0	430	10
10718	5G6	17,3	288,0	650	10
10719	7G6	19,3	403,0	860	10
10720	3G10	16,5	288,0	660	8
10721	4C10	18,4	384,0	790	8
10722	5G10	20,5	480,0	960	8
10723	7G10	22,5	672,0	1300	8
10724	3G16	19,1	461,0	700	6
10725	4C16	21,2	614,0	1100	6
10726	5C16	23,6	768,0	1600	6
10727	7C16	25,8	1075,0	1890	6
10728	3G25	24,0	720,0	1450	4
10729	4C25	26,9	960,0	1600	4
10730	5G25	29,3	1200,0	2050	4
10731	7G25	32,6	1680,0	2900	4
10732*	3G35	26,2	1008,0	1900	2
10733*	4G35	29,4	1344,0	2400	2
10734*	5G35	32,8	1680,0	2900	2
10735*	3G50	30,5	1440,0	2700	1
10736*	4G50	34,2	1920,0	3400	1
10742**	5G50	38,0	2400,0	4361	1
10737*	3G70	36,7	2016,0	3300	2/0
10738*	4C70	41,0	2688,0	4400	2/0
10743**	5G70	45,7	3360,0	5807	2/0
10739*	3G95	41,2	2736,0	5050	3/0
10740*	4C95	46,2	3648,0	6010	3/0
10744**	5G95	50,7	4560,0	7752	3/0
10741*	4C120	50,3	4608,0	7500	4/0
10745	4C150	57,8	5760,0	8640	300 kcmil
10746	4C185	64,8	7104,0	10380	350 kcmil

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

* These dimensions are also available with red resp. blue cores.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

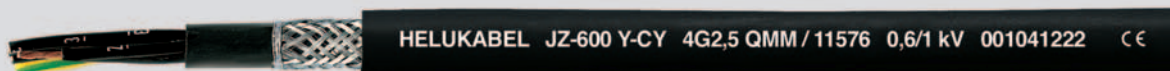
PVC cables will be changed to lead free PVC successively.

Cable types UL/CSA approved

- HELUKABEL JZ-600 UL/CSA/JZ-600-Y-CY UL/CSA see pages A 77 – A 78
- HELUKABEL JZ-600 PUR/JZ-600-Y-CPUR see pages A 79 – A 80

HELUKABEL®-JZ-600-Y-CY EMC*-preferred type

0,6/1 kV, flexible, numbered, Cu screened



Technical data

- Special control cables with thermo-plastic PVC insulation
- On the basis of DIN VDE 0262/12.95 and DIN VDE 0281 part 13
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +90°C
- **Nominal voltage** U_0/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Power rating** according to DIN VDE 0298
- **Minimum bending radius** for permanent, approx. 10 x cable Ø
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- **Coupling resistance** max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Black cores with sequential numbering imprinted in white, according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PVC-insulated inner sheath
- Braided screen of tinned Cu wires, coverage approx. 85%
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 colour black (RAL 9005)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

Wiring cable for measuring and controlling purposes in tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial- or as underwater cable. The cores have been numbered in such a way that the numbers are easily identifiable, even if the cable has only been stripped back a few cm. The core numbers have been underlined to avoid confusion. The earth core is located in the outer layer. The black, special PVC outer sheath is resistant to the ultra violet radiation. Mainly used in South-European, Eastern and Arabian countries. Interference-free transmission of signals and pulses is assured by the high degree of screening.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11464 OZ	2x0,5	8,3	25,9	129	20
11465	3G0,5	8,6	38,9	150	20
11466	4G0,5	9,4	51,3	170	20
11467	5G0,5	10,1	64,9	199	20
11469	7G0,5	12,1	94,1	235	20
11472	12G0,5	14,7	168,2	320	20
11475	18G0,5	17,3	266,5	428	20
11478	25G0,5	20,6	372,0	503	20
11489 OZ	2x0,75	8,7	39,0	143	18
11490	3G0,75	9,0	58,3	155	18
11491	4G0,75	9,9	78,3	190	18
11492	5G0,75	10,8	97,2	228	18
11494	7G0,75	13,0	135,0	323	18
11498	12G0,75	15,8	249,0	410	18
11501	18G0,75	17,9	357,0	560	18
11504	25G0,75	22,8	458,0	730	18
11516 OZ	2x1	9,4	51,8	150	17
11517	3G1	9,8	78,3	163	17
11518	4G1	10,8	103,7	200	17
11519	5G1	12,1	129,6	239	17
11521	7G1	14,5	187,6	289	17

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11525	12G1	17,4	333,5	464	17
11528	18G1	20,7	501,7	628	17
11532	25G1	24,8	644,0	855	17
11546 OZ	2x1,5	10,2	78,3	162	16
11547	3G1,5	10,9	116,1	187	16
11548	4G1,5	12,2	156,6	240	16
11549	5G1,5	13,3	194,4	289	16
11551	7G1,5	16,0	282,8	383	16
11556	12G1,5	19,6	501,7	592	16
11559	18G1,5	23,4	751,1	806	16
11563	25G1,5	28,2	1016,0	1241	16
11574 OZ	2x2,5	11,5	129,6	272	14
11575	3G2,5	12,2	194,4	298	14
11576	4G2,5	13,4	259,2	345	14
11577	5G2,5	14,9	324,0	427	14
11578	7G2,5	17,9	470,4	561	14
11580	12G2,5	21,9	777,6	857	14
11582	18G2,5	26,1	1152,8	1355	14
11584	25G2,5	31,9	1760,0	1995	14

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further sizes are available upon request.
PVC cables will be changed to lead free PVC successively.

Cable types UL/CSA approved

- HELUKABEL JZ-600 UL/CSA/JZ-600-Y-CY UL/CSA see pages A 77 – A 78
- HELUKABEL JZ-600 PUR/JZ-600-Y-CPUR see pages A 79 – A 80

HELUKABEL®-JZ-600-Y-CY EMC*-preferred type

0,6/1 kV, flexible, numbered, Cu screened



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
11590 OZ	2x4	14,3	208,0	306	12
11591	3G4	15,1	310,5	391	12
11592	4G4	16,7	415,8	527	12
11593	5G4	18,6	518,4	700	12
11594	7G4	20,0	726,3	920	12
11596	12G4	26,9	1236,9	1510	12
11597 OZ	2x6	16,0	315,2	420	10
11598	3G6	17,0	467,1	629	10
11599	4G6	18,7	621,0	731	10
11600	5G6	20,7	777,6	1105	10
11601	7G6	23,0	1028,2	1465	10
11602 OZ	2x10	18,4	537,3	845	8
11603	3G10	19,6	806,4	1125	8
11604	4G10	21,9	1036,8	1345	8
11605	5G10	24,1	1296,0	1635	8
11606	7G10	26,8	1714,4	2210	8
11607 OZ	2x16	22,0	988,0	1150	6
11608	3G16	23,5	1244,7	1395	6
11609	4G16	26,4	1657,8	1870	6
11610	5G16	28,8	2073,6	2720	6
11611	7G16	31,9	2902,5	3213	6

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
11612	3G25	28,0	1944,0	2465	4
11613	4G25	32,5	2592,0	2750	4
11614	5G25	35,7	3240,0	3490	4
11615	7G25	39,0	4536,0	4980	4
11616	3G35	32,7	2520,0	3230	2
11617	4G35	35,7	3360,0	4100	2
11618	5G35	40,0	4200,0	4950	2
11619	3G50	36,5	3600,0	4590	1
11620	4G50	41,1	4800,0	5780	1
11621	5G50	44,6	6000,0	7210	1
11622	3G70	44,1	5040,0	5610	2/0
11623	4G70	48,0	6720,0	7480	2/0
11624	5G70	52,5	8570,0	9390	2/0
11625	3G95	46,6	6840,0	8585	3/0
11626	4G95	51,2	9120,0	10220	3/0
11627	5G95	58,4	11400,0	13800	3/0
11628	3G120	51,5	8780,0	11105	4/0
11629	4G120	56,0	11520,0	13750	4/0
13137	4C150	63,8	13460,0	15990	300 kcmil
13147	4C185	71,0	15580,0	18470	350 kcmil

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further sizes are available upon request.
PVC cables will be changed to lead free PVC successively.

Cable types UL/CSA approved

- HELUKABEL JZ-600 UL/CSA/JZ-600-Y-CY UL/CSA see pages A 77 – A 78
- HELUKABEL JZ-600 PUR/JZ-600-Y-CPUR see pages A 79 – A 80



HELUKABEL JZ-750 25G2,5 QMM / 10880 450/750 V 001041521

CE

Technical data

- Special PVC control cables
- Requirements adapted to DIN VDE 0281 part 13 and IEC 60227/7
- identical with H05VV-F to VDE 0281 part 13 and IEC 60227/7 type 227 IEC 75, but without increased oil resistant outer sheath
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 450/750 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MΩm x km
- **Minimum bending radius**
for permanent approx. 7,5 x cable Ø
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Black cores with white figure imprints to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC, outer sheath TM2, to DIN VDE 0281 part 1, colour grey (RAL 7001)
- Extensively oil resistant. Chemical Resistance – see table Techn. Informations.
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, wherever internationally recognized PVC cables are required. E.g. as a control or measurements cable on industrial machinery, on conveyor systems or in industrial plants, etc. The number coding has been brought onto the cores in such a way that it is easily identifiable and the core numbers are individually underlined to avoid confusion. The green-yellow earth core is laid in the outer layer.

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10800 OZ	2 x 0,5	5,6	9,6	48	20
10801	3 G 0,5	5,9	14,5	65	20
10802	4 G 0,5	6,7	20	81	20
10803	5 G 0,5	7,3	24	98	20
10804	7 G 0,5	8,8	34	123	20
10805	8 G 0,5	9,6	38	155	20
10806	10 G 0,5	10,6	48	180	20
10807	12 G 0,5	11,1	58	208	20
10808	14 G 0,5	11,7	67	248	20
10809	16 G 0,5	12,3	76	260	20
10810	18 G 0,5	12,9	87	285	20
10811	21 G 0,5	14,5	96	375	20
10812	25 G 0,5	15,8	118	400	20
10813	30 G 0,5	16,6	144	475	20
10814	40 G 0,5	19,5	192	590	20
10815	50 G 0,5	21,3	240	710	20
10816	61 G 0,5	22,6	293	880	20
10817 OZ	2 x 0,75	6,1	15	60	18
10818	3 G 0,75	6,5	22	78	18
10819	4 G 0,75	7,1	29	104	18
10820	5 G 0,75	7,9	36	116	18
10821	7 G 0,75	9,5	51	148	18
10822	8 G 0,75	10,2	58	160	18
10823	10 G 0,75	11,4	72	195	18
10824	12 G 0,75	11,6	87	248	18
10825	15 G 0,75	13,1	108	295	18
10826	18 G 0,75	13,9	130	346	18
10827	21 G 0,75	15,5	151	395	18
10828	25 G 0,75	17,0	180	505	18
10829	34 G 0,75	19,3	245	684	18
10830	41 G 0,75	20,9	296	780	18
10831	50 G 0,75	23,0	360	940	18
10832	61 G 0,75	24,8	440	1125	18
10833 OZ	2 x 1	6,4	20	80	17
10834	3 G 1	6,8	29	92	17
10835 OZ	3 x 1	6,8	29	92	17
10836	4 G 1	7,5	39	122	17
10837 OZ	4 x 1	7,5	39	122	17
10838	5 G 1	8,4	48	137	17
10839	7 G 1	10,0	68	186	17
10840 OZ	7 x 1	10,0	68	186	17

Further dimensions available on request.

PVC cables will be changed to lead free PVC successively.

G = with green-yellow earth core X = without green-yellow earth core (OZ)

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10841	8 G 1	10,8	77	240	17
10842	12 G 1	12,5	116	293	17
10843	14 G 1	13,1	134	340	17
10844	16 G 1	14,0	154	400	17
10845	18 G 1	14,7	173	437	17
10846	21 G 1	16,6	205	505	17
10847	25 G 1	18,1	240	606	17
10848	34 G 1	20,3	326	770	17
10849	41 G 1	22,2	394	880	17
10850	50 G 1	24,5	480	1400	17
10851	61 G 1	26,3	586	1450	17
10852 OZ	2 x 1,5	7,4	29	90	16
10853	3 G 1,5	8,0	43	120	16
10854 OZ	3 x 1,5	8,0	43	120	16
10855	4 G 1,5	8,7	58	150	16
10856 OZ	4 x 1,5	8,7	58	155	16
10857	5 G 1,5	9,8	72	177	16
10858	7 G 1,5	11,9	101	220	16
10859	8 G 1,5	12,8	115	248	16
10860	9 G 1,5	13,6	130	278	16
10861	12 G 1,5	14,5	173	364	16
10862	14 G 1,5	15,5	202	390	16
10863	16 G 1,5	16,5	230	490	16
10864	18 G 1,5	17,4	259	550	16
10865	21 G 1,5	19,7	302	670	16
10866	25 G 1,5	21,3	360	745	16
10867	32 G 1,5	23,1	461	810	16
10868	34 G 1,5	24,0	490	1010	16
10869	42 G 1,5	26,2	605	1115	16
10870	50 G 1,5	28,8	720	1430	16
10871	61 G 1,5	30,6	878	1750	16
10872 OZ	2 x 2,5	9,1	48	110	14
10873	3 G 2,5	9,9	72	190	14
10874	4 G 2,5	11,0	96	240	14
10875	5 G 2,5	12,0	120	270	14
10876	7 G 2,5	14,6	168	350	14
10877	12 G 2,5	18,1	288	600	14
10878	14 G 2,5	19,4	336	870	14
10879	18 G 2,5	21,7	432	1050	14
10880	25 G 2,5	26,5	600	1170	14

¹) Note: AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

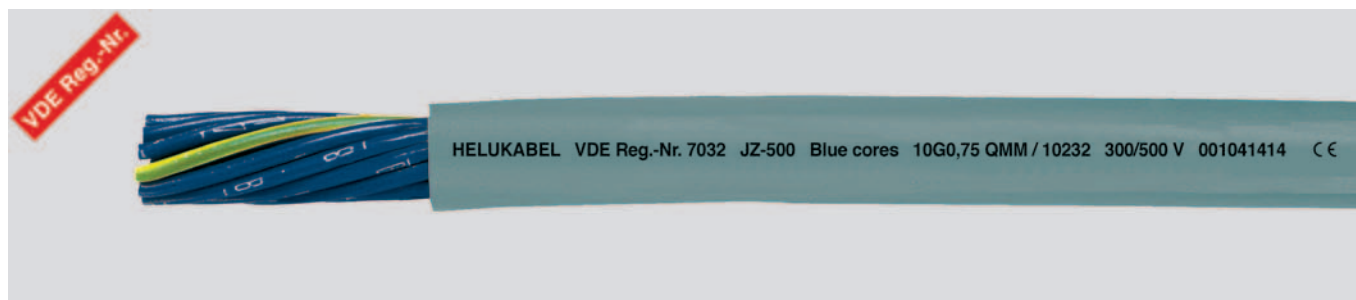
²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® JZ-500

blue cores, flexible, number coded



2)



HELUKABEL VDE Reg.-Nr. 7032 JZ-500 Blue cores 10G0,75 QMM / 10232 300/500 V 001041414 C €

Technical data

- Control cables, special PVC
- Requirements adapted to DIN VDE 0245, 0281, 0293, 0295
- Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- Nominal voltage** U_0/U 300/500 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min. 20 MΩ·km
- Minimum bending radius**
 - for permanent approx. $7,5 \times \text{cable } \varnothing$
- Radiation resistance**
 - up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC60228 cl. 5
- Core insulation of special PVC Z 7225
- Cores blue with continuous white numbering according to DIN VDE 0293 (also available with other core colours)
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Outer sheath of special PVC, TM2 to DIN VDE 0281 part 1 and HD 21.1, colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as measuring and control cables in tool machines, conveyor belts, production lines in machinery production, in air-conditioning and in steel production. The cores have been numbered in such a way that there is no difficulty in recognising them, even if only a small piece of sheathing has been removed. The numbers have been underlined to avoid confusion. The earth core is laid in the outer layer. Selected PVC-compounds guarantee a good flexibility as well as an economic and fast installation.

€ = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10200 OZ	2x0,5	4,8	9,6	40	20
10201	3G0,5	5,1	14,4	46	20
10202	4G0,5	5,7	19,0	56	20
10203	5G0,5	6,2	24,0	65	20
10204	6G0,5	6,7	29,0	75	20
10205	7G0,5	7,4	33,6	80	20
10206	8G0,5	8,0	38,0	97	20
10207	10G0,5	8,8	48,0	116	20
10208	12G0,5	9,1	58,0	135	20
10209	14G0,5	9,5	67,0	150	20
10210	18G0,5	10,7	86,0	196	20
10211	20G0,5	11,2	96,0	215	20
10212	21G0,5	11,8	96,0	240	20
10213	25G0,5	13,0	120,0	270	20
10214	30G0,5	13,5	144,0	310	20
10215	32G0,5	14,0	154,0	323	20
10216	34G0,5	14,5	163,0	362	20
10217	40G0,5	15,8	192,0	434	20
10218	42G0,5	15,8	202,0	449	20
10219	50G0,5	17,3	240,0	513	20
10220	61G0,5	19,4	293,0	625	20
10221	65G0,5	19,4	312,0	682	20
10222	80G0,5	21,3	384,0	780	20
10223	100G0,5	23,7	480,0	980	20
10224 OZ	2x0,75	5,2	14,4	46	18
10225	3G0,75	5,5	21,6	54	18
10226	4G0,75	6,2	29,0	66	18
10227	5G0,75	6,8	36,0	80	18
10228	6G0,75	7,5	43,0	99	18
10229	7G0,75	8,1	50,0	110	18
10230	8G0,75	8,9	58,0	130	18
10231	9G0,75	9,5	65,0	153	18
10232	10G0,75	9,6	72,0	162	18
10233	12G0,75	9,9	86,0	179	18
10234	14G0,75	10,6	101,0	214	18
10235	15G0,75	11,2	108,0	218	18
10236	18G0,75	11,9	130,0	257	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10237	20G0,75	12,6	144,0	286	18
10238	21G0,75	13,3	151,0	320	18
10239	25G0,75	14,5	180,0	365	18
10240	32G0,75	15,6	230,0	455	18
10241	34G0,75	16,4	245,0	510	18
10242	40G0,75	17,6	288,0	595	18
10243	41G0,75	17,6	296,0	607	18
10244	42G0,75	17,6	302,0	612	18
10245	50G0,75	19,8	360,0	735	18
10246	61G0,75	20,9	439,0	845	18
10247	80G0,75	23,6	576,0	1070	18
10248	100G0,75	26,2	720,0	1322	18
10249 OZ	2x1	5,5	19,2	60	17
10250	3G1	6,0	29,0	72	17
10251	4G1	6,6	38,4	86	17
10252	5G1	7,2	48,0	104	17
10253	6G1	8,0	58,0	125	17
10332	7G1	8,6	67,0	141	17
10254	8G1	9,4	77,0	175	17
10255	9G1	10,1	86,0	200	17
10256	12G1	10,7	115,0	230	17
10257	14G1	11,3	134,0	271	17
10258	16G1	12,0	154,0	300	17
10259	18G1	12,7	173,0	343	17
10260	20G1	13,5	192,0	375	17
10261	25G1	15,6	240,0	485	17
10262	34G1	17,4	326,0	650	17
10263	36G1	17,4	346,0	668	17
10264	40G1	18,9	384,0	755	17
10265	41G1	18,9	394,0	770	17
10266	42G1	18,9	403,0	810	17
10267	50G1	21,0	480,0	936	17
10268	56G1	21,5	538,0	920	17
10269	61G1	22,2	586,0	1100	17
10270	65G1	22,8	628,0	1180	17
10271	80G1	25,4	768,0	1294	17
10272	100G1	28,2	960,0	1644	17

Continuation ►

PVC cables will be changed to lead free PVC successively.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® JZ-500

blue cores, flexible, number coded



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10273 OZ	2x1,5	6,3	29,0	70	16
10274	3G1,5	6,7	43,0	90	16
10275	4G1,5	7,3	58,0	109	16
10276	5G1,5	8,2	72,0	131	16
10277	6G1,5	8,9	86,0	157	16
10278	7G1,5	9,8	101,0	184	16
10279	8G1,5	10,6	115,0	216	16
10280	9G1,5	11,5	130,0	259	16
10281	11G1,5	12,1	158,0	300	16
10282	12G1,5	12,1	173,0	309	16
10283	14G1,5	12,9	202,0	345	16
10284	16G1,5	13,6	230,0	386	16
10285	18G1,5	14,5	259,0	440	16
10286	20G1,5	15,2	288,0	490	16
10287	21G1,5	16,1	302,0	555	16
10288	25G1,5	17,8	360,0	620	16
10289	32G1,5	19,1	461,0	790	16
10290	34G1,5	19,8	490,0	830	16
10291	40G1,5	21,4	576,0	996	16
10292	42G1,5	21,4	605,0	1007	16
10293	50G1,5	23,7	720,0	1250	16
10294	56G1,5	25,0	806,0	1332	16
10295	61G1,5	25,3	878,0	1440	16
10296	80G1,5	29,0	1152,0	1871	16
10297	100G1,5	32,5	1440,0	2353	16
10298 OZ	2x2,5	7,6	48,0	112	14
10299	3G2,5	8,3	72,0	148	14
10300	4G2,5	9,1	96,0	178	14
10301	5G2,5	10,2	120,0	221	14
10302	7G2,5	12,1	168,0	306	14
10303	8G2,5	13,2	192,0	363	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.



Note: Important for assemblers: We supply any "desired length" of stranded cores without outer sheath, core insulation colour acc. RAL 5010 with number combination acc. customers requirement.
PVC cables will be changed to lead free PVC successively.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10304	12G2,5	15,2	288,0	498	14
10305	14G2,5	16,1	336,0	569	14
10306	18G2,5	18,1	432,0	764	14
10307	21G2,5	20,4	504,0	914	14
10308	25G2,5	22,2	600,0	1044	14
10309	34G2,5	25,1	816,0	1470	14
10310	42G2,5	27,2	1008,0	1790	14
10311	50G2,5	30,0	1200,0	2095	14
10312	61G2,5	32,0	1464,0	2750	14
10313	100G2,5	41,0	2400,0	4450	14
10314 OZ	2x4	9,2	77,0	195	12
10315	3G4	9,9	115,0	230	12
10316	4G4	11,0	154,0	295	12
10317	5G4	12,1	192,0	361	12
10318	7G4	13,3	269,0	458	12
10319	8G4	15,9	307,0	590	12
10320	12G4	18,3	461,0	790	12
10321	3G6	11,7	173,0	355	10
10322	4G6	13,0	230,0	424	10
10323	5G6	14,5	288,0	525	10
10324	7G6	16,0	403,0	625	10
10325	3G10	15,0	288,0	540	8
10326	4G10	16,8	384,0	701	8
10327	5G10	18,7	480,0	858	8
10328	7G10	20,6	672,0	1106	8
10329	4G16	19,7	614,0	1035	6
10330	5G16	21,9	768,0	1259	6
10331	7G16	24,4	1075,0	1780	6

A



Measuring and control cables in automobile factory.

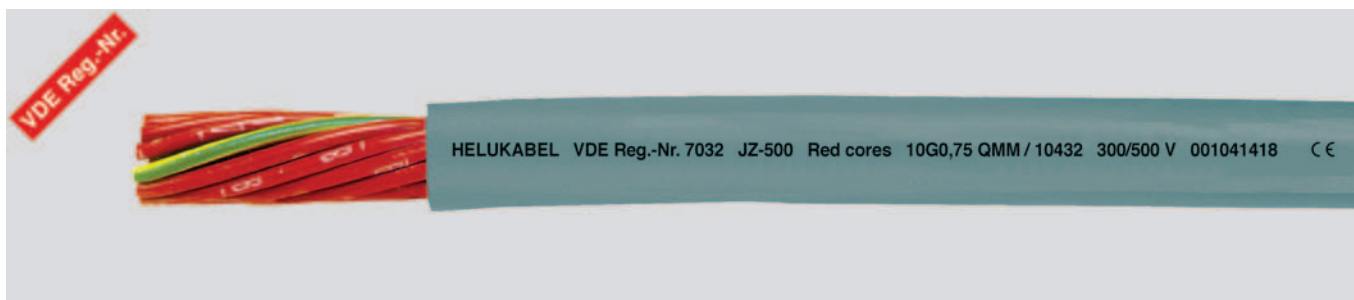
Works photo: Varta

HELUKABEL® JZ-500

red cores, flexible, number coded



2)



Technical data

- Control cables, special PVC
- Requirements adapted to DIN VDE 0245, 0281, 0293, 0295
- Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- Nominal voltage** U_0/U 300/500 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min. 20 MOhm x km
- Minimum bending radius** for permanent approx. 7,5 x cable Ø
- Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper, fine wire conductors, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of special PVC Z 7225
- Red cores with continuous white numbering according to DIN VDE 0293 (also available with other core colours)
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Outer sheath of special PVC, TM2 to DIN VDE 0281 part 1 and HD 21.1, colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as measuring and control cables in tool machines, conveyor belts, production lines in machinery production, in air-conditioning and in steel production. The cores have been numbered in such a way that there is no difficulty in recognising them, even if only a small piece of sheathing has been removed. The numbers have been underlined to avoid confusion. The earth core is laid in the outer layer. Selected PVC-compounds guarantee a good flexibility as well as an economic and fast installation.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10400 OZ	2x0,5	4,8	9,6	40	20
10401	3G0,5	5,1	14,4	46	20
10402	4G0,5	5,7	19,0	56	20
10403	5G0,5	6,2	24,0	65	20
10404	6G0,5	6,7	29,0	75	20
10405	7G0,5	7,4	33,6	80	20
10406	8G0,5	8,0	38,0	97	20
10407	10G0,5	8,8	48,0	116	20
10408	12G0,5	9,1	58,0	135	20
10409	14G0,5	9,5	67,0	150	20
10410	18G0,5	10,7	86,0	196	20
10411	20G0,5	11,2	96,0	215	20
10412	21G0,5	11,8	96,0	240	20
10413	25G0,5	13,0	120,0	270	20
10414	30G0,5	13,5	144,0	310	20
10415	32G0,5	14,0	154,0	323	20
10416	34G0,5	14,5	163,0	362	20
10417	40G0,5	15,8	192,0	434	20
10418	42G0,5	15,8	202,0	449	20
10419	50G0,5	17,3	240,0	513	20
10420	61G0,5	19,4	293,0	625	20
10421	65G0,5	19,4	312,0	682	20
10422	80G0,5	21,3	384,0	780	20
10423	100G0,5	23,7	480,0	980	20
10424 OZ	2x0,75	5,2	14,4	46	18
10425	3G0,75	5,5	21,6	54	18
10426	4G0,75	6,2	29,0	66	18
10427	5G0,75	6,8	36,0	80	18
10428	6G0,75	7,5	43,0	99	18
10429	7G0,75	8,1	50,0	110	18
10430	8G0,75	8,9	58,0	130	18
10431	9G0,75	9,5	65,0	153	18
10432	10G0,75	9,6	72,0	162	18
10433	12G0,75	9,9	86,0	179	18
10434	14G0,75	10,6	101,0	214	18
10435	15G0,75	11,2	108,0	218	18
10436	18G0,75	11,9	130,0	257	18

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10437	20G0,75	12,6	144,0	286	18
10438	21G0,75	13,3	151,0	320	18
10439	25G0,75	14,5	180,0	365	18
10440	32G0,75	15,6	230,0	455	18
10441	34G0,75	16,4	245,0	510	18
10442	40G0,75	17,6	288,0	595	18
10443	41G0,75	17,6	296,0	607	18
10444	42G0,75	17,6	302,0	612	18
10445	50G0,75	19,8	360,0	735	18
10446	61G0,75	20,9	439,0	845	18
10447	80G0,75	23,6	576,0	1070	18
10448	100G0,75	26,2	720,0	1322	18
10449 OZ	2x1	5,5	19,2	60	17
10450	3G1	6,0	29,0	72	17
10451	4G1	6,6	38,4	86	17
10452	5G1	7,2	48,0	104	17
10453	6G1	8,0	58,0	125	17
10454	7G1	8,6	67,0	141	17
10455	8G1	9,4	77,0	175	17
10456	9G1	10,1	86,0	200	17
10457	12G1	10,7	115,0	230	17
10458	14G1	11,3	134,0	271	17
10459	16G1	12,0	154,0	300	17
10460	18G1	12,7	173,0	343	17
10461	20G1	13,5	192,0	375	17
10462	25G1	15,6	240,0	485	17
10463	34G1	17,4	326,0	650	17
10464	36G1	17,4	346,0	668	17
10465	40G1	18,9	384,0	755	17
10466	41G1	18,9	394,0	770	17
10467	42G1	18,9	403,0	810	17
10468	50G1	21,0	480,0	936	17
10469	56G1	21,5	538,0	920	17
10470	61G1	22,2	586,0	1100	17
10471	65G1	22,8	628,0	1180	17
10472	80G1	25,4	786,0	1294	17
10473	100G1	28,2	960,0	1644	17

Continuation ►

PVC cables will be changed to lead free PVC successively.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® JZ-500

red cores, flexible, number coded



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10474 OZ	2x1,5	6,3	29,0	70	16
10475	3G1,5	6,7	43,0	90	16
10476	4G1,5	7,3	58,0	109	16
10477	5G1,5	8,2	72,0	131	16
10478	6G1,5	8,9	86,0	157	16
10479	7G1,5	9,8	101,0	184	16
10480	8G1,5	10,6	115,0	216	16
10481	9G1,5	11,5	130,0	259	16
10482	11G1,5	12,1	158,0	300	16
10483	12G1,5	12,1	173,0	309	16
10484	14G1,5	12,9	202,0	345	16
10485	16G1,5	13,6	230,0	386	16
10486	18G1,5	14,5	259,0	440	16
10487	20G1,5	15,2	288,0	490	16
10488	21G1,5	16,1	302,0	555	16
10489	25G1,5	17,8	360,0	620	16
10490	32G1,5	19,1	461,0	790	16
10491	34G1,5	19,8	490,0	830	16
10492	40G1,5	21,4	576,0	996	16
10493	42G1,5	21,4	605,0	1007	16
10494	50G1,5	23,7	720,0	1250	16
10495	56G1,5	24,5	806,0	1332	16
10496	61G1,5	25,3	878,0	1440	16
10497	80G1,5	29,0	1152,0	1871	16
10498	100G1,5	32,5	1440,0	2353	16
10499 OZ	2x2,5	7,6	48,0	112	14
10500	3G2,5	8,3	72,0	148	14
10501	4G2,5	9,1	96,0	178	14
10502	5G2,5	10,2	120,0	221	14
10503	7G2,5	12,1	168,0	306	14
10504	8G2,5	13,2	192,0	363	14
10505	12G2,5	15,2	288,0	498	14
10506	14G2,5	16,1	336,0	569	14
10507	18G2,5	18,1	432,0	764	14
10508	21G2,5	20,4	504,0	914	14
10509	25G2,5	22,2	600,0	1044	14
10510	34G2,5	25,1	816,0	1470	14
10511	42G2,5	27,2	1008,0	1790	14
10512	50G2,5	30,0	1200,0	2095	14
10513	61G2,5	32,0	1464,0	2750	14
10514	100G2,5	41,0	2400,0	4450	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

²) Cleanroom qualification tested with analog type. Please note “cleanroom qualified” when ordering. Further informations on page 16.



Note: Important for assemblers: We supply any “desired length” of stranded cores without outer sheath, core insulation colour acc. RAL 5010 with number combination acc. customers requirement.

PVC cables will be changed to lead free PVC successively.
G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10515 OZ	2x4	9,2	77,0	195	12
10516	3G4	9,9	115,0	230	12
10517	4G4	11,0	154,0	295	12
10518	5G4	12,1	192,0	361	12
10519	7G4	13,3	269,0	458	12
10520	8G4	15,9	307,0	590	12
10521	12G4	18,3	461,0	790	12
10522	3G6	11,7	173,0	355	10
10523	4G6	13,0	230,0	424	10
10524	5G6	14,5	288,0	525	10
10525	7G6	16,0	403,0	625	10
10526	3G10	15,0	288,0	540	8
10527	4G10	16,8	384,0	701	8
10528	5G10	18,7	480,0	858	8
10529	7G10	20,6	672,0	1106	8
10530	4G16	19,7	614,0	1035	6
10531	5G16	21,9	768,0	1259	6
10532	7G16	24,4	1075,0	1780	6

Please note: We can also have this cable printed with your company name or emblem.



Pressure cylinder

Works photo: HELUKABEL®



HELUKABEL VDE Reg.-Nr. 7032 JB-500 4G1,5 QMM / 11080 300/500 V 001041518 C €

Technical data

- Special PVC control cables
- Requirements adapted to DIN VDE 0245, 0281, 0293, 0295
- **Temperature range** flexing – 5°C to +80°C fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MΩ·km
- **Minimum bending radius** approx. 7,5 x cable Ø
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of special PVC Z7225
- Cores colour coded as per JB/OB colour code, see page T48 and T49
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 colour grey (RAL 7001)
- Extensively oil resistant. Chemical Resistance – s. table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as measuring and control cables in tool machinery, conveyor belts, production lines, as well as in machinery production, in air-conditioning and steel production plants. The earth core is located immediately below the outer jacket. JB cables are suitable for use in all electrical equipment either in dry or damp areas. They should not, however, be installed in the open air.

²⁾ Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

* with VDE-Reg-Nr.

€ = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11001 OB	2x0,5*	4,8	9,6	40	20
11002	3G0,5*	5,1	14,4	46	20
11003 OB	3x0,5*	5,1	14,4	46	20
11004	4G0,5*	5,7	19,2	56	20
11005 OB	4x0,5*	5,7	19,2	56	20
11006	5G0,5*	6,2	24,0	65	20
11007 OB	5x0,5*	6,2	24,0	65	20
11008	6G0,5	6,7	29,0	75	20
11009	7G0,5	7,4	34,0	80	20
11010 OB	7x0,5	7,4	34,0	84	20
11011	8G0,5	8,0	38,0	97	20
11012	10G0,5	8,8	48,0	116	20
11013	12G0,5	9,1	58,0	135	20
11014	14G0,5	9,5	67,0	150	20
11015	16G0,5	10,0	77,0	172	20
11016	21G0,5	11,8	101,0	240	20
11017	24G0,5	12,8	128,0	265	20
11018	27G0,5	13,2	130,0	290	20
11019	30G0,5	13,5	144,0	310	20
11020	35G0,5	14,7	168,0	370	20
11021	40G0,5	15,8	192,0	434	20
11022	52G0,5	17,3	250,0	534	20
11026 OB	2x0,75*	5,2	14,4	46	18
11027	3G0,75*	5,5	21,6	54	18
11028 OB	3x0,75*	5,5	21,6	54	18
11029	4G0,75*	6,2	28,8	66	18
11030 OB	4x0,75*	6,2	28,8	66	18
11031	5G0,75*	6,8	36,0	80	18
11032 OB	5x0,75*	6,8	36,0	80	18
11033	6G0,75	7,5	43,2	99	18
11034	7G0,75	8,1	50,0	110	18
11035 OB	7x0,75	8,1	50,0	110	18
11036	8G0,75	8,9	58,0	130	18
11037	9G0,75	9,5	65,0	153	18
11038	10G0,75	9,6	72,0	162	18
11039	12G0,75	9,9	86,0	179	18
11040	15G0,75	11,2	108,0	218	18
11041	18G0,75	11,9	130,0	257	18
11042	21G0,75	13,3	151,0	320	18
11043	25G0,75	14,5	180,0	365	18
11044	32G0,75	15,6	230,0	455	18
11045	40G0,75	17,6	288,0	595	18
11046	50G0,75	19,8	360,0	699	18

G = with green-yellow earth core X = without green-yellow earth core (OB)

PVC cables will be changed to lead free PVC successively.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11050 OB	2x1*	5,5	19,2	60	17
11051	3G1*	6,0	27,0	72	17
11052 OB	3x1*	6,0	29,0	72	17
11053	4G1*	6,6	38,4	86	17
11054 OB	4x1*	6,6	38,4	86	17
11055	5G1*	7,2	48,0	104	17
11056 OB	5x1*	7,2	48,0	104	17
11057	6G1	8,0	58,0	125	17
11058 OB	6x1	8,0	58,0	125	17
11059	7G1	8,6	67,0	141	17
11060 OB	7x1	8,6	67,0	141	17
11061	8G1	9,4	77,0	175	17
11062	9G1	10,1	87,0	200	17
11063	10G1	10,4	96,0	207	17
11064	12G1	10,7	115,0	230	17
11065	14G1	11,3	134,0	271	17
11066	16G1	12,0	154,0	300	17
11067	18G1	12,7	173,0	343	17
11068	20G1	13,5	192,0	375	17
11069	24G1	14,7	230,0	468	17
11070	25G1	15,6	240,0	485	17
11071	34G1	17,4	326,0	650	17
11072	48G1	19,4	461,0	819	17
11073	56G1	21,5	538,0	920	17
11077 OB	2x1,5*	6,3	29,0	70	16
11078	3G1,5*	6,7	43,0	90	16
11079 OB	3x1,5*	6,7	43,0	90	16
11080	4G1,5*	7,3	58,0	109	16
11081 OB	4x1,5*	7,3	58,0	109	16
11082	5G1,5*	8,2	72,0	131	16
11083 OB	5x1,5*	8,2	72,0	131	16
11084	6G1,5	8,9	86,4	157	16
11085	7G1,5	9,8	101,0	184	16
11086 OB	7x1,5	9,8	101,0	184	16
11087	8G1,5	10,6	115,0	216	16
11088	11G1,5	12,1	158,0	300	16
11089	12G1,5	12,1	173,0	309	16
11090	14G1,5	12,9	202,0	345	16
11091	16G1,5	13,6	230,0	386	16
11092	18G1,5	14,5	259,0	440	16
11093	20G1,5	15,2	288,0	490	16
11094	25G1,5	17,8	360,0	620	16
11095	32G1,5	19,1	461,0	790	16
11096	34G1,5	19,8	490,0	830	16
11097	42G1,5	21,4	605,0	1007	16



HELUKABEL JB-750 4G2,5 QMM / 11107 450/750 V 001041419

CE

Technical data

- Special PVC control cables
- Requirements adapted to DIN VDE 0281, 0293, 0295 and IEC 60227-5
- to H05VV-F VDE 0281 part 5 and IEC 60227-5 Type 60227 IEC 57
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 450/750 V
- fixed installation, under protection U_0/U 600/1000 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MΩ·km
- **Minimum bending radius**
approx. 7,5 x cable Ø
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Cores colour coded as per JB/OB colour code, see page T 48 and page T 49
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1
- colour grey (RAL 7001)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as measuring and control cables in tool machinery, conveyor belts, production lines, as well as in machinery production, in air-conditioning and steel production plants. The earth core is located immediately below the outer jacket. JB cables are suitable for use in all electrical equipment either in dry or damp areas. They should not, however, be installed in the open air.

A

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11104 OB	2 x 2,5	9,1	48,0	112	14
11105	3 G 2,5	9,9	72,0	148	14
11106 OB	3 x 2,5	9,9	72,0	148	14
11107	4 G 2,5	11,0	96,0	178	14
11108 OB	4 x 2,5	11,0	96,0	178	14
11109	5 G 2,5	12,0	120,0	221	14
11110 OB	5 x 2,5	12,0	120,0	221	14
11111	6 G 2,5	13,3	144,0	293	14
11112	7 G 2,5	14,6	168,0	306	14
11113	8 G 2,5	16,1	192,0	363	14
11114	11 G 2,5	17,6	264,0	482	14
11115	16 G 2,5	20,5	383,0	701	14
11116	18 G 2,5	21,7	432,0	764	14
11117	25 G 2,5	26,5	600,0	1044	14
11118	32 G 2,5	31,8	766,0	1386	14
11119	50 G 2,5	38,0	1200,0	2095	14
11120	61 G 2,5	40,0	1464,0	2750	14
11121 OB	2 x 4	10,4	76,8	195	12
11144	3 G 4	11,2	115,0	235	12
11122	4 G 4	12,5	154,0	295	12
11123	5 G 4	13,9	192,0	361	12
11124	7 G 4	16,8	269,0	498	12
11125	11 G 4	22,3	422,0	767	12
11126	3 G 6	12,6	173,0	355	10
11127	4 G 6	14,0	230,0	424	10
11128	5 G 6	15,5	288,0	525	10
11129	7 G 6	19,0	403,0	625	10
11153	3 G 10	16,0	290,0	611	8
11130	4 G 10	18,0	384,0	701	8
11131	5 G 10	20,0	480,0	858	8
11132	7 G 10	23,1	672,0	1106	8

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
11154	3 G 16	18,5	461,0	912	6
11133	4 G 16	20,8	614,0	1035	6
11134	5 G 16	23,0	768,0	1259	6
11135	7 G 16	31,0	1075,0	1780	6
11155	3 G 25	23,3	720,0	1388	4
11136	4 G 25	26,0	960,0	1581	4
11137	5 G 25	29,0	1200,0	1997	4
11156	3 G 35	26,6	1080,0	1767	2
11138	4 G 35	29,7	1344,0	2105	2
11139	5 G 35	33,1	1680,0	2636	2
11157	3 G 50	30,2	1440,0	2556	1
11140	4 G 50	33,9	1920,0	2940	1
11145	5 G 50	37,6	2400,0	3936	1
11158	3 G 70	37,1	2016,0	3182	2/0
11141	4 G 70	41,6	2688,0	4090	2/0
11146	5 G 70	46,3	3360,0	5443	2/0
11159	3 G 95	40,1	2736,0	4676	3/0
11142	4 G 95	44,8	3648,0	5540	3/0
11147	5 G 95	50,2	4560,0	6931	3/0
11160	3 G 120	45,5	3456,0	5630	4/0
11143	4 G 120	50,8	4608,0	7000	4/0
11148	4 G 150	57,0	5760,0	8340	300 kcmil
11149	4 G 185	65,8	7104,0	9904	350 kcmil

¹) Note

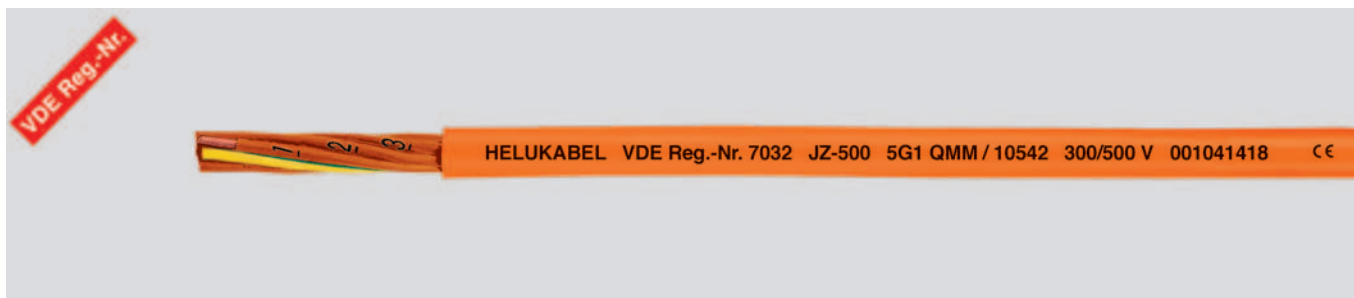
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

G = with green-yellow earth core
X = without green-yellow earth core (OB)

PVC cables will be changed to lead free PVC successively.

HELUKABEL® JZ-500 orange flexible, orange cores control cable for interlocking purposes



Technical data

- Special PVC control cable for interlocking purposes
- Requirements adapted to DIN VDE 0245, 0281, 0293, 0295
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
approx. 7,5 x cable $\varnothing$
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of special PVC Z7225
- Cores orange with continuous black numbering according to DIN VDE 0293
 - JZ-version with green-yellow earth core: 3 cores and above
 - OZ-version without green-yellow earth core
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 and HD 21.1 colour orange (RAL 2003)
- Extensively oil resistant
Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as control cable according EN 60204 part 1 and VDE 0113 part 1. As per recommendation of the specified standards the insulated conductors of control current circuits should be coloured orange, when they are used for interlocking purposes. These control circuits are supplied with an external power and remain active under current when the main switch is disconnected or switched off.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

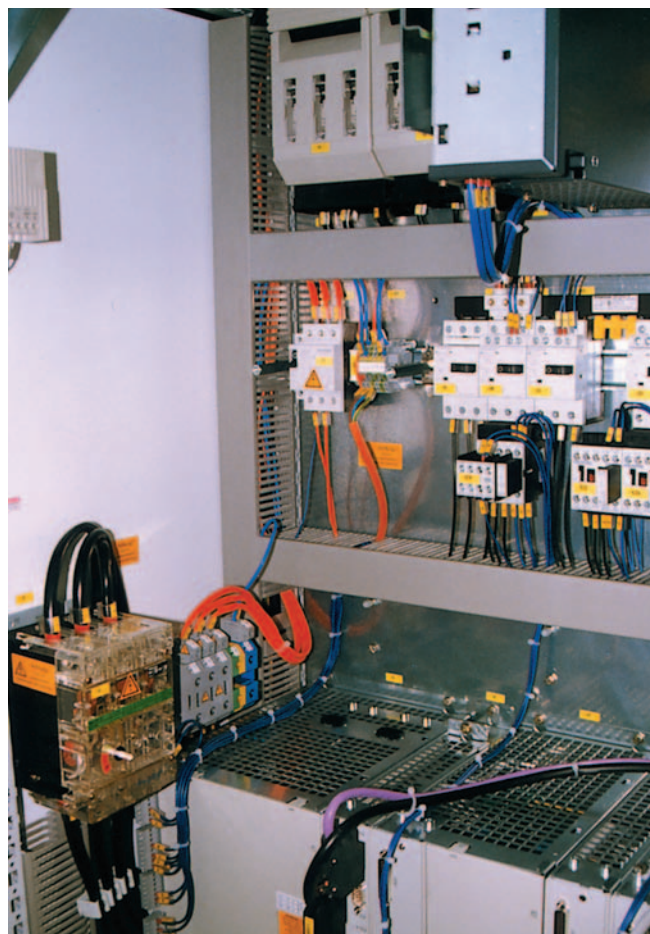
Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
10537 OZ	2 x 1	5,5	19,2	60	17
10538	3 G1	6,0	29,0	72	17
10539 OZ	3 x 1	6,0	29,0	72	17
10540	4 G1	6,6	38,4	86	17
10541 OZ	4 x 1	6,6	38,4	86	17
10542	5 G1	7,2	48,0	104	17
10544 OZ	2 x 1,5	6,3	29,0	70	16
10545	3 G1,5	6,7	43,0	90	16
10546	4 G1,5	7,3	58,0	109	16
10547	5 G1,5	8,2	72,0	131	16
10747	3 G2,5	8,3	72,0	148	14
10748	4 G2,5	9,1	96,0	178	14
10749	5 G2,5	10,2	120,0	221	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.



HELUKABEL® JB-750 yellow, 750 V flexible, colour coded connection cable for warning indication



HELUKABEL JB-750 4G2,5 QMM / 10338 450/750 V 001041433

CE

Technical data

- Special PVC as connection cable for warning indication
- Requirements adapted to 0281 part 5, HD 21.5 and IEC 60227/5 type 227 IEC 57
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 450/750 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MΩ·km
- **Minimum bending radius**
approx. 7,5 x cable Ø
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Cores colour coded to DIN VDE 0293
- Green-yellow earth core: 3 cores and above
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1
colour yellow (RAL 1016)
- Extensively oil resistant
Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, as connection cable with yellow outer sheath as a special warning indication. Recommendation in adapted to EN 60204 part 1 and DIN VDE 0113 part 1.

