基本信息/Basic Information

PA6-CF-BCA2

材料品牌	Brand:	CARNM
材料型号	Model Number:	PA6-CF-BCA2
基体树脂	Matrix Resin:	Polyamide 6
纤维类型	Fiber Type:	Carbon fiber
纤维含量	Fiber Content:	20%
材料颜色	Colour:	Black
外观形状	Appearance:	Pellets
成型工艺	Molding Process:	Injection molding
主要特性	Main Characteristics:	Anti-static property, good toughness, excellent processibility, lightweight, etc.

材料技术参数/Material Technical Data

物理性能 Physical Properties	测试条件 Testing Conditions	典型值 Typical Values	单位 Units	测试标准 Testing Standards
密度 Density	—	1.21	g/cm^3	ISO 1183
吸水率 Water Absorption	—	0.31	%	ISO 2008
成型收缩率 Molding Shrinkage	—	0.3-0.5	%	ISO 2001

机械性能 Mechanical Properties	测试条件 Testing Conditions	典型值 Typical Values	单位 Units	测试标准 Testing Standards
拉伸强度 Tensile Strength	—	195.5	MPa	ISO 527
拉伸模量 Tensile Modulus	—	13572.9	MPa	ISO 527
拉伸伸长率 Tensile Elongation @Break	—	2.2	%	ISO 527
弯曲强度 Flexural Strength	—	286.6	MPa	ISO 178
弯曲模量 Flexural Modulus	—	12680.9	MPa	ISO 178

冲击性能 Impact Performance	测试条件 Testing Conditions	典型值 Typical Values	单位 Units	测试标准 Testing Standards
悬臂梁缺口冲击强度 Izod Notched Impact Strength	23℃	17.1	KJ/m^2	ISO 148
简支梁缺口冲击强度 Charpy Notched Impact Strength	23℃	—	KJ/m^2	ISO 148

热性能 Thermal performance	测试条件 Testing Conditions	典型值 Typical Values	单位 Units	测试标准 Testing Standards
热变形温度 Heat Deflection Temperature	1.8MPa,未退火 1.8MPa, unannealed	185	℃	ISO 1634
熔融温度 Melting Point	—	210-250	℃	ISO 3146

燃烧性能 Combustion performance	测试条件 Testing Conditions	典型值 Typical Values	单位 Units	测试标准 Testing Standards
阻燃性 Flame Retardance	1.5mm	HB	—	UL94

加工处理/Processing and Handling

注塑压力 Injection Pressure		140-150	Bar
熔体温度 Melt Temp.		210-250	℃
模具温度 Mould Temp.		80-100	℃
干燥温度 Drying Temp.		100-120	℃
干燥时间 Drying Time		3-5	Hr
干燥含水量 Dry Water Content		—	%

材料简介/Carbon Fiber Introduction

碳纤维是一种高性能的增强复合材料，具有耐高温、耐磨、导电、导热及耐腐蚀等特性 。
碳纤维与热塑性聚合物结合形成的复合材料兼具轻量化、高强度与优异加工性能等。通过优化纤维分散和界面结合技术，可显著提升材料的耐温性、耐候性和机械性能，并能通过注塑、挤出等高效成型工艺实现批量化生产。
碳纤维增强热塑性复合材料在机器人、无人机、汽车制造、轨道交通、航空航天、体育用品、医疗器械、机械设备、电子和电气、能源勘探等领域的应用将持续拓展。

Carbon fiber is a high-performance reinforced composite material, possessing characteristics such as high temperature resistance, abrasion resistance, electrical conductivity, thermal conductivity, and corrosion resistance.
The composite material formed by the combination of carbon fiber and thermoplastic polymers has the advantages of lightweight, high strength, and excellent processing performance, etc. Through optimizing the technologies of fiber dispersion and interfacial bonding, the temperature resistance, weather resistance, and mechanical properties of the material can be significantly improved. Moreover, mass production can be achieved through efficient molding processes like injection molding and extrusion.
The applications of carbon fiber reinforced thermoplastic composites (CFRTPs) will continue to expand in various fields, including robotics, drones (unmanned aerial vehicles, UAVs), automotive manufacturing, rail transit, aerospace, sports goods, medical devices, mechanical equipment, electronics and electricity, energy exploration, and so on.

注意事项/Precautions and Considerations

使用本材料时，应注意避免过度加热或过度剪切，以免损坏材料的性能，选择适合碳维的注塑机，压力、注射速度、模具温度等参数应根据碳纤维材料的特性进行调整，碳纤维材料特性，注塑机在使用过程中可能会受到较大的磨损，腐蚀。因此，应定期对机台进行维护保养、确保机台的正常运行和使用寿命。

When using this material, it is important to avoid excessive heating or shearing to prevent damage to the material's properties. It is necessary to select an injection molding machine suitable for carbon fiber, and the parameters such as pressure, injection speed, and mold temperature should be adjusted according to the characteristics of the carbon fiber material. The carbon fiber material has unique properties, and accordingly the injection molding machine may suffer from significant wear and corrosion during use. Therefore, regular maintenance of the machine should be conducted to ensure its normal operation and service life.