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Flat Cables Ribbon Cables

Flat Cables

Ribbon Cables

Flat cables in PVC and neoprene design are used as trailing cables for cranes, open field conveyors and shelve service devices.

Flat cables offer the following advantages:

- Extremely small bending radius
- High flexibility
- Minimum waste of space
- Packeting possibility

An expert and proper installation is important to ensure a perfect functioning. Please follow the corresponding fitting instructions.

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Flat cables according to UL-standard are available on request.

Ribbon cables are ideal for use because of the excellent flexibility as connecting cable in electronics and in control engineering.



HELUKABEL PVC-flach 12G1,5 QMM / 27006 450/750 V 001042628



Technical data

- Special PVC-flat cable, adapted to DIN VDE 0283 part 2 and 0281 part 404, IEC 60227-6
- **Temperature range**
flexing - 5°C to +70°C
fixed installation -40°C to +80°C
- **Nominal voltage**
up to 1 mm² U₀/U 300/500 V
≥ 1,5 mm² U₀/U 450/750 V
- **Test voltage** 3000 V
- **Minimum bending radius**
approx. 10x cable Ø
- **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

Cable structure

- Bare copper, stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5 and IEC 60228 cl. 5
- Special PVC core insulation
- Cores laying parallel
- Core identification up to 5 cores to colour code DIN VDE 0293
7 cores and above with number printing
- Green-yellow earth core
- Special PVC outer jacket
- 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)

Advantages of flat cables

- Extremely small bending radius
- High flexibility
- Minimum waste of space
- Packaging possibility

Application

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

Installation notes

- Cables reels with flat cables must be transported in standing position on the flange. A bending flexibility can be achieved on a plane surface. For this purpose, the corresponding fitting instructions should be followed.
- Put the cable trolley on the guiding rail or upon carrier beam and push them together at the starting point. The distance between the bedding surface of two cable trolleys must be wider than the double thickness of a cable-packet.
 - During the packaging performance, it must be started with the smaller cross-section which lays on the bedding surface and will be builded successively so that the biggest cross-section is laying on the top.
 - Further, be careful of a symmetrical load distribution.
 - In case of multicore flat cables with small cross-section, smaller than 2,5 mm², is very critical due to its low tensile stress. In such case, you should add 10% reserve wire for calculation.

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. *)
26980	4G0,75	4,3 x 12,6	28,8	90	18
26981	5G0,75	4,3 x 16,1	36,0	115	18
26982	6G0,75	4,3 x 19,4	43,2	141	18
26983	9G0,75	4,3 x 26,4	64,8	198	18
26984	10G0,75	4,3 x 30,1	72,0	224	18
26985	12G0,75	4,3 x 33,8	84,4	258	18
26986	16G0,75	4,3 x 44,4	115,2	340	18
26987	18G0,75	4,3 x 49,2	129,6	380	18
26988	20G0,75	4,3 x 55,0	144,0	424	18
26989	24G0,75	4,3 x 65,6	172,8	509	18
26990	3G1	4,5 x 10,8	28,8	80	17
26991	4G1	4,5 x 13,4	38,4	104	17
26992	5G1	4,5 x 16,0	48,0	134	17
26993	6G1	4,5 x 20,6	57,6	161	17
26994	9G1	4,5 x 28,4	86,4	230	17
26995	10G1	4,5 x 30,0	96,0	256	17
26996	12G1	4,5 x 36,2	115,2	298	17
26997	16G1	4,5 x 47,6	153,6	395	17
26998	18G1	4,5 x 52,8	172,8	441	17
26999	20G1	4,5 x 59,0	192,0	495	17
27000	24G1	4,5 x 70,4	230,4	590	17
27001	4G1,5	4,5 x 13,7	58,0	133	16
27002	5G1,5	4,5 x 17,9	72,0	169	16
27003	7G1,5	4,5 x 23,5	101,0	235	16
27004	8G1,5	4,5 x 26,8	115,0	265	16
27005	10G1,5	4,5 x 33,5	144,0	332	16
27006	12G1,5	4,5 x 38,9	173,0	421	16
27028	16G1,5	4,5 x 51,5	230,4	555	16

