HI-TECH CONTROLS, INC.

Cable & Accessories for Wind Turbines

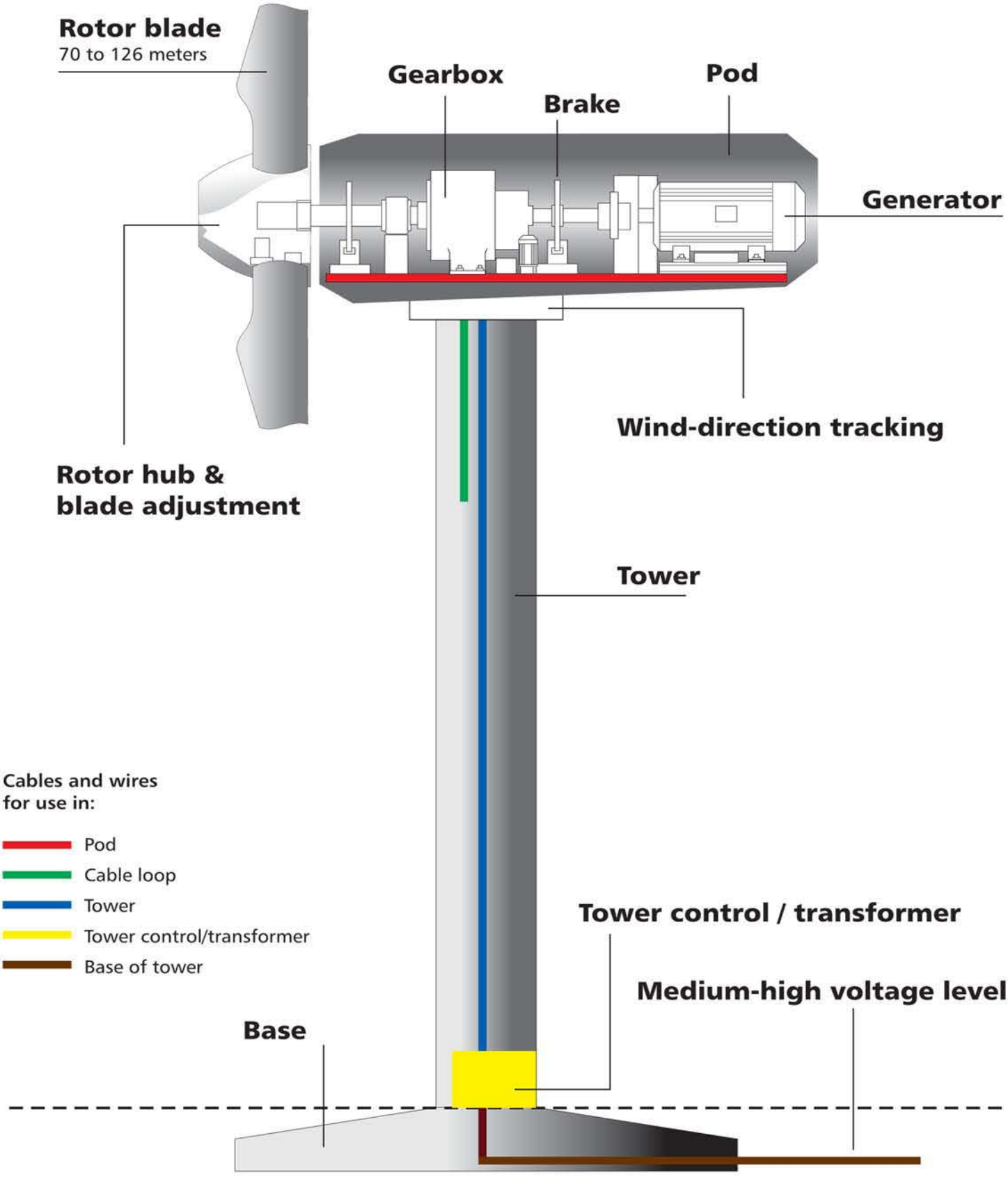
www.hitechcontrols.com

HELUKABEL

Contents


KABEL HELUWIND WK 115-T UL-Style 2023

Functional view of Wind Turbines



WIND POWER CABLE, HELUWIND WK-series

	Usage, see chart on page 3	UL-Style	CSA	CE	HAR	VDE pending	FT4	FT1 (contains FT2)	nominal voltage according to UL	nominal voltage according to VDE	halogen-free	oil resistant II**	extensive oil resistant	UV-resistant	temp. non-flexing from (in °C/F)	temp. non-flexing to (in °C/F)	temp. flexing from (in °C/F)	temp. flexing to (in °C/F)	Torsion angle +/- 150° per meter	Torsion angle +/- 140° per meter	Torsion angle +/-90° per meter	can be found on page
HELUWIND WK 101k-T				X				X		0,6/ 1kV				X	-40/ -40	**+80/ +176**	-40/ -40	+80/ +176			X	9
HELUWIND WK 102-T				X				X		0,6/ 1kV	X			X	-40/ -40	+80/ +176	-40/ -40	+80/ +176	X			9
HELUWIND WK 103w-Torsion		10107 2587	cRUus	X				X	600V	0,6/ 1kV		X (*)	X	X	-40/ -40	**+90/ +194**	**-35/ -31**	+90/ +194		X		10
HELUWIND WK 103w EMV D-Torsion		10107 2587	cRUus	X				X	600V	0,6/ 1kV		X (*)	X	X	-40/ -40	+90/ +194	-35/ -31	+90/ +194			X	11
HELUWIND WK 103k-Torsion		10107 2570	cRUus	X				X	600V	0,6/ 1kV			X	X	-40/ -40	+80/ +176	-40/ -40	+80/ +176		X		12
HELUWIND WK 103k EMV D-Torsion		10107 2570	cRUus	X				X	600V	0,6/ 1kV			X	X	**-40/ -40**	+80/ +176	-40/ -40	+80/ +176			X	13
HELUWIND WK 104				X						300/ 600V				X	**-5/ +23**	+80/ +176	-5/ +23	+80/ +176				9
HELUWIND WK 105 HELUWIND WK 105 EMV-D		10553/ 20234	cRUus	X				X	1000V	0,6/ 1kV	X	X		X	**-50/ -58**	+90/ +194	-40/ -40	+80/ +176				14 15
HELUWIND WK 115-T HELUWIND WK 115 D-EMV T		10553/ 20234	cRUus	X				X	1000V	0,6/ 1kV	X	X		X	-50/ -58	+90/ +194	-40/ -40	+80/ +176	X			16 17
HELUWIND WK 135-T HELUWIND WK 135D-EMV T		10553/ 20234	cRUus	X		X	X (*)		1000V	0,6/ 1kV	X	X		X	-40/ -40	+90/ +194	-40/ -40	+90/ +194	X			18 19
HELUWIND WK Brandmeldekabel-T				X				X		24V	X		X		-50/ -58	+90/ +194	-40/ -40	+80/ +176	+/- 215°			20
HELUWIND WK DLO 2kV		UL 44	X				X	X	2000V					X	**-45/ -49**	+90/ +194						21
HELUWIND WK H07BN4-F WIND-T				X	X					450/ 750V				X	-45/ -49	+90/ +194	-35/ -31	+90/ +194	X			22
HELUWIND WK THERMFLEX 105°C EMV				X				X		0,6/ 1kV				X	**-20/ -4**	**+105/ +221**	-5/ +23	+105/ +221			X	23
HELUWIND Thermflex 145				X						0,6/ 1kV	X			X	**-55/ -67**	**+145/ +293**	-20/ -4	**+120/ +248**				24
WK (N)A2XH				X						0,6/ 1kV	X			X	**-30/ -22**	+90/ +194	-5/ +23	**+50/ +122**				25
HELUWIND WK NTSCGEWOEU-T				X						3,6/ 6kV				X	-40/ -40	+90/ +194	-40/ -40	+90/ +194	+/- 100°			26

