Product Information

VESTAKEEP® i4 3DF-T

POLYETHER ETHER KETONE FILAMENT TESTING GRADE DESIGNED FOR RESEARCH, DEVELOPMENT AND PROCESS OPTIMIZATION



VESTAKEEP® i4 3DF-T is a filament extruded from natural colored, high viscosity VESTAKEEP® i4 G polyether ether ketone (PEEK) resin. The material is a testing grade designed for research, development and process optimization only. It must not be used for medical devices.

Purpose of the testing grade

The purpose of the testing grade is to offer a cost-efficient solution for printing process development.

The testing grade VESTAKEEP® i4 3DF-T and the implantable grade VESTAKEEP® i4 3DF are both extruded from implantable-grade VESTAKEEP® i4 G resin. They share the same base resin, processability and mechanical properties.

Delivery of VESTAKEEP® i4 3DF-T

VESTAKEEP® i4 3DF-T filament has a diameter of 1.75 mm (+/- 0.02 mm*) and is supplied on TROGAMID®-spools in either 250g or 500g. The spools are packaged in double bags to facilitate transfer into clean areas.

The properties listed are for information only and only apply to the VESTAKEEP® i4 G resin used in the manufacture of VESTAKEEP® i4 3DF-T. The performance and the purity of any parts manufactured from VESTAKEEP® i4 3DF-T are highly dependent on any 3D- or additive-printing processes, or any other processing, to which the filament is subjected.
Only density and filament diameter apply to VESTAKEEP® Care i4 3DF-T directly.

*Diameters are tested by a multi-axis laser gauge. The diameter is the average of these axis.

FOR FURTHER INFORMATION PLEASE CONTACT US AT EVONIK-HP@EVONIK.COM
OR VISIT OUR PRODUCT AT WWW.EVONIK.COM/MEDICAL-TECHNOLOGY

Key Features

Industrial Sector
Medical Devices, 3D Printing

Processing
3D Printing

Delivery form
(Mono)filament

Optics
Opaque

Resistance to
Heat (thermal stability), Hydrolysis / hot water, Oil / fuels

Conformity
Medical application

Additives
Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**3500**	MPa	ISO 527
Tensile strength	**94**	MPa	ISO 527
Yield stress	**94**	MPa	ISO 527
Yield strain	**5**	%	ISO 527
Stress at break	**76**	MPa	ISO 527
Charpy impact strength, +23°C	**N**	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	**N**	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, +23°C	**9.1**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-
Charpy notched impact strength, -30°C	**6**	kJ/m^2	ISO 179/1eA
Type of failure	**C**	-	-

Thermal properties	dry	Unit	Test Standard
Melting temperature	**338**	°C	ISO 11357-1/-3
Glass transition temperature, DSC	**152**	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	**150**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**205**	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**335**	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**305**	°C	ISO 306
Melting Temperature	**338**	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	**1300**	kg/m^3	ISO 1183
Filament Diameter	**1.75**	mm	-
Density	**1300**	kg/m^3	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	**V-0**	class	IEC 60695-11-10

Thickness tested	**3.2**	mm	-

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	**12**	cm^3/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-

Characteristics

Applications
Monofilament

Processing
Fused deposition molding, Additive manufacturing

Special Characteristics
Semi-crystalline, High viscosity, Sterilizable

Features
Resistance to steam

Color
Natural color

Chemical Resistance
Acid resistance, Alkali resistance, Solvent resistance, Grease resistance, Hydrolytically stable, Oil resistance, Oxidation resistance, General chemical resistance

Other extrusion

Drying recommendations

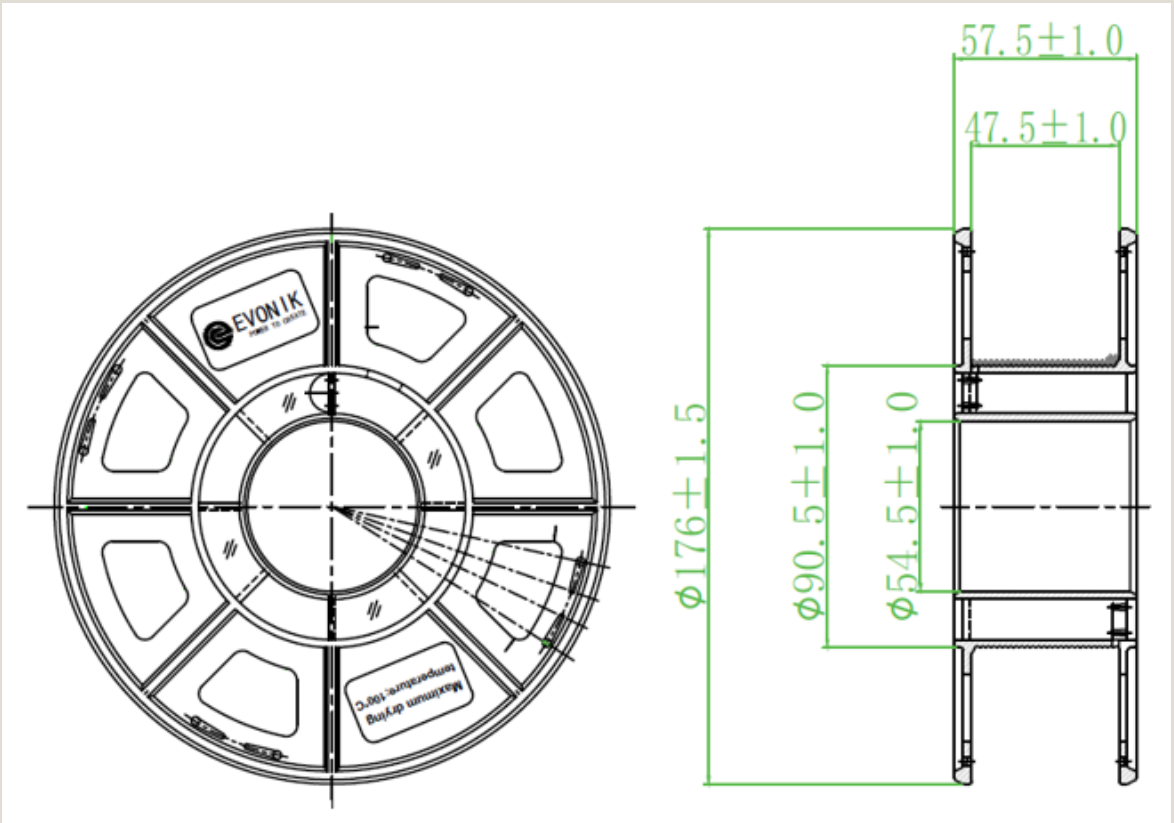
We recommend to dry the filament prior to usage to avoid stringing, bubbles, or other defects.

a) Filament on spool: minimum 12 hours at 80°C to 100°C. 100°C must not be exceeded to avoid distortion of the spool.
b) Filament removed from spool: minimum 4 hours at 130°C to 140°C.

The maximum drying temperature of the filament is 140°C. Please also pay attention to the instructions of your drying device.

Spool dimensions

For dimensions of the spool, please see drawing below. All dimensions are given in millimeter (mm).



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