

## TECHNICAL DATA SHEET

### 3D3 ABS

<b>Product code:</b>	<b>Revision Number:</b>	<b>Revision date:</b>	<b>TDS No.:</b>
ABS	01	19/06/2019	KT04.012.0127

### BRIEF INTRODUCTION

Filament suitable for all commercially available leading brands FDM/FFF Printers.

### Characteristic:

excellent toughness | lower odor | lower shrinkage | lower print temperature

### IDENTIFICATION OF THE MATERIAL

<b>Trade name</b>	ABS
<b>Chemical name</b>	Acrylonitrile-butadiene-styrene terpolymer
<b>Use</b>	3D Printing
<b>Origin</b>	3D3

### GUIDELINE FOR PRINT SETTINGS

<b>Nozzle temperature</b>	220~250°C
<b>Bed temperature</b>	80~100°C
<b>Bed modification</b>	NO
<b>Active cooling fan</b>	OFF
<b>Layer height</b>	0.2mm
<b>Shell thickness</b>	≥0.8mm
<b>Print speed</b>	40-80mm/s

Settings are based on a 0.4mm nozzle.

### MATERIAL PROPERTIES

		Test Method
<b>Melt temperature</b>	~180°C	ISO 11357
<b>Melt flow rate (MFR)<sup>1</sup></b>	33.8g/10min	ISO1133
<b>Heat deflection temperature(HDT)<sup>2</sup></b>	85.1°C	ISO 75
<b>Vicat softening temperature(VST)<sup>3</sup></b>	94.6°C	ISO 306
<b>density</b>	1.05g/cm <sup>3</sup>	ISO1183
<b>Odor</b>	Low odor	/
<b>Solubility</b>	Insoluble in water	/

<sup>1</sup> .test conditions: T= 220°C; m= 10kg.

<sup>2</sup> . test conditions:0.45MPa;120°C/h.

3. test conditions:10N; 120°C/h.

**MECHANICAL PROPERTIES|TENSILE TEST** **Test Method ISO 527**

All test specimens were printed using an Megamaker S1 under the following conditions:  
 Printing temperature: 240°C  
 Heated bed temperature: 90°C  
 Print speed: 45mm/s  
 Shell thickness: 0.8mm  
 Infill under 45°

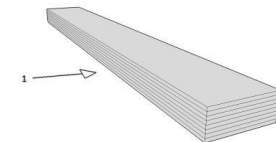
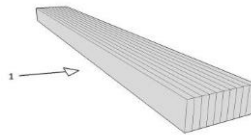


	Printed Vertical Z-axis		Printed horizontal X,Y-axis	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Tensile strength (Mpa)	18.3	29.3	17.8	41.7
Force at break (Mpa)	18.3	29.3	16.9	36.0
Elongation at break (%)	4.9	4.9	6.9	10.5
Emodulus (Mpa)	392	588	344	652

**MECHANICAL PROPERTIES|IMPACT TEST** **Test Method ISO 179**

The same conditions as tensile test.

1→impact direction

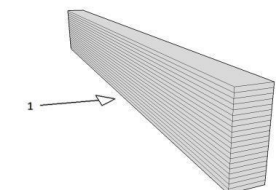
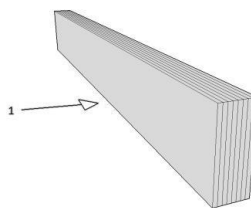


	Charpy(en)		Charpy(ep)	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Impact strength (KJ/m <sup>2</sup> )	15.9	38.8	24.2	39.3
Notch impact strength <sup>1</sup> (KJ/m <sup>2</sup> )	10.2	20.7	7.6	19.5

**MECHANICAL PROPERTIES |FLEXURAL TEST** **Test Method ISO 178**

The same conditions as tensile test.

1→bending direction



	Normal		parallel	
	50%	100%	50%	100%
Infill	50%	100%	50%	100%
Maximum force (Mpa)	56.7	76.9	47.6	78.1
Flexural modulus (Mpa)	2054	2676	2159	2700

1. notch type: type A

FILAMENT SPECIFICATION		Test Method
Diameter 1.75mm	1.75±0.03mm	EX1125
Diameter 2.85mm	2.85±0.03mm	EX1125
Diameter 3.00mm	3.00±0.03mm	EX1125
Max roundness deviation (1.75)	0.03mm	EX1125
Max roundness deviation (2.85)	0.03mm	EX1125
Max roundness deviation (3.00)	0.03mm	EX1125
Net weight on reel	1kg	EX1125