* in preparation
** in accordance with UL 1277, Table 11.2

Control cables

	Usage, see chart on page 3	UL-Style	CSA	CE	HAR	with VDE Reg.-No	FT1 equivalent to IEC 60332-1	nominal voltage according to UL	nominal voltage according to VDE	halogen-free	oil resistant II	UV-resistant	temp. non-flexing from (in °C/F)	temp. non-flexing to (in °C/F)	temp. flexing from (in °C/F)	temp. flexing to (in °C/F)	copper-shielded
JZ-500				X		X	X		300/ 500V		X		**-40/ -40**	**+80/ +176**	**-5/ +23**	+80/ +176	
F-CY-JZ				X		X	X		300/ 500V		X		-40/ -40	+80/ +176	-5/ +23	+80/ +176	X
Y-CY-JZ				X		X	X		300/ 500V		X		-40/ -40	+80/ +176	-5/ +23	+80/ +176	X
JZ-500 HMH JZ-500 HMH-C				X			60332-3		300/ 500V	X			-40/ -40	+70/ +158	**-15/ +5**	+70/ +158	X
MEGAFLEX 500 MEGAFLEX 500-C				X			60332-3		300/ 500V	X	X*	X	-40/ -40	**+90/ +194**	**-30/ -22**	+90/ +194	X
JZ-600 JZ-600-Y-CY				X			X		0,6/ 1kV		X	X	-40/ -40	+80/ +176	-5/ +23	+80/ +176	X
JZ-600 HMH JZ-600 HMH-C				X			60332-3		0,6/ 1kV	X		X	-40/ -40	**+70/ +158**	-15/ +5	+70/ +158	X
JZ-600-UL JZ-600-Y-CY-UL		X	X	X			X	1kV	0,6/ 1kV		X	black	-40/ -40	+80/ +176	-5/ +23	+80/ +176	X
JZ-602 JZ-602-CY		X	X	X			X	600V			X		-40/ -40	+90/ +194	-5/ +23	+90/ +194	X
JZ-603 JZ-603-CY		X	X	X	X		X	600V	300/ 500V		X		-40/ -40	+70/ +158	-5/ +23	+70/ +158	X
JZ-604 TC JZ-604 YCY TC		X	X	X			FT4	600V			X	X	**-25/ -13**	**+75/ +167**	-5/ +23	+75/ +167	X
HELUTHERM 145 MULTI HELUTHERM 145 MULTI-C				X			60332-3		300/500V bis 1,0mm² 450/750V ab 1,5mm²	X	sX	X	**-55/ -67**	+145/ +293	**-35/ -31**	**+120/ +248**	X

* DIN VDE 0473 Teil 811-2-1

Power distribution cables

Medium and low voltage cables	see pages 34 and 35 or look in our main catalogue for cables and wires.

Single conductors

	Usage, see chart on page 3	UL-Style	CSA	CE	HAR	with VDE Reg.-No	FT1 equivalent to IEC 60332-1	nominal voltage according to UL	nominal voltage according to VDE	halogen-free	oil resistant II	UV-resistant	temp. non-flexing from (in °C/F)	temp. non-flexing to (in °C/F)	temp. flexing from (in °C/F)	temp. flexing to (in °C/F)	copper-Shielded
HELUTHERM 145 600V UL/CSA		x	x	x			60332-3	600V	0,6/ 1kV	x	x	x	-45/ -49	+145/ +293	-35/ -31	+120/ +248	
H07V-K				x	x		x		450/ 750V				-30/ -22	+80/ +176	-5/ +23	+70/ +158	
FÜNFNORM HAR-UL-CSA-AWM-MTW		x	x	x	x		x	750V DC 600V AC	300/500V to 1,0mm² 450/750V from 1,5mm²				-10/ -14	+105/ +221	+5/ +41	+90/ +194	
H07Z-K				x	x		x		450/ 750V	x			-40/ -40	+90/ +194	-40/ -40	+90/ +194	
Single 602-RC / Single 602-RC-CY		x	x	x			x	600V	0,6/ 1kV		x		-40/ -40	+90/ +194	-5/ +23	+90/ +194	x

Computer data cables

LIYY TRONIC / LIY-CY TRONIC-CY				x			x		350/ 500V		x		-40/ -40	+80/ +176	+5/ +41	+80/ +176	x
DATAFLAMM / DATAFLAMM-C				x			x		350/ 500V	x			-40/ -40	+70/ +158	+5/ +41	+70/ +158	x
DATAFLAMM-C-PAAR				x			x		350/ 500V	x			-40/ -40	+70/ +158	+5/ +41	+70/ +158	x
LIYY UL / LIY-CY UL		x	x	x			x	300V			x		-20/ -4	+80/ +176	-20/ -4	+80/ +176	x
LIYY-TP UL / LIYCY-TP UL		x	x	x			x	300V			x		-20/ -4	+80/ +176	-10/ -14	+80/ +176	x
SUPERTRONIC-PURö				x					350/ 500V		x	x	-40/ -40	+70/ +158	+5/ +41	+70/ +158	
SUPERTRONIC-C-PURö				x					350/ 500V	x	x	x	-50/ -58	+70/ +158	-40/ -40	+70/ +158	x
SUPERTRONIC 330 PURö / SUPERTRONIC 330 C-PURö		x	x	x			x	300V		x	x	x	-50/ -58	+80/ +176	-40/ -40	+80/ +176	x
SUPER-PAAR-TRONIC-C-PUR				x					350V	x	x	x	-50/ -58	+70/ +158	-40/ -40	+70/ +158	x
SUPER-PAAR-TRONIC 340-C-PUR		x	x	x			x	350V		x	x	x	-50/ -58	+80/ +176	-40/ -40	+80/ +176	x

Research & Development

Torsion test in the test tower in the Windsbach factory.

We perform torsion tests in our test appliance in the Windsbach factory to examine the torsion property in the WK series cables.

In our 8-meter tall girder mast, the loop is reproduced 1:1 to the wind turbine. Here, specially made drive and control engineering runs the most varied torsion cycles and programs based on real circumstances (rotary movement of the nacelle). In a specifically designed cable bracket from the company Roxtec, up to 20 cables can be mounted and tested simultaneously.

The cables are constantly loaded in the test plant with the greatest possible torsion of up to +/- 150° per meter.
The test conditions are a many times more extreme than in reality.
The verification of torsion across the entire loop length essentially determines the continuous development and improvement process of the HELUWIND WK series.

