

Material: Polyamide 6 cast

Abbreviation: PA 6 G

Short description of Material:

PA 6 G is produced by direct polymerisation in moulds and has a partially crystalline structure. The high crystallinity gives it excellent mechanical properties such as high abrasion and wear resistance and good hardness and stiffness.

Colours: natural, black, blue

Application examples:

- sheaves
- gears
- wheels
- bearings
- wear strips and plates
- guide strips

Mechanical values

		dry / humid	
Density	ISO 1183	1,15	g/cm ³
Yield stress	ISO 527	80 / 60	MPa
Elongation due to tearing	ISO 527	40 / 100	%
Modulus of elasticity resulting from tensile test	ISO 527	3.100 / 1.800	MPa
Modulus of elasticity resulting from bending test	ISO 178	3.400 / 2.000	MPa
Flexural strength	ISO 178	140 / 60	MPa
Impact strength ¹⁾	ISO 179	o.B.	kJ/m ²
Notched-bar impact strength	ISO 179	> 4 / > 15	kJ/m ²
Ball indentation hardness H _{358/30}	ISO 2039-1	160 / 125	MPa
Creep rate stress at 1% elongation ²⁾	DIN 53 444	> 7	MPa
Sliding friction coefficient against steel (dry running) ³⁾	—	0,36 / 0,42	—
Sliding wear against steel (dry running) ³⁾	—	0,10	µm/km

Thermal values

Melting temperature	ISO 3146	+ 220	°C
Thermal conductivity	DIN 52 612	0,23	W/(K·m)
Specific thermal capacity	—	1,7	J/(g·K)
Coefficient of linear expansion ⁴⁾	—	7 - 8	10 ⁻⁵ ·K ⁻¹
Operating temperature range (long-term) ⁵⁾	—	- 40 / + 105	°C
Operating temperature range (short-term) ⁵⁾	—	+ 170	°C
Fire behaviour	UL 94	HB	—

Electrical values

Dielectric constant ⁶⁾	IEC 250	3,7	—
Dielectric loss factor ⁶⁾	IEC 250	0,03	—
Specific volume resistance	IEC 93	10 ¹⁵ / 10 ¹²	Ω·cm
Surface resistance	IEC 93	10 ¹³ / 10 ¹²	Ω
Dielectric strength	IEC 243	50 / 20	KV/mm
Creep current resistance	IEC 112	KA 3c / KA 3b	—

Miscellaneous data

Moisture absorption in normal climate until saturated	DIN 53 715	2,2	%
Water absorption until saturated	ISO 62	6,5	%

¹⁾: Measured with a pendulum impact testing machine 0,1 DIN 51 222

²⁾: Tension resulting in 1% total elongation after 1.000 h

³⁾: against steel, hardened and ground, P = 0,05 MPa, V = 0,6 m/s, t = 60 °C near running surface

⁴⁾: For a temperature range of + 23 °C to + 60 °C

⁵⁾: Experience values established with finished parts that are not under any stress in heated air, depending on the type and form of heat exposure, short-term = max. 1 h, long-term = months

⁶⁾: at 10⁶ Hz

w.b. = without breakage
1 Mpa = 1 N/mm²
1 g/cm³ = 1.000 kg/m³
1 kV/mm = 1 MV/m

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