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

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
27007	4G2,5	5,5 x 17,0	96,0	205	14
27008	5G2,5	5,5 x 21,5	120,0	256	14
27009	7G2,5	5,5 x 30,3	168,0	344	14
27010	8G2,5	5,5 x 31,9	192,0	389	14
27011	12G2,5	5,8 x 47,1	288,0	580	14
27029	16G2,5	5,8 x 55,1	384,0	674	14
27012	24G2,5 (6x4)	15,0 x 63,0	604,0	950	14
27027	24G2,5	5,8 x 120,0	604,0	950	14
27013	4G4	7,0 x 21,8	154,0	344	12
27014	5G4	7,0 x 27,4	192,0	428	12
27015	7G4	7,9 x 36,6	269,0	590	12
27016	4G6	8,2 x 24,8	230,0	424	10
27017	5G6	8,2 x 31,8	288,0	530	10
27018	7G6	8,2 x 42,6	403,0	760	10
27019	4G10	10,0 x 29,6	384,0	710	8
27020	4G16	11,2 x 34,4	614,0	1014	6
27021	4G25	13,7 x 42,6	960,0	1365	4
27022	4G35	15,4 x 47,6	1344,0	2100	2
27023	4G50	18,2 x 57,0	1920,0	2940	1
27024	4G70	20,0 x 64,2	2688,0	4090	2/0
27025	5G16	13,0 x 46,6	768,0	1370	6
27026	5G25	15,5 x 55,5	1200,0	2000	4

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

NEO-Flat (NGFLGÖU)



HELUKABEL NEO-flach 12G1,5 QMM / 28006 300/500 V 001042630



Technical data

- Special Neoprene-flat cable to DIN VDE 0250 part 809
- **Temperature range**
flexing -25°C to +60°C
fixed installation -40°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Minimum bending radius**
approx. 10 x cable \varnothing
- **Radiation resistance**
up to 50×10^6 cJ/kg (up to 50 Mrad)
- Test 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, stranded to DIN VDE 0295, BS 6360 cl. 5 and IEC 60228, fine or extra fine wire stranded according to different cross-sections
1 to 25 mm² – class 6, col. 4
35 to 95 mm² – class 5
- Special rubber core insulation GI1, to DIN VDE 0207 part 20
- Core identification up to 5 cores, colour code to DIN VDE 0293
7 cores and above with number printing
- Cores laying parallel
- Green-yellow earth core
- Special rubber outer sheath 5GM2, to DIN VDE 0207 part 21, cold-resistant
- Colour black
- Extensively oil resistant
Chemical Resistance – see table Technical Informations

Advantages of flat cables

- Extremely small bending radius
- High flexibility
- Minimum waste of space
- Packeting possibility

Application

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

These cables are also available for export with UL-approval.

Installation notes

- Cables reels with flat cables must be transported in standing position on the flange. A bending flexibility can be achieved on a plane surface. For this purpose, the corresponding fitting instructions should be followed.
- Put the cable trolley on the guiding rail or upon carrier beam and push them together at the starting point. The distance between the bedding surface of two cable trolleys must be wider than the double thickness of a cable-packet.
 - During the packeting performance, it must be started with the smaller cross-section which lays on the bedding surface and will be builded successively so that the biggest cross-section is laying on the top.
 - Further, be careful of a symmetrical load distribution.
 - In case of multicore flat cables with small cross-section, smaller than 2,5 mm², is very critical due to its low tensile stress. In such case, you should add 10% reserve wire for calculation.

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. *)
28001	4G1,5	5,9 x 16,2	58,0	234	16
28002	5G1,5	5,9 x 23,7	72,0	304	16
28003	7G1,5	5,9 x 30,5	101,0	391	16
28004	8G1,5	5,9 x 34,0	115,0	441	16
28005	10G1,5	5,9 x 43,5	144,0	460	16
28006	12G1,5	6,5 x 50,4	173,0	646	16
28007	24G1,5 (6 x 4)	13,0 x 56,0	346,0	1290	16
28008	4G2,5	7,2 x 19,6	96,0	316	14
28009	5G2,5	7,2 x 27,8	120,0	391	14
28010	7G2,5	7,2 x 36,1	168,0	533	14
28011	8G2,5	7,2 x 40,2	192,0	602	14
28012	12G2,5	7,8 x 59,4	288,0	890	14
28013	24G2,5 (6 x 4)	15,5 x 66,8	576,0	1480	14
28014	4G4	8,8 x 24,2	154,0	506	12
28015	5G4	8,8 x 33,4	192,0	621	12
28016	7G4	8,8 x 42,5	269,0	851	12
28017	4G6	9,6 x 27,4	230,0	661	10
28018	5G6	9,6 x 37,4	288,0	740	10
28019	7G6	9,6 x 47,2	403,0	1004	10

