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## SynTherm® NPN/80

SynTherm® NPN/80 is a flexible 3-ply insulation consisting of a polyester film with a calandered Nomex® layer with green strips.

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### Attributes

The proven dielectric properties of the polyester film and the excellent mechanical and thermal properties of the outer Nomex® layers result in a high performance insulating material. The ability of the outer layers to absorb impregnants results in exceptional bonding between all winding components.

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### Application

SynTherm® NPN/80 is a cost-effective insulating material which can be installed in suitable insulating systems of class H (180 °C) and is used in electric motors as slot insulation, phase and wedges. SynTherm® NPN/80 is used as core, interlayer and final insulation for transformers.

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### Standards

- Suitable for class H (180 °C) systems
- Insulating material acc. IEC 60626
- UL approved, e.g. E247773
- Test standard IEC 60626-2
- Sample conditioning acc. to standard atmosphere 23/50

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### Delivery forms

#### Total thickness in µm:

220, 250, 300, 360, 420, 480

#### SynTherm® NPN/80 can be supplied:

in slit rolls from widths of 6 mm (depending on thickness) and above

in rolls approx. width of 900 mm

in sheets on request: approx. 600 x 900 mm, 900 x 1000 mm

#### Optional overall diameter of the slit rolls/ rolls

approx. 240, 330 or 450 mm.

#### Feathering:

depth approx. 1 - 12 mm, distance approx. 1 - 10 mm

from widths of 10 to 240 mm and thickness of 0.20 mm

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## Base

PET-film + calandered Nomex® layer on both sides

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| <b>Mechanical</b>                 | Unit of measure |      |      |      |      |      |      |
|-----------------------------------|-----------------|------|------|------|------|------|------|
| Total thickness                   | mm              | 0.22 | 0.25 | 0.30 | 0.36 | 0.42 | 0.48 |
| Thickness tolerance max.          | %               | ± 15 | ± 15 | ± 15 | ± 15 | ± 10 | ± 10 |
| Film thickness                    | µm              | 50   | 75   | 125  | 190  | 250  | 300  |
| Nomex® paper thickness            | µm              | 80   | 80   | 80   | 80   | 80   | 80   |
| Specific weight                   | g/m²            | 220  | 255  | 325  | 420  | 500  | 570  |
| Elongation at break longitudinal* | %               | 15   | 15   | 20   | 20   | 20   | 20   |
| Elongation at break transversal*  | %               | 20   | 20   | 25   | 25   | 25   | 25   |
| Tensile strength longitudinal     | N/10 mm         | 170  | 190  | 270  | 320  | 380  | 430  |
| Tensile strength transversal      | N/10 mm         | 140  | 180  | 200  | 250  | 300  | 300  |

| <b>Electrical</b> | Unit of measure |      |      |      |      |      |      |
|-------------------|-----------------|------|------|------|------|------|------|
| Total thickness   | mm              | 0.22 | 0.25 | 0.30 | 0.36 | 0.42 | 0.48 |

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| Electrical                   | Unit of measure |   |    |    |    |    |    |
|------------------------------|-----------------|---|----|----|----|----|----|
| Dielectric strength (unfold) | kV              | 9 | 12 | 15 | 20 | 23 | 23 |

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