A

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10334	3G1,5	8,1	43,0	100	16
10335	4G1,5	9,0	58,0	121	16
10336	5G1,5	10,0	72,0	148	16

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
10337	3G2,5	10,1	72,0	154	14
10338	4G2,5	11,0	96,0	208	14
10339	5G2,5	12,3	120,0	229	14

*¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core

PVC cables will be changed to lead free PVC successively.

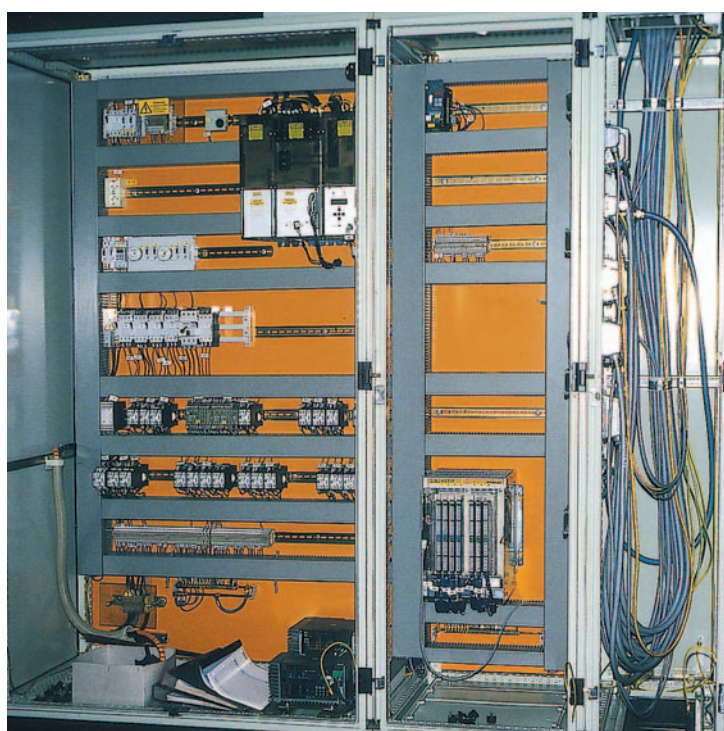


Photo: HELUKABEL®



Technical data

- Special PVC control cables
- Adapted to
DIN VDE 0245, 0281, 0293, 0295
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MΩ·km
- **Minimum bending radius** approx.
6 x cable Ø (fixed installation)
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of special PVC Z 7225
- Black cores with white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC inner jacket
- Galvanized steel wire screening
- Special PVC, outer jacket transparent (also available in grey)
- Extensively oil resistant
Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), for outer jacket grey

Application

SY-JZ cables are used as measuring and control cables in tool machinery, plant installation, power stations and in data equipment. The braided screen offers best possible protection against mechanical damage. The galvanized coating on the steel wire braiding not only helps protect against corrosion, but also notably improves the soldering performance.

The clear transparent outer sheath gives the cable in addition an optical reevaluation.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
12001 OZ	2 x 0,5	7,2	9,6	80	20
12002	3 G 0,5	7,7	14,4	92	20
12003	4 G 0,5	8,1	19,2	102	20
12004	5 G 0,5	8,6	24,0	119	20
12005	7 G 0,5	9,8	33,6	157	20
12006	10 G 0,5	11,5	48,0	205	20
12007	12 G 0,5	11,6	58,0	218	20
12008	14 G 0,5	12,2	67,0	242	20
12009	18 G 0,5	13,5	86,0	340	20
12010	21 G 0,5	14,9	101,0	370	20
12114	25 G 0,5	15,9	120,0	406	20
12012	30 G 0,5	16,4	144,0	439	20
12013	35 G 0,5	17,8	168,0	500	20
12014	40 G 0,5	19,3	192,0	565	20
12015	42 G 0,5	19,3	202,0	593	20
12016	50 G 0,5	21,0	240,0	690	20
12017	61 G 0,5	22,9	293,0	843	20
12018	80 G 0,5	25,2	384,0	1050	20
12011	100 G 0,5	27,8	480,0	1240	20
12019 OZ	2 x 0,75	7,8	14,4	98	18
12020	3 G 0,75	8,1	21,6	103	18
12021	4 G 0,75	8,6	28,8	122	18
12022	5 G 0,75	9,4	36,0	142	18
12112	6 G 0,75	9,9	43,2	180	18
12023	7 G 0,75	10,7	50,0	185	18
12188	8 G 0,75	11,1	57,6	201	18
12024	9 G 0,75	12,2	65,0	249	18
12113	10 G 0,75	12,5	72,0	252	18
12025	12 G 0,75	12,8	86,0	292	18
12026	15 G 0,75	14,1	108,0	335	18

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
12027	18 G 0,75	14,8	130,0	388	18
12028	21 G 0,75	16,2	151,0	474	18
12029	25 G 0,75	17,8	180,0	503	18
12030	32 G 0,75	18,9	230,0	644	18
12031	34 G 0,75	19,6	245,0	663	18
12032	41 G 0,75	21,0	296,0	741	18
12033	50 G 0,75	23,3	360,0	925	18
12034	61 G 0,75	25,1	439,0	1082	18
12035 OZ	2 x 1	8,2	19,2	112	17
12036	3 G 1	8,5	28,8	132	17
12037	4 G 1	9,3	38,4	143	17
12038	5 G 1	9,8	48,0	166	17
12039	6 G 1	10,6	58,0	220	17
12040	7 G 1	11,3	67,0	227	17
12041	8 G 1	12,1	77,0	277	17
12042	9 G 1	12,8	86,0	295	17
12043	12 G 1	13,6	115,0	340	17
12044	14 G 1	14,2	134,0	420	17
12045	18 G 1	15,6	173,0	500	17
12046	20 G 1	16,4	192,0	532	17
12047	25 G 1	18,7	240,0	664	17
12048	34 G 1	20,8	326,0	845	17
12049	36 G 1	20,8	346,0	857	17
12050	41 G 1	22,2	394,0	993	17
12051	50 G 1	24,2	480,0	1112	17
12052	56 G 1	24,8	538,0	1225	17
12053	61 G 1	26,6	586,0	1306	17
12054	65 G 1	27,5	624,0	1540	17
12055	80 G 1	29,5	768,0	1750	17
12056	100 G 1	33,2	960,0	1950	17

Continuation ►

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further dimensions available on request.

These cables can be also delivered with coloured conductors (SY-JB pages A 20f).
PVC cables will be changed to lead free PVC successively.

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

2) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® SY-JZ

number coded, flexible with steel wire braiding



2)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
12057 OZ	2x1,5	8,9	29,0	129	16
12058	3G1,5	9,3	43,0	149	16
12059	4G1,5	9,9	58,0	185	16
12060	5G1,5	10,8	72,0	205	16
12109	6G1,5	11,6	87,0	255	16
12061	7G1,5	12,5	101,0	285	16
12062	8G1,5	13,6	115,0	340	16
12063	9G1,5	14,3	130,0	347	16
12064	10G1,5	14,9	144,0	418	16
12065	11G1,5	15,1	158,0	430	16
12066	12G1,5	15,1	173,0	444	16
12067	14G1,5	15,7	202,0	533	16
12068	18G1,5	17,3	259,0	593	16
12069	25G1,5	20,9	360,0	781	16
12070	32G1,5	22,6	461,0	1015	16
12071	34G1,5	22,9	490,0	1124	16
12072	42G1,5	24,6	605,0	1401	16
12073	50G1,5	27,1	720,0	1583	16
12074	61G1,5	29,8	878,0	1810	16
12075	80G1,5	33,2	1152,0	2316	16
12076	100G1,5	36,4	1440,0	2900	16
12077 OZ	2x2,5	10,4	48,0	185	14
12078	3G2,5	11,0	72,0	248	14
12079	4G2,5	11,9	96,0	290	14
12080	5G2,5	12,8	120,0	347	14
12081	7G2,5	15,2	168,0	420	14
12082	12G2,5	18,2	288,0	660	14
12083	14G2,5	18,9	336,0	750	14
12084	18G2,5	21,5	432,0	893	14
12085	20G2,5	22,6	480,0	1169	14
12086	25G2,5	25,5	600,0	1458	14
12087	30G2,5	26,7	720,0	1686	14
12088	34G2,5	28,7	816,0	1869	14
12089	50G2,5	34,3	1200,0	2200	14
12090	61G2,5	37,7	1464,0	3000	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
12115	3G4	12,6	117,0	350	12
12091	4G4	13,9	154,0	428	12
12092	5G4	15,0	192,0	504	12
12093	7G4	16,4	269,0	640	12
12094	11G4	22,0	422,0	1204	12
12095	4G6	15,8	230,0	571	10
12096	5G6	17,2	288,0	671	10
12097	7G6	18,9	403,0	845	10
12098	4G10	20,0	384,0	943	8
12099	5G10	21,9	480,0	1065	8
12100	7G10	24,2	672,0	1551	8
12101	4G16	22,9	614,0	1360	6
12102	5G16	25,5	768,0	1740	6
12103	7G16	28,0	1075,0	2166	6
12104	4G25	28,9	960,0	2020	4
12105	5G25	31,8	1200,0	2465	4
12106	4G35	32,2	1344,0	2570	2
12107	5G35	36,4	1680,0	3185	2
12108	4G50	38,2	1920,0	3513	1
12116	5G50	43,2	2400,0	4248	1
12111	4G70	46,8	2688,0	4810	2/0
12117	5G70	51,8	3360,0	5880	2/0
12110	4G95	51,5	3648,0	6360	3/0
12118	5G95	56,4	4560,0	8071	3/0
12119	4G120	56,3	4608,0	8170	4/0
12327	4C150	63,5	5760,0	9970	300 kcmil

A

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

Further dimensions available on request.
These cables can be also delivered with coloured conductors (SY-JB pages A 20f).

2) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.



Technical data

- Special PVC control cables
- Adapted to DIN VDE 0245, 0281, 0293, 0295
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius** approx.
6 x cable Ø (fixed installation)
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of special PVC Z 7225
- Cores colour coded as per JB/OB colour code, see page T 48 and page T 49
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC inner jacket
- Galvanized steel wire screening
- Special PVC, outer jacket transparent (also available in grey)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), for outer jacket grey

Application

SY-JB cables are used as measuring and control cables in tool machinery, plant installation, power stations and in data equipment. The braided screen offers best possible protection against mechanical damage. The galvanized coating on the steel wire braiding not only helps protect against corrosion, but also notably improves the soldering performance.

The clear transparent outer sheath gives the cable in addition an optical revaluation.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
12200 OB	2 x 0,5*	7,2	9,6	80	20
12201	3 G 0,5*	7,7	14,4	92	20
12202	4 G 0,5*	8,1	19,2	102	20
12203	5 G 0,5*	8,6	24,0	119	20
12204	7 G 0,5*	9,8	33,6	157	20
12205	10 G 0,5	11,5	48,0	205	20
12206	12 G 0,5	11,6	58,0	218	20
12218 OB	2 x 0,75*	7,8	14,4	98	18
12219	3 G 0,75*	8,1	21,6	103	18
12220	4 G 0,75*	8,6	28,8	122	18
12221	5 G 0,75*	9,4	36,0	142	18
12312	6 G 0,75*	9,9	43,2	180	18
12222	7 G 0,75*	10,7	50,0	185	18
12223	9 G 0,75	12,2	65,0	249	18
12313	10 G 0,75	12,5	72,0	252	18
12224	12 G 0,75	12,8	86,0	292	18
12234 OB	2 x 1*	8,2	19,2	112	17
12235	3 G 1*	8,5	28,8	132	17
12236	4 G 1*	9,3	38,4	143	17
12237	5 G 1*	9,8	48,0	166	17
12238	6 G 1*	10,6	58,0	220	17
12239	7 G 1*	11,3	67,0	227	17
12240	8 G 1	12,1	77,0	277	17
12241	9 G 1	12,8	86,0	295	17
12242	12 G 1	13,6	115,0	340	17
12256 OB	2 x 1,5*	8,9	29,0	129	16
12257	3 G 1,5*	9,3	43,0	149	16
12258	4 G 1,5*	9,9	58,0	185	16

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
12259	5 G 1,5*	10,8	72,0	205	16
12260	6 G 1,5*	11,6	87,0	255	16
12261	7 G 1,5*	12,5	101,0	285	16
12262	8 G 1,5	13,6	115,0	340	16
12263	9 G 1,5	14,3	130,0	347	16
12264	10 G 1,5	14,9	144,0	418	16
12265	11 G 1,5	15,1	158,0	430	16
12266	12 G 1,5	15,1	173,0	444	16
12277 OB	2 x 2,5*	10,4	48,0	185	14
12278	3 G 2,5*	11,0	72,0	248	14
12279	4 G 2,5*	11,9	96,0	290	14
12280	5 G 2,5*	12,8	120,0	347	14
12281	7 G 2,5*	15,2	168,0	420	14
12282	12 G 2,5	18,2	288,0	660	14
12291 OB	2 x 4*	11,9	77,0	330	12
12318	3 G 4*	12,6	115,0	375	12
12292	4 G 4*	13,9	154,0	428	12
12293	5 G 4*	15,0	192,0	504	12
12294	7 G 4*	16,4	269,0	640	12
12295	3 G 6*	14,5	173,0	543	10
12296	4 G 6*	15,8	230,0	571	10
12297	5 G 6*	17,2	288,0	671	10
12298	7 G 6*	18,9	403,0	845	10
12319	3 G 10*	18,0	288,0	735	8
12299	4 G 10*	20,0	384,0	943	8
12300	5 G 10*	21,9	480,0	1065	8
12301	7 G 10*	24,2	672,0	1551	8

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OB)

Further dimensions available on request.
PVC cables will be changed to lead free PVC successively.

1) Please note the cleanroom qualification when ordering. Further informations on page 16.

HELUKABEL® SY-JB

colour coded, flexible with steel wire braiding



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
12320	3G16*	21,0	461,0	1080	6
12302	4G16*	22,9	614,0	1360	6
12303	5G16*	25,5	768,0	1740	6
12304	7G16*	28,0	1075,0	2166	6
12321	3G25*	26,2	720,0	1630	4
12305	4G25*	28,9	960,0	2020	4
12306	5G25*	31,8	1200,0	2465	4
12322	3G35*	31,6	1008,0	1932	2
12307	4G35*	32,2	1344,0	2570	2
12308	5G35*	36,4	1680,0	3185	2

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
12323	3G50*	37,4	1440,0	2679	1
12309	4G50*	38,2	1920,0	3513	1
12314	5G50*	43,2	2400,0	4248	1
12324	3G70*	46,0	2016,0	2790	2/0
12310	4G70*	46,8	2688,0	4810	2/0
12315	5G70*	51,8	3360,0	5880	2/0
12325	3G95*	48,9	2736,0	4870	3/0
12311	4G95*	51,5	3648,0	6360	3/0
12316	5G95*	56,4	4560,0	8071	3/0
12326	3G120*	51,7	3456,0	6230	4/0
12317	4G120*	56,3	4608,0	8170	4/0
12328	4G150*	63,5	5760,0	9970	300 kcmil

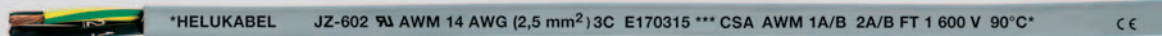
G = with green-yellow earth core
X = without green-yellow earth core (OB)

*) **Note**
 AWG sizes are approximate equivalent values.
 The actual cross-section is in mm² – see page T 15.
 Further dimensions available on request.
 PVC cables will be changed to lead free PVC successively.

¹) Please note the cleanroom qualification when ordering.
 Further informations on page 16.



Big stranding machine for cable lay up to 4 x 185 mm² in factory Windsbach. Works photo: HELUKABEL®



Technical data

- Control cable of special-PVC to UL AWM Style 10012 (core insulation) Style 2587 (jacket insulation) and CSA
- Temperature range**
flexing – 5°C to +90°C
fixed installation –40°C to +90°C
- Nominal voltage**
according to UL + CSA 600 V
- Test voltage** 3000 V
- Breakdown voltage** min. 6000 V
- Insulation resistance**
min 20 MOhm x km
- Minimum bending radius**
for permanent approx. 7,5 x cable Ø
- Radiation resistance**
up to 80 x 10⁶ cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire stranded 0,5 – 35 mm² (as per AWG-cross sections)
- Special PVC core insulation Y18, to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Black conductors with consecutive numbering in white
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath YM5, to DIN VDE 0207 part 5 and class 43 to UL-Std. 1581
- colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

UL-listed and CSA certified flexible control cable rated at 600 V, primarily designed for exporters to the US or Canadian market. Used in machine tools, control systems, connection between control panels and machines, assembly lines and other industrial equipment. Suitable for installation in dry, moist or wet environment and moderate flexing applications. Resistant to mineral oils, synthetic oils and water based coolants. The outer sheath is approved with an improved oil-resistance-test. Its flexibility and easy stripability is due to the use of talkum powder between conductors and pressure moulded outer jacket.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83090 OZ	2 x AWG 20	2 x 0,5	5,9	9,6	49
83091	3 x AWG 20	3 G 0,5	6,3	14,0	58
83092	4 x AWG 20	4 G 0,5	6,7	19,0	69
83093	5 x AWG 20	5 G 0,5	7,3	24,0	84
83094	7 x AWG 20	7 G 0,5	8,5	34,0	123
83100	8 x AWG 20	8 G 0,5	9,6	38,4	140
83101	9 x AWG 20	9 G 0,5	10,4	43,2	177
83095	12 x AWG 20	12 G 0,5	10,9	58,0	192
83096	18 x AWG 20	18 G 0,5	12,9	86,0	256
83097	25 x AWG 20	25 G 0,5	15,5	120,0	358
83098	34 x AWG 20	34 G 0,5	17,7	163,0	487
83099	41 x AWG 20	41 G 0,5	19,9	197,0	580
83080 OZ	2 x AWG 18	2 x 1,0	6,3	19,2	53
83081	3 x AWG 18	3 G 1,0	6,7	27,0	61
83082	4 x AWG 18	4 G 1,0	7,3	38,4	74
83083	5 x AWG 18	5 G 1,0	7,9	48,0	90
83084	7 x AWG 18	7 G 1,0	9,2	67,0	130
83102	8 x AWG 18	8 G 1,0	10,0	76,8	144
83103	9 x AWG 18	9 G 1,0	11,1	86,4	180
83085	12 x AWG 18	12 G 1,0	11,8	115,2	198
83086	18 x AWG 18	18 G 1,0	14,1	173,0	274
83087	25 x AWG 18	25 G 1,0	17,1	240,0	384
83088	34 x AWG 18	34 G 1,0	19,3	326,0	494
83089	41 x AWG 18	41 G 1,0	21,2	394,0	508
83070 OZ	2 x AWG 16	2 x 1,5	6,9	28,8	73
83071	3 x AWG 16	3 G 1,5	7,5	44,0	94
83072	4 x AWG 16	4 G 1,5	8,1	58,0	117
83073	5 x AWG 16	5 G 1,5	8,7	72,0	140
83074	7 x AWG 16	7 G 1,5	10,6	101,0	186
83104	9 x AWG 16	9 G 1,5	12,8	129,7	244

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83075	12 x AWG 16	12 G 1,5	13,4	173,0	319
83076	18 x AWG 16	18 G 1,5	15,8	260,0	451
83077	25 x AWG 16	25 G 1,5	18,9	360,0	625
83078	34 x AWG 16	34 G 1,5	21,7	490,0	840
83079	41 x AWG 16	41 G 1,5	23,7	590,0	1032
83060 OZ	2 x AWG 14	2 x 2,5	8,2	48,0	115
83061	3 x AWG 14	3 G 2,5	8,7	72,0	143
83062	4 x AWG 14	4 G 2,5	10,1	96,0	185
83063	5 x AWG 14	5 G 2,5	10,9	120,0	221
83064	7 x AWG 14	7 G 2,5	13,1	168,0	293
83065	9 x AWG 14	9 G 2,5	15,6	216,0	429
83066	12 x AWG 14	12 G 2,5	16,7	288,0	563
83067	18 x AWG 14	18 G 2,5	19,6	432,0	854
83068	19 x AWG 14	19 G 2,5	19,7	456,0	914
83069	25 x AWG 14	25 G 2,5	24,0	600,0	1188
83051	3 x AWG 12	3 G 4	11,2	115,0	232
83052	4 x AWG 12	4 G 4	12,5	154,0	298
83053	5 x AWG 12	5 G 4	13,8	192,0	358
83054	7 x AWG 12	7 G 4	16,3	269,0	460
83041	3 x AWG 10	3 G 6	12,9	173,0	360
83042	4 x AWG 10	4 G 6	14,2	231,0	402
83043	5 x AWG 10	5 G 6	15,9	288,0	484
83044	7 x AWG 10	7 G 6	19,4	403,0	630
83031	3 x AWG 8	3 G 10	16,9	288,0	535
83032	4 x AWG 8	4 G 10	18,5	384,0	653
83033	5 x AWG 8	5 G 10	20,3	480,0	786
83034	7 x AWG 8	7 G 10	22,3	672,0	1100

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

¹⁾ Please note the cleanroom qualification when ordering. Further informations on page 16.

HELUKABEL® JZ-602

Two-Approvals
control cable,
UL-CSA approved 90°C 600 V



1)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83020 OZ	2 x AWG 6	2 x 16	19,4	307,0	640
83021	3 x AWG 6	3 G 16	20,7	461,0	810
83022	4 x AWG 6	4 G 16	23,2	615,0	1045
83023	5 x AWG 6	5 G 16	25,7	768,0	1260
83024	7 x AWG 6	7 G 16	28,4	1075,0	1760
83011	3 x AWG 4	3 G 25	25,0	720,0	1180
83012	4 x AWG 4	4 G 25	28,1	960,0	1507
83013	5 x AWG 4	5 G 25	30,9	1200,0	1858
83014	7 x AWG 4	7 G 25	35,5	1680,0	2830
83001	3 x AWG 2	3 G 35	28,6	1008,0	1590
83002	4 x AWG 2	4 G 35	31,7	1344,0	2123
83003	5 x AWG 2	5 G 35	35,2	1680,0	2612

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83004	3 x AWG 1	3 G 50	31,2	1440,0	2652
83005	4 x AWG 1	4 G 50	35,8	1920,0	3058
83006	5 x AWG 1	5 G 50	38,7	2400,0	4093
83007	3 x AWG 2/0	3 G 70	39,2	2016,0	3307
83008	4 x AWG 2/0	4 G 70	41,6	2688,0	4254
83009	5 x AWG 2/0	5 G 70	48,4	3360,0	5661
83010	3 x AWG 3/0	3 G 95	42,1	2736,0	4867
83015	4 x AWG 3/0	4 G 95	46,0	3648,0	5762
83016	5 x AWG 3/0	5 G 95	51,2	4560,0	7208
83017	3 x AWG 4/0	3 G 120	47,8	3456,0	5580
83018	4 x AWG 4/0	4 G 120	52,8	4608,0	7280
83019	5 x AWG 4/0	5 G 120	59,0	5760,0	8692

A

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

1) Please note the cleanroom qualification when ordering. Further informations on page 16.

HELUKABEL® JZ-602-PUR Two-Approvals UL-CSA approved 80°C 600 V control cable



new



Technical data

- Control cable of special-PUR to UL CSA AWM I/II A/B Style 20939 (jacket insulation) and CSA
- Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- Nominal voltage** according to UL + CSA 600 V
- Test voltage** 3000 V
- Breakdown voltage** min. 6000 V
- Insulation resistance** min 20 MΩm x km
- Minimum bending radius** for permanent approx. 7,5 x cable Ø
- Radiation resistance** up to 100 x 10⁶ CJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation Y18, to DIN VDE 0207 part 4 and UL-Style 10012
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Full-polyurethane** outer jacket grey (RAL 7001)

Application

UL-listed and CSA certified flexible control cable rated at 600 V, primarily designed for exporters to the US or Canadian market. Used in machine tools, control systems, connection between control panels and machines, assembly lines and other industrial equipment. Suitable for installation in dry, moist, wet and outdoor environment and moderate flexing applications. Resistant to mineral oils, synthetic oils, water based coolants, UV-radiation, oxygene, ozon and hydrolysis. Conditionally resistant to microbes.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12471 OZ	2 x AWG 20	2 x 0,5	5,8	9,6	52
12472	3 x AWG 20	3 G 0,5	6,2	14,0	64
12473	4 x AWG 20	4 G 0,5	6,6	19,0	72
12474	5 x AWG 20	5 G 0,5	7,2	24,0	88
12475	7 x AWG 20	7 G 0,5	8,5	34,0	130
12476	8 x AWG 20	8 G 0,5	9,5	38,4	145
12477	9 x AWG 20	9 G 0,5	10,8	43,2	180
12478	12 x AWG 20	12 G 0,5	10,3	58,0	196
12479	18 x AWG 20	18 G 0,5	12,8	86,0	260
12480	25 x AWG 20	25 G 0,5	15,5	120,0	368
12481	34 x AWG 20	34 G 0,5	17,6	163,0	502
12482	41 x AWG 20	41 G 0,5	19,7	197,0	594
12483 OZ	2 x AWG 18	2 x 1,0	6,2	19,2	57
12484	3 x AWG 18	3 G 1,0	6,6	27,0	68
12485	4 x AWG 18	4 G 1,0	7,2	38,4	79
12486	5 x AWG 18	5 G 1,0	7,8	48,0	97
12487	7 x AWG 18	7 G 1,0	9,1	67,0	141
12488	8 x AWG 18	8 G 1,0	9,9	76,8	152
12489	9 x AWG 18	9 G 1,0	11,0	86,4	190
12490	12 x AWG 18	12 G 1,0	11,7	115,2	211
12491	18 x AWG 18	18 G 1,0	14,0	173,0	284
12492	25 x AWG 18	25 G 1,0	17,0	240,0	394
12493	34 x AWG 18	34 G 1,0	19,2	326,0	521
12494	41 x AWG 18	41 G 1,0	21,0	394,0	609
12495 OZ	2 x AWG 16	2 x 1,5	6,9	28,8	75
12496	3 x AWG 16	3 G 1,5	7,5	44,0	96
12497	4 x AWG 16	4 G 1,5	8,1	58,0	117
12498	5 x AWG 16	5 G 1,5	8,7	72,0	140
12499	7 x AWG 16	7 G 1,5	10,6	101,0	186
12500	9 x AWG 16	9 G 1,5	12,8	129,7	244

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12501	12 x AWG 16	12 G 1,5	13,4	173,0	319
12502	18 x AWG 16	18 G 1,5	15,8	260,0	451
12503	25 x AWG 16	25 G 1,5	18,9	360,0	625
12504	34 x AWG 16	34 G 1,5	22,0	490,0	850
12505	41 x AWG 16	41 G 1,5	23,7	590,0	1041
12506 OZ	2 x AWG 14	2 x 2,5	8,2	48,0	115
12507	3 x AWG 14	3 G 2,5	8,7	72,0	143
12508	4 x AWG 14	4 G 2,5	10,1	96,0	185
12509	5 x AWG 14	5 G 2,5	10,9	120,0	221
12510	7 x AWG 14	7 G 2,5	13,1	168,0	293
12511	9 x AWG 14	9 G 2,5	15,6	216,0	429
12512	12 x AWG 14	12 G 2,5	16,7	288,0	563
12513	18 x AWG 14	18 G 2,5	19,6	432,0	854
12514	19 x AWG 14	19 G 2,5	19,7	456,0	914
12515	25 x AWG 14	25 G 2,5	24,0	600,0	1188
12516	3 x AWG 12	3 G 4	11,2	115,0	232
12517	4 x AWG 12	4 G 4	12,5	154,0	298
12518	5 x AWG 12	5 G 4	13,8	192,0	358
12519	7 x AWG 12	7 G 4	16,3	269,0	460
12520	3 x AWG 10	3 G 6	12,9	173,0	360
12521	4 x AWG 10	4 G 6	14,2	231,0	402
12522	5 x AWG 10	5 G 6	15,9	288,0	484
12523	7 x AWG 10	7 G 6	19,4	403,0	630
12524	3 x AWG 8	3 G 10	16,9	288,0	535
12525	4 x AWG 8	4 G 10	18,5	384,0	653
12526	5 x AWG 8	5 G 10	20,3	480,0	786
12527	7 x AWG 8	7 G 10	22,3	672,0	1100

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

HELUKABEL® JZ-602-PUR Two-Approvals UL-CSA approved 80°C 600 V control cable



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12528 OZ	2 x AWG 6	2 x 16	19,2	307,0	640
12529	3 x AWG 6	3 G 16	20,5	461,0	810
12530	4 x AWG 6	4 G 16	23,0	615,0	1045
12531	5 x AWG 6	5 G 16	25,5	768,0	1260
12532	7 x AWG 6	7 G 16	28,2	1075,0	1760
12533	3 x AWG 4	3 G 25	25,0	720,0	1180
12534	4 x AWG 4	4 G 25	28,1	960,0	1507
12535	5 x AWG 4	5 G 25	30,9	1200,0	1858
12536	7 x AWG 4	7 G 25	35,5	1680,0	2830
12537	3 x AWG 2	3 G 35	28,6	1008,0	1590
12538	4 x AWG 2	4 G 35	31,7	1344,0	2123
12539	5 x AWG 2	5 G 35	35,5	1680,0	2612

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12540	4 x AWG 1	4 G 50	35,8	1920,0	3058
12541	4 x AWG 2/0	4 G 70	41,6	2688,0	4254
12542	4 x AWG 3/0	4 G 95	46,0	3648,0	5762
12543	4 x AWG 4/0	4 G 120	52,8	4608,0	7280

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

new

A

HELUKABEL® JZ-602-CY EMC*-preferred type screened Two-Approvals control cable, UL-CSA approved 90°C 600V



*HELUKABEL JZ-602-CY  AWM 16 AWG (1,5 mm²) 7C E170315 *** CSA AWM 1A/B 2A/B FT 1 600 V 90°C 

Technical data

- Special PVC-insulated sheathed cable according to UL AWM Style 10012 (core insulation) Style 2587 and CSA
- **Temperature range**
flexing – 5°C to +90°C
fixed installation –40°C to +90°C
- **Nominal voltage**
according to UL+CSA 600 V
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
for permanent approx. 10 x cable Ø
- **Radiation resistance**
up to 80 x 10⁶ cJ/kg (up to 80 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Cable structure

- Bare copper, fine wire stranded 0,5 – 35 mm² (as per AWG-cross sections)
- Special PVC core insulation Y18, to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Cores black with sequential numbering imprinted in white
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PVC-insulated inner sheath YM5 to DIN VDE 0207 part 5
- Braided screen of tinned Cu wires approx. 85% coverage
- Special PVC outer sheath YM5, to DIN VDE 0207 part 5 and class 43 to UL-Std. 1581
colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

UL and CSA approved flexible control cables up to 600 V, for all machinery in tooling and plant construction, suitable for installation in dry, moist or wet environments for medium mechanical loads. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada.
Resistant to mineral oils, synthetic oils and refrigerants.
The outer sheath is approved with an improved oil-resistance-test.
The outer jacket is easily removed and the flexibility is guaranteed on account of the talcum powder between the cores and the outer jacket. The thick braiding screen ensures compliance with electromagnetic requirements.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
82990 OZ	2 x AWG 20	2 x 0,5	7,8	40	93
82991	3 x AWG 20	3 G 0,5	8,1	45	124
82992	4 x AWG 20	4 G 0,5	8,7	52	133
82993	5 x AWG 20	5 G 0,5	9,3	68	153
82994	7 x AWG 20	7 G 0,5	10,6	93	191
82995	9 x AWG 20	9 G 0,5	12,4	134	243
82996	12 x AWG 20	12 G 0,5	13,1	163	322
82997	18 x AWG 20	18 G 0,5	15,7	191	374
82998	25 x AWG 20	25 G 0,5	18,3	223	436
82999	34 x AWG 20	34 G 0,5	20,2	284	560
83000	41 x AWG 20	41 G 0,5	22,4	336	663
82979 OZ	2 x AWG 18	2 x 1,0	8,2	51	107
82980	3 x AWG 18	3 G 1,0	8,5	56	130
82981	4 x AWG 18	4 G 1,0	9,2	81	155
82982	5 x AWG 18	5 G 1,0	10,1	90	181
82983	7 x AWG 18	7 G 1,0	11,4	101	209
82984	9 x AWG 18	9 G 1,0	13,4	161	321
82985	12 x AWG 18	12 G 1,0	13,9	175	341
82986	18 x AWG 18	18 G 1,0	16,3	241	473
82987	25 x AWG 18	25 G 1,0	19,6	342	650
82988	34 x AWG 18	34 G 1,0	22,6	434	781
82989	41 x AWG 18	41 G 1,0	24,4	499	892
82968 OZ	2 x AWG 16	2 x 1,5	8,8	70	136
82969	3 x AWG 16	3 G 1,5	9,3	89	165
82970	4 x AWG 16	4 G 1,5	10,1	97	192
82971	5 x AWG 16	5 G 1,5	10,9	111	224
82972	7 x AWG 16	7 G 1,5	13,0	147	273
82973	9 x AWG 16	9 G 1,5	14,9	193	340
82974	12 x AWG 16	12 G 1,5	15,7	256	461

* AWG 19 will be replaced by AWG 18 successively; AWG 19 as outgoing type

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
82975	18 x AWG 16	18 G 1,5	18,4	380	674
82976	25 x AWG 16	25 G 1,5	22,4	544	950
82977	34 x AWG 16	34 G 1,5	25,3	674	1203
82978	41 x AWG 16	41 G 1,5	27,5	881	1588
82959 OZ	2 x AWG 14	2 x 2,5	10,4	73	173
82960	3 x AWG 14	3 G 2,5	10,9	111	220
82961	4 x AWG 14	4 G 2,5	11,9	141	270
82962	5 x AWG 14	5 G 2,5	13,3	169	329
82963	7 x AWG 14	7 G 2,5	15,7	251	428
82964	9 x AWG 14	9 G 2,5	18,2	326	580
82965	12 x AWG 14	12 G 2,5	19,3	430	761
82966	18 x AWG 14	18 G 2,5	23,2	639	1140
82967	25 x AWG 14	25 G 2,5	28,5	892	1551
82954 OZ	2 x AWG 12	2 x 4	12,6	116	209
82955	3 x AWG 12	3 G 4	13,2	198	310
82956	4 x AWG 12	4 G 4	14,6	232	456
82957	5 x AWG 12	5 G 4	15,9	275	532
82958	7 x AWG 12	7 G 4	19,1	395	737
82949 OZ	2 x AWG 10	2 x 6	14,3	183	318
82950	3 x AWG 10	3 G 6	15,3	242	411
82951	4 x AWG 10	4 G 6	16,7	316	572
82952	5 x AWG 10	5 G 6	18,5	411	732
82953	7 x AWG 10	7 G 6	22,2	570	961
82945	3 x AWG 8	3 G 10	19,2	416	741
82946	4 x AWG 8	4 G 10	21,3	571	988
82947	5 x AWG 8	5 G 10	23,9	690	1202
82948	7 x AWG 8	7 G 10	26,7	971	1743

Continuation ►

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

*) Note
AWG sizes are approximate equivalent values. The actual cross-section is in mm² – see page T 15.

*) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® JZ-602-CY EMC*-preferred type screened Two-Approvals control cable, UL-CSA approved 90°C 600V



2)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
82941	3 x AWG 6	3 G 16	24,4	660	1088
82942	4 x AWG 6	4 G 16	27,4	821	1662
82943	5 x AWG 6	5 G 16	30,8	1127	2021
82944	7 x AWG 6	7 G 16	33,8	1512	2720
82937	3 x AWG 4	3 G 25	30,4	1091	1947
82938	4 x AWG 4	4 G 25	33,5	1443	2591
82939	5 x AWG 4	5 G 25	40,0	1802	3197
82940	7 x AWG 4	7 G 25	40,8	2520	4530
82934	3 x AWG 2	3 G 35	34,0	1501	2701
82935	4 x AWG 2	4 G 35	37,9	1889	3277
82936	5 x AWG 2	5 G 35	41,7	2532	4530

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
82488	3 x AWG 1	3 G 50	35,0	1621	2870
82780	4 x AWG 1	4 G 50	40,5	2474	3960
82781	5 x AWG 1	5 G 50	44,4	2794	4371
82782	3 x AWG 2-0	3 G 70	41,4	2288	3647
82783	4 x AWG 2-0	4 G 70	46,1	3120	4882
82914	5 x AWG 2-0	5 G 70	50,6	3705	5876
82915	3 x AWG 3-0	3 G 95	46,2	3094	4751
82916	4 x AWG 3-0	4 G 95	50,7	4043	6368
82917	5 x AWG 3-0	5 G 95	56,1	5026	7843
82918	3 x AWG 4-0	3 G 120	52,0	3812	5899
82919	4 x AWG 4-0	4 G 120	57,0	5069	8010
82920	5 x AWG 4-0	5 G 120	62,7	5877	9205

A

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core

PVC cables will be changed to lead free PVC successively.

²⁾ Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

HELUKABEL® JZ-602-C-PUR EMC*-preferred type screened Two-Approvals control cable, UL-CSA approved 80°C 600V



new



Technical data

- Special PUR-insulated to UL CSA AWM I/II A/B Style 20939 (jacket insulation) and CSA
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** according to UL+CSA 600 V
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent approx. 10 x cable Ø
- **Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance** max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation Y18, to DIN VDE 0207 part 4 and UL-Style 10012
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PVC-insulated inner sheath YM5 to DIN VDE 0207 part 5
- Braided screen of tinned Cu wires approx. 85% coverage
- **Full-polyurethane** outer jacket grey (RAL 7001)

Application

UL and CSA approved flexible control cables up to 600 V, for all machinery in tooling and plant construction, suitable for installation in dry, moist, wet and outdoor environments for medium mechanical loads. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. Resistant to mineral oils, synthetic oils and refrigerants, UV-radiation, osygene, ozon and hydrolysis. Conditionally resistant to microbes.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12550 OZ	2 x AWG 20	2 x 0,5	7,7	40	93
12551	3 x AWG 20	3 G 0,5	8,0	45	124
12552	4 x AWG 20	4 G 0,5	8,6	52	133
12553	5 x AWG 20	5 G 0,5	9,2	68	153
12554	7 x AWG 20	7 G 0,5	10,5	93	191
12555	9 x AWG 20	9 G 0,5	12,3	134	243
12556	12 x AWG 20	12 G 0,5	13,0	163	322
12557	18 x AWG 20	18 G 0,5	15,6	191	374
12558	25 x AWG 20	25 G 0,5	18,2	223	436
12559	34 x AWG 20	34 G 0,5	20,1	284	560
12560	41 x AWG 20	41 G 0,5	22,4	336	663
12561 OZ	2 x AWG 18	2 x 1,0	8,1	51	107
12562	3 x AWG 18	3 G 1,0	8,4	56	130
12563	4 x AWG 18	4 G 1,0	9,1	81	155
12564	5 x AWG 18	5 G 1,0	10,0	90	181
12565	7 x AWG 18	7 G 1,0	11,3	101	209
12566	9 x AWG 18	9 G 1,0	13,3	161	321
12567	12 x AWG 18	12 G 1,0	13,8	175	341
12568	18 x AWG 18	18 G 1,0	16,2	241	473
12569	25 x AWG 18	25 G 1,0	19,5	342	650
12570	34 x AWG 18	34 G 1,0	22,5	434	781
12571	41 x AWG 18	41 G 1,0	24,2	499	892
12572 OZ	2 x AWG 16	2 x 1,5	8,7	70	136
12573	3 x AWG 16	3 G 1,5	9,2	89	165
12574	4 x AWG 16	4 G 1,5	10,0	97	192
12575	5 x AWG 16	5 G 1,5	10,8	111	224
12576	7 x AWG 16	7 G 1,5	12,9	147	273
12577	9 x AWG 16	9 G 1,5	14,8	193	340
12578	12 x AWG 16	12 G 1,5	15,6	256	461
12579	18 x AWG 16	18 G 1,5	18,3	380	674
12580	25 x AWG 16	25 G 1,5	22,5	544	950
12581	34 x AWG 16	34 G 1,5	25,1	674	1203
12582	41 x AWG 16	41 G 1,5	27,3	881	1588
12583 OZ	2 x AWG 14	2 x 2,5	10,3	73	173
12584	3 x AWG 14	3 G 2,5	10,8	111	220
12585	4 x AWG 14	4 G 2,5	11,8	141	270
12586	5 x AWG 14	5 G 2,5	13,2	169	329
12587	7 x AWG 14	7 G 2,5	15,6	251	428
12588	9 x AWG 14	9 G 2,5	18,1	326	580

*) Note

AWG sizes are approximate equivalent values. The actual cross-section is in mm² – see page T 15.

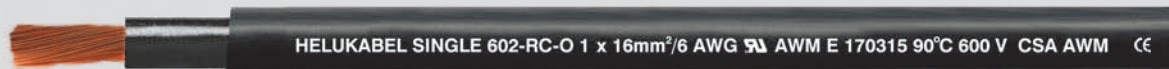
Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12589	12 x AWG 14	12 G 2,5	19,2	430	761
12590	18 x AWG 14	18 G 2,5	23,0	639	1140
12591	25 x AWG 14	25 G 2,5	28,3	892	1551
12592 OZ	2 x AWG 12	2 x 4	12,5	116	209
12593	3 x AWG 12	3 G 4	13,1	198	310
12594	4 x AWG 12	4 G 4	14,5	232	456
12595	5 x AWG 12	5 G 4	15,8	275	532
12596	7 x AWG 12	7 G 4	19,0	395	737
12597 OZ	2 x AWG 10	2 x 6	14,2	183	318
12598	3 x AWG 10	3 G 6	15,2	242	411
12599	4 x AWG 10	4 G 6	16,6	316	572
12600	5 x AWG 10	5 G 6	18,4	411	732
12601	7 x AWG 10	7 G 6	22,2	570	961
12602	3 x AWG 8	3 G 10	19,1	416	741
12603	4 x AWG 8	4 G 10	21,1	571	988
12604	5 x AWG 8	5 G 10	23,7	690	1202
12605	7 x AWG 8	7 G 10	26,5	971	1743
12606	3 x AWG 6	3 G 16	24,2	660	1088
12607	4 x AWG 6	4 G 16	27,2	821	1662
12608	5 x AWG 6	5 G 16	30,6	1127	2021
12609	7 x AWG 6	7 G 16	33,6	1512	2720
12610	3 x AWG 4	3 G 25	30,2	1091	1947
12611	4 x AWG 4	4 G 25	33,3	1443	2591
12612	5 x AWG 4	5 G 25	36,8	1802	3197
12613	7 x AWG 4	7 G 25	40,6	2520	4530
12614	3 x AWG 2	3 G 35	33,8	1501	2701
12615	4 x AWG 2	4 G 35	37,7	1889	3277
12616	5 x AWG 2	5 G 35	41,5	2532	4530
12617	4 x AWG 1	4 x 50	41,8	2210	3370
12618	4 x AWG 2-0	4 x 70	47,0	2915	4630
12619	4 x AWG 3-0	4 x 95	51,0	3920	6114
12620	4 x AWG 4-0	4 x 120	58,0	5097	7417

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

HELUKABEL® Single 602-RC* -J/-O 600 V

Special Single Core Cable for drag chains, UL-CSA approved 90°C 



Technical data

- Special PVC control cable according to UL-Style 10107 and CSA AWM I/II AB, core according to DIN VDE 0281 part 3 (except 300 mm²)
- **Temperature range**
 - flexing – 5°C to +90°C
 - fixed installation –40°C to +90°C
- **Permissible operating temperature** max. +90°C at conductor
- **Nominal voltage** according to UL+CSA 600 V U₀/U 600/1000 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius**
 - 7,5x cable Ø – flexing
 - 3x cable Ø – fixed
- **Radiation resistance** up to 80x10⁶ cJ/kg (up to 80 Mrad)
- **Tests**
 - According to UL-Style 10107/ UL-Std. 1581, CSA C22.2 No 210
 - Core according to DIN VDE 0281 part 3 and part 1 (HD 21.3)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6, however by 185 mm² up to 300 mm² with reduced single wire-Ø, max. 0,30 mm
- 1. Core insulation of special PVC, TI3 to DIN VDE 0281 part 1 and UL-Std. 1581 class 43 90°C, wall-thickness to UL-Style 10107 and DIN VDE 0281 part 3, colour black or green-yellow
- 2. Core insulation (jacket) of special PVC, YM5 to DIN VDE 0207 part 5 and UL-Std. 1581 class 43 90°C, wall-thickness to UL-Style 10107, colour black (RAL 9005)
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1

Application

High flexible special single core cables for drag chains are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms. These two-norm cables primarily designed for exportorientated machinery manufacturer for flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts. Resistant to mineral oils, synthetic oils and lubricating coolants.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

* RC = Robotics Cable

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores cross-sec. mm ²	AWG-No.†)	Core colour	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
69601	1 G10	8	gn-ye	9,4	96	180
69602	1 x10	8	black	9,4	96	180
69603	1 G16	6	gn-ye	10,5	154	250
69604	1 x16	6	black	10,5	154	250
69605	1 G25	4	gn-ye	11,6	240	370
69606	1 x25	4	black	11,6	240	370
69607	1 G35	2	gn-ye	14,5	336	490
69608	1 x35	2	black	14,5	336	490
69609	1 G50	1	gn-ye	16,6	480	665
69610	1 x50	1	black	16,6	480	665
69611	1 G70	2/0	gn-ye	18,0	672	910
69612	1 x70	2/0	black	18,0	672	910

Part No.	No. cores cross-sec. mm ²	AWG/kcmil No.†)	Core colour	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
69613	1 G95	3/0	gn-ye	20,5	912	1195
69614	1 x95	3/0	black	20,5	912	1195
69615	1 G120	4/0	gn-ye	23,0	1152	1545
69616	1 x120	4/0	black	23,0	1152	1545
69617	1 G150	250	gn-ye	25,2	1440	1750
69618	1 x150	250	black	25,2	1440	1750
69619	1 G185	350	gn-ye	29,0	1776	2320
69620	1 x185	350	black	29,0	1776	2320
69621	1 G240	450	gn-ye	32,5	2304	2960
69622	1 x240	450	black	32,5	2304	2960
69623	1 G300**	550	gn-ye	35,4	2880	3550
69624	1 x300**	550	black	35,4	2880	3550

** 300 mm² in adaption to DIN VDE 0281

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core

X = without green-yellow earth core

PVC cables will be changed to lead free PVC successively.

