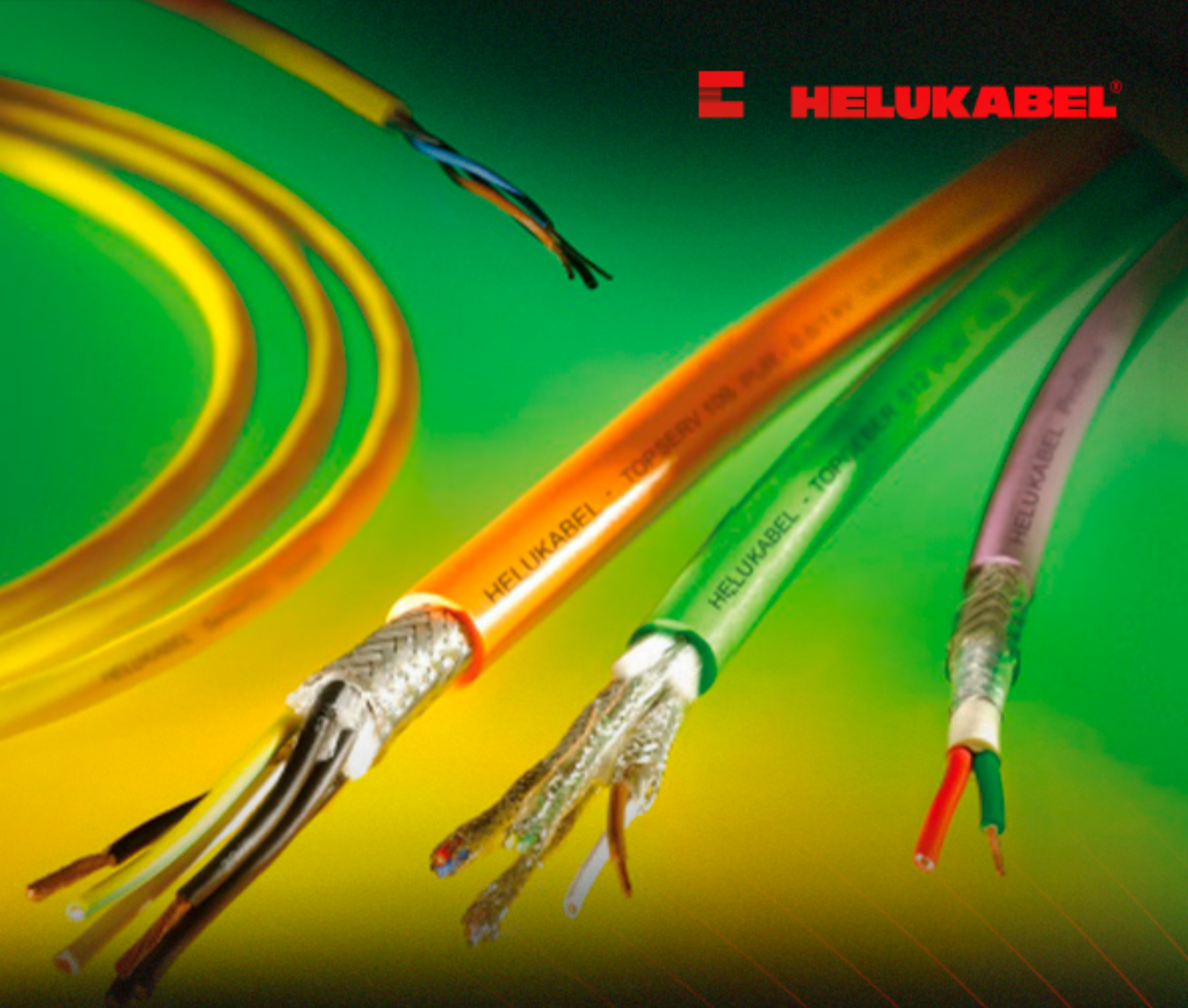




■ Drive Technology

Servo & feedback cables

Includes Hybrid Cables for central drives
with one cable solutions

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TOPSERV® Hybrid

Hybrid cable for central single-cable solutions



Technical data

- TOPSERV® PUR
- Special PUR drag chain cable acc. to UL AWM Style 21223 CSA AWM
- Temperature range flexing -30°C to +80°C fixed installation -40°C to +90°C
- Nominal voltage VDE power supply cores U₀/U 600/1000 V control cores U₀/U 300/500 V UL/CSA 1000 V
- A.c. test voltage, 50 Hz power supply cores 4000 V control cores 1000 V
- Insulation resistance min. 20 MOhm x km
- Coupling resistance max. 250 Ohm/km
- Minimum bending radius flexing 7,5x cable Ø fixed installation 4x cable Ø min. 5 mio. cycles

Cable structure

- Bare copper conductor, to DIN VDE 0295 cl.6, extra fine wire, IEC 60228 cl.6
- Core insulation 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 pair 1: black with number no. 5+6 pair 2: white and blue
- GN-YE conductor
- Screening of the control cores in pairs wrapped with tinned copper braid
- Power supply cores laid up with optimal lay length and stabilising filler
- Overall screening from tinned copper braid, optimal coverage approx. 85%
- Outer sheath of PVC or PUR
- Sheath colour: orange (RAL 2003) acc. to DESINA®

Properties

- Low capacitance
- PUR outer sheath: low adhesion, extremely abrasion resistant, halogen-free, resistant to UV-, oil-, hydrolysis and microbial attack
- Optimum compliance with requirements for electromagnetic compatibility (EMC) by approx. 85% coverage from the braided screen
- These cables are produced to high quality specifications and conform to the DESINA® standard.
- The materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

Tests

- PUR outer sheath self-extinguishing and flame retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2

Note

- The technical data for TOPSERV® Hybrid PVC cables are available on request.
- The technical data for TOPSERV® Hybrid PUR cables according to HEIDENHAIN HMC6 are available on request.
- TOPSERV® Hybrid PUR for torsion application available on demand.

Hybrid Cable PVC

Product	Part No. HELUKABEL	Part No. OEM	No. of Cores	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
acc. to SICK HIPERFACE DSL							
TOPSERV® Hybrid PVC	709930	Li9YCY	8	4 G 0,5 + (2 x 0,34) C + (2 x 26 AWG) C	72	123	9,3
TOPSERV® Hybrid PVC	709931	Li9YCY	8	4 G 0,75 + (2 x 0,34) C + (2 x 26 AWG) C	85	138	11,0
TOPSERV® Hybrid PVC	709932	Li9YCY	8	4 G 1,0 + (2 x 0,75) C + (2 x 22 AWG) C	130	208	11,6
TOPSERV® Hybrid PVC	709933	Li9YCY	8	4 G 1,5 + (2 x 0,75) C + (2 x 22 AWG) C	152	248	12,2
TOPSERV® Hybrid PVC	709934	Li9YCY	8	4 G 2,5 + (2 x 1,0) C + (2 x 22 AWG) C	207	326	13,8
TOPSERV® Hybrid PVC	709935	Li9YCY	8	4 G 4 + (2 x 1,0) C + (2 x 22 AWG) C	273	415	15,3
acc. to SIEMENS							
TOPSERV® Hybrid PVC	17001155	Li9YCY	10	4 x 0,38 + (2 x 0,38) + (4 x 0,20) PVC	75	135	9,6
TOPSERV® Hybrid PVC	17001156	Li9YCY	10	4 x 0,75 + (2 x 0,50) + (4 x 0,20) PVC	103	210	10,9