Part No.	No. cores x cross-sec. mm ²	Outer \varnothing ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
28020	4G10	10,4 x 30,8	384,0	1027	8
28021	5G10	10,4 x 41,6	480,0	1171	8
28022	4G16	11,6 x 35,6	614,0	1430	6
28023	5G16	12,2 x 48,2	768,0	1590	6
28024	4G25	14,1 x 45,8	960,0	1890	4
28025	5G25	14,7 x 58,3	1200,0	2215	4
28026	7G25	15,3 x 78,7	1680,0	3000	4
28027	4G35	15,8 x 50,8	1344,0	2460	2
28028	5G35	16,4 x 64,4	1680,0	2880	2
28029	7G35	16,4 x 86,4	2352,0	4100	2
28030	4G50	18,6 x 60,2	1920,0	3385	1
28031	4G70	21,0 x 68,0	2688,0	4480	2/0
28032	4G95	24,1 x 78,6	3648,0	5990	3/0
28033	4G120	25,5 x 84,2	4608,0	7240	4/0

*) Note

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

Further dimensions on request.

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

HELUKABEL® PVC-Flat-CY screened, EMV*-preferred type



HELUKABEL PVC-flach-CY 5x4x0,5 QMM / 27101 300/500 V 001042630



Technical data

- Special PVC-flat cable, screened, adapted to DIN VDE 0283 part 2
- **Temperature range**
 - flexing - 5°C to +70°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
- **Minimum bending radius** approx. 15 x cable \varnothing
- **Radiation resistance** up to 80×10^6 cJ/kg (up to 80 Mrad)
- 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, fine wire conductors according to DIN VDE 0295 and IEC 60228 cl. 5, BS 6360 cl. 5
- Special PVC insulation
- Core identification see below
- Cores screened individually or in bunches
- Cores laying parallel
- Copper screened braiding, approx. 85% coverage
- Special PVC outer jacket black (RAL 9005)
- Extensively oil resistant

Application

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

Advantages of flat cables

- Extremely small bending radius
- High flexibility
- Minimum waste of space
- Packaging possibility

The high degree of screening density assures disturbance-free transmission of all signal and impulses.

* **EMV** = Electromagnetic compatibility

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

Installation notes

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

- Put the cable trolly on the guiding rail or upon carrier beam and push them together at the starting point. The distance between the bedding surface of two cable trollys must be wider than the double thickness of a cable-packet.
- During the packaging performance, it must be started with the smaller cross-section which lays on the bedding surface and will be builded successively so that the biggest cross-section is laying on the top. Further, be careful of a symmetrical load distribution.
- In case of multicore flat cables with small cross-section, smaller than $2,5 \text{ mm}^2$, is very critical due to its low tensile stress. In such case, you should add 10% reserve wire for calculation.

CE = Das Produkt ist normkonform zur EG-Niederspannungsrichtlinie 73/23/EWG bzw. 93/68/EWG.

Part No.	No. cores x cross-sec. mm ²	Color code according	Outer \varnothing ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
27100	5G0,5	colour coded, green-yellow earth core	21,0x3,4	64	92	20
27101	5x4x0,5	ye, gn, rd, bu/5 bunch á 4 cores	37,4x7,2	175	280	20
27102	8x7x0,5	black cores with white numbering, green-yellow earth core/8 bunch á 7 cores	68,6x11,7	480	650	20
27090	4G0,75	colour coded according DIN VDE 0293, green-yellow earth core	15,0x5,0	70	147	18
27103	4x4x1	black cores with white numbering, green-yellow earth core/4 bunch á 4 cores	33,5x11,0	310	350	17
27091	4G1,5	colour coded according DIN VDE 0293, green-yellow earth core	18,7x5,9	116	200	16
27092	8G1,5	black cores with white numbering, green-yellow earth core	35,6x5,9	217	415	16
27093	12G1,5	black cores with white numbering, green-yellow earth core	52,1x5,9	266	585	16
27094	4G2,5	colour coded according DIN VDE 0293, green-yellow earth core	21,0x6,9	170	285	14
27104	6G2,5	colour coded according DIN VDE 0293, green-yellow earth core	37,4x6,9	240	320	14
27095	4G4	colour coded according DIN VDE 0293, green-yellow earth core	12,5x7,7	225	400	12
27096	4G6	colour coded according DIN VDE 0293, green-yellow earth core	10,1x9,2	328	500	10
27097	4G10	colour coded according DIN VDE 0293, green-yellow earth core	35,8x10,5	525	840	8
27098	4G16	colour coded according DIN VDE 0293, green-yellow earth core	41,3x12,6	788	1246	6
27099	4G25	colour coded according DIN VDE 0293, green-yellow earth core	48,4x14,4	1170	1780	4