HELUWIND WK 101k*, WK102*, WK 104

Torsion*, UV-resistant

new

Technical data

WK 101

- **Temperature range**
  flexing -40°C to +80°C **(-40°F to +176°F)**
  fixed installation -40°C to +80°C **(-40°F to +176°F)**
- **Nominal voltage**
  according to VDE U_0 /U 0.6/1kV
- **Test voltage**, 50Hz
  3000V
- **Minimum bending radius**
  WK 101k and **WK 102**:
  10 x cable diameter
  WK 104:
  20 x cable diameter
- **Torsion application***
  +/- 90° per 1m (WK 101k)
  +/- 150° per 1m (WK 102)
- **Approvals**
  CE
- **Flame test**
  FT1

Cable structure

- Special bare stranded copper wire, acc. to DIN VDE 0295 Cl. 5 (WK 101k + WK 104), DIN VDE 0295 Cl. 6 (WK 102)
- Special insulation, black:
  PVC cold flexing (WK 101k, WK 104)
  TPE-E (WK 102)
- Special jacket compound:
  PVC cold flexing (WK 101k, WK 104)
  PUR (WK 102)
- Jacket color: black

Properties

- UV-resistant
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

HELUWIND WK series was specifically designed for use in wind power stations. We supply the leading wind turbine manufacturers with our cables.

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

WK 101k Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
78167	2 x 1,5	7,5	28,8	65,0
78168	3 x 4	12,0	116,0	250,0
78169	1 x 240	31,2	2304,0	2800,0
78170	1 x 300	37,0	2880,0	3800,0

WK 102 Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
78171	2 x 1,5	7,5	28,8	65,0
78172	3 x 4	12,0	116,0	250,0
78173	1 x 240	31,2	2304,0	2800,0
78174	1 x 300	37,0	2880,0	3800,0

WK 104 (only fixed installation)

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
78181	2 x 2,5 + 10 x 1,5 + 4 LWL	28,0	340,0	500,0
700161	19 x 1 + 4 LWL	16,0	183,0	480,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK 103w EMC D-T, WK 103w-T, WK 103k EMC D-T, WK 103k-T

UV-resistant, UL/CSA-Style 10107/2587 Single/Multicore, Shielded/Unshielded

Technical data

- **Temperature range**
  WK 103w flexing -35°C to +90°C (-31°F to +194°F)
  WK 103w fixed install -40°C to +90°C (-40°F to +194°F)
  WK 103w at object time -25°C to +90°C (-13°F to +194°F)
  WK 103k flexing -40°C to +80°C (-40°F to +173°F)
  WK 103k fixed installation -40°C to +80°C (-40°F to +173°F)
- **Nominal voltage**
  according to VDE U_0/U 0.6/1kV
  according to UL 600V
- **Test voltage,** 50 Hz
  3000V
- **Minimum bending radius**
  10 x cable diameter
- **Torsion application**
  up to +/- 90° per 1m shielded types = EMI
  up to +/- 140° per 1m unshielded types
- **Approvals**
  UL style 10107* up to 400mm single core
  UL style 2587 multicore
  cRUus, CE
- **Flame test**
  FT1

Cable structure

- Special bare stranded copper wire, acc. to DIN VDE 0295 Cl. 5
- Special insulation PVC heat-resistant (WK 103w) or cold flexing (WK 103k) black
- cores cabled together (Multicore)
- Screened version optional EMI
- Special jacket compound:
  PVC heat-resistant (WK 103w),
  PVC cold flexible at low temperatures (WK 103k)
- Jacket color: black

Properties

- UV-resistant
- RoHS approved
- Multi-climate operation
- Torsion elastic
- Flame retardant
- Recyclable
- Oil-resistant

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK 103 series was specifically designed for use in wind power stations. We supply the leading wind turbine manufacturers with our cables.

CE= The product conforms to the EC low-voltage directive 73/23EEC or 93/68EEC

WK 103w UL EMV Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703147	1 x 70	19,8	739,0	950,0
703148	1 x 95	22,5	997,0	1280,0
703041	1 x 120	25,0	1242,0	1570,0
703149	1 x 150	27,8	1534,0	2000,0
703150	1 x 185	30,1	1904,0	2450,0
703151	1 x 240	33,0	2451,0	3150,0

WK 103k UL EMV Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703152	1 x 300	39,0	3027,0	3920,0
703153	1 x 400	43,0	4026,0	5100,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK 105, WK105 D-EMC, WK 115 D-EMC Torsion, WK 115-Torsion

Halogen-free, FT1, UV-resistant, UL/CSA-Style 10553/20234, Single/Multicore, Shielded/Unshielded, 0.6/1kV, 80°C (+176°F)**

new

Technical data

- **Temperature range:**
  flexing -40°C to +80°C (-40°F to+176°F)
  fixed instal. acc. to VDE -50°C to +90°C (-58°F to +194°F)
  fixed instal. acc. to UL -50°C to +80°C (-58°F to +176°F)
- **Nominal voltage:**
  according to VDE U_0/U 0.6/1kV,
  acc. to UL 1000V
- **Test voltage** 50 Hz:
  3000V
- **Min. bending radius:**
  10 x cable diameter
- **Torsion application**:
  WK 115-Torsion up to +/-150° per 1m
- **Approvals:**
  UL-style** 10553 singlecore types
  UL-style** 20234 multicore types
  Flame test:
  FT1 (contains FT2)

Cable structure

- Special bare stranded copper wire, acc. to DIN VDE 0295
- Special conductor insulation
- Conductor colors, black with numbers + gnye
- Cores cabled together by multicore types
- () = Screened version optional (EMI)
- Special jacket compound, non-adhesive
- Jacket color: black

Properties

- UV-resistant
- Halogen-free
- Oil-resistant in accordance with UL 1277, Table 11.2 oil resistant II
- Non-adhesive
- Flame-retardant
- RoHS approved
- Multi-climate operation
- Extreme abrasion-proof jacket
- Recyclable

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK 105 and WK 115-Torsion series of cables were specifically designed for use in wind turbines. We supply the leading wind power plant manufacturers with our cables.

CE= The product conforms to the EC low-voltage directive 73/23EEC or 93/68EEC

WK 105

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
702861	4 G 0,34	7,7	32,0	91,0
704075	2 x 0,5	6,9	23,3	75,0
703176	4 G 0,5	8,0	37,8	105,0
703178	6 G 0,5	9,2	53,6	130,0
703177	8 G 0,5	11,5	69,2	210,0
703180	12 G 0,5	11,7	88,4	220,0
703951	41 G 0,72	21,2	371,0	795,0
704082	3 G 0,75	7,9	40,0	100,0
703953	4 G 0,75	11,1	55,0	140,0
703954	6 G 0,75	11,7	72,0	180,0
704083	7 G 0,75	10,5	77,0	155,0
703955	8 G 0,75	12,7	88,0	226,0
703949	8 G 0,75	10,7	85,0	182,0
703950	18 G 0,75	14,5	170,0	365,0
703956	24 G 0,75	17,6	219,0	540,0
704084	25 G 0,75	17,5	226,0	480,0
703952	50 G 0,75	23,5	441,0	954,0
704085	8 G 1	13,6	114,0	280,0
703534	19 G 2,5	22,4	456,0	1130,0
702854	5 G 16	24,0	768,0	1250,0

