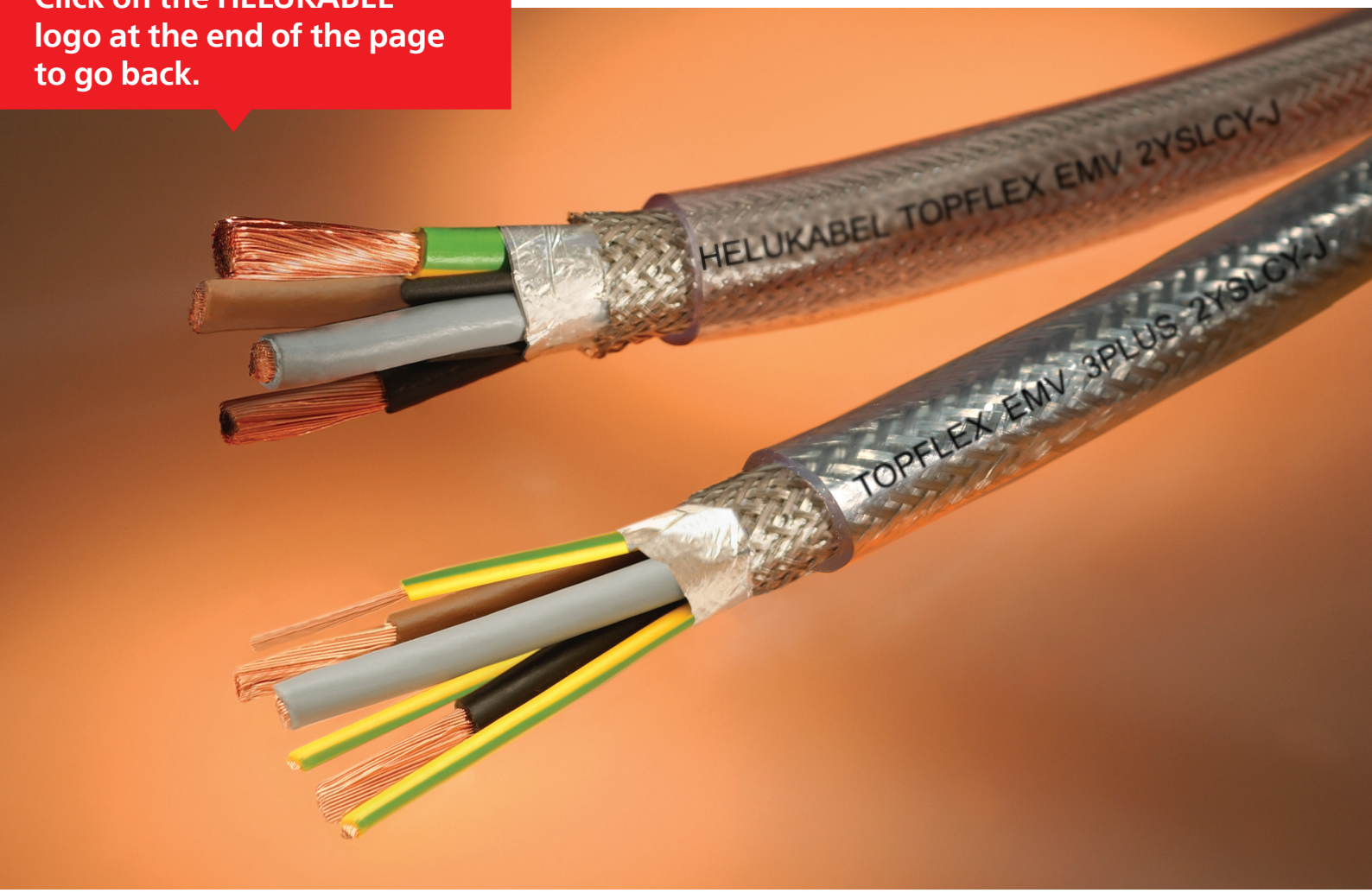
Just click on the products in the selection table. Click on the HELUKABEL logo at the end of the page to go back.

HELUKABEL®



Cables & Wires

Selection table for motor, servor & feedback cables

www.helukabel.com

MOTOR, SERVO, & FEEDBACK CABLES

	Temperature (°C) - flexing	Temperature (°C) - fixed	Nominal voltage U_0/U	Bending radius - flexing x Ø	Bending radius - fixed x Ø	Halogen-free	UV-resistant	Outdoor use	Drag chain	Colored cores/VDE 0293	Screened/shielded	HAR/VDE REG no./VDE	UL/CSA	Page
Motor, servo, and feedback cables														
TOPFLEX® 600-PVC	-15 to +80	-40 to +80	0.6/1 kV	7.5x	4x									197
TOPFLEX® 600-C-PVC	-15 to +80	-40 to +80	0.6/1 kV	7.5x	4x						X			198
TOPFLEX® 611-PUR	-30 to +80	-40 to +80	0.6/1 kV	7.5x	4x	X	X	X	X					199
TOPFLEX® 611-C-PUR	-30 to +80	-40 to +80	0.6/1 kV	10x	5x	X	X	X	X		X			200
TOPSERV® 110 / 120	-30 to +80	-40 to +80	0.6/1 kV	7.5x	4x	X	X	X	X		X			201
Feedback cable	-5 to +70	-30 to +80	350	10x						X	X			202
Feedback cable PUR	-30 to +80	-40 to +80	250	10x	5x		X	X	X	X	X			203
TOPFLEX® - EMV-2YSLCYK-J	+5 to +70	-40 to +70	0.6/1 kV	20x	10x					X	X			204
TOPFLEX® - EMV-3 PLUS 2YSLCY-J	+5 to +70	-40 to +70	0.6/1 kV	20x	10x					X	X			205
TOPFLEX® - EMV-UV-2YSLCYK-J	-5 to +70	-40 to +70	0.6/1 kV	20x	10x		X	X		X	X			206
TOPFLEX® - EMV-UV-3 PLUS 2YSLCYK-J	-5 to +70	-40 to +70	0.6/1 kV	20x	10x		X	X		X	X			207
TOPFLEX® - EMV-UV-2XSLCYK-J	-5 to +90	-40 to +90	0.6/1 kV	20x	10x		X	X		X	X			209
TOPFLEX® - EMV-UV-3 PLUS 2XSLCYK-J	-5 to +90	-40 to +90	0.6/1 kV	20x	10x		X	X		X	X			211
TOPFLEX® - EMV-UV-2XSLCH-J	-5 to +90	-40 to +90	0.6/1 kV	20x	10x	X				X	X			213
TOPFLEX® - EMV-UV-3 PLUS 2XSLCH-J	-5 to +90	-40 to +90	0.6/1 kV	20x	10x	X				X	X			215
TOPFLEX® MOTOR 109	-5 to +70	-40 to +80	0.6/1 kV	20x	10x	X	X	X		X	X			217

The selection table is intended as an initial orientation.
Please see the relevant page of the catalogue for detailed information on the product properties.

SELECTION TABLE - DRAG CHAIN CABLES

	Max. movement distance in m (10 m up to 25-cores)	Min. bending radius - flexing (D=outerØ)	Max. speed (m/s)	Max. acceleration (m/s²)	Max. cycles	Material	Nominal voltage U_0/U / Operating voltage	Temperature (°C) - flexing	Approvals	Page	UL/CSA equivalent
PUR motor & servo cables for drag chains											
TOPFLEX® 611-PUR	30	7.5 x D	4	50	11 Mio	PP/PUR	600/1000V	-30° to +80°		**199**	**431**
TOPFLEX® 611 C-PUR	30	10 x D	4	50	11 Mio	PP/CU/PUR	600/1000V	-30° to +80°		**200**	**437**
TOPSERV® 110	30	7.5 x D	3	10	11 Mio	PP/CU/PUR	600/1000V	-30° to +80°		**201**	**468**
TOPSERV® 120	30	7.5 x D	3	10	11 Mio	PP/CU/PUR	600/1000V	-30° to +80°		**201**	**468**
PUR feedback cables for drag chain cables											
Tachofeedback-cable-C-PUR	30	10 x D	4	50	9 Mio	PP/CU/PUR	450V	-30° to +80°		**203**	**470**
Incremental encoder cable C-PUR	30	10 x D	4	50	9 Mio	PP/CU/PUR	250V	-30° to +80°		**203**	**470**
TOPFLEX®-PUR	30	10 x D	4	50	9 Mio	PP/CU/PUR	350V	-30° to +80°		**203**	**470**

A cycle is a double lift: a representative sample has been tested and measurot in our Test Workshop. The cycle count is only valid when appropriatel and professionally installed (see the installation manual: cable installation in drag chains, see pages 1036 and 1037).