HELUKABEL® Single 602-RC* -CY -J/-O

Special Single Core Cable for drag chains, UL-CSA approved 90°C 600V

Cu-screened
EMC*-preferred type



HELUKABEL SINGLE 602-RC-CY-J 1 G 16 mm² 6 AWG AWM E 170315 90°C 600V CSA AWM



HELUKABEL SINGLE 602-RC-CY-O 1x 16 mm² 6 AWG AWM E 170315 90°C 600V CSA AWM



Technical data

- Special PVC control cable according to UL-Style 10107 and CSA AWM I/II AB, core according to DIN VDE 0281 part 3 (except 300 mm²)
- **Temperature range**
flexing – 5°C to +90°C
fixed installation –40°C to +90°C
- **Permissible operating temperature**
max. +90°C at conductor
- **Nominal voltage**
according to UL+CSA 600 V
U₀/U 600/1000 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MΩm x km
- **Minimum bending radius**
7,5x cable Ø – flexing
3x cable Ø – fixed
- **Coupling resistance**
max. 250 Ωm/km
- **Radiation resistance**
up to 80x10⁶ Cj/kg (up to 80 Mrad)
- **Tests**
According to UL-Style 10107/UL Std 1581, CSA C22.2 No 210
Core according to DIN VDE 0281 part 3 and part 1 (HD 21.3)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6, however by 185 mm² up to 300 mm² with reduced single wire-Ø, max. 0,30 mm
- 1. Core insulation of special PVC, TI3 to DIN VDE 0281 part 1 and UL Std 1581 class 43 90°C, wall-thickness to UL-Style 10107 and DIN VDE 0281 part 3, colour black or green-yellow
- Tinned copper braided screening, coverage approx. 80%
- 2. Core insulation (jacket) of special PVC, YM5 to DIN VDE 0207 part 5 and UL-Std. 1581 class 43 90°C, wall-thickness to UL-Style 10107, colour orange (RAL 2003)
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1

* RC = Robotics Cable

Application

High flexible special single core screened cables for drag chains are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms.

These two-norm cables primarily designed for exportorientated machinery manufacturer for flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts. Resistant to mineral oils, synthetic oils and lubricating coolants.

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page A 15 for energy guiding systems.

Before installation in cable trays please read the instructions.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores cross-sec. mm²	AWG-No.*)	Core colour	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
69631	1 G10	8	gn-ye	10,0	130	230
69632	1 x10	8	black	10,0	130	230
69633	1 G16	6	gn-ye	11,1	190	300
69634	1 x16	6	black	11,1	190	300
69635	1 G25	4	gn-ye	12,3	260	420
69636	1 x25	4	black	12,3	260	420
69637	1 G35	2	gn-ye	15,1	405	615
69638	1 x35	2	black	15,1	405	615
69639	1 G50	1	gn-ye	17,2	560	825
69640	1 x50	1	black	17,2	560	825
69641	1 G70	2/0	gn-ye	19,0	780	1090
69642	1 x70	2/0	black	19,0	780	1090

** 300 mm² in adaption to DIN VDE 0281

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).

G = with green-yellow earth core
X = without green-yellow earth core

PVC cables will be changed to lead free PVC successively.



DESINA: DEcentralised and Standardised
INStallation is a recommendation from VDW, the German toolmakers association, for harmonisation of components, interfaces and connecting systems

HELUKABEL® JZ-602 RC* special cables for drag chains

Two-Approvals control cable UL-CSA approved 90°C 600 V  



HELUKABEL JZ-602 RC  AWM STYLE 2587 20 AWG / 0,5 QMM 5 C E 170315 90°C 600 V VW-1 LL113926 CSA
AWM I/II A/B 90°C 600 V FT1 001042219

CE

Technical data

- Control cable of special-PVC to UL AWM Style 10012 (core insulation) Style 2587 (jacket insulation) and CSA
- Temperature range**
 - flexing – 5°C to +90°C
 - fixed installation –40°C to +90°C
- Nominal voltage** according to UL + CSA 600 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min 20 MOhm x km
- Minimum bending radius** for permanent approx. 7,5 x cable Ø
- Radiation resistance** up to 80 x 10⁶ cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6 col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special PVC core insulation, Y18 to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Red cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece over each layer
- Special PVC outer jacket YM5 to DIN VDE 0207 part 5, UL-Style 2587 and CSA C22.2 No 210 Outer jacket black (RAL 9005)
- Extensively oil resistant Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms. These special cables for drag chains are used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts. These cables have shown excellent performance in combination with standard cable trays.

Note

- Interesting for the export-oriented machines and machinery plants.
- UV-resistant

* RC = Robotics Cable

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
89900	3 x AWG 20	3 G 0,5	6,0	14,0	58
89901	4 x AWG 20	4 G 0,5	6,5	19,0	69
89902	5 x AWG 20	5 G 0,5	7,1	24,0	84
89903	7 x AWG 20	7 G 0,5	8,2	34,0	123
89904	9 x AWG 20	9 G 0,5	10,0	43,2	177
89905	12 x AWG 20	12 G 0,5	10,5	58,2	192
89906	18 x AWG 20	18 G 0,5	12,5	86,0	256
89907	25 x AWG 20	25 G 0,5	15,0	120,0	358
89908	34 x AWG 20	34 G 0,5	17,2	163,0	487
89909	3 x AWG 18	3 G 0,75	6,6	28,8	88
89910	4 x AWG 18	4 G 0,75	7,1	38,4	101
89911	5 x AWG 18	5 G 0,75	7,8	48,0	126
89912	7 x AWG 18	7 G 0,75	9,2	67,0	145
89913	9 x AWG 18	9 G 0,75	11,0	86,4	168
89914	12 x AWG 18	12 G 0,75	11,5	115,0	260
89915	15 x AWG 18	15 G 0,75	13,2	144,0	300
89916	18 x AWG 18	18 G 0,75	14,0	173,0	360
89917	25 x AWG 18	25 G 0,75	17,2	240,0	640
89918	34 x AWG 18	34 G 0,75	19,1	326,0	730
89919	3 x AWG 16	3 G 1,5	7,4	44,0	94
89920	4 x AWG 16	4 G 1,5	8,0	58,0	117
89921	5 x AWG 16	5 G 1,5	8,8	72,0	140
89922	7 x AWG 16	7 G 1,5	10,8	101,0	186
89923	9 x AWG 16	9 G 1,5	12,8	129,7	244

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
89924	12 x AWG 16	12 G 1,5	13,5	173,0	319
89925	18 x AWG 16	18 G 1,5	16,0	260,0	451
89926	25 x AWG 16	25 G 1,5	19,8	360,0	625
89927	34 x AWG 16	34 G 1,5	22,4	490,0	840
89932	3 x AWG 14	3 G 2,5	8,9	72,0	150
89928	4 x AWG 14	4 G 2,5	10,1	96,0	185
89933	5 x AWG 14	5 G 2,5	11,3	120,0	242
89929	7 x AWG 14	7 G 2,5	13,6	168,0	293
89934	12 x AWG 14	12 G 2,5	16,8	288,0	498
89935	3 x AWG 12	3 G 4,0	10,9	115,0	231
89930	4 x AWG 12	4 G 4,0	12,4	154,0	298
89936	5 x AWG 12	5 G 4,0	13,8	192,0	370
89931	7 x AWG 12	7 G 4,0	16,6	269,0	460
89937	4 x AWG 10	4 G 6,0	14,6	231,0	430
89938	4 x AWG 8	4 G 10,0	18,2	384,0	720
89939	4 x AWG 6	4 G 16,0	22,0	615,0	1060
89940	4 x AWG 4	4 G 25,0	26,5	960,0	1590
89941	4 x AWG 2	4 G 35,0	30,8	1344,0	2105

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).

G = with green-yellow earth core
PVC cables will be changed to lead free PVC successively.

HELUKABEL® JZ-602 RC*-PUR special cables for drag chains

Two-Approvals control cable UL-CSA approved 80°C 600 V  



new



HELUKABEL JZ-602-RC-PUR  AWM 18 AWG/0,75 QMM 5C E170315 CSA AWM I/II A/B 80°C 600V FT 1 C €

Technical data

- Control cable of special-PUR to UL CSA AWM I/II A/B Style 20939 (jacket insulation) and CSA
- Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- Nominal voltage** according to UL + CSA 600 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min 20 MOhm x km
- Minimum bending radius** for permanent approx. 7,5 x cable Ø
- Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special PVC core insulation, Y18 to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece over each layer
- Full-polyurethane** outer jacket grey (RAL 7001)

Application

These cables are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist, wet rooms and outdoor. These special cables for drag chains are used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts.

Resistant to mineral oils, synthetic oils and refrigerants, UV-radiation, oxygene, ozon and hydrolysis. Conditionally resistant to microbes.

* RC = Robotics Cable

€ = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12630	3 x AWG 20	3 G 0,5	6,0	14,0	58
12631	4 x AWG 20	4 G 0,5	6,5	19,0	69
12632	5 x AWG 20	5 G 0,5	7,1	24,0	84
12633	7 x AWG 20	7 G 0,5	8,2	34,0	123
12634	9 x AWG 20	9 G 0,5	10,0	43,2	177
12635	12 x AWG 20	12 G 0,5	10,5	58,2	192
12636	18 x AWG 20	18 G 0,5	12,5	86,0	256
12637	25 x AWG 20	25 G 0,5	15,2	120,0	358
12638	34 x AWG 20	34 G 0,5	17,1	163,0	487
12639	3 x AWG 18	3 G 0,75	6,6	28,8	88
12640	4 x AWG 18	4 G 0,75	7,1	38,4	101
12641	5 x AWG 18	5 G 0,75	7,8	48,0	126
12642	7 x AWG 18	7 G 0,75	9,2	67,0	145
12643	9 x AWG 18	9 G 0,75	11,0	86,4	168
12644	12 x AWG 18	12 G 0,75	11,5	115,0	260
12645	15 x AWG 18	15 G 0,75	13,2	144,0	300
12646	18 x AWG 18	18 G 0,75	14,0	173,0	360
12647	25 x AWG 18	25 G 0,75	17,2	240,0	640
12648	34 x AWG 18	34 G 0,75	19,1	326,0	730
12649	3 x AWG 16	3 G 1,5	7,4	44,0	94
12650	4 x AWG 16	4 G 1,5	8,0	58,0	117
12651	5 x AWG 16	5 G 1,5	8,8	72,0	140
12652	7 x AWG 16	7 G 1,5	10,8	101,0	186
12653	9 x AWG 16	9 G 1,5	12,8	129,7	244
12654	12 x AWG 16	12 G 1,5	13,5	173,0	319
12655	18 x AWG 16	18 G 1,5	16,0	260,0	451
12656	25 x AWG 16	25 G 1,5	19,8	360,0	625
12657	34 x AWG 16	34 G 1,5	22,4	490,0	840

G = with green-yellow earth core

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12658	3 x AWG 14	3 G 2,5	8,9	72,0	150
12659	4 x AWG 14	4 G 2,5	10,1	96,0	185
12660	5 x AWG 14	5 G 2,5	11,3	120,0	242
12661	7 x AWG 14	7 G 2,5	13,6	168,0	293
12662	12 x AWG 14	12 G 2,5	16,8	288,0	498
12663	3 x AWG 12	3 G 4,0	10,9	115,0	231
12664	4 x AWG 12	4 G 4,0	12,4	154,0	298
12665	5 x AWG 12	5 G 4,0	13,8	192,0	370
12666	7 x AWG 12	7 G 4,0	16,6	269,0	460
12667	4 x AWG 10	4 G 6,0	14,6	231,0	430
12668	4 x AWG 8	4 G 10,0	18,2	384,0	720
12669	4 x AWG 6	4 G 16,0	22,0	615,0	1060
12670	4 x AWG 4	4 G 25,0	26,5	960,0	1590
12671	4 x AWG 2	4 G 35,0	30,8	1344,0	2105

Before installation in cable trays please read the instructions.

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).



HELUKABEL JZ-602 RC-CY AWM STYLE 2587 20 AWG / 0.5 QMM 4 C E 170315 90° C 600 V VW-1 LL113926 CSA
AWM I / II A / B 90 C 600 V FT 1 001042224

Technical data

- Control cable of special-PVC to UL AWM Style 10012 (core insulation) Style 2587 (jacket insulation) and CSA
- Temperature range**
 - flexing – 5°C to +90°C
 - fixed installation –40°C to +90°C
- Nominal voltage** according to UL+CSA 600 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance** min 20 MOhm x km
- Minimum bending radius** for permanent approx. 10 x cable Ø
- Radiation resistance** up 80 x 10⁶ cJ/kg (up to 80 Mrad)
- Coupling resistance** max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

* RC = Robotics Cable

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6 col. 4, BS 6360 cl. 5 and IEC 60228 cl. 6
- Special PVC core insulation, Y18 to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Red cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece over each layer
- PVC-inner sheath
- Screening:
 - up to 17 mm Ø – layer of tinned copper wires
 - > 17 mm Ø – tinned copper wire braid coverage ca. 85%
- Special PVC outer jacket YM5 to DIN VDE 0207 part 5, UL-Style 2587 and CSA C22.2 No 210
Outer jacket black (RAL 9005)
- Extensively oil resistant Chemical Resistance – see table Technical Informations

Application

These cable are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms. These special cables for drag chains are used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts. These cables have shown excellent performance in combination with standard cable trays. The dense screening assures disturbance-free transmission of all signals and impulses. An ideal disturbance-free control cable for the above applications.

Note

- Interesting for the export-oriented machines and machinery plants.
- UV-resistant

* EMC = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
89950	3 x AWG 20	3 G 0,5	8,5	45	124
89951	4 x AWG 20	4 G 0,5	9,1	52	135
89952	5 x AWG 20	5 G 0,5	9,9	68	153
89953	7 x AWG 20	7 G 0,5	11,0	93	191
89954	9 x AWG 20	9 G 0,5	12,4	134	243
89955	12 x AWG 20	12 G 0,5	13,5	163	322
89956	15 x AWG 20	15 G 0,5	14,8	174	350
89957	18 x AWG 20	18 G 0,5	16,0	191	374
89958	25 x AWG 20	25 G 0,5*	19,0	223	436
89959	3 x AWG 18	3 G 0,75	8,9	56	130
89960	4 x AWG 18	4 G 0,75	9,7	81	155
89961	5 x AWG 18	5 G 0,75	10,4	90	181
89962	7 x AWG 18	7 G 0,75	12,0	106	208
89963	9 x AWG 18	9 G 0,75	14,1	161	321
89964	12 x AWG 18	12 G 0,75	15,2	175	341
89965	15 x AWG 18	15 G 0,75	16,7	204	396
89966	18 x AWG 18	18 G 0,75*	17,6	241	473
89967	25 x AWG 18	25 G 0,75*	20,7	342	650
89968	34 x AWG 18	34 G 0,75*	24,3	434	781
89969	3 x AWG 16	3 G 1,5	10,2	89	165
89970	4 x AWG 16	4 G 1,5	11,0	97	192
89971	5 x AWG 16	5 G 1,5	11,8	111	224
89972	7 x AWG 16	7 G 1,5	14,0	147	274
89973	9 x AWG 16	9 G 1,5	16,4	193	340

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

* With braid

PVC cables will be changed to lead free PVC successively.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
89974	12 x AWG 16	12 G 1,5*	17,1	256	461
89975	18 x AWG 16	18 G 1,5*	20,2	360	674
89976	25 x AWG 16	25 G 1,5*	25,2	544	950
89977	34 x AWG 16	34 G 1,5*	28,1	674	1203
89984	3 x AWG 14	3 G 2,5	11,8	141	220
89978	4 x AWG 14	4 G 2,5	13,2	170	270
89985	5 x AWG 14	5 G 2,5	14,2	195	350
89979	7 x AWG 14	7 G 2,5*	17,4	251	428
89986	12 x AWG 14	12 G 2,5*	21,0	368	730
89980	18 x AWG 14	18 G 2,5*	25,4	639	1140
89987	3 x AWG 12	3 G 4,0	14,0	180	296
89981	4 x AWG 12	4 G 4,0	15,9	232	456
89988	5 x AWG 12	5 G 4,0*	17,7	330	450
89982	7 x AWG 12	7 G 4,0*	20,9	395	737
89983	4 x AWG 10	4 G 6,0*	18,3	316	572
89989	4 x AWG 8	4 G 10,0*	23,2	490	1012
89990	4 x AWG 6	4 G 16,0*	27,6	850	1400
89991	4 x AWG 4	4 G 25,0*	33,1	1450	2100
89992	4 x AWG 2	4 G 35,0*	37,8	1890	2550

G = with green-yellow earth core

Further technical details see selection table for drag chain cables (pages 24ff).

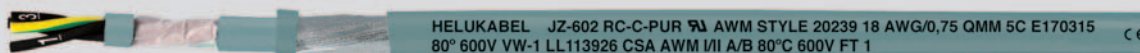
HELUKABEL® JZ-602 RC*-C-PUR

cables for
drag chains

Two-Approvals control cable UL-CSA approved 80°C 600V  



new



Technical data

- Control cable of special-PUR to UL CSA AWM I/II A/B Style 20939 (jacket insulation) and CSA
- Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- Nominal voltage**
according to UL+CSA 600 V
- Test voltage** 4000 V
- Breakdown voltage** min. 8000 V
- Insulation resistance**
min 20 MOhm x km
- Minimum bending radius**
for permanent approx. 10 x cable Ø
- Radiation resistance**
up 100 x 10⁶ cJ/kg (up to 100 Mrad)
- Coupling resistance**
max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special PVC core insulation, Y18 to DIN VDE 0207 part 4 and class 43 to UL-Std. 1581
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece over each layer
- PVC-inner sheath
- Screening:
 - up to 17 mm Ø – layer of tinned copper wires
 - > 17 mm Ø – tinned copper wire braid coverage ca. 85%
- Full-polyurethane**
outer jacket grey (RAL 7001)

Application

These cable are used for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist, wet rooms and outdoor. These special cables for drag chains are used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts. Resistant to mineral oils, synthetic oils and refrigerants, UV-radiation, oxygene, ozon and hydrolysis. Conditionally resistant to microbes. The dense screening assures disturbance-free transmission of all signals and impulses. An ideal disturbance-free control cable for the above applications.

* **EMC** = Electromagnetic compatibility

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

* RC = Robotics Cable

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12680	3 x AWG 20	3 G 0,5	8,5	45	124
12681	4 x AWG 20	4 G 0,5	9,1	52	135
12682	5 x AWG 20	5 G 0,5	9,7	68	153
12683	7 x AWG 20	7 G 0,5	11,0	93	191
12684	9 x AWG 20	9 G 0,5	12,4	134	243
12685	12 x AWG 20	12 G 0,5	13,5	163	322
12686	15 x AWG 20	15 G 0,5	14,8	174	350
12687	18 x AWG 20	18 G 0,5	16,0	191	374
12688	25 x AWG 20	25 G 0,5*	19,0	223	436
12689	3 x AWG 18	3 G 0,75	8,9	56	130
12690	4 x AWG 18	4 G 0,75	9,7	81	155
12691	5 x AWG 18	5 G 0,75	10,4	90	181
12692	7 x AWG 18	7 G 0,75	12,0	106	208
12693	9 x AWG 18	9 G 0,75	14,1	161	321
12694	12 x AWG 18	12 G 0,75	15,2	175	341
12695	15 x AWG 18	15 G 0,75	16,7	204	396
12696	18 x AWG 18	18 G 0,75*	17,6	241	473
12697	25 x AWG 18	25 G 0,75*	20,7	342	650
12698	34 x AWG 18	34 G 0,75*	24,3	434	781
12699	3 x AWG 16	3 G 1,5	10,2	89	165
12700	4 x AWG 16	4 G 1,5	11,0	97	192
12701	5 x AWG 16	5 G 1,5	11,8	111	224
12702	7 x AWG 16	7 G 1,5	14,0	147	274
12703	9 x AWG 16	9 G 1,5	16,4	193	340

G = with green-yellow earth core

Part No.	No. cond. x AWG*)	No. cond. x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
12704	12 x AWG 16	12 G 1,5*	17,1	256	461
12705	18 x AWG 16	18 G 1,5*	20,2	360	674
12706	25 x AWG 16	25 G 1,5*	25,2	544	950
12707	34 x AWG 16	34 G 1,5*	28,1	674	1203
12708	3 x AWG 14	3 G 2,5	11,8	141	220
12709	4 x AWG 14	4 G 2,5	13,2	170	270
12710	5 x AWG 14	5 G 2,5	14,2	195	350
12711	7 x AWG 14	7 G 2,5*	17,4	251	428
12712	12 x AWG 14	12 G 2,5*	21,0	368	730
12713	18 x AWG 14	18 G 2,5*	25,4	639	1140
12714	3 x AWG 12	3 G 4,0	14,0	180	296
12715	4 x AWG 12	4 G 4,0	15,9	232	456
12716	5 x AWG 12	5 G 4,0*	17,7	330	450
12717	7 x AWG 12	7 G 4,0*	20,9	395	737
12718	4 x AWG 10	4 G 6,0*	18,3	316	572
12719	4 x AWG 8	4 G 10,0*	23,2	490	1012
12720	4 x AWG 6	4 G 16,0*	27,6	850	1400
12721	4 x AWG 4	4 G 25,0*	33,1	1450	2100
12722	4 x AWG 2	4 G 35,0*	37,8	1890	2550

Before installation in cable trays please read the instructions.

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

* With braid

Further technical details see selection table for drag chain cables (pages 24ff).



HELUKABEL JZ-603 <VDE> <HAR> H05 VV5-F 4 G 1 QMM E 170315 AWM STYLE 2587 18 AWG / 1 QMM 4 C VW - 1 LL113926 CSA AWM III A/B 600V 90° C FT 1



Technical data

- Special PVC control cable with oil resistant outer sheath to DIN VDE 0281 part 13, HD 21.13 S1 and to UL-Style 2587
- **Temperature range**
 - flexing – 5°C to +70°C (HAR)
 - 5°C to +90°C (UL+CSA)
 - fixed installation – 40°C to +70°C (HAR)
 - 40°C to +90°C (UL+CSA)
- **Nominal voltage**
 - U₀/U = 300/500 V (HAR)
 - U = 600 V (UL+CSA)
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Insulation resistance**
 - min. 20 MΩ·km
- **Minimum bending radius**
 - approx. 7,5 x cable Ø
- **Radiation resistance**
 - up to 80x10⁶ cJ/kg (up to 80 Mrad)
- Oil resistant as per VDE 0207, UL 1581 part 50.182, ASTM-OIL No. 2, VDE 0472 part 803, UL 1581 part 50.182

Cable structure

- Bare copper, fine wire conductors to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI1, to DIN VDE 0281 part 1, HD 21.1S2 and class 43 to UL-Std. 1581
- Black cores with white continuous numbering
- Green-yellow earth core in the outer layer
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath TM5, to DIN VDE 0281 part 1, HD 21.1 S2 and class 43 to UL-Std. 1581 colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1

Application

UL-CSA-HAR approved cables offer any company exporting anywhere in the world, primarily designed for exporters, used in machine tools, control systems, assembly lines and other industrial equipment. These cables are suitable for flexible use for medium mechanical stresses with free movements in dry, moist and wet rooms but not for open air.

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83704 OZ	2x0,5	20	5,7	9,6	52
83650	3G0,5	20	6,1	14,0	63
83651	4G0,5	20	6,7	19,0	69
83652	5G0,5	20	7,3	24,0	87
83653	7G0,5	20	8,8	34,0	119
83654	12G0,5	20	11,1	58,0	198
83655	18G0,5	20	12,9	86,0	266
83656	25G0,5	20	16,0	120,0	380
83657	34G0,5	20	17,7	163,0	508
83658	41G0,5	20	19,5	197,0	594
83659	50G0,5	20	21,3	240,0	715
83660	61G0,5	20	23,8	293,0	840
83705 OZ	2x0,75	19	6,0	14,4	66
83661	3G0,75	19	6,5	22,0	76
83662	4G0,75	19	7,1	29,0	85
83663	5G0,75	19	7,9	36,0	113
83664	7G0,75	19	9,5	50,0	144
83665	12G0,75	19	11,6	86,0	245
83666	18G0,75	19	13,9	130,0	327
83667	25G0,75	19	17,1	180,0	466
83668	34G0,75	19	19,1	245,0	626
83669	41G0,75	19	20,9	296,0	747
83670	50G0,75	19	23,0	360,0	896
83671	61G0,75	19	25,3	439,0	1070
83706 OZ	2x1	18	6,3	19,2	70
83672	3G1	18	6,8	29,0	88
83673	4G1	18	7,5	39,0	99
83674	5G1	18	8,4	48,0	132
83675	7G1	18	10,0	67,0	170
83676	12G1	18	12,5	115,0	285
83677	18G1	18	14,7	173,0	405
83678	25G1	18	18,0	240,0	570

Part No.	No. cores x cross-sec. mm ²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83679	34G1	18	20,3	326,0	742
83680	41G1	18	22,4	394,0	885
83681	50G1	18	24,3	480,0	1071
83682	61G1	18	26,8	586,0	1265
83707 OZ	2x1,5	16	7,4	28,8	91
83683	3G1,5	16	8,0	43,0	110
83684	4G1,5	16	8,7	58,0	141
83685	5G1,5	16	9,8	72,0	167
83686	7G1,5	16	11,9	101,0	225
83687	12G1,5	16	14,5	173,0	361
83688	18G1,5	16	17,4	259,0	518
83689	25G1,5	16	21,3	360,0	730
83690	34G1,5	16	24,1	490,0	945
83691	41G1,5	16	26,2	591,0	1135
83692	50G1,5	16	28,8	720,0	1381
83693	61G1,5	16	31,5	878,0	1640
83708 OZ	2x2,5	14	9,2	48,0	125
83694	3G2,5	14	9,9	72,0	169
83695	4G2,5	14	11,0	96,0	209
83696	5G2,5	14	12,0	120,0	256
83697	7G2,5	14	14,6	168,0	340
83698	12G2,5	14	18,1	288,0	579
83699	18G2,5	14	22,1	432,0	851
83700	25G2,5	14	26,5	600,0	1175
83701	34G2,5	14	29,9	816,0	1529
83702	50G2,5	14	35,2	1200,0	2290
83703	61G2,5	14	38,4	1464,0	2724

* Note

The following amendments in the cable designation result from the new DIN VDE 0281 part 13/harmonised in accordance with HD 21.13S1: NYSLYÖ-J (new: H05VV5-F) and NYSLYCYÖ-J (new: H05VVC4V5-K). SEV-approval is no longer applicable as a result of the harmonisation.

*) Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

For details of extra cables with overseas standards please see pages F 1 – F 21.

PVC cables will be changed to lead free PVC successively.



HELUKABEL JZ-603 -CY <VDE> <HAR> H05 VVC4V5-K 4 G 1 QMM E 170315 9A AWM STYLE 2587 18 AWG / 1 QMM 4 C VW - 1 LL113926 CSA AWM III A/B 600V 90°C FT1

Technical data

- Special PVC control cable with oil resistant outer sheath to DIN VDE 0281 part 13, HD 21.13 S1 and to UL-Style 2587
- Temperature range**
 - flexing - 5°C to +70°C (HAR)
 - 5°C to +90°C (UL+CSA)
 - fixed installation -40°C to +70°C (HAR)
 - 40°C to +90°C (UL+CSA)
- Nominal voltage**
 - U₀/U = 300/500 V (HAR)
 - U = 600 V (UL+CSA)
- Test voltage** 3000 V
- Breakdown voltage** min. 6000 V
- Insulation resistance** min. 20 MΩ·km
- Minimum bending radius** approx. 10 x cable Ø
- Radiation resistance** up to 80 x 10⁶ cJ/kg (up to 80 Mrad)
- Coupling resistance** max. 250 Ω/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation T11, to DIN VDE 0281 part 1, HD 21.1 S2 and class 43 to UL-Std. 1581
- Black cores with white continuous numbering
- Green-yellow earth core in the outer layer
- PVC based inner sheath
- Tinned copper braiding screening, 85% coverage
- Special PVC outer sheath TM5, to DIN VDE 0281 part 1, HD 21.1 S2 and class 43 to UL-Std. 1581 colour grey (RAL 7001)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), UL-VW 1
- Oil retardant - see page A 35.

Application

UL-CSA-HAR approved cables offer any company exporting anywhere in the world, primarily designed for exporters, used in machine tools, control systems, assembly lines and other industrial equipment. These cables are suitable for flexible use for medium mechanical stresses with free movements in dry, moist and wet rooms but not for open air. The dense screening assures disturbance-free transmission of all signals and impulses. An ideal disturbance-free control cable for the above application.

*** EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83709 OZ	2x0,5	20	7,7	30	90
83720	3G0,5	20	8,3	42	105
83721	4G0,5	20	8,9	51	123
83722	5G0,5	20	9,7	56	147
83723	7G0,5	20	11,2	75	195
83724	12G0,5	20	13,6	124	276
83725	18G0,5	20	15,4	166	418
83726	25G0,5	20	18,6	196	504
83727	34G0,5	20	20,8	242	632
83728	41G0,5	20	22,6	351	750
83729	50G0,5	20	24,8	398	968
83730	61G0,5	20	26,0	447	1068
83710 OZ	2x0,75	19	8,0	41	101
83731	3G0,75	19	8,6	50	127
83732	4G0,75	19	9,4	61	155
83733	5G0,75	19	10,1	73	180
83734	7G0,75	19	11,9	93	225
83735	12G0,75	19	14,2	155	326
83736	18G0,75	19	16,6	211	457
83737	25G0,75	19	20,0	278	635
83738	34G0,75	19	22,4	360	805
83739	41G0,75	19	24,0	454	908
83740	50G0,75	19	26,2	541	1155
83741	61G0,75	19	30,0	628	1400
83711 OZ	2x1	18	8,5	48	113
83742	3G1	18	9,2	61	144
83743	4G1	18	9,8	76	178
83744	5G1	18	10,7	85	205
83745	7G1	18	12,5	113	263

Part No.	No. cores x cross-sec. mm ²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
83746	12G1	18	15,1	195	424
83747	18G1	18	17,3	256	560
83748	25G1	18	21,1	342	760
83749	34G1	18	23,5	447	945
83750	41G1	18	25,5	575	1151
83751	50G1	18	27,6	666	1300
83752	61G1	18	32,4	780	1500
83712 OZ	2x1,5	16	9,4	69	144
83753	3G1,5	16	10,1	80	160
83754	4G1,5	16	11,0	94	210
83755	5G1,5	16	12,3	114	240
83756	7G1,5	16	14,2	143	305
83757	12G1,5	16	17,1	254	482
83758	18G1,5	16	20,0	314	611
83759	25G1,5	16	24,0	477	950
83760	34G1,5	16	27,1	671	1200
83761	41G1,5	16	29,7	777	1400
83762	50G1,5	16	31,8	911	1665
83763	61G1,5	16	34,6	1079	1852
83713 OZ	2x2,5	14	11,1	81	189
83764	3G2,5	14	12,0	115	244
83765	4G2,5	14	13,4	141	296
83766	5G2,5	14	14,6	188	367
83767	7G2,5	14	17,2	241	478
83768	12G2,5	14	21,2	397	622
83769	18G2,5	14	24,8	556	1010
83770	25G2,5	14	29,8	790	1375
83771	34G2,5	14	34,4	1007	1893
83772	50G2,5	14	39,0	1498	2666
83773	61G2,5	14	41,0	1794	3077

* Note

The following amendments in the cable designation result from the new DIN VDE 0281 part 13/harmonised in accordance with HD 21.1351: NYSLY6-J (new: H05VV5-F) and NYSLYCY6-J (new: H05VVC4V5-K). SEV-approval is no longer applicable as a result of the harmonisation.

* Note: AWG sizes are approximate equivalent values.

The actual cross-section is in mm² - see page T 15.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

For details of extra cables with overseas standards please see pages F 1 - F 21.

PVC cables will be changed to lead free PVC successively.



Works photo: L. SCHULER GmbH

It does not matter whether you construct and build machines or robots. You have to guarantee optimum function and high endurance.

Problem areas are tight bending radius and high moving speeds. We have the solution for the wiring:

HELUKABEL®-JZ-HF	SUPERTRONIC-C-PUR
HELUKABEL®-PURö-JZ-HF	SUPER-PAAR-TRONIC-C-PUR
MULTIFLEX 512®-PUR	HELUKABEL® JZ 602 RC
MULTISPEED 500	

The optimum for safety and durability. Due to the high endurance, enormous cost saving. The determining factor for the selection of your cables is the conceivable strains. The following criterions for the load can be appeared in various combination

- | | |
|----------------|--|
| – Speed | – Distance of movement |
| – Acceleration | – Chemical and mechanical-requirements |

If you have any further questions please ask for our special questionnaire sheet for drag chains.

Besides the extensive range of types in our stock we also offer the **perfect solutions**.

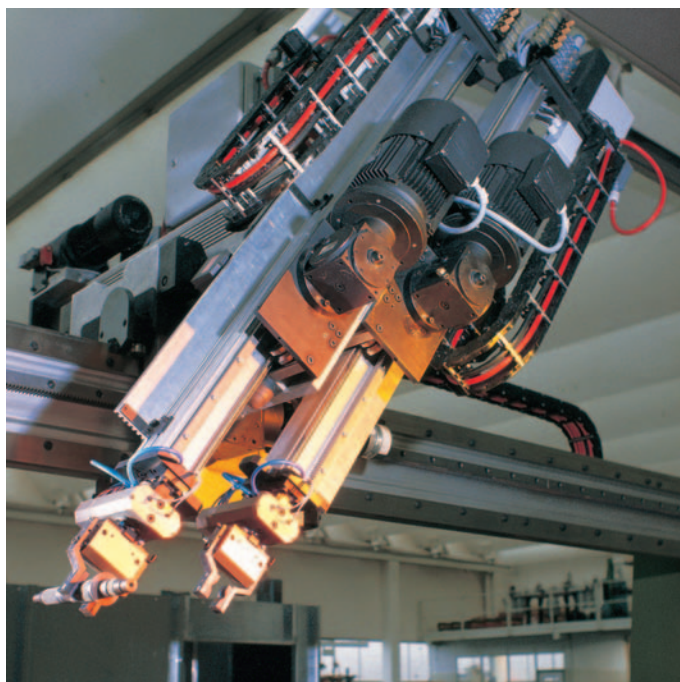
We also specialise in developing and manufacturing heavy duty cables specially designed to provide the solution for your individual problems. By using such insulation materials as polyester, polyamid or flourinated polymers and specially balanced suitable jacketing materials, HELUKABEL® is able to offer special cables with a high degree of resistance to mechanical stress. Cables manufactured using these materials offer:

- Excellent electrical properties
- Minimum bending radius (crucial in such fields as robotics, hospital equipment, etc.)
- Good thermal properties
- A high level of chemical resistance.

Special tape insulation techniques serve to perfect the whole construction.

Don't feel that you have a problem we cannot solve. Call us for the perfect solution.

Control Cables – flexible and screened



Works photo: Eisenmann

HELUKABEL® delivers flexible control cables with different insulations and outer jacket materials, screened and unscreened with an optimum of price-earning ratio.

Control cables can be used in machinery production and production lines as direct line or connection cable for measuring, signal and control features, for computer systems, for control devices of tool making machines, conveyor belts and conveyor systems.

It goes without saying that we also demand a high quality standard for our control cable as well as for all other cables.

We hold an extensive stock of cables.



Partial view of drag chain test centre in factory Windsbach

Works photo: HELUKABEL®

SUPERTRONIC-PVC

SUPERTRONIC-C-PVC

cable for drag chains
EMC*-preferred type



HELUKABEL SUPERTRONIC-PVC 4x0,25 QMM / 49563 350 V 001041714

CE



HELUKABEL SUPERTRONIC-C-PVC 4x0,25 QMM / 49633 350 V 001041716

CE

Technical data

- Special PVC cable for drag chains, adapted to DIN VDE 0245, 0281
- Very high flexible due to special construction
- **Temperature range**
 - flexing – 5°C to +70°C
 - fixed installation –40°C to +70°C
 - short time +105°C
- **Nominal voltage** 350 V
- **Test voltage** 1500 V
- **Breakdown voltage** min. 3000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius**
 - 7,5 x cable Ø (unscreened)
 - 10 x cable Ø (screened)
- **Radiation resistance** up to 80 x 10⁶ cJ/kg (up to 80 Mrad)
- **Coupling resistance** for C-PVC type max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6 col. 4 and 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Cores colour coded to DIN 47100, see page T 46
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with textile tape
- Tinned copper braided screen (for type C-PVC), approx. 85% coverage
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 colour grey (RAL 7001)
- Adhesion-free
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

The ideal cable for use in cable trays. This high flexible cable is ideal for all areas requiring a high and fast flexing cable including the machine industries, robotics and all areas of highly mobile machine parts.

The long working life offers a secure performance as well as economy.

The copper, braided screening offers effective protection from both internal and external interference.

* **EMC** = Electromagnetic compatibility

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

Further technical details see selection table for drag chain cables (pages 24ff).

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

SUPERTRONIC-PVC

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
49550	2 x 0,14	3,5	2,8	23	26
49551	3 x 0,14	3,6	4,1	25	26
49552	4 x 0,14	4,0	5,6	30	26
49553	5 x 0,14	4,2	7,0	35	26
49554	7 x 0,14	4,8	9,8	49	26
49555	10 x 0,14	6,6	14,0	64	26
49556	12 x 0,14	6,9	16,8	71	26
49557	14 x 0,14	6,6	19,6	77	26
49558	18 x 0,14	7,0	25,2	90	26
49559	24 x 0,14	8,4	33,6	119	26
49560	25 x 0,14	8,7	35,0	124	26
49561	2 x 0,25	4,1	5,0	28	24
49562	3 x 0,25	4,3	7,5	33	24
49563	4 x 0,25	4,8	10,0	39	24
49564	5 x 0,25	5,1	12,5	50	24
49565	7 x 0,25	5,3	17,5	63	24
49566	10 x 0,25	7,6	25,0	83	24
49567	12 x 0,25	7,8	30,1	95	24
49568	14 x 0,25	8,0	35,0	107	24
49569	18 x 0,25	9,0	45,0	130	24
49570	24 x 0,25	10,1	60,0	170	24
49571	25 x 0,25	10,4	62,5	177	24
49572	2 x 0,34	4,6	6,8	33	22
49573	3 x 0,34	4,8	10,2	42	22
49574	4 x 0,34	5,4	13,6	56	22
49575	5 x 0,34	6,6	17,0	64	22
49576	7 x 0,34	7,4	23,8	84	22
49577	10 x 0,34	8,9	34,0	116	22
49578	12 x 0,34	9,0	40,8	133	22
49579	14 x 0,34	9,1	47,6	150	22
49580	18 x 0,34	10,0	61,2	182	22
49581	24 x 0,34	12,1	81,5	240	22
49582	25 x 0,34	12,5	85,0	250	22

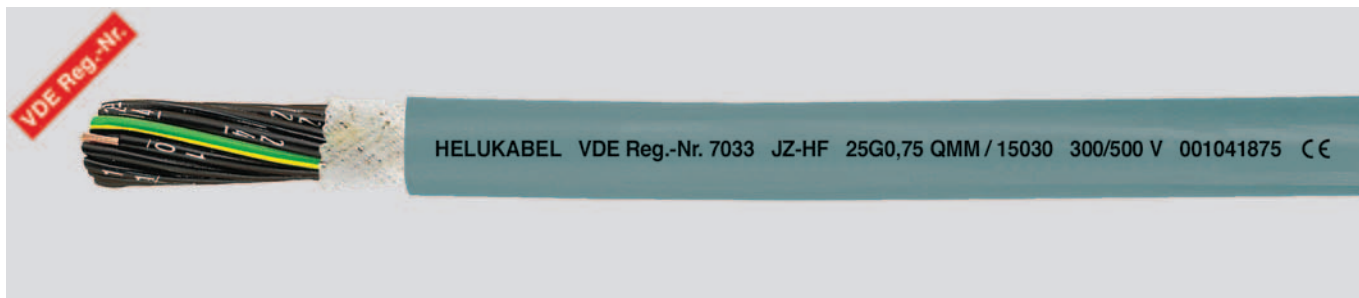
SUPERTRONIC-C-PVC (screened)

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
49620	2 x 0,14	4,0	11,2	33	26
49621	3 x 0,14	4,2	14,1	36	26
49622	4 x 0,14	4,4	15,5	41	26
49623	5 x 0,14	4,8	18,3	46	26
49624	7 x 0,14	5,4	27,6	70	26
49625	10 x 0,14	6,7	39,3	88	26
49626	12 x 0,14	6,8	42,1	97	26
49627	14 x 0,14	7,0	45,3	105	26
49628	18 x 0,14	7,6	54,1	122	26
49629	24 x 0,14	9,0	66,3	156	26
49630	25 x 0,14	9,0	68,4	162	26
49631	2 x 0,25	4,5	14,9	39	24
49632	3 x 0,25	4,7	18,8	45	24
49633	4 x 0,25	5,0	21,3	52	24
49634	5 x 0,25	6,1	31,0	70	24
49635	7 x 0,25	6,7	39,6	88	24
49636	10 x 0,25	8,5	53,9	114	24
49637	12 x 0,25	8,8	59,1	128	24
49638	14 x 0,25	8,8	64,2	140	24
49639	18 x 0,25	9,2	78,4	166	24
49640	24 x 0,25	11,0	89,9	210	24
49641	25 x 0,25	11,2	101,0	220	24
49642	2 x 0,34	4,9	16,1	46	22
49643	3 x 0,34	5,4	28,7	62	22
49644	4 x 0,34	6,2	35,7	80	22
49645	5 x 0,34	6,8	39,1	88	22
49646	7 x 0,34	7,6	52,7	116	22
49647	10 x 0,34	9,3	67,4	156	22
49648	12 x 0,34	9,4	76,4	167	22
49649	14 x 0,34	9,6	85,3	195	22
49650	18 x 0,34	10,4	99,7	225	22
49651	24 x 0,34	12,8	147,1	312	22
49652	25 x 0,34	12,8	155,0	325	22

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Other sizes and dimensions available on request.
Before installation in cable trays please read the instruction.
PVC cables will be changed to lead free PVC successively.



Technical data

- Special PVC control cable, extreme flexibility due to special construction
- Requirements adapted to DIN VDE 0281 part 13
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent approx. 7,5 x cable Ø
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6 col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- Core insulation of special PVC Z 7225
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- Special PVC outer sheath, TM2 to DIN VDE 0281 part 1 and HD 21.1, colour grey (RAL 7001)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

JZ-HF cables are ideal for use in the machine tool industry, in robotics and machine production and anywhere where high flexibility is essential. These cables have shown excellent performance in combination with standard cable trays. These cables are suitable for flexible use for medium mechanical stresses with free movements.

Further technical details see selection table for drag chain cables (pages 24ff).

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15001 OZ	2 x 0,5	5,0	9,6	46	20
15002	3 G 0,5	5,3	14,0	57	20
15003	4 G 0,5	5,7	19,0	70	20
15004	5 G 0,5	6,4	24,0	93	20
15005	7 G 0,5	7,5	34,0	127	20
15090 OZ	7 x 0,5	7,5	34,0	127	20
15006	10 G 0,5	9,1	48,0	161	20
15007	12 G 0,5	9,2	58,0	177	20
15008	14 G 0,5	9,8	67,0	213	20
15009	16 G 0,5	10,3	77,0	260	20
15010	18 G 0,5	11,1	86,0	284	20
15011	20 G 0,5	11,6	96,0	318	20
15012	25 G 0,5	13,4	120,0	363	20
15013	30 G 0,5	13,7	144,0	432	20
15014	34 G 0,5	15,0	163,0	487	20
15015	36 G 0,5	15,0	173,0	518	20
15016	42 G 0,5	16,1	202,0	575	20
15017	50 G 0,5	17,9	240,0	675	20
15018	61 G 0,5	19,6	290,0	829	20
15019 OZ	2 x 0,75	5,4	14,4	58	18
15020	3 G 0,75	5,7	22,0	73	18
15021	4 G 0,75	6,4	29,0	77	18
15022	5 G 0,75	7,0	36,0	119	18
15023	7 G 0,75	8,3	50,0	165	18
15024	10 G 0,75	10,1	72,0	216	18
15025	12 G 0,75	10,2	86,0	247	18
15026	14 G 0,75	10,9	101,0	284	18
15027	16 G 0,75	11,5	115,0	320	18
15028	18 G 0,75	12,1	130,0	356	18

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15029	20 G 0,75	12,8	144,0	453	18
15030	25 G 0,75	14,9	180,0	498	18
15031	30 G 0,75	15,2	216,0	510	18
15032	34 G 0,75	16,6	245,0	550	18
15033	36 G 0,75	16,6	259,0	570	18
15034	42 G 0,75	18,1	302,0	600	18
15035	50 G 0,75	20,0	360,0	700	18
15036	61 G 0,75	23,3	432,0	820	18
15091	65 G 0,75	24,7	439,0	841	18
15037 OZ	2 x 1	5,7	19,0	65	17
15038	3 G 1	6,0	29,0	84	17
15039	4 G 1	6,8	38,0	113	17
15040	5 G 1	7,4	48,0	137	17
15041	7 G 1	8,8	67,0	192	17
15042	10 G 1	10,7	96,0	251	17
15043	12 G 1	10,8	115,0	295	17
15044	14 G 1	11,6	134,0	337	17
15045	16 G 1	12,2	154,0	379	17
15046	18 G 1	13,0	173,0	420	17
15047	20 G 1	13,6	192,0	480	17
15048	25 G 1	15,8	240,0	600	17
15049	30 G 1	16,4	288,0	695	17
15050	34 G 1	17,8	326,0	777	17
15051	36 G 1	17,8	346,0	825	17
15052	41 G 1	19,3	403,0	926	17
15214	42 G 1	19,3	403,0	948	17
15053	50 G 1	21,2	480,0	1092	17
15092	61 G 1	23,2	586,0	1204	17
15054	65 G 1	23,7	624,0	1400	17

Continuation ►

Note

Data transmissions cables for drag chains in screened or unscreened versions of cross-sections 0,14 to 0,34 mm², see pages A 39, A 43–A 45.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.
PVC cables will be changed to lead free PVC successively.

²) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
15055 OZ	2x1,5	6,4	29,0	91	16
15056	3G1,5	6,8	43,0	117	16
15057	4G1,5	7,4	58,0	147	16
15058	5G1,5	8,3	72,0	181	16
15059	7G1,5	9,9	101,0	273	16
15060	10G1,5	11,9	144,0	344	16
15061	12G1,5	12,1	173,0	391	16
15062	14G1,5	12,9	202,0	457	16
15063	16G1,5	13,6	230,0	523	16
15064	18G1,5	14,5	259,0	590	16
15065	20G1,5	15,2	288,0	650	16
15066	25G1,5	17,8	360,0	801	16
15067	30G1,5	18,2	432,0	958	16
15068	34G1,5	19,7	490,0	1084	16
15069	36G1,5	19,7	518,0	1135	16
15070	42G1,5	21,5	605,0	1290	16
15071	50G1,5	23,7	720,0	1521	16
15072	60G1,5	25,3	864,0	1885	16
15215	61G1,5	26,2	878,0	1916	16
15216	65G1,5	27,6	936,0	1994	16
15073 OZ	2x2,5	7,7	43,0	130	14
15074	3G2,5	8,4	72,0	160	14
15075	4G2,5	9,1	96,0	200	14
15076	5G2,5	10,2	120,0	269	14

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
15077	7G2,5	12,2	168,0	357	14
15078	10G2,5	15,0	240,0	486	14
15079	12G2,5	15,2	288,0	572	14
15080	14G2,5	16,1	336,0	612	14
15081	16G2,5	17,2	384,0	702	14
15082	18G2,5	18,1	432,0	800	14
15083	20G2,5	19,2	480,0	920	14
15084	25G2,5	22,5	600,0	1100	14
15085	30G2,5	23,5	720,0	1400	14
15086	34G2,5	25,2	816,0	1500	14
15087	36G2,5	25,2	864,0	1600	14
15088	42G2,5	27,4	1008,0	1800	14
15089	50G2,5	30,0	1200,0	2100	14
15142	3G4	10,4	115,0	221	12
15143	4G4	11,4	154,0	260	12
15144	5G4	12,7	192,0	318	12
15145	4G6	13,3	230,0	392	10
15146	5G6	14,5	288,0	481	10
15147	4G10	17,7	384,0	642	8
15148	5G10	19,7	480,0	780	8
15149	4C16	19,8	614,0	926	6
15150	5C16	22,3	768,0	1135	6

A

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

Further technical details see selection table for drag chain cables (pages 24ff).

