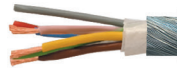


HELUWIND® WK 135-EMV-D-TORSION-MULTI

extremely abrasion-resistant, EMC-preferred type



HELUWIND® WK 135-EMV-D-TORSION-MULTI CE

TECHNICAL DATA

Torsion resistant cable acc. to UL-Std. 758 (AWM) Style 20234, CSA-Std. C22.2 No. 210 - AWM I/II A/B

Temperature range flexible -40°C to +90°C
fixed -40°C to +90°C
UL (AWM) flexible to +80°C

Permissible operating temperature of the conductor +90°C

Nominal voltage VDE AC U₀/U 600/1000 V
UL (AWM) AC 1000 V

Max. permissible operating voltage
alternating current (AC) conductor/earth 700 V
three-phase alternating current (AC) conductor/conductor 1200 V
direct current (DC) conductor/earth 900 V
direct current (DC) conductor/conductor 1800 V

Test voltage core/core 4000 V

Minimum bending radius flexible 10x Outer-Ø
fixed 5x Outer-Ø

- Torsion tested
- halogen-free
- recyclable
- highly flame-retardant
- Suitable for use in multiple climates
- Designed for CCV applications
- Suitable for offshore applications
- Torsion angle: +/- 150°/m

TESTS

- halogen-free acc. to DIN VDE 0482-754-1 / DIN EN 60754-1 / IEC 60754-1
- flame-retardant acc. to CSA FT1
- bundle fire test acc. to DIN VDE 0482-332-3-24 / DIN EN 60332-3-24 / IEC 60332-3-24
- smoke density acc. to DIN VDE 0482-1034-1+2 / DIN EN 61034-1+2 / IEC 61034-1+2
- oil resistant in alignment with UL Oil Res II, IEC 60502-1

APPLICATION

Designed for flexible use, especially for torsional stress in the cable loop of a wind turbine. Thanks to its halogen-free design and extremely abrasion-resistant sheath, it is ideal for use in offshore wind turbines. The voltage level for all dimensions is designed for 0.6/1 kV. This means that the cable can also be laid in parallel in accordance with UL standards; spatial separation of the cable routes is not necessary. The HELUKABEL WK series has been successfully tested with over 18,000 torsion cycles and therefore offers optimum functional reliability far beyond the service life of a wind turbine. Advantages of the WK 135 torsion compared to H07BN4-F: Fire behaviour according to IEC 60332-3-24, higher abrasion resistance. EMC = Electromagnetic Compatibility; in order to optimise EMC properties, we recommend a double-sided and all-round large contact area of the D-screen.

NOTES

- the conductor is metrically (mm²) constructed, AWG numbers are approximated, and are for reference only
- Further details, as well as information regarding custom solutions and suitable connection technology, can be found at wind@helukabel.de

CABLE STRUCTURE

- Copper wire bare acc. to DIN VDE 0295 / IEC 60228
- Core insulation: special compound
- Core identification: see table
- Protective conductor: starting with 3 cores, G = with protective conductor GN-YE, in the outer layer, x = without protective conductor
- Cores stranded in layers with optimal lay lengths
- Screen: helically wound tinned copper wires, approx. coverage 90%
- Outer sheath: special compound
- Sheath colour: black

PROPERTIES

- resistant to: oil, UV radiation
- extremely abrasion-resistant, low adhesion

Core identification: black cores with consecutive labeling in white digits

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.
703285	4 G 0.34	22	7.7	32.0	91.0
710903	2 x 0.5	20	7.3	25.4	74.6
703286	4 G 0.5	20	8.0	36.5	100.9
703288	6 G 0.5	20	9.2	53.6	130.0
703287	8 G 0.5	20	10.3	69.2	190.0
703672	10 G 0.5	20	11.4	73.0	170.0
703290	12 G 0.5	20	11.7	88.4	220.0
711039	2 x 0.75	19	7.5	32.0	84.6