The selection table is intended as an initial orientation.
Please see the relevant page of the catalogue for detailed information on the product properties and the selection tables cables in drag chains, see pages 1030 and 1031.

TOPFLEX® 600-PVC motor power supply cable 0,6/1kV, meter marking

D

Technical data

- Special PVC-insulated sheathed cable adapted to DIN VDE 0293, 0295
- **Temperature range**
  flexing -15°C to +80°C
  fixed installation -40°C to +80°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 4000 V
- **Breakdown voltage**
  min. 8000 V
- **Insulation resistance**
  min. 20 MOhm x km
- **Minimum bending radius**
  flexing 7,5x cable Ø
  fixed installation 4x cable Ø
- **Radiation resistance**
  up to 80x10⁶ cJ/kg (to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, IEC 60228 cl.5
- Core insulation of PVC
- Core identification to DIN VDE 0293 black cores with continuous white numbering
- GN-YE conductor
- Cores stranded in layers with optimal lay-length
- Outer sheath of special PVC
- Sheath colour grey (RAL 7001)
- with meter marking

Properties

- PVC outer sheath: extensively oil resistant Chemical Resistance - see table Technical Informations
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

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

Note

- For use in drag chains, we recommend our versions TOPFLEX® 611-PUR and TOPFLEX® 611-C-PUR
- screened analogue type: **TOPFLEX® 600-C-PVC**, confer page 198

Application

As supply cable for electronically controlled servo-motors and connections to DNC motors. The cable is suitable for permanent and flexible installation for medium mechanical loads in dry, damp and wet environments.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22860	4 G 1,5	9,6	58,0	130,0	16
22861	4 G 2,5	11,2	95,0	220,0	14
22862	4 G 4	13,0	154,0	330,0	12
22863	4 G 6	14,5	231,0	445,0	10
22864	4 G 10	18,2	384,0	660,0	8
22865	4 G 16	22,3	615,0	1060,0	6

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22866	4 G 25	27,4	960,0	1805,0	4
22867	4 G 35	30,0	1344,0	2060,0	2
22868	4 G 50	35,8	1920,0	2900,0	1
22869	4 G 70	40,9	2640,0	4050,0	2/0
22854	4 G 95	46,2	3648,0	5540,0	3/0
22855	4 G 120	51,6	4608,0	7000,0	4/0

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX® 600-C-PVC motor power supply cable 0,6/1kV, EMC prefered type, meter marking

Technical data

- Special PVC-insulated sheathed cable adapted to DIN VDE 0293, 0295
- **Temperature range** flexing -15°C to +80°C fixed installation -40°C to +80°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 4000 V
- **Breakdown voltage** min. 8000 V
- **Coupling resistance** max. 250 Ohm/km
- **Insulation resistance** min. 20 MOhm x km
- **Minimum bending radius** flexing 7,5x cable Ø fixed installation 4x cable Ø
- **Radiation resistance** up to 80x10⁶ cJ/kg (to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, IEC 60228 cl.5
- Core insulation of PVC
- Core identification to DIN VDE 0293 black cores with continuous white numbering
- GN-YE conductor
- Cores stranded in layers with optimal lay-length
- Inner sheath of
- Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Colour grey (RAL 7001)
- with meter marking

Properties

- PVC outer sheath largely oil resistant, for Chemical Resistance - see table Technical Informations
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

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

Note

- For use in drag chains, we recommend our versions TOPFLEX® 611-PUR and TOPFLEX® 611-C-PUR
- unscreened analogue type: **TOPFLEX® 600-PVC**, confer page 197

Application

As supply cable for electronically controlled servo-motors and connections to DNC motors. The cable is suitable for permanent and flexible installation for medium mechanical loads in dry, damp and wet environments.
EMC = Electromagnetic compatibillity
To optimize 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 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22960	4 G 1,5	11,8	99,0	250,0	16
22961	4 G 2,5	13,8	169,0	360,0	14
22962	4 G 4	15,7	234,0	530,0	12
22963	4 G 6	17,3	316,0	620,0	10
22964	4 G 10	21,5	549,0	1050,0	8
22965	4 G 16	26,1	807,0	1465,0	6

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22966	4 G 25	31,7	1169,0	1920,0	4
22967	4 G 35	34,5	1680,0	2515,0	2
22856	4 G 50	40,7	2370,0	3315,0	1
22857	4 G 70	46,0	3257,0	4600,0	2/0
22858	4 G 95	51,3	4060,0	6060,0	3/0
22859	4 G 120	56,4	5231,0	7315,0	4/0

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX® 611-PUR motor power supply cable 0,6/1kV, cable for drag chain, halogen-free, meter marking

D

Technical data

- Special-PUR drag chain cable adapted to DIN VDE 0293, 0295, 0250, DIN VDE 0285-525-1 / DIN EN 50525-1
- **Temperature range** flexing -30°C to +80°C fixed installation -40°C to +80°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 4000 V
- **Insulation resistance** min. 20 MOhm x km
- **Min. bending radius** flexing 7,5x cable Ø fixed installation 4x cable Ø

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.6, extra fine-wire, BS 6360 cl.6, IEC 60228 cl.6
- Core insualtion of PP
- Core identification to DIN VDE 0293 black cores with continuous white numbering
- GN-YE conductor
- Cores stranded together with optimal lay-length and stabilising filler
- Fleece wrapping facilitates sliding
- Outer sheath of PUR
- Sheath colour grey (RAL 7001)
- with meter marking

Properties

- Adhesion-free, extremely abrasion resistant, halogen-free, resistant to hydrolysis and microbial attack
- resistant to UV-radiation, oxygen and ozone
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Note

- G = with green-yellow conductor
- For extreme applications extending beyond standard solutions we recommend that you request our questionnaire, which has been especially designed for energy supply systems.
- Please observe applicable installation regulations for use in energy supply chains.
- screened analogue type: **TOPFLEX® 611-C-PUR**, confer page 200

Application

As optimized supply cable for the supply to motors, in particular to DNC motors, servo-motors. These cables are specially designed for use in power drag chains, handling equipment, robotics, tooling machinery, processing and manufacturing machinery. Optimised insulation materials ensure resistance to oils (including mineral oils), greases, coolants, hydraulic fluids as well as many alkalis and solvents. Favourable outer diameters, reduced weights and enhanced torsion characteristics assure the use in multi-layer operations with extremely high continuous bending loads. Suitable for outdoor use.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22870	4 G 1,5	8,0	58,0	125,0	16
22871	4 G 2,5	10,8	95,0	215,0	14
22872	4 G 4	12,5	154,0	310,0	12
22873	4 G 6	14,8	231,0	470,0	10
22874	4 G 10	18,8	384,0	760,0	8
22875	4 G 16	22,8	615,0	1250,0	6

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22876	4 G 25	26,9	960,0	1510,0	4
22877	4 G 35	30,7	1344,0	2100,0	2
22978	4 G 50	36,5	1920,0	2950,0	1
22979	4 G 70	41,6	2640,0	4090,0	2/0
22980	4 G 95	48,2	3648,0	5580,0	3/0
22981	4 G 120	51,6	4608,0	7040,0	4/0

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX® 611-C-PUR Motor power supply cable for drag chains