WK 115-Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703207	4 x 0,34	7,7	32,0	91,0
704092	2 x 0,5	6,9	23,3	75,0
703208	4 G 0,5	8,0	37,8	105,0
703210	6 G 0,5	9,2	53,6	130,0
703209	8 G 0,5	11,5	69,2	210,0
703212	12 G 0,5	11,7	88,4	220,0
704099	3 G 0,75	7,9	40,0	100,0
703961	4 G 0,75	11,1	55,0	140,0
703962	6 G 0,75	11,7	72,0	180,0
704100	7 G 0,75	10,5	77,0	155,0
703531	8 G 0,75	12,7	88,0	230,0
703525	8 G 0,75	10,3	58,0	160,0
703526	18 G 0,75	13,9	130,0	346,0
703963	24 G 0,75	17,6	219,0	540,0
704101	25 G 0,75	17,5	226,0	480,0
703521	41 G 0,75	21,0	348,0	820,0
703959	41 G 0,75	21,2	371,0	795,0
703960	50 G 0,75	23,5	441,0	954,0
704102	8 G 1	13,6	114,0	280,0
703245	1 x 300	38,3	2880,0	3650,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK 125, WK 125 D-EMC, WK 135-Torsion, WK 135 D-EMC Torsion

FT4*, UV-resistant, UL/CSA-Style 10553 / 20234, Single/Multicore, Shielded/Unshielded, 0,6/1kV, 90°C/+194°F (80°C/+176°F acc. to UL), Seawater-resistant**

Technical data

- **Temperature range**
  flexing -40°C to +90°C (-40°F to +194°F)
  fixed install.acc. to UL -40°C to +90°C (-40°F to +194°F)
- **Nominal voltage**
  according to VDE U_0/U 0.6/1kV,
  according to UL 1000V
- **Test voltage**, 50 Hz
  3000V
- **Min. bending radius**
  10 x cable diameter
- **Torsion application**
  WK 135-Torsion up to +/-150° per 1m
- **Approvals**
  UL-style** 10553 singlecore types
  UL-style** 20234 multicore types
  cRUus, CE
- **Flame test**
  FT4* in preparation

Cable structure

- Special bare stranded copper wire, as. per DIN VDE 0295
- Special conductor insulation
- Conductor colors, black with numbers + gnye
- Cores cabled together by multicore types
- () = shielded version optional (EMI)
- Special SSH jacket compound, non-adhesive color: black

Properties

- UV-resistant
- Oil-resistant in accordance with UL 1277, Table 11.2 oil resistant II
- Non-adhesive
- High flame-retardant
- RoHS approved
- Halogen-free
- Multi-climate operation
- Torsion elastic (WK 135-T)
- Extreme abrasion-proof jacket
- Sea water resistant
- Recyclable

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK 125 and WK 135-Torsion series of cables were specifically designed for use in wind turbines. We supply the leading wind turbine manufacturers with our cables.

Advantages of WK 125 and 135-T over H07BN4-F:
Burning behavior as per FT4 and IEC 60332-3-24
increased wear-resistance, Recyclable
CE= The product conforms to the EC low-voltage directive 73/23EEC or 93/68EEC

WK 125

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703246	4 x 0,34	7,7	32,0	91,0
704109	2 x 0,5	6,9	23,3	75,0
703247	4 G 0,5	8,0	37,8	105,0
703249	6 G 0,5	9,2	53,6	130,0
703248	8 G 0,5	11,5	69,2	210,0
703251	12 G 0,5	11,7	88,4	220,0
703969	41 G 0,72	21,2	371,0	795,0
704116	3 G 0,75	7,9	40,0	100,0
703971	4 G 0,75	11,1	55,0	140,0
703972	6 G 0,75	11,7	72,0	180,0
704117	7 G 0,75	10,5	77,0	155,0
703973	8 G 0,75	12,7	88,0	226,0
703967	8 G 0,75	10,7	85,0	182,0
703968	18 G 0,75	14,5	170,0	365,0
703974	24 G 0,75	17,6	219,0	540,0
704118	25 G 0,75	17,5	226,0	480,0
703970	50 G 0,75	23,5	441,0	954,0
704119	8 G 1	13,6	114,0	280,0

WK 135 Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703285	4 x 0,34	7,7	32,0	91,0
704126	2 x 0,5	6,9	23,3	75,0
703286	4 G 0,5	8,0	37,8	105,0
703288	6 G 0,5	9,2	53,6	130,0
703287	8 G 0,5	11,5	69,2	210,0
703290	12 G 0,5	11,7	88,4	220,0
703980	41 G 0,72	21,2	371,0	795,0
704133	3 G 0,75	7,9	40,0	100,0
703982	4 G 0,75	11,1	55,0	140,0
703983	6 G 0,75	11,7	72,0	180,0
704134	7 G 0,75	10,5	77,0	155,0
703984	8 G 0,75	12,7	88,0	226,0
703978	8 G 0,75	10,7	85,0	182,0
703979	18 G 0,75	14,5	170,0	365,0
703985	24 G 0,75	17,6	219,0	540,0
704135	25 G 0,75	17,5	226,0	480,0
703981	50 G 0,75	23,5	441,0	954,0
704136	8 G 1	13,6	114,0	280,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK Fire Alarm Cable-Torsion

Halogen-free, FT1, 24V

new

Technical data

- **Temperature range:**
  flexing -40°C to +80°C (-40°F to +176°F)
  fixed installation -50°C to +90°C (-58°F to +194°F)
- **Nominal voltage:**
  24V
- **Test voltage:**
  Conductor/conductor 1500V
  conductor/shield 800V
- **Minimum bending radius:**
  10 x cable diameter
- **Torsion application:**
  3 x 360° on 5m
- **Approvals:**
  IEC 60332-1, test type B
  acc. to VDE 0472 Part 804,
  CE
- **Flame test:**
  FT1

Cable structure

- Special bare stranded copper wire, as per DIN VDE 0295 cl. 6
- Special polyester conductor insulation
- Conductor colors, black with numbers 1-...
- Cores cabled together by multicore types
- () = Shielded version optional (EMI)
- Special PUR jacket compound, non-adhesive
- Jacket color, red RAL 3000

Properties

- Very good oil and petrol-resistance acc. to DIN VDE 0250 and 0472
- Very resistant to acids, alkali and solvents
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

This fire alarm cable was specifically developed for the torsion application in the loop for wind turbines.
We supply the leading wind turbine manufacturers with our cables.
CE= The product conforms to the EC low-voltage directive 73/23EEC or 93/68EEC

WK Fire Alarm Cable-Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
702485	(4 x 0,75)	6,6	49,0	82,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK DLO 2kV

FT4, UV-resistant, UL44 1kV, 90°C/+194°F, VW-1, LS, MSHA

Technical data

- **Temperature range:** flexing -40°C to +90°C (-40°F to +194°F)
- **Nominal voltage:** DLO 2000V
- **Approvals:** UL44, CSA, ICEA S-68-516/NEMA WC-8, MSHA, VW-1, FOR CT USE. LS CERTIFIED
- **Flame test:** FT4, FT1

Cable structure

- Special tinned stranded copper wire, acc. to ASTM B-172, ASTM B-33
- Special wrapping
- Special EPR insulation
- Special CPE jacket compound, non-adhesive
- Jacket color: black

Properties

- UV-resistant
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK DLO type was specifically designed for use in wind turbines up to a nominal voltage of 2kV. We supply the leading wind turbine manufacturers with our cables.

