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## SynTherm® NPN/130 411

SynTherm® NPN/130 411 is a flexible 3-ply insulation.

It consists of a polyester film with an uncalandered Nomex® layer type 411 on both sides.

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### Attributes

The proven electrical and mechanical properties of the polyester film and the excellent thermal resistance of the outer Nomex® layers result in a high performance insulating material. SynTherm® NPN/130 411 is easy to form and, therefore, displays good processing characteristics as phase insulation. The ability of the uncalandered Nomex® layers to absorb impregnants results in excellent bonding between all winding components. SynTherm® NPN/130 411 is characterised by its high thermal and chemical resistance.

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### Application

SynTherm® NPN/130 411 is especially used as phase insulation for electric motors. In special cases SynTherm® NPN/130 411 can be used as core and interlayer insulation for transformers.

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### Standards

- Suitable for class H (180 °C) systems
- Insulating material according to IEC 60626

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### Delivery forms

#### Total thickness in µm:

270, 300, 350

#### SynTherm® NPN/130 411 can be supplied:

- in slit rolls from widths of 10 mm and above
- in rolls up to approx. width of 950 mm
- in sheets on request: approx. 600 x 950 mm, 950 x 1,000 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 + uncalandered Nomex® on both sides

Mechanical	Unit of measure				Test method
Total thickness	mm	0.27	0.30	0.35	standard climate 23/50
Film thickness	µm	36	50	125	standard climate 23/50
Specific weight	g/m²	155	170	280	standard climate 23/50
Tensile strength longitudinal	N/10 mm	60	75	140	standard climate 23/50
Tensile strength transversal	N/10 mm	60	75	140	standard climate 23/50
Elongation at break longitudinal*	%	5	5	7	standard climate 23/50
Elongation at break transversal*	%	10	10	10	standard climate 23/50

Electrical	Unit of measure				Test method
Total thickness	µm	0.27	0.30	0.35	standard climate 23/50
Dielectric strength*	kV	5	6	12	standard climate 23/50

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