*) Note

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

Further dimensions on request.

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

HELUKABEL® NEO-Flat-CY (MCHÖU) screened, EMV*-preferred type



HELUKABEL NEO-flach-CY 8x0,5 QMM / 28100 300/500 V 001042631



Technical data

- Special-Neoprene-flat cable, screened, adapted to DIN VDE 0250 part 809
- **Temperature range**
 - flexing - 5°C to +70°C
 - fixed installation -35°C to +80°C
- **Nominal voltage** U_0/U 300/500 V
- **Test voltage** 3000 V
- **Minimum bending radius**
approx. 15 x cable \varnothing
- **Radiation resistance**
- Test 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 according to DIN VDE 0295 Kl. 6 and IEC 60228 cl. 6, BS 6360 cl. 6
- Special rubber core insulation
- Core identification up to 5 cores to colour code DIN VDE 0293, 7 cores and above with number printing
- Cores screened individually or in bunches
- Cores laying parallel
- Copper screened braiding, approx. 85% coverage
- Special Neoprene outer jacket black (RAL 9005)
- Outer jacket cold resistant
- Extensively oil resistant

Application

Neoprene screened flat cables are used mainly as trailing cable for crane installations, floor conveyer systems and shelf control units. These cables are also available for export with UL-approval.

Advantages of flat cables

- Extremely small bending radius
- High flexibility
- Minimum waste of space
- Packeting possibility

The high degree of screening density assures disturbance-free transmission of all signal and impulses.

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

Installation notes

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

- Put the cable trolly on the guiding rail or upon carrier beam and push them together at the starting point. The distance between the bedding surface of two cable trollys must be wider than the double thickness of a cable-packet.
- During the packeting performance, it must be started with the smaller cross-section which lays on the bedding surface and will be builded successively so that the biggest cross-section is laying on the top. Further, be careful of a symmetrical load distribution.
- In case of multicore flat cables with small cross-section, smaller than 2,5 mm², is very critical due to its low tensile stress. In such case, you should add 10% reserve wire for calculation.

CE = Das Produkt ist normkonform zur EG-Niederspannungsrichtlinie 73/23/EWG bzw. 93/68/EWG.

Part No.	No. cores x cross-sec. mm ²	Outer \varnothing ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.*)
28100	8G1,5	7,9 x 42,0	231,0	260	16
28101	12G1,5	7,9 x 61,0	346,0	380	16
28102	4G2,5	8,5 x 25,5	164,0	250	14
28103	6G2,5	8,5 x 34,5	247,0	365	14
28104	12G2,5	8,9 x 68,0	494,0	620	14

G = with green-yellow earth core

*) Note

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

Further dimensions on request.



Works photo: GRESSE GmbH

Ribbon cables type L, type L AWG28 and type D CE

Type L AWG 28



Type D
Type L



Technical data/design Type L (stranded wire)

- Special PVC-Ribbon cable
- Tinned copper, fine wire stranded to DIN VDE 0295 cl. 5, BS 6360 cl. 5
- PVC core insulation, flame retardant
- **Pitch 2,54 mm**
(distance-mid to mid of both conductors)
- Increased heat-resistance
- Cores colour coded
- **Nominal voltage**
0,14 mm² = 350 V
0,25 to 0,75 mm² = 600 V
- **Test voltage**
0,14 mm² = 1200 V
0,25 to 0,75 mm² = 2000 V

Technical data/design Type L AWG 28 (stranded wire)

- Special PVC-Ribbon cable
- Tinned copper 7x0,127
- PVC core insulation, flame retardant
- **Pitch 1,27 mm**
(distance-mid to mid of both conductors)
- Cores moulded, can be separated easily
- Heat-resistance up to 105°C
- Cores single coloured, edge marking on one side
- **Nominal voltage** 300 V
- **Test voltage** 2000 V
- 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)

