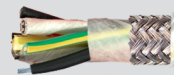
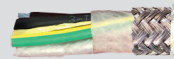


# TOPSERV® 650 VFD

Oil Res I/II, exposed run: TC-ER, PLTC-ER, ITC-ER, NFPA 79, EMC-preferred type



HELUKABEL® TOPSERV® 650 VFD 14AWG/4C 18AWG/4C 712804 E330430



HELUKABEL® TOPSERV® 650 VFD 14AWG/4C 18AWG/2C 59838 E330430

## Technical data

- Motor and servo cable acc. to UL-Std. 1277 (TC-ER), UL-Std. 2277 (WTTTC), CSA-Std. C22.2 No. 210 - AWM I/II A/B, CSA-Std. C22.2 No. 230 & 239 - c(UL) CIC-TC, 18 - 12 AWG: UL-Std. 2250 (ITC-ER), UL-Std. 13 (PLTC-ER), 14 - 2 AWG: UL-Std. 44 (RHW-2)
- **Temperature range**  
flexible +5°C to +50°C  
fixed -40°C to +105°C  
UL (TC) to +90°C
- **Nominal voltage**  
UL (TC) AC 600 V  
UL (WTTTC) AC 1000 V  
CIC-TC AC 600 V
- **Test voltage**  
core/core 6000 V  
core/screen 6000 V
- **Minimum bending radius**  
flexible 10x Outer-Ø  
fixed 5x Outer-Ø

## Cable structure

- Copper wire tinned, finely stranded acc. to ASTM B174 Class M (18-10 AWG) / ASTM B174 Class K (8-2 AWG), AWG sizes
- Core insulation: XLPE
- Core identification: black cores with consecutive labeling in white digits: 1 or 2 pairs with numbered black conductors 5+6 (1 pair), 7+8 (2 pair)
- G = with protective conductor GN-YE, in the outer layer
- Control pairs:
  - Fleece wrapping
  - Pair screen: braided screen of tinned copper wires, approx. coverage 85%
  - Fleece wrapping
- Control pairs and power supply cores stranded in layers with optimally matched lay lengths
- Fleece wrapping
- Screen: braided screen of tinned copper wires, approx. coverage 85%
- Fleece wrapping
- Outer sheath: Special-TPE
- Sheath colour: see table
- Length marking: in feet

## Properties

- resistant to: oil, UV radiation (SUN RES)
- for outdoor use
- direct burial (DIR BUR)
- suitable for use in drag chains
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

## Tests

- oil-resistant acc. to UL Std 1277 Tab. 12.2, Oil Res I / Oil Res II
- Cold Bend Test acc. to UL Std. 1277 No. 17
- Impact Test (-ER) acc. to UL Std. 1277 No. 23
- Crushing Test (-ER) acc. to UL Std. 1277 No. 24
- direct burial (DIR BUR) acc. to UL Std. 1277 No. 5 (wet-locations insulation), No. 19 (crushing test)
- Vertical-Tray Flame Test (FT4) acc. to UL Std. 1277 No. 15 / UL Std. 1685

## certifications and approvals

- EAC
- ECOLAB®
- for Class 1 Div. 2 explosive environments acc. to NEC Art. 501

## Note

- Conductor sizes are based on the AWG measurement system, metric conductor sizes (mm<sup>2</sup>) are approximated and are for reference only
- for use in energy supply systems:
  - 1) the assembly instructions must be observed
  - 2) for special applications, we recommend contacting us and using our data entry form for energy supply systems

## Application

Highly flexible, extremely oil-resistant motor supply cable for modern servomotors; the tinned copper braid screen (approx. 85% coverage) provides effective protection against electrical disturbances and the resultant failures. For open, unprotected installation in cable trays and from cable trays to the machine. The special TPE sheath is extremely resistant to oil, coolants and solvents and hence the perfect solution for industrial applications with open installation, installation in pipes or in earth.