Note

Data transmissions cables for drag chains in screened or unscreened versions of cross-sections 0,14 to 0,34 mm², see pages A 39, A 43 – A 45.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.
PVC cables will be changed to lead free PVC successively.

2) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

Reversed bending test machine for cable testing
according to VDE 0472 part 603 test method H.



Works photo: HELUKABEL®

HELUKABEL® JZ-HF-CY EMC*-preferred type

high flexible, screened control cable for drag chains



1)



Technical data

- Special PVC control cable, extreme flexibility due to special construction
- Requirements adapted to DIN VDE 0281 part 13
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insul. resistance** min. 20 MOhm x km
- **Minimum bending radius**
for permanent approx. 7,5 x cable Ø
- **Radiation resistance**
up to 80×10^6 Cj/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6 col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- Core insulation of special PVC Z 7225
- Black cores with continuous white figure imprint to DIN VDE 0293, green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- PVC-inner sheath
- One layer of tinned copper wire screening, interwoven with synthetic cross-helix to improve the bending behaviour
- Minimum coverage 80%
- Special PVC outer sheath, TM2 to DIN VDE 0281 part 1 and HD 21.1, colour grey (RAL 7001)
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations

Application

JZ-HF cables are ideal for use in the machine tool industry, in robotics and machine production and anywhere where high flexibility is essential.

These cables have shown excellent performance in combination with standard cable trays.

These cables are suitable for flexible use for medium mechanical stresses with free movements.

The dense screening assures disturbance-free transmission of all signals and impulses. An ideal disturbance-free control cable for the above application.

*** EMC** = Electromagnetic compatibility

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

* Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

¹⁾ Please note the cleanroom qualification when ordering. Further informations on page 16.

Further technical details see selection table for drag chain cables (pages 24ff).

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15930 OZ	2x0,5	6,9	30	90	20
15931	3G0,5	7,2	38	115	20
15932	4G0,5	7,8	48	140	20
15933	5G0,5	8,3	64	168	20
15934	7G0,5	9,6	70	217	20
15935	12G0,5	11,3	96	274	20
15876	14G0,5	11,9	101	332	20
15877	16G0,5	12,7	126	388	20
15936	18G0,5	13,5	141	445	20
15937	20G0,5	14,0	157	497	20
15878	21G0,5	14,5	165	500	20
15938	25G0,5	15,8	196	505	20
15879	30G0,5	16,3	236	515	20
15880	34G0,5	16,4	267	530	20
15881	36G0,5	17,0	283	572	20
15882	42G0,5*	18,8	330	605	20
15883	50G0,5*	20,8	393	742	20
15945 OZ	2x0,75	7,3	49	105	18
15946	3G0,75	7,8	58	128	18
15947	4G0,75	8,3	75	184	18
15948	5G0,75	9,1	83	200	18
15949	7G0,75	10,2	85	269	18
15885	10G0,75	12,3	96	327	18
15950	12G0,75	12,6	140	366	18
15886	14G0,75	13,1	163	426	18
15887	16G0,75	13,9	187	487	18
15951	18G0,75	14,5	211	547	18
15888	20G0,75	15,2	216	551	18
15889	21G0,75	15,9	272	590	18
15952	25G0,75*	17,3	322	600	18
15890	30G0,75*	17,8	414	650	18
15891	34G0,75	19,4	473	685	18
15892	36G0,75*	20,0	500	740	18
15893	42G0,75*	20,6	583	800	18
15894	50G0,75*	22,7	695	954	18

Note: For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

G = with green-yellow earth core X = without green-yellow earth core (OZ)
Before installation in cable trays please read the instructions.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15961 OZ	2x1	7,8	56	115	17
15962	3G1	8,1	66	142	17
15963	4G1	8,7	80	196	17
15964	5G1	9,5	114	271	17
15965	7G1	10,9	129	307	17
15966	12G1	13,1	235	474	17
15967	18G1	15,4	309	622	17
15968	25G1*	18,6	417	828	17
15969	34G1*	20,6	519	1049	17
15970	41G1*	22,1	635	1257	17
15971	50G1*	24,1	735	1437	17
15972	65G1*	32,2	932	1823	17
15976 OZ	2x1,5	8,3	75	170	16
15977	3G1,5	8,7	90	203	16
15978	4G1,5	9,5	112	243	16
15979	5G1,5	10,2	132	288	16
15980	7G1,5	12,2	218	403	16
15981	12G1,5	14,5	309	592	16
15982	18G1,5	16,9	481	844	16
15983	25G1,5*	20,6	584	1155	16
15151	34G1,5	24,2	702	1020	16
15152	42G1,5	25,8	867	1227	16
15153	50G1,5	28,0	970	1445	16
15154	61G1,5	30,6	1028	1724	16
15925	3G2,5	10,5	140	215	14
15926	4G2,5	11,2	169	264	14
15927	5G2,5	12,7	194	344	14
15928	7G2,5	14,8	234	410	14
15929	12G2,5	18,0	364	721	14
15155	3G4	12,7	178	292	12
15156	4G4	13,9	222	372	12
15157	5G4	15,3	328	448	12
15158	4G6	15,7	305	526	10
15159	5G6*	17,1	441	632	10
15160	4G10*	20,8	485	838	8
15161	5G10*	22,8	610	998	8
15162	4G16*	22,9	840	1225	6
15163	5G16*	26,7	1050	1560	6

SUPERTRONIC-PURÖ cable for drag chains



HELUKABEL SUPERTRONIC-PURÖ 4x0,25 QMM / 49596 350 V 001042052

CE

Technical data

- Special PUR drag chain cables adapted to DIN VDE 0281 part 13
- Very high flexible due to special construction
- **Temperature range**
flexing – 5°C to +70°C
fixed installation –40°C to +70°C
- **Nominal voltage a.c., 50 Hz** 350 V
- **Test voltage** 1500 V
- **Breakdown voltage** min. 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
approx. 75 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Features

- High flexibility at low temperature
- High abrasion resistance
- Break and cut-resistant
- Tear resistant
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, to DIN VDE 0295 cl. 6, col. 4 and 5, cl. 6 and IEC 60228 cl. 6
- **Oil resistant** PVC core insulation TI2, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Cores colour coded to DIN 47100, see page T 46
- Cores are stranded in layer with short lay-length
- Core wrapping with textile tape
- Special **full-polyurethane** outer jacket grey (RAL 7001)
- Outer jacket TPU to DIN VDE 0282 part 10, appendix A
- Adhesion-free through outer surface mat
- Flame retardant

Application

Perfect for use with cable trays. This highly flexible and screened PUR control cable is ideal for use wherever frequent high flexing motion is required, e.g. in robotics or all moving parts. The long working life of this cable makes it both efficient and economic. The PUR outer jacket is extremely robust with high tear, abrasion and oil-resistance.

Resistant to

- UV-radiation
- Oxygen
- Ozone
- Hydrolyse
- Oil

Conditional resistant to

- Microbes
- Hydraulic liquidity
- Alkalies
- Lye

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
49583	2 x 0,14	3,5	2,8	22	26
49584	3 x 0,14	3,6	4,1	24	26
49585	4 x 0,14	4,0	5,6	29	26
49586	5 x 0,14	4,2	7,0	33	26
49587	7 x 0,14	4,8	9,8	47	26
49588	10 x 0,14	6,5	14,0	59	26
49589	12 x 0,14	6,6	16,8	67	26
49590	14 x 0,14	6,8	19,6	74	26
49591	18 x 0,14	7,0	25,2	86	26
49592	24 x 0,14	8,4	33,6	115	26
49593	25 x 0,14	8,7	35,0	120	26
49594	2 x 0,25	4,1	5,0	27	24
49595	3 x 0,25	4,3	7,5	33	24
49596	4 x 0,25	4,8	10,0	40	24
49597	5 x 0,25	5,2	12,5	48	24
49598	7 x 0,25	6,6	17,5	60	24
49599	10 x 0,25	7,6	25,0	79	24

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
49600	12 x 0,25	7,8	30,1	91	24
49601	14 x 0,25	8,0	35,0	102	24
49602	18 x 0,25	9,0	45,0	125	24
49603	24 x 0,25	10,7	60,0	163	24
49604	25 x 0,25	11,0	62,5	170	24
49605	2 x 0,34	4,6	6,8	32	22
49606	3 x 0,34	4,8	10,2	40	22
49607	4 x 0,34	5,4	13,6	55	22
49608	5 x 0,34	6,6	17,0	60	22
49609	7 x 0,34	7,4	23,8	80	22
49610	10 x 0,34	8,9	34,0	112	22
49611	12 x 0,34	9,0	40,8	127	22
49612	14 x 0,34	9,1	47,6	142	22
49613	18 x 0,34	10,0	61,2	175	22
49614	24 x 0,34	12,1	81,5	229	22
49615	25 x 0,34	12,5	85,0	238	22

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further sizes and dimensions available on request.

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

SUPERTRONIC-C-PURÖ

EMC*-preferred type cable for drag chains, halogen-free



HELUKABEL SUPERTRONIC-C-PURÖ 4x0,25 QMM / 49666 500 V 001042077



Technical data

- Special PUR drag chain cables, screened, in adapted to DIN VDE 0281 part 13
- **Temperature range**
 - flexing –40°C to +70°C
 - fixed installation –50°C to +70°C
- **Nominal voltage** 0,14 mm² = 350 V
0,25 and 0,34 mm² = 500 V
- **Test voltage** 0,14 mm² = 800 V
0,25 and 0,34 mm² = 1200 V
- **Capacitance** core/core <80 nF/km
- **Minimum bending radius** for permanent approx. 10 x cable Ø
- **Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Features

- High flexibility at low temperature
- High abrasion resistance
- Break and cut-resistant
- Tear resistant
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Plain copper conductors extra fine wire stranded to DIN VDE 0295 cl. 6, col. 4 and 5, IEC 60228 cl. 6
- **Oil resistant** TPE-E core insulation
- Cores colour coded to DIN 47100, see page T 46
- Cores are stranded in layer with short lay-length
- Core wrapping with textile tape
- Tinned copper screened braiding. Due to the technical facilities, the copper braiding can be mixed and webbed with a portion of synthetic fibres.
- Special **full-polyurethane** outer jacket grey (RAL 7001)
- Outer jacket TPU to DIN VDE 0282 part 10, appendix A
- Adhesion-free through outer surface mat
- Flame retardant

Resistant to

- UV-radiation
- Oxygen
- Ozone
- Hydrolyse
- Oil

Conditional resistant to

- Microbes
- Hydraulic liquidity
- Alkalies
- Lye

Application

Used for installation in dry, moist and wet environments as well as for outdoors, for free movement without forced motion and for flexible routing without forced motion, for proven use as drag-chain cables. Suitable as a highly flexible control cable for fast hoisting and bending stresses in machinery and tooling construction, in robotics engineering and for continuously moving machinery parts. The long working life of this cable makes it both efficient and economic. The copper braided screening offers effective protection from both internal and external interference. This type with PETP-core insulation conform an optimum sliding abilities. The PUR outer jacket is extremely robust with high tear, abrasion and oil-resistance.

* **EMC** = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
49653	2 x 0,14	4,0	11,2	32	26
49654	3 x 0,14	4,2	14,1	35	26
49655	4 x 0,14	4,4	15,5	40	26
49656	5 x 0,14	4,8	18,5	45	26
49657	7 x 0,14	5,4	27,8	66	26
49658	10 x 0,14	6,7	39,3	86	26
49659	12 x 0,14	6,8	42,1	94	26
49660	14 x 0,14	7,0	45,3	102	26
49661	18 x 0,14	7,6	54,1	118	26
49662	24 x 0,14	9,0	66,3	149	26
49663	25 x 0,14	9,0	68,4	156	26
49664	2 x 0,25	4,5	14,9	38	24
49665	3 x 0,25	4,7	18,8	44	24
49666	4 x 0,25	5,0	21,3	51	24
49667	5 x 0,25	6,1	31,0	68	24
49668	7 x 0,25	6,7	39,6	82	24
49669	10 x 0,25	8,5	53,9	110	24

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
49670	12 x 0,25	8,8	59,1	124	24
49671	14 x 0,25	8,8	64,2	135	24
49672	18 x 0,25	9,2	78,4	160	24
49673	24 x 0,25	11,0	89,9	202	24
49674	25 x 0,25	11,2	101,0	211	24
49675	2 x 0,34	4,9	18,1	45	22
49676	3 x 0,34	5,4	28,7	60	22
49677	4 x 0,34	6,2	35,7	76	22
49678	5 x 0,34	6,8	39,1	82	22
49679	7 x 0,34	7,6	52,7	110	22
49680	10 x 0,34	9,3	67,4	148	22
49681	12 x 0,34	9,4	76,4	166	22
49682	14 x 0,34	9,6	85,8	185	22
49683	18 x 0,34	10,4	99,7	216	22
49684	24 x 0,34	12,8	147,1	300	22
49685	25 x 0,34	12,8	155,0	313	22

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further sizes and dimensions available on request.

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).



Technical data

- Special PETP-PUR cable, twisted in pairs, adapted to DIN VDE 0245, 0812
- **Conductor and loop resistance**
as per DIN VDE 0295, for 0,25 mm² see pages Technical-Information
- **Temperature range**
flexing –40°C to +70°C
fixed installation –50°C to +70°C
- **Nominal voltage** 350 V
- **Test voltage** 1500 V
- **Insulation resistance**
min. 20 MOhm x km
- **Mutual capacitance**
approx. 135 nF/km
- **Minimum bending radius**
for permanent
at 0,25 mm² approx. 10 x cable Ø
at 0,5 – 1,0 mm² approx. 12 x cable Ø
- **Coupling resistance**
max. 250 Ohm/km
- **Radiation resistance**
up to 100 x 10⁶ Cj/kg (up to 100 Mrad)

Features

- Very good oil resistant, test method according to DIN VDE 0472 part 803
- Resistant to weather, ozone and UV-radiation
- Chemical resistant to solvents, acids, lyes and hydraulic liquidity
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Plain copper conductors, extra fine wire stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special core insulation of TPE-E, oil resistant
- Core identification as per DIN 47100, see page T 47
- Cores twisted in pairs, the pairs torsion-free stranded in layers
- Special fleece over outer layer
- Tinned copper screened braiding, approx. 85% coverage
- **Full-polyurethane** outer jacket TMPU, to DIN VDE 0282 part 10, appendix A
- Mat outer jacket prevents adhesion grey, flame retardant

Advantages

- Guaranteed permanent application in multi-shift operation under extreme high bending stress
- High resistant to mechanical strain
- High property of alternating bending strength
- Long life durabilities through low friction-resistance by using the TPE-E-core insulation where the core are stranded in layers
- High tensile strength-, abrasion- and impact resistant at low temperature

Application

These pair stranded and overall screened special cables for drag chains offer the operational possibilities where the outer electrical influences at high frequency cause interference of impulse transmission, are applied for permanent flexible operations in machineries, machine tools, robot technics, for movable automated machinery parts and multi-shift-operation as a transmission-cable for **BUS-system**. These high flexible data cables are developed according to the newest state of technology improvement and with its sliding abilities by using the PETP-core insulation and adhesion-free and cut-resistant PUR-outer jacket, guaranteed an optimum life durabilities and highly economic.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
19101	1 x 2 x 0,25	5,3	14,0	28	24
19102	2 x 2 x 0,25	6,0	32,0	61	24
19103	3 x 2 x 0,25	8,1	38,4	73	24
19104	4 x 2 x 0,25	8,9	43,2	90	24
19105	5 x 2 x 0,25	9,6	51,5	105	24
19106	6 x 2 x 0,25	10,4	71,8	133	24
19107	8 x 2 x 0,25	13,0	74,4	156	24
19108	10 x 2 x 0,25	14,1	90,0	188	24
19109	14 x 2 x 0,25	14,1	111,2	220	24
19119	1 x 2 x 0,5	6,7	22,0	47	20
19120	2 x 2 x 0,5	7,2	50,0	100	20
19121	3 x 2 x 0,5	10,4	71,8	131	20
19122	4 x 2 x 0,5	11,4	74,4	149	20
19123	5 x 2 x 0,5	12,5	84,5	169	20
19124	6 x 2 x 0,5	13,3	99,6	196	20
19125	8 x 2 x 0,5	16,9	144,3	285	20
19126	10 x 2 x 0,5	17,7	176,0	344	20
19127	14 x 2 x 0,5	17,7	215,4	401	20

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
19128	1 x 2 x 0,75	7,2	34,0	61	18
19129	2 x 2 x 0,75	9,6	60,0	113	18
19130	3 x 2 x 0,75	11,4	85,7	158	18
19131	4 x 2 x 0,75	12,5	93,6	173	18
19132	5 x 2 x 0,75	13,5	113,0	203	18
19133	6 x 2 x 0,75	14,7	130,4	231	18
19134	8 x 2 x 0,75	18,1	192,2	343	18
19135	10 x 2 x 0,75	20,7	258,0	467	18
19136	14 x 2 x 0,75	20,7	316,6	546	18
19137	1 x 2 x 1	7,6	42,0	71	17
19138	2 x 2 x 1	8,3	73,0	130	17
19139	3 x 2 x 1	12,2	93,6	170	17
19140	4 x 2 x 1	13,2	117,8	204	17
19141	5 x 2 x 1	14,6	139,0	238	17

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page A 23 for energy guiding systems.

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® PURÖ-JZ-HF high flexible, cable for drag chains

number coded, abrasion and coolant resistant



HELUKABEL PURÖ-JZ-HF 3G1,5 QMM / 15576 300/500 V 001041714

CE

Technical data

- Special polyurethane control cable adapted to DIN VDE 0245, 0281, 0282
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent 7,5 x cable $\varnothing$
- **Radiation resistance** up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- **Oil resistant** PVC core insulation T12, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Black cores with continuous white numbering to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- Special **full-polyurethane** outer jacket TMPU, to DIN VDE 0282 part 10, appendix A
- grey (RAL 7001) or orange (RAL 2003)
- Mat outer jacket prevents adhesion
- Jacket also available in other colours
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

PURÖ-JZ-HF is an extremely robust cable noted for its good tear and abrasion resistance. Due to its good performance with mineral oils and especially in connection with coolants, this cable is well suited for use in the machinery, tool making and steel industries in critical areas. Its high abrasion resistance and good flexing ability make it quick and easy to install and, with its low bending radius, ideal for use with cable trays. Suitable for outdoor lying and resistant to UV-radiation, oxygen, ozone and hydrolysis. Conditionally resistant to microbes.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
15520 OZ	2x0,5	5,4	9,6	45	20
15521	3G0,5	5,9	14,4	56	20
15522	4G0,5	6,3	19,1	69	20
15523	5G0,5	6,9	24,0	92	20
15524	7G0,5	7,8	33,6	126	20
15525	8G0,5	8,6	38,0	136	20
15526	10G0,5	9,6	48,0	158	20
15527	12G0,5	10,3	58,0	176	20
15528	14G0,5	10,3	67,0	212	20
15529	18G0,5	11,5	86,4	283	20
15530	21G0,5	12,6	96,0	310	20
15531	25G0,5	13,6	120,0	330	20
15532	30G0,5	14,2	144,0	390	20
15533	34G0,5	15,1	163,0	420	20
15534	42G0,5	16,2	202,0	500	20
15535	50G0,5	18,0	240,0	580	20
15538 OZ	2x0,75	5,9	14,4	57	18
15539	3G0,75	6,2	21,6	72	18
15540	4G0,75	6,7	29,0	97	18
15541	5G0,75	7,3	36,0	119	18
15542	7G0,75	8,7	50,0	165	18
15543	8G0,75	9,5	58,0	189	18
15544	10G0,75	10,5	72,0	214	18
15545	12G0,75	11,0	86,0	247	18
15546	14G0,75	11,4	101,0	283	18

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
15547	18G0,75	12,6	130,0	356	18
15548	21G0,75	14,0	151,0	502	18
15549	25G0,75	15,2	180,0	698	18
15550	30G0,75	15,7	216,0	720	18
15551	34G0,75	17,1	245,0	770	18
15552	42G0,75	18,5	302,0	840	18
15553	50G0,75	20,0	360,0	990	18
15556 OZ	2x1	6,6	19,2	64	17
15557	3G1	7,0	29,0	83	17
15558	4G1	7,6	38,5	113	17
15559	5G1	8,2	48,0	137	17
15560	7G1	9,6	67,0	191	17
15561	8G1	10,5	77,0	218	17
15562	10G1	11,6	96,0	251	17
15563	12G1	12,0	115,0	294	17
15564	14G1	13,0	134,0	337	17
15565	18G1	14,5	173,0	420	17
15566	21G1	16,0	196,0	504	17
15567	25G1	17,6	240,0	600	17
15568	32G1	18,8	308,0	732	17
15569	34G1	19,7	326,0	776	17
15570	41G1	24,9	394,0	925	17
15571	42G1	21,1	403,0	949	17
15572	50G1	23,4	480,0	1092	17
15573	65G1	30,9	624,0	1400	17

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Before installation in cable trays please read the instructions.

Please note

Cross-linked types also available on request.

Further technical details see selection table for drag chain cables (pages 24ff).

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

HELUKABEL® PURÖ-JZ-HF high flexible, cable for drag chains number coded, abrasion and coolant resistant



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15575 OZ	2x1,5	7,1	29,0	90	16
15576	3G1,5	7,5	43,0	117	16
15577	4G1,5	8,2	58,0	147	16
15578	5G1,5	9,0	72,0	181	16
15579	7G1,5	10,8	101,0	274	16
15580	8G1,5	11,6	115,0	313	16
15581	10G1,5	13,4	144,0	344	16
15582	12G1,5	13,4	173,0	391	16
15583	14G1,5	14,3	202,0	457	16
15584	18G1,5	16,0	259,0	589	16
15585	21G1,5	17,5	302,0	680	16
15586	25G1,5	19,5	360,0	801	16
15587	30G1,5	20,0	410,0	938	16
15588	34G1,5	22,0	490,0	1048	16
15589	42G1,5	23,8	605,0	1290	16
15590	50G1,5	29,1	720,0	1520	16
15591	61G1,5	32,4	889,0	1850	16
15592	65G1,5	33,6	940,0	1970	16
15620 OZ	2x2,5	8,6	48,0	128	14
15621	3G2,5	9,3	72,0	160	14
15622	4G2,5	10,3	96,0	200	14
15623	5G2,5	11,5	120,0	268	14
15624	7G2,5	13,4	168,0	357	14
15625	12G2,5	17,0	288,0	571	14
15626	14G2,5	18,5	336,0	612	14
15627	18G2,5	20,0	432,0	800	14
15628	25G2,5	24,4	600,0	1100	14

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
15630 OZ	2x4	10,4	77,0	190	12
15631	3G4	11,2	115,0	250	12
15632	4G4	12,5	154,0	320	12
15633	5G4	13,8	192,0	400	12
15634	7G4	15,6	269,0	550	12
15636	3G6	13,0	173,0	350	10
15637	4G6	14,7	230,0	500	10
15638	5G6	16,0	288,0	580	10
15639	7G6	17,5	403,0	800	10
15641	3G10	17,4	288,0	660	8
15642	4G10	19,0	384,0	750	8
15643	5G10	21,3	480,0	990	8
15644	7G10	23,6	672,0	1300	8
15645	4C16	23,2	614,0	1200	6
15646	5C16	25,6	768,0	1500	6
15647	7C16	33,0	1075,0	1900	6
15648	4C25	34,0	960,0	1700	4
15649	4C35	37,0	1344,0	2300	2
15650	4C50	44,0	1920,0	2500	1
15651	4C70	53,0	2688,0	4600	2/0
15652	4C95	59,0	3648,0	6400	3/0

*1) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Please note

Cross-linked types also available on request.

Further technical details see selection table for drag chain cables (pages 24ff).



Car washing station

Photo: KÄRCHER

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

HELUKABEL® PURÖ-JZ-HF-YCP EMC*-preferred type

cable for drag chains, screened, PUR-outer sheath



HELUKABEL PURÖ-JZ-HF-YCP 7G1,5 QMM / 22456 300/500 V 001041815 C€

Technical data

- Special polyurethane control cable adapted to DIN VDE 0245, 0281, 0282
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent 10 x cable Ø
- **Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- **Oil resistant** PVC core insulation T12, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Black cores with continuous white numbering to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Fleece separator
- **Oil resistant** PVC inner jacket
- One layer of tinned copper wire screening, approx. 85% coverage
- Special **full-polyurethane** outer jacket, to DIN VDE 0282 part 10, appendix A grey (RAL 7001) or orange (RAL 2003)
- Mat outer jacket prevents adhesion
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

PURÖ-JZ-YCP is a highly robust and tare and abrasion resistant cable with excellent resistance properties to mineral oils and cooling fluids, thus making it an ideal choice for installation in most types of industrial machinery as well as in steel works and rolling mills, etc. in fact, wherever you may need a cable to cope with especially critical situations. Easy to install, thanks to its high degree of flexibility. Its high abrasion resistance and good flexing ability make it quick and easy to install and, with its low bending radius, ideal for use with cable trays. Suitable for outdoor lying and resistant to UV-radiation, oxygen, ozone and hydrolysis. Conditionally resistant to microbes. This screened cable is ideal for use in data signal transmission free from interferences for measurement and control engineering technology.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

C€ = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22400 OZ	2 x 0,5	7,5	47	90	20
22401	3 G 0,5	7,8	52	104	20
22402	4 G 0,5	8,2	55	123	20
22403	5 G 0,5	9,9	65	131	20
22404	7 G 0,5	10,0	84	172	20
22405	8 G 0,5	10,7	110	195	20
22406	10 G 0,5	11,3	115	230	20
22407	12 G 0,5	12,5	117	250	20
22408	14 G 0,5	13,2	148	280	20
22409	18 G 0,5	14,5	157	321	20
22410	21 G 0,5	14,9	183	380	20
22411	25 G 0,5	16,8	227	445	20
22412	30 G 0,5	18,4	275	509	20
22413	34 G 0,5	18,6	305	560	20
22414	42 G 0,5	20,0	373	780	20
22415	50 G 0,5	21,7	444	960	20
22416	61 G 0,5	23,0	541	1050	20
22417 OZ	2 x 0,75	8,3	53	106	18
22418	3 G 0,75	8,5	62	120	18
22419	4 G 0,75	9,5	77	150	18
22420	5 G 0,75	10,8	86	158	18
22421	7 G 0,75	11,5	107	205	18
22422	8 G 0,75	12,0	134	272	18
22423	10 G 0,75	13,1	148	290	18
22424	12 G 0,75	14,0	156	304	18
22425	14 G 0,75	15,3	214	380	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22426	18 G 0,75	17,3	235	418	18
22427	21 G 0,75	18,1	274	485	18
22428	25 G 0,75	18,7	313	578	18
22429	30 G 0,75	21,5	351	630	18
22430	34 G 0,75	22,6	388	720	18
22431	42 G 0,75	23,6	458	780	18
22432	50 G 0,75	25,7	626	954	18
22433	61 G 0,75	26,8	763	1085	18
22434 OZ	2 x 1	10,0	60	116	17
22435	3 G 1	10,2	70	135	17
22436	4 G 1	11,0	86	178	17
22437	5 G 1	11,8	99	188	17
22438	7 G 1	12,7	125	235	17
22439	8 G 1	13,8	140	270	17
22440	10 G 1	14,6	178	340	17
22441	12 G 1	15,5	186	358	17
22442	14 G 1	16,7	250	415	17
22443	18 G 1	18,0	280	500	17
22444	21 G 1	19,4	328	525	17
22445	25 G 1	21,0	378	678	17
22446	32 G 1	23,1	450	777	17
22447	34 G 1	24,0	478	825	17
22448	41 G 1	25,4	576	980	17
22449	42 G 1	26,4	590	998	17
22450	50 G 1	27,6	702	1160	17
22451	65 G 1	31,0	913	1670	17

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Please note

Cross-linked types also available on request.

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® PURÖ-JZ-HF-YCP EMC*-preferred type

cable for drag chains, screened, PUR-outer sheath



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22452 OZ	2x1,5	10,5	79	141	16
22453	3G1,5	10,8	94	164	16
22454	4G1,5	11,5	113	220	16
22455	5G1,5	12,5	129	233	16
22456	7G1,5	13,2	170	323	16
22457	8G1,5	14,4	226	369	16
22458	10G1,5	14,9	258	461	16
22459	12G1,5	16,2	280	481	16
22460	14G1,5	18,1	340	561	16
22461	18G1,5	20,3	395	672	16
22462	21G1,5	21,7	461	780	16
22463	25G1,5	23,1	533	927	16
22464	30G1,5	26,4	608	1030	16
22465	34G1,5	27,4	702	1180	16
22466	42G1,5	29,5	867	1458	16
22467	50G1,5	31,6	1033	1857	16
22468	61G1,5	33,9	1233	2250	16
22469	65G1,5	35,0	1315	2401	16
22470 OZ	2x2,5	11,8	96	185	14
22471	3G2,5	13,0	150	278	14
22472	4G2,5	14,0	174	370	14
22473	5G2,5	15,1	200	412	14
22474	7G2,5	16,2	240	470	14
22475	12G2,5	21,0	410	738	14
22476	14G2,5	23,4	480	870	14
22477	18G2,5	25,7	620	1100	14
22478	25G2,5	31,0	821	1512	14
22479 OZ	2x4	13,4	135	235	12
22480	3G4	15,8	178	350	12
22481	4G4	17,3	222	460	12
22482	5G4	19,0	328	550	12
22483	7G4	21,0	360	700	12
22484	3G6	19,5	250	525	10
22485	4G6	21,0	305	700	10
22486	5G6	23,0	441	800	10
22487	7G6	24,0	505	1100	10
22488	3G10	18,8	370	855	8
22489	4G10	25,0	485	1140	8
22490	5G10	26,4	610	1310	8
22491	7G10	30,0	820	1630	8
22492	4G16	28,0	840	1391	6
22493	5G16	31,5	1050	1810	6
22494	7G16	34,0	1510	2166	6

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Please note
Cross-linked types also available on request.

Further technical details see selection table for drag chain cables (pages 24ff).

MULTIFLEX 512®-PUR

special cables for drag chains, halogen-free



New manufacturing
with UL/CSA approval
planned from mid-2004



HELUKABEL MULTIFLEX 512-PUR 12G1,5 QMM / 22539 300/500 V 001041825 CE

Technical data

- Special drag chain cables for high mechanical stress, adapted to DIN VDE 0282 part 1 and part 10
- **Temperature range**
flexing –40°C to +70°C
fixed installation –50°C to +70°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
min. 7,5 x cable Ø
- **Test of alternating bending cycles**
approx. **10 million**, tested according to DIN VDE 0472 part 603 test method H
- **Radiation resistance**
up to 50×10^6 cJ/kg (up to 50 Mrad)

Features

- Very good oil resistant
- Guaranteed permanent application in multi-shift operation under extreme high bending stress

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special core insulation, modified TPE-E
- Black cores with continuous white numbering
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Special core wrapping over each layer
- Special **full-polyurethane** outer jacket TPU, to DIN VDE 0282 part 10, grey (RAL 7001) mat which prevents adhesion

Advantages

- High resistant to mechanical strain
- High property of alternating bending strength
- Long life durabilities through low friction-resistance by using the TPE-E insulation
- High tensile strength-, abrasion- and impact resistant at low temperature

Application

The special cables for drag chains are used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts and multi-shift operation.

Those cables are developed according to the newest state of technology improvement. These high flexible control cables with sliding abilities guaranteed an optimum service life durabilities and also very economic by using the TPE-E-core insulation and the PUR-outer jacket. The PUR material is adhesion-free and cut-resistant.

Resistant to

- Weather, Ozone and UV-radiation
- Solvents, acids and alkalis
- Hydraulic liquidity
- PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22501 OZ	2x0,5	5,5	9,6	38	20
22502	3G0,5	5,8	14,4	46	20
22503	4G0,5	6,4	19,0	59	20
22504	5G0,5	7,0	24,0	68	20
22505	7G0,5	8,1	33,6	88	20
22506	12G0,5	9,9	58,0	131	20
22507	18G0,5	11,5	86,0	197	20
22508	20G0,5	12,0	96,0	260	20
22509	25G0,5	13,6	120,0	282	20
22510	30G0,5	14,3	144,0	315	20
22511	36G0,5	15,3	172,0	374	20
22512 OZ	2x0,75	6,2	14,4	47	18
22513	3G0,75	6,5	21,6	58	18
22514	4G0,75	7,0	29,0	69	18
22515	5G0,75	7,8	36,0	85	18
22516	7G0,75	9,0	50,0	118	18
22517	12G0,75	11,0	86,0	183	18
22518	18G0,75	12,9	130,0	270	18
22519	20G0,75	13,5	144,0	290	18
22520	25G0,75	15,4	180,0	374	18
22521	30G0,75	16,1	216,0	420	18
22522	36G0,75	17,4	259,0	498	18
22523 OZ	2x1	6,9	19,2	55	17
22524	3G1	7,4	29,0	70	17
22525	4G1	8,0	38,0	86	17
22526	5G1	8,7	48,0	102	17
22527	7G1	10,2	67,0	143	17
22528	12G1	12,6	115,0	225	17
22529	18G1	18,8	173,0	334	17
22530	20G1	15,8	192,0	370	17
22531	25G1	17,8	240,0	460	17
22532	30G1	18,5	288,0	530	17
22533	36G1	20,1	346,0	625	17
22878	41G1	21,2	410,0	779	17
22879	50G1	24,0	498,0	953	17
22880	65G1	27,2	650,0	1205	17

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22534 OZ	2x1,5	7,6	29,0	70	16
22535	3G1,5	8,1	43,0	90	16
22536	4G1,5	8,7	58,0	106	16
22537	5G1,5	9,7	72,0	145	16
22538	7G1,5	11,3	101,0	205	16
22539	12G1,5	13,8	173,0	320	16
22540	18G1,5	16,3	259,0	465	16
22541	20G1,5	17,3	288,0	510	16
22542	25G1,5	19,7	360,0	650	16
22543	30G1,5	20,3	432,0	750	16
22544	36G1,5	22,2	518,0	880	16
22881	42G1,5	24,0	628,0	1209	16
22882	50G1,5	26,2	749,0	1449	16
22883	61G1,5	28,9	912,0	1712	16
22545 OZ	2x2,5	9,2	48,0	115	14
22546	3G2,5	9,7	72,0	162	14
22547	4G2,5	10,5	96,0	196	14
22548	5G2,5	11,6	120,0	230	14
22549	7G2,5	13,8	168,0	312	14
22550	12G2,5	16,9	288,0	532	14
22551	18G2,5	20,0	432,0	762	14
22552	20G2,5	21,2	480,0	858	14
22553	25G2,5	24,3	600,0	998	14
22554	4G4	13,1	154,0	283	12
22555	5G4	14,2	192,0	349	12
22556	7G4	17,1	269,0	498	12
22557	4G6	14,3	230,0	432	10
22558	5G6	15,8	288,0	529	10
22559	7G6	19,2	403,0	782	10
22560	4G10	18,4	384,0	685	8
22561	5G10	20,7	480,0	817	8
22562	7G10	24,7	672,0	1023	8
22563	4G16	21,3	614,0	1042	6
22564	5G16	23,8	768,0	1292	6
22565	7G16	28,6	1075,0	1709	6

G = with green-yellow earth core X = without green-yellow earth core (OZ)
Before installation in cable trays please read the instructions.

¹) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

MULTIFLEX 512® -C-PUR EMC*-preferred type, screened, halogen-free special cables for drag chains



1)

New manufacturing with UL/CSA approval planned from mid-2008



HELUKABEL MULTIFLEX 512-C-PUR 12G1 QMM / 22598 300/500 V 001041830 CE

Technical data

- Special cables for drag chains with high degree of resistance to mechanical stress in adapted to DIN VDE 0282 part 1 and part 10
- **Temperature range**
flexing –40°C to +70°C
fixed installation –50°C to +70°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MOhm x km
- **Minimum bending radius**
min. 10 x cable Ø
- **Test of alternating bending cycles**
approx. 10 million, tested according to DIN VDE 0472 part 603 test method H
- **Radiation resistance**
up to 50×10^6 cJ/kg (up to 50 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Features

- Very good oil resistant, test method according to DIN VDE 0472 part 803
- Guaranteed permanent application in multi-shift operation under extreme high bending stress
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
 - Special core insulation, modified TPE-E
 - Black cores with continuous white numbering
 - Green-yellow earth core in the outer layer (3 cores and above)
 - Cores stranded in layers with optimal selected lay-length
 - Special core wrapping over each layers and an additional fleece over outer layer
 - **TPE-inner sheath**, halogen-free
 - Wrapping with special tapes
 - Tinned copper braided screening, approx. 85% coverage
 - Special core wrapping of fleece
 - Special **full-polyurethane** outer jacket TPU, to DIN VDE 0282 part 10, appendix A, colour grey (RAL 7001) outer surface mat which prevents adhesion
 - PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- ## Advantages
- High resistant to mechanical strain
 - High property of alternating bending strength
 - Long life durabilities through low friction-resistance by using the TPE-E-core insulation where the core are stranded in layers
 - High tensile strength-, abrasion- and impact resistant at low temperature

Application

The special screened cables for drag chains are mainly applied for impulse transmission to prevent external interference effects and used for permanent flexible applications in machineries, machine tools, robot technics, for movable automated machinery parts and multi-shift operation.

Those cables are developed according to the newest state of technology improvement. These high flexible control cables with sliding abilities guaranteed an optimum service life durabilities and also very economic by using the TPE-E-core insulation and the PUR-outer jacket which is adhesive-free and cut-resistant.

* **EMC** = Electromagnetic compatibility

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

Resistant to

- Weather
- Ozone
- UV-radiation
- Solvents
- Acids and alkalis
- Hydraulic liquidity

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
22571 OZ	2 x 0,5	8,3	47	90	20
22572	3 G 0,5	8,5	52	105	20
22573	4 G 0,5	9,0	55	124	20
22574	5 G 0,5	9,7	65	132	20
22575	7 G 0,5	11,1	84	175	20
22576	12 G 0,5	12,7	117	250	20
22577	18 G 0,5	14,7	157	325	20
22578	20 G 0,5	15,4	167	350	20
22579	25 G 0,5	17,0	227	450	20
22580	30 G 0,5	17,9	273	510	20
22581	36 G 0,5	19,2	306	580	20

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
22582 OZ	2 x 0,75	8,8	53	110	18
22583	3 G 0,75	9,3	62	120	18
22584	4 G 0,75	9,7	77	148	18
22585	5 G 0,75	10,5	86	160	18
22586	7 G 0,75	11,9	106	205	18
22587	12 G 0,75	14,2	156	308	18
22588	18 G 0,75	16,3	233	420	18
22589	20 G 0,75	16,9	249	450	18
22590	25 G 0,75	19,2	313	579	18
22591	30 G 0,75	19,7	351	630	18
22592	36 G 0,75	21,2	400	745	18

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

1) Please note the cleanroom qualification when ordering. Further informations on page 16.

MULTIFLEX 512® -C-PUR EMC*-preferred type, screened, halogen-free special cables for drag chains



1)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22593 OZ	2x1	9,7	60	120	17
22594	3G1	10,0	70	135	17
22595	4G1	10,8	86	173	17
22596	5G1	11,7	99	187	17
22597	7G1	13,4	124	240	17
22598	12G1	16,0	186	360	17
22599	18G1	18,5	279	498	17
22600	20G1	19,4	322	568	17
22601	25G1	21,7	377	670	17
22602	30G1	22,5	429	774	17
22603	36G1	24,3	516	895	17
22884	41G1	26,1	610	1032	17
22885	50G1	28,4	690	1160	17
22886	65G1	32,2	852	1660	17
22604 OZ	2x1,5	10,2	79	145	16
22605	3G1,5	11,0	94	168	16
22606	4G1,5	11,6	113	217	16
22607	5G1,5	12,6	129	235	16
22608	7G1,5	14,5	170	325	16
22609	12G1,5	17,4	279	481	16
22610	18G1,5	19,9	393	675	16
22611	25G1,5	23,7	533	927	16
22612	30G1,5	24,5	607	1025	16
22613	36G1,5	26,4	702	1210	16
22887	42G1,5	28,4	829	1441	16
22888	50G1,5	31,2	1025	1709	16
22889	61G1,5	34,2	1190	2025	16

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22614 OZ	2x2,5	11,9	104	198	14
22615	3G2,5	12,6	129	284	14
22616	4G2,5	13,6	164	378	14
22617	5G2,5	14,7	190	423	14
22618	7G2,5	17,4	274	486	14
22619	12G2,5	20,9	426	756	14
22620	18G2,5	24,2	607	1127	14
22621	20G2,5	25,6	661	1210	14
22622	25G2,5	29,1	796	1530	14
22623	4G4	16,5	222	448	12
22624	5G4	18,1	328	533	12
22625	7G4	20,0	360	678	12
22626	4G6	18,1	305	636	10
22627	5G6	19,6	441	772	10
22628	7G6	23,2	505	1028	10
22629	4G10	22,5	485	1052	8
22630	5G10	24,7	610	1096	8
22631	7G10	29,3	820	1530	8
22632	4G16	25,7	840	1386	6
22633	5G16	28,2	1050	1759	6
22634	7G16	33,6	1510	2087	6

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

¹) Please note the cleanroom qualification when ordering. Further informations on page 16.

HELUKABEL® MULTISPEED-TRONIC-PUR

UL-CSA approved, safety against high bending in drag chain systems

high flexible,
halogen-free
screened



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245 and UL-Std. 758 AWM Style 20233 and 20939, cores according to UL-Style 10522 and 10521
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/300 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Colour coded to DIN 47100, see page T 46
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PUR outer sheath, especially resistant against fatigue strength, extruded as filler with pressure, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- PUR-Flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), vertical flame test FT1 to UL-Std. 758 sec. 42, tested to UL-Std. 1581 sec. 1060 UL-FT1 corresponding CSA FT2

Specific advantages

- Halogen-free
- High property of alternating bending strength
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads

Application

Application HELUKABEL® MULTISPEED-TRONIC-PUR installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

- Abrasion resistance
- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part-No.	No cores x cross-sec. mm ²	AWG-no.*)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
24567	2 x 0,25	24	3,9	5,0	27
24568	3 x 0,25	24	4,1	7,5	33
24569	4 x 0,25	24	4,4	10,0	40
24570	5 x 0,25	24	4,6	12,5	48
24571	7 x 0,25	24	6,4	17,5	60
24572	12 x 0,25	24	7,0	30,1	91
24573	18 x 0,25	24	8,4	45,0	125
24574	25 x 0,25	24	9,4	62,5	170

Part-No.	No cores x cross-sec. mm ²	AWG-no.*)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
24575	2 x 0,34	22	4,1	6,8	32
24576	3 x 0,34	22	4,3	10,2	40
24577	4 x 0,34	22	4,6	13,6	55
24578	5 x 0,34	22	5,0	17,0	60
24579	7 x 0,34	22	7,0	23,8	80
24580	12 x 0,34	22	7,4	40,8	127
24581	18 x 0,34	22	9,1	61,2	175
24582	25 x 0,34	22	10,2	85,0	238

Further dimensions available on request.

Before installation in cable trays please read the instructions.

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).



HELUKABEL MULTISPEED-TRONIC-C-PUR 4x0,25 QMM E170315 cULus AWM STYLE 20933
24AWG 4C SHIELDED 80° 300V FT1 CSA AWM I/II A/B 80° 300V FT2



HELUKABEL MULTISPEED-TRONIC-C-PUR 12x0,25 QMM E170315 cULus AWM STYLE 20933
24AWG 12C SHIELDED 80° 300V FT1 CSA AWM I/II A/B 80° 300V FT2



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245 and UL-Std. 758 AWM Style 20233 and 20939, cores according to UL-Style 10522 and 10521
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/300 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Coupling resistance**
max. 250 Ωm/km
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

* EMC = Electromagnetic compatibility

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

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Colour coded to DIN 47100, see page T 46
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE inner sheath, extruded as filler with pressure grey (RAL 7001)
- Screen of Cu braid bare, coverage 85% max., with optimal pitch
- Special-PUR outer sheath, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), vertical flame test FT1 to UL-Std. 758 sec. 42, tested to UL-Std. 1581 sec. 1060 UL-FT1 corresponding CSA FT2

Specific advantages

- High property of alternating bending strength
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Abrasion resistance

Application

Application HELUKABEL® MULTISPEED-TRONIC-C-PUR installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications.

- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part-No.	No cores x cross-sec. mm²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
24614	2 x 0,25	24	5,4	14,9	39
24615	3 x 0,25	24	5,6	18,8	45
24616	4 x 0,25	24	5,9	21,3	51
24617	5 x 0,25	24	6,2	31,0	68
24618	7 x 0,25	24	8,3	39,6	83
24619	12 x 0,25	24	9,1	59,1	122
24620	18 x 0,25	24	10,8	78,4	160
24621	25 x 0,25	24	12,0	101,0	210

Part-No.	No cores x cross-sec. mm²	AWG-no.¹)	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
24622	2 x 0,34	22	5,6	18,1	45
24623	3 x 0,34	22	5,8	28,7	60
24624	4 x 0,34	22	6,1	35,7	76
24625	5 x 0,34	22	6,8	39,1	82
24626	7 x 0,34	22	8,9	52,7	110
24627	12 x 0,34	22	9,5	76,4	166
24628	18 x 0,34	22	11,3	99,7	216
24629	25 x 0,34	22	12,8	154,0	312

Before installation in cable trays please read the instructions.

*¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED 600-PUR

HELUKABEL® MULTISPEED 600-C-PUR

Double-insulated, halogen-free
Special Single Cores for drug
chains, EMC*-preferred type



HELUKABEL MULTISPEED 600-PUR 1x16 QMM / 25271 0,6/1 kV 001041877 C E



HELUKABEL MULTISPEED 600-C-PUR 1x16 QMM / 25284 0,6/1 kV 001041850 C E

Technical data

- Special drag chain single cores for high mechanical stress, adapted to DIN VDE 0281 part 3
- **Temperature range**
flexing –30°C to +80°C
fixed installation –40°C to +90°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MOhm x km
- **Minimum bending radius**
7,5x cores $\varnothing$

Specific advantages

- Halogen-free
- Abrasion resistant
- Very good oil resistant
- High property of alternating bending strength
- High resistant to mechanical strain
- Tear resistance
- Abrasion resistance
- Ozone and UV resistance
- Resistant to hydrofluoric acid

Cable structure

MULTISPEED 600-PUR

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- 1. Core insulation of special thermoplastic polymer, natural coloured
- 2. Core insulation of special polyurethane TPU in adapted to DIN VDE 0282 part 10 low adhesion, sheath colour pine green (RAL 6028), flame retardant

MULTISPEED 600-C-PUR

- Structure as above up to 1. core insulation
- Screen of tinned cu-braid, coverage approx. 85%
- 2. Core insulation of special polyurethane TPU in adapted to DIN VDE 0282 part 10 low adhesion, sheath colour pine green (RAL 6028), flame retardant
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Application

These special Drag-chain cables are for long-term use under extreme conditions requiring free movement without tension or opposition to the movement. For installation when long movements or high speed movement is required, in dry, damp or wet areas, and also outside.

