

**Parameters**  
**Basic UV**

**Tests were conducted by:**

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Manufacturer	CEAD
Resin type	PP
Fiber reinforced	Glass fiber
Fiber content [%]	30
Material number	1750

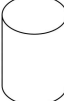


**Report date:** aug. 31, 2021

**Test date:** aug. 31, 2021

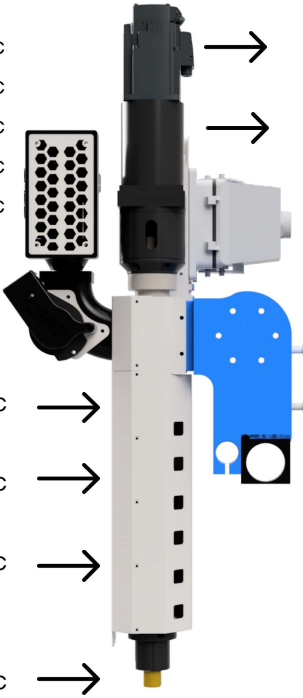
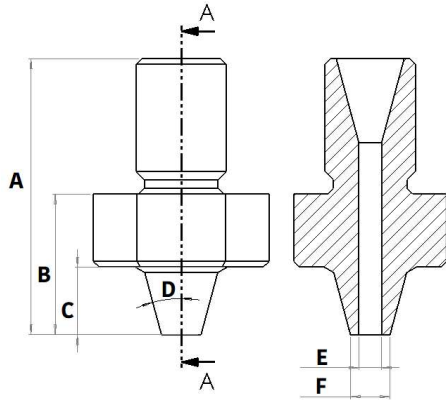
**Drying parameters**

<i>Parameter used by CEAD Group</i>		<i>Parameters provided by manufacturer</i>	
Drying temp.	-	°C	
Drying time	-	hours	
<b>Notes:</b> Fill in notes about the material, for example: - Material transport: Does the material clog the system or else. - Material datasheet present?			

**Granulate shape**

	<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>	Other	<input type="checkbox"/>
Cylindrical		Oval		Pillow			

**Printing parameters**

<i>Parameters provided by manufacturer</i>				Servo → <input type="text" value="1"/> kW
Heatzone 1	<input type="text"/>	°C		Gearbox → <input type="text" value="1:30"/>
Heatzone 2	<input type="text"/>	°C		
Heatzone 3	<input type="text"/>	°C		
Heatzone 4	<input type="text"/>	°C		
Heated bed	<input type="text"/>	°C		
				
<i>Parameter used by CEAD Group</i>				
Heatzone 1	<input type="text" value="175"/>	°C	→	
Heatzone 2	<input type="text" value="190"/>	°C	→	
Heatzone 3	<input type="text" value="190"/>	°C	→	
Heatzone 4	<input type="text" value="205"/>	°C	→	
Bed necessity	Required <input type="checkbox"/>	Not required <input checked="" type="checkbox"/>	Usefull <input type="checkbox"/>	
Heated bed	<input type="text"/>	-	°C	
Turned off after	<input type="text"/>	-	Min	

A	<input type="text" value="50"/>	mm
B	<input type="text" value="25"/>	mm
C	<input type="text" value="9"/>	mm
D	<input type="text" value="15"/>	°
E	<b>Steel_4</b>	mm
F	5 (pointy)	mm

### Test 1: purge

					Comments	
Extrusion	Excellent	Good	Fair	Poor		
Smoke	Very low	Low	Moderate	High		
Smell	No	Mild	Moderate	Intense		
Viscosity	High	Moderate	Low	Very Low		
Measured material extrusion temperature at nozzle:			Note: During throughput, purge for 1 min and measure mass [Kg] of purged material.			
RPM	20		RPM	40	RPM	60
Utilization [%]	4		Utilization [%]	4,7	Utilization [%]	6,1
Torque [Nm]	13		Torque [Nm]	19	Torque [Nm]	25
RPM	80		RPM	100	Max RPM	100
Utilization [%]	8,9		Utilization [%]	11,5	Max Utilization[%]	11,5
Torque [Nm]	28,8		Torque [Nm]	32,5	Max Torque [Nm]	32,5
					Max Throughput [Kg/hr]	6

During the second test we will turn on the first print. This print is always the same, a cube of 400\*400\*400mm with a layerheight and layerwidth of 2mm by 6mm (HxW)



### Test 2: layer time

There are a lot of different factors that influence the layertime. The most important factor might be the cooling of the material, some materials cool a lot quicker than others. During this test we will determine what the best layertime should be based on the temperature of the previous layer of the print.

