

**Product datasheet**

Single Core Conductor BETAtherm® 145  
halogen free (UL 3271/CSA;UL 3820/cUL)  
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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.

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**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.

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**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.

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**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

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**Delivery forms**

Conductor cross section from 0.25 to 95 mm<sup>2</sup>.  
Further cross sections and formats on request.

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**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 05/19

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Leoni Studer AG.



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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  | mm <sup>2</sup> | 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              | 0.66        | 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              | 2.25 ± 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 | mm <sup>2</sup> | 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              | 0.80              | 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<br>±<br>0.20 | 4.70<br>±<br>0.20 | 6.50<br>±<br>0.30 | 8.20<br>±<br>0.30 | 9.40<br>±<br>0.30 | 10.90<br>±<br>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  | mm <sup>2</sup> | 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 ±<br>0.40 | 15.60 ±<br>0.40 | 17.20 ±<br>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        |             |
| 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               | U <sub>0</sub> / U 1000 |
| Testing voltage       | V               | 3500 (UL3271/UL 3820)   |
| Insulation resistance | Ω               | > 10 <sup>15</sup>      |

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