Special application where there are high demands on flexibility, abrasion resistance, ozone and chemical resistance.

MULTISPEED 600-C-PUR

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

Before installation in cable trays please read the instructions.

***EMC** = Electromagnetic compatibility

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

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

C E = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25269	1 x 6	6,5	58	80	10
25270	1 x 10	8,4	96	130	8
25271	1 x 16	9,5	154	181	6
25272	1 x 25	11,0	240	274	4
25273	1 x 35	12,5	336	398	2
25274	1 x 50	15,4	480	529	1
25275	1 x 70	18,2	672	717	2/0
25276	1 x 95	20,0	912	1050	3/0
25277	1 x 120	21,0	1152	1240	4/0
25278	1 x 150	23,8	1440	1524	300 kcmil
25279	1 x 185	26,2	1776	1932	350 kcmil
25280	1 x 240	29,8	2304	2467	500 kcmil
25281	1 x 300	33,1	2880	3140	600 kcmil

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25282	1 x 6	7,8	71	101	10
25283	1 x 10	9,7	122	168	8
25284	1 x 16	11,7	180	217	6
25285	1 x 25	13,0	282	342	4
25286	1 x 35	14,7	386	468	2
25287	1 x 50	18,7	535	584	1
25288	1 x 70	22,2	750	822	2/0
25289	1 x 95	23,4	1004	1190	3/0
25290	1 x 120	24,5	1260	1400	4/0
25291	1 x 150	27,8	1570	1710	300 kcmil
25292	1 x 185	29,4	1911	2021	350 kcmil
25293	1 x 240	34,2	2451	2601	500 kcmil
25294	1 x 300	37,4	2997	3257	600 kcmil

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-PVC high flexible

Safety against high bending in drag chain systems, low torsion



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –30°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance** min. 100 MOhm x km
- **Minimum bending radius** 75x cable Ø
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - ≤ 7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥ 7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PVC outer sheath, especially resistant against fatigue strength, extruded as filler with pressure, sheath colour pine green (RAL 6028) low adhesion, oil resistant
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

HELUKABEL® MULTISPEED 500-PVC are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These high flexible PVC control cables are suitable for shift- and bending stresses in machines and machine tool constructions. These are installed in dry and moist rooms with free movement without tensile stress or forced movements.

Specific advantages

- High property of alternating bending strength
- High resistance to mechanical strain
- Long life durability due to low friction-resistance
- Better chemical resistance
- Oil resistance
- High stability
- Higher economical solution
- Flame retardant, self-extinguishing
- Reduced Ø, results low weight of moving materials

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24050 OZ	2x0,5	4,7	9,6	40	20
24051	3G0,5	4,9	14,4	45	20
24052	4G0,5	5,3	19,0	57	20
24053	5G0,5	5,8	24,0	66	20
24054	7G0,5	8,3	33,6	81	20
24055	12G0,5	9,7	58,0	133	20
24056	18G0,5	11,8	86,0	194	20
24057	25G0,5	13,4	120,0	274	20
24058	4G0,75	6,1	29,0	63	18
24059	5G0,75	6,6	36,0	79	18
24060	7G0,75	9,8	50,0	107	18
24061	12G0,75	11,3	86,0	169	18
24062	18G0,75	14,1	130,0	247	18
24063	25G0,75	15,7	180,0	366	18
24064	36G0,75	19,1	259,0	540	18
24065	42G0,75	21,3	302,0	630	18
24066	3G1	5,9	29,0	69	17
24067	4G1	6,4	38,4	86	17
24068	5G1	7,0	48,0	101	17
24069	7G1	10,7	67,0	140	17
24070	12G1	12,1	115,0	227	17
24071	18G1	14,9	173,0	351	17
24072	25G1	16,9	240,0	489	17

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24073	3G1,5	6,7	43,0	88	16
24074	4G1,5	7,2	58,0	110	16
24075	5G1,5	8,1	72,0	130	16
24076	7G1,5	12,5	101,0	182	16
24077	12G1,5	14,3	173,0	319	16
24078	18G1,5	17,5	259,0	420	16
24079	25G1,5	19,8	360,0	604	16
24080	4G2,5	8,9	96,0	172	14
24081	5G2,5	9,8	120,0	219	14
24082	7G2,5	15,2	168,0	303	14
24083	12G2,5	17,6	288,0	504	14
24084	18G2,5	21,4	432,0	754	14
24085	25G2,5	24,0	600,0	940	14

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245 and UL-Std. 758 AWM Style 21179
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –30°C to +80°C
- **Nominal voltage**
 - U_0/U 300/500 V
 - UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PVC outer sheath, especially resistant against fatigue strength, extruded as filler with pressure, sheath colour pine green (RAL 6028) low adhesion, oil resistant
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B). WW1, FT1

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-PVC are installed there where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements.

These highly flexible PVC control cables are suitable for shift- and bending stresses in machines and machine tool constructions. These are installed in dry and moist rooms with free movement without tensile stress or forced movements.

Specific advantages

- High property of alternating bending strength
- Long life durability due to low friction-resistance
- Better chemical resistance
- Oil resistance
- High stability
- Higher economical solution
- Reduced $\emptyset$, results low weight of moving materials

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
24295 OZ	2 x 0,5	4,7	9,6	41	20
24296	3 G 0,5	4,9	14,4	48	20
24297	4 G 0,5	5,3	19,0	59	20
24298	5 G 0,5	5,8	24,0	69	20
24299	7 G 0,5	8,3	33,6	83	20
24300	12 G 0,5	9,7	58,0	140	20
24301	18 G 0,5	11,9	86,0	197	20
24302	25 G 0,5	13,5	120,0	281	20
24303	4 G 0,75	6,1	29,0	65	19
24304	5 G 0,75	6,6	36,0	81	19
24305	7 G 0,75	9,8	50,0	104	19
24306	12 G 0,75	11,3	86,0	172	19
24307	18 G 0,75	14,1	130,0	254	19
24308	25 G 0,75	15,7	180,0	374	19
24309	36 G 0,75	19,1	259,0	550	19
24310	42 G 0,75	21,3	302,0	634	19
24311	3 G 1	5,9	29,0	72	18
24312	4 G 1	6,4	38,4	90	18
24313	5 G 1	7,0	48,0	112	18
24314	7 G 1	10,7	67,0	150	18
24315	12 G 1	12,1	115,0	231	18
24316	18 G 1	14,9	173,0	361	18
24317	25 G 1	16,9	240,0	497	18

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*) Note

Note
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-PUR high flexible, halogen-free

Safety against high bending in drag chain systems, low torsion



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)

Specific advantages

- Halogen-free
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Abrasion resistance
- Tear resistance
- High stability

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - < 7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥ 7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PUR outer sheath, especially resistant against fatigue strength, extruded as filler with pressure, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

HELUKABEL® MULTISPEED 500-PUR are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24119 OZ	2x0,5	4,7	9,6	41	20
24120	3G0,5	5,0	14,4	48	20
24121	4G0,5	5,4	19,0	62	20
24122	5G0,5	5,8	24,0	70	20
24123	7G0,5	8,3	33,6	88	20
24124	12G0,5	9,8	58,0	131	20
24125	18G0,5	11,9	86,0	204	20
24126	25G0,5	13,5	120,0	266	20
24127	3G0,75	5,2	21,6	51	18
24128	4G0,75	6,1	29,0	68	18
24129	5G0,75	6,6	36,0	73	18
24130	7G0,75	9,6	50,0	92	18
24131	12G0,75	11,3	86,0	170	18
24132	18G0,75	14,1	130,0	257	18
24133	25G0,75	15,7	180,0	280	18
24134	36G0,75	19,1	260,0	411	18
24135	42G0,75	21,3	302,0	608	18
24136	3G1	6,0	29,0	59	17
24137	4G1	6,4	38,0	71	17
24138	5G1	7,0	48,0	84	17

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24139	7G1	10,7	67,0	111	17
24140	12G1	12,1	115,0	200	17
24141	18G1	14,9	173,0	286	17
24142	25G1	16,9	240,0	370	17
24143	3G1,5	6,7	43,0	81	16
24144	4G1,5	7,3	58,0	102	16
24145	5G1,5	8,0	72,0	121	16
24146	7G1,5	12,5	101,0	164	16
24147	12G1,5	14,3	173,0	293	16
24148	18G1,5	17,5	259,0	450	16
24149	25G1,5	19,8	360,0	631	16
24150	4G2,5	8,9	86,0	173	14
24151	5G2,5	9,9	120,0	220	14
24152	7G2,5	15,2	168,0	290	14
24153	12G2,5	17,6	288,0	504	14
24154	18G2,5	21,5	432,0	719	14
24155	25G2,5	24,1	600,0	940	14

¹) Note

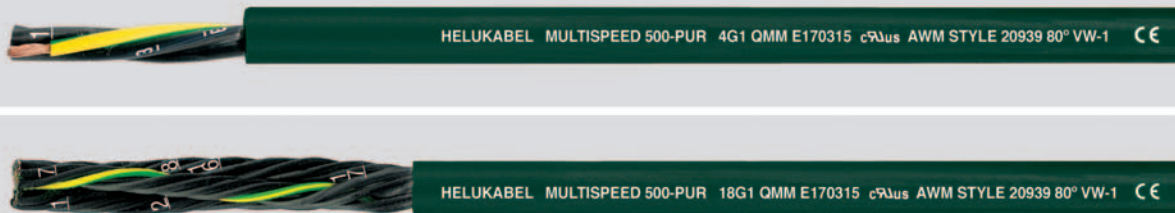
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED 500-PUR UL/CSA

Safety against high bending in drag chain systems, low torsion, UL/CSA approved, halogen-free



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245 and UL-Std. 758 AWM Style 20233 and 20939
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage**
U₀/U 300/500 V
UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)

Specific advantages

- Halogen-free
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PUR outer sheath, especially resistant against fatigue strength, extruded as filler with pressure, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), VW1, FT1
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-PUR are installed there, where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24370 OZ	2x0,5	4,7	9,6	41	20
24371	3G0,5	5,0	14,4	48	20
24372	4G0,5	5,4	19,0	62	20
24373	5G0,5	5,8	24,0	70	20
24374	7G0,5	8,3	33,6	94	20
24375	12G0,5	9,8	58,0	131	20
24376	18G0,5	11,9	86,0	204	20
24377	25G0,5	13,5	120,0	266	20
24378	3G0,75	5,2	21,6	51	19
24379	4G0,75	6,1	29,0	68	19
24380	5G0,75	6,6	36,0	73	19
24381	7G0,75	9,8	50,0	100	19
24382	12G0,75	11,3	86,0	170	19
24383	18G0,75	14,1	130,0	257	19
24384	25G0,75	15,7	180,0	280	19
24385	36G0,75	19,1	260,0	411	19
24386	42G0,75	21,3	302,0	608	19
24387	3G1	6,0	29,0	59	18
24388	4G1	6,4	38,0	71	18
24389	5G1	7,0	48,0	84	18
24390	7G1	10,7	67,0	121	18
24391	12G1	12,1	115,0	200	18
24392	18G1	14,9	173,0	286	18
24393	25G1	16,9	240,0	370	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24394	3G1,5	6,7	43,0	81	16
24395	4G1,5	7,3	58,0	102	16
24396	5G1,5	8,0	72,0	121	16
24397	7G1,5	12,5	101,0	174	16
24398	12G1,5	14,3	173,0	293	16
24399	18G1,5	17,5	259,0	450	16
24400	25G1,5	19,8	360,0	631	16
24401	4G2,5	8,9	86,0	173	14
24402	5G2,5	9,9	120,0	220	14
24403	7G2,5	15,2	168,0	302	14
24404	12G2,5	17,6	288,0	504	14
24405	18G2,5	21,5	432,0	719	14
24406	25G2,5	24,1	600,0	940	14

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

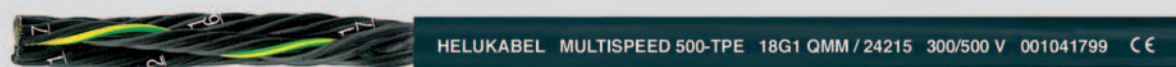
G = with green-yellow earth core

X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-TPE

Safety against high bending in drag chain systems, low torsion



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MOhm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)

Specific advantages

- Microbe-resistance – TPE
- Halogen-free
- Resistant to microbes
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Abrasion resistance

Cable structure

- Tinned copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - ≤ 7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥ 7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE-O outer sheath, extruded as filler with pressure sheath colour ocean blue (RAL 5020) low adhesion, oil resistant, halogen-free

- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

HELUKABEL® MULTISPEED 500-TPE are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

TPE: The selected tinned copper wire conductor permits the installation in aggressive environments as well as hydrogen sulfide, ammonia and sulfur dioxide.

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24191 OZ	2x0,5	4,7	9,6	42	20
24192	3G0,5	5,0	14,4	49	20
24193	4G0,5	5,4	19,0	63	20
24194	5G0,5	5,8	24,0	70	20
24195	7G0,5	8,3	33,6	90	20
24196	12G0,5	9,8	58,0	134	20
24197	18G0,5	11,9	86,0	209	20
24198	25G0,5	13,5	120,0	270	20
24199 OZ	2x0,75	5,0	14,4	47	18
24200	3G0,75	5,2	21,6	55	18
24201	4G0,75	6,1	29,0	70	18
24202	5G0,75	6,6	36,0	74	18
24203	7G0,75	9,8	50,0	95	18
24204	12G0,75	11,3	86,0	174	18
24205	18G0,75	14,1	130,0	261	18
24206	25G0,75	15,7	180,0	290	18
24207	36G0,75	19,1	260,0	419	18
24208	42G0,75	21,3	302,0	614	18
24209 OZ	2x1	5,2	19,2	50	17
24210	3G1	6,0	29,0	60	17
24211	4G1	6,4	38,0	74	17
24212	5G1	7,0	48,0	86	17
24213	7G1	10,7	67,0	114	17
24214	12G1	12,1	115,0	210	17
24215	18G1	14,9	173,0	291	17
24216	25G1	16,9	240,0	380	17

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

¹) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24217	3G1,5	6,7	43,0	84	16
24218	4G1,5	7,3	58,0	108	16
24219	5G1,5	8,0	72,0	126	16
24220	7G1,5	12,5	101,0	169	16
24221	12G1,5	14,3	173,0	299	16
24222	18G1,5	17,5	259,0	460	16
24223	25G1,5	19,8	360,0	640	16
24224	4G2,5	8,9	96,0	179	14
24225	5G2,5	9,9	120,0	230	14
24226	7G2,5	15,2	168,0	294	14
24227	12G2,5	17,6	288,0	510	14
24228	18G2,5	21,5	432,0	722	14
24229	25G2,5	24,1	600,0	950	14
24230	4G4	10,3	154,0	197	12
24231	4G6	11,9	231,0	320	10
24232	5G6	13,4	289,0	394	10
24233	4G10	14,7	387,0	520	8
24234	4G16	20,0	517,0	784	6
24235	4G35	24,9	1344,0	1711	2

¹) Note: AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

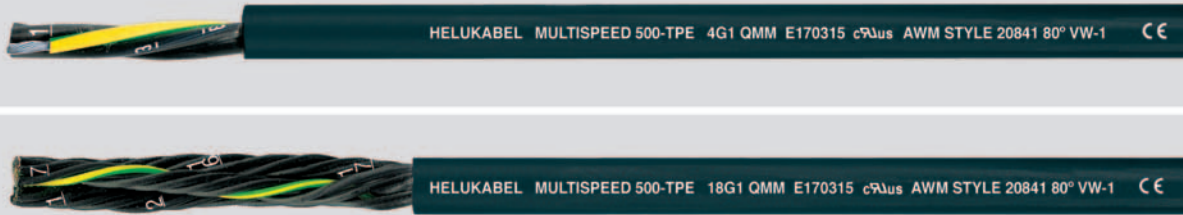
Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED 500-TPE UL/CSA

Safety against high bending in drag chain systems, low torsion, halogen-free, UL-CSA approved



2)



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245 and UL-Std. 758 AWM Style 20841 and 21184
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage**
U₀/U 300/500 V
UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Specific advantages

- Microbe-resistance – TPE
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature

Cable structure

- Tinned copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE-O outer sheath, extruded as filler with pressure sheath colour ocean blue (RAL 5020) low adhesion, oil resistant, halogen-free
- Use in multi-shift operations under extremely high continuous bending loads
- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-TPE are installed there, where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

TPE: The selected tinned copper wire conductor permits the installation in aggressive environments as well as hydrogen sulfide, ammonia and sulfur dioxide.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24450 OZ	2x0,5	4,7	9,6	42	20
24451	3G0,5	5,0	14,4	49	20
24452	4G0,5	5,4	19,0	63	20
24453	5G0,5	5,8	24,0	80	20
24454	7G0,5	8,3	33,6	90	20
24455	12G0,5	9,8	58,0	134	20
24456	18G0,5	11,9	86,0	209	20
24457	25G0,5	13,5	120,0	270	20
24458 OZ	2x0,75	5,0	14,4	47	19
24459	3G0,75	5,2	21,6	55	19
24460	4G0,75	6,1	29,0	70	19
24461	5G0,75	6,6	36,0	74	19
24462	7G0,75	9,8	50,0	104	19
24463	12G0,75	11,3	86,0	174	19
24464	18G0,75	14,1	130,0	261	19
24465	25G0,75	15,7	180,0	290	19
24466	36G0,75	19,1	260,0	419	19
24467	42G0,75	21,3	302,0	614	19

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24468 OZ	2x1	5,2	19,2	50	18
24469	3G1	6,0	29,0	60	18
24470	4G1	6,4	38,0	74	18
24471	5G1	7,0	48,0	86	18
24472	7G1	10,7	67,0	130	18
24473	12G1	12,1	115,0	210	18
24474	18G1	14,9	173,0	291	18
24475	25G1	16,9	240,0	380	18
24476	3G1,5	6,7	43,0	84	16
24477	4G1,5	7,3	58,0	108	16
24478	5G1,5	8,0	72,0	126	16
24479	7G1,5	12,5	101,0	184	16
24480	12G1,5	14,3	173,0	299	16
24481	18G1,5	17,5	259,0	460	16
24482	25G1,5	19,8	360,0	640	16
24483	4G2,5	8,9	96,0	179	14
24484	5G2,5	9,9	120,0	230	14
24485	7G2,5	15,2	168,0	322	14
24486	12G2,5	17,6	288,0	510	14
24487	18G2,5	21,5	432,0	722	14
24488	25G2,5	24,1	600,0	950	14

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

¹) Cleanroom qualification tested with analog type. Please note "cleanroom qualified" when ordering. Further informations on page 16.

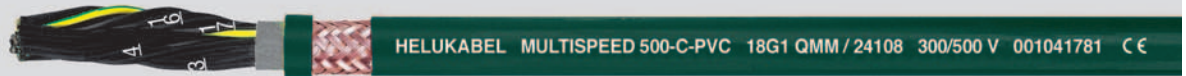
* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-C-PVC high flexible,

Safety against high bending in drag chain systems, low torsion, EMC*-preferred type



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –30°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance** min. 100 MΩm x km
- **Minimum bending radius** 7,5x cable Ø
- **Coupling resistance** max. 250 Ωm x km
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)

Specific advantages

- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- Better chemical resistance
- Oil resistance
- High stability
- Higher economical solution
- Flame retardant, self-extinguishing
- Reduced Ø, results low weight of moving materials

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - ≤ 7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥ 7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PVC inner sheath YM2 extruded as filler with pressure grey (RAL 7001)
- Screen of Cu braid bare, coverage 85% max., with optimal bunch
- Fleece separator, ensure good dismantling ability
- Special-PVC outer sheath, especially resistant against fatigue strength, sheath colour pine green (RAL 6028) low adhesion, oil resistant
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

HELUKABEL® MULTISPEED 500-C-PVC are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These high flexible PVC control cables are suitable for shift- and bending stresses in machines and machine tool constructions. These are installed in dry and moist rooms with free movement without tensile stress or forced movements. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications.

* **EMC** = Electromagnetic compatibility

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

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24086 OZ	2x0,5	6,3	30,0	88	20
24087	3G0,5	6,8	36,0	101	20
24088	4G0,5	7,2	42,0	116	20
24089	5G0,5	7,6	48,0	146	20
24090	7G0,5	10,3	64,0	181	20
24091	9G0,5	10,5	80,0	219	20
24092	12G0,5	12,4	105,0	271	20
24093	18G0,5	14,7	137,0	374	20
24094	25G0,5	16,9	210,0	542	20
24095 OZ	2x0,75	6,9	40,0	96	18
24096	3G0,75	7,4	48,0	111	18
24097	4G0,75	8,0	55,0	140	18
24098	5G0,75	8,5	66,0	161	18
24099	7G0,75	12,5	85,0	227	18
24100	12G0,75	13,2	135,0	317	18
24101	18G0,75	16,1	190,0	486	18
24102	25G0,75	18,5	275,0	651	18

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24103	3G1	7,7	59,0	131	17
24104	4G1	8,1	70,0	164	17
24105	5G1	9,1	84,0	198	17
24106	7G1	13,3	106,0	252	17
24107	12G1	14,4	174,0	410	17
24108	18G1	17,3	240,0	550	17
24109	25G1	19,4	332,0	756	17
24110	3G1,5	8,6	75,0	166	16
24111	4G1,5	9,4	90,0	199	16
24112	5G1,5	10,4	108,0	229	16
24113	7G1,5	15,2	157,0	304	16
24114	12G1,5	16,6	240,0	502	16
24115	18G1,5	20,3	355,0	709	16
24116	25G1,5	22,6	448,0	939	16
24117	4G2,5	11,2	134,0	270	14
24118	5G2,5	12,2	175,0	335	14

¹) Note

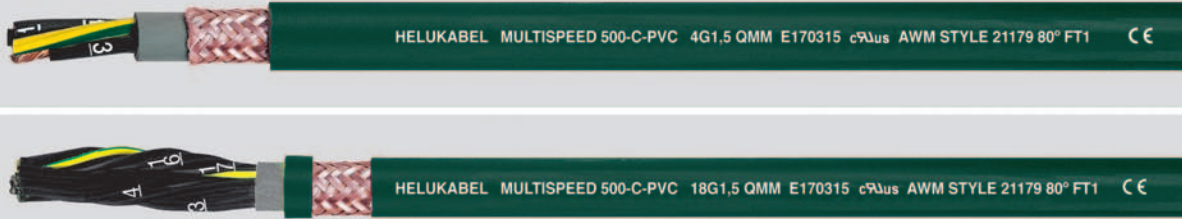
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED 500-C-PVC UL/CSA

Safety against high bending in drag chain systems, low torsion, UL/CSA approved



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245 and UL-Std. 758 AWM Style 21179
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –30°C to +80°C
- **Nominal voltage**
U₀/U 300/500 V
UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Coupling resistance**
max. 250 Ωm x km
- **Radiation resistance**
up to 80x10⁶ cJ/kg (up to 80 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

* **EMC** = Electromagnetic compatibility

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

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - **<7 cores:** cores stranded in a layer with optimal lay-length around a filler as per construction
 - **≥7 cores:** cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-PVC inner sheath YM2 extruded as filler with pressure grey (RAL 7001)
- Screen of Cu braid bare, coverage 85% max., with optimal bunch
- Special-PVC outer sheath, especially resistant against fatigue strength, sheath colour pine green (RAL 6028) low adhesion, oil resistant
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), VW1, FT1

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-C-PVC are installed there, where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements. These high flexible PVC control cables are suitable for shift- and bending stresses in machines and machine tool constructions. These are installed in dry and moist rooms with free movement without tensile stress or forced movements. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications.

Specific advantages

- High property of alternating bending strength
- Long life durability due to low friction-resistance
- Better chemical resistance
- Oil resistance
- High stability
- Higher economical solution
- Reduced Ø, results low weight of moving materials

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km	AWG-no.¹)
24335 OZ	2x0,5	6,3	30,0	89	20
24336	3G0,5	6,8	36,0	104	20
24337	4G0,5	7,3	42,0	119	20
24338	5G0,5	7,7	48,0	150	20
24339	7G0,5	10,3	64,0	189	20
24340	9G0,5	10,5	80,0	223	20
24341	12G0,5	12,4	105,0	280	20
24342	18G0,5	14,7	137,0	379	20
24343	25G0,5	16,9	210,0	552	20
24344 OZ	2x0,75	6,9	40,0	96	19
24345	3G0,75	7,4	48,0	111	19
24346	4G0,75	8,0	55,0	142	19
24347	5G0,75	8,5	66,0	161	19
24348	7G0,75	12,5	85,0	237	19
24349	12G0,75	13,3	135,0	317	19
24350	18G0,75	16,1	190,0	486	19
24351	25G0,75	18,5	275,0	651	19

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km	AWG-no.¹)
24352	3G1	7,7	59,0	131	18
24353	4G1	8,3	70,0	164	18
24354	5G1	9,1	84,0	198	18
24355	7G1	13,3	106,0	264	18
24356	12G1	14,4	174,0	410	18
24357	18G1	17,3	240,0	550	18
24358	25G1	19,4	332,0	749	18
24359	3G1,5	8,6	75,0	166	16
24360	4G1,5	9,4	90,0	199	16
24361	5G1,5	10,4	108,0	229	16
24362	7G1,5	15,2	157,0	324	16
24363	12G1,5	16,6	240,0	502	16
24364	18G1,5	20,3	355,0	709	16
24365	25G1,5	22,6	448,0	939	16
24366	4G2,5	11,2	134,0	270	14
24367	5G2,5	12,2	175,0	335	14

¹) Note

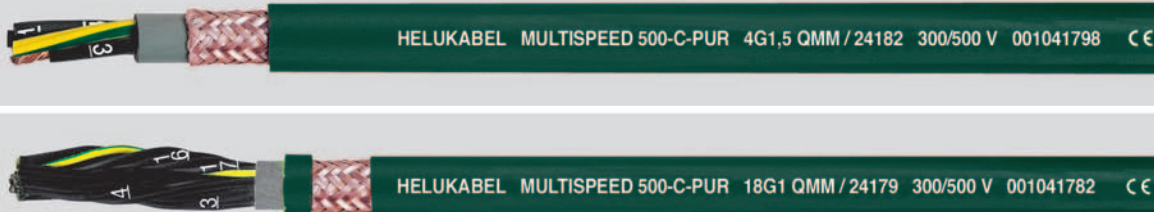
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-C-PUR

high flexible, screened
Safety against high bending in drag chain systems, low torsion, halogen-free EMC*-preferred type



Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)

Specific advantages

- Halogen-free
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Abrasion resistance
- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - ≤ 7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥ 7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE inner sheath, extruded as filler with pressure gray RAL 7001
- Screen of Cu braid bare, coverage 85% max, with optimal pitch
- Fleece separator, ensure good dismantling ability
- Special-PUR outer sheath, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Application

HELUKABEL® MULTISPEED 500-C-PUR are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24156 OZ	2x0,5	6,4	30	90	20
24157	3G0,5	6,7	36	104	20
24158	4G0,5	7,3	42	118	20
24159	5G0,5	7,7	48	148	20
24160	7G0,5	10,3	64	184	20
24161	9G0,5	10,5	80	219	20
24162	12G0,5	12,4	105	276	20
24163	18G0,5	14,7	137	378	20
24164	25G0,5	16,9	210	547	20
24165 OZ	2x0,75	6,8	40	100	18
24166	3G0,75	7,4	48	117	18
24167	4G0,75	8,0	55	143	18
24168	5G0,75	8,5	66	167	18
24169	7G0,75	12,5	85	229	18
24170	12G0,75	13,3	135	319	18
24171	18G0,75	16,1	190	492	18
24172	25G0,75	18,5	275	659	18

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24173 OZ	2x1	7,1	50	120	17
24174	3G1	7,7	59	140	17
24175	4G1	8,2	70	167	17
24176	5G1	9,1	84	201	17
24177	7G1	13,3	106	256	17
24178	12G1	14,4	174	417	17
24179	18G1	17,3	240	557	17
24180	25G1	19,4	332	766	17
24181	3G1,5	8,6	75	170	16
24182	4G1,5	9,4	90	204	16
24183	5G1,5	10,4	108	236	16
24184	7G1,5	15,2	157	309	16
24185	12G1,5	16,6	240	509	16
24186	18G1,5	20,3	355	718	16
24187	25G1,5	22,6	448	944	16
24188	4G2,5	11,3	134	280	14
24189	5G2,5	12,3	175	346	14
24190	7G2,5	14,0	229	410	14

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

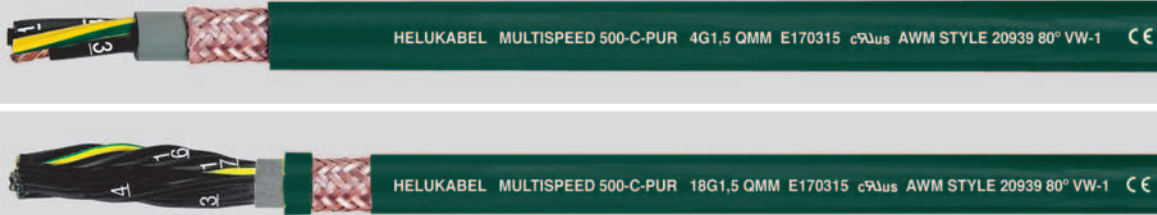
Further technical details see selection table for drag chain cables (pages 24ff).

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® MULTISPEED 500-C-PUR UL/CSA

Safety against high bending in drag chain systems, low torsion, halogen-free, UL/CSA approved



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13, DIN VDE 0282 part 10 and E DIN VDE 0245 and UL-Std. 758 AWM Style 20939
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage**
U₀/U 300/500 V
UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
75x cable Ø
- **Coupling resistant**
max. 250 Ohm/km
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Specific advantages

- Halogen-free
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Tear resistance
- High stability

Cable structure

- Bare copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - ≤7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE-O inner sheath, extruded as filler with pressure
- Screen of Cu braid bare, coverage 85% max., with optimal pitch
- Special-PUR outer sheath, sheath colour pine green (RAL 6028) low adhesion, oil resistant, halogen-free
- PUR-jacket flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), VW1, FT1
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-C-PUR are installed there, where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications.

* EMC = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
24410 OZ	2x0,5	6,4	30	90	20
24411	3G0,5	6,7	36	104	20
24412	4G0,5	7,3	42	118	20
24413	5G0,5	7,7	48	148	20
24414	7G0,5	10,3	64	197	20
24415	9G0,5	10,5	80	219	20
24416	12G0,5	12,4	105	276	20
24417	18G0,5	14,7	137	378	20
24418	25G0,5	16,9	210	547	20
24419 OZ	2x0,75	6,8	40	100	19
24420	3G0,75	7,4	48	117	19
24421	4G0,75	8,0	55	143	19
24422	5G0,75	8,5	66	167	19
24423	7G0,75	12,5	85	245	19
24424	12G0,75	13,3	135	319	19
24425	18G0,75	16,1	190	492	19
24426	25G0,75	18,5	275	659	19

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
24427 OZ	2x1	7,1	50	120	18
24428	3G1	7,7	59	140	18
24429	4G1	8,3	70	167	18
24430	5G1	9,1	84	201	18
24431	7G1	13,3	106	290	18
24432	12G1	14,4	174	417	18
24433	18G1	17,3	240	557	18
24434	25G1	19,4	332	766	18
24435	3G1,5	8,6	75	170	16
24436	4G1,5	9,4	90	204	16
24437	5G1,5	10,4	108	236	16
24438	7G1,5	15,2	157	309	16
24439	12G1,5	16,6	240	501	16
24440	18G1,5	20,3	355	718	16
24441	25G1,5	22,6	448	934	16
24442	4G2,5	11,3	134	280	14
24443	5G2,5	12,3	175	346	14
24444	7G2,5	14,0	229	410	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED® 500-C-TPE high flexible, screened

Safety against high bending in drag chain systems, low torsion, halogen-free, EMC*-preferred type



HELUKABEL MULTISPEED 500-C-TPE 4G1 QMM / 24255 300/500 V 001041811 CE



HELUKABEL MULTISPEED 500-C-TPE 18G1 QMM / 24259 300/500 V 001041801 CE

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
5x cable Ø
- **Coupling resistance**
max. 250 Ωm x km
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Specific advantages

- Microbe-resistance – TPE
- Halogen-free
- Resistant to microbes
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads
- Abrasion resistance

Cable structure

- Tinned copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE inner sheath, extruded as filler with pressure, natural colour
- Screen of Cu braid tinned, coverage 85% max, with optimal pitch
- Fleece separator, ensure good dismantling ability
- Special-TPE-O outer sheath, extruded as filler with pressure, sheath colour ocean blue (RAL 5020) low adhesion, oil resistant, halogen-free
- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

HELUKABEL® MULTISPEED 500-C-TPE are installed there, where the extreme requirements for the cables are necessary. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and low speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

TPE: The selected tinned copper wire conductor and tinned copper wire braid permit the installation in aggressive environments as well as hydrogen sulfide, ammonia and sulfur dioxide.

* **EMC** = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24236 OZ	2x0,5	6,4	30	85	20
24237	3G0,5	6,7	36	99	20
24238	4G0,5	7,3	42	107	20
24239	5G0,5	7,7	48	140	20
24240	7G0,5	10,3	64	176	20
24241	10G0,5	10,1	80	204	20
24242	12G0,5	12,3	105	261	20
24243	18G0,5	14,6	137	360	20
24244	25G0,5	16,8	320	530	20
24245 OZ	2x0,75	7,0	40	97	18
24246	3G0,75	7,4	48	110	18
24247	4G0,75	8,0	55	139	18
24248	5G0,75	8,5	66	160	18
24249	7G0,75	12,5	85	219	18
24250	12G0,75	13,3	135	307	18
24251	18G0,75	16,1	190	490	18
24252	25G0,75	18,5	275	640	18
24253 OZ	2x1	7,4	50	115	17
24254	3G1	7,7	59	131	17

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

¹) Please note the cleanroom qualification when ordering. Further informations on page 16.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
24255	4G1	8,3	70	160	17
24256	5G1	9,1	84	195	17
24257	7G1	13,3	106	247	17
24258	12G1	14,4	174	411	17
24259	18G1	17,3	240	547	17
24260	25G1	19,4	332	754	17
24261	3G1,5	8,6	75	160	16
24262	4G1,5	9,4	90	194	16
24263	5G1,5	10,4	108	220	16
24264	7G1,5	15,2	157	294	16
24265	12G1,5	16,6	240	490	16
24266	18G1,5	20,3	355	704	16
24267	25G1,5	22,6	448	930	16
24268	4G2,5	11,3	134	260	14
24269	5G2,5	12,3	175	330	14
24270	7G2,5	14,8	229	406	14
24271	12G2,5	21,5	390	990	14
24272	4G4	13,6	194	355	12

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

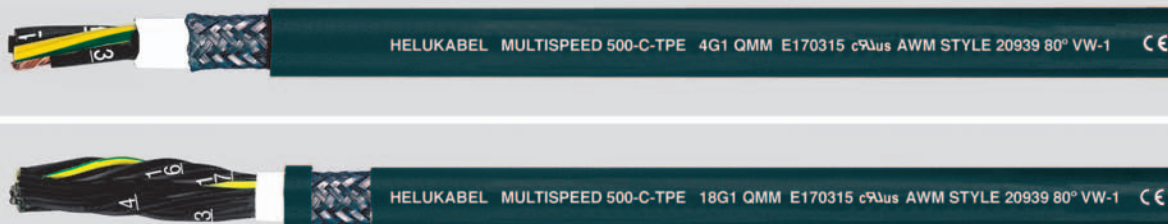
Further technical details see selection table for drag chain cables (pages 24ff).

HELUKABEL® MULTISPEED 500-C-TPE UL/CSA

Safety against high bending in drag chain systems, low torsion, halogen-free, high flexible, UL-CSA approved



1)



new

Technical data

- Special drag chain cables for high mechanical stress in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245 and UL-Std. 758 AWM Style 21184
- **Temperature range**
flexing –30°C to +80°C
fixed installation –50°C to +80°C
- **Nominal voltage**
U₀/U 300/500 V
UL 600 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 100 MΩm x km
- **Minimum bending radius**
5 x cable Ø
- **Coupling resistance**
max. 250 Ωm x km
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers.

Specific advantages

- Microbe-resistance – TPE
- High property of alternating bending strength
- High resistant to mechanical strain
- Long life durability due to low friction-resistance
- High tensile strength, abrasion- and impact resistance at low temperature
- Use in multi-shift operations under extremely high continuous bending loads

Cable structure

- Tinned copper, fine wire conductors, Unilay with short pitch length
- Special TPE core insulation
- Black cores with continuous white numbering
- Green-yellow earth core (3 cores and above)
- Stranding:
 - <7 cores: cores stranded in a layer with optimal lay-length around a filler as per construction
 - ≥7 cores: cores stranded with optimal lay-length to bunch-construction with low torsion strength, optimal selected short lay-length around a filler
- Special-TPE-O inner sheath, extruded as filler with pressure, natural colour
- Screen of Cu braid tinned, coverage 85% max., with optimal pitch
- Special-TPE-O outer sheath, extruded as filler with pressure, sheath colour ocean blue (RAL 5020) low adhesion, oil resistant, halogen-free

- Tear resistance
- High stability
- Oil resistance
- Better chemical resistance
- UV and ozone resistance
- Higher economical solution
- Reduced Ø, results low weight of moving materials

Application

UL/CSA approved HELUKABEL® MULTISPEED 500-C-TPE are installed there, where the extreme requirements for the cables are necessary. Designed for the export-orientated machinery manufacturer, specifically for USA and Canada. The selected materials and lay-up technique permit these high flexible cables for permanent application in drag chains for long distances, high and slow speed of movements. These cables are installed in dry, moist and wet rooms and in open air with free movement without tensile stress or forced movements. These robust and abrasion resistant special control cables are installed there, where the problems appear for the application in permanent stresses e.g. in energy drag chains, industry robotics, production lines, automatic control systems and permanent movable machinery parts for multi-shift operation. These cables are installed everywhere, where high requirements for the flexibility, abrasion, oxygen and chemical resistance are necessary.

TPE: The selected tinned copper wire conductor and tinned copper wire braid permit the installation in aggressive environments as well as hydrogen sulfide, ammonia and sulfur dioxide.

* **EMC** = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
23914 OZ	2x0,5	6,4	30	85	20
23915	3G0,5	6,7	36	99	20
23916	4G0,5	7,3	42	107	20
23917	5G0,5	7,7	48	140	20
23918	7G0,5	10,3	64	189	20
23919	10G0,5	10,5	80	204	20
23920	12G0,5	12,4	105	261	20
23921	18G0,5	14,7	137	360	20
23922	25G0,5	16,3	320	530	20
23923 OZ	2x0,75	7,0	40	97	19
23924	3G0,75	7,4	48	110	19
23925	4G0,75	8,0	55	139	19
23926	5G0,75	8,5	66	160	19
23927	7G0,75	12,5	85	219	19
23928	12G0,75	13,3	135	307	19
23929	18G0,75	16,1	190	490	19
23930	25G0,75	18,5	275	640	19

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
23931 OZ	2x1	7,4	50	115	18
23932	3G1	7,7	59	131	18
23933	4G1	8,3	70	160	18
23934	5G1	9,1	84	195	18
23935	7G1	13,3	106	261	18
23936	12G1	14,4	174	411	18
23937	18G1	17,3	240	547	18
23938	25G1	19,4	332	754	18
23939	3G1,5	8,6	75	160	16
23940	4G1,5	9,4	90	194	16
23941	5G1,5	10,4	108	220	16
23942	7G1,5	15,2	157	294	16
23943	12G1,5	16,6	240	490	16
23944	18G1,5	20,3	355	704	16
23945	25G1,5	22,6	448	930	16
23946	4G2,5	11,3	134	260	14
23947	5G2,5	12,3	175	330	14
23948	7G2,5	14,8	229	406	14
23949	12G2,5	21,5	390	990	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Further technical details see selection table for drag chain cables (pages 24ff).

G = with green-yellow earth core

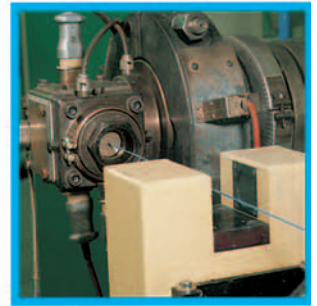
X = without green-yellow earth core (OZ)

¹) Please note the cleanroom qualification when ordering. Further informations on page 16.

many stages . . .

. . . there are many stages necessary from the initial cable enquiry, to the construction of the cable, to a suitable way to install cables and wires, from the qualified technical consultation to after sales business . . . it takes many stages to be successful.

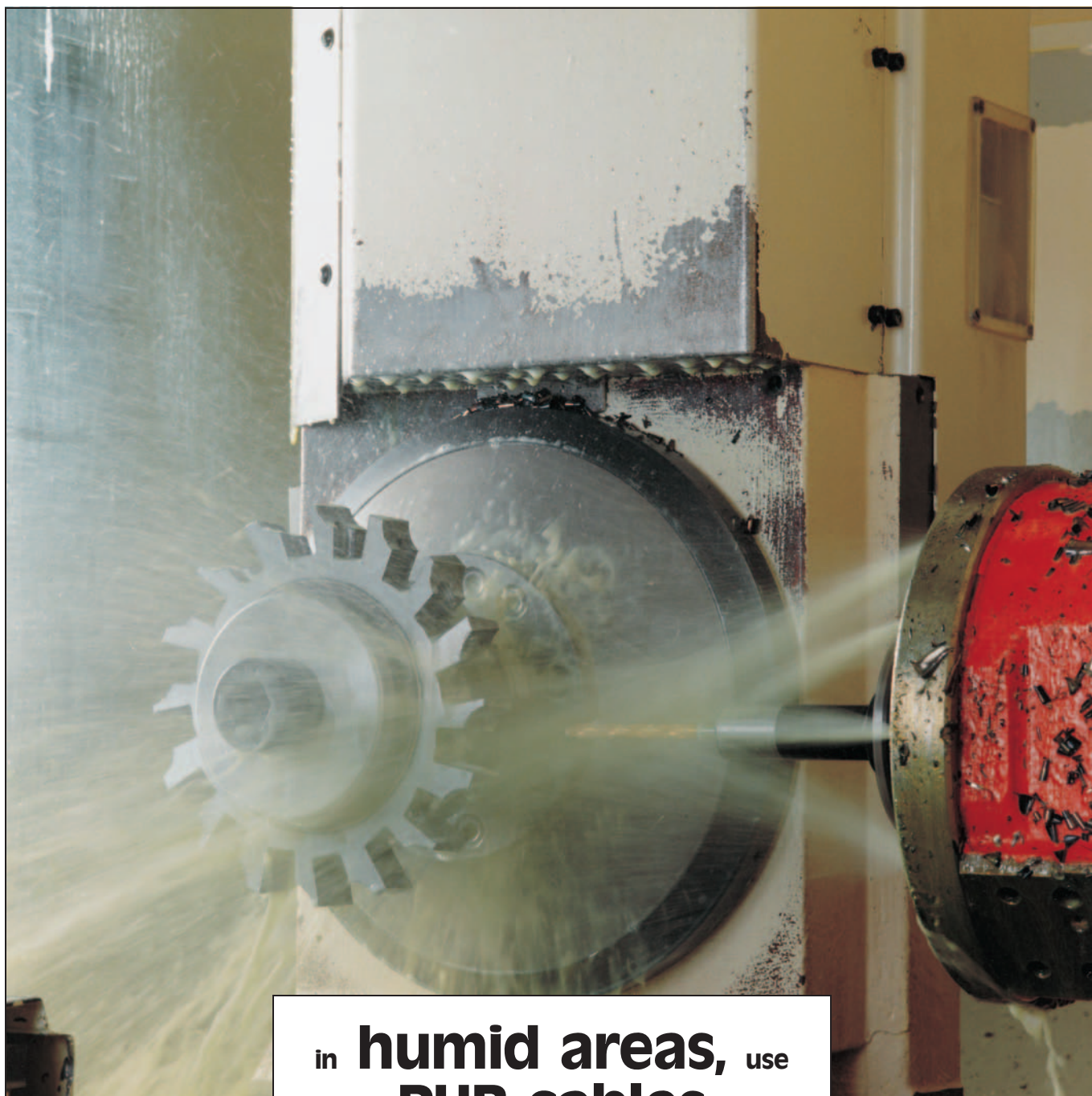
For these reasons it is important to co-operate with a reliable, competent and experienced partner.



You count on an experienced specialist with

- A long experience in cable technologie
- Extensive stock holdings (stocks in Neuenhagen/Berlin, Pleiße/Chemnitz, Hemmingen/Stuttgart, Windsbach/Nürnberg)
- Own transport system
- Minimum delivery time
- Well trained sales staff
- First class service

HELUKABEL® – a good connection



in humid areas, use **PUR cables**

Works photo: Hüller Hille GmbH

The machinery and plant industries but especially the tool making industries are working particularly with mineral oils, alkalis and aggressive coolant emulsions and under difficult working environmental conditions.

Due to these conditions the electrical control cables, data cables as well as cables for trailing chains have to perform to exceptionally high standards. Flexibility, abrasion and oil resistance have to be guaranteed.

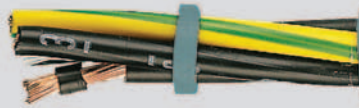
HELUKABEL® in co-operation with the leading machine and plant industries have developed suitable and application orientated cables.

PUR cables are tested among the others, mineral and synthetic oils, cutting oils, coolant emulsions, etc. For the operation in power trailing chains, these cables are tested to multimillion alternating bending cycles.

Consequently we believe that we can deliver the right cable for your application needs.

HELUKABEL® JZ-500 PUR tear and coolant resistant

new



HELUKABEL JZ-500 PUR 4G4 QMM / 23379 300/500 V 001043025 C€

Technical data

- Special PUR cables adapted to DIN VDE 0245, 0281
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent $7,5 \times$ cable $\varnothing$
- **Radiation resistance** up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, according to DIN VDE 0281 part 1
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special **full-polyurethane** outer jacket TPU, to DIN VDE 0282 part 10, appendix A colour grey (RAL 7001)
- Jacket also available in other colours

Application

JZ-500 PUR is an extremely robust control cable with high abrasion and tear resistant properties. Due to its high resistance to mineral oils and especially to coolant emulsions, it is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas. The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to UV-radiation, oxygene, ozone and hydrolysis. Conditionally resistant to microbes.