**EMC** = Electromagnetic compatibility

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

**CE** = Product conforms with Low-Voltage Directive 2014/35/EU.

Continuation ►

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## Sheath colour: black

Part no.	No. cores x AWG-No.	Cross- section mm <sup>2</sup>	Outer Ø app. mm	Cop. weight kg / km	Weight app. kg / km
59837	4 G 16 + 2 x 18	1,31/ 0,82	16,2	128,0	335,0
59838	4 G 14 + 2 x 18	2,08/ 0,82	16,8	160,0	379,0
59839	4 G 14 + 2 x 16	2,08/ 1,31	17,3	174,0	400,0
59840	4 G 12 + 2 x 18	3,31/ 0,82	18,6	215,0	469,0
59841	4 G 12 + 2 x 16	3,31/ 1,31	19,1	229,0	490,0
59842	4 G 10 + 2 x 16	5,26/ 1,31	20,6	313,0	613,0
59843	4 G 8 + 2 x 16	8,37/ 1,31	25,4	476,0	945,0
59844	4 G 6 + 2 x 16	13,3/ 1,31	26,8	668,0	1168,0
59845	4 G 4 + 2 x 16	21,2/ 1,31	29,6	984,0	1563,0

## Sheath colour: orange

Part no.	No. cores x AWG-No.	Cross- section mm <sup>2</sup>	Outer Ø app. mm	Cop. weight kg / km	Weight app. kg / km
59846	4 G 16 + 2 x 18	1,31/ 0,82	16,2	128,0	335,0
59847	4 G 14 + 2 x 18	2,08/ 0,82	16,8	160,0	379,0
59848	4 G 14 + 2 x 16	2,08/ 1,31	17,3	174,0	400,0
59849	4 G 12 + 2 x 18	3,31/ 0,82	18,6	215,0	469,0
59850	4 G 12 + 2 x 16	3,31/ 1,31	19,1	229,0	490,0
59851	4 G 10 + 2 x 16	5,26/ 1,31	20,6	313,0	613,0
59852	4 G 8 + 2 x 16	8,37/ 1,31	25,4	476,0	945,0
59853	4 G 6 + 2 x 16	13,3/ 1,31	26,8	668,0	1168,0
59854	4 G 4 + 2 x 16	21,2/ 1,31	29,6	984,0	1563,0

## Sheath colour: black (2 Pairs)

Part no.	No. cores x AWG-No.	Cross- section mm <sup>2</sup>	Outer Ø app. mm	Cop. weight kg / km	Weight app. kg / km
710016	4 G 14 + 2 x 2 x 18	2,08/ 0,82	19,1	203,0	464,0

## Sheath colour: orange (2 Pairs)

Part no.	No. cores x AWG-No.	Cross- section mm <sup>2</sup>	Outer Ø app. mm	Cop. weight kg / km	Weight app. kg / km
710015	4 G 16 + 2 x 2 x 18	1,31/ 0,82	18,5	172,0	418,0
712804	4 G 14 + 2 x 2 x 18	2,08/ 0,82	19,1	203,0	464,0
710017	4 G 14 + 2 x 2 x 16	2,08/ 1,31	19,9	231,0	506,0
710018	4 G 12 + 2 x 2 x 18	3,31/ 0,82	20,9	256,0	573,0
710019	4 G 12 + 2 x 2 x 16	3,31/ 1,31	22,4	288,0	661,0
710020	4 G 10 + 2 x 2 x 16	5,26/ 1,31	24,0	370,0	774,0
710021	4 G 8 + 2 x 2 x 16	8,37/ 1,31	27,5	538,0	1054,0
710022	4 G 6 + 2 x 2 x 16	13,3/ 1,31	28,8	725,0	1280,0
710023	4 G 4 + 2 x 2 x 16	21,2/ 1,31	31,3	1043,0	1667,0

Dimensions and specifications may be changed without prior notice. (RN01)