0,6/1kV, EMC preferred type, halogen-free, meter marking

Technical data

- Special-PUR drag chain cable adapted to DIN VDE 0293, 0295, 0250, DIN VDE 0285-525-1 / DIN EN 50525-1
- **Temperature range** flexing -30°C to +80°C fixed installation -40°C to +80°C
- **Nominal voltage** U_0/U 600/1000 V
- **Test voltage** 4000 V
- **Coupling resistance** max. 250 Ohm/km
- **Insulation resistance** min. 20 MOhm x km
- **Min. bending radius** flexing 10x cable Ø fixed installation 5x cable Ø

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.6, extra fine-wire, BS 6360 cl.6, IEC 60228 cl.6
- Core insualtion PP
- Core identification to DIN VDE 0293 black cores with continuous white numbering
- GN-YE conductor
- Cores stranded together with optimal lay-length and stabilising filler
- Fleece wrapping facilitates sliding
- Inner sheath of TPE
- Tinned copper braided screen, approx. 85% coverage
- Outer sheath of PUR
- Sheath colour grey (RAL 7001)
- with meter marking

Properties

- Adhesion-free, extremely abrasion resistant, halogen-free, resistant to hydrolysis and microbial attack
- resistant to UV-radiation, oxygen and ozone
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Note

- G = with green-yellow conductor
- For extreme applications extending beyond standard solutions we recommend that you request our questionnaire, which has been especially designed for energy supply systems.
- Please observe applicable installation regulations for use in energy supply chains.
- unscreened analogue type: **TOPFLEX® 611-PUR**, confer page 199

Application

As optimized supply cable for the supply to motors, in particular to DNC motors, servo-motors. These cables are specially designed for use in power drag chains, handling equipment, robotics, tooling machinery, processing and manufacturing machinery. Optimised insulation materials ensure resistance to oils (including mineral oils), greases, coolants, hydraulic fluids as well as many alkalis and solvents. Favourable outer diameters, reduced weights and enhanced torsion characteristics assure the use in multi-layer operations with extremely high continuous bending loads. Suitable for outdoor use.

EMC = Electromagnetic compatibillity

To optimize 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 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22970	4 G 1,5	11,3	99,0	220,0	16
22971	4 G 2,5	13,5	169,0	340,0	14
22972	4 G 4	16,0	234,0	490,0	12
22973	4 G 6	17,8	316,0	680,0	10
22974	4 G 10	22,2	549,0	1035,0	8
22975	4 G 16	27,2	807,0	1460,0	6

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22976	4 G 25	31,2	1169,0	1990,0	4
22977	4 G 35	35,2	1680,0	2535,0	2
22982	4 G 50	42,5	2370,0	3360,0	1
22983	4 G 70	48,8	3257,0	4650,0	2/0
22984	4 G 95	54,6	4060,0	6090,0	3/0
22985	4 G 120	58,5	5231,0	7380,0	4/0

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

TOPSERV® 110 / 120 PUR servo cable with 1 or 2 signal pairs 0,6/1kV, high flexible, cable for drag chain, EMC preferred type

D

Technical data

- Spezial-PUR drag chain cable adapted to DIN VDE 0295, 0250, DIN VDE 0285-525-1-1/DIN EN 50525-1
- **Temperature range**
  flexing -30°C to +80°C
  fixed installation -40°C to +80°C
- **Nominal voltage**
  power supply cores U_0/U 600/1000 V
  control cores U_0/U 300/500 V
- **Test voltage**
  power supply cores 4000 V
  control cores 1000 V
- **Power rating**
  to DIN VDE 0298 part 4
- **Insulation resistance**
  min. 20 MOhm x km
- **Minimum bending radius**
  flexing 7,5x cable Ø
  fixed installation 4x cable Ø
- **Coupling resistance**
  max. 250 Ohm/km

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.6, extra fine-wire
- Core insulation of halogen-free PP
- Core identification
  power supply cores
  core 1: black with imprint U/L1/C/L+
  core 2: black with imprint V/L2
  core 3: black with imprint W/L3/D/L-
  control cores
  TOPSERV® 110
  core 1 black with imprint BR1
  core 2 black with imprint BR2
  TOPSERV® 120
  pair 1: black with number no. 5+6
  pair 2: black with number no. 7+8
- GN-YE conductor
- Screening of the control cores in pairs, tinned drain wire and tinned Cu braid
- Control cores stranded in pairs and laid up in layers together with the power supply cores
- Foil wrapping
- Overall screening of tinned cu braid, visible coverage min. 80%
- Fleece wrapping
- Outer sheath of PUR
- Sheath colour petrol (RAL 5018)

Properties

- low capacitance by using PP as core insulation
- PUR-outer sheath low adhesion, resistant to hydrolysis and microbial attack, halogen-free
- These highly flexible cables are fitted with an additional overall screen to assure EMC compatibility, i.e. the protection against electromagnetic interference
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Note

- For extreme applications extending beyond standard solutions we recommend that you request our questionnaire, which has been especially designed for energy supply systems.
- Please observe applicable installation regulations for use in energy supply chains.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².
- Servo-cable and Feedback-cable **with UL-approval** to e.g. Siemens, Bosch Rexroth, Lenze etc. can be found in chapter N ...

Application

The combination of feeder cores with the control cores for the braking function and the thermal protection in these cables is ideal. Precision servomotors, as used today in many areas of highly-automated manufacturing processes, call for high-quality, reliable and long-lasting cables. These requirements are met to a high degree as is the electromagnetic compatibillity (EMC). These cables can also be used as drag chain cables. Manufacturing is based on specifications from renowned manufacturers of servo-actuators and servo-controls as well as in accordance with diverse VDE standards. Application for system SIMODRIVE.

EMC = Electromagnetic compatibillity

To optimize 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 2006/95/EC.

TOPSERV® 110 (1 pair screened and overall screening)

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
71491	(4 G 1,5 + (2 x 1,0))	11,5	139,0	211,0	16
71493	(4 G 2,5 + (2 x 1,0))	13,6	188,0	273,0	14
71705	(4 G 4 + (2 x 1,0))	14,6	260,0	352,0	12
71706	(4 G 6 + (2 x 1,0))	16,0	360,0	500,0	10
71707	(4 G 10 + (2 x 1,0))	20,2	590,0	753,0	8
71708	(4 G 16 + (2 x 1,0))	23,8	845,0	1061,0	6
71709	(4 G 25 + (2 x 1,0))	27,0	1320,0	1499,0	4
71710	(4 G 35 + (2 x 1,0))	31,9	1840,0	1992,0	2
71711	(4 G 50 + (2 x 1,0))	36,7	2530,0	2880,0	1

Dimensions and specifications may be changed without prior notice. (RD01)

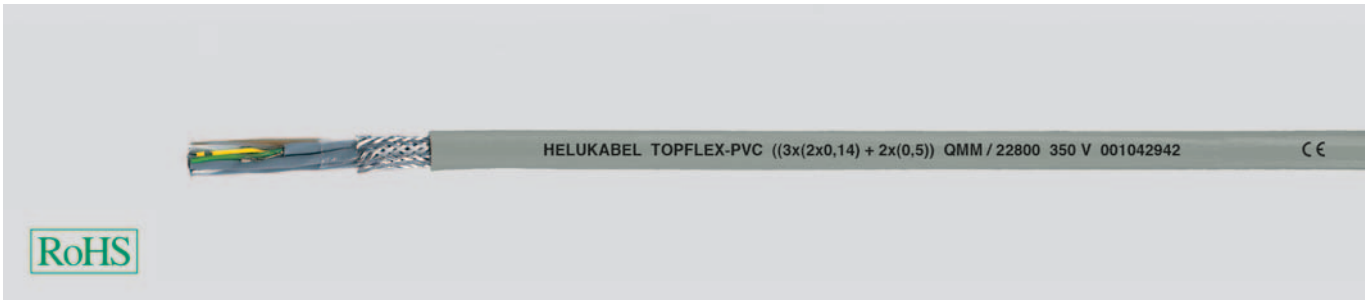
TOPSERV® 120 (2 pairs individually screened and overall screening)

