

Flexible insulation laminates NMN/NM

GENERAL DESCRIPTION

Coveme DyTerm® insulating products derive from the coupling of Nomex® aramid paper with polyester pet or polyimide (Kapton®) films. Nomex® layers stick firmly to the plastic films by appropriate adhesives. DyTerm® laminates are suitable for use in electrical apparatus with ratings:

- up to 155°C - class F types N2S - N3S
- up to 180°C - class H types N2D - N3D

while Kapton® based laminates in class super H up to 200°C.

The presence of films enhances the mechanical, physical and dielectrical properties of the laminate. Coveme DyTerm® products are available in a wide range of different combinations, normally double or triple, but it is possible to reach other structures.

DyTerm® laminates are supplied in untrimmed rolls 914 mm wide (N411/5 = 965 mm) with i.d.76 mm. Different widths can be supplied upon request, starting from a minimum width of 6 mm with increments of 0.1 mm. The cutting tolerance is +/- 0.2 mm.

The values given in the table are average values and not to specifications.

The total thickness tolerance is +/- 15% for laminates with films in thickness up to 190µ and +/- 10% for laminates with films thickness 250µ and 350µ. The tolerance on the basis weight and yield is +/- 12% (IEC 626).

END-USES

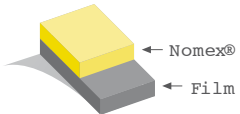
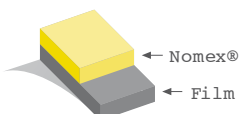
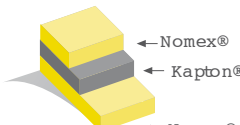
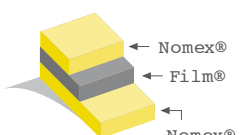
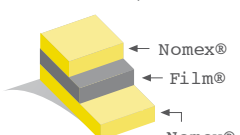
DyTerm® laminates are a highly performant solution to insulate electric motors, transformers and electrical machines, at operating temperatures ranging from 155 -180°C and 200°C.

In rotating machines, DyTerm® is used in slot closure and insulation, as well as to separate phases on the heads of the windings. In transformers and electrical static equipments, DyTerm® is used as interlay insulating material.

DyTerm® type	Product structure	Nomex® type	Nomex® total thickness mm
N2S	Double	Calendered	0,05
N2D	Triple	Calendered	0,10 (0,05x2)
N3S	Double	Calendered	0,08
N3D	Triple	Calendered	0,16 (0,08x2)
N411/5S	Double	Not calendered	0,13
N411/5D	Triple	Not calendered	0,26 (0,13x2)

DyTerm® K type	Product structure	Nomex® total thickness mm
N2DK	Tripla	0,10 (0,05x2)
N3DK	Tripla	0,16 (0,08x2)
N5DK	Tripla	0,26 (0,13x2)
N7DK	Tripla	0,36 (0,18x2)

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DyTerm® Type	Product structure mm		Film thick. μ	Yield sqm/Kg	Basis weight g/m ²	Tensile strength N/cm	Elongation % min	Breakdown voltage kV
Test method:					ASTM D646	ASTM D882	ASTM D882	ASTM D149
DyTerm® N2S Two plies laminates with 50 μ Nomex® 	25	0,08	23	11,76	85	100	15	5
	36	0,095	36	10,00	100	110	15	6
	50	0,11	50	8,00	125	130	15	7
	75	0,13	75	6,25	160	140	15	9
	100	0,16	100	5,26	190	160	15	10
	125	0,18	125	4,35	230	180	15	12
	190	0,25	190	3,13	320	230	20	15
	250	0,31	250	2,56	390	280	20	18
	350	0,41	350	1,82	550	340	20	21
DyTerm® N3S Two plies laminates with 80 μ Nomex® 	25	0,11	25	8,33	120	100	15	6
	36	0,12	36	7,41	135	120	15	7
	50	0,14	50	6,45	155	130	15	8
	75	0,16	75	5,26	190	140	15	10
	100	0,19	100	4,55	220	160	15	11
	125	0,22	125	3,92	255	180	15	13
	190	0,28	190	2,94	340	230	20	16
	250	0,34	250	2,38	420	280	20	18
	350	0,44	350	1,77	565	340	20	21
DyTerm® N2DK Three plies laminates with 50 μ Nomex® 	25	0,14	25	7,41	135	140	15	7
	36	0,17	50	5,88	170	160	17	9
DyTerm® N2D Three plies laminates with Nomex® 50 μ 	25	0,14	23	7,14	140	100	15	6
	36	0,15	36	6,67	150	150	15	7
	50	0,17	50	5,88	170	160	15	8
	75	0,19	75	5,00	200	170	15	11
	100	0,22	100	4,35	230	190	15	12
	125	0,24	125	3,70	270	220	15	14
	190	0,31	190	2,78	360	270	20	19
	250	0,37	250	2,22	450	330	20	23
	350	0,47	350	1,69	590	400	20	28
DyTerm® N3D Three plies laminates with Nomex® 80 μ 	25	0,20	23	5,41	185	160	15	7
	36	0,21	36	5,00	200	160	15	8
	50	0,22	50	4,55	220	170	15	9
	75	0,25	75	3,92	255	190	15	12
	100	0,28	100	3,45	290	220	15	13
	125	0,30	125	3,08	325	270	15	15
	190	0,36	190	2,38	429	320	20	20
	250	0,43	250	2,00	500	380	20	23
	350	0,53	350	1,56	640	450	20	30

U.L. approved file No. E209645
The values given are average values and not specifications
DyTerm® is a Coveme trademark
Nomex® is a Du Pont trademark

Coveme spa is UNI EN ISO 9001-2008 certified



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