WK DLO 2kV

Part No.	AWG / MCM no.	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703156	14	5,9	22,0	37,0
703162	1	16,1	510,0	637,0
703163	1/0	17,5	465,0	715,0
702862	2/0	18,5	656,0	830,0
703161	2	12,6	339,0	370,0
703164	3/0	20,2	930,0	1104,0
703160	4	11,5	237,0	286,0
702863	4/0	21,7	1103,0	1298,0
703159	6	10,1	140,0	200,0
702513	8	8,2	82,8	142,0
703158	10	7,2	61,0	100,0

WK DLO 2kV

Part No.	AWG / MCM no.	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703157	12	6,3	33,0	69,0
702514	262 kcmil	24,8	1280,0	1590,0
703165	313 kcmil	26,4	1590,0	1872,0
703166	373 kcmil	28,2	1900,0	2176,0
703167	444 kcmil	30,0	2272,0	2570,0
702515	535 kcmil	32,2	2608,0	3046,0
703168	646 kcmil	34,8	3300,0	3600,0
703169	777 kcmil	37,0	3970,0	4290,0
703170	929 kcmil	39,5	4780,0	5144,0
703171	1111 kcmil	44,4	5690,0	6070,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK H07BN4-F WIND-Torsion

Torsion +/- 150°/1m, UV-resistant, 750V/90°C/+194°F

new

Technical data

- **Temperature range**
  Ambient temperature at least -45°C, +90°C
  -49°F, +194°F at the conductor
- **Nominal voltage**
  450/750V
- **Test voltage**
  3000V
- **Min. bending radius**
  6 x cable diameter
- **Torsion application**
  +/-150° / 1m
- **Approvals**
  CE

Cable structure

- Special bare stranded copper wire, as per DIN VDE 0295 Cl. 5
- Special EPR insulation black
- Special EPR jacket compound
- Jacket color black

Properties

- UV-resistant
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK H07BN4-F Wind-Torsion cable is the special version for the torsion application in wind turbines.
We supply the leading wind turbine manufacturers with our cables.

WK H07BN4-F Wind-Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703402	1 x 25	13,1	240,0	516,0
703403	1 x 35	14,6	336,0	670,0
703404	1 x 50	17,1	480,0	840,0
703390	1 x 70	19,2	672,0	1112,0
703391	1 x 95	22,0	912,0	1520,0
703392	1 x 120	24,4	1152,0	1880,0
703393	1 x 150	28,0	1440,0	2513,0

WK H07BN4-F Wind-Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703394	1 x 185	30,0	1776,0	2272,0
703395	1 x 240	34,0	2304,0	3534,0
703396	1 x 300	36,1	2880,0	4020,0
703397	1 x 400	41,5	3840,0	5640,0
703398	1 x 500	46,0	4800,0	6000,0
703399	1 x 630	54,0	6048,0	6900,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK Thermflex 105°C EMC

Torsion +/- 90° per 1m, UV-resistant, screened

Technical data

- **Temperature range**
  flexing -5°C to +105°C (+23°F to +221°F)
  fixed installation -20°C to +105°C (-4°F to +221°F)
- **Nominal voltage**
  according to VDE U_0/U 0.6/1kV
- **Test voltage**, 50 Hz
  3000 V
- **Min. bending radius**
  10 x cable diameter
- **Torsion application**
  +/-90° per 1m
- **Approvals**
  CE
- **Flame test**
  FT1

Cable structure

- Special bare stranded copper wire, as per DIN VDE 0295 cl. 5
- Special insulation PVC heat-resistant, black
- Tinned copper wires shielded
- Special jacket compound PVC heat-resistant
- Jacket color black

Properties

- UV-resistant
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

The HELUWIND WK THERMFLEX 105°C series was specifically designed for use in wind power stations.
We supply the leading wind turbine manufacturers with our cables.
CE= The product conforms to the EC low-voltage directive 73/23EEC or 93/68EEC

WK THERMFLEX 105°C EMC Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703444	1 x 70	19,8	739,0	950,0
703445	1 x 95	22,5	997,0	1280,0
703446	1 x 120	25,0	1242,0	1570,0

WK THERMFLEX 105°C EMC Torsion

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km
703447	1 x 150	27,8	1534,0	2000,0
703448	1 x 185	30,1	1904,0	2450,0
703449	1 x 240	33,0	2451,0	3150,0

Dimensions and specifications may be changed without prior notice.

HELUWIND WK THERMFLEX 145

halogen-free, +145°C/+293°F

new

Technical data

- **Temperature range**
  flexing -20°C to +120°C (-4°F to +248°F)
  non-flexing -55°C to +145°C (-67°F to +293°F)
- **Nominal voltage**
  U_0/U 0,6/1 kV
- **Test voltage**
  3000V
- **Insulation resistance**
  min. 100 MOhm x km
- **Minimum bending radius**
  for flexible use 12.5-15x cable diameter

Cable structure

- Tinned stranded copper wire, acc. to DIN VDE 0295 cl. 5 or IEC 60228 cl. 5
- Special insulation, polyolefin-copolymer halogen-free, flame retardant
- Jacket color black

Properties

- Halogen-free, no release of corrosive or toxic gases
- Reduced propagation of fire
- Minimal smoke generation
- Good abrasion resistance
- Good resistance to oils and weathering
- Resistant to UV radiation and ozone
- Thermal class B
- The materials used are silicone and cadmium-free and free of substances harmful to paint adhesion
- RoHS approved

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

Application

This special cable is used as a generator connecting cable in wind-turbine installations.

Other installation uses:

- Connection cable for Heating Class B (130°C) installations for motors, transformers, relays, coils, electro-magnets, etc.
- Aggregate connections in the automobile industry.
- Halogen-free wiring of switchgear and control cabinets
- Connections for heating equipment.
- Supplies for high power lighting for industry, sports centers and street lighting.

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

THERMFLEX 145

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km	AWG-No.
75486	1 x 6	5,4	58,0	70,0	10
75487	1 x 10	6,8	96,0	119,0	8
75488	1 x 16	8,5	154,0	180,0	6
75489	1 x 25	10,3	240,0	270,0	4
75490	1 x 35	11,8	336,0	373,0	2
75491	1 x 50	13,9	480,0	528,0	1

THERMFLEX 145

Part No.	No.cores x cross-sec. mm²	Outer ø app. mm	Cop. weight kg / km	Weight app. kg / km	AWG-No.
75492	1 x 70	16,0	672,0	728,0	2/0
75493	1 x 95	18,5	912,0	966,0	3/0
75494	1 x 120	20,5	1152,0	1230,0	4/0
75495	1 x 150	22,1	1440,0	1530,0	300 kcmil
71437	1 x 185	24,8	1776,0	1880,0	350 kcmil
75496	1 x 240	27,7	2304,0	2500,0	500 kcmil

Dimensions and specifications may be changed without prior notice.