suitable for itec

Hybrid Cable PUR

Product	Part No. HELUKABEL	Part No. OEM	No. of Cores	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
acc. to SICK HIPERFACE DSL							
TOPSERV® Hybrid PUR	709703	Li9YC11Y	8	4 G 0,5 + (2 x 0,34) C + (2 x 26 AWG) C	76	127	9,3
TOPSERV® Hybrid PUR	709704	Li9YC11Y	8	4 G 0,75 + (2 x 0,34) C + (2 x 26 AWG) C	88	142	9,9
TOPSERV® Hybrid PUR	708543	Li9YC11Y	8	4 G 1,0 + (2 x 0,75) C + (2 x 22 AWG) C	133	212	11,6
TOPSERV® Hybrid PUR	710081	Li9YC11Y	8	4 G 1,5 + (2 x 0,75) C + (2 x 24 AWG) C	146	230	11,7
TOPSERV® Hybrid PUR	708544	Li9YC11Y	8	4 G 1,5 + (2 x 0,75) C + (2 x 22 AWG) C	155	269	12,7
TOPSERV® Hybrid PUR	708545	Li9YC11Y	8	4 G 2,5 + (2 x 1,0) C + (2 x 22 AWG) C	205	310	13,9
TOPSERV® Hybrid PUR	708546	Li9YC11Y	8	4 G 4,0 + (2 x 1,0) C + (2 x 22 AWG) C	280	420	15,9
acc. to HEIDENHAIN HMC6							
TOPSERV® Hybrid PUR	709722	Li9YC11Y	12	4G1,5+(2x0,75)C+(2x0,24+2x2x0,09)C	159	265	12,8
TOPSERV® Hybrid PUR	709724	Li9YC11Y	12	4G4,0+(2x1,0)C+(2x0,24+2x2x0,09)C	261	453	16,2
acc. to HENGSTLER Acuro Link							
TOPSERV® Hybrid PUR	17001151	Li9YC11Y	10	4 G 0,75 + (2 x 0,5) C + (4 x AWG 24) C	121	230	11,8
TOPSERV® Hybrid PUR	17000505	Li9YC11Y	10	4 G 1,5 + (2 x 0,75) C + (4 x AWG 24) C	155	273	13
TOPSERV® Hybrid PUR	17001152	Li9YC11Y	10	4 G 2,5 + (2 x 1,0) C + (4 x AWG 24) C	215	371	15,8
acc. to SIEMENS							
TOPSERV® Hybrid PUR	17001157	Li9YC11Y	10	4 x 0,38 + (2 x 0,38) + (4 x 0,20) PUR	75	135	9,6
TOPSERV® Hybrid PUR	17001158	Li9YC11Y	10	4 x 0,75 + (2 x 0,50) + (4 x 0,20) PUR	103	210	10,9

suitable for itec

TOPSERV® PVC

Motor and servo cables for fixed or not constantly movements 0,6/1 kV,
according to Siemens 6FX5008, Lenze, Bosch Rexroth



Technical data

- Special PVC Motorcable acc. to UL AWM Style 2570 CSA AWM VDE-recognized
- **Temperature range**
flexing -0°C to +60°C
fixed installation -20°C to +80°C
- **Nominal voltage**
VDE U₀/U 600/1000 V
UL/CSA 1000 V
- **A.c. test voltage**, 50 Hz
4000 V
- **Minimum bending radius**
flexing 15x cable Ø
fixed installation 5x cable Ø
min. 100.000 cycles

Cable structure

- Bare copper-conductor, acc. to DIN EN 60228
class 5: fine-wire
class 6: extra fine-wire
- Core insulation
to 6 mm² of halogen-free PP
from 10 mm² of PVC
- 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® 108 PVC without control cores
TOPSERV® 112 PVC with 1 control cores
acc. to Siemens
core 1: black with imprint BR1
core 2: white with imprint BR2
acc. to Lenze
core 1: brown with imprint BR1
core 2: white with imprint BR2
TOPSERV® 119 PVC with 2 control cores
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
wrapped with tinned copper braid
- Power supply cores laid up
with optimal lay length and
stabilising filler
- Fleece wrapping facilitates sliding
- Overall screening from tinned copper
braid, optimal coverage approx. 85 %
- Outer sheath of PVC
- Sheath colour orange (RAL 2003)

Properties

- low capacitance until 6mm² (included)
- oilresistant PVC outer sheath
- Optimum compliance with requirements
for electromagnetic compatibility (EMC)
by approx. 85% coverage from the
braided screen
- These cables are produced to high quality
specifications and conform to the
DESINA®-standard
- 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 sheath flame retardant acc. to
DIN EN 60332-1-1 to -1-3
(VDE 0482-332-1-1 to -1-3)

Note

- For a corresponding encoder cables please check chapter **TOPGEBER 511 PVC**
- For highly flexible, drag chain capable servo cables please check chapter **TOPSERV® PUR**
- Brackets () indicate screen
- DESINA® explanation see introduction
- SIEMENS product designations 6FX 5008-plus are registered trademarks of Siemens AG and are to be used only for purposes of comparison
- Lenze product designations are registered trademarks of Lenze AG and are to be used only for purposes of comparison
- Bosch Rexroth product designations INK are registered trademarks of Bosch Rexroth AG and are to be used only for purposes of comparison

Application

The combination of supply 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 by these cables. The cables have an additional overall screen to ensure EMC compatibility, i.e. for protection against electromagnetic interference. Production is based on the specifications of established manufacturers of servo-drives and controls, as well as on various VDE, UL and CSA standards.

Applications include machine, plant and robot construction, automation, drive, control and production engineering.

Attractive for export-oriented mechanical and system engineering.

EMC = Electromagnetic compatibility

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.

