Technical Data Sheet 2023

Art-Engineering PRO Like Resin

10K Standard Plus Resin

10K Washable Resin

10K Art-Engineering Like Resin

10K Nano Resin

M3 Series Resin

Plant Base Soybean Standard Resin

Plant Base Soybean ABS-like Resin

Thermochromic Resin

Flexible Resin

Tenacity Resin

Elastic Resin

Glow In Dark Resin

High Transparent Resin

High Temperature Resin

Printing Setting

Model No.	Layer height (mm)	Bottom exposure time(s)	Layer exposure time(s)	Bottom Lift Distance (mm)	Lifting Distance (mm)	Bottom Lift Speed (mm/min)	Lifting Speed (mm/min)	Retract Speed (mm/min)	Rest time after retract
10K standard plus resin	0.05	25-35s	2.5--3.5 Orange red: 3--4	6	6	60	80	150	2--3
10K washable resin									
10K art-engineering like resin									
10K nano resin									
M3 Series									
Plant base soybean low odor resin									
Plant base soybean ABS-like resin			2.5--4.5						
Thermochromic resin			2.5--3.5						
Flexible resin		25-30s	2.5--4.5						
Glow in dark resin									
High tenacity resin			3--5						
Elastic resin			8--12						
High transparency resin			5--8						
High temperature resin		20-30	3--6						
Engineering-Pro resin		20-30	3--5						

Above settings are tested on ELEGOO MARS 3 (6.6'' monochrome LCD screen,light intensity 3500~4500μw/㎠), they should be adjusted according to different 3d printers and printing model structure，most settings can be keep as the printers' default firstly.

1. Bottom layer count = Bottom layer thickness/ Layer height+1，e.g. Bottom height 0.4mm, layer height 50um, the bottom layer count= 0.4mm/0.05mm+1=9 layers.

2. The exposure time should be adjusted according to printer light energy, layer thickness and model structure. If the layer height less than 0.05mm, we suggest the exposure time of each layer will be deducted about 0.5s.

3. If light power of printer is getting weak and cause failure, don't forget to add exposure time.

4. When printing with ordinary FEP/NFEP film, the recommended lifting distance as below:

Less than 7'' screen size, lifting distance: 6mm；　　7-10” screen size, lifting distance: 8-10mm

10.1” screen size, lifting distance: 11mm；　　13.3” screen size, lifting distance: 14mm

15” screen size, lifting distance: 15mm

While printing with fast printing film, lifting distance can be decrease 30-50%. e.g. lifting speed was 80 (mm/min) at regular film, you can adjust to 40-60(mm/min) when using fast printing film.

Notice:

1. Shake the resin well before use.
2. Please increase lifting distance 20-30% when print with Elastic Resin and Flexible Resin .

Technical Specification

10K Standard Plus Resin & 10K Washable Resin & 10K Art-Engineering Like Resin & 10K Nano Resin

	10K Standard Plus resin	10K Washable resin	10K Art-Engineering like resin	10K Nano Resin	Test Standard
Tensile strength (MPa):	37.88 ±10%	31.44 ±10%	38.36 ±10%	37.9 ±10%	ASTM D638
Tensile modulus (MPa):	615.49 ±10%	471.03 ±10%	447.12 ±10%	508.12 ±10%	ASTM D638
Elongation at yield point(%)	3.09 ±10%	6.32 ±10%	7.22 ±10%	6.21 ±10%	ASTM D638
Flexural modulus (MPa):	1699.7 ±10%	1091.45 ±10%	979.24 ±10%	1188.91 ±10%	ASTM D790
Flexural strength (MPa):	57.91 ±10%	40.82 ±10%	44.15 ±10%	41.4 ±10%	ASTM D790
Notched impact strength (J/m):	72 ±10%	50 ±10%	454.37 ±10%	46 ±10%	ASTM D256
Maximum pulling force (N):	1575.93±10%	1308.20±10%	1308.20±10%	1576.91 ±10%	ASTM D638
Maximum force point of deformation (mm)	3.62 ±10%	4.33 ±10%	6.08 ±10%	6.87 ±10%	ASTM D638
Elongation at break (%):	6.41 ±10%	7.65 ±10%	35.44 ±10%	12.15 ±10%	ASTM D638
Hardness (Shore D):	80-88 D	80-85 D	80-88 D	82-86 D	ASTM D2240
Viscosity (MPa.S):	250-400	70-175	350-650	150-300	GB/T 4472
Density (g/cm³):	1.05-1.25	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

