

TECHNICAL DATA

HYPERTHERM® F TRIPLEX - Nomex®/Polyester Film Laminates

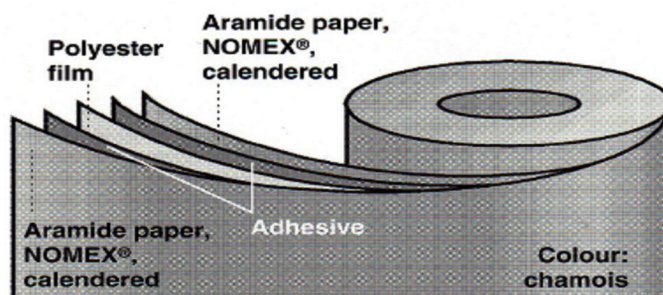
DESCRIPTION

The Hypertherm® F range of composite materials are constructed by laminating calendared Nomex® aramide papers to both sides of Polyester (PET) Films in various thickness combinations.

A specially formulated synthetic adhesive is employed in the laminating process, which is compatible with the individual component layers.

PROPERTIES

- High tear strength
- High inter-laminar shear strength
- Insulation Class F (155°C) according to IEC 85
- Can be used in insulation systems up to 180°C (Class H) according to IEC 626-3
- High electric strength, even at elevated temperatures



APPLICATIONS

Hypertherm® F is universally employed in rotating electric machines in the following forms:

- Slot insulation
- Stampings
- Slot closures
- Interleaving insulation

STANDARD DIMENSIONS & FORMATS

Grade Combination	Nominal Thickness mm	Tolerance ± %	Area Weight g/m ²	Tolerance ± %	Nomex® Thickness mm	PET Film Thickness mm	Nomex® Thickness mm	Standard Widths mm	Standard Core mm
2/1/2	0.14	15	145	12	0.050	0.023	0.050	900/1800	75
2/2/2	0.17	15	170	12	0.050	0.050	0.050	900/1800	75
2/3/2	0.19	15	200	12	0.050	0.075	0.050	900/1800	75
2/5/2	0.24	15	270	12	0.050	0.125	0.050	900/1800	75
2/7/2	0.31	15	360	12	0.050	0.190	0.050	900/1800	75
2/10/2	0.37	10	450	12	0.050	0.250	0.050	900/1800	75
2/14/2	0.47	10	580	12	0.050	0.350	0.050	900/1800	75
3/1/3	0.20	15	185	12	0.080	0.023	0.080	900/1800	75
3/2/3	0.22	15	220	12	0.080	0.050	0.080	900/1800	75
3/3/3	0.25	15	255	12	0.080	0.075	0.080	900/1800	75
3/5/3	0.30	15	325	12	0.080	0.125	0.080	900/1800	75
3/7/3	0.36	15	420	12	0.080	0.190	0.080	900/1800	75
3/10/3	0.43	10	500	12	0.080	0.250	0.080	900/1800	75
3/14/3	0.53	10	640	12	0.080	0.350	0.080	900/1800	75
5/5/5	0.40	10	430	12	0.125	0.125	0.125	900/1800	75

Duplex & other grade combinations available to order.

® Registered trademark

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PHYSICAL PROPERTIES

Grade Combination	Nominal Thickness	Tensile Strength Longitudinal	Tensile Strength Transverse	Elongation Longitudinal	Elongation Transverse	Dielectric Strength	Shrinkage Longitudinal	Shrinkage Transverse	Moisture Content Approx.
Thou	mm	N/10mm	N/10mm	%	%	kV	%	%	%
2/1/2	0.14	≥ 130	≥ 100	≥ 15	≥ 25	≥ 8	≤ 1.5	≤ 1.5	3.0
2/2/2	0.17	≥ 160	≥ 120	≥ 15	≥ 25	≥ 10	≤ 1.5	≤ 1.5	3.5
2/3/2	0.19	≥ 190	≥ 150	≥ 15	≥ 25	≥ 12	≤ 2.0	≤ 2.0	2.6
2/5/2	0.24	≥ 225	≥ 200	≥ 15	≥ 25	≥ 15	≤ 2.0	≤ 2.0	2.2
2/7/2	0.31	≥ 280	≥ 220	≥ 15	≥ 25	≥ 16	≤ 2.0	≤ 2.0	1.7
2/10/2	0.37	≥ 330	≥ 300	≥ 15	≥ 25	≥ 20	≤ 2.0	≤ 2.0	1.3
2/14/2	0.47	≥ 420	≥ 400	≥ 15	≥ 25	≥ 23	≤ 2.0	≤ 2.0	1.0
3/1/3	0.20	≥ 160	≥ 160	≥ 15	≥ 20	≥ 8	≤ 1.5	≤ 1.5	3.5
3/2/3	0.22	≥ 210	≥ 170	≥ 15	≥ 20	≥ 10	≤ 1.5	≤ 1.5	4.1
3/3/3	0.25	≥ 240	≥ 190	≥ 20	≥ 25	≥ 12	≤ 2.0	≤ 2.0	3.5
3/5/3	0.30	≥ 300	≥ 250	≥ 20	≥ 25	≥ 16	≤ 2.0	≤ 2.0	2.8
3/7/3	0.36	≥ 330	≥ 300	≥ 20	≥ 25	≥ 20	≤ 2.0	≤ 2.0	2.1
3/10/3	0.43	≥ 400	≥ 350	≥ 20	≥ 25	≥ 25	≤ 2.0	≤ 2.0	1.60
3/14/3	0.53	≥ 580	≥ 480	≥ 20	≥ 25	≥ 27	≤ 2.0	≤ 2.0	1.0

CONVERTED PARTS

As well as standard rolls, Hypertherm® F can be converted to customer requirements as follows:

- Slit tapes from 6mm wide upwards
- Creased parts, including pre-formed slot closures
- Stampings/punched parts
- Cut parts

STORAGE

Storage	Cool, dry conditions
Shelf life	Indefinite