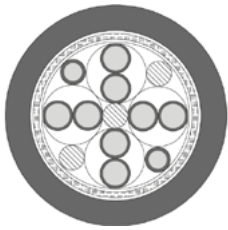
Continuation ►

TOPSERV® PVC

Part No. HELUKABEL	Part No. OEM	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
Without pair – TOPSERV® 108 PVC					
707250	6FX5008-1BB11	4 G 1.5	78	119	8.0
707251	6FX5008-1BB21	4 G 2.5	130	174	9.6
707252	6FX5008-1BB31	4 G 4	198	252	11.0
707253	6FX5008-1BB41	4 G 6	288	365	13.3
707254	6FX5008-1BB51	4 G 10	463	705	19.3
707255	6FX5008-1BB61	4 G 16	701	1053	23.7
707256	6FX5008-1BB25	4 G 25	1068	1504	27.1
707257	6FX5008-1BB35	4 G 35	1449	1973	29.9
707258	6FX5008-1BB50	4 G 50	2096	2671	35.8
With 1 pair - TOPSERV® 112 PVC					
707221	LENZE	4 G 1.0 + (2 x 0.5) C	88	136	9.5
708560	LENZE	4 G 1.0 + (2 x 0.5) C	88	136	9.5
707222	LENZE	4 G 1.5 + (2 x 0.5) C	106	175	11.0
708561	LENZE	4 G 1.5 + (2 x 0.5) C	106	175	11.0
707280	6FX5008-1BA11	4 G 1.5 + (2 x 1.5) C	140	194	10.4
707223	LENZE	4 G 2.5 + (2 x 0.5) C	152	224	12.3
708562	LENZE	4 G 2.5 + (2 x 0.5) C	152	224	12.3
707281	6FX5008-1BA21	4 G 2.5 + (2 x 1.5) C	185	258	12.0
707224	LENZE	4 G 4 + (2 x 1.0) C	229	360	14.3
708563	LENZE	4 G 4 + (2 x 1.0) C	229	360	14.3
707282	6FX5008-1BA31	4 G 4 + (2 x 1.5) C	257	347	13.6
707225	LENZE	4 G 6 + (2 x 1.0) C	312	463	16.0
708564	LENZE	4 G 6 + (2 x 1.0) C	312	463	16.0
707283	6FX5008-1BA41	4 G 6 + (2 x 1.5) C	348	457	15.9
710054	LENZE	4 G 10 + (2 x 1.0) C	484	791	19.8
707284	6FX5008-1BA51	4 G 10 + (2 x 1.5) C	502	797	21.0
710055	LENZE	4 G 16 + (2 x 1.0) C	729	1199	23.3
707285	6FX5008-1BA61	4 G 16 + (2 x 1.5) C	741	1110	24.7
707286	6FX5008-1BA25	4 G 25 + (2 x 1.5) C	1100	1550	27.8
707287	6FX5008-1BA35	4 G 35 + (2 x 1.5) C	1498	2030	30.9
707288	6FX5008-1BA50	4 G 50 + (2 x 1.5) C	2450	2934	34.5
With 2 pairs – TOPSERV® 119 PVC					
707290	INK0653	4 G 1.0 + 2 x (2 x 0.75) C	130	196	11.2
707291	INK0650	4 G 1.5 + 2 x (2 x 0.75) C	155	218	11.5
707292	INK0602	4 G 2.5 + 2 x (2 x 1.0) C	216	304	13.5
707293	INK0603	4 G 4 + (2 x 1.0) C + (2 x 1.5) C	297	404	15.5
707294	INK0604	4 G 6 + (2 x 1.0) C + (2 x 1.5) C	374	527	17.3
707295	INK0605	4 G 10 + (2 x 1.0) C + (2 x 1.5) C	545	820	21.2
707296	INK0606	4 G 16 + 2 x (2 x 1.5) C	804	1168	25.0

TOPGEBER 511 PVC

Feedback cables according to Siemens-, Lenze- or Bosch Rexroth Standard with PVC-sheath for fixed or not constantly movements



Technical data

- Special PVC feedback cable acc. to UL AWM style 20233 and CSA
- **Temperature range**
flexing -0°C to +60°C
fixed installation -20°C to +80°C
- **Nominal voltage**
acc. to Siemens 30 V
acc. to Bosch Rexroth and Lenze 300 V
- **A.c. test voltage**, 50 Hz
core/core 1500 V
core/screen 1000 V
- **Minimum bending radius**
flexing 15x cable Ø
fixed installation 6x cable Ø
min. 100.000 cycles

Cable structure

- Copper-conductor bare or tinned to DIN VDE 0295 cl.6, extra fine-wire, IEC 60228 cl.6
- Core insulation of special polypropylene
- Core colours on request
- Overall screening of tinned copper wire braid with tinned drain wire, coverage approx. 85%
- Polyester foil
- Outer sheath of PVC
- Sheath colour green (RAL 6018) acc. to DESINA® or orange

Properties

- Outer sheath of PVC, oilresistant
- Optimum compliance with requirements for elect romagnetic compatibility (EMC) by approx. 85% coverage from the braided screen
- These cables are produced to high quality specifications and conform to the DESINA®-standard
- 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 sheath flame retardant acc. to DIN EN 60332-1-1 bis -1-3 (VDE 0482-332-1-1 bis -1-3)

Note

- For a corresponding motor- and servocables please check chapter **TOPSERV® PVC**
- For drag chain capable encoder cables please check chapter **TOPGEBER 512 PUR**
- Brackets () indicate screen.
- SIEMENS product designations 6FX 5008-... are registered trademarks of Siemens AG and are to be used only for purposes of comparison.
- INDRAMAT product designations INK- are registered trademarks of Bosch-Rexroth AG and are to be used only for purposes of comparison.
- LENZE product designations are registered trademarks of LENZE AG, and are to be used only for purposes of comparison.
- DESINA®: Explanation: see introduction.

Application

Low cost alternativ to Motorcables with PUR Sheath for fix instalation or occasional moving applications. These low-capacitance incremental encoder cables or position feedback cables transmit the control pulses for positioning and operating characteristics of servomotors. These cables are used as connecting cables for tachos, brakes and pulse generators in industrial equipment, machine tools, control and automation equipment.

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.

TOPGEBER® 511 PVC

According to Standard	Part No. HELUKABEL	Part No. OEM	No. of Cores	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
Siemens	707417	6FX5008-1BD21	12	(4 x 2 x 0.34 + 4 x 0.5) C	70	116	8.9
	707389	6FX5008-1BD41	12	(3 x (2 x 0.14) D + 4 x 0.14 + 2 x 0.5) C	66	114	8.9
	707390	6FX5008-1BD51	16	(3 x (2 x 0.14) D + 4 x 0.14 + 4 x 0.25 + 2 x 0.5) C	75	129	9.4
	803672	6FX5008-2DC00	6	(2 x 2 x 0.22 + 1 x 2 x 0.34)	38	61	6.9
	802471	6FX5008-1DC00	4	(2 x 2 x 0.22)	35	71	6.9
Bosch Rexroth	705461	INK 448	10	(4 x 2 x 0.25 + 2 x 0.5) C	61	95	8.4
	707392	INK209	10	(4 x 2 x 0.25 + 2 x 1.0) C	64	119	8.8
	707394	INK 532	16	(4 x 1 + 4 x 2 x 0.14 + (4 x 0.14) D) C	84	145	9.7
Lenze	707077	Li9YY	8	3 x (2 x 0.14) C + (2 x 0.5) C	54	110	9.3
	707397	Li9YY	10	4 x (2 x 0.14) C + (2 x 1.0) C	70	156	11.0
	707398	Li9YY	9	3 x (2 x 0.14) C + (3 x 0.14) C	41	106	9.2
Various	705615	Li9YC11Y	16	(7 x 2 x 0.14 + 2 x 0.5) C	46	86	7.6

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COLOUR CODE - TOPGEBER® 511 PVC