Technical data/design Type D (solid)

- Special PVC-Ribbon cable
- Cu-solid, tinned 0,5 mm Ø
- PVC core insulation
- Cores moulded, can be separated easily
- **Pitch 2,5 mm**
(distance-mid to mid of both conductors)
- Cores colour coded
- **Nominal voltage** 500 V
- **Test voltage** 1500 V

Application

Ribbon cables are used as connecting and control cables wherever there is a need to install quickly and with a minimum waste of space. These cables offer an excellent degree of flexibility.

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

Type L (colour coded)

Part No.	No. cores x cross-sec. mm ²	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no. *)
44001	2x0,14	3,9x1,4	2,7	7	26
44002	3x0,14	6,4x1,4	4,0	11	26
44003	4x0,14	8,9x1,4	5,4	14	26
44004	5x0,14	11,3x1,4	6,7	18	26
44005	6x0,14	13,9x1,4	8,1	21	26
44006	7x0,14	16,4x1,4	9,4	25	26
44007	8x0,14	18,9x1,4	10,7	28	26
44008	9x0,14	21,4x1,4	13,4	32	26
44009	10x0,14	23,9x1,4	14,4	35	26
44010	11x0,14	26,4x1,4	15,3	39	26
44011	12x0,14	28,9x1,4	16,1	42	26
44012	16x0,14	38,9x1,4	21,5	56	26
44013	20x0,14	48,9x1,4	27,0	70	26
44014	4x0,25	9,1x1,6	9,6	21	24
44015	5x0,25	11,6x1,6	12,0	26	24
44016	6x0,25	14,1x1,6	14,4	31	24
44017	7x0,25	16,6x1,6	16,8	36	24
44018	8x0,25	19,1x1,6	19,2	42	24
44019	10x0,25	24,1x1,6	24,0	52	24
44020	12x0,25	29,1x1,6	28,8	62	24
44021	16x0,25	39,1x1,6	38,4	83	24
44022	20x0,25	49,1x1,6	48,0	104	24
44023	4x0,5	9,0x2,0	19,2	38	20
44024	5x0,5	12,0x2,0	24,0	48	20
44025	6x0,5	15,0x2,0	28,8	57	20
44026	7x0,5	17,0x2,0	33,6	66	20
44027	8x0,5	20,0x2,0	38,4	76	20
44028	10x0,5	23,0x2,0	48,0	95	20
44029	12x0,5	30,0x2,0	58,0	114	20
44030	16x0,5	40,0x2,0	77,0	151	20
44031	20x0,5	50,0x2,0	101,0	190	20
44032	4x0,75	10,6x2,5	29,0	52	18
44033	5x0,75	13,3x2,5	36,0	64	18
44034	6x0,75	16,0x2,5	43,2	77	18
44035	7x0,75	18,7x2,5	50,0	90	18
44036	8x0,75	21,4x2,5	58,0	103	18
44037	10x0,75	26,8x2,5	72,0	130	18
44038	12x0,75	32,2x2,5	86,0	155	18
44039	16x0,75	43,0x2,5	112,0	206	18
44040	20x0,75	53,4x2,5	151,0	260	18

Single core, paired and screened versions available on request.
PVC cables will be changed to lead free PVC successively.

Type L AWG 28 (single coloured, edge marking on one side)

Part No.	No. cores x cond. Ø / core Ø mm	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
44041	10x0,08	12,7x0,9	13,4	30
44042	14x0,08	17,8x0,9	18,0	50
44043	16x0,08	20,3x0,9	20,0	53
44044	20x0,08	25,4x0,9	25,0	65
44045	26x0,08	33,0x0,9	32,0	75
44046	34x0,08	43,2x0,9	43,0	90
44047	40x0,08	50,8x0,9	48,0	125
44048	48x0,08	61,0x0,9	59,0	145

Type D (colour coded)

