



NOMEX KAPTON NKN AND NK

NNomex Kapton NKN and NK (manufacturer DuPont) are insulation laminates made of calendered Nomex bonded to Kapton polyimide film. The material has very good properties such as dielectric strength, initial tear strength, tensile strength and thermal properties.

- Nomex Kapton (NK) is manufactured in thicknesses ca 80 - 280 µm
- Nomex Kapton Nomex (NKN) is manufactured in thicknesses 150 – 450 µm
- Usually supplied in widths up to ca 914 mm, cut widths, slit, punched and die-cut parts
- Finds use in applications with higher temperature requirements than class H. The material is used in many UL insulation systems up to +220°C

PRODUCT INFORMATION

Nomex Kapton NKN and NK (manufacturer DuPont) are insulation laminates with very good properties such as dielectric strength, initial tear strength, tensile strength and thermal properties. Nomex Kapton NKN and NK are high performance materials for tough applications.

Typical applications

The material often finds use in both the manufacture and remanufacture of electric motors and generators of many sizes and temperature classes. The most important area of application is slot and phase insulation of motors and generators with thermal requirements above class H applications.

Properties

- High dielectric strength
- Good initial tear strength
- Good tensile strength
- Good chemical properties
- High thermal resistance for applications class H (integrated in UL systems up to +220°C)

Composition

- NK and NKN are duplex and triplex insulation laminate materials made of calendered Nomex bonded to Kapton polyimide film with a proprietary high temperature adhesive. The materials are designed not to delaminate or blister at high temperatures.
- NK is produced in 4 variants (with various thicknesses of Kapton film). See technical data:
- NKN alt. NK - 5 with a Nomex thickness of 50 µm. Usually calendered Nomex Type 464.
- NKN alt. NK - 8 with a Nomex thickness of 80 µm. Usually calendered Nomex Type 416.
- NKN alt. NK - 13 with a Nomex thickness of 130 µm. Usually calendered Nomex Type 416.

- NKN alt. NK - 18 with a Nomex thickness of 1800 µm. Usually calendered Nomex Type 410.

Colours

- Nomex usually whitish, Kapton usually brownish

Dimensions

- Nomex Kapton (NK) is manufactured in thicknesses ca 80 - 280 µm
- Nomex Kapton Nomex (NKN) is manufactured in thicknesses 150 – 450 µm
- Can be slit to desired widths up to our standard width usually 914 mm
- Can be punched or cut to desired form or shape. In the case of die-cutting a die tool is required (tools available at low costs)

Packaging

- Standard packaging width ca 914 mm, MOQ in kg on request
- Other slit widths on MOQ in kg on request
- Punched and die-cut items: volume MOQ by agreement (with die tool or cut)

Product information for which Carbex bears no responsibility is provided by the manufacturer.



NOMEX KAPTON NKN AND NK

Technical data

Nomex Kapton, NKN och NK

The properties stated in this data sheet are typical values unless otherwise stated.

Properties	Test method	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Unit mm
NK - XX		5	5	5	8	8	13	13	13	18	18	
Tjocklek (nominellt)	IEC 60626	80	100	130	110	140	200	230	280	210	240	µm
Mekaniska												
Grade (mil)		2/1	2/2	2/3	3/1	3/2	5/2	5/3	5/5	7/1	7/2	
Film thickness Nomex		50	50	50	80	80	130	130	130	180	180	µm
Film thickness Kapton		25	50	75	25	50	50	75	125	25	50	µm
Thickness tolerance	IEC 60626	10	10	10	10	10	20	20	30	20	20	+/- µm
Weight/m ² ca	IEC 60626	91	127	164	116	152	203	240	308	225	261	g/m ²
Area / kg ca		11,0	7,9	6,1	8,6	6,6	4,9	4,2	3,25	4,4	3,8	m ² /kg
Tensile strength MD	IEC 60626	80	80	80	160	200	155	155	200	140	180	>= N/10mm
Tensile strength XD	IEC 60626	-	-	-	-	-	-	-	-	70	100	>= N/10mm
Elongation MD	IEC 60626	3	3	3	15	15	-	-	-	15	15	>= %
Elongation XD	IEC 60626	-	-	-	-	-	-	-	-	10	10	>= %
Thermal												
Electrical insulation class *	IEC60216, UL1446	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	klass /°C
Elektriska												
Electrical insulation class *	IEC 60626	4	9	12	7	9	8	13	19	5	9	kV

* Material used in many UL insulations systems up to +220°C

Properties	Test method	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Unit mm
NKN- XX		5	5	5	5	8	8	8	8	13	13	
Tjocklek (nominellt)	IEC 60626	150	170	200	230	200	220	260	300	300	330	µm
Mekaniska												
Grade (mil)		2/1/2	2/2/2	2/3/2	2/5/2	3/1/3	3/2/3	3/3/3	3/5/3	5/1/5	5/2/5	
Film thickness Nomex (x2)		50	50	50	50	80	80	80	80	130	130	µm
Film thickness Kapton		25	50	75	125	25	50	75	125	25	50	µm
Thickness tolerance	IEC 60626	15	15	15	15	10	10	10	10	10	10	+/- %
Weight/m ² ca	IEC 60626	143	179	216	284	195	231	240	336	297	333	g/m ²
Area / kg ca		7,0	5,6	4,6	3,5	5,1	4,3	4,2	3,0	3,4	3,0	m ² /kg
Tensile strength MD	IEC 60626	120	160	180	200	160	200	250	280	270	300	>= N/10mm
Tensile strength XD	IEC 60626	70	90	120	150	120	180	200	220	180	210	>= N/10mm
Elongation MD	IEC 60626	15	17	17	17	15	15	17	17	15	15	>= %
Elongation XD	IEC 60626	15	17	17	17	15	15	17	17	15	15	>= %
Thermal												
Electrical insulation class *	IEC60216, UL1446	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	klass /°C
Elektriska												
Electrical insulation class *	IEC 60626	7	9	13	18	7	9	14	19	9	13	>= kV

Properties	Test method	Value	Value	Value	Värde	Värde	Unit mm
NKN- XX		13	13	18	18	18	
Tjocklek (nominellt)	IEC 60626	350	400	400	430	450	µm
Mekaniska							
Grade (mil)		5/3/5	5/5/5	7/1/7	7/2/7	7/3/7	
Film thickness Nomex (x2)		130	130	180	180	180	µm
Film thickness Kapton		75	125	25	50	75	µm
Thickness tolerance	IEC 60626	10	10	10	10	10	+/- %
Weight/m ² ca	IEC 60626	370	438	413	449	486	g/m ²
Area / kg ca		2,7	2,3	2,4	2,2	2,1	m ² /kg
Tensile strength MD	IEC 60626	390	520	400	400	400	>= N/10mm
Tensile strength XD	IEC 60626	250	320	250	250	250	>= N/10mm
Elongation MD	IEC 60626	17	17	15	15	15	>= %
Elongation XD	IEC 60626	17	17	15	15	15	>= %
Thermal							
Electrical insulation class *	IEC60216, UL1446	H / 180°C	H / 180°C	H / 180°C	H / 180°C	H / 180°C	klass /°C
Elektriska							
Electrical insulation class *	IEC 60626	15	20	14	18	21	>= kV

* Material used in many UL insulations systems up to +220°C

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