According to Standard	Part No. HELUKABEL	Colour Code
Siemens	707417	bn+bk; rd+og; bu+vt; gy+ye (0.34qmm pairs) • bu/wh; bk/wh; rd/wh; ye/wh (0.5qmm)
	707389	gn+ye; bk+bn; rd+og (0.14qmm pairs) • bn/rd+bn/bu (0.5qmm) • gy+bu+wh/ye+wh/sw (0.14qmm quad)
	707390	gn+ye; bk+bn; rd+og (0.14qmm pairs) • bn/rd+bn/bu (0.5qmm) • gy+bu+wh/ye+wh/sw (0.14qmm quad) • bn/ye+bn/gy+gn/bk+gn/rd (0.25qmm quad)
	803672	gn+ye; pk+bu (0.22qmm) • rd+bk (0.34qmm)
	802471	gn+ye; pk+bu (0.22qmm)
Bosch Rexroth	705461	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (0.5qmm)
	707392	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (1.0qmm)
	707394	ye/bk+bu/bk+gn/bk+rd/bk (0.14qmm quad) • wh+bn/gn+wh/gn+bu (1.0qmm) • rd+bk; bn+gn; ye+vt; gy+pk (0.14qmm pairs)
Lenze	707077	bk+ye; bk+gn; bk+rd (0.14qmm pairs) • bk+wh (0.5qmm)
	707397	bk+ye; bk+gn; bk+rd; bk+bu (0.14qmm pairs) • bk+wh (1.0qmm)
	707398	bk+ye; bk+gn; bk+rd (0.14qmm pairs) • bk+gy+pk (0.14qmm)
Various	705615	wh, br (0.5qmm); wh+br; gn+ye; gy+pink; bu+rd; bk+violet; gy-pink+rb-bu; wh-gn; bn-gn (0.14qmm pairs)

TOPSERV® PUR

High flexible motor and servo cable for drag chain 0,6/1 kV, for example according to Siemens 6FX8008PLUS, Lenze, Bosch Rexroth



HELUKABEL - TOPSERV 109 PUR - 0,6/1 kV UL/CSA DESINA C€

Technical data

- Special PUR drag chain cable acc. to UL AWM Style 21223 or 20234 CSA AWM VDE-recognized
- **Temperature range**
flexing -30°C to +80°C
fixed installation -40°C to +90°C
- **Nominal voltage**
VDE U₀/U 600/1000 V
UL/CSA 1000 V
- **A.c. test voltage**, 50 Hz
4000 V
- **Insulation resistance**
min. 20 MOhm x km
- **Coupling resistance**
max. 250 Ohm/km
- **Minimum 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, IEC 60228 cl.6
- Core insulation 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® 109 PUR without control cores
TOPSERV® 113 PUR with 1 control cores acc. to Siemens
core 1: black with imprint BR1
core 2: white with imprint BR2
acc. to Lenze
core 1: brown with imprint BR1
core 2: white with imprint BR2
TOPSERV® 121 PUR with 2 control cores
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 wrapped with tinned copper braid
- Power supply cores laid up with optimal lay length and stabilising filler
- Fleece wrapping facilitates sliding
- Overall screening from tinned copper braid, optimal coverage approx. 85%
- Outer sheath of PUR
- Sheath colour orange (RAL 2003)

Properties

- Low adhesion, flame retardant, extremely abrasion resistant, halogen-free, resistant to UV, oil, hydrolysis and microbial attack PUR sheath
- Optimized insulation materials ensure resistance to oils (including mineral oils), greases, coolants, hydraulic fluids as well as many alkalis and solvents.
- Optimum compliance with requirements for electromagnetic compatibility (EMC) by approx. 85% coverage from the braided screen
- These cables are produced to high quality specifications and conform to the DESINA® standard.
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- Resistant to cleaning and disinfecting agents acc. to ECOLAB®

Tests

- PUR outer sheath self-extinguishing and flame retardant 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 a corresponding encoder cables please check chapter **TOPGEBER 512 PUR**
- For servo cables with non or only slight drag chain application please check chapter **TOPSERV® PVC**
- Brackets () indicate screen
- DESINA® explanation see introduction
- SIEMENS product designations 6FX 5008-plus are registered trademarks of Siemens AG and are to be used only for purposes of comparison
- Lenze product designations are registered trademarks of Lenze AG and are to be used only for purposes of comparison
- Bosch Rexroth product designations INK are registered trademarks of Bosch Rexroth AG and are to be used only for purposes of comparison

Application

The combination of supply 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 by these cables. The cables have an additional overall screen to ensure EMC compatibility, i. e. for protection against electromagnetic interference. Production is based on the specifications of established manufacturers of servo-drives and controls, as well as on various VDE, UL and CSA standards. Applications include machine, plant and robot construction, automation, drive, control and production engineering. Attractive for export-oriented mechanical and system engineering. Please observe applicable installation regulations for use in energy supply chains.