M3 Series & Plant Base Soybean Low Odor Resin & Plant Base Soybean ABS-like Resin & 10K Art-Engineering like resin -Orange red

	M3	Plant based standard resin	Plant based ABS-like resin	10K Art-Engineering like resin -Orange red	Test Standard
Tensile strength (MPa):	25 ±10%	32.43 ±10%	27.46 ±10%	24.6 ±10%	ASTM D638
Tensile modulus (MPa):	362.78 ±10%	424.97 ±10%	328.5 ±10%	289.02 ±10%	ASTM D638
Elongation at yield point(%)	6.53 ±10%	5.54 ±10%	5.57 ±10%	5.8 ±10%	ASTM D638
Flexural modulus (MPa):	504.25 ±10%	768.67 ±10%	531.27 ±10%	471.2 ±10%	ASTM D790
Flexural strength (MPa):	22.03 ±10%	29.82 ±10%	20.27 ±10%	23.5 ±10%	ASTM D790
Notched impact strength (J/m):	36 ±10%	40.03 ±10%	58 ±10%	217.42 ±10%	ASTM D256
Maximum pulling force (N):	1002.73 ±10%	1349.40±10%	1142.47 ±10%	1023.81±10%	ASTM D638
Maximum force point of deformation (mm)	6.8 ±10%	9.86 ±10%	12.33 ±10%	18.4 ±10%	ASTM D638
Elongation at break (%):	15.68 ±10%	17.48 ±10%	21.8 ±10%	32.5 ±10%	ASTM D638
Hardness (Shore D):	80-85 D	80-88 D	78-86 D	78-80 D	ASTM D2240
Viscosity (MPa.S):	150-350	200-450	200-400	300-650	GB/T 4472
Density (g/cm³):	1.05-1.25	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

Thermochromic Resin & Flexible Resin & Glow In Dark Resin & High Temperature Resin

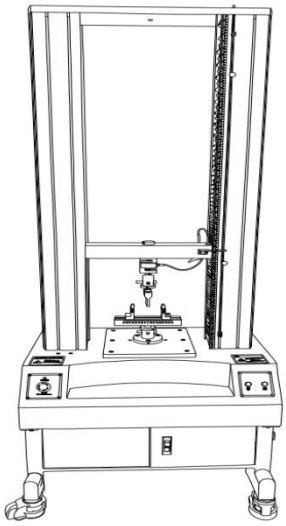
	Thermochromic Resin	Flexible resin	Glow in dark Resin	High Temperature Resin	Test Standard
Tensile strength (MPa):	39.06 ±10%	4.62 ±10%	34.1 ±10%	27.3±10%	ASTM D638
Tensile modulus (MPa):	538.4 ±10%	3.33 ±10%	474.79 ±10%	316.6±10%	ASTM D638
Elongation at yield point(%)	3.09 ±10%	69.83 ±10%	6.37 ±10%	5.3±10%	ASTM D638
Flexural modulus (MPa):	1412.8 ±10%	//	943.52 ±10%	773.8±10%	ASTM D790
Flexural strength (MPa):	48.93 ±10%	0.86 ±10%	33.59 ±10%	37.2±10%	ASTM D790
Notched impact strength (J/m):	80 ±10%	471 ±10%	89.44 ±10%	76±10%	ASTM D256
Maximum pulling force (N):	1624.96±10%	192.21±10%	1420.98 ±10%	1135.61±10%	ASTM D638
Maximum force point of deformation (mm)	5.32 ±10%	69.49 ±10%	5.95 ±10%	9.0±10%	ASTM D638
Elongation at break (%):	9.4 ±10%	122.71 ±10%	10.65 ±10%	16.1±10%	ASTM D638
Hardness (Shore D):	80-86 D	55-60 D	80-88 D	80-88	ASTM D2240
Viscosity (MPa.S):	600-800	50-150	500-800	150-300	GB/T 4472
Density (g/cm³):	1.05-1.25	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