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
71990	(4 G 1,5 + 2 x (2 x 1,0))	12,6	186,0	242,0	16
71991	(4 G 2,5 + 2 x (2 x 1,0))	15,0	231,0	316,0	14
71992	(4 G 4 + 2 x (2 x 1,0))	16,0	308,0	415,0	12
71993	(4 G 6 + 2 x (2 x 1,0))	18,2	420,0	574,0	10
71994	(4 G 10 + 2 x (2 x 1,0))	22,8	647,0	805,0	8
71995	(4 G 16 + 2 x (2 x 1,0))	25,0	918,0	1122,0	6
71996	(4 G 25 + 2 x (2 x 1,0))	27,7	1400,0	1584,0	4
72106	(4 G 35 + 2 x (2 x 1,0))	32,0	1882,0	2185,0	2
71997	(4 G 50 + 2 x (2 x 1,0))	37,0	2574,0	2977,0	1

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

Feedback cables PVC EMC-preferred type, meter marking



Technical data

- Special core and sheath compound of PVC
- **Temperature range**
  flexing -5°C to +70°C
  fixed installation -30°C to +80°C
- **Nominal voltage** 350 V
- **Test voltage**
  core/core 2000 V
  core/screen 1000 V
- **Insulation resistance**
  min. 20 MOhm x km
- **Minimum bending radius**
  10x cable Ø
- **Coupling resistance**
  max. 250 Ohm/km

Cable structure

- Bare copper, fine and/or ultra-fine wire conductors acc. to DIN VDE 0295 cl.5 and/or IEC 60228
- Core insulation of PVC
- Part No. 22800 Cu-screen of single pairs and PVC sheath
- Core identification see table below
- Single cores or pairs stranded in layer with optimal lay-length
- Core wrapping with film
- Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Colour grey (RAL 7001)
- with meter marking

Properties

- Largely oil-resistant, for oil-/ chemical Resistance see Technical Information table
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

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

Note

- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Application

These feedback cables are used in machinery and control construction as well as in plant engineering as these enable an excellent transmission of data and signals. Additional cores for the power supply to individual components are available.
EMC = Electromagnetic compatibillity
To optimize 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 2006/95/EC.

TOPFLEX®-PVC

Part no.	No.cores x cross-sec. mm²	Core marking 0,14 mm²	Core marking 0,5 mm²	Sheath colour	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22800	(3 x (2 x 0,14) + (2 x 0,5))	GN+YE, GY+PK, BU+RD	WH, BN	Grey	8,5	78,0	112,0	26
22806	(4 x 2 x 0,14 + 4 x 0,5)	RD+BK, BN+GN, YE+VT, GN+PK	WH, BU, WH/GN, BN/GN	Grey	8,5	68,0	111,0	26
22845	(10 x 0,14 + 2 x 0,5)	DIN 47100	WH, BN	Grey	8,0	46,2	70,0	26
22846	(10 x 0,14 + 4 x 0,5)	DIN 47100	WH, BN, GN, YE	Grey	8,2	56,3	86,0	26

Incremental feedback-cable

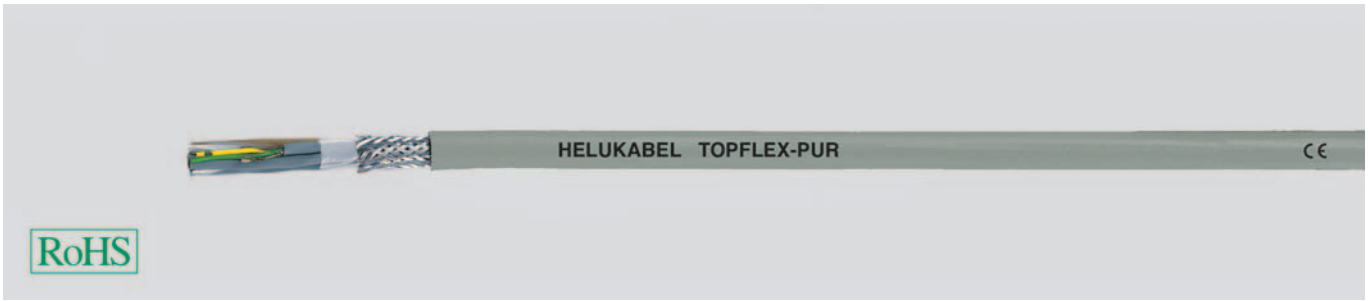
Part no.	No.cores x cross-sec. mm²	Core marking 0,25 mm²	Core marking 1 mm²	Sheath colour	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22825	(4 x 2 x 0,25 + 2 x 1,0)	BN+GN, RD+BK, VT+BU, GY+PK	WH, BN	Grey	8,8	66,0	110,0	24

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.
• Cable Gland - HELUTOP® HT-MS-EP4

Feedback cables PUR high flexible feedback cables for drag chain,

EMC-preferred type, meter marking



Technical data

- **Temperature range**
  flexing -30°C to +80°C
  fixed installation -40°C to +80°C
- **Nominal voltage**
  TOPFLEX®-PUR 350 V
  Tachofeedback-cable-C-PUR 450 V
  Incremental Feedback-cable-C-PUR 250 V
- **Test voltage**
  core/core 2000 V
  core/screen 1000 V
- **Insulation resistance**
  min. 20 MOhm x km
- **Minimum bending radius**
  flexing 10x cable Ø
  fixed installation 5x cable Ø
- **Coupling resistance**
  max. 250 Ohm/km
- **Radiation resistance**
  up to 100x10⁶ cJ/kg (up to 100 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.6, extra fine-wire, BS 6360 cl.6, IEC 60228 cl.6
- Core insualtion of PP
- Part No. 22847 Cu-screen of single pairs or single cores and PETP (polyethylene terephthalate) sheath
- Core identification see table below
- Single cores or pairs stranded in layer with optimal lay-length (pairs part no. 22818)
- Drain wire
- Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PUR, matt
- Sheath colour see table below

Properties

- Special PUR outer sheath low adhesion
- **Resistant to**
  Oils and fats
  Acids and alkalis
  Hydraulic fluids
  Oxygen and ozone
  UV-radiation
  Hydrolysis
  Microbial attack
  Water and weathering effects
- The high abrasion resistance and notch resistance meet the highest requirements
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Note

- For extreme applications extending beyond standard solutions we recommend that you request our questionnaire, which has been especially designed for energy supply systems.
- Please observe the assembly instruction for use in energy supply chains.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Application

Both cables fulfil different tasks for the control of servo-motors. The tachofeedback-cable or response cable serves the regulation of the motor speed and measurement of the actual values. The incremental feedback-cable or position response cable transfers the control signals for positioning and engineering characteristics and is used as the flexible connecting cable for tachometer, brakes and pulse transmitter in case of high mechanical stress in plant, machine and control engineering in dry, moist and wet rooms. Particularly suitable for continuous operating in drag chains, industrial robotics and handling equipment as these cables enable an excellent transmission of data and signals. Additional cores for the power supply to individual components are available. The braided screen guarantees reliable signal transmission. Optimum functionality, long service life and an excellent cost-performance ratio are given for the mentioned applications by the special compounds used for insulation and sheath.

EMC = Electromagnetic compatibillity

To optimize 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 2006/95/EC.