EMC = Electromagnetic compatibility

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

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

PUR Servo Dynamic Cables

Part No. HELUKABEL	Part No. OEM	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
Without pair – TOPSERV® 109 PUR					
75943	6FX8008-1BB11	4 G 1.5	90	136	8.9
75944	6FX8008-1BB21	4 G 2.5	132	195	10.7
75945	6FX8008-1BB31	4 G 4	204	273	12.2
75946	6FX8008-1BB41	4 G 6	315	401	14.5
75947	6FX8008-1BB51	4 G 10	488	616	17.5
75948	6FX8008-1BB61	4 G 16	769	948	21.6
75949	6FX8008-1BB25	4 G 25	1100	1495	25.2
75950	6FX8008-1BB35	4 G 35	1510	1936	28.6
75951	6FX8008-1BB50	4 G 50	2133	2774	33.4
700437	6FX8008-1BB70	4 G 70	3029	3803	39.9
700897	6FX8008-1BB95	4 G 95	4606	5102	47.6
With 1 pair – TOPSERV® 113 PUR					
706003*	INK0670	4 G 0.75 + (2 x 0.5) C	77	132	9.2
77376	LI9YC11Y	4 G 1.0 + (2 x 0.75) C	134	163	11.5
707228	Lenze	4 G 1.0 + (2 x 0.5) C	88	155	10.5
707229	Lenze	4 G 1.5 + (2 x 0.5) C	106	195	11.5
74506	LI9YC11Y	4 G 1.5 + (2 x 1.0) C	138	200	11.1
78948	6FX8008-1BA11	4 G 1.5 + (2 x 1.5) C	148	221	11.6
707230	Lenze	4 G 2.5 + (2 x 0.5) C	152	251	13.2
74507	LI9YC11Y	4 G 2.5 + (2 x 1.0) C	177	275	12.5
78949	6FX8008-1BA21	4 G 2.5 + (2 x 1.5) C	187	285	13.2
707231	Lenze	4 G 4 + (2 x 1.0) C	250	375	14.6
74508	LI9YC11Y	4 G 4 + (2 x 1.0) C	258	356	14.3
78950	6FX8008-1BA31	4 G 4 + (2 x 1.5) C	268	381	14.8
707232	Lenze	4 G 6 + (2 x 1.0) C	344	495	17.6
74514	LI9YC11Y	4 G 6 + (2 x 1.0) C	348	492	16.2
78951	6FX8008-1BA41	4 G 6 + (2 x 1.5) C	358	495	16.8
707746	Lenze	4 G 10 + (2 x 1.0) C	508	706	20.1
74509	LI9YC11Y	4 G 10 + (2 x 1.0) C	510	690	19.0
78952	6FX8008-1BA51	4 G 10 + (2 x 1.5) C	584	712	19.5
707747	Lenze	4 G 16 + (2 x 1.0) C	751	1008	23.8
74510	LI9YC11Y	4 G 16 + (2 x 1.0) C	798	981	22.2
75956	6FX8008-1BA61	4 G 16 + (2 x 1.5) C	825	1041	23.1
74511	LI9YC11Y	4 G 25 + (2 x 1.0) C	1273	1436	26.2
75957	6FX8008-1BA25	4 G 25 + (2 x 1.5) C	1283	1476	26.8
74512	LI9YC11Y	4 G 35 + (2 x 1.0) C	1490	1914	29.8
75958	6FX8008-1BA35	4 G 35 + (2 x 1.5) C	1550	1954	30.9
74513	LI9YC11Y	4 G 50 + (2 x 1.0) C	2110	2594	33.7
75959	6FX8008-1BA50	4 G 50 + (2 x 1.5) C	2140	2598	34.2
With 2 pairs – TOPSERV® 121 PUR					
708499	LI9YC11Y	4 G 0.75 + 2 x (2 x 0.34) C	103	177	10.4
73774	INK0653	4 G 1,0 + 2 x (2 x 0,75) C	148	208	11.2
17001159	REL0105	4 x 1,0 + 2 x (2 x 0,75) C	148	208	11,2
76103	LI9YC11Y	4 G 1,5 + 2 x (2 x 0,5) C	145	250	11.6
700561	INK0650 / REL0106	4 G 1,5 + 2 x (2 x 0,75) C	170	276	12.2
707775	Schneider Electric	4 G 1,5 + 2 x (2 x 0,75) C	170	276	12.2
73579	LI9YC11Y	4 G 1,5 + 2 x (2 x 1,0) C	182	290	12.4
73580	INK0602 / REL0107	4 G 2,5 + 2 x (2 x 1,0) C	229	346	14.0
703103	Schneider Electric	4 G 2,5 + 2 x (2 x 1,0) C	229	346	14.0
78955	LI9YC11Y	4 G 2,5 + 2 x (2 x 1,5) C	241	350	15.4
74094	LI9YC11Y	4 G 4 + 2 x (2 x 1,0) C	312	475	15.5
700562	INK0603 / REL0108	4 G 4 + (2 x 1,0) C + (2 x 1,5) C	318	473	15.8
78956	LI9YC11Y	4 G 4 + 2 x (2 x 1,5) C	324	490	16.2
74095	LI9YC11Y	4 G 6 + 2 x (2 x 1,0) C	376	606	17.3
700563	INK0604 / REL0109	4 G 6 + (2 x 1,0) C + (2 x 1,5) C	398	609	17.6
78957	LI9YC11Y	4 G 6 + 2 x (2 x 1,5) C	412	621	18.0
700564	INK0605 / REL0110	4 G 10 + (2 x 1,0) C + (2 x 1,5) C	610	852	20.5
74096	-	4 G 10 + 2 x (2 x 1,0) C	609	905	21.5
78958	LI9YC11Y	4 G 10 + 2 x (2 x 1,5) C	625	925	20.9
75978	INK0606 / REL0111	4 G 16 + 2 x (2 x 1,5) C	904	1290	23.6
75979	INK0607 / REL0112	4 G 25 + 2 x (2 x 1,5) C	1323	1700	27.0
75980	INK0667 / REL0113	4 G 35 + 2 x (2 x 1,5) C	1621	2155	30.5
700565	INK0668	4 G 50 + 2 x (2 x 2,5) C	2600	3100	35.5

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Cables, Wires & Accessories



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Cable Accessories



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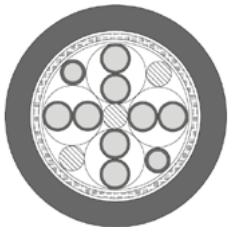
The HELUKABEL product finder is the ideal tool to search for cables and wires, both quickly and easily. Whether you are searching for motor-, servo- and feedback cables, coaxial cables, power or medium-voltage cables - over 25.000 products are available. After selecting the product category, you can find your product by using additional filters such as cable structure, properties, approvals and fire tests.

If you have any questions, please do not hesitate to contact us!

E-mail: info@helukabel.de

TOPGEBER 512 PUR

High flexible Feedback cable for drag chain according to Siemens, Bosch Rexroth, Lenze and other Standards



Technical data

- Special PUR drag chain feedback cable acc. to UL AWM style 20233 and 20236 and CSA
- **Temperature range**
flexing -30°C to +80°C
fixed installation -40°C to +80°C
- **Nominal voltage**
acc. to Siemens 30 V
acc. to Bosch Rexroth and Lenze 300 V
further details on request
- **A.c. test voltage**, 50 Hz
core/core 2000 V
core/screen 1000 V
- **Mutual capacitance** at 800 Hz
core/core approx. 70 nF/km
core/screen approx. 110 nF/km
- **Insulation resistance**
min. 20 MΩ x km
- **Coupling resistance**
max. 250 Ω
- **Minimum bending radius**
flexing 10x cable Ø
fixed installation 6x cable Ø

Cable structure

- tinned copper, to
DIN VDE 0295 cl.6, extra fine-wire,
BS 6360 cl.6, IEC 60228 cl.6
- Core insulation of special polypropylene
- Core colours on demand
- Fleece wrapping facilitates sliding
- Overall screening of tinned copper wire braid with tinned drain wire, coverage approx. 85%
- Polyester foil
- Outer sheath of PUR
- Sheath colour green (RAL 6018)
acc. to DESINA® or orange

Properties

- PUR outer sheath, low adhesion, extremely abrasion resistant, halogen-free, resistant to UV-, oil-, hydrolysis and microbial attack
- Special feature: These cables are produced to high quality specifications and conform to the DESINA®-standard
- Due to the high grade special core insulation, the PUR sheath and the highly flexible conductor, these cables are ideally suitable for use in drag chains and provide high functional reliability
- Optimum compliance with requirements for electromagnetic compatibility (EMC) by approx. 85% coverage from the braided screen
- Particularly attractive for export-oriented markets due to UL/CSA approval
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers
- Resistant to cleaning and disinfecting agents acc. to ECOLAB®

Note

- For a corresponding motor- and servocables please check chapter **TOPSERV® PUR**
- Encoder cables for static application please check chapter **TOPGEBER 511 PVC**
- Brackets () indicate screen.
- SIEMENS product designations 6FX 8008-... are registered trademarks of Siemens AG and are to be used only for purposes of comparison.
- Bosch Rexroth product designations INK- are registered trademarks of Bosch-Rexroth AG and are to be used only for purposes of comparison.
- DESINA®: Explanation: see introduction.