					Comments
First layer	Excellent	Good	Fair	Poor	
Layer adhesion	Excellent	Good	Fair	Poor	
Layer softnes	Excellent	Good	Fair	Poor	
	Test 1	Test 2	Test 3	Test 4	Comments
Layer time [s]	20	40			

Note: By filling in the actual measured layer width the material number is calculated. The actual material number is then used in your G-code.

Initial material number[-]	1500	Actual layer width [mm]	7	$MN_{actual} = MN_{initial} * \left( \frac{LW_{actual}}{LW_{initial}} \right)$
Initial layer width [mm]	6	Actual material number [-]	1750	

 Composite Additive manufacturing	<b>Material test</b>  <b>Basic UV</b>	 Composite Additive manufacturing
		<b>Test date: aug. 31, 2021</b>

### Test 3: printing

*During the third test we will print the full cube.*

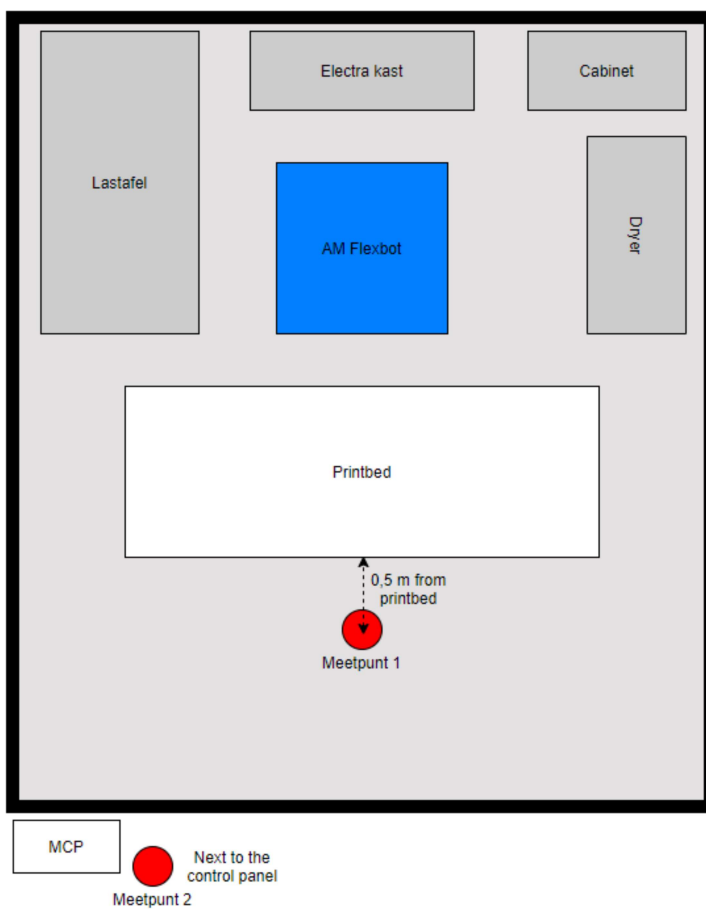
					Comments
Layer adhesion	Excellent	Good	Fair	Poor	
Warpage	Very low	Low	Moderate	High	
Print quality	Excellent	Good	Fair	Poor	

### Final printing values

Extruder speed	6.0,2.0,1500	Robot speed	2265 mm/min	Total print time [min]  133.3
RPM	18	Torque	12,5 Nm	
Utilization	7 %	Layer time	40 Sec	

**Test 4 : Meeting vluchtige stoffen**

Meeting	Waarde HCHO [ppm & mg/m3]	Waarde TVOC [ppm & mg/m3]	Comments
Calibratie			
Meetpunt 1			
Meetpunt 2			



Test results pictures

On this page the test results are made visible by means of pictures.

<b>Picture 1:</b> <i>Fill in picture title here</i>	<b>Picture 2:</b> <i>Fill in picture title here</i>

<b>Picture 3:</b> <i>Fill in picture title here</i>	<b>Picture 4:</b> <i>Fill in picture title here</i>