



The non-shrinking Mylar®/Nomex® insulating tube is used for robust insulation in electrical applications. It is wound very precisely from a composite of Mylar® and Nomex®. It has a high dielectric strength and mechanical impact resistance and is also suitable for demanding applications. It prevents electrical short circuits in electric motor windings.

Nomex® / Mylar® Insulating Tubes, Non-Shrinking, Class F (155°C)

Properties

- Wound Insulation Tubes made of multi-layer composite for applications in electric motors of temperature class F
- Inner diameter from 2.00 mm to 200.00 mm with any wall thickness
- Robust composite made from DuPont™ Mylar® and Nomex®
- Suitable for insulation in temperature class F applications with continuous temperatures up to 155 °C.
- Base material UL

Technical data

Outer laminate: DuPont™ Mylar® A polyester film

Electrical properties			
Properties of the film	Typical value	Test condition	Test method
Dielectric strength [V]	6400	25 °C, 50 Hz and 50 mm electrode gap	ASTM D 149-64
Film thickness [mm]	0,0254	25 °C, 7500 V , 150 °C 5000 V	-
Surface resistance [W /Quadrat]	1016	25 °C, 30 % relative humidity	ASTM D 257-78

Physical properties			
Properties of the film	Typical value	Test condition	Test method
Tear strength running direction (LR) [Mpa]	200	25 °C	ASTM D 882-80
Elongation at break (LR) [%]	130	25 °C	ASTM D 882-80
Tension for 5% elongation (LR) [Mpa]	105	25 °C	ASTM D 882-80
Moisture absorption	less than 8%	immersed for 24 h at 25 °C	ASTM D 570-63

Thermal properties			
Properties of the film	Typical value		Test method
Melting point	253-255°C		ASTM D 3148-82

Inner Laminate: DuPont™ Nomex® 410

Electrical properties					
Properties of the film		50 µm 1mil	75 µm 2 mil	125 µm 3mil	Test method
Dielectric strength (AC steep rise)	[V/mil]	430	550	680	ASTM D149*
Dielectric constant at 60Hz		1,6	1,6	2,4	ASTM D3426

*Complies with IEC 243-1, 9.1 with the exception of the electrode gap of 50 mm.

Physical properties				
Properties of the film		50 µm	75 µm	125 µm
Weight [g/m2]		41	63	116
Density [g/cm3]		0,72	0,08	0,13

Mechanical properties				
Properties of the film		50 µm	75 µm	125 µm
Tear resistance				
In running direction	[N/cm]	39	65	137
Transverse to running direction		18	32	66
Tear elongation				
In running direction	[%]	9	11	15
Transverse to running direction		6	8	12
Tear resistance (Elmendorf)				
In running direction	[N]	0,8	1,2	3,4
Transverse to running direction		1,6	2,3	5,2
Tear resistance				
In running direction	[N]	11	16	33
Transverse to running direction		6	8	17
Shrinkage at 300 °C				
In running direction	[%]	2,2	1,1	0,9
Transverse to running direction		0,1	0	0

Impact of moisture on the properties of DuPont™ Nomex® 410

Electrical properties				
Moisture content		oven dry	50 %	96 %
DuPont™ Nomex® 410 - 0.25 mm				
Dielectric strength [kV/mm] (AC steep rise) [V/mil]		33.5 850	32.1 815	30.7 780
Dielectric constant				
at 60 Hz		2,5	2,7	3,2
at 1 KHz		2,3	2,6	3,1
Loss factor				
at 60 Hz		6 x10-3	6 x10-3	11x10-3
at 1 KHz		13x10-3	14x10-3	25x10-3
Contact resistance [W/cm]		6 x 1016	2 x 1016	2 x 1014

Physical properties				
DuPont™ Nomex® 410 - 0.08 mm				
Moisture content	oven dry	50 %	65 %	95 %
Expansion				
In running direction	[%]	0	0,4	0,6
Transverse to running direction		0	0,5	0,8
Moisture absorption [%]		0	2,9	4,9
				7,7

Item number:

Example: IRNNM0100/005/0500

IRNNM = master number

0100 = 1.00 mm diameter

005 = 0.05 mm wall thickness

0500 = 500 mm length