WK (N)A2XH

0,6/1kV halogen-free

Technical data

- **Temperature range**
  fixed installation -30°C to +90°C (-22°F to +194°F)
  Operating temperature on conductor max. 90°C **(+194°F)**
- **Nominal voltage**
  0.6/1kV
- **Test voltage**
  4kV
- **Minimum bending radius**
  15 x line diameter
- **Flame Test**
  manufactured based on VDE standards, CE-conform
- **Smoke Density**
  according to DIN VDE 0482 Teil 266-2, BS 4066, Part 3 / EN 50266-2 / IEC 60332-3 (corresponds to DIN VDE 0472 Part 804 Test type C)
- **Corrosivity of combustion gasses**
  according to VDE 0482 Teil 267 / DIN EN 50267-2-2 / IEC 60754-2 (corresponds to DIN VDE 0472 Teil 813)
- **Halogen-free**
  according to DIN VDE 0482 Teil 267 / EN 50267-2-1 / EC 60754-1 (corresponds to DIN VDE 0472 Teil 815)

Cable structure

- aluminium conductor multi-conductor according to DIN VDE 0295 cl. 2
- core insulation cross-linked PE core color black
- jacket thermoplastic polyolefin mixture
- jacket color: black

Properties

- Manufactured based on VDE standards, CE-conform
- UV-Resistant
- RoHS approved

Application

Power lines for permanent routing in tower.

Note

The listed part numbers show only a small list of our production range. All types can be produced as Single or Multicore, shielded or unshielded versions. Please contact us with your individual requirements.

WK (N)A2XH

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx	Cu weight kg/km	weight kg/km approx.
705031	1x185	22,0	537,0	960,0
705032	1x240	24,2	696,0	1208,0
705033	1x300	26,9	870,0	1342,0
705034	1x400	29,9	1160,0	1843,0

Other dimensions available on enquiry. We reserve the right to make technical changes. Prices on request.

HELUWIND WK-NTSCGEWOEU-Torsion

3,6/6kV

Technical data

- **Temperature range**
  min. - 40°C (-40°F) flexing
  +90°C (+194°F) at the conductor
- **Nominal voltage**
  3.6/6kV
- **Test voltage**
  10kV
- **Minimum bending radius**
  10 x cable diameter
- **Torsion application**
  max. +/- 100° je 1 metre freely suspended
- **Approvals**
  based on DIN VDE 0250-813
  CE conformed

Cable structure

- tinned stranded copper wire according to DIN VDE 0295
- special EPR insolation
- core identification black
- inner and outer conducting layer
- filler insulation in multi-core
- jacket made of CM or CR
- jacket color: black

Properties

- Manufactured based on VDE standards,
- CE-conform
- UV, ozone and oil resistant
- Torsionable
- RoHS approved

Application

Twistable medium-voltage line for energy transmission – also in the loop.

WK-NTSCGEWOEU Torsion

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx	Cu weight kg/km	weight kg/km approx.
705029	1x240	42,8	2304,0	3100,0
705030	1x300	44,9	2880,0	3800,0

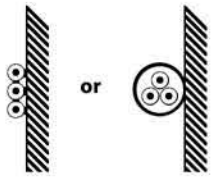
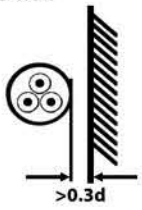
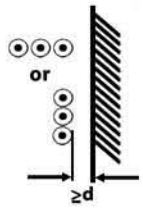
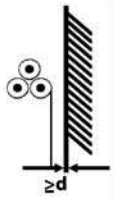
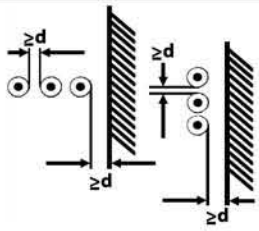
Other dimensions available on enquiry. We reserve the right to make technical changes. Prices on request.


UWIND WK 101k
CE
34 FT1
CE
HELUKA

Current ratings for HELUWIND

WK 103w-T, WK 105*, WK 115-T*, WK 135-T* * acc. to UL to 80°C, (+176°F) acc. to VDE to 90°C (+194°F)

Operating temperature at conductor 90°C (+194°F); Ambient temperature 30°C (+86°F)

Type designation	NI2XY, N2XY, N2X2Y N2XH, N2XCH[1)] NHXH FE180, NHXCH FE180[1)] NHXHX FE180, NHXCHX FE180[1)] NHXHX, NHXCHX[1)]				NI2XY, N2XY, N2X2Y N2XH NHXH FE180 NHXHX FE180 NHXHX				
Installation: • directy • in open air	Singlecore or multicore cables or single or multicore jacketed cables on a wall 		Multicore cables or multicore jacketed cables with a space of minimum 0.3 x diameter d to wall 		Single core cables or single core jacketed cables with a space of minimum 1 x diameter d to wall				
					with contact 			with gap d 	
	direct installation		installation in open air						
Installation method[2]	C		E		F			G	
Number of loaded cores	2	3	2	3	2	3			
Cross-section, mm²	Current ratings in Amp (A)								
1.5	24	22	26	23	–	–	–	–	–
2.5	33	30	36	32	–	–	–	–	–
4	45	40	49	42	–	–	–	–	–
6	58	52	63	54	–	–	–	–	–
10	80	71	86	75	–	–	–	–	–
16	107	96	115	100	–	–	–	–	–
25	138	119	149	127	161	141	135	182	161
35	171	147	147	158	200	176	169	226	201
50	209	179	225	192	242	216	207	275	246
70	269	229	289	246	310	279	268	353	318
95	328	278	352	298	377	342	328	430	389
120	382	322	410	346	437	400	383	500	454
150	441	371	473	399	504	464	444	577	527
185	506	424	542	456	575	533	510	661	605
240	599	500	641	538	679	634	607	781	719
300	693	576	741	621	783	736	703	902	833
400	–	–	–	–	940	868	823	1085	1008
500	–	–	–	–	1083	998	946	1253	1169
630	–	–	–	–	1254	1151	1088	1454	1362

Conversion factors for deviating ambient temperature, grouping, installation under the ceiling, multicore cables and insulated wires, see DIN VDE 0298 part 4.

[1)] The current ratings are valid for cables with concentric conductor, only for multicore versions
[2)] for further installation methods – see DIN VDE 0298 part 4

Current ratings for HELUWIND

WK 103w-T, WK 105*, WK 115-T*, WK 135-T* * acc. to UL to 80°C, (+176°F) acc. to VDE to 90°C (+194°F)

Conversion factors for deviating ambient temperature

Permissible operating temperature	+40°C/ +104°F	+60°C/ +140°F	+70°C/ +158°F	+80°C/ +176°F	+85°C/ +185°F	+90°C/ +194°F
Ambient temperature °C	Conversion factors, used to the current ratings data in tables of the following pages					
10	1,73	1,29	1,22	1,18	1,17	1,15
15	1,58	1,22	1,17	1,14	1,13	1,12
20	1,41	1,15	1,12	1,10	1,09	1,08
25	1,22	1,08	1,06	1,05	1,04	1,04
30	1,00	1,00	1,00	1,00	1,00	1,00
35	0,71	0,91	0,94	0,95	0,95	0,96
40	–	0,82	0,87	0,89	0,90	0,91
45	–	0,71	0,79	0,84	0,85	0,87
50	–	0,58	0,71	0,77	–	0,82
55	–	0,41	0,61	0,71	–	0,76
60	–	–	0,50	0,63	–	0,71
65	–	–	0,35	0,55	–	0,65
70	–	–	–	0,45	–	0,58
75	–	–	–	0,32	–	0,50
80	–	–	–	–	–	0,41
85	–	–	–	–	–	0,29

Photo: HELUKABEL®

Fiber-Optic Cable, Network & Bus Technology for Wind Power

We offer an extensive range of products for the networking of heterogeneous systems using glass fiber and copper-based technology products.

