

Material Technical Datasheet

PPA-CF – Revision 1 15-03-26

ENGINEERING SUMMARY

GMR PPA-CF Has been specifically formulated to excel in automotive component manufacturing. With a very low water absorption which results in a very low reduction of strength at saturation point.

Basic Information

Parameter	Value
Filament diameter	1.75 ± 0.05 mm
Net weight	1 kg
Spool material	Plastic
Spool temperature resistance	100 °C
Spool size	Ø200 mm × 67 mm

Recommended Printing Settings

Parameter	Value
Drying before printing	60-90 °C, 8–16 h
Storage humidity	< 10% RH
Nozzle size	0.4 / 0.6 / 0.8 mm
Nozzle temperature	290–310 °C
Bed type	Smooth / textured PEI
Bed preparation	Glue stick
Bed temperature	100–120 °C
Chamber temperature	50–80 °C
Printing speed	< 100 mm/s

Physical Properties

Property	Method	Value
Density	ISO 1183	1.25 g/cm ³
Melt index (280 °C, 2.16 kg)	—	8.4 ± 0.7 g/10 min
Melting temperature	DSC, 10 °C/min	258 °C
Glass transition temperature	DSC, 10 °C/min	85 °C
Crystallisation temperature	DSC, 10 °C/min	178 °C
Vicat softening temperature	ISO 306 / GB/T 1633	232 °C
HDT @ 1.8 MPa	ISO 75	196 °C

Property	Method	Value
HDT @ 0.45 MPa	ISO 75	227 °C
Saturated water absorption	25 °C, 55% RH	1.30%

MECHANICAL AND CHEMICAL PROPERTIES

Mechanical Properties

Property	Method	Value
Young's modulus (X–Y)	ISO 527 / GB/T 1040	11800 ± 670 MPa
Young's modulus (Z)	ISO 527 / GB/T 1040	4300 ± 340 MPa
Tensile strength (X–Y)	ISO 527 / GB/T 1040	168 ± 4 MPa
Tensile strength (Z)	ISO 527 / GB/T 1040	57 ± 5 MPa
Breaking elongation (X–Y)	ISO 527 / GB/T 1040	3.2 ± 0.4%
Breaking elongation (Z)	ISO 527 / GB/T 1040	0.9 ± 0.2%
Bending modulus (X–Y)	ISO 178 / GB/T 9341	9860 ± 480 MPa
Bending modulus (Z)	ISO 178 / GB/T 9341	3240 ± 360 MPa
Bending strength (X–Y)	ISO 178 / GB/T 9341	208 ± 6 MPa
Bending strength (Z)	ISO 178 / GB/T 9341	63 ± 4 MPa
Impact strength (X–Y)	ISO 179 / GB/T 1043	41.7 ± 2.8 kJ/m ²
Impact strength, notched (X–Y)	ISO 179 / GB/T 1043	6.5 ± 2.3 kJ/m ²
Impact strength (Z)	ISO 179 / GB/T 1043	4.3 ± 0.4 kJ/m ²
Decline Rate of Stiffness Wet state		2.4%
Decline Rate of Strength Wet state		2.9%