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## SynTherm® VPV

SynTherm® VPV is a flexible 3-ply insulating material made of polyester film with a layer of polyester non-woven on both sides.

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### Attributes

SynTherm® VPV is an insulating material without additional impregnants, which can be used for insulation class F (155 °C) systems after through impregnation with varnishes or resins of the corresponding insulation class. The ability of the non-woven layers to absorb impregnants results in outstanding saturation of the slot surfaces and exceptional bonding of all winding components with the laminated core.

SynTherm® VPV is characterised by its high resistance to moisture and chemicals and excellent dielectric strength. The smooth surface of the SynTherm® VPV makes the material ideal for machining.

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### Application

SynTherm® VPV is used as slot insulation and phase insulation in electric machines. SynTherm® VPV is used as interlayer insulation and final insulation in transformers.

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### Standards

- Suitable for insulation class F 155 °C systems after impregnation with high quality class F or H varnishes or resins (file-no. E247773)

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### Delivery forms

#### Film thickness in µm:

90, 120, 150, 180, 200, 230, 300, 350, 450

#### SynTherm® VPV can be supplied:

- in slit rolls from widths of 10 mm and above
- in rolls approx. 630 mm or 1,260 mm
- in sheets approx. 630 mm x 800 mm or  
approx. 800 mm x 1,260 mm

#### Feathering:

- depth approx. 1 - 12 mm, distance approx. 1 - 10 mm
- from widths of 10 to 240 mm and thickness of 0.23 mm

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### Base

PET-film + polyester non-woven on both sides

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Updated 06/24



| Mechanical                                | Unit of measure  |      |      |      |      |      |      |
|-------------------------------------------|------------------|------|------|------|------|------|------|
| Nominal thickness                         | mm               | 0.09 | 0.12 | 0.15 | 0.18 | 0.20 | 0.23 |
| Typical thickness                         | mm               | 0.09 | 0.12 | 0.15 | 0.18 | 0.20 | 0.23 |
| Thickness tolerance max.                  | %                | ±15  | ± 15 | ± 15 | ± 15 | ± 15 | ± 15 |
| Specific weight                           | g/m <sup>2</sup> | 80   | 115  | 145  | 190  | 220  | 260  |
| Film thickness                            | µm               | 23   | 23   | 50   | 75   | 100  | 125  |
| Elongation at break (unfold) longitudinal | %                | 15   | 20   | 20   | 20   | 20   | 20   |
| Elongation at break (unfold) transversal  | %                | 50   | 50   | 50   | 50   | 50   | 50   |
| Tensile strength longitudinal             | N/10 mm          | 50   | 50   | 110  | 140  | 160  | 200  |
| Tensile strength transversal              | N/10 mm          | 40   | 40   | 90   | 105  | 120  | 150  |

| Mechanical        | Unit of measure |      |      |      |
|-------------------|-----------------|------|------|------|
| Nominal thickness | mm              | 0.28 | 0.34 | 0.45 |
| Typical thickness | mm              | 0.30 | 0.35 | 0.45 |

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| <b>Mechanical</b>                         | Unit of measure  |      |      |      |
|-------------------------------------------|------------------|------|------|------|
| Thickness tolerance max.                  | %                | ± 15 | ± 10 | ± 10 |
| Specific weight                           | g/m <sup>2</sup> | 350  | 425  | 560  |
| Film thickness                            | µm               | 190  | 250  | 350  |
| Elongation at break (unfold) longitudinal | %                | 20   | 20   | 20   |
| Elongation at break (unfold) transversal  | %                | 50   | 50   | 50   |
| Tensile strength transversal              | N/10 mm          | 200  | 300  | 350  |
| Tensile strength longitudinal             | N/10 mm          | 300  | 350  | 400  |

| <b>Electrical</b>            | Unit of measure |      |      |      |      |      |      |
|------------------------------|-----------------|------|------|------|------|------|------|
| Nominal thickness            | mm              | 0.09 | 0.12 | 0.15 | 0.18 | 0.20 | 0.23 |
| Dielectric strength (unfold) | kV              | 4    | 4    | 6    | 7    | 9    | 10   |

| <b>Electrical</b>            | Unit of measure |      |      |      |
|------------------------------|-----------------|------|------|------|
| Nominal thickness            | mm              | 0.30 | 0.35 | 0.45 |
| Dielectric strength (unfold) | kV              | 15   | 18   | 22   |

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