

Product Information

P84®UHT 15G 05P DF

HIGH TEMPERATURE RESISTANCE, GRAPHITE FILLED (15%) POLYIMIDE

Polyimid P84®UHT - at a glance

- Excellent thermal-oxidative stability (use up to 300 ° C)
- High mechanical strength and dimensional stability even at very high temperatures
- Good creep resistance under load even at high temperatures
- Easy machinability with standard tools for metals
- Excellent tribological properties, high wear resistance
- Processing by direct forming

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

Press and sintering, Machining

Delivery form

Powder

Resistance to

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

Electrical

Insulating

Additives

Lubricant, Release agent

Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	5990	MPa	ISO 527
Tensile strength	89	MPa	ISO 527
Stress at break	89	MPa	ISO 527

Strain at break, B	2.4	%	ISO 527
Compression modulus, 23°C	5410	MPa	ISO 604
Compressive strength, 23°C	237	MPa	ISO 604
Flexural modulus, 23°C	5350	MPa	ISO 178
Flexural strength, 23°C	149	MPa	ISO 178
Flexural stress at break, 23°C	149	MPa	ISO 178
Flexural strain at break, 23°C	3.4	%	ISO 178

Thermal properties	dry	Unit	Test Standard
Thermal conductivity, LFA, solid state	0.51	W/(m K)	ISO 22007-4
Heat capacity	1.12	J/(g K)	ISO 22007-4
Temp. of deflection under load A, 1.80 MPa	263	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	285	°C	ISO 75-1/-2

Physical properties	dry	Unit	Test Standard
Density	1460	kg/m ³	ISO 1183
Water absorption, 24h	0.3	%	ISO 62, ASTM D 570
Water absorption, 48h	0.4	%	ISO 62, ASTM D 570
Shore D hardness	86	-	ISO 7619-1
Density	1460	kg/m ³	ASTM D 792

Powder properties	dry	Unit	Test Standard
Bulk density, powder	0.45	g/l	EN ISO 60

Polyimid	dry	Unit	Test Standard
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Tensile test

Tensile modulus, 23°C	5990	MPa	ISO 527
Tensile modulus, 200°C	3550	MPa	ISO 527
Tensile strength, 23°C	89	MPa	ISO 527

Tensile strength, 200°C	59	MPa	ISO 527
Strain at break, 23°C	2.4	%	ISO 527
Strain at break, 200°C	4	%	ISO 527

Flexural test

Flexural modulus, 23°C	5350	MPa	ISO 178
Flexural modulus, 200°C	3600	MPa	ISO 178
Flexural strength, 23°C	149	MPa	ISO 178
Flexural strength, 200°C	94	MPa	ISO 178
Flexural strain at break, 23°C	3.4	%	ISO 178
Flexural strain at break, 200°C	4.3	%	ISO 178

Characteristics

Applications

Displays, Electrical and Electronical, General purpose, IT and telecommunication

Processing

DF Direct forming

Special Characteristics

Amorphous, High heat resistant, Non-dripping, Self-extinguishing

Features

Creep resistance, Low coefficient of friction, Lightweight

Color

Natural color, Black

Additives

Release agent, Conductive agent, Inorganic fillers

Chemical Resistance

Acid resistance, Solvent resistance, Grease resistance, Oil resistance, Oxidation resistance, Radiation resistance, Fuel resistance

Compression molding

Direct forming

High number of small parts

Production of green parts at ambient temperature and very high pressure between 2 and 4 t/cm²

Cycle time = seconds

Subsequent sintering at temperatures between 395 and 425°C

No or little machining necessary