C€ = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

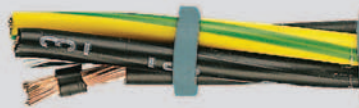
Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
23314 OZ	2x0,5	4,8	9,6	45	20
23315	3G0,5	5,1	14,4	55	20
23316 OZ	3x0,5	5,1	14,4	55	20
23317	4G0,5	5,7	19,0	65	20
23318 OZ	4x0,5	5,7	19,0	65	20
23319	5G0,5	6,2	24,0	75	20
23320 OZ	5x0,5	6,2	24,0	75	20
23321	7G0,5	7,2	33,6	90	20
23322	7x0,5	7,2	33,6	90	20
23323	10G0,5	8,8	48,0	120	20
23324	12G0,5	9,1	58,0	135	20
23325	18G0,5	10,7	86,0	205	20
23326	25G0,5	13,2	120,0	270	20
23327	34G0,5	14,7	163,0	380	20
23328	42G0,5	15,8	202,0	415	20
23329 OZ	2x0,75	5,4	14,4	44	18
23330	3G0,75	5,7	21,6	53	18
23331 OZ	3x0,75	5,7	21,6	53	18
23332	4G0,75	6,2	29,0	64	18
23333 OZ	4x0,75	6,2	29,0	64	18
23334	5G0,75	6,8	36,0	76	18
23335 OZ	5x0,75	6,8	36,0	76	18
23336	7G0,75	8,1	50,0	96	18
23337 OZ	7x0,75	8,1	50,0	96	18
23338	10G0,75	9,6	72,0	140	18
23339	12G0,75	9,9	86,0	170	18
23340	18G0,75	11,9	130,0	260	18
23341	25G0,75	14,5	180,0	282	18
23342	34G0,75	16,3	245,0	475	18
23343	42G0,75	17,7	302,0	600	18
23344 OZ	2x1	5,7	19,0	53	17
23345	3G1	6,0	29,0	63	17
23346 OZ	3x1	6,0	29,0	63	17
23347	4G1	6,6	38,0	75	17
23348 OZ	4x1	6,6	38,0	75	17
23349	5G1	7,1	48,0	89	17
23350 OZ	5x1	7,1	48,0	89	17
23351	7G1	8,6	67,0	115	17
23352 OZ	7x1	8,6	67,0	115	17

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Note

For UL-approved version, please request for sizes and quantities.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
23353	10G1	10,2	96,0	166	17
23354	12G1	10,7	115,0	201	17
23355	18G1	12,9	173,0	289	17
23356	25G1	14,9	240,0	380	17
23357	34G1	17,4	326,0	645	17
23358	42G1	18,8	403,0	730	17
23359	50G1	20,9	480,0	890	17
23360 OZ	2x1,5	6,2	29,0	68	16
23361	3G1,5	6,6	43,0	87	16
23362 OZ	3x1,5	6,6	43,0	87	16
23363	4G1,5	7,2	58,0	106	16
23364 OZ	4x1,5	7,2	58,0	106	16
23365	5G1,5	8,2	72,0	131	16
23366 OZ	5x1,5	8,2	72,0	131	16
23367	7G1,5	9,8	101,0	173	16
23368 OZ	7x1,5	9,8	101,0	173	16
23369	12G1,5	12,0	173,0	293	16
23370	18G1,5	14,5	259,0	454	16
23371	25G1,5	17,8	360,0	641	16
23372	30G1,5	18,0	410,0	800	16
23373 OZ	2x2,5	7,8	48,0	110	14
23374	3G2,5	8,3	72,0	146	14
23375	4G2,5	9,2	96,0	183	14
23376	5G2,5	10,1	120,0	222	14
23377	7G2,5	12,3	168,0	293	14
23378	12G2,5	15,3	288,0	512	14
23379	4G4	11,0	154,0	291	12
23380	5G4	12,1	192,0	355	12
23381	7G4	13,3	269,0	503	12
23382	4G6	13,0	230,0	468	10
23383	5G6	14,5	288,0	570	10
23384	7G6	16,0	403,0	808	10
23385	4G10	16,9	384,0	720	8
23386	5G10	18,7	480,0	894	8
23387	7G10	20,9	672,0	1295	8
23388	4G16	19,8	614,0	1063	6



HELUKABEL PURÖ-JZ 4G4 QMM / 22174 300/500 V 001041971

CE

Technical data

- Special PUR cables adapted to DIN VDE 0245, 0281
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** for permanent $7,5 \times \text{cable } \varnothing$
- **Radiation resistance** up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- **Oil resistant** PVC core insulation T12, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special **full-polyurethane** outer jacket TMPU, to DIN VDE 0282 part 10, appendix A colour grey (RAL 7001)
- Jacket also available in other colours

Application

PURÖ-JZ is an extremely robust control cable with high abrasion and tear resistant properties. With high-grade oil resistant PVC core insulation. Due to its high resistance to mineral oils and especially to coolant emulsions, it is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas. The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to UV-radiation, oxygene, ozone and hydrolysis. Conditionally resistant to microbes.

A

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22100 OZ	2 x 0,5	4,8	9,6	45	20
22101	3 G 0,5	5,1	14,4	55	20
22102	4 G 0,5	5,7	19,0	65	20
22103	5 G 0,5	6,2	24,0	75	20
22104	7 G 0,5	7,2	33,6	90	20
22105	8 G 0,5	8,0	38,0	105	20
22106	10 G 0,5	8,8	48,0	120	20
22107	12 G 0,5	9,1	58,0	135	20
22108	14 G 0,5	9,5	67,0	170	20
22109	18 G 0,5	10,7	86,0	205	20
22110	21 G 0,5	12,0	96,0	225	20
22111	25 G 0,5	13,2	120,0	270	20
22112	30 G 0,5	13,5	144,0	315	20
22113	34 G 0,5	14,7	163,0	380	20
22114	42 G 0,5	15,8	202,0	415	20
22115	50 G 0,5	17,5	240,0	550	20
22116 OZ	2 x 0,75	5,4	14,4	44	18
22117	3 G 0,75	5,7	21,6	53	18
22118	4 G 0,75	6,2	29,0	64	18
22119	5 G 0,75	6,8	36,0	76	18
22120	7 G 0,75	8,1	50,0	96	18
22121	8 G 0,75	8,7	58,0	111	18
22122	10 G 0,75	9,6	72,0	140	18
22123	12 G 0,75	9,9	86,0	170	18
22124	14 G 0,75	10,4	101,0	202	18
22125	18 G 0,75	11,9	130,0	260	18
22126	21 G 0,75	13,3	151,0	269	18
22127	25 G 0,75	14,5	180,0	282	18
22128	30 G 0,75	15,0	216,0	400	18
22129	34 G 0,75	16,3	245,0	475	18
22130	42 G 0,75	17,7	302,0	600	18
22131	50 G 0,75	19,4	360,0	720	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
22132 OZ	2 x 1	5,7	19,0	53	17
22133	3 G 1	6,0	29,0	63	17
22134	4 G 1	6,6	38,0	75	17
22135	5 G 1	7,1	48,0	89	17
22136	7 G 1	8,6	67,0	115	17
22137	8 G 1	9,4	77,0	131	17
22138	10 G 1	10,2	96,0	166	17
22139	12 G 1	10,7	115,0	201	17
22140	14 G 1	11,5	134,0	230	17
22141	18 G 1	12,9	173,0	289	17
22142	21 G 1	14,1	196,0	306	17
22143	25 G 1	14,9	240,0	380	17
22144	32 G 1	16,7	308,0	620	17
22145	34 G 1	17,4	326,0	645	17
22146	42 G 1	18,8	403,0	730	17
22147	50 G 1	20,9	480,0	890	17
22148 OZ	2 x 1,5	6,2	29,0	68	16
22149	3 G 1,5	6,6	43,0	87	16
22150	4 G 1,5	7,2	58,0	106	16
22151	5 G 1,5	8,0	72,0	131	16
22152	7 G 1,5	9,6	101,0	173	16
22153	8 G 1,5	10,5	115,0	199	16
22154	10 G 1,5	11,4	144,0	245	16
22155	12 G 1,5	12,0	173,0	293	16
22156	14 G 1,5	12,5	202,0	347	16
22157	18 G 1,5	14,1	259,0	454	16
22158	21 G 1,5	15,0	302,0	534	16
22159	25 G 1,5	16,8	360,0	641	16
22160	30 G 1,5	18,0	410,0	800	16
22161	34 G 1,5	19,5	490,0	945	16
22162	42 G 1,5	21,1	605,0	1100	16
22163	50 G 1,5	25,4	720,0	1250	16

Continuation ►

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Please note

Cross-linked types also available on request.

HELUKABEL® PURÖ-JZ **tear and coolant resistant**



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
22164 OZ	2x2,5	7,8	48,0	110	14
22165	3G2,5	8,3	72,0	146	14
22166	4G2,5	9,2	96,0	183	14
22167	5G2,5	10,1	120,0	222	14
22168	7G2,5	12,3	168,0	293	14
22169	12G2,5	15,3	288,0	512	14
22170	18G2,5	18,2	432,0	740	14
22171	25G2,5	22,3	600,0	940	14
22172 OZ	2x4	9,6	77,0	147	12
22173	3G4	10,4	115,0	228	12
22174	4G4	11,4	154,0	291	12
22175	5G4	12,7	192,0	355	12
22176	7G4	14,0	269,0	503	12
22177	3G6	12,1	173,0	362	10
22178	4G6	13,4	230,0	468	10
22179	5G6	14,9	288,0	570	10
22180	7G6	16,5	403,0	808	10

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
22181	3G10	15,2	288,0	555	8
22182	4G10	16,9	384,0	720	8
22183	5G10	18,7	480,0	894	8
22184	7G10	20,9	672,0	1295	8
22185	4G16	19,8	614,0	1063	6
22186	5G16	22,2	768,0	1400	6
22187	7G16	29,3	1075,0	1800	6
22188	4G25	29,4	960,0	1590	4
22189	4G35	32,8	1344,0	2200	2
22190	4G50	38,9	1920,0	2400	1
22191	4G70	44,7	2688,0	4400	2/0
22192	4G95	59,6	3648,0	6000	3/0

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Cross-linked types also available on request.



Photo: FUCHS DEA SCHMIERSTOFFE GMBH & CO. KG

HELUKABEL® F-C-PURÖ-JZ EMC*-preferred type

Tear resistant, coolant-resistant, Cu screened, without inner sheath



HELUKABEL F-C-PURÖ-JZ 3G1,5 QMM / 21281 300/500 V 001041891



Technical data

- Special polyurethane-sheathed multi-core cable on the basis of E DIN VDE 0245 part 201 up to 1,5 mm², on the basis of E DIN VDE 0245 part 102 as of 2,5 mm²
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Minimum bending radius** for permanent 10x cable Ø
- **Radiation resistance** up to 100x10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance** max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Plain copper conductor, finely stranded, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- **Oil resistant** PVC core insulation T12, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Cores black with sequential numbering imprinted in white according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- **Separating foil**
- Braided screen of tinned Cu wires, coverage approx. 85%
- Fleece separator, ensure good dismantling ability
- Special **full-polyurethane** outer jacket TMPU, to DIN VDE 0282 part 10, appendix A colour grey (RAL 7001)
- Outer jacket also available in other colours

Application

Extremely robust control cable characterised by high abrasion and notch resistance properties. Used for critical areas in such applications as machinery, tooling and plant construction, in rolling mills and steel works because of the resistance to mineral oils and to coolant emulsions in particular. Rapid and safe installation assured by the good flexibility of the cable.

Suitable for outdoor installation and resistant to UV radiation, oxygen, ozone and hydrolysis. Largely resistant to microbial attack.

An interference-free transmission of signals and pulses is assured by the high screening density. The ideal interference-protected control cable for such applications as given above.

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
21200 OZ	2x0,5	5,3	29	44	20
21201	3G0,5	5,6	38	56	20
21202	4G0,5	6,2	46	60	20
21203	5G0,5	6,5	51	75	20
21205	7G0,5	7,5	68	97	20
21207	10G0,5	9,0	93	133	20
21208	12G0,5	9,2	118	158	20
21209	14G0,5	9,9	122	190	20
21211	18G0,5	10,9	155	218	20
21213	21G0,5	12,1	190	252	20
21215	25G0,5	13,3	251	315	20
21217	30G0,5	13,7	298	362	20
21220	36G0,5	15,0	320	447	20
21221	40G0,5	16,2	344	475	20
21224	50G0,5	17,8	408	572	20
21227 OZ	2x0,75	5,8	38	60	18
21228	3G0,75	6,1	50	67	18
21229	4G0,75	6,5	58	76	18
21230	5G0,75	7,1	70	92	18
21232	7G0,75	8,3	96	131	18
21234	10G0,75	10,1	141	180	18
21235	12G0,75	10,3	151	204	18
21236	14G0,75	10,7	167	226	18
21238	18G0,75	12,1	207	290	18
21240	21G0,75	13,4	246	376	18
21242	25G0,75	14,9	278	413	18
21245	32G0,75	16,0	330	485	18
21249	41G0,75	17,9	395	611	18
21251	50G0,75	19,7	480	775	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
21253 OZ	2x1	6,1	46	66	17
21254	3G1	6,3	56	82	17
21255	4G1	6,9	70	100	17
21256	5G1	7,5	89	128	17
21257	6G1	8,3	105	145	17
21258	7G1	8,9	111	157	17
21259	8G1	9,6	130	198	17
21261	10G1	10,7	143	230	17
21262	12G1	10,9	172	262	17
21263	14G1	11,6	199	302	17
21264	16G1	12,2	218	345	17
21265	18G1	13,0	248	381	17
21267	21G1	13,6	278	480	17
21268	25G1	15,9	343	535	17
21273	34G1	17,9	452	740	17
21276	41G1	19,3	510	855	17
21278	50G1	21,2	630	1027	17
21280 OZ	2x1,5	6,6	63	87	16
21281	3G1,5	6,9	76	102	16
21282	4G1,5	7,5	98	127	16
21283	5G1,5	8,4	116	159	16
21285	7G1,5	10,0	152	207	16
21286	8G1,5	10,7	172	245	16
21287	10G1,5	11,8	193	313	16
21288	12G1,5	12,1	222	340	16
21290	14G1,5	12,9	272	384	16
21291	16G1,5	13,6	285	425	16
21292	18G1,5	14,6	368	480	16
21295	21G1,5	16,2	424	563	16

Continuation ►

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further dimensions available on request.

HELUKABEL® F-C-PURÖ-JZ EMC*-preferred type

tear resistant, coolant-resistant, Cu screened, without inner sheath



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
21296	25G1,5	17,9	505	704	16
21297	34G1,5	20,0	650	870	16
21298	42G1,5	21,8	770	1040	16
21299	50G1,5	23,6	976	1292	16
21300 OZ	2x2,5	8,2	96	131	14
21301	3G2,5	8,6	147	168	14
21302	4G2,5	9,6	175	194	14
21303	5G2,5	10,6	203	222	14
21304	7G2,5	12,6	235	345	14
21305	10G2,5	15,1	335	462	14
21306	12G2,5	15,5	445	570	14
21313 OZ	2x4	10,0	136	187	12
21314	3G4	10,5	178	243	12
21315	4G4	11,7	242	310	12
21316	5G4	13,3	329	386	12
21317	7G4	14,5	357	498	12
21319	3G6	12,2	241	333	10
21320	4G6	13,6	338	414	10
21321	5G6	15,2	442	510	10
21322	7G6	15,4	505	673	10

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
	3G10				
	4G10				
	5G10				
	7G10				
	4G16				
	5G16				
	4G25				
	5G25				
	4G35				
	5G35				
	4G50				
	5G50				
	4G70				
	4G95				
	4G120				

Note
Due to mechanical stress we recommend cable with oil resistant PVC inner jacket above 10 mm², see pages A 75 f (V6-C-PURÖ-JZ).

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further dimensions available on request.

HELUKABEL® YÖ-C-PURÖ-JZ EMC*-preferred type notch-resistant, coolant-resistant, Cu screened, with inner sheath



HELUKABEL Yö-C-PURö-JZ 3G1,5 QMM / 21475 300/500 V 001041897

CE

Technical data

- Special polyurethane-sheathed multi-core cable on the basis of E DIN VDE 0245 part 202/03.92 up to 1,5 mm², on the basis of E DIN VDE 0281 part 13 as of 2,5 mm
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
as of cross section 4 mm²
U₀/U 450/750 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Minimum bending radius**
approx. 10 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance**
max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Plain copper conductor, finely stranded, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- **Oil resistant** PVC core insulation TI2, in adapted to DIN VDE 0281 part 1, for better sliding abilities
- Cores black with sequential numbering imprinted in white according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- **Oil resistant** PVC inner sheath
- Screen of tinned Cu braid, coverage approx. 85%
- Fleece separator, ensure good dismantling ability
- Special **full-polyurethane** outer jacket TPU, to DIN VDE 0282 part 10, appendix A
colour grey (RAL 7001)

Application

Extremely robust control cable characterised by high abrasion and notch resistance properties. Used for critical areas in such applications as machinery, tooling and plant construction, in rolling mills and steel works because of the resistance to mineral oils and to coolant emulsions in particular. The mechanical strength of the cable is increased by the additional oil-resistant inner sheath. The ideal interference-protected control cable for such applications as given above. Suitable for outdoor installation and resistant to UV radiation, oxygen, ozone and hydrolysis. Largely resistant to microbial attack.

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

* **EMC** = Electromagnetic compatibility
Note To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
21400 OZ	2 x 0,5	6,6	33	68	20
21401	3 G 0,5	7,1	39	84	20
21402	4 G 0,5	7,6	46	95	20
21403	5 G 0,5	8,2	52	107	20
21405	7 G 0,5	9,4	69	135	20
21407	10 G 0,5	11,2	81	170	20
21408	12 G 0,5	11,3	118	195	20
21409	14 G 0,5	11,9	121	222	20
21411	18 G 0,5	12,9	155	278	20
21413	21 G 0,5	14,7	190	330	20
21415	25 G 0,5	15,9	251	406	20
21416	30 G 0,5	16,2	298	520	20
21419	36 G 0,5	17,8	320	587	20
21420	40 G 0,5	19,1	344	655	20
21421	50 G 0,5	20,9	408	742	20
21425 OZ	2 x 0,75	7,2	40	88	18
21426	3 G 0,75	7,7	49	98	18
21427	4 G 0,75	8,2	58	112	18
21428	5 G 0,75	8,8	70	130	18
21430	7 G 0,75	10,1	87	185	18
21432	10 G 0,75	12,2	141	270	18
21433	12 G 0,75	12,3	150	294	18
21434	14 G 0,75	13,0	145	317	18
21436	18 G 0,75	14,6	206	357	18
21438	21 G 0,75	16,0	230	455	18
21440	25 G 0,75	17,8	258	510	18
21443	32 G 0,75	18,7	331	688	18
21446	41 G 0,75	21,5	406	951	18
21447	50 G 0,75	23,1	480	1100	18

G = with green-yellow earth core
X = without green-yellow earth core (OZ)
Further dimensions available on request.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
21451 OZ	2 x 1	7,7	46	98	17
21452	3 G 1	8,0	56	102	17
21453	4 G 1	8,6	70	145	17
21454	5 G 1	9,1	85	170	17
21456	7 G 1	11,0	108	220	17
21457	8 G 1	12,6	130	270	17
21458	10 G 1	12,6	137	330	17
21459	12 G 1	13,1	187	350	17
21460	14 G 1	13,8	199	402	17
21461	16 G 1	14,6	202	420	17
21462	18 G 1	15,6	240	515	17
21463	20 G 1	16,4	285	545	17
21465	25 G 1	18,9	343	690	17
21468	34 G 1	20,9	440	912	17
21469	41 G 1	22,3	523	1070	17
21470	50 G 1	24,6	625	1318	17
21474 OZ	2 x 1,5	8,2	62	130	16
21475	3 G 1,5	8,6	75	152	16
21476	4 G 1,5	9,3	95	167	16
21477	5 G 1,5	10,4	110	203	16
21479	7 G 1,5	12,0	146	305	16
21480	8 G 1,5	12,9	171	335	16
21481	10 G 1,5	14,2	192	422	16
21482	12 G 1,5	14,6	254	435	16
21483	14 G 1,5	15,4	272	480	16
21484	16 G 1,5	16,1	284	525	16
21485	18 G 1,5	17,2	366	642	16
21487	21 G 1,5	19,0	415	722	16
21489	25 G 1,5	20,8	492	803	16
21492	34 G 1,5	23,2	629	1068	16
21494	42 G 1,5	26,1	767	1370	16
21495	50 G 1,5	27,4	976	1677	16

*) **Note**
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Continuation ►

HELUKABEL® YÖ-C-PURÖ-JZ EMC*-preferred type notch-resistant, coolant-resistant, Cu screened, with inner sheath



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)	Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
21499 OZ	2x2,5	9,8	96	180	14	21516	3G10	18,2	370	750	8
21500	3G2,5	10,7	147	215	14	21517	4G10	20,3	484	1023	8
21501	4G2,5	11,4	175	268	14	21518	5G10	22,4	612	1114	8
21502	5G2,5	12,5	200	349	14	21519	7G10	24,7	822	1505	8
21503	7G2,5	14,9	234	406	14	21521	4G16	23,4	1040	1385	6
21504	12G2,5	18,4	369	720	14	21522	5G16	26,0	1393	1550	6
21507 OZ	2x4	12,0	134	300	12	21524	4G25	29,7	1312	1894	4
21508	3G4	12,6	178	340	12	21525	5G25	33,0	1840	2272	4
21509	4G4	14,2	222	408	12	21526	4G35	33,9	1612	2395	2
21510	5G4	15,6	327	504	12	21527	5G35	37,5	2016	2890	2
21511	7G4	17,1	354	640	12	21528	4G50	39,0	2218	3312	1
21512	3G6	14,8	241	453	10	21529	5G50	43,4	2772	4100	1
21513	4G6	16,1	306	560	10	21530	4G70	46,6	3092	4605	2/0
21514	5G6	18,0	440	700	10	21531	5G70	51,1	3865	5710	2/0
21515	7G6	19,6	505	905	10	21532	4G95	50,9	4063	6055	3/0
						21533	5G95	55,9	5080	7520	3/0
						21534	4G120	55,5	5154	7318	4/0

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further dimensions available on request.

HELUKABEL® JZ-600 UL/CSA

number coded, flexible 0,6/1 kV, UL/c^{UL}us approved



HELUKABEL JZ-600 4G0,5 QMM/20AWG c^{UL}us AWM STYLE 21179 80°C VW-1 CSA LL113926 AWM I/II A/B 80°C FT1 C E



HELUKABEL JZ-600 4G0,5 QMM/20AWG c^{UL}us AWM STYLE 21179 80°C VW-1 CSA LL113926 AWM I/II A/B 80°C FT1 C E

Technical data

- Special PVC control cables
- Adapted to DIN VDE 0276 part 627, DIN VDE 0281 part 13, with insulation thickness for 1 kV type and UL-Std. 758 Style 21179
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U₀/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Power rating** as per DIN VDE 0298
- **Minimum bending radius** for permanent approx. 7,5 x cable Ø
- **Radiation resistance** up to 80x10⁶ cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, as per DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581
- Black cores with white figure imprints to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Separating foil
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581, colour black (RAL 9005) or grey (RAL 7001)
- Extensively oil resistant
Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), VW1, FT1

Application

Wiring cable for measuring and controlling purposes in tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial- or as underwater cable. The cores have been numbered in such a way that the numbers are easily identifiable, even if the cable has only been stripped back a few cm. The core numbers have been underlined to avoid confusion. The earth core is located in the outer layer. The black, special PVC outer sheath is resistant to the ultra violet radiation. Mainly used in South-European, Eastern and Arabian countries.

A

C E = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No. jacket colour		No. cores x cross-sec. mm ²	AWG- No.*)	Outer ∅ ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
11815	11880	2 x 0,5	20	6,4	9,6	56
11816	11881	3 G 0,5	20	6,8	14,4	68
11817	11882	4 G 0,5	20	7,6	19,0	100
11818	11883	5 G 0,5	20	8,2	24,0	117
11819	11884	7 G 0,5	20	9,8	33,6	138
11820	11885	12 G 0,5	20	12,2	58,0	200
11821	11886	18 G 0,5	20	14,4	86,0	276
11822	11887	25 G 0,5	20	17,2	120,0	335
11823	11888	2 x 0,75	19	6,8	14,4	66
11824	11889	3 G 0,75	19	7,2	21,6	74
11825	11890	4 G 0,75	19	8,0	29,0	126
11826	11891	5 G 0,75	19	8,8	36,0	140
11827	11892	7 G 0,75	19	10,7	50,0	190
11828	11893	12 G 0,75	19	13,1	86,0	257
11829	11894	18 G 0,75	19	15,6	130,0	362
11830	11895	25 G 0,75	19	18,9	180,0	486
11831	11896	2 x 1	18	7,4	19,2	80
11832	11897	3 G 1	18	8,0	29,2	96
11833	11898	4 G 1	18	8,8	38,4	100
11834	11899	5 G 1	18	9,8	48,0	130
11835	11900	7 G 1	18	11,7	67,0	170
11836	11901	12 G 1	18	14,5	115,0	290
11837	11902	18 G 1	18	17,3	173,0	405
11838	11903	25 G 1	18	21,1	240,0	570
11839	11904	2 x 1,5	16	8,4	29,0	95
11840	11905	3 G 1,5	16	9,1	43,0	112
11841	11906	4 G 1,5	16	9,9	58,0	139
11842	11907	5 G 1,5	16	11,0	72,0	170
11843	11908	7 G 1,5	16	13,3	101,0	225
11844	11909	12 G 1,6	16	16,6	173,0	370
11845	11910	18 G 1,5	16	19,7	259,0	520
11846	11911	25 G 1,5	16	23,9	360,0	730

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

Part No. jacket colour		No. cores x cross-sec. mm²	AWG- No.①)	Outer ∅ ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
11847	11912	2x2,5	14	9,4	48,0	160
11848	11913	3x2,5	14	9,9	72,0	175
11849	11914	4G2,5	14	11,1	96,0	203
11850	11915	5G2,5	14	12,4	120,0	251
11851	11916	7G2,5	14	15,0	168,0	330
11852	11917	12G2,5	14	18,4	288,0	553
11853	11918	18G2,5	14	22,0	432,0	795
11854	11919	25G2,5	14	26,9	600,0	1110
11855	11920	2x4	12	11,4	77,0	180
11856	11921	3G4	12	12,3	115,0	230
11857	11922	4G4	12	13,8	154,0	310
11858	11923	5G4	12	15,3	192,0	410
11859	11924	7G4	12	16,8	269,0	540
11860	11925	12G4	12	22,9	461,0	860
11861	11926	3G6	10	14,1	173,0	370
11862	11927	4G6	10	15,6	230,0	430
11863	11928	5G6	10	17,3	288,0	650
11864	11929	7G6	10	19,3	403,0	860
11865	11930	3G10	8	16,5	288,0	660
11866	11931	4G10	8	18,4	384,0	790
11867	11932	5G10	8	20,5	480,0	960
11868	11933	7G10	8	22,5	672,0	1300
11869	11934	3G16	6	19,6	288,0	660
11870	11935	4G16	6	21,7	614,0	1100
11871	11936	5G16	6	24,2	768,0	1600
11872	11937	7G16	6	25,7	1075,0	1890
11873	11938	3G25	4	24,0	720,0	1450
11874	11939	4G25	4	26,9	960,0	1600
11875	11940	5G25	4	29,3	1200,0	2050
11876	11941	7G25	4	32,6	1680,0	2900

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® JZ-600-Y-CY UL/CSA EMC*-preferred type

0,6/1 kV, flexible, numbered, Cu screened, UL/CSA approved



HELUKABEL JZ-600-Y-CY 4G0,5 QMM/20AWG cULus AWM STYLE 21179 80°C VW-1 CSA LL113926 AWM VII A/B 80° FT 1 C E



HELUKABEL JZ-600-Y-CY 4G0,5 QMM/20AWG cULus AWM STYLE 21179 80°C VW-1 CSA LL113926 AWM VII A/B 80° FT 1 C E

Technical data

- Special PVC control cables
- Adapted to DIN VDE 0276 part 627, DIN VDE 0281 part 13, with insulation thickness for 1 kV type and UL-Std. 758 Style 21179
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +90°C
- **Nominal voltage** U_0/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Power rating** according to DIN VDE 0298
- **Minimum bending radius**
for permanent approx. 10 x cable Ø
- **Radiation resistance**
up to 80×10^6 cJ/kg (up to 80 Mrad)
- **Resistant to ultra violet rays**
- **Coupling resistance**
max. 250 Ohm/km
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

G = with green-yellow earth core

X = without green-yellow earth core (OZ)

PVC cables will be changed to lead free PVC successively.

Cable structure

- Bare copper, fine wire conductors, according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581
- Black cores with sequential numbering imprinted in white, according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PVC-insulated inner sheath TM2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581
- Braided screen of tinned Cu wires, coverage approx. 85%
- Special PVC outer sheath TM2, to DIN VDE 0281 part 1 class 43 UL-Std. 1581, colour black (RAL 9005) or grey (RAL 7001)
- Extensively oil resistant. Chemical Resistance – see table Techn. Inform.
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B), VW1, FT1

* Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

Application

Wiring cable for measuring and controlling purposes in tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside (fixed installation). Is not suitable to be used as direct burial- or as underwater cable. The cores have been numbered in such a way that the numbers are easily identifiable, even if the cable has only been stripped back a few cm. The black, special PVC outer sheath is resistant to the ultra violet radiation. Mainly used in South-European, Eastern and Arabian countries. Interference-free transmission of signals and pulses is assured by the high degree of screening.

* EMC = Electromagnetic compatibility

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

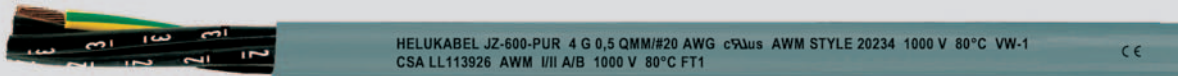
CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No. jacket colour		No. cores x cross-sec. mm²	AWG- No.*)	Outer ∅ ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
12345	12410	2x0,5	20	8,3	25,9	129
12346	12411	3G0,5	20	8,6	38,9	150
12347	12412	4G0,5	20	9,4	51,3	170
12348	12413	5G0,5	20	10,1	64,9	199
12349	12414	7G0,5	20	12,1	94,1	235
12350	12415	12G0,5	20	14,7	168,2	320
12351	12416	18G0,5	20	17,3	266,5	428
12352	12417	25G0,5	20	20,6	372,0	503
12353	12418	2x0,75	19	8,7	39,0	143
12354	12419	3G0,75	19	9,0	58,3	155
12355	12420	4G0,75	19	9,9	78,3	190
12356	12421	5G0,75	19	10,8	97,2	228
12357	12422	7G0,75	19	13,0	135,0	323
12358	12423	12G0,75	19	15,8	249,0	410
12359	12424	18G0,75	19	17,9	357,0	560
12360	12425	25G0,75	19	22,8	458,0	730
12361	12426	2x1	18	9,4	51,8	150
12362	12427	3G1	18	9,8	78,3	163
12363	12428	4G1	18	10,8	103,7	200
12364	12429	5G1	18	12,1	129,6	239
12365	12430	7G1	18	14,5	187,6	289
12366	12431	12G1	18	17,4	333,5	464
12367	12432	18G1	18	20,7	501,7	628
12368	12433	25G1	18	24,8	644,0	855
12369	12434	2x1,5	16	10,2	78,3	162
12370	12435	3G1,5	16	10,9	116,1	187
12371	12436	4G1,5	16	12,2	156,6	240
12372	12437	5G1,5	16	13,3	194,4	289
12373	12438	7G1,5	16	16,0	282,8	383
12374	12439	12G1,5	16	19,6	501,7	592
12375	12440	18G1,5	16	23,4	751,1	806
12376	12441	25G1,5	16	28,2	1016,0	1241

Part No. Jacket colour	No. cores x cross-sec. mm ²	AWG- No.†)	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km	
black	grey					
12377	12442	2x2,5	14	11,5	129,6	272
12378	12443	3G2,5	14	12,2	194,4	298
12379	12444	4G2,5	14	13,4	259,2	345
12380	12445	5G2,5	14	14,9	324,0	427
12381	12446	7G2,5	14	17,9	470,4	561
12382	12447	12G2,5	14	21,9	777,6	857
12383	12448	18G2,5	14	26,1	1152,8	1355
12384	12449	25G2,5	14	31,9	1760,0	1995
12385	12450	2x4	12	14,3	208,0	306
12386	12451	3G4	12	15,1	310,5	391
12387	12452	4G4	12	16,7	415,8	527
12388	12453	5G4	12	18,6	518,4	700
12389	12454	7G4	12	20,0	726,3	920
12390	12455	3G6	10	17,0	467,1	629
12391	12456	4G6	10	18,7	621,0	731
12392	12457	5G6	10	20,7	777,6	1105
12393	12458	7G6	10	23,0	1028,2	1465
12394	12459	3G10	8	19,6	806,4	1125
12395	12460	4G10	8	21,9	1036,8	1345
12396	12461	5G10	8	24,1	1296,0	1635
12397	12462	7G10	8	26,8	1714,4	2210
12398	12463	3G16	6	23,5	1244,7	1395
12399	12464	4G16	6	26,4	1657,8	1870
12400	12465	5G16	6	28,8	2073,6	2720
12401	12466	7G16	6	31,9	2902,5	3213
12402	12467	3G25	4	28,0	1944,0	2465
12403	12468	4G25	4	32,5	2592,0	2750
12404	12469	5G25	4	35,7	3240,0	3490
12405	12470	7G25	4	39,0	4536,0	4980

HELUKABEL® JZ-600-PUR

UL/cULus approved, wear resistant, coolant resistant 0,6/1 kV



Technical data

- Special PUR control cables
- Adapted to DIN VDE 0276 part 627, DIN VDE 0281 part 13, with insulation thickness for 1 kV type and UL-Std. 758 Style 20234
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance** min. 20 MOhm x km
- **Power rating** as per DIN VDE 0298
- **Minimum bending radius** for permanent approx. 7,5 x cable Ø
- **Radiation resistance** up to 100×10^6 cJ/kg (up to 100 Mrad)

Features

- High abrasion resistant
- High flexibility
- Resistant to ultra violet rays
- Wear resistant

Cable structure

- Bare copper, fine wire conductors, as per DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581 UL-Style 10012
- Black cores with white figure imprints to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Outer jacket, special full-polyurethane adapted to DIN VDE 0282 part 10, appendix A, flame retardant to UL-Std. 758 colour black (RAL 9005) or grey (RAL 7001)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Application

Extremely robust, control cable resistant to mineral oils and to coolant emulsions. In tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside. Interesting for the export-oriented machinery plants.

A

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	Jacket colour	No. cores x cross-sec. mm²	AWG-No.¹)	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
28240	28305	2 x 0,5	20	6,9	9,6	60
28241	28306	3 G 0,5	20	7,3	14,4	70
28242	28307	4 G 0,5	20	7,9	19,0	104
28243	28308	5 G 0,5	20	8,5	24,0	120
28244	28309	7 G 0,5	20	9,9	33,6	141
28245	28310	12 G 0,5	20	12,2	58,0	208
28246	28311	18 G 0,5	20	14,4	86,0	289
28247	28312	25 G 0,5	20	17,2	120,0	342
28248	28313	2 x 0,75	19	7,3	14,4	70
28249	28314	3 G 0,75	19	7,7	21,6	78
28250	28315	4 G 0,75	19	8,3	29,0	134
28251	28316	5 G 0,75	19	9,1	36,0	149
28252	28317	7 G 0,75	19	10,7	50,0	201
28253	28318	12 G 0,75	19	13,1	86,0	269
28254	28319	18 G 0,75	19	15,6	130,0	378
28255	28320	25 G 0,75	19	18,9	180,0	498
28256	28321	2 x 1	18	7,9	19,2	86
28257	28322	3 G 1	18	8,3	29,0	100
28258	28323	4 G 1	18	9,1	38,4	107
28259	28324	5 G 1	18	9,9	48,0	130
28260	28325	7 G 1	18	11,7	67,0	174
28261	28326	12 G 1	18	14,5	115,0	290
28262	28327	18 G 1	18	17,3	173,0	405
28263	28328	25 G 1	18	21,1	240,0	570
28264	28329	2 x 1,5	16	8,7	29,0	97
28265	28330	3 G 1,5	16	9,2	43,0	118
28266	28331	4 G 1,5	16	10,0	58,0	141
28267	28332	5 G 1,5	16	11,0	72,0	181
28268	28333	7 G 1,5	16	13,3	101,0	234
28269	28334	12 G 1,5	16	16,6	173,0	370
28270	28335	18 G 1,5	16	19,7	259,0	520
28271	28336	25 G 1,5	16	23,9	360,0	730

Part No.	Jacket colour	No. cores x cross-sec. mm²	AWG-No.¹)	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
28272	28337	2 x 2,5	14	9,5	48,0	170
28273	28338	3 G 2,5	14	10,0	72,0	181
28274	28339	4 G 2,5	14	11,1	96,0	203
28275	28340	5 G 2,5	14	12,4	120,0	251
28276	28341	7 G 2,5	14	15,0	168,0	330
28277	28342	12 G 2,5	14	18,4	288,0	553
28278	28343	18 G 2,5	14	22,0	432,0	795
28279	28344	25 G 2,5	14	26,9	600,0	1110
28280	28345	2 x 4	12	11,4	77,0	190
28281	28346	3 G 4	12	12,3	115,0	235
28282	28347	4 G 4	12	13,8	154,0	310
28283	28348	5 G 4	12	15,3	192,0	410
28284	28349	7 G 4	12	16,8	269,0	540
28285	28350	12 G 4	12	22,9	461,0	860
28286	28351	3 G 6	10	14,1	173,0	370
28287	28352	4 G 6	10	15,6	230,0	430
28288	28353	5 G 6	10	17,3	288,0	650
28289	28354	7 G 6	10	19,3	403,0	860
28290	28355	3 G 10	8	16,5	288,0	660
28291	28356	4 G 10	8	18,4	384,0	790
28292	28357	5 G 10	8	20,5	480,0	960
28293	28358	7 G 10	8	22,5	672,0	1300
28294	28359	3 G 16	6	19,6	461,0	709
28295	28360	4 G 16	6	21,7	614,0	1114
28296	28361	5 G 16	6	24,2	768,0	1620
28297	28362	7 G 16	6	25,8	1075,0	1900
28298	28363	3 G 25	4	24,0	720,0	1450
28299	28364	4 G 25	4	26,9	960,0	1600
28300	28365	5 G 25	4	29,3	1200,0	2050
28301	28366	7 G 25	4	32,6	1680,0	2900

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core



HELUKABEL JZ-600-YC-PUR 4 G 0,5 QMM cULus AWM STYLE 20234 1000 V 80°C VW-1
CSA LL113926 AWM I/II A/B 1000 V 80°C FT1

CE



HELUKABEL JZ-600-YC-PUR 4 G 0,5 QMM cULus AWM STYLE 20234 1000 V 80°C VW-1
CSA LL113926 AWM I/II A/B 1000 V 80°C FT1

CE

Technical data

- Special PUR control cables
- Adapted to DIN VDE 0276 part 627, DIN VDE 0281 part 13, with insulation thickness for 1 kV type and UL-Std. 758 Style 20234
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U_0/U 0,6/1 kV
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Power rating**
as per DIN VDE 0298
- **Minimum bending radius**
for permanent approx. 10 x cable Ø
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Features

- High abrasion resistant
- High flexibility
- Resistant to ultra violet rays
- Wear resistant

Cable structure

- Bare copper, fine wire conductors, as per DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1, class 43 UL-Std. 1581 UL-Style 10012
- Black cores with white figure imprints to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Oil resistant PVC inner jacket, TM5 to DIN VDE 0281 part 1 and class 43 gem. UL-Std. 1581
- Tinned copper braided screening, approx. 85% coverage
- Outer jacket, special full-polyurethane adapted to DIN VDE 0282 part 10, appendix A, flame retardant to UL-Std. 758
colour black (RAL 9005) or grey (RAL 7001)

Application

Extremely robust, control cable resistant to mineral oils and to coolant emulsions. In tool machinery, conveyor belts and production lines, for plant installations, air conditioning and in steel production plants and rolling mills. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside.
Interesting for the export-oriented machinery plants.

* **EMC** = Electromagnetic compatibility

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

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

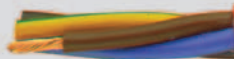
Part No. jacket colour		No. cores x cross-sec. mm²	AWG- No.*)	Outer ∅ ca. mm	Cop. weight kg/km	Weight ca. kg/km
black	grey					
28370	28430	2 x 0,5	20	9,0	25,9	131
28371	28431	3 G 0,5	20	9,3	38,9	154
28372	28432	4 G 0,5	20	9,9	51,3	176
28373	28433	5 G 0,5	20	10,6	64,9	204
28374	28434	7 G 0,5	20	12,2	94,1	237
28375	28435	12 G 0,5	20	14,7	168,2	323
28376	28436	18 G 0,5	20	17,3	266,5	431
28377	28437	25 G 0,5	20	20,6	372,0	507
28378	28438	2 x 0,75	19	9,4	39,0	143
28379	28439	3 G 0,75	19	9,8	58,3	158
28380	28440	4 G 0,75	19	10,4	78,3	193
28381	28441	5 G 0,75	19	11,1	97,2	231
28382	28442	7 G 0,75	19	13,0	135,0	337
28383	28443	12 G 0,75	19	15,8	249,0	424
28384	28444	18 G 0,75	19	17,9	357,0	568
28385	28445	25 G 0,75	19	22,8	458,0	741
28386	28446	2 x 1	18	9,9	51,8	158
28387	28447	3 G 1	18	10,3	78,3	169
28388	28448	4 G 1	18	11,1	103,7	207
28389	28449	5 G 1	18	12,2	129,6	244
28390	28450	7 G 1	18	14,5	187,6	292
28391	28451	12 G 1	18	17,4	333,5	472
28392	28452	18 G 1	18	20,7	501,7	634
28393	28453	25 G 1	18	24,8	644,0	861
28394	28454	2 x 1,5	16	10,7	78,3	166
28395	28455	3 G 1,5	16	11,2	116,1	192
28396	28456	4 G 1,5	16	12,3	156,6	246
28397	28457	5 G 1,5	16	13,3	194,4	294
28398	28458	7 G 1,5	16	16,0	282,2	392
28399	28459	12 G 1,5	16	19,6	501,7	599
28400	28460	18 G 1,5	16	23,4	751,1	817
28401	28461	25 G 1,5	16	28,2	1016,0	1261

G = with green-yellow earth core
X = without green-yellow earth core

Part No. jacket colour	No. cores x cross-sec. mm²	AWG- No.¹)	Outer ∅ ca. mm	Cop. weight kg/km	Weight ca. kg/km	
black	grey					
28402	28462	2 x 2,5	14	11,8	129,6	280
28403	28463	3 G 2,5	14	12,3	194,4	301
28404	28464	4 G 2,5	14	13,4	259,2	352
28405	28465	5 G 2,5	14	14,9	324,0	433
28406	28466	7 G 2,5	14	17,9	470,4	569
28407	28467	12 G 2,5	14	21,9	777,6	864
28408	28468	18 G 2,5	14	26,1	1152,8	1365
28409	28469	25 G 2,5	14	31,9	1760,0	1997
28410	28470	2 x 4	12	14,3	208,0	310
28411	28471	3 G 4	12	15,1	310,5	396
28412	28472	4 G 4	12	16,7	415,8	531
28413	28473	5 G 4	12	18,6	518,4	704
28414	28474	7 G 4	12	20,0	726,3	932
28415	28475	3 G 6	10	17,0	467,1	633
28416	28476	4 G 6	10	18,7	621,0	742
28417	28477	5 G 6	10	20,7	777,6	1117
28418	28478	3 G 10	8	19,6	806,4	1131
28419	28479	4 G 10	8	21,9	1036,8	1357
28420	28480	5 G 10	8	24,1	1296,0	1646
28421	28481	3 G 16	6	23,5	1244,7	1397
28422	28482	4 G 16	6	26,4	1657,8	1880
28423	28483	5 G 16	6	28,8	2073,6	2721

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.



HELUKABEL PUR-750 3G2,5 QMM / 49733 450/750 V 001041930

CE

Technical data

- Special PUR cables in adapted to DIN VDE 0282 part 10
- **Temperature range**
–40°C to +80°C
(up to +100°C for short periods)
- **Nominal voltage**
U₀/U 300/500 V up to 1 mm²
U₀/U 450/750 V as of 1,5 mm²
- **Test voltage**
2000 V up to 1 mm²
2500 V as of 1,5 mm²
- **Insulation resistance**
min. 20 MOhm x km
- **Tensile strength** 20 N/mm² (Cu)
- **Minimum bending radius**
flexing 10 x cable Ø
fixed installation 5 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ CJ/kg (up to 100 Mrad)

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- PUR core insulation
- Colour coded to DIN VDE 0293 and as of 6 cores number coded
- For two cores: brown, blue
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PUR outer jacket, orange (RAL 2004) halogen-free

Features

- High flexibility at low temperature
- Usable for foodstuffs
- High abrasion resistance

Application

Especially suited for installation in all areas demanding good performance under extreme conditions. These cable types have been successfully in use in areas such as steel works, heating and air-conditioning systems, in machinery and industrial plant equipment and on building sites etc.

Resistant to

- Oils and fats
- Non-alcoholic fuels and kerosene
- Atmospheric influences
- UV-radiation
- Oxygene and ozone
- Microbes and rotting
- Sea and waste water
- Vibrations

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
49700	2x0,75	6,3	15	44	18
49701	3G0,75	6,8	22	55	18
49702	4G0,75	7,4	29	70	18
49703	5G0,75	8,3	36	91	18
49704	7G0,75	9,7	50	130	18
49705	12G0,75	12,1	86	192	18
49706	18G0,75	14,2	130	290	18
49707	25G0,75	17,8	180	405	18
49708	2x1	6,8	20	50	17
49709	3G1	7,2	29	65	17
49710	4G1	7,8	38	87	17
49711	5G1	8,7	48	106	17
49712	6G1	9,5	58	135	17
49713	7G1	10,2	67	160	17
49714	8G1	11,2	77	185	17
49715	10G1	12,6	96	210	17
49716	12G1	12,8	115	240	17
49717	16G1	14,3	154	310	17
49718	18G1	15,3	173	353	17
49719	20G1	16,2	192	390	17
49720	25G1	18,8	240	495	17
49721	2x1,5	8,2	29	70	16
49722	3G1,5	8,7	43	95	16
49723	4G1,5	9,7	58	120	16
49724	5G1,5	10,6	72	164	16
49725	7G1,5	12,8	101	210	16
49726	10G1,5	15,5	150	290	16
49727	12G1,5	15,8	172	340	16
49728	16G1,5	17,9	230	440	16
49729	18G1,5	19,0	259	508	16
49730	20G1,5	20,0	300	560	16
49731	25G1,5	23,5	360	722	16
49732 OZ	2x2,5	9,8	48	110	14
49733	3G2,5	10,5	72	150	14
49734	4G2,5	11,6	96	180	14
49735	5G2,5	13,0	120	240	14

G = with green-yellow earth core
X = without green-yellow earth core

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
49736	7G2,5	15,5	168	340	14
49737	12G2,5	19,3	288	520	14
49738	16G2,5	21,6	394	680	14
49739	18G2,5	23,0	432	778	14
49740	20G2,5	24,4	480	860	14
49741	25G2,5	28,5	600	1083	14
49742	3G4	12,2	115	220	12
49743	4G4	13,4	154	280	12
49744	5G4	15,1	192	350	12
49745	7G4	18,2	269	470	12
49746	4G6	15,8	230	400	10
49747	5G6	17,5	288	500	10
49748	7G6	21,0	403	700	10
49749	4G10	20,6	384	640	8
49750	5G10	22,7	480	800	8
49751	7G10	26,6	672	1180	8
49752	4G16	23,6	614	920	6
49753	5G16	26,2	768	1180	6
49754	4G25	29,4	960	1400	4
49755	5G25	32,7	1200	1740	4
49756	4G35	33,1	1344	1870	2
49757	5G35	36,8	1680	2320	2
49758	4G50	38,4	1920	2700	1
49759	5G50	43,0	2400	3300	1
49760	4G70	44,0	2688	3700	2/0
49761	5G70	49,5	3660	4900	2/0
49762	5G95	57,5	4560	6000	3/0
49763	4G120	55,0	4610	6005	4/0

*) Note: AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.