Application

These low-capacitance incremental encoder cables or position feedback cables transmit the control pulses for positioning and operating characteristics of servomotors. These cables are used as connecting cables for tachos, brakes and pulse generators in applications subjected to heavy mechanical stresses in industrial equipment, machine tools, control and automation equipment. Please observe applicable installation regulations for use in energy supply chains.

EMC = Electromagnetic compatibility

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.

Continuation ►

TOPGEBER® 512 PUR

According to Standard	Part No. HELUKABEL	Part No. OEM	No. of Cores	Cable Structure / Sheath Colour	Cop. Weight app. kg/km	Weight app. kg/km	Outer Diameter app. mm
Siemens 30V	700655	6FX8008-1BD11	16	(8 x 2 x 0.18) C	54	85	7.8
	78081	6FX8008-1BD21	12	(4 x 2 x 0.34 + 4 x 0.5) C	74	115	8.9
	707400	6FX8008-1BD31	8	(3 x (2 x 0.14) D + 2 x (0.5) D) C	70	120	9.0
	700657	6FX8008-1BD41	12	(3 x (2 x 0.14) D + 4 x 0.14 + 2 x 0.5) C	66	120	8.9
	700540	6FX8008-1BD51	16	(3 x (2 x 0.14) D + 4 x 0.14 + 4 x 0.25 + 2 x 0.5) C	75	135	9.6
	700654	6FX8008-1BD61	8	(4 x 2 x 0.18) C	35	61	6.4
	700653	6FX8008-1BD71	4	(2 x 2 x 0.18) C	24	39	5.0
	78079	6FX8008-1BD81	12	(12 x 0.22) C	49	77	6.9
	804767	6FX8008-2DC00	6	(2 x 2 x 0.20 + 1 x 2 x 0.38)	41	72	7.0
Schneider Electric	705413	Schneider Electric	8	(3 x 2 x 0.25 + 2 x 0.5) C	43	82	7.4
	706333	Schneider Electric	12	(5 x 2 x 0.25 + 2 x 0.5) C	69	110	8.8
	708489	Schneider Electric	8	(3 x 2 x 0.14 + 2 x 0.34) C	29	65	6.8
B+R	707403	B+R	6	(3 x 2 x AWG24) C	31	57	6.5
	707404	B+R	12	(5 x 2 x 0.14 + 2 x 0.5) C	48	79	7.8
Lenze 30V	707405	Lenze	8	3 x (2 x 0.14) C + (2 x 0.5) C	54	114	9.9
	707406	Lenze	10	4 x (2 x 0.14) C + (2 x 1.0) C	70	142	10.8
	707407	Lenze	9	3 x (2 x 0.14) C + (3 x 0.14) C	41	98	9.2
Old				NEW			
Bosch Rexroth 300V	702050	INK209 green	10	(4 x 2 x 0.25 + 2 x 1.0) C	64	120	8.8
	78080	INK448 green	10	(4 x 2 x 0.25 + 2 x 0.5) C	51	103	8.5
	77741	INK208 green	9	(9 x 0.5) C	69	124	8.8
	707738	INK209	10	(4 x 2 x 0.25 + 2 x 1.0) C	64	112	8.8
	707739	INK448	REG0013	(4 x 2 x 0.25 + 2 x 0.5) C	51	104	8.5
	707740	INK208	9	(9 x 0.5) C	69	124	8.8
	707408	INK532	16	(4 x 1 + 4 x 2 x 0.14 + (4 x 0.14) D) C	84	139	9.5
	707418	INK280	11	(3 x (2 x 0.25) D + 3 x 0.25 + 2 x 1.0) C	74	130	9.0
	707409	INK750	6	(2 x 2 x 0.25 + 2 x 0.5) C	38	76	7.2
	713070		REG0011	5 x (2 x 0.14) Stc + 4 x 0.5	104	172.2	10
	17000504		REG0012	(2 x 2 x 0.2 + 2 x 0.5)	34	80	7.2
Heidenhain	710106	Heidenhain EnDat 2.0	8	(1 x 4 x 0.14 + 4 x 0.34) C	36	61	6.0
	77753	Heidenhain	12	(10 x 0.14 + 2 x 0.5) C	43	79	7.2
	77743	Heidenhain	8	(3 x (2 x 0.14) D + 2 x (1 x 0.5) D) C	81	103	8.4
	709693	Heidenhain	8	(3 x (2 x 0.14) D + 2 x (1 x 0.5) D) C	81	103	8.4
	79513	Heidenhain	12	(4 x 2 x 0.14 + 4 x 0.5) C	52	103	8.5
	709691	Heidenhain	12	(4 x 2 x 0.14 + 4 x 0.5) C	52	103	8.5
	707410	Heidenhain	8	(3 x (2 x 0.14) D + 2 x (1.0) D) C	72	132	9.1
	700560	Heidenhain	16	(4 x 2 x 0.14 + (4 x 0.14) C + 4 x 0.5) C	81	123	9.0
	709692	Heidenhain	16	(4 x 2 x 0.14 + (4 x 0.14) C + 4 x 0.5) C	81	123	9.0
Baumüller	78963	Baumüller	12	(5 x 2 x 0.14 + 2 x 0.5) C	72	91	8.8
Fanuc	707761	LI9YC11Y	16	(5 x 2 x 0.18 + 6 x 0.5) C	74	120	8.7
	707762	LI9YC11Y	12	(3 x 2 x 0.18 + 6 x 1.0) C	93	130	8.7
	707116	LI9YC11Y	12	(3 x 2 x 0.18 + 6 x 0.5) C	66	108	8.7
	707763	LI9YC11Y	9	(2 x 2 x 0.18 + 5 x 0.5) C	55	90	7.8
	707115	LI9YC11Y	7	(1 x 2 x 0.18 + 5 x 0.5) C	49	86	7.4
	707764	LI9YC11Y	10	(4 x 2 x 0.22 + 2 x 0.5) C	54	87	7.8
Various	78828	LI9YC11Y	6	(3 x (2 x 0.25) D) C	55	79	7.2
	79613	LI9YC11Y	12	(5 x 2 x 0.38 + 2 x 0.5) C	69	124	9.2
	77744	LI9YC11Y	8	(3 x (2 x 0.14) D + 2 x 1.0) C	71	131	8.2
	78372	LI9YC11Y	8	(3 x 2 x 0.14 + 2 x 0.5) C	35	73	7.2
	705647	LI9YC11Y	16	(7 x 2 x 0.14 + 2 x 0.5) C	46	89	7.6
	707748	LI9YC11Y	10	(4 x (2 x 0.14) C + (2 x 1.0)) C	90	185	11.4
	77750	LI9YC11Y	10	(4 x (2 x 0.25) C + 2 x 1.0) C	89	162	10.5
	705221	LI9YC11Y	8	(4 x 2 x 0.25) C	39	82	7.5
	74418	LI9YC11Y	6	(3 x 2 x 0.25) C	38.4	65	7.0
	74419	LI9YC11Y	8	(4 x 2 x 0.25) C	43.2	72	7.1
	74420	LI9YC11Y	10	(5 x 2 x 0.25) C	51.5	102	8.8
	700662	LI9YC11Y	8	4 x 2 x 0.18	35	68	6.4
	78649	LI9YC11Y	16	8 x 2 x 0.25	67	114.4	8.8
	700241	LI9YC11Y	8	4 x 2 x 0.22	41	110	7.8
	708490	LI9YC11Y	10	4 x (2 x 0.14) D2Y + 2 x (1 x 0.5) D2Y	69.6	131.2	9.5

