Product Information

# P84®NT1 40G HCM

## GRAPHITE FILLED (40%) AROMATIC POLYIMIDE

Polyimid P84® NT - at a glance

- Excellent performance at high temperatures
- High strength and excellent shape stability
- Very good impact resistance
- High heat deflection temperature
- Very good creep resistance even at elevated temperatures
- Machinable with standard tools
- Low wear and friction behaviour
- Processing by Hot compression molding

**Application examples**
bushings, seals, bearings components, guides, gear wheels, and valve parts in the automotive and aerospace industries and in industrial equipment.

### Key Features

**Industrial Sector**
Automotive and Mobility, Aircraft and Aerospace, Industry and Engineering

**Processing**
Hot compression moulding, Machining

**Delivery form**
Pellets, Granules, Powder

**Resistance to**
Heat (thermal stability), Fire / burn, Wear / abrasion, Oil / fuels

**Electrical**
Conductive

**Additives**
Lubricant

| Mechanical properties ISO | dry | Unit | Test Standard |
|---|---|---|---|
| Tensile modulus | **4700** | MPa | ISO 527 |
| Tensile strength | **54** | MPa | ISO 527 |
| Stress at break | **54** | MPa | ISO 527 |

| | | | |
|---|---|---|---|
| Strain at break, B | **2.7** | % | ISO 527 |
| Charpy impact strength, +23°C | **13.4** | kJ/m² | ISO 179/1eU |
| Type of failure | **C** | - | - |
| Charpy notched impact strength, +23°C | **1.8** | kJ/m² | ISO 179/1eA |
| Type of failure | **C** | - | - |
| Compression modulus, 23°C | **4920** | MPa | ISO 604 |
| Compressive strength , 23°C | **131** | MPa | ISO 604 |
| Flexural modulus, 23°C | **5210** | MPa | ISO 178 |
| Flexural strength, 23°C | **88** | MPa | ISO 178 |

| **Thermal properties** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|
| Thermal conductivity, LFA, solid state | **3.54** | W/(m K) | ISO 22007-4 |
| Glass transition temperature, DMA, 3 point bending | **355** | °C | ISO 6721-5 |
| Temp. of deflection under load A, 1.80 MPa | **325** | °C | ISO 75-1/-2 |
| Temp. of deflection under load B, 0.45 MPa | **358** | °C | ISO 75-1/-2 |
| Coeff. of linear therm. expansion, 23°C to 55 °C, parallel | **11** | E-6/K | ISO 11359-1/-2 |

| **Physical properties** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|
| Density | **1580** | kg/m³ | ISO 1183 |
| Water absorption, 24h | **1.6** | % | ISO 62, ASTM D 570 |
| Water absorption, 48h | **2** | % | ISO 62, ASTM D 570 |
| Shore D hardness | **82** | - | ISO 7619-1 |
| Density | **1580** | kg/m³ | ASTM D 792 |

| **Polyimid** | **dry** | **Unit** | **Test Standard** |
|---|---|---|---|

**Tensile test**

| | | | |
|---|---|---|---|
| Tensile modulus, 23°C | **4700** | MPa | ISO 527 |
| Tensile strength, 23°C | **54** | MPa | ISO 527 |

| | | | |
|---|---|---|---|
| Strain at break, 23°C | **2.7** | % | ISO 527 |

**Flexural test**

| | | | |
|---|---|---|---|
| Flexural modulus, 23°C | **5210** | MPa | ISO 178 |
| Flexural strength, 23°C | **88** | MPa | ISO 178 |

## Characteristics

**Applications**
Electrical and Electronical, General purpose, Fittings

**Color**
Natural color, Black

**Processing**
Compression molding

**Additives**
Conductive agent, Inorganic fillers

**Special Characteristics**
Halogen-free, PTFE-free, Amorphous, High heat resistant, Non-dripping, Self-extinguishing, Thermally conductive

**Chemical Resistance**
Acid resistance, Solvent resistance, Grease resistance, Oil resistance, Radiation resistance, Fuel resistance

**Features**
Creep resistance, Low coefficient of friction, Lightweight

## Compression molding

**Hot compression molding**
Production of big semi-finished parts (plates, rods, tubes)
Molding at high pressure of 400 kg/cm$^2$ and temperature between 350 and 380 °C.
Cycle time = hours
Processing of precise parts by machining
Best mechanical properties