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## EXTRUDED NYLON: Polyamide (PA66)

is used in smaller dimensioned applications and offers higher rigidity and wear resistance compared to PA 6. Compared to the cast variants, this material also displays higher water absorption. As regards to the other properties, PA 66 is comparable to the standard cast type but is far more expensive.

Standard Colours: White / Black

Mechanical Properties		
Density DIN53 479	g/cm <sup>3</sup>	1.14
Yield Stress DIN53 455	MPa	85 65
Elongation at break DIN53 455	%	30 150
Modules of elasticity resulting from <b>tensile</b> test DIN53 457	MPa	3,000 1,900
Modules of elasticity resulting from <b>bending</b> test DIN53 457	MPa	2,900 1,200
Flexural strength DIN53 452	MPa	135 60
Impact strength DIN53 453	KJ/m <sup>2</sup>	o. B.
Notched-bar impact strength DIN 53 453	KJ/m <sup>2</sup>	>3 >15
Ball indentation Hardness H <sub>358/30</sub> DIN53 456	MPa	170 100
Creep rate stress at 1% elongation DIN53 444	MPa	>8
Sliding friction coefficient against steel (dry running) <sup>3</sup>	-	0.35 0.42
Sliding wear against steel (dry running) <sup>3</sup>	µm/km	0.1
Thermal Properties		
Melting temperature DIN53 736	°C	+265
Thermal conductivity DIN52 612	W/(k m)	0.23
Specific thermal capacity	J/(g K)	1.7
Coefficient of linear expansion	10 <sup>-5</sup> · K <sup>-1</sup>	9-10
Operating temperature range (long-term)	°C	-30 +100
Operating temperature range (short-term)	°C	+150
Fire behaviour after UL 94 IEC 60695	-	HB
Electrical Properties		
Dielectric constant DIN53 483	-	3.2 5.0
Dielectric loss factor DIN53 483	-	0.025 0.2
Specific volume resistance DIN53 482	Ω-cm	10 <sup>15</sup> 10 <sup>12</sup>
Surface resistance DIN53 482	Ω	10 <sup>12</sup> 10 <sup>10</sup>
Dielectric strength DIN53 481	KV/mm	50 20
Creep resistance DIN53 480	-	KA3b CTI600
Miscellaneous data		
Moisture absorption in natural Rubber until saturated DIN53 715	W(H <sub>2</sub> O)%	2.5
Water absorption until saturated DIN53 495	W <sub>s</sub> %	9.0
Specific properties		high abrasion resistance (similar to PA6G)

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As with PA 6, the manufacturing process limits the size and unit weight which can be produced, and this restricts the user's design possibilities. Therefore PA 66 in practical application is replaced to a large extent by the more economical Cast or Extruded Nylon, which can also be produced in almost unlimited weights and sizes.

**The main properties of PA 6 are:**

- Good mechanical strength
- high impact resistance
- good damping properties
- good wear resistance

**Typical application examples are:**

- Friction bearings
- slide plates
- Gears



**Polyamide 66 + 30% Glass fibre (PA 66 GF 30)**

Compared to unreinforced PA 66 an improved tensile/compressive strength, rigidity and dimensional stability are achieved due to the glass fibre as well as lower water absorption. Glass fibre reinforced Polyamide 66 is therefore particularly suitable for components where higher loads occur and/or increased demands are placed on the dimensional stability.

**Changes in material properties**

due to temperature, environmental conditions and moisture content must be taken into account. An increase in temperature coupled with high moisture content makes the material elastic. Tensile and compressive strength as well as the modulus of elasticity and hardness decrease. Simultaneously, the impact strength and elongation increases. The material assumes a strong, tough, elastic character. The change in length at elevated temperature or increased water content must also be considered.

The following charts illustrate the relationship.

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