*TOPSERV 121

NEW

Feedback Cables PUR

Part No. HELUKABEL	Colour Code
700655	wh/ye+wh/gn; wh/rd+wh/og; wh/bk+wh/bn; gy+wh; bu+vt; ye+gn; rd+og; bk+bn
78081	bn+bk; rd+og; bu+vt; gy+ye (0.34qmm pairs) • bu/wh; bk/wh; rd/wh; ye/wh (0.5qmm)
707400	gn+ye; bk+bn; rd+og (0.14qmm pairs) • bk+rd (0.5qmm)
700657	gn+ye; bk+bn; rd+og (0.14qmm pairs) • bn/rd+bn/bu (0.5qmm) • gy+bu+wh/ye+wh/bk (0.14qmm quad)
700540	gn+ye; bk+bn; rd+og (0.14qmm pairs) • bn/rd+bn/bu (0.5qmm) • gy+bu+wh/ye+whbk (0.14qmm quad) • bn/ye+bn/gy+gn/bk+gn/rd (0.25qmm quad)
700654	bk+bn; rd+og; gn+ye; bu+vt
700653	rd+og; bk+bn
78079	bk; bn; rd; (first lay) • og; ye. gn; bu; vt; gy; wh; wh/bk; wh/ bn (second lay)
804767	bu+pk; gn+ye (0.2qmm) • rd; bk (0.38qmm)
705413	wh; bn; gn; ye; gy; pk (0.25qmm pairs) • bu; rd (0.5qmm)
706333	wh/bn; gn/ye; gy/pk; bk/vt; gypk/rdbu (0.25qmm pairs) • bu; rd (0.5qmm)
708489	wh+bn; gn+ye; gy+pk (0.14qmm pairs) • bu+rd (0.34qmm)
707403	wh+bn; gn+ye; gy+pk
707404	gn+bn; gy+wh; wh+vt; bk+rd; pk+bu (0.14qmm pairs) • wh/gn; wh/rd (0.5qmm)
707405	bk+ye; bk+gn; bk+rd (0.14qmm pairs) • bk+wh (0.5qmm)
707406	bk+ye; bk+gn; bk+rd; bl+bu (0.14qmm pairs) • bk+ws (1.0qmm)
707407	bk+ye; bk+gn; bk+rd (0.14qmm pairs) • bk+gy+pk (0.5qmm)
702050	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (1.0qmm)
78080	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (0.5qmm)
77741	bu+wh+rd+pk+gn+ye+bn+bk+gy
707738	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (1.0qmm)
707739	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (0.5qmm)
707740	bu+wh+rd+pk+gn+ye+bn+bk+gy
707408	ye/bk+bu/bk+gn/bk+rd/bk (0.14qmm quad) • wh+bn/gn+wh/gn+bu (1.0qmm) • rd+bk; bn+gn; ye+vt; gy+pk (0.14qmm Pairs)
707418	gn+bn; gy+pk; bk+rd (0.25qmm pairs) • ye+bu+vt (0.25qmm tripple) • bn. wh (1.0qmm)
707409	rd+bk; gy+pk (0.25qmm pairs) • wh+bn (0.5qmm)
713070	wh+ye; bl+rd; bl+vio; gn+br; gr+rs
17000504	
710106	gy; ye; pink; violet (0,14qmm) • bu; wh; bn-gn; ws-gn (0,34qmm)
77753	wh; bn; gn; ye; gy; pk; bu; rd; bk; vt (0.14qmm) • gy/pk; rd/bu (0.5qmm)
77743	gn+ye; gy+pk; bu+rd (0.14qmm pairs) • wh+bn (0.5qmm)
709693	gn+ye; gy+pk; bu+rd (0.14qmm pairs) • wh+bn (0.5qmm)
79513	gn+bn; ye+vt; pk+gy. rd+bk (0.14qmm) • wh; bu; wh/gn; bn/gn (0.5qmm)
709691	gn+bn; ye+vt; pk+gy. rd+bk (0.14qmm) • wh; bu; wh/gn; bn/gn (0.5qmm)
707410	gn+ye; gy+pk; bu+rd (0.14qmm) • wh+bn (1.0qmm)
700560	ge+vio; gy+rs; sw+rtbr+gn (0,14qmm) • ge/sw; bl/sw; gn/sw; rt/sw (0,14qmm quad) • ws; bl; ws/gn; br/gn (0,5qmm)
709692	ge+vio; gy+rs; sw+rtbr+gn (0,14qmm) • ge/sw; bl/sw; gn/sw; rt/sw (0,14qmm quad) • ws; bl; ws/gn; br/gn (0,5qmm)
78963	wh; bn (0.5qmm) • gn+ye; gy+pk; bu+rd; bk+vt; gy/pk+rd/bu (0.14qmm pairs)
707761	bk+og; bk+gy; wh+ye; wh+gy; wh+bn (0.18qmm) • 3x rd num. 4-6; 3x bk num. 1-3 (0.5qmm)
707762	rd+wh; rd+bk; bk+wh (0.18qmm) • 3x rd num. 4-6; 3x bk num. 1-3 (1.0qmm)
707116	rd+wh; rd+bk; bk+wh (0.18qmm) • 3x rd num. 4-6; 3x bk num. 1-3 (0.5qmm)
707763	bk+vt; wh+bn (0.18qmm) • gn; ye. gy. pk. bu (0.5qmm)
707115	bn+wh (0.18qmm) • bu; pk; gy; ye; gn (0.5qmm)
707764	bn/bk+bn/rd; ye/bk+ye/rd; gn/bk+gn/rd; gy/bk+gy/rd (0.22mm pairs) • bn. ye (0.5qmm)
78828	wh+bn; gn+ye; gy+pk
79613	wh+bn; gn+ye; gy+pk; bu+rd; bk+vt (0.38qmm pairs) • wh; bn (0.5qmm)
77744	gn+ye; gy+pk; bu+rd (0.14qmm pairs) • wh+bn (1.0qmm)
78372	gn+ye; gy+pk; bu+rd (0.14qmm pairs) • wh+bn (0.5qmm)
705647	wh+br; gn+ye; gy+pink; bu+rd; bk+violet; gy-pk+rb-bu; wh-gn; bn-gn (0,14qmm pairs) • wh; br (0,5qmm)
707748	wh+br; gn+gn; gn+pink; bu+rd (0,14qmm pairs) • wh+br (1,0qmm pairs)
77750	gn+bn; bk+rd; gy+pk; bu+vt (0.25qmm pairs) • wh+bn (1.0qmm)
705221	wh+bn; gn+ye; gy+pk; bu+rd
74418	wh+bn; gn+ye; gy+pk
74419	wh+bn; gn+ye; gy+pk; bu+rd
74420	wh+br; gn+ye; gy+pk; bu+rd; bk+violet (0,25qmm pairs)
700662	wh+bn; gn+ye; gr+rs; bl+rd
78649	wh+br; gn+ge; gr+rs; bl+rt; sw+vio; grrs+ rtbl; wsgn+brgn; wsge+gebr
700241	wh+br; gn+ge; gr+rs; bl+rt
708490	wh; br; gn+ge; gr+rs; bl+rt; sw+vio