TOPFLEX®-PUR

Part no.	No.cores x cross-sec. mm²	Core marking 0,14 mm²	Core marking 0,5 mm²	Sheath colour	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22847	(3 x (2 x 0,14) + (2 x 0,5))	DIN 47100	WH, BN	Grey	8,3	78,0	103,0	26
22852	4 x 2 x 0,14 + 4 x 0,5	BN+GN, YE+VT, GY+PK, RD+BU	WH, BN, WH/GN, BN/GN	Grey	8,4	73,0	105,0	26
22849	(10 x 0,14 + 2 x 0,5)	DIN 47100	WH, BN	Grey	7,2	39,0	83,0	26

Tachofeedback-cable

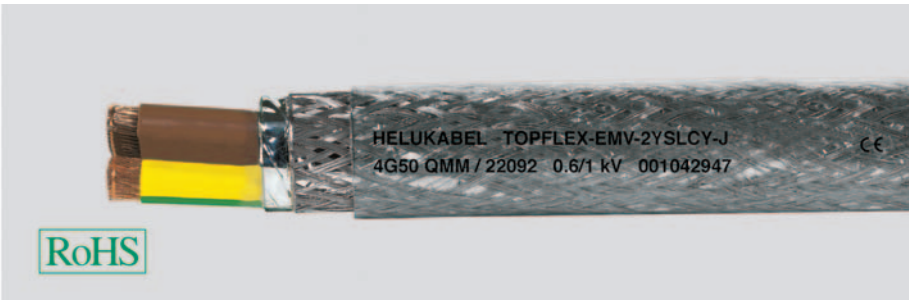
Part no.	No.cores x cross-sec. mm²	Core marking 0,5 mm²	Core marking -	Sheath colour	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22823	(9 x 0,5)	WH, BN, GN, YE, GY, PK, BU, RD, BK	-	Orange	8,8	80,8	128,0	20

Incremental feedback cable

Part no.	No.cores x cross-sec. mm²	Core marking 0,14 mm²	Core marking 1 mm²	Sheath colour	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22818	(4 x 2 x 0,25 + 2 x 1,0)	RD+BK, BN+GN, YE+VT, GN+PK	WH, BN	Orange	8,8	65,2	105,0	24

Dimensions and specifications may be changed without prior notice. (RD01)

TOPFLEX® -EMV-2YSLCY-J for power supply connections to frequency converters, double screened, 0,6/1kV, meter marking



Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing +5°C to +70°C
  fixed installation -40°C to +70°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of polyethylene (PE)
- Core identification BN, BK, GY
- GN-YE conductor
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour transparent
- with meter marking

Note

- G = with GN-YE conductor
- **) The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- This screened motor supply cable with low mutual capacitance of the single cores because of the special PE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PVC-sheathed connecting cables
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

This TOPFLEX®-EMV-2YSLCY-J motor power supply cable for the frequency converters assures electromagnetic compatibillity in plants and buildings, facilities with units and operating equipment where the fields of electromagnetic interference might cause adverse effects on the surroundings. As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments, not however for outdoor applications. Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

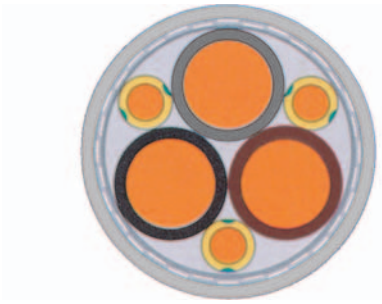
CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Mutual capacitance Core / Core approx.nF / km	Core / Screen approx.nF / km	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22084	4 G 1,5	10,1	70	110			18	95,0	230,0	16
22085	4 G 2,5	11,9	80	130	18	210	26	150,0	300,0	14
22086	4 G 4	13,6	90	150	11	210	34	235,0	485,0	12
22087	4 G 6	15,3	90	150	6	150	44	320,0	633,0	10
22088	4 G 10	19,4	120	200	7	180	61	533,0	863,0	8
22089	4 G 16	22,4	140	230	9	190	82	789,0	1291,0	6
22090	4 G 25	26,7	120	210	4	95	108	1236,0	1862,0	4
22091	4 G 35	29,3	150	260	3	85	135	1662,0	2611,0	2
22092	4 G 50	34,1	190	320	2	40	168	2345,0	2955,0	1
22093	4 G 70	39,0	190	320	2	45	207	3196,0	3953,0	2/0
22094	4 G 95	44,0	250	410	1	50	250	4316,0	5304,0	3/0
22095	4 G 120	48,7					292	5435,0	6604,0	4/0
22096	4 G 150	54,2					335	6394,0	7043,0	300 kcmil
22097	4 G 185	60,6					382	7639,0	8384,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

TOPFLEX®-EMV-3 PLUS 2YSLCY-J for power supply connections

to frequency converters, double screened, 0,6/1kV, meter marking



D

Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing +5°C to +70°C
  fixed installation -40°C to +70°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of polyethylene (PE)
- Core identification BK, BN, GY
- GN-YE conductor (divided into 3)
- 3+3-core structure
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour transparent
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- The minimum cross-section of 0,75² meets the requirements of DIN EN 60204 part 1.
- The 3 PLUS-construction of motor power supply cables features a symmetrical 3-core design, improved in terms of EMC characteristics comparing favorably with a 4-core version. The protective conductor PE, divided into 3 is uniformly stranded in the interstices. This enables an extremely concentric structure.
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments not however for outdoor applications. Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas. This screened motor supply cable with low mutual capacitance of the single cores because of the special PE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PVC-sheathed connecting cables. Due to the optimal screening an interference-free operation of frequency converters is obtained. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

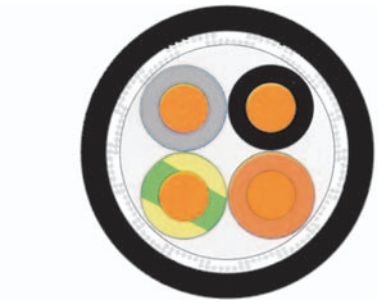
The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Coupling resistance at 1 MHz Ohm/km	Coupling resistance at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22368	3 x 1,5 + 3 G 0,25	9,2			18	86,0	140,0	16
22369	3 x 2,5 + 3 G 0,5	10,8	18	210	26	144,0	220,0	14
22370	3 x 4 + 3 G 0,75	12,3	11	210	34	224,0	323,0	12
22371	3 x 6 + 3 G 1,0	14,0	6	150	44	298,0	420,0	10
22372	3 x 10 + 3 G 1,5	17,6	7	180	61	491,0	615,0	8
22373	3 x 16 + 3 G 2,5	21,2	9	190	82	723,0	819,0	6
22374	3 x 25 + 3 G 4,0	24,5	4	95	108	1138,0	1325,0	4
22375	3 x 35 + 3 G 6,0	26,9	3	85	135	1535,0	1718,0	2
22376	3 x 50 + 3 G 10,0	32,5	2	40	168	2208,0	2399,0	1
22377	3 x 70 + 3 G 10,0	35,5	2	45	207	2871,0	3056,0	2/0
22378	3 x 95 + 3 G 16,0	40,1	1	50	250	3953,0	4162,0	3/0
22379	3 x 120 + 3 G 16,0	44,4			292	4836,0	5074,0	4/0
22380	3 x 150 + 3 G 25,0	49,3			335	5412,0	6128,0	300 kcmil
22381	3 x 185 + 3 G 35,0	55,1			382	6969,0	7189,0	350 kcmil
22382	3 x 240 + 3 G 42,5	60,0			453	8540,0	9540,0	500 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

TOPFLEX® -EMV-UV-2YSLCYK-J for power supply connections to frequency converters, double screened, 0,6/1kV, meter marking



Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C to +70°C
  fixed installation -40°C to +70°C
- **Nominal voltage** U_0/U 600/1000 V
- **Max. operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of polyethylene (PE)
- Core identificdation BN, BK, GY
- GN-YE conductor
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- UV-resitant
- Outdoor application, possible for installation in underground at 4G16 mm²
- This screened motor supply cable with low mutual capacitance of the single cores because of the special PE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PVC-sheathed connecting cables
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Application

This TOPFLEX®-EMV-2YSLCYK-J motor power supply cable for the frequency converters assures electromagnetic compatibillity in plants and buildings, facilities with units and operating equipment where the fields of electromagnetic interference might cause adverse effects on the surroundings. As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments and for outdoor applications, possible for installation in underground at 4G16 mm². Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

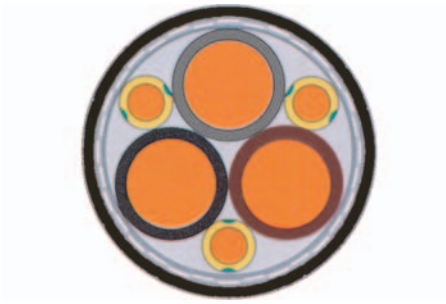
CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

