

## SMP 55 series filaments

Shape Memory Polymer for FDM (Fused Deposition Modelling) 3-D Printing

<b>Material</b>	SMP (Shape Memory Polymer) Filament	
<b>Color</b>	Natural	
<b>Filament Diameter</b>	1.75 +/- 0.05mm	2,85 +/- 0,05mm
<b>Filament weight approx.</b>	300g	750g
<b>Filament length approx.</b>	100m	154m
<b>Reorder No.</b>	1000285	1000287

### Mechanical properties

(measured with printed specimen)

	Method	UNIT	TYPICAL VALUE
<b>Melting Index</b>	JIS K 7210	g/10 min.	1
<b>Tensile modulus</b>	JIS K 7161	MPa	570
<b>Tensile stress at yield</b>	JIS K 7161	MPa	11
<b>Tensile stress at break</b>	JIS K 7161	MPa	16
<b>Elongation at break</b>	JIS K 7161	%	31
<b>Flexural strength</b>	JIS K 7171	MPa	740
<b>Flexural modulus</b>	JIS K 7171	MPa	26
<b>Izod impact strength, notched (at 23°C)</b>	JIS K 7110	KJ/m <sup>2</sup>	21
<b>Hardness</b>	Durometer	Shore A	57

### Recommended printing conditions

	UNIT	TYPICAL VALUE
<b>Nozzle temperature</b>	°C	210 - 230
<b>Bed temperature</b>	°C	0 ~ 45 (Never over 55 degrees Celsius)
<b>Printing speed</b>	mm/s	30 - 60

### Characteristics of SMP

1. Temperature Dependency of elastic modulus The elastic modulus changes largely at the temperature below (hard state) and above (soft state) the glass transition temperature (T<sub>g</sub>).
2. Shape recovery and fixity To heat SMP with no external force from a low temperature to a temperature higher than T<sub>g</sub>. It eliminates the strain, resulting in recovery of its original shape. SMP allows the maximum strain can be applied up to 400%.

NOTICE: Technical information and data regarding the composition, properties or use of the products described herein is believed reliable. However, no representation or warranty is made with respect thereto except as made by seller in writing at time of sale.

Delacamp Aktiengesellschaft · Bargkoppelweg 64 · D-22145 Hamburg · Germany  
Tel. +49 (0) 40 - 32 58 28 - 201 · Fax. + 49 (0) 40 - 32 58 28 - 210 · E-Mail [convena@delacamp.com](mailto:convena@delacamp.com)