Cables for the pods

Product designation	Dimension	Part No.
CAN BUS UL	1x2x0.22 mm	81286
CAN BUS UL	4x1x0.22 mm	81287
CAN BUS PUR	1x2x0.25 mm	81911
CAN BUS PUR	4x1x0.25 mm	81912
PROFIBUS UL	1x2x0.64 mm	81903
PROFIBUS PUR	1x2x0.64 mm	81905
POF PUR	1 P 980/1000	81611
POF PUR	2 P 980/1000	81882
POF PUR	2 P 980/1000	80629
POF PUR	4 P 980/1000	80630
POF Hybrid	2 P 980/1000 + 2x1.0	82032
POF Hybrid	2 P 980/1000 + 3x1.5	82033

Cables for the tower

Product designation	Dimension	Part No.
TORDIERFLEX PUR	4x2x AWG 26/19	800067
PROFInet UL	2x2x AWG 22/1	800653
HCS cables UL	2K 200/230	801733HCS
HCS cables PUR	2K 200/230	800980
*Universal cable FRNC	4-12 G 50/125 (62,5/125)	Call for more details
*Breakout cable FRNC	4-12 G 50/125 (62,5/125)	Call for more details
Mobile cable	4 G 50/125 (62,5/125)	80534

*We offer many different part specifications. Please call us or view our website for more information.

Cables for the infrastructure

Product designation	Dimension	Part No.
*Outdoor cable A-DQ(ZN)B2Y	4-48 G 50/125 (62,5/125)	Call for more details
*Outdoor cable A-DQ(ZN)B2Y	4-48 E 9/125 (62,5/125)	Call for more details

*We offer many different part specifications. Please call us or view our website for more information.

Power distribution cables

Medium voltage power cables

Medium voltage cables are used in wind parks as a connecting element between the wind power stations and the public power network.

In this product area, we offer a wide assortment of cable types according to DIN VDE 0276-620 or IEC 60502-2 in the usual voltage levels **6/10 kV, 12/20kV und 18/30 kV.**

For the types of cables commonly used in wind parks, the following preferred cross-sections are available in the voltage levels 6/10 kV and 12/20 kV as in-stock items.

Large cross-sections with 630 RM/35 and 800RM/35 can be manufactured and supplied upon request.
You can find other dimensions by calling us or by visiting our website.

N2XS2Y 6/10kV

Part no.	No. cores x Cross-sec. mm²	Nominal voltage kV	Outside Diameter mm approx.	Copper weight kg/km	Weight kg/km approx.
32480	1x35 rm /16	6/10	23-28	518	910
32481	1x50 rm /16	6/10	24-29	662	990
32482	1x70 rm /16	6/10	26-31	860	1205
32483	1x95 rm /16	6/10	27-32	1098	1520
32484	1x120 rm /16	6/10	29-34	1340	1760
32485	1x150 rm /25	6/10	30-35	1622	2020
32486	1x150 rm /25	6/10	30-35	1725	2130
32487	1x185 rm /16	6/10	32-37	1958	2360
32488	1x185 rm /25	6/10	32-37	2059	2470
32489	1x240 rm /16	6/10	34-39	2486	2960
32490	1x240 rm /25	6/10	34-39	2587	3020
32491	1x300 rm /25	6/10	36-41	3163	3630
32492	1x400 rm /35	6/10	40-45	4234	4560
32493	1x500 rm /35	6/10	43-48	5194	5580

N2XS(F)2Y 12/20kV

Part no.	No. cores x Cross-sec. mm²	Nominal voltage kV	Outside Diameter mm approx.	Copper weight kg/km	Weight kg/km approx.
32571	1x35 rm /16	12/20	31	518	1210
32572	1x50 rm /16	12/20	33	662	1400
32573	1x70 rm /16	12/20	34	854	1550
32574	1x95 rm /16	12/20	36	1094	1800
32575	1x120 rm /16	12/20	37	1334	2150
32576	1x150 rm /25	12/20	39	1723	2400
32577	1x185 rm /25	12/20	41	2059	2850
32578	1x240 rm /25	12/20	43	2587	3250
32579	1x300 rm /25	12/20	45	3163	3850
32580	1x400 rm /35	12/20	48	4234	4900
32581	1x500 rm /35	12/20	52	5194	6100

NA2XS2Y 12/20kV

Part no.	No. cores x Cross-sec. mm²	Nominal voltage kV	Outside Diameter mm approx.	Copper weight kg/km	Alu weight kg/km	Weight kg/km approx.
32533	1x50 rm /16	12/20	28-33	182	145	890
32534	1x70 rm /16	12/20	30-35	182	203	970
32535	1x95 rm /16	12/20	31-36	182	276	1120
32536	1x120 rm /16	12/20	33-38	182	348	1210
32537	1x150 rm /16	12/20	34-39	182	435	1370
32538	1x150 rm /25	12/20	34-39	283	435	1420
32539	1x185 rm /16	12/20	36-41	182	537	1530
32540	1x185 rm /25	12/20	36-41	283	537	1570
32541	1x240 rm /16	12/20	39-44	182	696	1720
32542	1x240 rm /25	12/20	39-44	283	696	1830
32543	1x300 rm /25	12/20	41-46	283	870	2070
32544	1x400 rm /35	12/20	44-49	394	1160	2460
32545	1x500 rm /35	12/20	47-52	394	1450	2890

NA2XS(F)2Y 12/20kV

Part no.	No. cores x Cross-sec. mm²	Nominal voltage kV	Outside Diameter mm approx.	Copper weight kg/km	Alu weight kg/km	Weight kg/km approx.
32611	1x50 rm /16	12/20	33	182	145	920
32612	1x70 rm /16	12/20	34	182	203	1030
32613	1x95 rm /16	12/20	36	182	276	1140
32614	1x120 rm /16	12/20	37	182	348	1250
32615	1x150 rm /25	12/20	39	283	435	1320
32616	1x185 rm /25	12/20	41	283	537	1570
32617	1x240 rm /25	12/20	43	283	696	1780
32618	1x300 rm /25	12/20	45	283	870	2100
32619	1x400 rm /35	12/20	48	394	1160	2480
32620	1x500 rm /35	12/20	52	394	1450	2900

Please inquire for alternate dimensions. We reserve the right to make technical changes. Prices upon request.

Low-voltage cables

Low-voltage cables with 0.6/1kV are used for the internal wiring of the wind power stations and as tower output cables.

Hi-Tech Controls offers a wide assortment of cross-sections and numbers of conductors of cable types **NYY, NYCWY, NYCY, NAYY,** which satisfy all requirements.

Thanks to a comprehensive stock management system and logistics and cutting service, Hi-Tech Controls covers the entire range of power cables.

You can find other dimensions by calling us or by visiting our website.

