SynFlex Elektro GmbH
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Single Core Conductor BETAtherm 145 halogen free (UL 3271/CSA;UL 3820/cUL)

BETAtherm® 145 UL 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® 145 UL achieves extremely high - still class B - thermal resistance. This results in excellent thermal resistance. However, it cannot even be melted at elevated temperatures and has thus to be skinned during processing. Skinning is simple and also possible at machines. They are halogen free and flame retardant.

Application

BETAtherm® 145 UL halogen free is suitable for the wiring of electric machines, lamps, heating appliances, switchboards and distributors in apparatus, machine and plant engineering. Usage is also possible at ambient temperatures above 55 °C.

BETAtherm® 145 UL halogen free is suitable for laying in pipes, surface and flush installations, as well as in closed installation channels.

Standards

- UL 3271/CSA AWM I A/B 125 °C / 600 V
- UL 3820/cUL AWM I A/B 125 °C / 1000 V
- VDE 0295 / IEC 60228, class 5
- Halogen free: IEC 60754-1, EN 50267-2-1
- Flame retardant: EN/IEC 60332-1-2

Delivery forms

Conductor cross section from 0.25 to 95 mm².
Further cross sections and formats on request.

Conductor

Tinned copper wire VDE 0295/ IEC 60228 class 5.

The dimensions specified in the checklist 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 vice-versa. Always observe relevant standards valid for divergent operating conditions when laying for greater limit current loads.

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Updated 05/24

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Color

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

Brown,white, grey, violet, orange and yellow on request.

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Dimension	Unit of measure						
Nominal cross section	mm²	0.25	0.5	0.75	1	1.5	2.5
Strands x diameter	mm	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	0.80	0.80	0.80	0.80	0.80	0.80
Wall thickness min.	mm	0.686	0.686	0.686	0.686	0.686	0.686
Outer diameter	mm	2.30 ± 0.10	2.50 ± 0.10	2.75 ± 0.10	2.85 ± 0.10	3.15 ± 0.20	3.65 ± 0.20
Thermal load	kWh/m	0.022	0.024	0.029	0.031	0.036	0.043

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	5.00	6.20	7.70
Wall thickness desired	mm	0.80	0.80	1.20	1.60	1.60	1.60
Wall thickness min.	mm	0.686	0.686	1.041	1.372	1.372	1.372
Outer diameter	mm	4.15 ± 0.20	4.70 ± 0.20	6.50 ± 0.30	8.20 ± 0.30	9.40 ± 0.30	10.90 ± 0.40
Thermal load	kWh/m	0.051	0.060	0.120	0.198	0.234	0.302

Dimension	Unit of measure			
Nominal cross section	mm²	50	70	95
Strands x diameter	mm	371 x 0.40	336 x 0.50	444 x 0.50
Cu Litz nom. diameter	mm	9.70	11.20	12.8
Wall thickness desired	mm	2.20	2.20	2.20
Wall thickness min.	mm	1.829	1.829	1.829
Outer diameter	mm	14.10 ± 0.40	15.60 ± 0.40	17.20 ± 0.40
Thermal load	kWh/m	0.543	0.621	0.682

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Thermal	Unit of measure	Value	test method
Thermal class		B	
Temperature range fixed application	°C	-55 up to +125	
Temperature range active	°C	-35 bis +120	
In case of short-circuit		+280° C max. 5 sec.	
Soldering resistance		very good	
Behaviour in fire		fire retardent	IEC 60332-3

Chemical	Conditions	Value	Test method
Insulation		electron-beam crosslinked polyolefine-copolymer	
Oil resistance	72h / 100 °C	resistant	EN 50264-1. IRM 902
Resistance	168h / 70 °C	fuels	EN 50254-1. IRM 903

Electrical	Unit of measure	Value
Rated voltage	V	U0/ U 1000 AC
Testing voltage	V	3500 (UL3271/UL 3820) / 1 min.
Insulation resistance	Ω	> 10^15

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