Material data sheet

CarbonMide – Carbon Fibre filled Polyamide for EOSINT P 38x

Description, application

CarbonMide

CarbonMide is suitable for use in all EOSINT P 38x systems in manual feed mode. The recommended layer thickness is 0.15 mm. The parts have an anthracite black colour. To assure a consistent quality of parts, it is recommended solely to use new powder.

The material has outstanding mechanical properties characterised by extreme stiffness and strength. Typical applications of the material are fully functional prototypes with high end finish for wind tunnel tests and other aerodynamic applications. Due to a orientation of the fibres during recoating the mechanical properties varies in the three different axis directions.

Technical Data

Material Properties

		CarbonMide
Average particle size	Laser diffraction	60 µm
Bulk density	DIN 53466	0.50 g/cm³
Density of laser-sintered part	EOS-Method	1.04 g/cm³

Mechanical Properties

		CarbonMide
Tensile Modulus x	DIN EN ISO 527	6100 MPa
Tensile Modulus y	DIN EN ISO 527	3400 MPa
Tensile Modulus z	DIN EN ISO 527	2200 MPa
Tensile strength x	DIN EN ISO 527	72 MPa
Tensile strength y	DIN EN ISO 527	56 MPa

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		CarbonMide
Tensile strength z	DIN EN ISO 527	25 MPa
Elongation at break x	DIN EN ISO 527	4.1 %
Elongation at break y	DIN EN ISO 527	6.3 %
Elongation at break z	DIN EN ISO 527	1.3 %
Charpy - Impact strength x	DIN EN ISO 179	20.5 kJ/m²
Charpy - Impact strength y	DIN EN ISO 179	27.5 kJ/m²
Charpy - Impact strength z	DIN EN ISO 179	5.5 kJ/m²
Charpy - Notched impact strength x	DIN EN ISO 179	5.3 kJ/m²
Charpy - Notched impact strength y	DIN EN ISO 179	4.4 kJ/m²
Charpy - Notched impact strength z	DIN EN ISO 179	2.1 kJ/m²

Thermal Properties

		CarbonMide
Melting point	DIN 53736	172 – 180 °C

Electrical Properties

	CarbonMide
Specific resistance [-5...+5V] x	$46.3 \cdot 10^{-3}$ Ωm
Specific resistance [-5...+5V] y	$107 \cdot 10^{-3}$ Ωm
Specific resistance [-5...+5V] z	$3080 \cdot 10^{-3}$ Ωm

The mechanical properties depend on the exposure parameters used.

The data are based on our latest knowledge and are subject to changes without notice. They do not guarantee properties for a particular part and in a particular application.

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