

Product Information

# VESTAKEEP® Care M40 3DF

## FILAMENT BASED ON HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE (PEEK) FOR 3D PRINTED MEDICAL DEVICES



**VESTAKEEP® Care M40 3DF** is extruded from naturally colored, high viscosity VESTAKEEP® Care M40 G PEEK resin. The material is designed for 3d printing of medical devices with up to 30 days body contact.

### Biocompatibility

The biocompatibility of the base resin VESTAKEEP® Care M40 G has been tested following ISO 10993-1 recommendations for medical devices with up to 30 days of body contact and USP Class VI. A summary of biocompatibility test results is available upon request.

#### Biocompatibility tests available for VESTAKEEP® Care M40 G:

STANDARD	DESCRIPTION
ASTM F756-08	Hemolysis
ISO 10993-5	Cytotoxicity
ISO 10993-10	Sensitization: Maximization test according to Magnusson und Kligman
ISO 10993-10	Irritation: Intracutaneous Reactivity
ISO 10993-11	Acute Systemic Toxicity
USP CLASS VI	Acute Systemic Toxicity (mice), Intracutaneous Reactivity (rabbit), Muscle Implantation (rabbit)

### Delivery and packaging

VESTAKEEP® Care M40 3DF filament has a diameter of 1.75 mm (+/- 0.04 mm\*). It is supplied on TROGAMID®-spools with 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® Care M40 G resin used in the manufacture of VESTAKEEP® Care M40 3DF. The performance and the purity of any parts manufactured from VESTAKEEP® Care M40 3DF 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 M40 3DF 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](mailto:EVONIK-HP@EVONIK.COM)  
OR VISIT OUR PRODUCT AT [WWW.EVONIK.COM/MEDICAL-TECHNOLOGY](http://WWW.EVONIK.COM/MEDICAL-TECHNOLOGY)

### Key Features

#### Industrial Sector

Medical Devices, 3D Printing

#### Processing

3D Printing

#### Resistance to

Heat (thermal stability), Hydrolysis / hot water, Wear / abrasion

**Delivery form**  
(Mono)filament

**Optics**  
Opaque

**Conformity**  
Biocompatibility, 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
Charpy impact strength, +23°C	N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, +23°C	7	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	6	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	C	-	-

## Thermal properties

	dry	Unit	Test Standard
Melting temperature	335	°C	ISO 11357-1/-3
Glass transition temperature, DSC	152	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	155	°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
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	60	E-6/K	ISO 11359-1/-2
Melting Temperature	335	°C	ASTM D 3418

## Physical properties

	dry	Unit	Test Standard
Density	1300	kg/m <sup>3</sup>	ISO 1183

Water absorption	<b>0.4</b>	%	Sim. to ISO 62
Filament Diameter	<b>1.75</b>	mm	-
Density	<b>1300</b>	kg/m <sup>3</sup>	ASTM D 792

<b>Burning Behav.</b>	<b>dry</b>	<b>Unit</b>	<b>Test Standard</b>
Burnin behav. at thickness h	<b>V-0</b>	class	IEC 60695-11-10
Thickness tested	<b>3.2</b>	mm	-

<b>Rheological properties</b>	<b>dry</b>	<b>Unit</b>	<b>Test Standard</b>
Melt volume-flow rate, MVR	<b>11</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>380</b>	°C	-
Load	<b>5</b>	kg	-

## Characteristics

### Applications

Monofilament

### Processing

Fused deposition molding, Additive manufacturing

### Special Characteristics

Semi-crystalline, High viscosity, Sterilizable

### Features

Resistance to steam

### Regulatory

US Pharmacopeia Class VI conformity

### 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

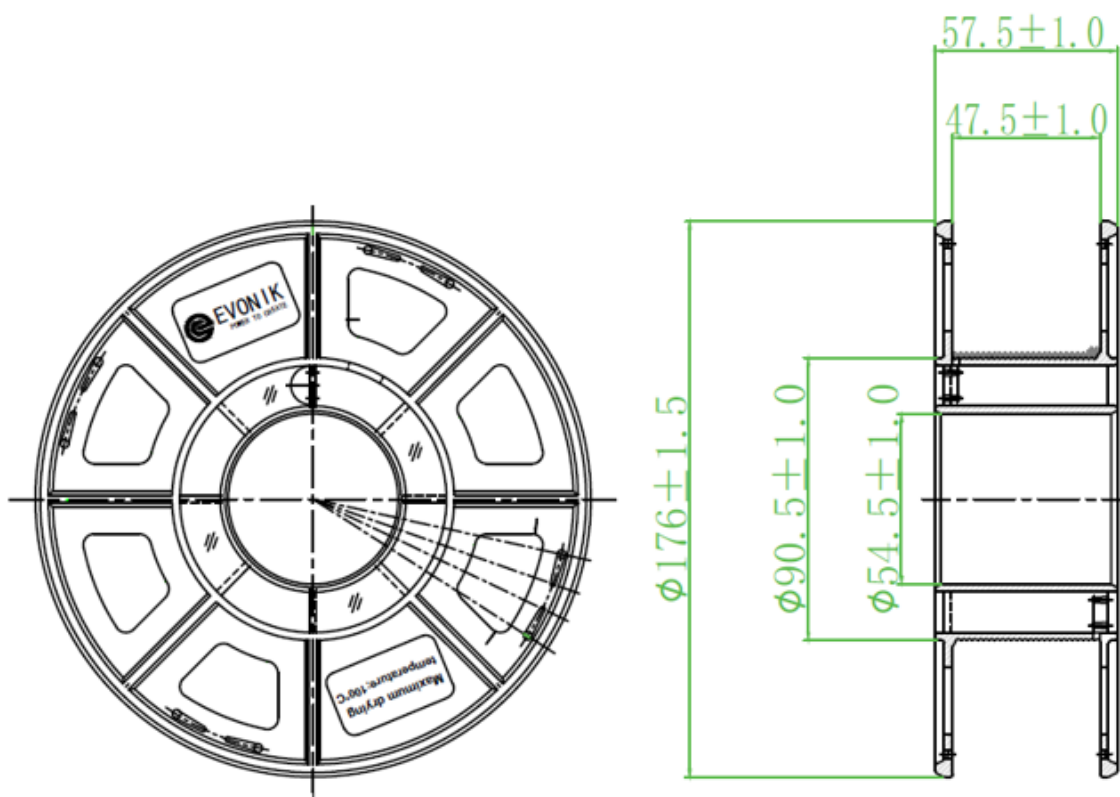
We recommend to dry the filament prior to usage to avoid stringing, bubbles, or other defects.

- Filament on spool: minimum 12 hours at 80°C to 100°C. 100°C must not be exceeded to avoid distortion of the spool.
- 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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