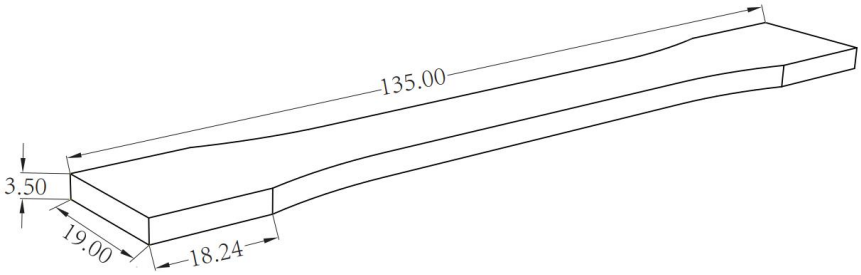
High Tenacity Resin & Elastic Resin & High Transparency Resin & Engineering-Pro Resin

	Tenacity Resin	Elastic resin	High Transparency Resin	Engineering-Pro Resin	Test Standard
Tensile strength (MPa):	21.19 ±10%	0.66 ±10%	47.02 ±10%	16.926±10%	ASTM D638
Tensile modulus (MPa):	283.32 ±10%	0.598 ±10%	561.78 ±10%	225.963±10%	ASTM D638
Elongation at yield point(%):	5.1 ±10%	41.26 ±10%	6.05 ±10%	5.129±10%	ASTM D638
Flexural modulus (MPa):	528.4 ±10%	//	1166.8 ±10%	664.039±10%	ASTM D790
Flexural strength (MPa):	18.82 ±10%	//	52.84 ±10%	26.64±10%	ASTM D790
Notched impact strength (J/m):	397 ±10%	//	266.93 ±10%	903.11±10%	ASTM D256
Maximum pulling force (N):	881.62±10%	27.46±10%	1956.23 ±10%	703.64±10%	ASTM D638
Maximum force point of deformation (mm)	8.55 ±10%	75.87 ±10%	6.87 ±10%	94.797±10%	ASTM D638
Elongation at break (%):	40.1 ±10%	135.58 ±10%	28.4 ±10%	167.243±10%	ASTM D638
Hardness (Shore D):	78-82 D	40-50 (Shore A)	80-88 D	68-75 D	ASTM D2240
Viscosity (MPa.S):	400-600	550-750	1000-1300	300-400	GB/T 4472
Density (g/cm³):	1.05-1.25	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

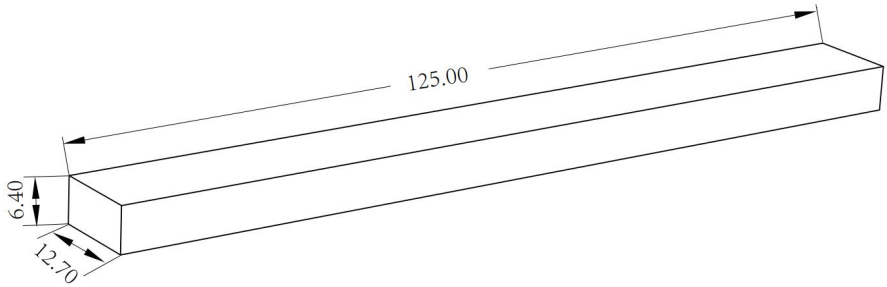
Introduction of Testing Machine & Testing Environment