Part No.	No. cores x cond. Ø / core Ø mm	Outer Ø ca. mm	Cop. weight kg / km	Weight ca. kg / km
44049	2x0,5/1.1	3,9x1,4	10,0	10
44050	3x0,5/1.1	6,4x1,4	14,0	14
44051	4x0,5/1.1	8,9x1,4	19,0	17
44052	5x0,5/1.1	11,4x1,4	24,0	21
44053	6x0,5/1.1	13,9x1,4	29,0	25
44054	7x0,5/1.1	16,4x1,4	34,0	29
44055	8x0,5/1.1	18,9x1,4	38,0	33
44056	9x0,5/1.1	21,4x1,4	42,0	37
44057	10x0,5/1.1	23,9x1,4	48,0	41
44058	11x0,5/1.1	26,4x1,4	56,0	47

Standard colour-code (not to DIN 47100)

1 white	17 white-red	34 yellow-red
2 brown	18 white-black	35 yellow-black
3 green	19 brown-green	36 red-black
4 yellow	20 brown-yellow	37 red-blue
5 grey	21 brown-grey	38 red-grey
6 pink	22 brown-pink	39 grey-blue
7 blue	23 brown-blue	40 grey-black
8 red	24 brown-red	41 pink-grey
9 black	25 brown-black	42 pink-blue
10 violet	26 green-grey	43 pink-red
11 white-brown	27 green-pink	44 pink-black
12 white-green	28 green-blue	45 violet-white
13 white-yellow	29 green-red	46 violet-yellow
14 white-grey	30 green-black	47 violet-red
15 white-pink	31 yellow-grey	48 violet-black
16 white-blue	32 yellow-pink	49 blue-black
	33 yellow-blue	

The first colour is the basic colour, the second colour in form of ring.

TUBEFLEX-Y roundshaped Flat Ribbon Cable for IDC-technique, Pitch 1,27 mm



HELUKABEL TUBEFLEX-Y 14xAWG28 / 45132 300 V 001042632 CE

Technical data

- Roundshaped special Flat Ribbon Cable
- **Conductor resistance** at 20°C
max. 230 Ohm/km
- **Temperature range**
-20°C up to +80°C
- **Voltage rating** max. 300 V
- **Test voltage**
core/core 2000 V
- **Dielectric strength, Spark-test**
3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Capacitance** (side cores)
ca. 75 pF/m
- **Impedance** 115 Ohm
- **Minimum bending radius**
15 x cable Ø
- **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

Cable structure

- Stranded tinned copper conductor, size AWG 28
7 x 0,127 mm = 0,09 mm²
- Special PVC core insulation, adapted to DIN VDE 0207 part 4
- Cores colour grey, edge marking on one side
- Cores laying parallel and adjacent, alternately spliced or separated and periodically slotted
- Roundshaped flat ribbon cable, folded
- Taping
- Special PVC outer sheath, adapted to DIN VDE 0207 part 5
- Colour grey
- 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

TUBEFLEX-Y Flat ribbon cable, due to its roundshape offers considerable advantages compared with other flat ribbon cables during the installation and assembly. This roundshaped cable bids enormous profits by using the quick and economical possibilities under continuance with the efficient connection in IDC-technique. All conductors can be contacted at one working procedure without stripping the insulation. The accurate to size pitch-image of the ribbon cable is obtained due to an adapted backshaping before the plug installation.

Very interesting for cable pre-assemblers!

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

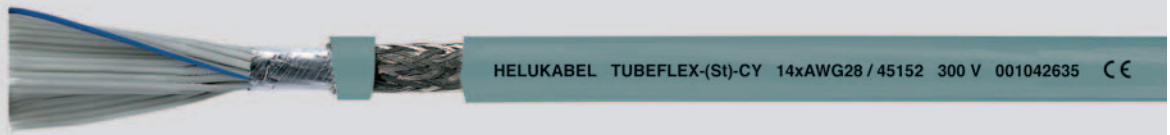
Part No.	No. of cores x cross-section AWG 28 = 0,09 mm ² (7 x 0,127 mm)	Flat ribbon dimension width mm	Outer jacket nominal wall-thickness mm	Outer Ø ca. mm	Copper-weight kg / km	Cable weight ca. kg / km
45130	9 x AWG 28	11,43	0,8	6,1	8,7	35
45131	10 x AWG 28	12,70	0,8	6,2	9,7	36
45132	14 x AWG 28	17,78	0,8	7,2	13,6	48
45133	16 x AWG 28	20,30	0,8	7,2	15,5	51
45134	20 x AWG 28	25,40	0,8	8,3	19,4	57
45135	24 x AWG 28	30,48	0,8	8,6	23,2	66
45136	25 x AWG 28	31,75	0,8	8,6	24,2	69
45137	26 x AWG 28	33,02	0,8	8,6	25,2	70
45138	30 x AWG 28	38,10	0,8	9,0	29,0	81
45139	34 x AWG 28	43,20	0,8	10,0	32,9	87
45140	36 x AWG 28	45,72	0,8	10,2	34,9	91
45141	37 x AWG 28	47,00	1,0	10,3	35,8	93
45142	40 x AWG 28	50,80	1,0	10,5	38,7	101
45143	50 x AWG 28	63,50	1,0	11,1	48,4	118
45144	60 x AWG 28	76,20	1,0	11,4	58,1	135
45145	64 x AWG 28	81,30	1,0	11,6	62,0	147