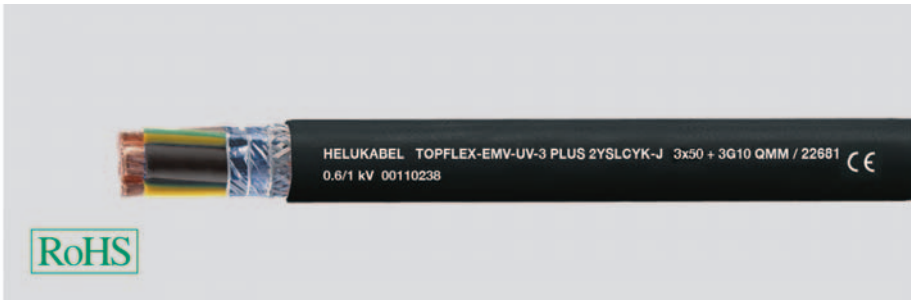
Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Mutual capacitance Core / Core approx.nF / km	Core / Screen approx.nF / km	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22234	4 G 1,5	10,1	70	110			18	95,0	230,0	16
22235	4 G 2,5	11,9	80	130	18	210	26	150,0	300,0	14
22236	4 G 4	13,6	90	150	11	210	34	235,0	485,0	12
22237	4 G 6	15,3	90	150	6	150	44	320,0	630,0	10
22238	4 G 10	19,4	120	200	7	180	61	533,0	860,0	8
22239	4 G 16	22,4	140	230	9	190	82	789,0	1290,0	6
22240	4 G 25	26,7	120	210	4	95	108	1236,0	1860,0	4
22241	4 G 35	29,3	150	260	3	85	135	1662,0	2610,0	2
22242	4 G 50	34,1	190	320	2	40	168	2345,0	2950,0	1
22243	4 G 70	39,0	190	320	2	45	207	3196,0	3950,0	2/0
22244	4 G 95	44,0	250	410	1	50	250	4316,0	5300,0	3/0
22245	4 G 120	48,7					292	5435,0	6600,0	4/0
22246	4 G 150	54,2					335	6394,0	7040,0	300 kcmil
22247	4 G 185	60,6					382	7639,0	8380,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

TOPFLEX®-EMV-UV-3 PLUS 2YSLCYK-J for power supply

connections to frequency converters, double screened, 0,6/1kV, meter marking





D

Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C up to +70°C
  fixed installation -40°C up to +70°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of polyethylene (PE)
- Core identification BK, BN, GY
- GN-YE conductor (divided into 3)
- 3+3 core design
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The 3 PLUS-construction of motor power supply cables features a symmetrical 3-core design, improved in terms of EMC characteristics comparing favorably with a 4-core version. The protective conductor PE, divided into 3 is uniformly stranded in the interstices. This enables an extremely concentric structure
- The minimum cross-section of 0,75 mm² meets the requirements of DIN EN 60204 part 1
- UV-resistant
- Outdoor application
- This screened motor supply cable with low mutual capacitance of the single cores because of the special PE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PVC-sheathed connecting cables
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- PVC self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments and for outdoor applications, possible for installation in underground at 3x16+3G2,5 mm². Used in the automobile industry, food industry, environmental engineering, packaging industry, toolmaking machinery, handling equipment, for SIMOVERT drivers, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Continuation ▸

TOPFLEX®-EMV-UV-3 PLUS 2YSLCYK-J for power supply

connections to frequency converters, double screened, 0,6/1kV, meter marking

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22673	3 x 1,5 + 3 G 0,25	9,2			18	86,0	140,0	16
22674	3 x 2,5 + 3 G 0,5	10,8	18	210	26	144,0	220,0	14
22675	3 x 4 + 3 G 0,75	12,3	11	210	34	224,0	323,0	12
22676	3 x 6 + 3 G 1,0	14,0	6	150	44	298,0	420,0	10
22677	3 x 10 + 3 G 1,5	17,6	7	180	61	491,0	615,0	8
22678	3 x 16 + 3 G 2,5	21,2	9	190	82	723,0	819,0	6
22679	3 x 25 + 3 G 4,0	24,5	4	95	108	1138,0	1325,0	4
22680	3 x 35 + 3 G 6,0	26,9	3	85	135	1535,0	1718,0	2
22681	3 x 50 + 3 G 10,0	32,5	2	40	168	2208,0	2399,0	1
22682	3 x 70 + 3 G 10,0	35,5	2	45	207	2871,0	3056,0	2/0
22683	3 x 95 + 3 G 16,0	40,1	1	50	250	3953,0	4162,0	3/0
22684	3 x 120 + 3 G 16,0	44,4			292	4836,0	5075,0	4/0
22685	3 x 150 + 3 G 25,0	49,3			335	5412,0	6128,0	300 kcmil
22686	3 x 185 + 3 G 35,0	55,1			382	6969,0	7189,0	350 kcmil
22687	3 x 240 + 3 G 42,5	60,0			453	8540,0	9540,0	500 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

- Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX®-EMV-UV-2XSLCYK-J for power supply connections to frequency converters, double screened, higher current carrying capacity, 0,6/1kV, meter marking

Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C to +90°C
  fixed installation -40°C to +90°C
- Permissible **operating temperature** at conductor +90°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10^6 cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of cross-linked polyethylene (XLPE)
- Core identification BN, BK, GY
- GN-YE conductor
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- UV-resitant
- Outdoor application, possible for installation in underground at 4G16 mm²
- This screened motor supply cable with low mutual capacitance of the single cores because of the special XLPE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PE-sheathed connecting cables
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

This TOPFLEX®-EMV-UV-2XSLCYK-J motor power supply cable for the frequency converters assures electromagnetic compatibillity in plants and buildings, facilities with units and operating equipment where the fields of electromagnetic interference might cause adverse effects on the surroundings. Respecting the permissible operating temperature at the conductor of +90 °C permits a higher current carrying capacity than PE insulated power distribution cables. As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments and for outdoor applications, possible for installation in underground at 4G16 mm². Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Mutual capacitance Core / Core approx.nF / km	Core / Screen approx.nF / km	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
24489	4 G 1,5	10,1	70	110			23	95,0	230,0	16
24490	4 G 2,5	11,2	80	130	18	210	32	150,0	300,0	14
24491	4 G 4	12,8	90	150	11	210	42	235,0	485,0	12
24492	4 G 6	14,9	90	150	6	150	54	320,0	630,0	10
24493	4 G 10	17,7	120	200	7	180	75	533,0	860,0	8
24494	4 G 16	20,9	140	230	9	190	100	789,0	1290,0	6

Continuation ▸

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TOPFLEX®-EMV-UV-2XSLCYK-J for power supply connections to frequency converters, double screened, higher current carrying capacity, 0,6/1kV, meter marking

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Mutual capacitance Core / Core approx.nF / km	Core / Screen approx.nF / km	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
24495	4 G 25	25,3	120	210	4	95	127	1236,0	1860,0	4
24496	4 G 35	28,0	150	260	3	85	158	1662,0	2610,0	2
24497	4 G 50	32,3	190	320	2	40	192	2345,0	2950,0	1
24498	4 G 70	37,6	190	320	2	45	246	3196,0	3950,0	2/0
24499	4 G 95	41,6	250	410	1	50	298	4316,0	5300,0	3/0
24500	4 G 120	44,8					346	5435,0	6600,0	4/0
24506	4 G 150	52,3					399	6394,0	7040,0	300 kcmil
24507	4 G 185	58,7					456	7639,0	8380,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

• Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX®-EMV-UV-3 PLUS 2XSLCYK-J for power supply

connections to frequency converters, double screened, higher current carrying capacity, 0,6/1kV, meter marking

NEW

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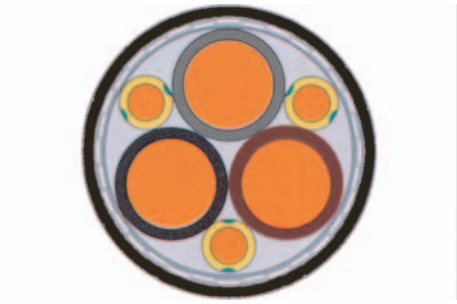


Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C to +90°C
  fixed installation -40°C to +90°C
- Permissible **operating temperature** at conductor +90°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of cross-linked polyethylene (XLPE)
- Core identification BK, BN, GY
- GN-YE conductor (divided into 3)
- 3+3 core design
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special PVC
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The 3 PLUS-construction of motor power supply cables features a symmetrical 3-core design, improved in terms of EMC characteristics comparing favorably with a 4-core version. The protective conductor PE, divided into 3 is uniformly stranded in the interstices. This enables an extremely concentric structure.
- The minimum cross-section of 0,75 mm² meets the requirements of DIN EN 60204 part 1
- UV-resistant
- Outdoor application, possible for installation in undergraound at 3x16+3G2,5 mm²
- This screened motor supply cable with low mutual capacitance of the single cores because of the special XLPE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PE-sheathed connecting cables
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments and for outdoor applications, possible for installation in underground at 3x16+3G2,5 mm². Respecting the permissible operating temperature at the conductor of +90 °C permits a higher current carrying capacity than PE insulated power distribution cables. Used in the automobile industry, food industry, environmental engineering, packaging industry, toolmaking machinery, handling equipment, for SIMOVERT drivers, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Continuation ▸

TOPFLEX®-EMV-UV-3 PLUS 2XSLCYK-J for power supply

connections to frequency converters, double screened, higher current carrying capacity, 0,6/1kV, meter marking

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
24508	3 x 1,5 + 3 G 0,25	9,2			23	86,0	140,0	16
24509	3 x 2,5 + 3 G 0,5	10,8	18	210	32	144,0	220,0	14
24510	3 x 4 + 3 G 0,75	12,3	11	210	42	224,0	323,0	12
24511	3 x 6 + 3 G 1,0	14,0	6	150	54	298,0	420,0	10
24512	3 x 10 + 3 G 1,5	17,6	7	180	75	491,0	615,0	8
24513	3 x 16 + 3 G 2,5	20,4	9	190	100	723,0	819,0	6
24514	3 x 25 + 3 G 4,0	23,2	4	95	127	1138,0	1325,0	4
24515	3 x 35 + 3 G 6,0	26,1	3	85	158	1535,0	1718,0	2
24516	3 x 50 + 3 G 10,0	30,8	2	40	192	2208,0	2399,0	2
24517	3 x 70 + 3 G 10,0	34,2	2	45	246	2871,0	3056,0	2/0
24518	3 x 95 + 3 G 16,0	37,8	1	50	298	3953,0	4162,0	3/0
24519	3 x 120 + 3 G 16,0	42,6			346	4836,0	5075,0	4/0
24520	3 x 150 + 3 G 25,0	47,5			399	5412,0	6128,0	300 kcmil
24521	3 x 185 + 3 G 35,0	53,4			456	6969,0	7189,0	350 kcmil
24587	3 x 240 + 3 G 42,5	58,7			538	8540,0	9540,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

- Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX®-EMV-UV-2XSLCH-J for power supply connections to frequency converters, halogen-free, double screened, higher current carrying capacity, 0,6/1kV, meter marking

NEW

D

Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C to +90°C
  fixed installation -40°C to +90°C
- Permissible **operating temperature** at conductor +90°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper, fine wire conductor to DIN VDE 0295 cl.5, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of cross-linked polyethylene (XLPE)
- Core cidentification: BN, BL, GY
- GN-YE conductor
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath of special polyolefin compound
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **) The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- halogen-free
- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- This screened motor supply cable with low mutual capacitance of the single cores because of the special XLPE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PE-sheathed connecting cables
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

This TOPFLEX®-EMV-UV-2XSLCH-J motor power supply cable for the frequency converters assures electromagnetic compatibillity in plants and buildings, facilities with units and operating equipment where the fields of electromagnetic interference might cause adverse effects on the surroundings. Respecting the permissible operating temperature at the conductor of +90 °C permits a higher current carrying capacity than PE insulated power distribution cables. As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments. These cables are suitable for outdoor applications and in underground by using in conduits or tubes. For the installation in conduit all precautions must be taken that no accumulation of water can occur in the pipes. Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Continuation ▸

TOPFLEX®-EMV-UV-2XSLCH-J for power supply connections to frequency converters, halogen-free, double screened, higher current carrying capacity, 0,6/1kV, meter marking

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Mutual capacitance Core / Core approx.nF / km	Core / Screen approx.nF / km	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
24522	4 G 1,5	10,1	70	110			23	95,0	230,0	16
24523	4 G 2,5	11,2	80	130	18	210	32	150,0	300,0	14
24524	4 G 4	12,8	90	150	11	210	42	235,0	485,0	12
24525	4 G 6	14,9	90	150	6	150	54	320,0	630,0	10
24526	4 G 10	17,7	120	200	7	180	75	533,0	860,0	8
24527	4 G 16	20,9	140	230	9	190	100	789,0	1290,0	6
24528	4 G 25	25,3	120	210	4	95	127	1236,0	1860,0	4
24529	4 G 35	28,0	150	260	3	85	168	1662,0	2610,0	2
24530	4 G 50	32,3	190	320	2	40	192	2345,0	2950,0	1
24531	4 G 70	37,6	190	320	2	45	246	3196,0	3950,0	2/0
24532	4 G 95	41,6	250	410	1	50	298	4316,0	5300,0	3/0
24533	4 G 120	44,8					346	5435,0	6600,0	4/0
24534	4 G 150	52,3					399	6394,0	7040,0	300 kcmil
24535	4 G 185	58,7					456	7639,0	8380,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

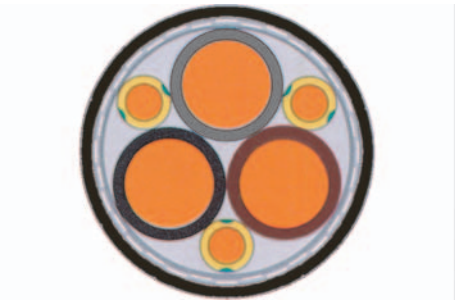
- Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX®-EMV-UV-3 PLUS 2XSLCH-J for power supply connections

to frequency converters, halogen-free, double screened, higher current carrying capacity, 0,6/1kV, meter marking

NEW

D



Technical data

- Special motor power supply cable for frequency converters adapted to DIN VDE 0250
- **Temperature range**
  flexing -5°C to +90°C
  fixed installation -40°C to +90°C
- Permissible **operating temperature** at conductor +90°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 4000 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation resistance**
  up to 80x10⁶ cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insulation of cross-linked polyethylene (XLPE)
- Core identification BK, BN, GY
- GN-YE conductor (divided into 3)
- 3+3 core design
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 85% coverage
- Outer sheath special polyolefin compound
- Sheath colour black (RAL 9005)
- with meter marking

Note

- **)The current carrying capacity for permanent operation at ambient temperature of 30°C. For deviating ambient temperatures the conversion factors should be used and for further see the indication in DIN VDE 0298 part 4.
- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Properties

- halogen-free
- Low mutual capacitance
- Low coupling resistance for high electromagnetic compatibility
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- The 3 PLUS-construction of motor power supply cables features a symmetrical 3-core design, improved in terms of EMC characteristics comparing favorably with a 4-core version. The protective conductor PE, divided into 3 is uniformly stranded in the interstices. This enables an extremely concentric structure
- The minimum cross-section of 0,75 mm² meets the requirements of DIN EN 60204 part 1
- This screened motor supply cable with low mutual capacitance of the single cores because of the special XLPE core insulation and low screen capacitance enable a low-loss transmission of the power compared to PE-sheathed connecting cables
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1 (equivalent DIN VDE 0472 part 804 test method B)
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Application

As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments. These cables are suitable for outdoor applications and in underground by using in conduits or tubes. For the installation in conduit all precautions must be taken that no accumulation of water can occur in the pipes. Respecting the permissible operating temperature at the conductor of +90 °C permits a higher current carrying capacity than PE insulated power distribution cables. Used in the automobile industry, food industry, environmental engineering, packaging industry, toolmaking machinery, handling equipment, for SIMOVERT drivers, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications. Installation in hazardous areas.