HELUKABEL PUR-ORANGE-JZ 3G1 QMM / 22007 300/500 V 001042011

CE



HELUKABEL PUR-ORANGE-JB 5G1,5 QMM / 22261 300/500 V 001042001

CE

Technical data

- Special PVC/PUR control cable, adapted to DIN VDE 0281, 0282
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +90°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Insulation resistance** min. 20 MΩm x km
- **Minimum bending radius** flexing 7,5 x cable Ø
- **Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Features

- High flexibility at low temperature
- High abrasion resistance
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Cores colour identification: cores with number or colour coded to DIN VDE 0293
- For 2-cores cable without green-yellow earth core, core colours brown, blue
 - black cores with continuous white figure imprint with green-yellow earth core (up to 7 cores) or
 - cores colour coded with green-yellow earth core (up to 5 cores)
- Cores stranded in layers with optimal lay-length
- PVC-inner-sheath guarantees easy cable stripping
- PUR-outer jacket TPU, to DIN VDE 0282 part 10, appendix A
- Colour orange (RAL 2003)

Application

Robust control cable with an outstanding resistance to oil and abrasion. Suitable for use in tool making and machine industries, steel works, on building sites and in the oil and coal industries. The cable can also be used for portable tools etc. To be recommended if the cable comes into contact with chemical agents.

Resistant to

- Oils and fats
- Non-alcoholic fuels and kerosene
- Atmospheric influences
- UV-radiation
- Oxygene and ozone
- Microbes and rotting
- Sea and waste water
- Vibrations

* Note

AWG sizes are approximate equivalent values. The actual cross-section is in mm² – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

PUR-jacket orange, cores numbered OZ/JZ

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
22001 OZ	2x0,75	6,4	14,4	50	18
22002 JZ	3G0,75	6,8	21,6	70	18
22003 JZ	4G0,75	7,3	28,8	80	18
22004 JZ	5G0,75	8,2	36,0	100	18
22005 JZ	7G0,75	9,2	50,0	140	18
22006 OZ	2x1	7,2	19,2	63	17
22007 JZ	3G1	7,6	29,0	76	17
22008 JZ	4G1	8,0	38,0	95	17
22009 JZ	5G1	8,8	48,0	120	17
22010 JZ	7G1	10,0	67,0	170	17
22015 OZ	2x1,5	7,8	29,0	80	16
22016 JZ	3G1,5	8,3	43,0	105	16
22017 JZ	4G1,5	9,0	58,0	135	16
22018 JZ	5G1,5	9,7	72,0	158	16
22019 JZ	7G1,5	11,2	101,0	221	16
22025 OZ	2x2,5	9,2	48,0	150	14
22026 JZ	3G2,5	9,6	72,0	173	14
22027 JZ	4G2,5	11,0	96,0	203	14
22028 JZ	5G2,5	12,0	120,0	253	14
22029 JZ	7G2,5	13,7	168,0	356	14
22033 JZ	3G4	11,8	115,0	250	12
22034 JZ	4G4	13,2	154,0	300	12
22035 JZ	5G4	14,8	192,0	370	12
22036 JZ	7G4	16,4	269,0	500	12
22037 JZ	4G6	15,4	230,0	480	10
22038 JZ	5G6	17,0	288,0	583	10
22039 JZ	7G6	20,8	403,0	780	10
22040 JZ	4G10	20,8	384,0	740	8
22041 JZ	5G10	22,6	480,0	920	8
22042 JZ	4G16	23,0	614,0	1100	6
22043 JZ	5G16	27,4	768,0	1400	6

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further dimensions available on request.

PUR-jacket orange OB/JB, cores colour coded to DIN VDE 0293

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
22250 OB	2x0,75	6,4	14,4	50	18
22251 JB	3G0,75	6,8	21,6	70	18
22252 JB	4G0,75	7,3	28,8	80	18
22253 JB	5G0,75	8,2	36,0	100	18
22254 OB	2x1	7,2	19,2	63	17
22255 JB	3G1	7,6	29,0	76	17
22256 JB	4G1	8,0	38,0	95	17
22257 JB	5G1	8,8	48,0	120	17
22258 OB	2x1,5	7,8	29,0	80	16
22259 JB	3G1,5	8,3	43,0	105	16
22260 JB	4G1,5	9,0	58,0	135	16
22261 JB	5G1,5	9,7	72,0	158	16
22262 OB	2x2,5	9,2	48,0	150	14
22263 JB	3G2,5	9,6	72,0	173	14
22264 JB	4G2,5	11,0	96,0	203	14
22265 JB	5G2,5	12,0	120,0	253	14
22266 JB	4G4	13,2	154,0	300	12
22267 JB	5G4	14,8	192,0	370	12
22268 JB	4G6	15,4	230,0	480	10
22269 JB	5G6	17,0	288,0	583	10
22270 JB	4G10	20,8	384,0	740	8
22271 JB	5G10	22,6	480,0	920	8
22272 JB	4G16	23,0	614,0	1100	6
22273 JB	5G16	27,4	768,0	1400	6
22044 JB	4G25	30,0	960,0	1600	4
22045 JB	5G25	32,2	1200,0	2000	4
22046 JB	4G35	33,0	1344,0	2100	2

G = with green-yellow earth core
X = without green-yellow earth core (OB)



Technical data

- Special PVC/PUR cable adapted to DIN VDE 0281, 0282
- **Temperature range**
 - flexing – 5°C to +80°C
 - fixed installation –40°C to +90°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Breakdown voltage** min. 6000 V
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** 7,5 x cable $\varnothing$
- **Radiation resistance** up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Features

- High flexibility at low temperatures
- High abrasion resistance
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

Jacket-version

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Core identification to DIN VDE 0293
 - up to 5 cores, colour coded
 - as of 7 cores, cores number 1 to 6
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- PVC inner sheath guarantees easy cable stripping, PUR-outer jacket, TMPU, to DIN VDE 0282 part 10, appendix A, colour yellow (RAL 1021)
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

Robust control cable with an outstanding resistance to oil and abrasion. Suitable for use in tool making and machine industries, steel works, on building sites and in the oil and coal industries. The cable can also be used for portable tools. etc. To be recommended if the cable comes into contact with chemical agents.

Resistant to

- Oils and fats
- Non-alcoholic fuels and kerosene
- Atmospheric influences
- UV-radiation
- Oxygene and ozone
- Microbes and rotting
- Sea and waste water
- Vibrations

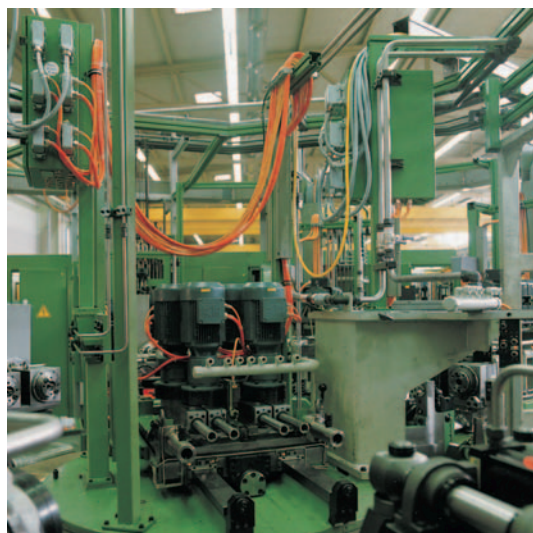
CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

PUR-outer jacket yellow

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
22200 OB	2 x 0,75	6,4	14,4	50	18
22201 JB	3 G 0,75	6,8	21,6	70	18
22202 JB	4 G 0,75	7,3	28,8	80	18
22203 JB	5 G 0,75	8,2	36,0	100	18
22204 JZ	7 G 0,75	9,2	50,0	140	18
22205 OB	2 x 1	7,2	19,2	63	17
22206 JB	3 G 1	7,6	29,0	76	17
22207 JB	4 G 1	8,0	38,0	95	17
22208 JB	5 G 1	8,8	48,0	120	17
22209 JZ	7 G 1	10,0	67,0	170	17
22210 OB	2 x 1,5	7,8	29,0	80	16
22211 JB	3 G 1,5	8,3	43,0	105	16
22212 JB	4 G 1,5	9,0	58,0	135	16

PUR-outer jacket yellow

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
22220 JZ	4 G 1,5	9,0	58,0	135	16
22213 JB	5 G 1,5	9,7	72,0	158	16
22214 JZ	7 G 1,5	11,2	101,0	221	16
22215 OB	2 x 2,5	9,2	48,0	150	14
22216 JB	3 G 2,5	9,6	72,0	173	14
22217 JB	4 G 2,5	11,0	96,0	203	14
22218 JB	5 G 2,5	12,0	120,0	253	14
22219 JZ	7 G 2,5	13,7	168,0	356	14
22221 JB	4 G 4	14,6	153,6	310	12
22222 JB	5 G 4	14,8	192,0	370	12
22233 JB	4 G 35	33,0	1344,0	2100	2



Works photo: Hüller Hille GmbH

Furthermore possible

Individual customer print starting with a minimum order quantity of 500 m. Additional charges for print tools will arise. Please ask our purchase department for information.

*) Note

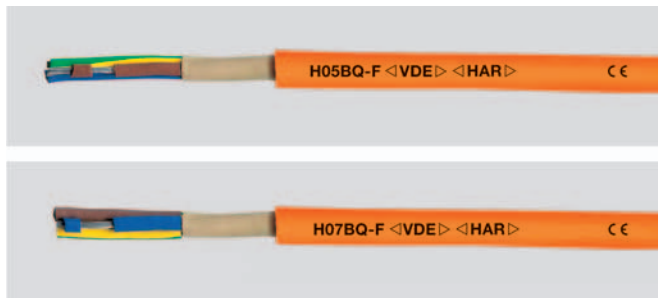
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OB)

Further jacket colours e.g. black, green etc. on request.

H05BQ-F and H07BQ-F* (NGMH11Yö)

EPR-insulated power cables with PUR jacket ◁ HAR ▷



Technical data

- EPR/PUR-insulated power cable according to DIN VDE 0282 part 10 and HD 22.10 S1
- **Temperature range**
flexing –35°C to +80°C
fixed installation –45°C to +90°C
- Permissible **operating temperature** at conductor +90°C
- **Nominal voltage a.c., 50 Hz**
H05BQ-F: U_0/U 300/500 V up to 1 mm²
H07BQ-F: U_0/U 450/750 V as of 1,5 mm²
- **Test voltage**
H05BQ-F: 2000 V up to 1 mm²
H07BQ-F: 2500 V as of 1,5 mm²
- **Minimum bending radius**
for free movement approx. 5 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Features

- Abrasion resistant
- Notch resistant
- Resistant to tearing and cutting
- Good flexibility at low temperatures down to –40°C

Cable structure

- Plain or tinned copper conductor, stranded according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and HD 383 cl. 5
- Insulating jacket of rubber, compound El6 according to DIN VDE 0282 part 1
- Core identification according to DIN VDE 0293
- Green-yellow earth core in the outer layer
- Cores stranded in layers with optimal lay-length
- (inner protection sheath permissible)
- PUR-insulated outer jacket TPU, to DIN VDE 0282 part 10, appendix A colour orange (RAL 2003) minimum imprinted designation BQ
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Application

These cables can be used for medium mechanical loads in dry, damp or wet environments, e.g. for connecting agricultural and commercial equipment and heaters provided there is no danger of contact with the hot parts or by radiation of heat.

These robust and flexible cables are used for electrical tools such as drills and hand-held circular saws, as well as for portable motors and machinery in agriculture, at building sites, docks and refrigeration plants.

Resistant to

- Oils and fats
- Petrol
- Water and weathering effects
- Ozone and oxygen
- UV-radiation
- Hydrolysis
- Microbial attack

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

H05BQ-F

Part No.	No. cores x cross-sec mm ²	Outer Ø ca. mm min. – max.	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
22050	2 x 0,75	5,7 – 7,4	14,4	52	18
22051	3 G 0,75	6,2 – 8,1	21,6	63	18
22052	4 G 0,75	6,8 – 8,8	29,0	80	18
22053	5 G 0,75	7,6 – 9,9	36,0	96	18
22054	2 x 1	6,1 – 8,0	19,2	59	17
22055	3 G 1	6,5 – 8,5	29,0	71	17
22056	4 G 1	7,1 – 9,3	38,4	89	17
22057	5 G 1	8,0 – 10,3	48,0	112	17

H07BQ-F

Part No.	No. cores x cross-sec mm ²	Outer Ø ca. mm min. – max.	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
22058	2 x 1,5	7,6 – 9,8	29,0	92	16
22064	2 x 2,5	9,0 – 11,6	48,0	121	14
22072	2 x 4	10,6 – 13,7	77,0	194	12
22073	2 x 6	11,8 – 15,1	115,0	311	10
22074	2 x 10	15,6 – 19,9	192,0	428	8
22075	2 x 16	17,9 – 22,8	307,0	600	6
22059	3 G 1,5	8,0 – 10,4	43,0	109	16
22065	3 G 2,5	9,6 – 12,4	72,0	164	14
22068	3 G 4	11,3 – 14,5	115,0	224	12
22070	3 G 6	12,8 – 16,3	173,0	310	10
22076	3 G 10	16,8 – 21,4	288,0	640	8
22077	3 G 16	19,5 – 24,7	461,0	758	6
22060	4 G 1,5	9,0 – 11,6	58,0	145	16
22066	4 G 2,5	10,7 – 13,8	96,0	207	14
22069	4 G 4	12,7 – 16,2	154,0	327	12
22071	4 G 6	14,2 – 18,1	230,0	496	10
22078	4 G 10	18,6 – 23,6	384,0	738	8
22079	4 G 16	21,3 – 27,0	614,0	1187	6
22061	5 G 1,5	9,8 – 12,7	72,0	169	16
22067	5 G 2,5	11,9 – 15,3	120,0	262	14
22080	5 G 4	14,1 – 17,9	192,0	415	12
22081	5 G 6	15,7 – 20,0	288,0	586	10
22082	5 G 10	20,4 – 25,9	480,0	968	8
22083	5 G 16	23,7 – 30,0	768,0	1475	6
22062	7 G 1,5**	13,0 – 17,0	101,0	230	16
22063	12 G 1,5**	17,0 – 20,0	173,0	398	16

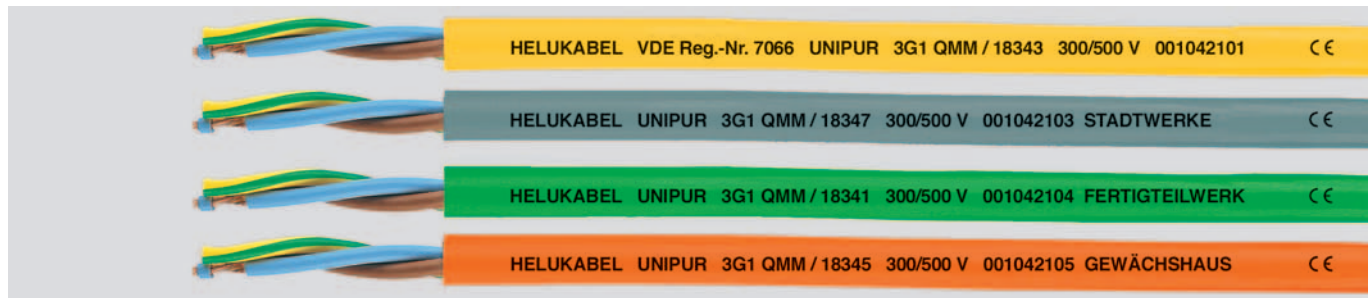
*†) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core

* These harmonized types H05BQ-F and H07BQ-F replace the VDE-standardised types NGMH11Yö.

** The sizes are not contained in VDE, adapted to VDE, (H) 07BQ-F.



Technical data

- Spezial TPE/PUR connecting cable adapted to DIN VDE 0282 part 10
- **Temperature range**
flexing -40°C to $+90^{\circ}\text{C}$
- **Nominal voltage**
up to 1 mm^2 U_0/U 300/500 V
above $1,5\text{ mm}^2$ U_0/U 450/750 V
- **Test voltage** 3000 V
- **Minimum bending radius**
10x cable $\varnothing$
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)

Features

- Abrasion resistant
- Notch resistant
- Resistant to tearing and cutting
- Good flexibility at low temperatures down to -40°C
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductions bunch stranded according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of thermoplastic olefin-elastomere (TPE-O)
- Core colours according DIN VDE 0293
 - up to 5 cores one-coloured
 - 6 and more cores, black with numbering
 - 3 and above, with green-yellow earth core
 - 2 cores without green-yellow earth core
- Cores stranded in layers with optimal lay-length
- PUR outer sheath TPU in adapted to DIN VDE 0282 part 10 appendix A
- Jacket colour by request
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These robust and flexible cables are used for electrical tools such as drills, hand-held circular saws, and garden equipment as well as for portable motors and machinery in agriculture, at building sites, for hobbies docks and refrigeration plants. Extremely good mechanical characteristics e.g. compressive load, good abrasion and near-resistant.

Resistant to

- Oils and fats
- Water and weathering effects
- Ozone and oxygen
- UV-radiation
- Hydrolysis
- Microbial attack

C € = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1812___ OB	2 x 0,5	6,0	9,6	40	20
1813___	3 G 0,5	6,2	14,4	47	20
1814___	4 G 0,5	7,0	19,0	57	20
1815___	5 G 0,5	7,5	24,0	65	20
1816___	7 G 0,5	9,2	33,6	94	20
1817___	12 G 0,5	11,5	58,0	150	20
1818___	18 G 0,5	13,2	86,0	208	20
1819___	25 G 0,5	15,2	120,0	276	20
1820___	34 G 0,5	18,8	163,0	393	20
1821___	41 G 0,5	20,2	197,0	460	20
1822___ OB	2 x 0,75	6,3	14,0	52	18
1823___	3 G 0,75	6,9	21,6	62	18
1824___	4 G 0,75	7,5	28,8	80	18
1825___	5 G 0,75	8,3	36,0	94	18
1826___	6 G 0,75	9,0	43,0	111	18
1827___	7 G 0,75	9,8	50,0	160	18
1828___	12 G 0,75	12,2	86,0	191	18
1829___	18 G 0,75	14,1	130,0	267	18
1830___	25 G 0,75	17,0	180,0	376	18
1831___	34 G 0,75	20,3	245,0	506	18
1832___	41 G 0,75	21,9	296,0	596	18

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1833___ OB	2 x 1	6,8	19,2	59	17
1834___	3 G 1	7,2	29,0	70	17
1835___	4 G 1	7,8	38,0	87	17
1836___	5 G 1	8,8	48,0	100	17
1837___	6 G 1	9,6	58,0	131	17
1838___	7 G 1	10,5	67,0	182	17
1839___	12 G 1	13,0	115,0	230	17
1840___	18 G 1	15,1	173,0	325	17
1841___	25 G 1	18,7	240,0	476	17
1842___	34 G 1	21,6	326,0	616	17
1843___	41 G 1	23,2	394,0	724	17
1844___ OB	2 x 1,5	8,3	29,0	92	16
1845___	3 G 1,5	8,8	43,0	108	16
1846___	4 G 1,5	9,9	58,0	144	16
1847___	5 G 1,5	10,8	72,0	168	16
1848___	6 G 1,5	11,9	86,0	201	16
1849___	7 G 1,5	12,9	101,0	230	16
1850___	12 G 1,5	14,7	173,0	306	16
1851___	18 G 1,5	17,9	259,0	464	16
1852___	25 G 1,5	20,8	360,0	641	16
1853___	34 G 1,5	24,9	490,0	857	16
1854___	41 G 1,5	26,7	590,0	1010	16

Continuation ►

Colour code see page A 86

G = with green-yellow earth core
X = without green-yellow earth core (OB)

* Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1855___ OB	2x2,5	10,0	48,0	120	14
1856___	3G2,5	10,5	72,0	148	14
1857___	4G2,5	11,8	96,0	184	14
1858___	5G2,5	13,0	120,0	224	14
1859___	7G2,5	14,7	168,0	301	14
1860___	12G2,5	18,0	288,0	489	14
1861___ OB	2x4	11,6	77,0	149	12
1862___	3G4	12,3	115,0	240	12
1863___	4G4	13,7	154,0	297	12
1864___	5G4	15,2	192,0	360	12
1865___	7G4	20,8	268,0	540	12

G = with green-yellow earth core
X = without green-yellow earth core (OB)

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1866___ OB	2x6	13,2	115,0	240	10
1867___	3G6	14,2	173,0	370	10
1868___	4G6	15,8	230,0	472	10
1869___	5G6	17,5	288,0	581	10
1870___	7G6	22,0	403,0	698	10
1871___	3G10	18,6	288,0	560	8
1872___	4G10	20,5	384,0	718	8
1873___	5G10	22,7	480,0	896	8
1874___	3G16	23,5	461,0	940	6
1875___	4G16	25,7	614,0	1068	6
1876___	5G16	28,5	768,0	1810	6

***) Note**

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

ca. RAL	5015 blue	6018 green	8003 brown	1021 yellow	3000 red	2003 orange	4005 violet	7001/7032 grey
Colour code	0	1	2	3	4	5	6	7

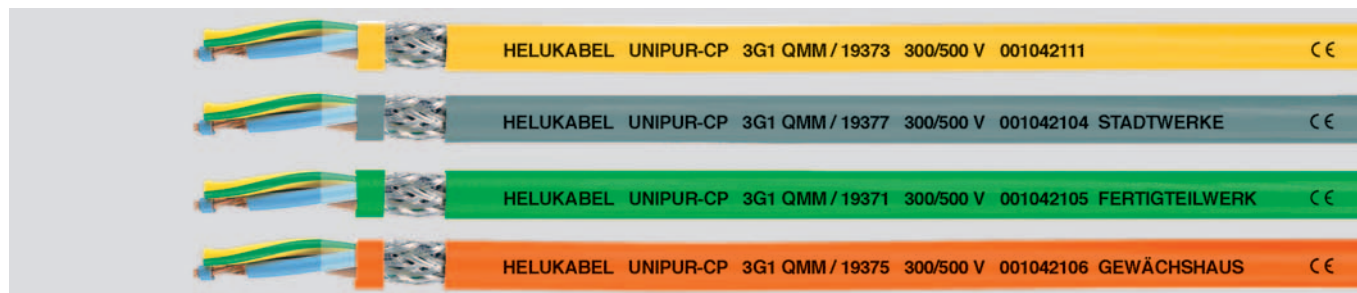
Note
Please add the individual part no. for order with the identification colour code.

Further colours on request.

HELUKABEL® UNIPUR-CP

Cu screened, EMC*-preferred type

flexible at low temperature,
with customers marking,
halogen-free, wear resistant, robust



Technical data

- Special TPE/PUR screened connecting cable adapted to DIN VDE 0282 part 10
- **Temperature range**
flexing -40°C to +90°C
- **Nominal voltage**
up to 1 mm² U₀/U 300/500 V
above 1,5 mm² U₀/U 450/750 V
- **Test voltage** 3000 V
- **Minimum bending radius**
12,5x cable Ø
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Features

- Abrasion resistant
- Notch resistant
- Resistant to tearing and cutting
- Good flexibility at low temperatures down to -40°C
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors bunch stranded according to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Core insulation of thermoplastic olefin-elastomere (TPE-O)
- Core colours according DIN VDE 0293
 - up to 5 cores one-coloured
 - 6 and more cores, black with numbering
 - 3 and above, with green-yellow earth core
 - 2 cores without green-yellow earth core
- Cores stranded in layers with optimal lay-length
- Core wrapping with foil
- PUR outer sheath TPU in adapted to DIN VDE 0282 part 10 appendix A
- Jacket colour by request
- Flame retardant according to DIN VDE 0482 part 265-2-1/ EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

These robust and flexible cables are used for electrical tools such as drills, hand-held circular saws, and garden equipment as well as for portable motors and machinery in agriculture, at building sites, for hobbies, docks and refrigeration plants. Extremely good mechanical characteristics e.g. compressive load, good abrasion and near-resistant.

Resistant to

- Oils and fats
- Water and weathering effects
- Ozone and oxygen
- UV-radiation
- Hydrolysis
- Microbial attack

* **EMC** = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1915___ OB	2x0,5	6,1	29	46	20
1916___	3G0,5	6,3	39	56	20
1917___	4G0,5	6,8	46	62	20
1918___	5G0,5	7,4	52	75	20
1919___	7G0,5	8,8	68	98	20
1920___	12G0,5	10,9	117	158	20
1921___	18G0,5	13,0	152	216	20
1922___	25G0,5	15,6	250	315	20
1923___	34G0,5	17,2	312	371	20
1924___	41G0,5	19,4	350	442	20
1925___ OB	2x0,75	6,8	39	60	18
1926___	3G0,75	7,1	50	68	18
1927___	4G0,75	7,7	57	78	18
1928___	5G0,75	8,4	70	95	18
1929___	6G0,75	9,1	87	112	18
1930___	7G0,75	10,0	96	138	18
1931___	12G0,75	12,3	151	207	18
1932___	18G0,75	14,8	207	293	18
1933___	25G0,75	18,4	278	413	18
1934___	34G0,75	20,3	350	523	18
1935___	41G0,75	22,0	404	609	18

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
1936___ OB	2x1	7,1	46	65	17
1937___	3G1	7,4	56	76	17
1938___	4G1	8,1	69	89	17
1939___	5G1	8,8	89	108	17
1940___	6G1	9,7	105	141	17
1941___	7G1	10,7	111	187	17
1942___	12G1	12,9	168	240	17
1943___	18G1	15,7	245	335	17
1944___	25G1	19,3	332	484	17
1945___	34G1	21,6	440	627	17
1946___	41G1	23,3	517	738	17
1947___ OB	2x1,5	8,4	63	97	16
1948___	3G1,5	8,8	76	119	16
1949___	4G1,5	9,8	98	152	16
1950___	5G1,5	10,9	116	176	16
1951___	6G1,5	12,1	140	218	16
1952___	7G1,5	13,2	152	243	16
1953___	12G1,5	16,5	222	317	16
1954___	18G1,5	19,6	368	481	16
1955___	25G1,5	24,2	500	674	16
1956___	34G1,5	27,0	621	881	16
1957___	41G1,5	29,3	732	1027	16

Continuation ►

G = with green-yellow earth core
X = without green-yellow earth core (OB)

Colour code see page A 88

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® UNIPUR-CP flexible at low temperature, Cu screened, EMC*-preferred type with customers marking, halogen-free, wear resistant, robust

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
1958___ OB	2x2,5	10,0	46	129	14
1959___	3G2,5	10,7	146	158	14
1960___	4G2,5	11,9	176	196	14
1961___	5G2,5	13,2	200	241	14
1962___	7G2,5	16,0	235	317	14
1963___	12G2,5	19,8	441	496	14
1964___ OB	2x4	11,8	135	158	12
1965___	3G4	12,4	178	261	12
1966___	4G4	13,8	240	316	12
1967___	5G4	15,6	328	384	12
1968___	7G4	18,9	355	592	12

G = with green-yellow earth core
 X = without green-yellow earth core (OB)

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
1969___ OB	2x6	13,4	175	259	10
1970___	3G6	14,3	240	394	10
1971___	4G6	16,0	335	483	10
1972___	5G6	17,9	441	592	10
1973___	7G6	21,6	505	714	10
1974___	3G10	18,1	370	576	8
1975___	4G10	20,2	485	729	8
1976___	5G10	22,5	714	914	8
1977___	3G16	20,6	550	960	6
1978___	4G16	23,0	809	1813	6
1979___	5G16	25,6	1050	1827	6

¹) Note
 AWG sizes are approximate equivalent values.
 The actual cross-section is in mm² – see page T 15.

ca. RAL	5015 blue	6018 green	8003 brown	1021 yellow	3000 red	2003 orange	4005 violet	7001/7032 grey
								
Colour code	0	1	2	3	4	5	6	7

Note
 Please add the individual part no. for order with the identification colour code.

Further colours on request.

We can also have this cable with your company name or emblem. Minimum quantity 500–1000 m.

PUR-C-PUR EMC*-preferred type

halogen-free, copper screened for use under extreme conditions



HELUKABEL PUR-C-PUR 5G1,5 QMM / 22367 1000 V 001042055

CE

Technical data

- Special PUR control cables, screened, adapted to DIN VDE 0250
- **Temperature range**
–40°C to +80°C
- **Nominal voltage** 1000 V
- **Test voltage**
core/core 3500 V
core/screen 3500 V
- **Insulation resistance**
min. 20 MOhm x km
- **Mutual capacitance** (800 Hz)
core/core approx. 150 pF/m
core/screen approx. 320 pF/m
- **Minimum bending radius**
approx. 10 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance** max. 250 Ohm/km

Features

- High flexibility at low temperatures
- High abrasion resistance
- Break and cut resistant
- Tear resistant
- Halogen-free
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PUR insulation
- Cores colour coded to DIN VDE 0293
- Green-yellow earth core (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Foil taped
- Copper braided screening with 80–85% coverage
- PUR outer jacket, halogenfree
- Colour grey (RAL 7032)

Resistant to

- Oils and fats
- Coolant and chemicals
- Non-alcoholic fuels and kerosene
- Atmospheric influences
- UV-radiation
- Oxygene and ozone
- Microbes and rotting
- Sea and waste water
- Vibrations
- Acids and
- Lyes

Application

PUR-C-PUR screened cables are well suited as data transfer and connection cables for the machine and motor industries due to the good level of copper screening which blocks strong electrical disturbances.

This cable type has proven to be especially suited to use in extreme weather and environmental conditions due to its good thermal and chemical properties. (Temperature range –40°C to +80°C). In addition to this it also possesses excellent mechanical properties, e.g. pressure resistance and good abrasive resistant qualities, all of which go to guarantee a long life.

* **EMC** = Electromagnetic compatibility

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

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
22315-0	2 x 0,75	6,7	28	65	18
22316	3 G 0,75	7,2	50	80	18
22317	4 G 0,75	7,7	57	95	18
22318	5 G 0,75	9,1	70	126	18
22319	6 G 0,75	9,5	71	150	18
22339-0	2 x 1	7,5	32	80	17
22340	3 G 1	7,7	56	95	17
22341	4 G 1	8,4	66	106	17
22342	5 G 1	9,5	95	149	17

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
22364-0	2 x 1,5	8,8	43	101	16
22365	3 G 1,5	9,0	71	125	16
22366	4 G 1,5	9,6	86	150	16
22367	5 G 1,5	11,0	104	210	16
22385-0	2 x 2,5	10,1	96	142	14
22386	3 G 2,5	10,3	146	169	14
22387	4 G 2,5	11,8	150	225	14
22388	5 G 2,5	12,7	200	275	14



G = with green-yellow earth core
X = without green-yellow earth core (0)

◀ Installation of a special cable, produced by HELUKABEL® for the Federal Institute of Geoscience and Natural Researches in the Antarctic.

Works photo: Federal Institute of Geoscience and Natural Researches.

DATAPUR-C EMC*-preferred type copper screened, PUR-sheath



HELUKABEL DATAPUR-C 7x0,34 QMM / 52516 500 V 001042057

CE

Technical data

- Special PVC/PUR control cable, adapted to DIN VDE 0245, 0281
- **Temperature range**
 - flexing – 5°C to +70°C
 - fixed installation –40°C to +70°C
- **Nominal voltage** 0,14 mm² = 350 V
as of 0,25 mm² = 500 V
- **Test voltage** 0,14 mm² = 800 V
as of 0,25 mm² = 1200 V
- **Insulation resistance**
min. 20 MOhm x km
- **Mutual capacitance** core/core:
up to 0,34 mm² = approx. 120 nF/km
as of 0,5 mm² = approx. 160 nF/km
- **Minimum bending radius**
flexing approx. 10 x cable Ø
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Features

- Oil resistance:
very good as per VDE 0472 part 803
- Chemical resistance:
good against acids, lyes, hydraulic liquids
- High flexibility at low temperature
- High abrasion resistance

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation TI2, to DIN VDE 0281 part 1
- Cores colour coded to DIN 47100, see page T 46
- Cores stranded in layers with optimal lay-length
- Foil taped
- Tinned copper braided screen, approx. 85% coverage
- PUR outer sheath, grey (RAL 7032) TMPU to DIN VDE 0282 part 1, appendix A

Resistant to

- Oils and fats
- Non-alcoholic fuels and kerosene
- Atmospheric influences
- UV-radiation
- Oxygene and ozone
- Microbes and rotting
- Sea and waste water
- Vibrations

Application

The specific construction of DATAPUR-C makes this cable type ideal for use in all types of computer systems, office machinery, signal and control units. DATAPUR-C has uses that go beyond this for example in the field of acoustics, e.g. in telephone systems, intercoms as well as in all areas involving accurate control of weights and measurements.

This cable type is noted for its excellent mechanical performance in humid to wet conditions. External high frequency interference is screened out by the tinned copper braiding. These cables are extremely tear and abrasive resistant.

* **EMC** = Electromagnetic compatibility

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

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
52490	2x0,14	4,2	12,3	21	26
52491	3x0,14	4,4	14,0	25	26
52492	4x0,14	4,7	15,7	29	26
52493	5x0,14	5,0	19,5	35	26
52494	7x0,14	5,3	23,4	41	26
52495	10x0,14	6,4	28,5	54	26
52496	12x0,14	6,7	34,3	64	26
52497	14x0,14	7,0	39,9	74	26
52498	18x0,14	7,7	51,5	93	26
52499	21x0,14	8,2	60,1	108	26
52500	25x0,14	8,8	71,9	128	26
52501	2x0,25	4,5	14,7	26	24
52502	3x0,25	4,7	17,1	33	24
52503	4x0,25	5,0	20,6	38	24
52504	5x0,25	5,4	24,8	44	24
52505	7x0,25	5,8	31,1	53	24
52506	10x0,25	7,2	42,0	79	24
52507	12x0,25	7,7	51,0	92	24
52508	14x0,25	8,1	60,1	105	24
52509	18x0,25	9,0	77,9	128	24
52510	21x0,25	9,9	91,4	148	24
52511	25x0,25	11,8	110,8	175	24

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
52512	2x0,34	5,1	17,0	33	22
52513	3x0,34	5,3	20,7	42	22
52514	4x0,34	5,7	24,7	48	22
52515	5x0,34	6,2	30,1	57	22
52516	7x0,34	7,0	38,2	77	22
52517	10x0,34	8,8	63,1	111	22
52518	12x0,34	9,2	74,2	128	22
52519	14x0,34	9,6	85,3	144	22
52520	18x0,34	10,4	107,4	175	22
52521	21x0,34	11,0	124,1	200	22
52522	25x0,34	11,9	147,0	233	22
52523	2x0,5	5,4	23,2	38	20
52524	3x0,5	5,7	30,1	51	20
52525	4x0,5	6,2	35,4	58	20
52526	5x0,5	6,8	52,6	77	20
52527	7x0,5	7,3	65,3	93	20
52528	10x0,5	9,4	88,8	134	20
52529	12x0,5	9,8	101,9	155	20
52530	14x0,5	10,4	115,1	175	20
52531	18x0,5	11,1	141,2	214	20
52532	21x0,5	11,9	161,1	245	20
52533	25x0,5	12,8	187,9	285	20

*) Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

Also available in other outer sheath colours.



Photo: FUCHS DEA SCHMIERSTOFFE GMBH & Co. KG

BIOFLEX-500®-Control Cables

Resistant against biologically decomposable oils

The necessity for the introduction of bio-degradable oils was due to the growing demand for these in industrial applications, especially from the automobile manufacturers. The renowned mineral-oil industry answered the call for this by developing special bio-degradable industrial lubricants, greases and hydraulic fluids. These are referred to as the bio-oils.

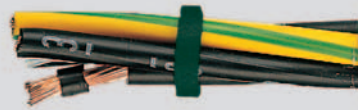
While gentle on the environment, these bio-oils are aggressive and can cause the insulation and jacket materials to swell and decompose.

HELUKABEL® has accordingly matched and extended the range of products from its plant in Windsbach. Special control cables and wires have been developed which are not only friendly on the environment, abrasion-resistant and can be recycled, they are also resistant to bio-oils. These are the special BIOFLEX-500®-control cables and wires from HELUKABEL®. Specially modified polymers are used here for the core insulation and the jacket materials.

In the laboratory, these special compounds have been subjected to extreme testing according to VDMA requirements and VDE specifications. The suitability of these compounds has been assessed by endurance testing to demonstrate the long-term resistance to bio-oils.

As well as the EMC-screened preferred types, we keep both the flexible and high-flexibility versions of the more common types and sizes of our BIOFLEX-500®-control cables in stock to cover the demand from our customers at short notice.

The BIOFLEX control cables and wires are suitable for use in dry, moist and wet environments as well as for outdoor applications. These cables and wires are resistant to oxygen, ozone, hydrolysis, microbial attack and bio-degradable oils.



HELUKABEL BIOFLEX-500-JZ 4G2,5 QMM / 25667 300/500 V 001042060 CE

Technical data

- Bio-oil resistant, abrasion resistant special control cable in adapted to DIN VDE 0245, 0281
- **Temperature range**
flexing -20°C to +80°C
fixed installation -40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
flexing 15 x cable Ø
fixed installation 4 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special polymer core insulation
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special outer sheath, polymer compound
- Colour dark green
- Low adhesion
- Bio oil-resistant

Application

HELUKABEL® BIOFLEX-500 is an extremely robust control cable with high abrasion and tear resistant properties. Due to its high resistance to Bio-oil and coolant emulsions.

It is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas. The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to oxygene, ozone, hydrolysis, microbes and highly resistant to biologically decomposable oils.

Note:¹⁾

For the critical applications we advise for consultation.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25620 OZ	2x0,5	5,4	9,6	45	20
25621	3G0,5	5,9	14,4	55	20
25622	4G0,5	6,3	19,0	65	20
25623	5G0,5	6,9	24,0	75	20
25624	7G0,5	7,8	33,6	90	20
25625	10G0,5	9,6	48,0	120	20
25626	12G0,5	10,0	58,0	135	20
25627	14G0,5	10,3	67,0	170	20
25628	18G0,5	11,5	86,0	205	20
25629	25G0,5	13,6	120,0	270	20
25630 OZ	2x0,75	5,4	14,4	44	18
25631	3G0,75	6,2	21,6	53	18
25632	4G0,75	6,7	29,0	64	18
25633	5G0,75	7,3	36,0	76	18
25634	7G0,75	8,8	50,0	96	18
25635	10G0,75	10,5	72,0	140	18
25636	12G0,75	11,0	86,0	170	18
25637	14G0,75	11,4	101,0	202	18
25638	18G0,75	12,6	130,0	260	18
25639	25G0,75	15,2	180,0	282	18
25640	41G0,75	18,0	296,0	600	18
25641	42G0,75	18,5	310,0	620	18
25642 OZ	2x1	6,6	19,0	53	17
25643	3G1	7,0	29,0	63	17
25644	4G1	7,6	38,0	75	17
25645	5G1	8,2	48,0	89	17
25646	7G1	9,6	67,0	115	17
25647	10G1	11,6	96,0	166	17
25648	12G1	12,0	115,0	201	17
25649	14G1	13,2	134,0	230	17
25650	18G1	14,5	173,0	289	17
25651	25G1	17,6	240,0	380	17
25652	41G1	21,1	394,0	720	17
25653	42G1	21,5	403,0	740	17
25654 OZ	2x1,5	7,2	29,0	68	16
25655	3G1,5	7,6	43,0	87	16
25656	4G1,5	8,2	58,0	106	16
25657	5G1,5	9,0	72,0	131	16

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25658	7G1,5	10,7	101,0	173	16
25659	10G1,5	13,0	144,0	245	16
25660	12G1,5	13,4	173,0	293	16
25661	14G1,5	14,5	202,0	347	16
25662	18G1,5	16,0	259,0	454	16
25663	25G1,5	19,5	360,0	641	16
25664	42G1,5	23,8	605,0	1100	16
25665 OZ	2x2,5	8,6	48,0	110	14
25666	3G2,5	9,3	72,0	146	14
25667	4G2,5	10,3	96,0	183	14
25668	5G2,5	11,5	120,0	222	14
25669	7G2,5	13,4	168,0	293	14
25670	12G2,5	17,0	288,0	512	14
25671	18G2,5	20,0	432,0	740	14
25672	25G2,5	24,1	600,0	940	14
25673 OZ	2x4	10,4	77,0	147	12
25674	3G4	11,2	115,0	228	12
25675	4G4	12,5	154,0	291	12
25676	5G4	13,8	192,0	355	12
25677	3G6	13,0	173,0	362	10
25678	4G6	14,7	230,0	468	10
25679	5G6	16,0	288,0	570	10
25680	3G10	16,7	288,0	555	8
25681	4G10	18,3	384,0	720	8
25682	5G10	20,5	480,0	894	8
25683	4G16	21,1	614,0	1063	6
25684	5G16	23,6	768,0	1400	6
25685	4G25	29,4	960,0	1590	4
25686	4G35	32,8	1344,0	2200	2
25687	4G50	38,9	1920,0	2400	1
25688	4G70	44,7	2688,0	4400	2/0
25689	4G95	59,6	3648,0	6000	3/0
25690	4G120	64,5	4608,0	7400	4/0

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® BIOFLEX-500® -JZ-C

abrasion resistant, recyclable,
environment friendly,
copper screened, EMC*-preferred type, Bio-oil resistant¹⁾



HELUKABEL BIOFLEX-500-JZ-C 4G2,5 QMM / 25739 300/500 V 001042062



Technical data

- Bio-oil resistant, abrasion resistant special control cable in adapted to DIN VDE 0245, 0281
- **Temperature range**
flexing -20°C to +80°C
fixed installation -40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
flexing 20 x cable Ø
fixed installation 6 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

* EMC = Electromagnetic compatibility

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

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special polymer core insulation
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Special inner sheath
- Screen of Cu braid, tinned coverage approx. 85%
- Fleece separator, ensure good dismantling ability
- Special outer sheath, polymer compound
- Colour dark green
- Low adhesion
- Bio oil-resistant

Application

HELUKABEL® BIOFLEX-500 C is an extremely robust control cable with high abrasion and tear resistant properties. Due to its high resistance to Bio-oil and coolant emulsions.

It is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas.

The inner sheaths of those cables raise the mechanical stress.

The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to oxygene, ozone, hydrolysis, microbes and highly resistant to biologically decomposable oils.

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility)

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25691 OZ	2x0,5	6,6	33	68	20
25692	3G0,5	7,1	39	84	20
25693	4G0,5	7,6	46	95	20
25694	5G0,5	8,2	52	107	20
25695	7G0,5	9,4	69	135	20
25696	10G0,5	11,2	81	170	20
25697	12G0,5	11,3	118	195	20
25698	14G0,5	11,9	121	222	20
25699	18G0,5	12,9	155	278	20
25700	25G0,5	15,9	251	406	20
25701 OZ	2x0,75	7,2	40	88	18
25702	3G0,75	7,7	49	98	18
25703	4G0,75	8,2	58	112	18
25704	5G0,75	8,8	70	130	18
25705	7G0,75	10,1	87	185	18
25706	10G0,75	12,2	141	270	18
25707	12G0,75	12,3	150	294	18
25708	14G0,75	13,0	145	317	18
25709	18G0,75	14,6	206	357	18
25710	25G0,75	17,8	258	510	18
25711	41G0,75	21,5	406	951	18
25712	42G0,75	22,0	430	975	18
25713 OZ	2x1	8,1	46	98	17
25714	3G1	8,5	56	102	17
25715	4G1	9,0	70	145	17
25716	5G1	9,9	85	170	17
25717	7G1	11,6	108	220	17
25718	10G1	14,0	137	330	17
25719	12G1	14,4	187	350	17
25720	14G1	15,0	199	402	17
25721	18G1	17,0	240	515	17
25722	25G1	20,6	343	690	17
25723	41G1	25,0	523	1070	17
25724	42G1	25,5	542	1096	17
25725 OZ	2x1,5	8,5	62	130	16
25726	3G1,5	8,9	75	152	16
25727	4G1,5	9,7	95	167	16
25728	5G1,5	10,8	110	203	16

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25729	7G1,5	12,5	146	305	16
25730	10G1,5	15,1	192	422	16
25731	12G1,5	15,5	254	435	16
25732	14G1,5	16,1	272	480	16
25733	18G1,5	18,6	366	642	16
25734	25G1,5	22,1	492	803	16
25735	41G1,5	27,2	760	1360	16
25736	42G1,5	27,5	775	1375	16
25737 OZ	2x2,5	10,6	96	180	14
25738	3G2,5	11,1	147	215	14
25739	4G2,5	12,1	175	268	14
25740	5G2,5	13,2	200	349	14
25741	7G2,5	15,9	234	406	14
25742	12G2,5	19,5	369	720	14
25743 OZ	2x4	12,6	134	300	12
25744	3G4	13,4	178	340	12
25745	4G4	15,0	222	408	12
25746	5G4	16,4	327	504	12
25747	3G6	15,2	241	453	10
25748	4G6	17,0	306	560	10
25749	5G6	18,6	440	700	10
25750	3G10	19,5	370	750	8
25751	4C10	21,5	484	1023	8
25752	5C10	23,9	612	1114	8
25753	4C16	24,6	1040	1385	6
25754	5C16	27,3	1393	1550	6
25755	4C25	30,6	1312	1894	4
25756	4C35	36,9	1612	2395	2
25757	4C50	41,3	2218	3312	1
25758	4C70	48,8	3092	4605	2/0
25759	4C95	61,8	4063	6055	3/0
25760	4C120	65,7	5154	7318	4/0

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® BIOFLEX-500® -JZ-HF

recyclable, environment friendly, Bio-oil resistant¹⁾

abrasion resistant,
cable for drag chain



HELUKABEL BIOFLEX-500-JZ-HF 4G1 QMM / 25783 300/500 V 001042063 C E

Technical data

- Bio-oil resistant, abrasion resistant special high flexible control cable in adapted to DIN VDE 0245, 0281
- **Temperature range**
flexing -20°C to +80°C
fixed installation -40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
flexing 10 x cable Ø
fixed installation 4 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

Note:¹⁾

For the critical applications we advise for consultation.

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special polymer core insulation, for better sliding abilities
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- Special outer sheath, polymer compound
- Colour dark green
- Low adhesion
- Bio oil-resistant

Application

HELUKABEL® BIOFLEX-HF-500 is an extremely robust and high flexible control cable with high abrasion and tear resistant properties. Due to its high resistance to Bio-oil and coolant emulsions.

It is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas.

Suitable in combination with cable trays in dry, moist and wet rooms and outdoor installation.

The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to oxygene, ozone, hydrolysis, to microbes and highly resistant to biologically decomposable oils.

