



The non-shrink insulating tube made of calendered Nomex® 410 is very suitable for insulating electrical cables in electric motors and applications in the aviation and automotive industries. The tensile strength and contact resistance are maintained even at high temperatures.

Nomex® Insulating Pipes, Calendered, Non-Shrinking Class H (180°C)

Properties

- Coiled, multi-layer insulating and protective conduit for applications in temperature class H
- Material: DuPont™ Nomex® 410
- Inner diameter from 2.00 mm to 200
- with wall thicknesses from 0.105 mm to 0.8 mm
- The insulating tube is made of wound Nomex® film and can be used for applications up to 180 °C.
- The material is UL certified
- It is resistant to chemicals and solvents.
- The white insulating pipes are also available with color coding for differentiation.

Technical data

Electrical properties				
Properties of the film	50 µm (2 mil)	75 µm (3 mil)	125 µm (5 mil)	Test method
Dielectric strength [V/mil] (AC steep rise)	430	550	680	Electrode spacing 50 mm ASTM D149*
Dielectric constant at 60 Hz	1,6	1,6	2,4	ASTM D3426

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

Physical properties				
Properties of the film	50 µm	75 µm	125 µm	Test method
Weight [g/m ²]	41	63	116	ASTM D646
Density [g/cm ³]	0,72	0,08	0,13	

Mechanical properties					
Properties of the film		50 µm	75 µm	125 µm	Test method
Tear resistance					
in running direction	[N/cm]	39	65	137	ASTM D828
transverse to running direction (QR) QR		18	32	66	
Tear elongation					
in running direction	[%]	9	11	15	ASTM D828
transverse to running direction		6	8	12	
Tear resistance (Elmendorf)					
in running direction	[N]	0,8	1,2	3,4	TAPP1-414
transverse to running direction		1,6	2,3	5,2	
Tear resistance					
in running direction	[N]	11	16	33	TAPP1-414
transverse to running direction		6	8	17	
Shrinkage at 300 °C					
in running direction	[%]	2,2	1,1	0,9	ASTM D1004
transverse to running direction		0,1	0,0	0,0	

Influence of moisture on DuPont™ Nomex® 410

Electrical properties					Test method
DuPont™ Nomex® 410 - 0.25 mm					
Moisture content		Oven dry	50 %	96 %	
Dielectric strength (AC steep rise)	[kV/mm]	33,5	32,1	30,7	ASTM D149
Dielectric constant					
at 60 Hz		2,5	2,7	3,2	ASTM D150
at 1 KHz		2,3	2,6	3,1	
Loss factor					
at 60 Hz	[W/cm]	6 x10-3	6 x10-3	11 x10-3	ASTM D257
at 1 KHz		13 x10-3	14 x10-3	25 x10-3	
Contact resistance		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	0,9
transverse to running direction		0	0,5	0,8	1,6
Moisture absorption		0	2,9	4,9	7,7

Item number:

Example: IRNNO0100/005/0500

IRNNO = master number

0100 = 1.00 mm diameter

005 = 0.05 mm wall thickness

0500 = 500 mm length