Computer-controlled Servo Tensile Testing Machine



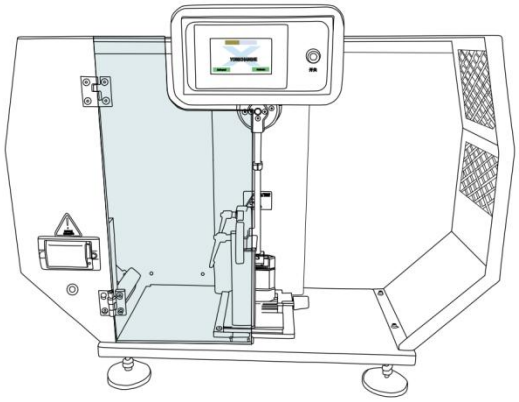


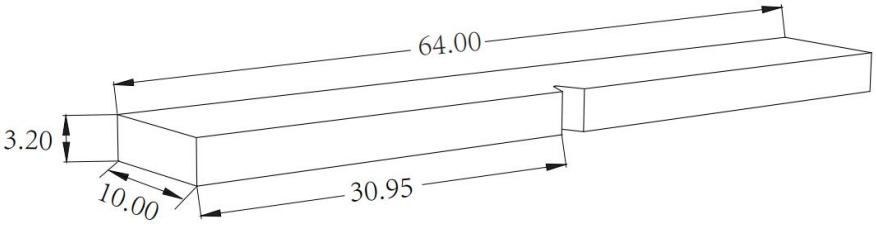
Tensile test specimen ASTM D638



Flexural test specimen ASTM D790

Digital IZOD Impact Tester





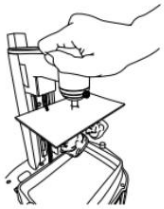
Impact test specimen ASTM D256

Testing Environment

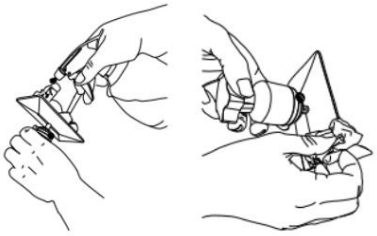
Temperature: 23±2℃
Relative Humidity: 50%RH±5%RH
Standard For Testing Splines: ASTM

Post Curing Box: 405nm UV, 200mw/cm²
Put the test strip in water and post cured for 1 minute on both sides.

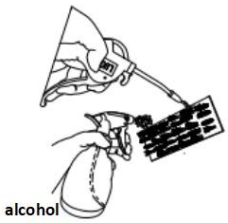
Cleaning and Post-curing



1. Take off the printing platform from the printer.



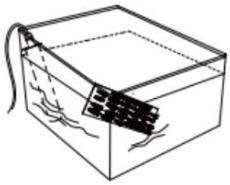
2. Spray isopropanol (alcohol> 95%) to clean away residue resin on the prints, wipe off the resin with tissue on the plateform.



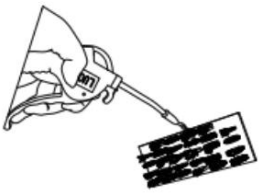
3. Spray alcohol again, dry it with air gun, repeat a few times till there's no resin on surface.

4. Carefully take off the prints from platform with scraper.

5. Soak the prints in alcohol in container, clean for 1-2min by ultrasonic machine.



If no ultrasonic cleaner, try to use an ultrasonic rod to clean for 2-3min.



6. Take out the prints and dry immediately with an air gun or a blower.

7. Suggest post curing in water, curing time 30-60s depends on the light power of the curing box (curing both sides). **Repeat step 6.**

Notice: For water washable resin, just cleaning with water by ultrasonic machine, don't forget to dry them in and out after post curing.

Caution

1. Wash hand and face thoroughly after handing.
2. Wear protective gloves / mask/protective clothing when using resin.
3. Contact eyes may cause irritation, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical advice immediately if necessary.
4. Waste water/waste shall be disposed of in accordance with local environmental regulations.

Storage

1. Please seal the product and store it in a dry, well-ventilated room with no corrosive gas.
2. Stored at 25~30℃ environment.
3. Keep away from heat source, keep away from moisture and avoid sun exposure.
4. Shelf life 18 months.