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.
703674	3 G 0.75	19	7.7	43.2	97.0
703675	4 G 0.75	19	8.3	52.6	113.9
703676	5 G 0.75	19	9.0	63.0	145.0
703677	7 G 0.75	19	10.2	82.8	177.7
703678	8 G 0.75	19	10.7	93.0	220.0
703679	12 G 0.75	19	12.2	126.9	251.7
708079	12 x 0.75	19	12.2	126.9	251.5
703680	18 G 0.75	19	14.5	179.0	359.0

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Core identification: black cores with consecutive labeling in white digits

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.	Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.
705432	24 G 0.75	19	17.5	238.0	520.0	708469	30 G 1.5	16	21.8	539.0	921.5
703681	25 G 0.75	19	17.8	238.3	554.6	703689	3 G 2.5	14	9.8	104.4	176.1
705178	34 G 0.75	19	19.8	315.0	798.2	703690	4 G 2.5	14	10.6	132.7	218.4
703682	41 G 0.75	19	21.2	358.0	806.4	703691	5 G 2.5	14	11.5	161.0	254.7
704038	50 G 0.75	19	23.5	443.0	998.8	703692	7 G 2.5	14	13.7	223.1	348.6
706999	2 x 1	18	7.7	33.5	93.9	703693	12 G 2.5	14	16.7	350.6	520.4
707000	3 G 1	18	8.0	46.5	104.6	714077	18 G 2.5	14	19.5	537.0	614.0
707001	4 G 1	18	8.7	58.0	130.3	705045	19 G 2.5	14	21.7	561.0	638.0
17001575	4 x 1	18	8.5	58.0	131.0	17000859	3 G 4	12	11.2	178.0	230.0
707002	5 G 1	18	9.5	70.0	153.0	703694	5 G 4	12	13.4	227.0	361.2
707003	7 G 1	18	10.9	93.5	193.5	710422	7 G 4	12	16.4	325.0	511.2
711131	7 x 1	18	10.9	93.5	193.5	703696	12 G 4	12	20.0	532.1	788.1
707004	12 G 1	18	13.4	148.0	301.5	705436	3 G 6	10	12.9	203.3	357.3
707005	18 G 1	18	15.6	212.0	425.8	712317	4 G 6	10	14.9	289.0	510.0
707006	25 G 1	18	19.0	304.0	633.3	704697	5 G 6	10	16.6	341.0	562.9
704167	2 x 1.5	16	6.8	44.0	85.3	703697	4 G 10	8	19.0	445.6	727.0
703684	3 G 1.5	16	8.9	68.0	126.9	703698	5 G 10	8	21.4	550.2	953.0
703685	4 G 1.5	16	9.6	87.9	160.7	712553	2 x 16	6	19.7	497.0	744.6
712570	4 x 1.5	16	9.6	87.9	153.2	703699	4 G 16	6	23.6	696.5	1176.0
703686	5 G 1.5	16	10.4	104.4	185.4	703700	5 G 16	6	26.2	863.1	1428.0
703687	7 G 1.5	16	11.9	140.8	247.1	703701	4 G 25	4	26.5	1.059.4	1391.0
713382	8 G 1.5	16	13.0	170.0	266.4	703702	5 G 25	4	30.1	1.327.5	1642.0
703688	12 G 1.5	16	14.9	226.8	405.6	704698	4 G 50	1	33.5	2.070.0	3150.0
706806	25 G 1.5	16	21.3	430.0	828.6						

Core identification acc. to DIN 47100, colour coded

Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.	Part no.	No. cores x cross-sec. mm ²	AWG, approx.	Outer Ø mm, approx.	Cu factor per km	Weight kg/km, approx.
704681	4 x 0.5	20	8.0	37.8	105.0	704690	4 x 1	18	8.7	56.0	110.0
704682	6 x 0.5	20	9.2	53.6	136.1	704691	6 x 1	18	10.2	82.0	150.0
708220	14 x 0.5	20	12.3	124.0	248.2	704692	8 x 1	18	11.7	106.0	210.0
704686	12 x 0.75	19	12.2	126.9	257.5	704693	12 x 1	18	13.0	148.0	301.5
704689	32 x 0.75	19	18.8	294.0	610.0						