► Also see Catalogue „Cables, Wires & Accessories/Ed.27“, page 470

UL-listed Servo Cables According to NFPA 79 Edition 2012

Tests

UL:

TC-ER, WTTC 1000 V, MTW, NFPA 79 2012, PLTC-ER (AWG 18 - AWG 12), ITC-ER (AWG 18 - AWG 12)
OIL RES I & II, 90°C dry / 75°C wet, Cold Bend Test -40°C, Class 1 Div. 2 per NEC Art. 336, 392, 501

More technical data available on request.



CSA:

c (UL) CIC-TC FT4,
AWM I/II A/B FT4

TOPFLEX® 600 VFD

EMC-preferred type, flexible motor power supply cable, oil-resistant, NFPA 79 Edition 2012

Jacket color orange Part No.	Jacket color black Part No.	No. Cores x AWG No.	Cross Section mm ²	Outer Diameter app. mm	Cop. weight app. kg/km	Weight app. kg/km
63147	63139	4 x 18	0.963	9.9	52.0	164.0
63148	63140	4 x 16	1.31	11.4	72.0	183.0
63149	63137	4 x 14	2.08	12.5	118.0	197.0
63150	63141	4 x 12	3.31	14.0	182.0	267.0
63151	63142	4 x 10	5.26	17.1	182.0	267.0
63152	63143	4 x 8	8.37	22.3	417.0	668.0
63153	63144	4 x 6	13.31	25.4	651.0	918.0
63154	63145	4 x 4	21.21	30.1	910.0	1363.0
63155	63146	4 x 2	33.6	35.3	1411.0	1994.0

TOPFLEX® 650 VFD

EMC-preferred type, flexible motor power supply cable with control cores, oil-resistant, NFPA 79 Edition 2012

Jacket color orange Part No.	Jacket color black Part No.	No. Cores x AWG No.	Cross Section mm ²	Outer Diameter app. mm	Cop. weight app. kg/km	Weight app. kg/km
62876	63156	4x AWG 16 +2x AWG 18	1.31/ 0.963	13.0	88.0	259.0
62877	63157	4x AWG 14 +2x AWG 18	2.08/ 0.963	14.0	133.0	370.0
62878	63138	4x AWG 14 +2x AWG 16	2.08/ 2.08	14.0	159.0	399.0
62879	63158	4x AWG 12 +2x AWG 18	3.31/ 0.963	15.3	197.0	435.0
62880	63159	4x AWG 12 +2x AWG 16	3.31/ 2.08	15.7	224.0	466.0
62881	63160	4x AWG 10 +2x AWG 16	5.26/ 2.08	18.2	301.0	703.0
62882	63161	4x AWG 8 +2x AWG 16	8.37/ 2.08	24.1	457.0	901.0
62883	63162	4x AWG 6 +2x AWG 16	13.31/ 2.08	27.4	615.0	1275.0
62884	63163	4x AWG 4 +2x AWG 16	21.21/ 2.08	33.4	1450.0	1861.0

TOPSERV® 600 VFD

EMC-preferred type, high flexible motor power supply cable, oil-resistant, NFPA 79 Edition 2012

Jacket color orange Part No.	Jacket color black Part No.	No. Cores x AWG No.	Cross Section mm ²	Outer Diameter app. mm	Cop. weight app. kg/km	Weight app. kg/km
62616	62607	4 x 18	0.963	9.9	38.0	163.0
62617	62608	4 x 16	1.31	11.4	51.0	184.0
62618	62609	4 x 14	2.08	12.5	80.0	197.0
62619	62610	4 x 12	3.31	14.0	127.0	266.0
62620	62611	4 x 10	5.26	17.1	230.0	401.0
62621	62612	4 x 8	8.37	22.3	384.0	669.0
62622	62613	4 x 6	13.31	25.4	614.0	917.0
62623	62614	4 x 4	21.21	30.1	960.0	1364.0
62624	62615	4 x 2	33.6	35.3	1344.0	1990.0

TOPSERV® 650 VFD

EMC-preferred type, high flexible motor power supply cable, oil-resistant, NFPA 79 Edition 2012

Jacket color orange Part No.	Jacket color black Part No.	No. Cores x AWG No.	Cross Section mm ²	Outer Diameter app. mm	Cop. weight app. kg/km	Weight app. kg/km
59846	59837	4x AWG 16 +2x AWG 18	1.31/ 0.963	13.0	88.0	259.0
59847	59836	4x AWG 14 +2x AWG 18	2.08/ 0.963	14.0	133.0	370.0
59848	59839	4x AWG 14 +2x AWG 16	2.08/ 2.08	14.6	159.0	399.0
59849	59840	4x AWG 12 +2x AWG 18	3.31/ 0.963	15.3	197.0	435.0
59850	59841	4x AWG 12 +2x AWG 16	3.31/ 2.08	15.7	224.0	466.0
59851	59842	4x AWG 10 +2x AWG 16	5.26/ 2.08	18.2	301.0	703.0
59852	59843	4x AWG 8 +2x AWG 16	8.37/ 2.08	24.1	457.0	901.0
59853	59844	4x AWG 6 +2x AWG 16	13.31/ 2.08	27.4	615.0	1275.0
59854	59845	4x AWG 4 +2x AWG 16	21.21/ 2.08	33.4	1450.0	1861.0
710015		4x AWG 16 +2x 2x AWG 18	1.31/ 0.963	13.0	88.0	259.0
712804		4x AWG 14 +2x 2x AWG 18	2.08/ 0.963	14.0	133.0	370.0
710017		4x AWG 14 +2x 2x AWG 16	2.08/ 2.08	14.6	159.0	399.0
710018		4x AWG 12 +2x 2x AWG 18	3.31/ 0.963	15.3	197.0	435.0
710019		4x AWG 12 +2x 2x AWG 16	3.31/ 2.08	15.7	224.0	466.0
710020		4x AWG 10 +2x 2x AWG 16	5.26/ 2.08	18.2	301.0	703.0
710021		4x AWG 8 +2x 2x AWG 16	8.37/ 2.08	24.1	457.0	901.0
710022		4x AWG 6 +2x 2x AWG 16	13.31/ 2.08	27.4	615.0	1275.0
710023		4x AWG 4 +2x 2x AWG 16	21.21/ 2.08	33.4	1450.0	1861.0

NOTES

Technical modifications

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