



Material data sheet PA 6 GF30 black

Chemical Designation: Polyamide 6
 DIN-abbreviation: PA 6
 Colour / Fillers: black opaque / glass fibres
 Density: 1,36 g/cm³

Data generated directly after machining
(standard climate Germany).

Main features

- very high strength
- good wear properties
- high dimensional stability
- good machinability
- resistant to many oils, greases and fuels
- good weldable and bondable
- good heat deflection temperature

Target Industries

- mechanical engineering
- automotive industry
- electronics

Characteristics

| mechanical properties | parameter | value | unit | norm | comment |
|---------------------------------------|----------------------------------|-----------|-------------------|-----------------------|---|
| Modulus of elasticity (tensile test) | 1 mm / min | 5700 | MPa | DIN EN ISO 527-2 1) | 1) For tensile test: specimen type 1b 2) For flexural test: span 64 mm, norm specimen. 3) Specimen 10 x 10 x 10 mm 4) Specimen 10 x10 x 50 mm, modulus range between 0,5 and 1% compression. 5) For Charpy test: support span 64 mm, norm specimen. |
| Tensile strength | 50 mm / min | 98 | MPa | DIN EN ISO 527-2 | |
| Tensile strength at yield | 50 mm / min | 98 | MPa | DIN EN ISO 527-2 | |
| Elongation at yield | 50 mm / min | 4 | % | DIN EN ISO 527-2 | |
| Elongation at break | 50 mm / min | 5 | % | DIN EN ISO 527-2 | |
| Flexural strength | 2 mm / min, 10 N | 140 | MPa | DIN EN ISO 178 2) | |
| Modulus of elasticity (flexural test) | 2 mm / min, 10 N | 5200 | MPa | DIN EN ISO 178 | |
| Compression strength | 1% / 2% / 5% 5 mm / min, 10 N | 21/42/107 | MPa | EN ISO 604 3) | |
| Compression modulus | 5 mm / min, 10 N | 4200 | MPa | EN ISO 604 4) | |
| Impact strength (Charpy) | max. 7,5 J | 60 | kJ/m ² | DIN EN ISO 179-1eU 5) | |
| Shore hardness | D | 84 | | DIN EN ISO 868 | |





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| thermal properties | parameter | value | unit | norm | comment |
|------------------------------|-----------------|-------|----------------------------------|----------------------|--|
| Glass transition temperature | | 49 | °C | DIN EN ISO 11357 1) | 1) Found in public sources. 2) Found in public sources. Individual testing regarding application conditions is mandatory. |
| Melting temperature | | 218 | °C | DIN EN ISO 11357 | |
| Service temperature | short term | 180 | °C | 2) | |
| Service temperature | long term | 100 | °C | | |
| Thermal expansion (CLTE) | 23-60 °C, long | 6 | 10 ⁻⁵ K ⁻¹ | DIN EN ISO 11359-1;2 | |
| Thermal expansion (CLTE) | 23-100 °C, long | 6 | 10 ⁻⁵ K ⁻¹ | DIN EN ISO 11359-1;2 | |
| Specific heat | | 1.3 | J/(g*K) | ISO 22007-4:2008 | |
| Thermal conductivity | | 0.41 | W/(K*m) | ISO 22007-4:2008 | |

| electrical properties | parameter | value | unit | norm | comment |
|------------------------------|--|------------------|-------|------------------|---|
| surface resistivity | Silver electrode, 23 °C, 12% r.h. | 10 ¹⁴ | Ω | DIN IEC 60093 1) | 1) Specimen in 20 mm thickness 2) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise 3) Specimen in 1 mm thickness |
| volume resistivity | Silver electrode, 23 °C, 12% r.h. | 10 ¹⁴ | Ω*cm | DIN IEC 60093 2) | |
| Dielectric strength | 23 °C, 50% r.h. | 32 | kV/mm | ISO 60243-1 3) | |
| Resistance to tracking (CTI) | Platin electrode, 23 °C, 50% r.h., solvent A | 550/475 | V | DIN EN 60112 | |

| other properties | parameter | value | unit | norm | comment |
|-------------------------------|---------------------|-----------|------|------------------------|--|
| Water absorption | 24 h / 96 h (23 °C) | 0.2 / 0.3 | % | DIN EN ISO 62 1) | 1) Ø ca. 50 mm, h = 13 mm 2) (+) limited resistance 3) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory. |
| Resistance to hot water/bases | | (+) | | - 2) | |
| Resistance to weathering | | (+) | | | |
| Flammability (UL94) | corresponding to | HB | | DIN IEC 60695-11-10 3) | |

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