SynFlex Elektro GmbH
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Single Core Conductor BETAtherm 155 UL/cUL (metric)

BETAtherm® 155 UL/cUL is a flexible low-voltage cable with UL recognition, consisting of a tinned copper stranded wire and insulated with coloured electron-beam crosslinked polyolefine copolymer.

Attributes

Due to its electron-beam cross-linked insulation, BETAtherm® 155 UL/cUL achieves a special thermal resistance required for Class F. This results in excellent thermal resistance. However, it cannot even be melted at elevated temperatures and has to be skinned during processing. Skinning is simple and also possible at machines.

BETAtherm® cables are resistant to common insulating varnishes. They are flame retardant.

Application

BETAtherm® 155 UL/cUL is suitable for the internal wiring of electric machines, lamps, heating appliances, as well as for application in apparatus, mechanical and plant engineering.

Due to the high thermal load capacity, it might be possible to reduce the conductor cross section and, therefore, save space and reduce the weight.

Standards

- Thermal class F (155 °C / UL-rating 150 °C)
- RoHS compliant according to 2011/65 EC
- UL AWM Style 3289, cUL CL 1503 (valid from 0.50 mm²)

Delivery forms

Metric dimensions

mm²	rings / m
4.0-10.0	100
16.0-25.0	50
35.0-95.0	30

Conductor

Tinned copper wire VDE 0295/ IEC 60228 class 5.

The dimensions specified in the technical datasheet are regarded as standard values. The actual cross sections may vary. The cables are manufactured according to European standards with a metric conductor cross section, AWG sizes are approximate values and viceversa.

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Always observe relevant standards valid for divergent operating conditions when laying for greater limit current loads.

Color

Green-yellow, black, light blue, red, yellow, green.

Brown, white, grey, violet, orange and 2-coloured on request.

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Dimension	Unit of measure						
Nominal cross section	mm²	0.25	0.5	0.75	1.00	1.5	2.5
Strands x diameter	mm	14 x 0.15	16 x 0.20	24 x 0.20	32 x 0.20	27 x 0.25	45 x 0.25
Cu Litz nom. diameter	mm	0.65	0.90	1.15	1.25	1.55	2.05
Wall thickness desired	mm	0.85	0.85	0.85	0.85	0.85	0.85
Wall thickness UL min	mm	0.686	0.686	0.686	0.686	0.686	0.686
Outer diameter	mm	2.35 ± 0.10	2.60 ± 0.10	2.85 ± 0.10	2.95 ± 0.10	3.25 ± 0.20	3.75 ± 0.20
Thermal load	kWh/m	0.044	0.052	0.059	0.062	0.072	0.087

Dimension	Unit of measure						
Nominal cross section	mm²	4	6	10	16	25	35
Strands x diameter	mm	52 x 0.30	78 x 0.30	74 x 0.40	119 x 0.40	181 x 0.40	257 x 0.40

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Dimension	Unit of measure						
Cu Litz nom. diameter	mm	2.55	3.10	4.10	5.0	6.20	7.70
Wall thickness desired	mm	0.85	0.85	1.30	1.70	1.70	1.70
Wall thickness UL min	mm	0.686	0.686	1.041	1.372	1.372	1.372
Outer diameter	mm	4.25 ± 0.20	4.80 ± 0.20	6.70 ± 0.30	8.40 ± 0.30	9.60 ± 0.30	11.10 ± 0.40
Thermal load	kWh/m	0.103	0.120	0.247	0.398	0.469	0.579

Dimension	Unit of measure				
Nominal cross section	mm^2	50	70	95	120
Strands x diameter	mm	371 x 0.40	336 x 0.50	444 x 0.50	570x0.50
Cu Litz nom. diameter	mm	9.70	11.20	12.8	14.6
Wall thickness desired	mm	2.20	2.30	2.30	2.2
Wall thickness UL min	mm	1.829	1.829	1.829	1.829

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Dimension	Unit of measure				
Outer diameter	mm	14.10 ± 0.40	15.80 ± 0.40	17.40 ± 0.40	19.0 ± 0.40
Thermal load	kWh/m	0.961	1.146	1.269	1.358

Mechanical	Values
Bend radius	4 x outer diameter
Soldering resistance	very good

Thermal	Unit of measure	Conditions	Values	Test method
Thermal class			F	
Temperature range fixed application	°C		-55 bis +150	UL 3289 / cUL 1503
Temperature range short circuit	°C	max. 5 sec.	+280	
Thermal resistance			155 °C / 5000 h	IEC 60216-2
Burning behaviour			flame retardent	EN/IEC 60332-1-2

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Chemical	Values
Insulation	Polyolefine copolymer electron beam cross-linked
Resistance against	resistant against common impregnants

Electrical	Unit of measure	Conditions	Values
Rated voltage	V		UO/U 600/600 AC
Testing voltage	V	50 Hz / 2 min.	3500

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