C E = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25761 OZ	2x0,5	5,4	9,6	45	20
25762	3G0,5	5,9	14,4	56	20
25763	4G0,5	6,3	19,1	69	20
25764	5G0,5	6,9	24,0	92	20
25765	7G0,5	7,8	33,6	126	20
25766	10G0,5	9,6	48,0	158	20
25767	12G0,5	10,3	58,0	176	20
25768	14G0,5	10,3	67,0	212	20
25769	18G0,5	11,5	86,4	283	20
25770	25G0,5	13,6	120,0	330	20
25771 OZ	2x0,75	5,9	14,4	57	18
25772	3G0,75	6,2	21,6	72	18
25773	4G0,75	6,7	29,0	97	18
25774	5G0,75	7,3	36,0	119	18
25775	7G0,75	8,7	50,0	165	18
25776	10G0,75	10,5	72,0	214	18
25777	12G0,75	11,0	86,0	247	18
25778	14G0,75	11,4	101,0	283	18
25779	18G0,75	12,6	130,0	356	18
25780	25G0,75	15,2	180,0	698	18
25781 OZ	2x1	6,6	19,0	64	17
25782	3G1	7,0	29,0	83	17
25783	4G1	7,6	38,5	113	17
25784	5G1	8,2	48,0	137	17
25785	7G1	9,6	67,0	191	17
25786	10G1	11,6	96,0	251	17
25787	12G1	12,0	115,0	294	17
25788	14G1	13,0	134,0	337	17
25789	18G1	14,5	173,0	420	17
25790	25G1	17,6	240,0	600	17
25791 OZ	2x1,5	7,1	29,0	90	16
25792	3G1,5	7,5	43,0	117	16
25793	4G1,5	8,2	58,0	147	16
25794	5G1,5	9,0	72,0	181	16

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
25795	7G1,5	10,8	101,0	274	16
25796	10G1,5	13,4	144,0	344	16
25797	12G1,5	13,4	173,0	391	16
25798	14G1,5	14,3	202,0	457	16
25799	18G1,5	16,0	259,0	589	16
25800	25G1,5	19,5	360,0	801	16
25801 OZ	2x2,5	8,6	48,0	128	14
25802	3G2,5	9,3	72,0	160	14
25803	4G2,5	10,3	96,0	200	14
25804	5G2,5	11,5	120,0	268	14
25805	7G2,5	13,4	168,0	357	14
25806	12G2,5	17,0	288,0	571	14
25807	14G2,5	18,5	336,0	612	14
25808	18G2,5	20,0	432,0	800	14
25809	25G2,5	29,6	600,0	1100	14
25810 OZ	2x4	10,4	77,0	190	12
25811	3G4	11,2	115,0	250	12
25812	4G4	12,5	154,0	320	12
25813	5G4	13,8	192,0	400	12
25814	3G6	13,0	173,0	350	10
25815	4G6	14,7	230,0	500	10
25816	5G6	16,0	288,0	580	10
25817	3G10	17,4	288,0	660	8
25818	4G10	19,0	384,0	750	8
25819	5G10	21,3	480,0	990	8
25820	4G16	23,2	614,0	1200	6
25821	4G25	34,0	960,0	1700	4
25822	4G35	37,0	1344,0	2300	2
25823	4G50	44,0	1920,0	2500	1
25824	4G70	53,0	2688,0	4600	2/0
25825	4G95	59,0	3648,0	6400	3/0

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

Before installation in cable trays please read the instructions.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

HELUKABEL® BIOFLEX-500® -JZ-HF-C

abrasion resistant,
recyclable, environment
friendly copper screened, EMC*-preferred type, Bio-oil resistant¹⁾



Technical data

- Bio-oil resistant, abrasion resistant special high flexible control cable in adapted to DIN VDE 0245, 0281
- **Temperature range**
flexing –20°C to +80°C
fixed installation –40°C to +80°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
flexing 15 x cable Ø
fixed installation 4 x cable Ø
- **Radiation resistance**
up to 100 x 10⁶ cJ/kg (up to 100 Mrad)

* EMC = Electromagnetic compatibility

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

Note:¹⁾

For the critical applications we advise for consultation.

Cable structure

- Bare copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special polymer core insulation, for better sliding abilities
- Black cores with continuous white figure imprint to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- Special inner sheath
- Copper braided screening approx. 85% coverage
- Fleece separator, ensure good dismantling ability
- Special outer sheath polymer compound
- Colour dark green
- Low adhesion
- Bio oil-resistant

Application

HELUKABEL® BIOFLEX-HF-500-C is an extremely robust and high flexible control cable with high abrasion and tear resistant properties. Due to its high resistance to Bio-oil and coolant emulsions. It is especially suited for use in the machine, tool making and plant industries as well as in the steel industry for difficult and problem areas. Suitable in combination with cable trays in dry, moist and wet rooms and outdoor installation. The high flexibility of this cable type makes it quick and easy to install. Suitable for outdoor lying and resistant to oxygene, ozone, hydrolysis, to microbes and highly resistant to biologically decomposable oils. These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
25826 OZ	2 x 0,5	7,5	47	90	20
25827	3 G 0,5	7,8	52	104	20
25828	4 G 0,5	8,2	55	123	20
25829	5 G 0,5	9,9	65	131	20
25830	7 G 0,5	10,0	84	172	20
25831	10 G 0,5	11,3	115	230	20
25832	12 G 0,5	12,5	117	250	20
25833	14 G 0,5	13,2	148	280	20
25834	18 G 0,5	14,5	157	321	20
25835	25 G 0,5	16,8	227	445	20
25836 OZ	2 x 0,75	8,3	53	106	18
25837	3 G 0,75	8,5	62	120	18
25838	4 G 0,75	9,5	77	150	18
25839	5 G 0,75	10,8	86	158	18
25840	7 G 0,75	11,5	107	205	18
25841	10 G 0,75	13,1	148	290	18
25842	12 G 0,75	14,0	156	304	18
25843	14 G 0,75	15,3	214	380	18
25844	18 G 0,75	17,3	235	418	18
25845	25 G 0,75	18,7	313	578	18
25846 OZ	2 x 1	10,0	60	116	17
25847	3 G 1	10,2	70	135	17
25848	4 G 1	11,0	86	178	17
25849	5 G 1	11,8	99	188	17
25850	7 G 1	12,7	125	235	17
25851	10 G 1	14,6	178	340	17
25852	12 G 1	15,5	186	358	17
25853	14 G 1	16,7	250	415	17
25854	18 G 1	18,0	280	500	17
25855	25 G 1	21,0	378	678	17
25856 OZ	2 x 1,5	10,5	79	141	16
25857	3 G 1,5	10,8	94	164	16

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
25858	4 G 1,5	11,5	113	220	16
25859	5 G 1,5	12,5	129	233	16
25860	7 G 1,5	13,2	170	323	16
25861	8 G 1,5	14,4	226	369	16
25862	10 G 1,5	14,9	258	461	16
25863	12 G 1,5	16,2	280	481	16
25864	14 G 1,5	18,1	340	561	16
25865	18 G 1,5	20,3	395	672	16
25866	21 G 1,5	21,7	461	780	16
25867	25 G 1,5	23,1	533	927	16
25868 OZ	2 x 2,5	11,8	96	185	14
25869	3 G 2,5	13,0	150	278	14
25870	4 G 2,5	14,0	174	370	14
25871	5 G 2,5	15,1	200	412	14
25872	7 G 2,5	16,2	240	470	14
25873	12 G 2,5	21,0	410	738	14
25874	14 G 2,5	23,4	480	870	14
25875	18 G 2,5	25,7	620	1100	14
25876	25 G 2,5	31,0	821	1512	14
25877 OZ	2 x 4	13,4	135	235	12
25878	3 G 4	15,8	178	350	12
25879	4 G 4	17,3	222	460	12
25880	5 G 4	19,0	328	550	12
25881	3 G 6	19,5	250	525	10
25882	4 G 6	21,0	305	700	10
25883	5 G 6	23,0	441	800	10
25884	3 G 10	18,8	370	855	8
25885	4 G 10	25,0	485	1140	8
25886	5 G 10	26,4	610	1310	8
25887	4 G 16	28,0	840	1391	6

* Note

AWG sizes are approximate equivalent values.

The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core X = without green-yellow earth core (OZ)

Further technical details see selection table for drag chain cables (pages 24ff).

Before installation in cable trays please read the instructions.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

HELUKABEL® KOMPOFLEX® JZ-500

halogen-free, microbes resistant



Technical data

- Microbes resistant, halogen-free special control cable in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing –30°C to + 90°C
fixed installation –40°C to +100°C
- **Nominal voltage** U₀/U 300/500 V
- **Test voltage** 3000 V
- **Insul. resistance** min. 20 MΩm x km
- **Minimum bending radius**
flexing 75x cable Ø
- **Radiation resistance**
up to 100x10⁶ cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Tinned copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special thermoplastic polymer-core insulation
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Outer sheath, special thermoplastic polymer
- Colour black (RAL 9005)
- Low adhesion
- Microbes resistant

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Application

HELUKABEL® KOMPOFLEX JZ-500 control cable is significant due to its resistance against microbes. This cable is specially installed in rubbish, sewage-treatment plants, composting works, animal stalls and greenhouses. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside. The high flexibility of this cable type makes it quick and easy to install. Resistant to UV-radiation, oxygene, ozone, microbes, hydrofluoric acid, hydrochloric acid and diluted sulfuric acid.

Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.1)
26125 OZ	2x0,5	4,8	9,6	41	20
26126	3G0,5	5,1	14,4	50	20
26127	4G0,5	5,7	19,0	61	20
26128	5G0,5	6,2	24,0	72	20
26129	7G0,5	7,4	33,6	86	20
26130	12G0,5	9,1	58,0	130	20
26131	18G0,5	10,7	86,0	198	20
26132	20G0,5	11,2	96,0	211	20
26133	25G0,5	13,0	120,0	260	20
26135	34G0,5	14,5	163,0	361	20
26136	42G0,5	15,8	202,0	405	20
26137	50G0,5	17,3	240,0	541	20
26138	61G0,5	19,4	293,0	670	20
26139 OZ	2x0,75	5,2	14,4	42	18
26140	3G0,75	5,5	21,6	49	18
26141	4G0,75	6,2	29,0	60	18
26142	5G0,75	6,8	36,0	71	18
26143	7G0,75	8,1	50,0	88	18
26144	12G0,75	9,9	86,0	161	18
26145	18G0,75	11,9	130,0	250	18
26146	20G0,75	12,6	144,0	266	18
26147	25G0,75	14,5	180,0	273	18
26149	34G0,75	16,4	245,0	501	18
26150	42G0,75	17,6	302,0	591	18
26151	50G0,75	19,8	360,0	712	18
26152	61G0,75	20,9	439,0	820	18
26153 OZ	2x1	5,5	19,0	48	17
26154	3G1	6,0	29,0	56	17
26155	4G1	6,6	38,0	70	17
26156	5G1	7,2	48,0	81	17
26157	7G1	8,6	67,0	109	17
26158	12G1	10,7	115,0	191	17
26159	18G1	12,7	173,0	274	17
26160	20G1	13,5	192,0	314	17
26161	25G1	15,6	240,0	340	17
26163	34G1	17,4	326,0	640	17
26164	42G1	18,9	403,0	804	17
26165	50G1	21,0	480,0	932	17
26166	61G1	22,2	586,0	1102	17

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.1)
26167 OZ	2x1,5	6,3	29,0	60	16
26168	3G1,5	6,7	43,0	79	16
26169	4G1,5	7,3	58,0	98	16
26170	5G1,5	8,2	72,0	112	16
26171	7G1,5	9,8	101,0	159	16
26172	12G1,5	12,1	173,0	280	16
26173	18G1,5	14,5	259,0	420	16
26174	20G1,5	15,2	288,0	480	16
26175	25G1,5	17,8	360,0	604	16
26176	34G1,5	19,8	490,0	812	16
26177	42G1,5	21,4	605,0	1002	16
26178	50G1,5	23,7	720,0	1240	16
26179	61G1,5	25,3	878,0	1421	16
26180 OZ	2x2,5	7,6	48,0	99	14
26181	3G2,5	8,3	72,0	136	14
26182	4G2,5	9,1	96,0	170	14
26183	5G2,5	10,2	120,0	204	14
26184	7G2,5	12,1	168,0	281	14
26185	12G2,5	15,2	288,0	487	14
26186	18G2,5	18,1	432,0	704	14
26187	25G2,5	22,2	600,0	909	14
26189	3G4	9,9	115,0	224	12
26190	4G4	11,0	154,0	289	12
26191	5G4	12,1	192,0	357	12
26192	7G4	13,3	269,0	451	12
26193	12G4	18,3	461,0	782	12
26195	3G6	11,7	173,0	345	10
26196	4G6	13,0	230,0	417	10
26197	5G6	14,5	288,0	521	10
26198	7G6	16,0	403,0	622	10
26199	3G10	15,0	288,0	537	8
26200	4G10	16,8	384,0	699	8
26201	5G10	18,7	480,0	851	8
26202	7G10	20,6	672,0	1102	8
26204	4G16	19,7	614,0	1028	4
26206	7G16	24,4	1075,0	1772	4
26208	4G25	25,2	960,0	1577	4
26212	4G35	29,0	1344,0	2097	4
26215	4G50	33,4	1920,0	2914	4

HELUKABEL® KOMPOFLEX® JZ-500-C

halogen-free, microbes resistant copper screened, EMC*-preferred type



HELUKABEL KOMPOFLEX JZ-500-C 4G1 QMM / 26247 300/500 V 001042069



Technical data

- Screened microbes resistant, halogen-free special control cable in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing -30°C to $+90^{\circ}\text{C}$
fixed installation -40°C to $+100^{\circ}\text{C}$
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm $\times$ km
- **Minimum bending radius**
flexing 75x cable $\varnothing$
- **Coupling resistance**
max. 250 Ohm/km
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Tinned copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special thermoplastic polymer core insulation
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal lay-length
- Inner-sheath to special thermoplastic polymer
- Screen of tinned cu braid, coverage approx. 85%
- Outer sheath, special thermoplastic polymer
- Colour black (RAL 9005)
- Low adhesion
- Microbes resistant

Application

HELUKABEL® KOMPOFLEX JZ-500-C control cable is significant due to its resistance against microbes. This cable is specially installed in rubbish, sewage-treatment plants, composting works, animal stalls and greenhouses. The inner sheaths of those cables raise the mechanical stress. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside. The high flexibility of this cable type makes it quick and easy to install. Resistant to UV-radiation, oxygene, ozone, microbes, hydrofluoric acid, hydrochloric acid and diluted sulfuric acid.

This screened cable is ideal for use in data signal transmission free from interferences for measurement and control engineering technology.

* **EMC** = Electromagnetic compatibility

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

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26217 OZ	2 x 0,5	6,9	33	68	20
26218	3 G 0,5	7,2	39	84	20
26219	4 G 0,5	7,8	46	95	20
26220	5 G 0,5	8,3	52	107	20
26221	7 G 0,5	9,5	69	135	20
26222	12 G 0,5	11,3	118	195	20
26223	18 G 0,5	13,1	155	278	20
26224	20 G 0,5	13,8	171	310	20
26225	25 G 0,5	15,7	251	406	20
26226	30 G 0,5	16,0	298	520	20
26227	34 G 0,5	17,4	320	571	20
26228	42 G 0,5	18,9	369	651	20
26229	50 G 0,5	20,9	470	760	20
26230	61 G 0,5	22,9	530	911	20
26231 OZ	2 x 0,75	7,6	41	88	18
26232	3 G 0,75	7,8	48	98	18
26233	4 G 0,75	8,3	55	112	18
26234	5 G 0,75	9,1	67	130	18
26235	7 G 0,75	10,4	85	185	18
26236	12 G 0,75	12,5	135	294	18
26237	18 G 0,75	14,3	190	357	18
26238	20 G 0,75	15,2	221	404	18
26239	25 G 0,75	17,6	275	510	18
26240	30 G 0,75	18,1	310	561	18
26241	34 G 0,75	19,5	340	670	18
26242	42 G 0,75	20,9	397	960	18
26243	50 G 0,75	23,2	582	1104	18
26244	61 G 0,75	25,0	679	1270	18

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26245 OZ	2 x 1	7,9	48	98	17
26246	3 G 1	8,2	59	102	17
26247	4 G 1	8,9	70	145	17
26248	5 G 1	9,5	84	171	17
26249	7 G 1	11,0	106	210	17
26250	12 G 1	13,1	174	330	17
26251	18 G 1	15,4	240	488	17
26252	20 G 1	16,0	294	545	17
26253	25 G 1	18,3	332	690	17
26254	30 G 1	18,8	390	770	17
26255	34 G 1	20,3	420	811	17
26256	42 G 1	21,8	588	996	17
26257	50 G 1	24,0	728	1320	17
26258	61 G 1	26,2	883	1480	17
26259 OZ	2 x 1,5	8,4	69	130	16
26260	3 G 1,5	9,0	75	154	16
26261	4 G 1,5	9,6	90	165	16
26262	5 G 1,5	10,5	108	197	16
26263	7 G 1,5	12,1	157	305	16
26264	12 G 1,5	14,9	240	435	16
26265	18 G 1,5	17,1	355	642	16

Continuation ►

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® KOMPOFLEX® JZ-500-C

halogen-free, microbes resistant copper screened, EMC*-preferred type

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26266	20G1,5	18,0	382	718	16
26267	25G1,5	20,7	448	803	16
26268	30G1,5	21,1	614	961	16
26269	34G1,5	22,7	754	1060	16
26270	42G1,5	24,4	821	1300	16
26271	50G1,5	26,8	1033	1677	16
26272	61G1,5	29,6	1238	1971	16
26273 OZ	2x2,5	10,0	89	180	14
26274	3G2,5	10,7	104	215	14
26275	4G2,5	11,4	134	268	14
26276	5G2,5	12,5	175	349	14
26277	7G2,5	15,0	225	404	14
26278	12G2,5	18,0	375	710	14
26279	18G2,5	21,2	522	891	14
26280	25G2,5	25,5	897	1104	14
26281 OZ	2x4	11,6	134	300	12
26282	3G4	12,3	178	340	12
26283	4G4	13,4	220	408	12
26284	5G4	14,8	327	504	12
26285	7G4	16,2	354	640	12
26286	12G4	21,8	661	894	12

Part No.	No. cores x cross-sec. mm²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26287 OZ	2x6	13,5	215	391	10
26288	3G6	14,2	241	453	10
26289	4G6	15,6	306	560	10
26290	5G6	17,0	437	680	10
26291	7G6	18,7	497	891	10
26292	3G10	17,8	370	730	8
26293	4G10	19,7	474	1004	8
26294	5G10	21,6	596	1170	8
26295	7G10	24,0	804	1405	8
26296	3G16	20,7	521	894	6
26297	4G16	22,6	987	1311	6
26298	5G16	25,2	1320	1550	6
26299	7G16	27,6	1575	1820	6
26300	3G25	26,0	1190	1430	4
26301	4G25	28,9	1312	1894	4
26302	5G25	31,8	1840	2272	4
26303	4G35	33,4	1590	2310	2
26304	5G35	37,2	1970	2740	2
26305	4G50	38,2	2118	3270	1
26306	5G50	43,0	2710	4080	1

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

*) Note
AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

HELUKABEL® KOMPOSPEED® 600 0,6/1 kV

HELUKABEL® KOMPOSPEED® 600-C

Double-insulated, halogen-free
Special Single Cores for drag chains, EMC*-preferred type



HELUKABEL KOMPOSPEED 600 1x10 QMM / 60289 0,6/1 kV 001042074

CE



HELUKABEL KOMPOSPEED 600-C 1x10 QMM / 60217 0,6/1 kV 001042075

CE

Technical data

- Special drag chain single cores for high mechanical stress, adapted to DIN VDE 0281 part 3
- **Temperature range**
flexing –30°C to + 90°C
fixed installation –40°C to +100°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
7,5x cores Ø

Resistant to

- Hydrofluoric acid
- Hydrochloric acid
- Diluted sulfuric acid
- Coolants
- Microbes
- UV-radiation
- Weather
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

KOMPOSPEED® 600

- Tinned copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, col. 4, BS 6360 cl. 6 and IEC 60228 cl. 6
- 1. Core insulation of special thermo-plastic polymer, natural coloured
- 2. Core insulation of special polyolefine, black (RAL 9005)

KOMPOSPEED® 600-C

- Structure as above up to 1. core insula.
- Screen of tinned cu-braid, coverage approx. 85%
- 2. core-insulation of special polyolefine, black (RAL 9005)

Note:

For application as a protective core, the ends are to be identified with green-yellow shrink-on tubes.

Features

- Very good oil resistant
- Halogen free
- Abrasion resistant

Application

The special single cores are used for permanent flexible applications in machineries, machine tools, composting appliances and sewage-treatment plants, animal stalls and greenhouses and used for permanent flexible application for movable automated machinery parts and multi-shift operation as well as in open air. These cables are installed for flexible use with free movements without tensile stress or forced movements and suitable for application in drag chains. The selected tinned copper wire conductor and tinned copper wire braid permit the installation in aggressive environments as well as hydrogen sulfide, ammonia and sulfur dioxide.

KOMPOSPEED® 600-C

These screened cables are particularly suitable for the interference-free transmission in instrumentation and control engineering applications (electromagnetic compatibility).

* **EMC** = Electromagnetic compatibility

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

KOMPOSPEED 600

Part no.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
60288	1 x 6	6,5	58	83	10
60289	1 x 10	8,4	96	132	8
60290	1 x 16	9,5	154	188	6
60291	1 x 25	11,5	240	281	4
60292	1 x 35	13,2	336	404	2
60293	1 x 50	15,2	480	531	1
60294	1 x 70	16,7	672	729	2/0
60295	1 x 95	20,0	912	1049	3/0
60296	1 x 120	21,5	1152	1220	4/0
60297	1 x 150	23,5	1440	1510	300 kcmil
60298	1 x 185	26,0	1776	1932	350 kcmil

KOMPOSPEED 600-C

Part no.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
60216	1 x 6	7,2	71	101	10
60217	1 x 10	9,1	122	168	8
60218	1 x 16	10,2	180	217	6
60219	1 x 25	12,3	282	342	4
60220	1 x 35	14,0	386	468	2
60221	1 x 50	16,0	535	584	1
60222	1 x 70	18,0	750	822	2/0
60223	1 x 95	21,3	1004	1190	3/0
60224	1 x 120	22,4	1260	1400	4/0
60225	1 x 150	24,6	1570	1710	300 kcmil
60226	1 x 185	28,0	1911	2021	350 kcmil

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).



Cable installation in composting work

HELUKABEL® KOMPOSPEED® JZ-HF-500

halogen-free, microbes resistant, cable for drag chains



HELUKABEL KOMPOSPEED JZ-HF-500 4G2,5 QMM / 26341 300/500 V 001042079 CE

Technical data

- Microbes resistant, halogen-free special control cable in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing -30°C to $+90^{\circ}\text{C}$
fixed installation -40°C to $+100^{\circ}\text{C}$
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm $\times$ km
- **Minimum bending radius**
flexing 75x cable $\varnothing$
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Cable structure

- Tinned copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special thermoplastic polymer core insulation for better sliding abilities
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece thermoplastic polymer
- Outer sheath, special thermoplastic polymer
- Colour black (RAL 9005)
- Low adhesion
- Microbes resistant

Application

HELUKABEL® KOMPOSPEED JZ-HF-500 control cable is significant due to its resistance against microbes. This cable is specially installed in rubbish, sewage-treatment plants, composting works, animal stalls and greenhouses. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside. The high flexibility of this cable type makes it quick and easy to install. Resistant to UV-radiation, oxygene, ozone, microbes, hydrofluoric acid, hydrochloric acid and diluted sulfuric acid.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
26307 OZ	2x0,5	5,0	9,6	42	20
26308	3G0,5	5,3	14,4	51	20
26309	4G0,5	5,7	19,1	62	20
26310	5G0,5	6,4	24,0	88	20
26311	7G0,5	7,5	33,6	119	20
26312	12G0,5	9,2	58,0	166	20
26313	18G0,5	11,1	86,4	273	20
26314	25G0,5	13,4	120,0	330	20
26315 OZ	2x0,75	5,4	14,4	53	18
26316	3G0,75	5,7	21,6	70	18
26317	4G0,75	6,4	29,0	92	18
26318	5G0,75	7,0	36,0	116	18
26319	7G0,75	8,3	50,0	159	18
26320	12G0,75	10,2	86,0	241	18
26321	18G0,75	12,1	130,0	346	18
26322	25G0,75	14,9	180,0	681	18
26323 OZ	2x1	5,7	19,2	60	17
26324	3G1	6,0	29,0	79	17
26325	4G1	6,8	38,5	107	17
26326	5G1	7,4	48,0	127	17
26327	7G1	8,8	67,0	181	17
26328	12G1	10,8	115,0	284	17
26329	18G1	13,0	173,0	397	17
26330	25G1	15,8	240,0	491	17

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
26331 OZ	2x1,5	6,4	29,0	88	16
26332	3G1,5	6,8	43,0	104	16
26333	4G1,5	7,4	58,0	137	16
26334	5G1,5	8,3	72,0	171	16
26335	7G1,5	9,9	101,0	264	16
26336	12G1,5	12,1	173,0	381	16
26337	18G1,5	14,5	259,0	579	16
26338	25G1,5	17,8	360,0	789	16
26339 OZ	2x2,5	7,7	48,0	118	14
26340	3G2,5	8,4	72,0	172	14
26341	4G2,5	9,1	96,0	197	14
26342	5G2,5	10,2	120,0	258	14
26343	7G2,5	12,2	168,0	347	14
26344	12G2,5	15,2	288,0	561	14
26345	18G2,5	18,1	432,0	791	14
26346	25G2,5	22,5	600,0	1090	14

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

HELUKABEL® KOMPOSPEED® JZ-HF-500-C halogen-free, microbes resistant, copper screened, cable for drag chains, EMC*-preferred type



HELUKABEL KOMPOSPEED JZ-HF-500-C 12G1 QMM / 26369 300/500 V 001042082 C E

Technical data

- Screened microbes resistant, halogen-free special control cable in adapted to DIN VDE 0281 part 13 and E DIN VDE 0245
- **Temperature range**
flexing -30°C to $+90^{\circ}\text{C}$
fixed installation -40°C to $+100^{\circ}\text{C}$
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Minimum bending radius**
flexing $75 \times \text{cable } \varnothing$
- **Coupling resistance**
max. 250 Ohm/km
- **Radiation resistance**
up to 100×10^6 cJ/kg (up to 100 Mrad)
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

* EMC = Electromagnetic compatibility

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

Cable structure

- Tinned copper, extra fine wire conductors, bunch stranded to DIN VDE 0295 cl. 6, BS 6360 cl. 6 and IEC 60228 cl. 6
- Special thermoplastic polymer core insulation, for better sliding abilities
- Black cores with continuous white numbering according to DIN VDE 0293
- Green-yellow earth core in the outer layer (3 cores and above)
- Cores stranded in layers with optimal selected lay-length
- Core wrapping with fleece
- Inner-sheath to special thermoplastic polymer
- Screen of tinned cu braid, coverage approx. 85%
- Fleece separator, ensure good dismantling ability
- Outer sheath, special thermoplastic polymer
- Colour black (RAL 9005)
- Low adhesion
- Microbes resistant

Application

HELUKABEL® KOMPOSPEED JZ-HF-500-C control cable is significant due to its resistance against microbes. This cable is specially installed in rubbish, sewage-treatment plants, composting works, animal stalls and greenhouses. The inner sheaths of those cables raise the mechanical stress. Suitable for installation for flexible use for medium mechanical stresses with free movement without tensile stress or forced movements in dry, moist and wet rooms as well as outside. The high flexibility of this cable type makes it quick and easy to install. Resistant to UV-radiation, oxygene, ozone, microbes, hydrofluoric acid, hydrochloric acid and diluted sulfuric acid. This screened cable is ideal for use in data signal transmission free from interferences for measurement and control engineering technology.

C E = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26347 OZ	2 x 0,5	6,9	47	90	20
26348	3 G 0,5	7,2	52	101	20
26349	4 G 0,5	7,8	55	119	20
26350	5 G 0,5	8,3	65	121	20
26351	6 G 0,5	9,1	70	144	20
26352	7 G 0,5	9,6	84	169	20
26353	12 G 0,5	11,3	117	250	20
26354	18 G 0,5	13,5	157	321	20
26355	25 G 0,5	15,8	227	445	20
26356 OZ	2 x 0,75	7,3	53	106	18
26357	3 G 0,75	7,8	62	116	18
26358	4 G 0,75	8,3	77	140	18
26359	5 G 0,75	9,1	86	148	18
26360	7 G 0,75	10,2	107	198	18
26361	12 G 0,75	12,6	156	294	18
26362	18 G 0,75	14,5	235	391	18
26363	25 G 0,75	17,3	313	562	18
26364 OZ	2 x 1	7,8	60	110	17
26365	3 G 1	8,1	70	131	17
26366	4 G 1	8,7	86	171	17
26367	5 G 1	9,5	99	179	17
26368	7 G 1	10,9	125	229	17
26369	12 G 1	13,1	186	348	17
26370	18 G 1	15,4	280	498	17
26371	25 G 1	18,6	378	669	17

¹) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

G = with green-yellow earth core
X = without green-yellow earth core (OZ)

Before installation in cable trays please read the instructions.

Further technical details see selection table for drag chain cables (pages 24ff).

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.¹)
26372 OZ	2 x 1,5	8,3	79	141	16
26373	3 G 1,5	8,7	94	162	16
26374	4 G 1,5	9,5	113	210	16
26375	5 G 1,5	10,2	129	233	16
26376	7 G 1,5	12,2	170	317	16
26377	12 G 1,5	14,5	280	471	16
26378	18 G 1,5	16,9	395	664	16
26379	25 G 1,5	20,6	533	914	16
26380 OZ	2 x 2,5	9,8	96	182	14
26381	3 G 2,5	10,5	150	264	14
26382	4 G 2,5	11,2	174	350	14
26383	5 G 2,5	12,6	200	394	14
26384	7 G 2,5	14,8	240	450	14
26385	12 G 2,5	18,0	410	712	14

Note

For applications which go beyond standard solutions (for example for composting appliances or high shelf conveyors with extremely high processing speeds etc.) we recommend for our especially developed enquiry sheet see page 23 for energy guiding systems.

Please remember . . .

. . . HELUKABEL® also delivers corresponding **cable accessories**, for easy work, rationalization, time and cost minimizing, whereby we do not forget your security and protection.

These convenient tools for work and installation of cables guarantees an enourmes advantage in handling and a "correct outfit".

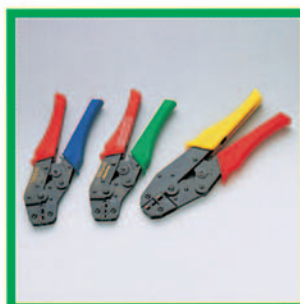


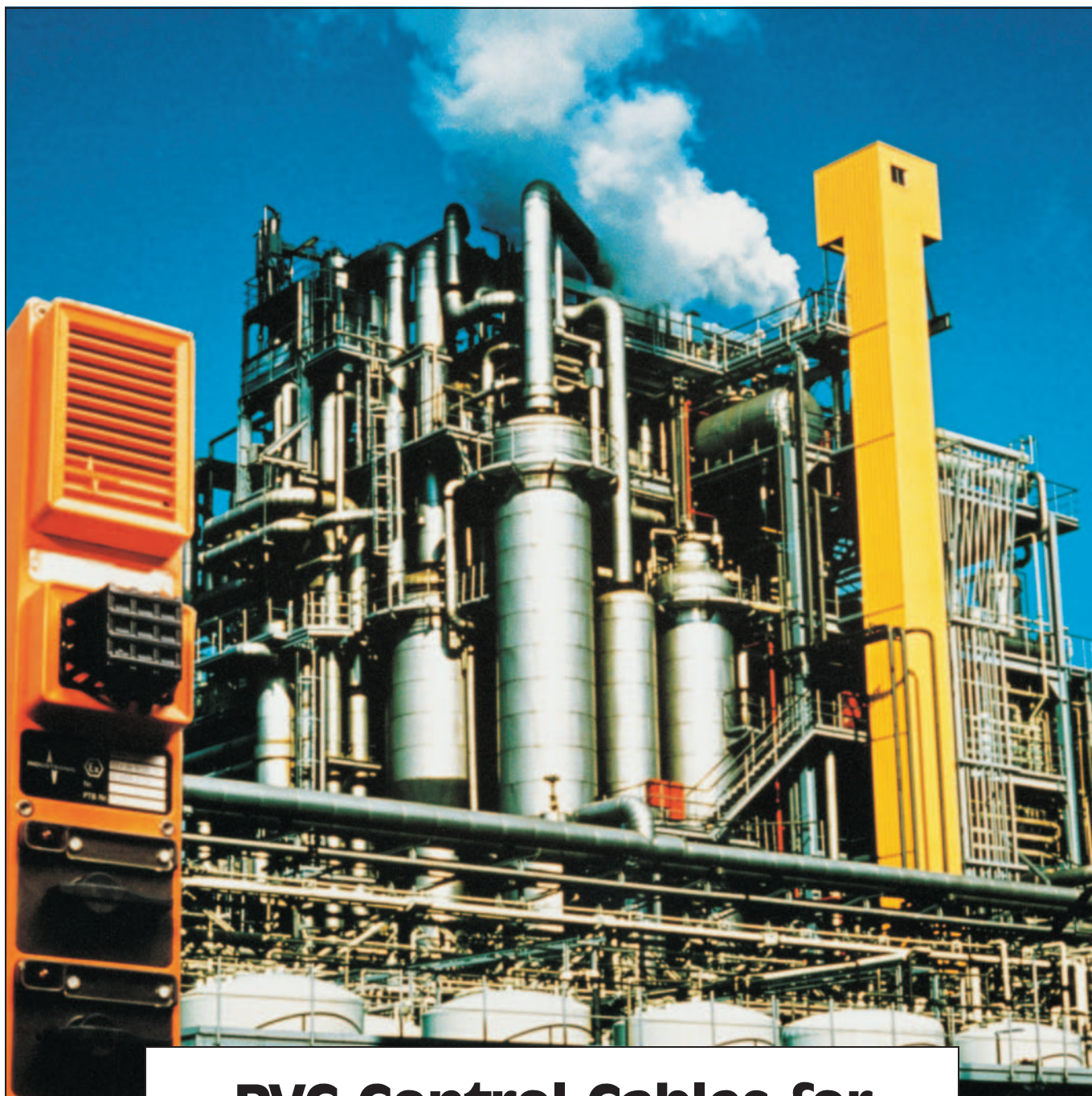
If you would like to learn more about our complete accessories programme please order our latest catalogue with attached mail order card.

Your cables are perfectly fixed, screwed, marked and protected.

Beside our standard HELUKABEL® accessories programme we have also new developments for glands, cable identifications, cable fixings, connectors, protection tubes and installation tools.

Please remember . . .





Works photo:
INDUSTRONIC*

PVC Control Cables for Intrinsically Safe Circuits

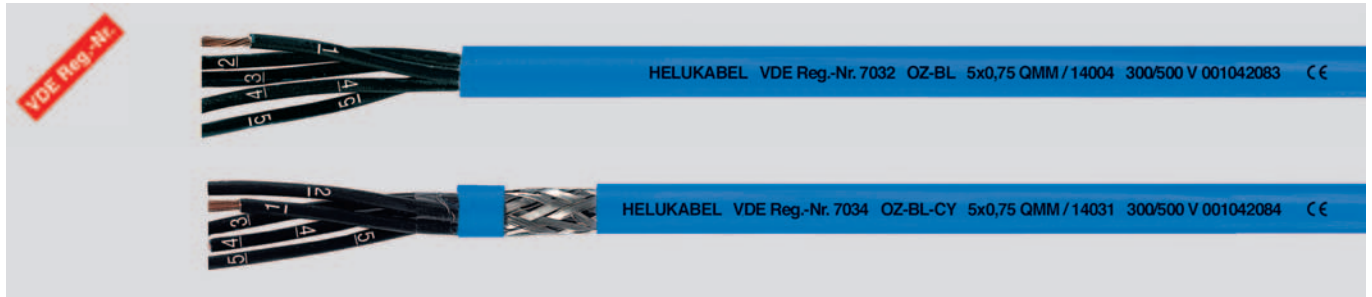
Electrical cables for intrinsically safe circuits (separate power circuit of hazard type-i-) have to be specially marked with a blue outer sheath (RAL 5015) according to DIN VDE. HELUKABEL® manufactures these cables according to DIN VDE 0165 and in addition, screened types according to DIN VDE 0165, part 1, EN 60079-14 and IEC 60079-14 section 12.2.2.6.

As these cables are installed with separate power circuit, the applications of green-yellow protective conductor is not allowed.

The installation of these cables outside of intrinsically safe circuits are not permitted. The installation can be done in dry and damp environments, but not in underground and in open air. The special PVC outer sheath material is resistant to oil and petrol as well as flame resistant. HELUKABEL® can deliver almost all the cables as per type-lists on the following pages, predominantly available in stock.

Special cables can be manufactured in short time.

* INDUSTRONIC – installation of intercom telephone equipment in hazardous area in DMT-plant of Dynamit-Nobel AG, workshop in Witten.



Technical data

- Control cable, special PVC with blue outer jacket for hazardous areas to hazard type -i- (= intrinsically safe)
- For intrinsically safe installation marking as per DIN VDE 0165 part 1, EN 60079-14 and IEC 60079-14 section 12.2.2.6
- Temperature range** flexing – 5°C to +80°C fixed installation –40°C to +80°C
- Nominal voltage** U_0/U 300/500 V
- Test voltage** 3000 V
- Breakdown voltage** min. 6000 V
- Insulation resistance** min. 20 MOhm x km
- Mutual capacitance** unscreened core/core approx. 120 nF/km screened core/core approx. 140 nF/km core/screen approx. 187 nF/km
- Inductance** approx. 0,68 mH/km for CY-type
- Coupling resistance** for CY-type max. 250 Ohm/km
- Minimum bending radius** OZ-BL 7,5x, OZ-BL-CY 10x cable $\varnothing$
- Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)

Cable structure OZ-BL

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation YI2, to DIN VDE 0207 part 4
- Black cores with white continuous figure imprint to DIN VDE 0293 without earth core
- Cores stranded in layers with optimal lay-length
- Special PVC outer sheath YM2, to DIN VDE 0207 part 5
- Colour blue (RAL 5015)
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Cable structure OZ-BL-CY

- As per OZ-BL up to – cores laid up
- Core wrapping of plastic foil
- Braiding, tinned copper wire screening, approx. 85% coverage
- PVC outer jacket, blue (RAL 5015)

Application

For hazardous areas the cables with special marking (blue) (hazard type-i-) used as flexible control and measuring cables to meet the requirements for the installation of electrical apparatus. These installations are not earthed and require a separate power circuit. Those cables are not suitable for underground laying.* The copper braided screening ensures the transmission of data signals and free from interference.

- Extensively oil resistant
- Chemical Resistance – see table Technical Informations

* EMC = Electromagnetic compatibility

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

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

* Note

AWG sizes are approximate equivalent values. The actual cross-section is in mm² – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
OZ-BL					
14001	2x0,75	5,2	14,4	46	18
14002	3x0,75	5,5	21,6	54	18
14003	4x0,75	6,2	29,0	66	18
14004	5x0,75	6,8	36,0	80	18
14075	7x0,75	8,1	52,0	110	18
14005	8x0,75	8,9	58,0	130	18
14076	12x0,75	9,9	88,0	179	18
14006	18x0,75	11,9	130,0	257	18
14007	25x0,75	14,5	180,0	365	18
14008	30x0,75	15,8	215,0	448	18
14009	34x0,75	16,4	245,0	510	18
14010	41x0,75	17,6	298,0	607	18
14011	2x1	5,5	19,0	60	17
14012	3x1	6,0	29,0	72	17
14013	4x1	6,6	38,0	86	17
14014	5x1	7,2	48,0	104	17
14015	7x1	8,6	67,0	141	17
14016	12x1	10,7	115,0	230	17
14017	18x1	12,7	173,0	343	17
14018	25x1	15,6	240,0	485	17
14019	2x1,5	6,3	29,0	70	16
14020	3x1,5	6,7	43,0	90	16
14021	4x1,5	7,3	58,0	109	16
14022	5x1,5	8,2	72,0	131	16
14023	7x1,5	9,8	101,0	184	16
14024	12x1,5	12,1	173,0	309	16
14025	18x1,5	14,5	259,0	440	16
14026	25x1,5	17,8	360,0	620	16
14027	30x1,5	20,0	440,0	842	16
14100	3x2,5	8,3	72,0	148	14
14101	4x2,5	9,1	96,0	178	14
14102	5x2,5	10,2	120,0	221	14

* For underground laying use NYY with blue outer sheath. PVC cables will be changed to lead free PVC successively.

Part No.	No. cores x cross-sec. mm ²	Outer $\varnothing$ ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
OZ-BL-CY					
14028	2x0,75	5,7	39,0	59	18
14029	3x0,75	6,2	49,0	66	18
14030	4x0,75	6,7	57,0	77	18
14031	5x0,75	7,2	69,0	93	18
14088	7x0,75	8,6	86,0	130	18
14032	8x0,75	9,4	88,0	145	18
14033	10x0,75	10,2	140,0	180	18
14034	12x0,75	10,4	151,0	202	18
14035	18x0,75	12,4	207,0	292	18
14036	20x0,75	12,9	220,0	362	18
14037	25x0,75	15,1	257,0	415	18
14038	30x0,75	15,6	297,0	486	18
14039	34x0,75	16,9	340,0	523	18
14040	41x0,75	18,3	397,0	680	18
14041	2x1	6,0	46,0	65	17
14042	3x1	6,5	56,0	81	17
14043	4x1	7,1	69,0	98	17
14044	5x1	7,6	85,0	127	17
14045	7x1	9,1	107,0	158	17
14046	12x1	11,2	186,0	260	17
14047	18x1	13,2	240,0	380	17
14048	25x1	16,2	342,0	534	17
14049	34x1	18,0	440,0	741	17
14050	2x1,5	6,8	63,0	88	16
14051	3x1,5	7,3	76,0	100	16
14052	4x1,5	8,1	96,0	126	16
14053	5x1,5	8,9	111,0	160	16
14054	7x1,5	10,5	147,0	208	16
14055	12x1,5	12,8	254,0	338	16
14056	18x1,5	15,2	367,0	479	16
14057	25x1,5	18,5	492,0	705	16
14058	30x1,5	19,0	550,0	830	16
14059	34x1,5	20,8	640,0	900	16

Further dimensions available on request.



HELUKABEL OB-BL-PAAR-CY 4x2x0.5 QMM / 14079 900 V 001042085 CE

Technical data

- Special PVC control cable with blue outer jacket for hazardous areas to hazard type -i- for intrinsically safe installation marking to DIN VDE 0165 part 1, EN 60079-14 and IEC 60079-14 section 12.2.2.6
- **Conductor resistance**
at 0,5 mm² ≤ 3,78 Ohm/km
at 0,75 mm² ≤ 25,3 Ohm/km
- **Temperature range**
flexing – 5°C to +80°C
fixed installation –30°C to +80°C
- **Nominal voltage** 900 V
(not for power installation)
- **Test voltage**
core/core 2000 V
core/screen 1000 V
- **Breakdown voltage** min. 4000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Mutual capacitance**
core/core approx. 105 nF/km
core/screen approx. 145 nF/km
- **Inductance** approx. 0,68 mH/km
- **Characteristic impedance**
approx. 80 Ohm
- **Minimum bending radius**
approx. 15 x cable Ø
- **Radiation resistance**
up to 80x10⁶ cJ/kg (up to 80 Mrad)
- **Coupling resistance**
max. 250 Ohm/km

Cable structure

- Bare copper, fine wire conductors, bunch stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation YI2, to DIN VDE 0207 part 4
- Cores colour coded according to DIN 47100, see page T 46
- Cores twisted in pairs
- Pairs stranded in layers with optimal lay-length
- Foil taped
- Tinned copper braided screening, approx. 80% coverage
- Special PVC outer sheath YM2, to DIN VDE 0207 part 5 colour blue RAL 5015
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant according to DIN VDE 0482 part 265-2-1/EN 50265-2-1/IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)

Application

For hazardous areas this flexible control cable has been constructed for closed circuit systems in accordance with VDE 0165 part 1, part 12.2.2.6, which covers the requirements for the special marking (blue) of this type (hazard type -i-).

The paired construction and the copper screening afford a good protection against electrical interference and ensure the transmission of data signals.

* **EMC** = Electromagnetic compatibility

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

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

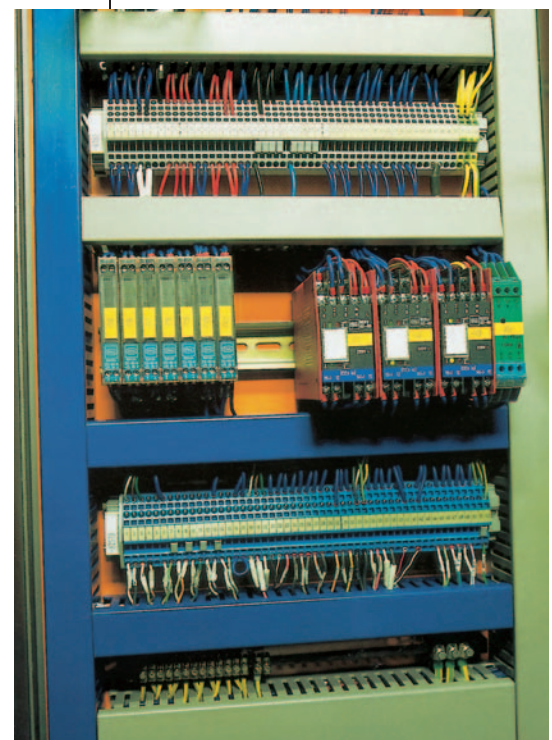
CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC and 93/68/EEC.

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
14077	2 x 2 x 0,5	8,0	46	89	20
14078	3 x 2 x 0,5	8,4	63	104	20
14079	4 x 2 x 0,5	9,1	81	126	20
14080	6 x 2 x 0,5	10,7	111	171	20
14081	8 x 2 x 0,5	13,0	137	251	20
14082	10 x 2 x 0,5	14,2	162	282	20
14083	12 x 2 x 0,5	14,4	185	261	20
14084	16 x 2 x 0,5	17,7	240	445	20
14085	20 x 2 x 0,5	19,2	291	525	20
14086	24 x 2 x 0,5	20,7	346	590	20
14087	25 x 2 x 0,5	20,9	358	622	20
14089	2 x 2 x 0,75	8,7	59	105	18
14090	3 x 2 x 0,75	9,2	87	128	18
14091	4 x 2 x 0,75	10,0	108	156	18
14092	6 x 2 x 0,75	11,1	146	216	18
14093	8 x 2 x 0,75	14,6	180	309	18
14094	10 x 2 x 0,75	16,0	220	355	18
14095	12 x 2 x 0,75	16,4	267	405	18
14096	16 x 2 x 0,75	20,0	330	560	18
14097	20 x 2 x 0,75	21,6	425	671	18
14098	24 x 2 x 0,75	24,3	488	795	18
14099	25 x 2 x 0,75	24,4	530	803	18

*) Note

AWG sizes are approximate equivalent values.
The actual cross-section is in mm² – see page T 15.

The solution for connecting the screen.
PVC cables will be changed to lead free PVC successively.



MCI-Switchboard with security barrier

Works photo: R. Stahl GmbH