Aluminium-Polyester

Electromagnetic shielding for data, signal and communications cables

Descripción

The aluminium-polyester laminate (AL/PET) combines the electrical conductivity of aluminium with the mechanical strength of polyester film, bonded with an oven post-cured polyurethane adhesive. This structure delivers effective electromagnetic shields without compromising material integrity during high-speed taping or throughout the cable's service life.

In data-cable construction, AL/PET is applied as an individual shield over each twisted pair or as an overall shield over the bundle, providing attenuation against electromagnetic (EMI) and radio-frequency (RFI) interference. The polyester layer adds dimensional stability and tensile strength, while the aluminium — facing the cable core and in contact with the drain wire — ensures the electrical continuity of the shield.

Structures range from 9/12 µm (24 µm total) to 50/23 µm (76 µm total), with tensile strength of 75 to 110 MPa depending on configuration. This range allows the optimal balance between shielding level, finished-cable flexibility and behaviour during manufacturing to be selected.

Propiedad	Method	9/12	9/15	9/23	12/12	12/19	25/23	25/50	40/23
Al thickness (µm)	ASTM D374	9	9	9	12	12	25	25	40
PET thickness (µm)	ASTM D374	12	15	23	12	19	23	50	23
Total thickness (µm, ±10%)	ASTM D374	24	27	35	27	34	51	77	66
Weight (g/m²)	—	44.0	48.2	59.3	52.0	62.0	102.3	138.2	143.1
Tensile strength (MPa)	ASTM D882	90	100	110	75	100	95	90	80
Elongation at break (%)	ASTM D882	30	30	30	15	30	20	20	15

Guía de selección

Selecting the right structure depends on the balance between required shielding level, finished-cable flexibility and behaviour during taping. Thinner gauges offer greater flexibility, while thicker ones provide better EMI attenuation.

Structure (Al/PET)	Total thickness	Weight	Tensile strength	Elongation	Typical application	When to choose
9/12	24 µm	44.0 g/m²	90 MPa	30%	LAN Cat5/Cat5e cables	Maximum flexibility, basic shielding
9/15	27 µm	48.2 g/m²	100 MPa	30%	Pair, instrumentation cables	Flexibility/strength balance
9/23	35 µm	59.3 g/m²	110 MPa	30%	Data and signal cables	Greater mechanical support
12/12	27 µm	52.0 g/m²	75 MPa	15%	Cat6 cables	Improved shielding, high flexibility

Structure (Al/PET)	Total thickness	Weight	Tensile strength	Elongation	Typical application	When to choose
12/19	34 µm	62.0 g/m²	100 MPa	30%	High-speed data cables	General use, good behaviour
25/23	51 µm	102.3 g/m²	95 MPa	20%	Cat6A/Cat7 cables	High shielding, demanding environments
25/50	77 µm	138.2 g/m²	90 MPa	20%	Overall shield, coaxial cables	Maximum mechanical support
40/23	66 µm	143.1 g/m²	80 MPa	15%	Industrial cables	Elevated shielding

Additional structures available on request: 12/15, 12/23, 15/19, 37/12, 37/23, 40/12, 50/12, 50/23.

Variantes disponibles

Laminate configuration
– Simplex (AL/PET) — aluminium on one side, standard
– Triplex (AL/PET/AL) — aluminium on both sides, maximum shielding

Surface treatments
– Natural — standard
– Lubricated (LUB) — up to 50% friction reduction on aluminium face, ideal for high-speed extrusion

Colours
– Neutral — standard
– Custom colours on request — by changing the adhesive, for construction identification

Formatos de entrega

The supply format directly influences process continuity and taping efficiency. Material can be supplied in different formats and dimensions adapted to each machine type and production speed.

Pad / Roll (pancake)

Core ID:	76 mm (3″), 102 mm (4″), 152 mm (6″)
Max OD:	80 – 600 mm
Width range:	5 – 1000 mm
Core material:	Plastic or cardboard

Spool (TWS / STS reel)

Core ID:	76 mm (3″)
Max OD:	300 – 320 mm
Width range:	3.5 – 80 mm
Winding type:	Traverse Wounded (TWS) or Step to Step (STS)
Core material:	Plastic or cardboard

The mechanical values shown below come from tests run to ASTM standards and characterise the material's behaviour both during processing and in service.

Los valores indicados son típicos y no constituyen especificaciones vinculantes.