Chemical Specifications

PA6/66 Filaments

PA6/66 is a kind of FFF 3D printing filaments, which is produced with copolymerized nylon as the main raw material. PA6/66 has high toughness and high impact resistance, excellent dimensional stability, no cracking, easy to print, and is generally applicable to different FFF3D printers.

Main Features：

Easy to print / high toughness / high impact resistance / easy to absorb moisture

Main Parameters:

|  |  |  |  |
| --- | --- | --- | --- |
| Physical properties | Testing Method | Unit | Typical value |
| Density | ISO 1183 | g/cm3 | 1.01~1.06 |
| Melt Index MFR(230℃/2.16Kg) | ISO 1133 | g/10min | 2~5 |
| Water absorption(23℃/24h) | ISO 62 | % | 3.2% |
| Mechanical behavior | | | |
| Tensile strength（X-Y） | ISO 527 | Mpa | 55~58 |
| Elongation at break（X-Y） | ISO 527 | % | 32~36 |
| Elastic modulus（X-Y） | ISO 527 | Mpa | 1350~1450 |
| Bending strength（X-Y） | ISO178 | Mpa | 84~87 |
| Notched impact strength（X-Y） | ISO180 | KJ/m2 | 88.5~87 |
| Thermodynamic properties | | | |
| HDT@ 0.455 MPa(66 psi) | ISO75 | ℃ | 85 |

Test Spline Printing Conditions：

|  |  |
| --- | --- |
| Test conditions | Guider IIS （Flashforge technology） |
| Nozzle diameter | 0.4mm |
| Nozzle temperature | 240 °C |
| Printing speed | 50mm/s |
| Wall thickness | 1.2mm |
| Filling | 100% |
| Standard spline | The specific dimensions are as in appendix 1 |

Recommended Printing Parameters:

|  |  |
| --- | --- |
| Parameter |  |
| Nozzle temperature | 220~260℃(Recommended 240℃) |
| Print platform temperature | 80~110℃(Recommended 90℃) |
| Printing platform materials | Tempered glass，BuildTak，carbon fiber board |
| Nozzle Diameter | φ0.4/0.6mm(Recommendedφ0.4mm) |
| Model cooling fan | 20~50% |
| Layer thickness | 0.12~0.3mm |
| Printing speed | 40~60mm/s(Recommended 50mm/s) |
| Idle speed | 60~120mm/s |
| Printing ambient temperature | Room temperature ~40℃ |
| Withdrawal length | 3~5mm |
| Withdrawal speed | 30~50mm/s |
| Support materials | Self supporting、PVA、BVOH |

Precautions：

To prevent moisture absorption and contamination, the packaging of filaments should be kept airtight and undamaged until they are opened for use. For the same reason, some used filaments should be resealed before storage.

PA6/66 is a polyester polymer material. Moisture and oxygen in the air and ultraviolet rays will accelerate the aging of the material. In order not to affect the final printing quality, the PA6/66 filaments after opening should be used up as soon as possible.

PA6/66 material absorbs moisture very easily and should be dried before use. It is recommended to dry the filaments in a hot air oven at 80°C for at least 12 hours to ensure the success rate and quality of the printed model.

If using PA6/66 as its own support material, remove the support structure after the model has cooled. After the model absorbs moisture, the support structure may be glued to the model and will be difficult to remove.

After the model is printed, it is recommended to dry it in an oven at 80~100°C for 1~3 hours to increase the strength of the model.

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Annex 1: Test spline size and printing orientation

