

PolyCore™ PC-7100

Technical Data Sheet (Ver. 1.0, last updated: June, 2020)

PolyCore™ PC-7100 is an engineered PC filament combining excellent strength, toughness, heat resistance and printing quality, mainly designed for Medium Area Additive Manufacturing (MAAM) technology.. It is the ideal choice for a wide range of engineering application

Physical Properties¹

| Property | Testing Method | Typical Value |
|--|------------------------------------|---------------|
| Density (g/cm ³ at 21.5 °C) | ASTM D792 (ISO 1183, GB/T 1033) | 1.2 |
| Melt index (g/10 min) | 300 °C, 1.2 kg | 6 - 8 |
| Glass transition temperature (°C) | DSC, 10 °C/min | 113 |
| Vicat Softening temperature (°C) | ASTM D1525 (ISO 306 GB/T 1633) | 117 |
| Heat Deflection Temperature (°C) | ISO 75 1.8MPa | 100 |
| | 0.45MPa | 105 |

Tested with 3D printed specimen of 100% infill

Mechanical Properties¹

| Property | Testing Method | Typical Value |
|---|-----------------------------------|---------------|
| Young's modulus (MPa) | ASTM D638 (ISO 527, GB/T 1040) | 2048 ± 66 |
| Tensile strength (MPa) | ASTM D638 (ISO527, GB/T 1040) | 59.7 ± 1.8 |
| Elongation at break (%) | ASTM D638 (ISO527, GB/T 1040) | 12.2 ± 1.4 |
| Bending modulus (MPa) | ASTM D790 (ISO 178, GB/T 9341) | 2044 ± 55 |
| Bending strength (MPa) | ASTM D790 (ISO 178, GB/T 9341) | 94.1 ± 0.9 |
| Charpy Impact strength (kJ/m ²) | ASTM D256 (ISO 179, GB/T 1043) | 25.1 ± 1.9 |

All testing specimens were printed under the following conditions:
nozzle temperature = 255 °C, printing speed = 60 mm/s, build plate temperature = 100 °C,
infill = 100% All specimens were conditioned at room temperature for 24h prior to testing

Recommended Printing Conditions

| Parameter | Recommended Setting |
|---|---------------------|
| Air drying temperature (°C) | 90 |
| Air drying time (h) | 4-6 |
| Maximum moisture content (%) | 0.2 |
| Barrel – zone 1 temperature (°C) | 210 - 230 |
| Barrel – zone 2 temperature (°C) | 240 - 260 |
| Barrel – zone 3 temperature (°C) | 240 - 260 |
| Nozzle temperature (°C) | 240 |
| Bed temperature (°C) | 100-110 |
| Other Comments | |
| <ul style="list-style-type: none">● It is recommended to stop feeding and continue extruding until the extruder is fully empty, if the printing stops in a short term, such as 10-30 min● It is recommended to stop feeding and continue extruding until the extruder is fully empty, then use polyethylene (PE) to clean the extruder, if the printing stop in a long term, such as several hours. It is helpful to avoid the carbonization of material and keep extruder working in a good condition | |

Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.

Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Polymaker materials for the intended application. Polymaker makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Polymaker shall not be made liable for any damage, injury or loss induced from the use of Polymaker materials in any particular application.