

PA 12

Chem. Designation: Polyamid

DIN-Abbreviation: PA 12

Properties	Value	Unit	ISO/IEC
Density	1,02 / -		
Water absorption, relative 1)	0,04 / 0,07	%	62
- at saturation in air of 23°C, 50% RF	0,7 / -	%	
- at saturation in water of 23°C	1,6 / -	%	

Thermal Properties	Value	Unit	ISO/IEC
Crystalline melting point	180 / -	°C	-
Glass transition temperature	37 / -	°C	-
Thermal conductivity (23° C)	0,3 / -	W/(k·m)	-
Coefficient of thermal expansion: - average value between 23 and 60°C	15 · 10 ⁻⁵ / -	m/(m·K)	-
Coefficient of thermal expansion: - average value between 23 and 100°C	16 · 10 ⁻⁵ / -	m/(m·K)	-
Max. service temperature in air: -short periods 2	140 / -	°C	-
Max. service temperature in air: -continously: for min. 5000/20.000 h	110 / -	°C	-
Flammability acc. to UL standard 94 (thickness 3mm/6mm)	HB / HB		-

Mechanical Properties (at 23°C)	Value	Unit	ISO/IEC
Tensile strength at yield/Tensile strength at break	dry 54 / -	MPa	527-1/-2
Tensile strength	dry 53 / -	MPa	527-1/-2
Elongation at break	dry 200 / -	%	527-1/-2
Modulus of elasticity in tension	dry 1800 / -	MPa	527-1/-2
Compression Test - 1% nominal strain	dry 13 / -	MPa	604
impact-strength - Charpy unnotched	dry o.B. / -	kJ/m ²	179/1eU
impact-strength Charpy notched	dry 7 / -	kJ/m ²	179/1eA
Ball indentation hardness H 358 / 30 or H 961 / 30	dry 105 / -	N/mm ²	2039-1
Coefficient of Friction 4)	dry 0,32 / 0,38	μ	

Electrical Properties	Value	Unit	ISO/IEC
Dielectric strength	dry 30 / 33	kV/mm	60243
Volume resistivity	dry 10 ¹⁴ / 10 ¹⁵	Ohm·cm	60093
Surface resistivity	dry 10 ¹² / 10 ¹⁴	Ohm	60093

dry = values referring to dry materials

moist = values referring to material in equilibrium with the standard atmosphere 23°C/50% RH

o.B. = no break

1) after 24/96h immersion in water of 23°C

2) only for short time exposure (a few hours) in applications where no or only a very low load is applied to the material

3) stress to produce 1% strain in 1000 h (s 1/1000)

4) $\rho = 0,05 \text{ N/mm}^2$, $v = 0,6 \text{ m/s}$ surface roughness C35 steel mating surface Ra 0,7 - 0,9

This table is a valuable help in the choice of material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. It has to be noted that fibre reinforced material shows an anisotropic behaviour (properties differ when measured parallel and perpendicular to be extrusion direction).