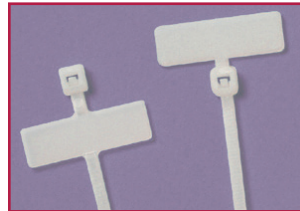


K-SPEC® CABLE TIES

Standard Nylon Identification Cable Ties (General Purpose)

- Material with Pure Nylon 6.6, UL 94V-2,
Operation temp. -40°F ~+185°F (-40°C~+85°C)
- Suggested Installation temp. 14°F~185°F (-10°C~+85°C)



- Products listed with:



RoHS PAHs Reach

	Part no.	Colour	Width [Inch]	Length [Inch]	Max Bundle Diameter [inch]	Min Loop Tensile [lb]	Std. Pk. Qty.
	E418ID9C	Natural	.095	4.0	0.748	18	100
	E418ID9M	Natural	.095	4.0	0.748	18	1000
	E418ID9Q	Natural	.095	4.0	0.748	18	25
	E418TID9C	Natural	.095	4.1	0.748	18	100
	E418TID9M	Natural	.095	4.1	0.748	18	1000



K-SPEC® CABLE TIES

Before you source cable ties or related nylon products, please make a correct choice due to different application purpose

The Cable Ties will be applied to:	Material	Function	Flam Class	Main Material Type	Application Temp.
General Purpose	Nylon 66 (PA66)	General	UL-94V2	Dupont 101F, Ascend 21 SPF(C)	-40°F~+185°F (-40°C~+85°C)

How to choose the right cable tie

The most important characteristics of a cable tie are:

- the raw-material they are made of (chemicals, weather, and heat resistance, low temperature resistance, the flammability rating)
- the tensile strength they can stand
- the max diameter they can bundle
- the shape of the tie in case of particular applications

Chemicals resistance

please ask for information about the chemical resistance, if you need to apply the cable ties into a special area

UV (Weather resistance)

All polymers including the polyamides used for the production of cable ties are sensitive to UV radiation.

The most common additive used for protecting polyamides from UV radiation is carbon powder commonly known as "carbon black".

Natural Cable Ties have low resistance to UV radiation, but natural color usually can reflect the sunlight, so it could be used for general purpose outdoor. But not suggested for outdoor application

Black Cable Ties are additivated with carbon black. They have improved weather and UV radiation resistance and are better suitable for outdoor applications, but this is not enough to protect the material from the damage due to the UV-radiation for a long time. For these needs the weather resistance cable ties could be used.

And if for a long term of outdoor use, and we strongly suggest you to choose Strong UV resistance (weather resistance) material and our strong UV resistance material, it has been tested by UL as an available long term outdoor application.

Temperature resistance

Polymers are also sensitive to temperatures.

All the material type above mentioned (except for Dupont MT409 & Ascend 41(47)), application of polyamide 6.6 cable ties is possible 26°F (-10°C), the polyamide becomes very brittle at temperatures below -40°F (-40°C). So for continuous use of low temperature, suggested with 26°F (-10°C). But Dupont MT409 & Ascend 41(47) could be applied with -40°F (-40°C) for a long term. The polyimide which can resistant and be applied with a high temperature, please read the related characters, and application temperature from the above table.

Flamability

The UL 94 test, the Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances testing

The classifications relate to materials commonly used in manufacturing enclosures, structural parts and insulators found in consumer electronic products (V-0, V-1, V-2, HB, from the highest level to the lowest)

Some Instructions for new UL standard 62275, and for your right choose of a cable ties.

• Loop tensile strength

Type 1 or 11 based,

No individual value shall be less than 50 % of the loop tensile strength declared after After heat aging,

After temperature cycling.

Type 2 or 21 based,

No individual value shall be less than 100 % of the loop tensile strength declared after After heat aging,

After temperature cycling.

• Minimum installation temperature and Operation temperature test

According to the new standard of UL62275, the minimum installation temperature, and operation temperature test should be made.

Different factory they will declare different minimum installation temperature, and operation temperature as well. so new UL will show such information and to show the quality of the products, and the characters of the products.

• Smoke and heat generation

AH-1: Suitable for use in air-handling spaces — 1 (plenums) (for Metallic component, like stainless steel cable ties)

AH-2: Suitable for use in air-handling spaces — 2 (plenums) (for Non-metallic component and Composite component, like nylon cable ties, cable ties fixing, coated stainless steel cable ties)

Tensile Strength, max bundle diameter, and other characteristics are listed in each table.



MATERIALS FOR MOLDED ASSEMBLY HARDWARE

Property	ASTM Method	Test Condition	Units	Molded 6/6 Nylon	Nylon
Tensile Strength	D638	+73°F; 50% RH	kpsi	11.2	9
Elongation at Break	D638	+73°F; 50% RH	%	≥300	200
Yield Strength	D638	+73°F; 50% RH	kpsi	8.5	9
Shear Strength	D732	Dry As Molded (DAM)	kpsi	9.6	10.5
Deformation Under Load	D621	2,000 psi +122°F; DAM	%	1.4	1.2
IZOD Impact	D256	+73°F; 50% RH	ft lb/in	2.1	2
Tensile Impact Strength	D1822	+73°F; Long Specimen; DAM	ft lb/in ²	240	N.R.
Melting Point	D789	Fisher-Johns	°F	491	491
Thermal Linear Expansion	D696	DAM	in/in/°F	4 x 10 ⁻⁵	N.R.
Thermal Conductivity	–	DAM Conche-Fitch	BTU - in/ h • ft ² • °F	1.7	1.7
Brittleness Temperature	D746	50% RH	°F	-85	-62
Oxygen Index	D2863	DAM 50% RH	%O ₂	28 31	25 31
UL Flammability	UL 94	DAM 50% RH	– –	V-2 V-2	V-2 V-2

- Material data as provided by our suppliers.
- Tests conducted on 1/4" specimens.
- N.R. = Not Reported

NBS Smoke Generation For 6/6 Nylon

Sample Thickness	UL Flammability	Energy Source	Specific Optical Density	
			at Maximum Smoke Accumulation	at 2 Minutes
1/16"	94 V-2	Radiant (2.5 watts/sq cm)	13	0
1/8"	94 V-2	Radiant Plus Flaming Gas Jets	26	1

- Results as provided by National Bureau of Standards (NBS). Results may not be directly correlated with larger fires, such as burning buildings. Materials should be tested to your application.

Temperature Index For Molded Nylons

Material	Minimum Thickness (in)	Temperature Index		
		Electrical (°C)	Mechanical w/o Impact (°C)	Hot Wire Ignition (sec)
6/6 Nylon	0.028	125	65	11.8
UV Black Nylon	0.058	125	85	15.0
	0.120	125	85	35.0
	0.240	125	85	35.0
Heat Stabilized Nylon	0.028	130	95	9.0
	0.058	130	105	11.0
	0.120	130	110	20.0

- Temperature Index is the temperature at which the specific property will decrease to one-half its original value after 60,000 hours exposure at that temperature.

About Nylon...

Nylon possess an outstanding balance of properties combining strength, moderate stiffness, high service temperature and a high level of toughness. Nylon is particularly resistant to repeated impact, has a low co-efficient of friction and excellent abrasion resistance.

Nylon is resistant to fuels, lubricants and most chemicals, but is attacked by phenols, strong acids and oxidizing agents. Contact your ElecDirect Customer Service Representative for chemical data relative to your application.

Nylon is inherently susceptible to environmental conditions. ElecDirect Cable Ties are moisturized to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable Ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use.