**) Note

AWG equivalent values – see page T 15.

PVC cables will be changed to lead free PVC successively.

TUBEFLEX-(St)-CY Roundshaped Flat Ribbon Cable, screened for IDC-technique, Pitch 1,27 mm EMC*-preferred type



Technical data

- Roundshaped special Flat Ribbon Cable, screened
- **Conductor resistance** at 20°C
max. 230 Ohm/km
- **Temperature range**
-20°C up to +80°C
- **Voltage rating** max. 300 V
- **Test voltage**
core/core 2000 V
core/screen 2000 V
- **Dielectric strength, Spark-test**
3000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Capacitance** (side cores)
ca. 75 pF/m
- **Impedance** 115 Ohm
- **Minimum bending radius**
15 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

- Stranded tinned copper conductor, size AWG 28
7 x 0,127 mm = 0,09 mm²
- Special PVC core insulation, adapted to DIN VDE 0207 part 4
- Cores colour grey, edge marking on one side
- Cores laying parallel and adjacent, alternately spliced or separated and periodically slotted
- Roundshaped flat ribbon cable, folded
- Dual shielding:
(St) - plastic coated Alu-foil and
(C) - tinned copper wire braiding with optimal surface coverage
- Special PVC outer sheath, adapted to DIN VDE 0207 part 5
- Colour grey
- 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

TUBEFLEX-(St)-CY Flat ribbon cable, due to its roundshape offers considerable advantages compared with other flat ribbon cables during the installation and assembly. This roundshaped cable bids enormous profits by using the quick and economical possibilities under continuance with the efficient connection in IDC-technique. All conductors can be contacted at one working procedure without stripping the insulation. The accurate to size pitch-image of the ribbon cable is obtained due to an adapted backshaping before the plug installation.

Very interesting for cable pre-assemblers!

The dual shielding with plastic coated aluminium foil (St) and the additional tinned copper wire braiding (C) protects against high frequency interference and ensures disturbance-free signal and impuls transfer.

* **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. of cores x cross-section AWG 28 = 0,09 mm ² (7 x 0,127 mm)	Flat ribbon dimension width mm	Outer jacket nominal wall-thickness mm	Outer Ø ca. mm	Copper-weight kg / km	Cable weight ca. kg / km
45150	9 x AWG 28	11,43	0,8	6,3	30,9	56
45151	10 x AWG 28	12,70	0,8	6,4	31,9	57
45152	14 x AWG 28	17,78	0,8	7,2	35,6	70
45153	16 x AWG 28	20,30	0,8	7,4	42,0	75
45154	20 x AWG 28	25,40	0,8	7,8	45,8	83
45155	24 x AWG 28	30,48	0,8	9,0	54,3	97
45156	25 x AWG 28	31,75	0,8	9,0	55,2	100
45157	26 x AWG 28	33,02	0,8	9,0	60,0	101
45158	30 x AWG 28	38,10	0,8	9,2	60,4	113
45159	34 x AWG 28	43,20	0,8	10,2	68,1	122
45160	36 x AWG 28	45,72	0,8	10,4	70,1	126
45161	37 x AWG 28	47,00	1,0	10,5	71,1	128
45162	40 x AWG 28	50,80	1,0	10,6	74,1	135
45163	50 x AWG 28	63,50	1,0	11,3	88,3	160
45164	60 x AWG 28	76,20	1,0	12,9	98,7	172
45165	64 x AWG 28	81,30	1,0	13,3	107,2	192

** Note

AWG equivalent values - see page T 15.

PVC cables will be changed to lead free PVC successively.