EMC = Electromagnetic compatibillity

The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.

CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Continuation ▸

TOPFLEX®-EMV-UV-3 PLUS 2XSLCH-J for power supply connections

to frequency converters, halogen-free, double screened, higher current carrying capacity, 0,6/1kV, meter marking

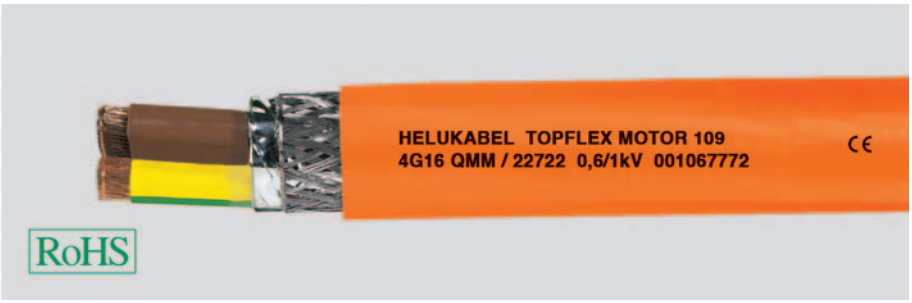
Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Coupling resistance at 1 MHz Ohm/km	at 30 MHz Ohm/km	Power ratings **) with 3 loaded cores in Amperes	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
24536	3 x 1,5 + 3 G 0,25	9,2			23	86,0	140,0	16
24537	3 x 2,5 + 3 G 0,5	10,8	18	210	32	144,0	220,0	14
24538	3 x 4 + 3 G 0,75	12,3	11	210	42	224,0	323,0	10
24539	3 x 6 + 3 G 1,0	14,0	6	150	54	298,0	420,0	10
24540	3 x 10 + 3 G 1,5	17,6	7	180	75	491,0	615,0	10
24541	3 x 16 + 3 G 2,5	20,4	9	190	100	723,0	819,0	6
24542	3 x 25 + 3 G 4,0	23,2	4	95	127	1138,0	1325,0	10
24543	3 x 35 + 3 G 6,0	26,1	3	85	158	1535,0	1718,0	2
24544	3 x 50 + 3 G 10,0	30,8	2	40	192	2208,0	2399,0	2
24545	3 x 70 + 3 G 10,0	34,2	2	45	246	2871,0	3056,0	2/0
24546	3 x 95 + 3 G 16,0	37,8	1	50	298	3953,0	4162,0	3/0
24583	3 x 120 + 3 G 16,0	42,6			346	4836,0	5075,0	4/0
24584	3 x 150 + 3 G 25,0	47,5			399	5412,0	6128,0	300 kcmil
24585	3 x 185 + 3 G 35,0	53,4			456	6969,0	7189,0	350 kcmil
24586	3 x 240 + 3 G 42,5	58,7			538	8540,0	9540,0	350 kcmil

Dimensions and specifications may be changed without prior notice. (RD01)

Suitable accessories can be found in Chapter X.

- Cable Gland - HELUTOP® HT-MS-EP4

TOPFLEX® Motor 109 low capacitance power supply cable 0,6/1kV, increased ampacity, halogen-free, meter marking



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Technical data

- Special motor power supply cable for frequency converters
- **Temperature range**
  flexing -5°C to +70°C
  fixed installation -40°C to +80°C
- Permissible **operating temperature**
  at conductor +90°C
- **Nominal voltage** U_0/U 600/1000 V
- Max. **operating voltage**
  A.C. and 3-phase 700/1200 V
  DC operation 900/1800 V
- **Test voltage** 2500 V
- **Insulation resistance**
  min. 200 MOhm x km
- **Coupling resistance**
  acc. to different cross-sections
  max. 250 Ohm/km
- **Mutual capacitance**
  acc. to different cross-sections
  core/core 70 to 250 nF/km
  core/screen 110 to 410 nF/km
- **Minimum bending radius**
  free-movement for outer Ø:
  up to 12 mm: 10x cable Ø
  > 12-20 mm: 15x cable Ø
  > 20 mm: 20x cable Ø
  fixed installation for outer Ø:
  up to 12 mm: 5x cable Ø
  > 12-20 mm: 7,5x cable Ø
  > 20 mm: 10x cable Ø
- **Radiation-resistance**
  up to 80x10^6 cJ/kg (up to 80 Mrad)

Cable structure

- Bare copper-conductor, to DIN VDE 0295 cl.5, fine-wire, BS 6360 cl.5, IEC 60228 cl.5
- Core insualtion of special Polymer
- Core identification to DIN VDE 0293-308
  - up to 5 cores coloured
  - from 7 cores, black with continuous white numbering
- GN-YE conductor
- Cores stranded in concentric layers
- 1. Screen with special aluminium film
  2. Tinned copper braided screen, approx. 80% coverage
- Outer sheath of special PUR
- Sheath colour orange (RAL 2003)
- with meter marking

Properties

- Special polymerinsulation ensures low dielectric losses, a dual voltage resistance, longer service life and low - interference shield, and increased current carrying capacity
- Low coupling resistance for high electromagnetic compatibility
- UV-resistant
- Outdoor application
- This screened motor supply cable with low mutual capacitance of the single cores because of the special Polymer core insulation and low screen capacitance enable a low-loss transmission of the power compared to PVC-sheathed connecting cables
- Due to the optimal screening an interference-free operation of frequency converters is obtained
- Design acc. to the requirements of VdS 3501:2006-04
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

Tests

- Low mutual capacitance, test acc. to DIN VDE 0472 part 504, test method B
- Meets EMC requirements acc. to EN 55011 and DIN VDE 0875 part 11

Note

- AWG sizes are approximate equivalent values. The actual cross-section is in mm².

Application

This motor power supply cable for the frequency converters assures electromagnetic compatibillity in plants and buildings, facilities with units and operating equipment where the fields of electromagnetic interference might cause adverse effects on the surroundings. As a supply and connecting cable for medium mechanical stresses in fixed installations and forced movements in dry, moist and wet environments and for outdoor applications. Used in the automotive and food industries, environmental technology, packaging industry, machine tools. Handling equipment, for SIMOVERT drives, they are particularly suitable for use with industrial pumps, ventilators, conveyor belts and air-conditioning installations and similar applications.
EMC = Electromagnetic compatibillity
The screen must be connected at both ends and ensure large-area contact over the entire cable circumference for compliance with the functional interference requirements of EN 55011.
CE= The product is conformed with the EC Low-Voltage Directive 2006/95/EC.

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22724	3 G 1,5	9,4	72,0	200,0	16
22707	4 G 1,5	10,4	95,0	230,0	16
22708	5 G 1,5	11,2	117,0	258,0	16
22709	7 G 1,5	13,2	148,0	281,0	16
22710	3 G 2,5	11,2	137,0	270,0	14
22711	4 G 2,5	12,5	150,0	300,0	14
22712	5 G 2,5	13,5	200,0	352,0	14
22713	7 G 2,5	16,0	230,0	473,0	14
22714	4 G 4	14,2	235,0	485,0	12

Part no.	No.cores x cross-sec. mm²	Outer Ø approx. mm	Cop. weight kg / km	Weight approx. kg / km	AWG-No.
22715	5 G 4	15,4	321,0	567,0	12
22716	7 G 4	18,2	352,0	603,0	12
22717	4 G 6	15,2	320,0	633,0	10
22718	5 G 6	16,8	439,0	679,0	10
22719	7 G 6	20,0	501,0	771,0	10
22720	4 G 10	19,5	533,0	860,0	8
22721	5 G 10	21,6	711,0	1029,0	8
22722	4 G 16	23,1	789,0	1290,0	6
22723	4 G 25	27,1	1236,0	1862,0	4

Dimensions and specifications may be changed without prior notice. (RD01)