NYY-J 0,6/1kV

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx.	Copper weight kg/km	Weight kg/km approx.
32049	4x16 re	21.5	614	1045
32051	4x35 sm	27.5	1344	1760
32055	4x120 sm	42.5	4608	5300
32056	4x150 sm	47.5	5760	6400

NYCY 0,6/1kV

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx.	Copper weight kg/km	Weight kg/km approx.
32214	4x1,5 re/1,5	14,5	81	260
32215	4x2,5 re/2,5	15,5	128	350
32216	4x4 re/4	17,0	200	470
32217	4x6 re/6	18,5	297	590
32218	4x10 re/10	21,0	504	900
32219	4x16 re/16	23,0	796	1250

NAYY-J 0,6/1kV

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx.	Alu weight kg/km	Weight kg/km approx.
32303	4x35 re	28,5	406	1120
32306	4x95 se	39,5	1102	2030
32307	4x120 se	44,0	1392	2400
32308	4x150 se	46,0	1740	3030
32309	4x185 se	51,0	2146	3650
32310	4x240 se	56,0	2784	4800

NYCWY 0,6/1kV

Part no.	No. cores x Cross-sec. mm²	Outside Diameter mm approx.	Alu weight kg/km	Weight kg/km approx.
32283	4x16 re/16	23,5	796	1250
32285	4x35 sm/16	29,0	1526	2050
32291	4x185 sm/95	56,0	8159	9350
32292	4x240 sm/120	62,5	10546	11600

Please inquire for alternate dimensions. We reserve the right to make technical changes. Prices upon request.

Strain Relief Fittings / Cord Grips / Inserts

- Strain Relief fitting materials - Nylon, Nickel Plated Brass, PVDF, Viton® and Stainless Steel
- Dome, Flex, Clamp and Explosive Proof
- Standard, Elongated, Reduced Body, Enlarged Body, Snap Elbow, Multi-Hole, Romex-Flat Cable, and High Performance with Clamp, EMI / RFI, Mini Wadi, Chemical Resistant and High / Low Temp
- Available in all popular thread types and sizes in all applications where excellent performance, fire resistance, and resistance against turning of the cable are critical

Common Industries Served:

- Machine, apparatus and plant equipment
- Measuring control and feedback systems
- Control cabinets
- Chemical plants
- Medical Equipment
- Railroad cars and vehicles
- Power plants (hydro, gas, coal or wind)
- Industrial installations

Locking Nuts / Seal Rings

- Nylon, Nickel Plated Brass, Zinc Plated Steel, EMI / RFI Locking Nuts and Lock Nuts
- PG, NPT, and Metric Threads
- Seal Rings available in Buna-N, Viton®, Silicone, Polyethylene or Fiber-Reinforced Plastic with Metric Threads

Cable lugs

Cable lugs K1 and K2

Non-insulated cable lugs in ring design.

Material:
Copper
Tinned surface

Technical data:
Temperature range: up to +120°C, +248°F

Cable lugs W 90°

Non-insulated cable lugs in ring design,
90° angled design.

Material:
Copper
Tinned surface

Technical data:
Temperature range: up to +120°C, +248°F

Cable lugs W 45°

Non-insulated cable lugs in ring design,
45° angled design.

Material:
Copper
Tinned surface

Technical data:
Temperature range: up to +120°C, +248°F

Mechanical lug BLMT

Mechanical lug BLMT for use with low voltage and medium voltage applications.
Suitable for connecting aluminium and CU conductors.

Material:
high strength AL alloy, tinned

Technical data:
Screws with multiple snap-off head

Mechanical connector BSM

Mechanical connector BSM for use with low voltage and medium voltage applications.
Suitable for connecting aluminium and CU conductors.

Material:
high strength AL alloy, tinned

Technical data:
Screws with multiple snap-off head

Further accessories

Cable ties

Cable ties T

Cable ties with plastic lugs for bundling and mounting cables and lines.

Material
polyamide 6.6
halogen-free, silicone-free

Technical Data
Temperature range: -40°C to +80°C (-40°F to 176°F)
flammability according to UL94 V2

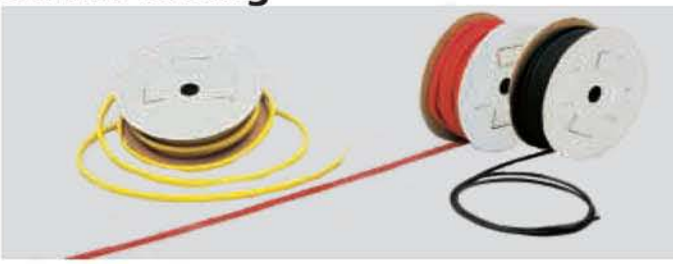
Cable ties E

Cable ties made of stainless steel with ball locking system for use under extreme stresses such as high temperatures, caustic environment, high tensile load.

Material
Stainless steel

Technical Data
Temperature range: -80°C to +538°C (-112°F to 1,000.4°F)
Approvals: GL, DNV, Lloyd's, UL

Shrink tubing



Shrinking tubing SPSP coils

Polyolefine shrink tubing for restoring insulation, for sealing electrical components.

Material
PO (Polyolefine) self-clearing

Technical Data
Temperature range: -55°C to +135°C (-67°F to +275°F)
Shrinking temperature: +100°C (+212°F), shrinkage rate: 2:1

Cable conduit

Standard and Superflex Corrugated Conduit

Standard conduit is suitable for fixed and moderate flexing installations. Super-flex conduit has a high cycle life expectancy, is UV and impact resistant at low temperatures, tough and abrasion-resistant.

Material
Standard Conduit is made of flame retardant Nylon. Super-Flex conduit is made of a special plastic blend.

Technical Data
Standard: -40° C to 110° C (-40° F to 230° F)
Super-flex: -40° C to 80° C (-40° F to 176° F)

Push-In and Turn-to-Seal Fittings

Straight and 90° Snap Elbow Push-In Fittings allow the fastest installation of flexible conduit. Liquid tight with optional Seal or O-Ring, these fittings meet NEMA 4x. Turn-to-Seal fittings fit the same conduit as SM Push-In fittings. The elbow has a smooth inside transition, making installation of cable and wires easy.

Material
Nylon

Technical Data
-40° C to +100° C (-40° F to +212° F)

Bulkheads and Mounting Brackets

Bulkhead fittings are available in black, threaded and non-threaded with flange. Mounting Brackets hold conduit securely in place.

Material
Nylon

Technical Data
Bulkheads: -20° C to +80° C (-4° F to +176° F)
Mounting Brackets: -40° C to +100° C (-40° F to +212° F)

Tools

Cable cutter KST 1

Cable cutter KST 1 with telescope grip
for cutting range up to 26 mm.

Crimping Pliers Type 807/1; 807/2

Crimping pliers for un-insulated barrel lugs (standard version)
with rotating profile disk, hexagon pressing.
Press range Type 807/1 – 6 to 50 mm²
Press range Type 807/2 – 10 to 120 mm²

Crimping Pliers HELUTOOL PEW 8.84

- black-finished
- square crimp profile through synchronously driven crimp jaws
- 4 profiled crimping surfaces
- ergonomically designed two-component grip
- length 180 mm
- weight 380 g

Pliers K22

- convertible inserts
- crown revolving by 360°
- hinged
- telescopic handle
- length 560 mm to 860 mm
- weight 2.5 kg

HI-TECH CONTROLS, INC.

HI-TECH CONTROLS
14850 E. Hinsdale Ave., Suite D
Centennial, CO 80112-4240 USA
Ph. 800-677-8942 / 303-680-5159
Fax 303-680-5344
info@hitechcontrols.com
www.hitechcontrols.com