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## SynTherm® APA/50

SynTherm® APA/50 is a flexible 3-ply insulating material made of polyester film with a layer of aramid paper marked with yellow stripes on both sides.

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### Attributes

The proven dielectric properties of the polyester film and the excellent mechanical and thermal properties of the outer aramid paper 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® APA/50 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 insulation and wedges.

SynTherm® APA 50 is used as core, interlayer and final insulation for transformers.

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### Standards

- Suitable for class H (180 °C) systems
- UL approved e.g. E247773

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### Delivery forms

#### Total thicknesses in µm:

130, 160, 180, 220, 240, 310, 370, 410, 470. Further thicknesses on request.

#### SynTherm® APA/50 is available:

- in tapes: depending on material thickness on request beginning at 6 mm (thin material)
- in rolls: 968 mm

### Feathering:

- Depth approx. 1-12 mm; distance approx. 1-10 mm
- Form widths of 10 mm to 240 mm, thickness on request

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### Base

PET-film + aramid paper on both sides

| Typical mechanical properties | Unit of measure  |           |           |           |           |           |           |
|-------------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Nominal thickness             | mm               | 0.13      | 0.16      | 0.18      | 0.22      | 0.24      | 0.31      |
| Typical thickness             | mm               | 0.13±15 % | 0.16±15 % | 0.18±15 % | 0.21±15 % | 0.24±15 % | 0.30±15 % |
| Specific weight               | g/m <sup>2</sup> | 120       | 160       | 190       | 230       | 260       | 350       |
| Film thickness                | µm               | 23        | 50        | 75        | 100       | 125       | 190       |
| Aramid paper thickness        | µm               | 50        | 50        | 50        | 50        | 50        | 50        |
| Tensile strength longitudinal | N/cm             | 100       | 130       | 160       | 190       | 210       | 290       |
| Tensile strength transversal  | N/cm             | 70        | 100       | 140       | 170       | 200       | 300       |

| Typical mechanical properties | Unit of measure  |           |           |           | Test method |
|-------------------------------|------------------|-----------|-----------|-----------|-------------|
| Nominal thickness             | mm               | 0.37      | 0.41      | 0.47      | IEC 60626-2 |
| Typical thickness             | mm               | 0.36±10 % | 0.40±10 % | 0.46±10 % |             |
| Specific weight               | g/m <sup>2</sup> | 440       | 510       | 570       | IEC 60626-2 |
| Film thickness                | µm               | 250       | 300       | 350       |             |

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| Typical mechanical properties | Unit of measure |     |     |     | Test method |
|-------------------------------|-----------------|-----|-----|-----|-------------|
| Aramid paper thickness        | µm              | 50  | 50  | 50  |             |
| Tensile strength longitudinal | N/cm            | 340 | 400 | 450 | IEC 60626-2 |
| Tensile strength transversal  | N/cm            | 420 | 350 | 400 | IEC 60626-2 |

| Typical electrical properties | Unit of measure |      |      |      |      |      |      |
|-------------------------------|-----------------|------|------|------|------|------|------|
| Nominal thickness             | mm              | 0.13 | 0.16 | 0.18 | 0.22 | 0.24 | 0.31 |
| Dielectric strength           | kV              | 6    | 9    | 12   | 14   | 16   | 22   |

| Typical electrical properties | Unit of measure |      |      |      | Test method |
|-------------------------------|-----------------|------|------|------|-------------|
| Nominal thickness             | mm              | 0.37 | 0.41 | 0.47 |             |
| Dielectric strength           | kV              | 25   | 26   | 28   | IEC 60626-2 |

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