

What is PA 6 G ESD 90

PA 6 G ESD 90 natural

PA 6 G, electrostatically dissipative

PA 6 G ESD 90 is an electrostatically dissipative special compound based on cast polyamide 6 (PA6 G). The ESD modification specifically lowers surface and volume resistance (surface resistance approx. 10^6 – $10^9 \Omega$), preventing electrostatic charging while retaining the high stiffness and good machinability of the base PA6 G.

Properties

PA 6 G is a cast, semi-crystalline polyamide with high stiffness, good toughness, and good machinability. The ESD additive makes the material electrostatically dissipative without significantly altering the basic mechanical properties of the PA6 G.

Like all polyamides, PA 6 G ESD 90 absorbs moisture from the environment; this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- Electrostatically dissipative (ESD)
- High stiffness of the PA6 G base material
- Good machinability
- Reliable protection against electrostatic charging

Disadvantages

- Moisture absorption up to 2.5 % in standard atmosphere, causing dimensional and property changes
- Not resistant to strong acids and permanently hot water (hydrolysis)
- Not generally declared for food contact (see FDA declaration)

Processing

PA 6 G ESD 90 can be machined like standard PA6 G using all conventional cutting methods; HSS or carbide tools are sufficient. Good cooling via chip removal remains important to avoid softening or smearing of the surface caused by heat build-up.

For tight tolerances, we take swelling and shrinkage behaviour into account and condition the semi-finished product where required.

Typical Applications

PA 6 G ESD 90 is used wherever electrostatic charging must be reliably avoided, for example in explosion protection, the electrical industry, and packaging technology.

- Components requiring electrostatic dissipation
- Components for explosion protection (Ex areas)
- Transport and handling parts for electronics-sensitive goods
- Guide and mounting elements in mechanical engineering

Typical Properties

- Electrostatically dissipative (ESD)
- High stiffness
- Good machinability

Product Examples

- ESD components
- Explosion-protection components
- Transport and handling parts
- Guide elements

Typical Industries

- Electrical Industry
- Mechanical Engineering
- Packaging Industry
- Explosion Protection

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.19
Water absorption	DIN EN ISO 62	%	2.50
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	75
Elongation at break	DIN EN ISO 527	%	5
Tensile modulus of elasticity	DIN EN ISO 527	MPa	4.000
Notched impact strength	DIN EN ISO 179	kJ / m ²	3.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	170
Shore hardness	DIN EN ISO 868	scale D	80
Thermal Properties			
Melting temperature	ISO 11357-3	°C	216
Thermal conductivity	DIN 52612-1	W / (m·K)	0.29
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	70
Service temperature, long term	Average	°C	-40 ... 110
Service temperature, short term (max.)	Average	°C	170
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	100