

EOS PEEK HP3

PEEK

EOS GmbH - Electro Optical Systems

Product Texts

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EOS provides the world-first high-performance polymer for the laser-sintering process - EOS PEEK HP3. Belonging to the group of Polyaryletherketone (PAEK), this semi-crystalline, thermoplastic material was developed for the use on the new high-temperature system EOSINT P 800. The laser-sintered parts achieve a tensile strength up to 95 MPa and a Young's modulus up to 4400 MPa. These values are on an up to 100 percent higher level than the so far market dominating materials PA 12 and PA 11. The continuous use temperature ranges within 180 °C (mechanical dynamic), 240 °C (mechanical static) and 260 °C (electrical) depending on the field of application which could not be reached so far. EOS PEEK HP3 is characterized by an outstanding combination of properties like

- excellent high temperature performance
- high wear resistance
- outstanding chemical resistance
- best fire, smoke and toxicity performance
- good hydrolysis resistance
- potential biocompatibility
- sterilisability

Due to this exceptional combination of properties EOS PEEK HP3 is optimally suited for highest demanding applications e.g. in medicine, aerospace industry or motorsports. In medical applications the outstanding properties make this material an ideal replacement for stainless steel and titanium. And in aerospace and in motorsports where light weight and fire resistance are of largest importance, EOS PEEK HP3 has developed to an adequate metal replacement.

| Mechanical properties | Value | Unit | Test Standard |
|-----------------------|-------------|------|---------------|
| Tensile Modulus | 4250 | MPa | ISO 527-1/-2 |
| Tensile Strength | 90 | MPa | ISO 527-1/-2 |
| Strain at break | 2.8 | % | ISO 527-1/-2 |

| Thermal properties | Value | Unit | Test Standard |
|---|------------|------|----------------|
| Melting temperature (20°C/min) | 372 | °C | ISO 11357-1/-3 |
| Temp. of deflection under load (1.80 MPa) | 165 | °C | ISO 75-1/-2 |

| Other properties | Value | Unit | Test Standard |
|-------------------------|-------------|-------------------|---------------|
| Density (lasersintered) | 1310 | kg/m ³ | EOS Method |

Characteristics

Processing

Laser Sintering, Rapid Prototyping

Chemical Resistance

General Chemical Resistance, Hydrolytically Stable

Special Characteristics

Heat stabilized or stable to heat