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Technical Data Sheet 2024

10K Art-Engineering Resin

Engineering PRO Resin

Thermochromic Resin

Glow in Dark Resin

High Transparency Resin

High Temperature Resin

High Tenacity Pro Resin

Elastic Resin

Flexible Resin

Ceramic Resin

Water Washable ABS Like Resin

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Printing Setting

Product	**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 Art-Engineering Resin	0.05	25-35	2.5--3.5 orange red resin : 3--4	6	6	60	80	150	2-3
Engineering PRO Resin			3--4	10-12	10-12				3-5
Thermochromic Resin		20-30	2.5--3.0	6	6				2-3
Glow in Dark Resin			2.5--4.5						
High Transparency Resin			5--8						
High Temperature Resin			3--6						
High Tenacity Pro Resin			2.5--3.5						
Elastic Resin			8--12	10	10				
Flexible Resin			2.5--4.5	6	6				
Water Washable ABS Like Resin			2.5-3.0	6	6				
Ceramic Resin		15-20	1.2-1.5						

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，art-engineering，engineering pro， flexible resin need to add 2-6mm more according the above data.
5. When printing, the liquid resin temp 40-50℃ is the best.

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Printing Setting - Different monochrome LCD screen

Product	Lift Distance (bottom and other layers, mm)
10K Art-Engineering Resin	7-10" screen size, lifting distance: 10-12mm; 10.1" screen size, lifting distance: 12-14mm; 13.3" screen size, lifting distance: 15-17mm; 15" screen size, lifting distance: 16-18mm;
Elastic Resin	
Flexible Resin	
Engineering PRO Resin	7-10" screen size, lifting distance: 12-14mm; 10.1" screen size, lifting distance: 14-16mm; 13.3" screen size, lifting distance: 17-19mm; 15" screen size, lifting distance: 18-20mm;
Thermochromic Resin	7-10" screen size, lifting distance: 8-10mm; 10.1" screen size, lifting distance: 10-12mm; 13.3" screen size, lifting distance: 13-15mm ; 15" screen size, lifting distance: 14-16mm
Glow in Dark Resin	
High Transparency Resin	
High Temperature Resin	
High Tenacity Pro Resin	
Ceramic Resin	
Water Washable ABS Like Resin	

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

Notice :
1. Shake the resin well before use.
2. For Engineering Pro resin, if your printer does not have a heating function, recommended to print with fast printing film (ACF film).

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Technical Specification

10K Art-Engineering Resin & 10K Art-Engineering Resin-Orange Red & Engineering PRO Resin & Thermochromic Resin

Technical Parameters after Molding:	10K Art-Engineering Resin	10K Art-Engineering Resin-Orange Red	Engineering PRO Resin (SG-71D)	Thermochromic Resin (PJHC-60R)	Test Standard
Tensile strength (MPa)：	38.36 ±10%	24.6 ±10%	41.89±10%	39.06 ±10%	ASTM D638
Tensile modulus (MPa)：	447.12 ±10%	289.02 ±10%	490.88±10%	538.4 ±10%	ASTM D638
Elongation at yield point(%)	7.22 ±10%	5.8 ±10%	7.00±10%	5.71 ±10%	ASTM D638
Flexural modulus (MPa)：	979.24 ±10%	471.2 ±10%	1104.04±10%	1412.8 ±10%	ASTM D790
Flexural strength (MPa)：	44.15 ±10%	23.5 ±10%	43.435±10%	48.93 ±10%	ASTM D790
Notched impact strength (J/m)：	454.37 ±10%	217.42 ±10%	92.42±10%	80 ±10%	ASTM D256
Maximum force (KGF)：	162.76±10%	104.4±10%	177.7±10%	165.70±10%	ASTM D638
Maximum force point of deformation (mm)	6.80 ±10%	18.4 ±10%	9.44±10%	5.32 ±10%	ASTM D638
Elongation at break (%)：	35.44 ±10%	32.5 ±10%	21.204±10%	9.4 ±10%	ASTM D638
Hardness (Shore D)：	80-88 D	78-80 D	78-82 D	80-86 D	ASTM D2240
Shrinkage rate(%):	0.3-0.7	0.3-0.7	//	0.2-0.7	
Viscosity (MPa.S)：	350-650	300-650	3000-5000	600-800	GB/T 4472
Density (g/cm³)：	1.05-1.25	1.05-1.25	1.1-1.25	1.05-1.25	GB/T 22235

Glow in dark Resin & High Transparency Resin & High Temperature Resin

Technical Parameters after Molding:	Glow in dark Resin	High Transparency Resin (GTS-10)	High Temperature Resin (HTC-A)	Test Standard
Tensile strength (MPa)：	34.1 ±10%	47.02 ±10%	35.52±10%	ASTM D638
Tensile modulus (MPa)：	474.79 ±10%	561.78 ±10%	613.46±10%	ASTM D638
Elongation at yield point(%)	6.37 ±10%	6.05 ±10%	2.93±10%	ASTM D638
Flexural modulus (MPa)：	943.52 ±10%	1166.8 ±10%	1986.71±10%	ASTM D790
Flexural strength (MPa)：	33.59 ±10%	52.84 ±10%	44.01±10%	ASTM D790
Notched impact strength (J/m)：	89.44 ±10%	266.93 ±10%	14±10%	ASTM D256
Maximum force (KGF)：	144.90 ±10%	1956.23 ±10%	150.70±10%	ASTM D638
Maximum force point of deformation (mm)	5.95 ±10%	6.87 ±10%	3.31±10%	ASTM D638
Elongation at break (%)：	10.65 ±10%	28.4 ±10%	5.86±10%	ASTM D638
Hardness (Shore D)：	80-88 D	80-88 D	83-87	ASTM D2240

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Shrinkage rate(%):	0.2-0.7	0.2-0.7	//	
Viscosity (MPa.S)：	500-800	1000-1300	400-500	GB/T 4472
Density (g/cm³)：	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

High Tenacity Pro Resin & Elastic Resin & Flexible Resin&Ceramic Resin&Water Washable ABS Like Resin

Technical Parameters after Molding:	**High Tenacity Pro Resin**	**Elastic Resin (ELA-C series)**	**Flexible Resin (PJHC series)**	**Ceramic Resin (CR-30)**	**Water Washable ABS Like Resin (WABS-DP series)**	**Test Standard**
Tensile strength (MPa)：	22.58±10%	0.66 ±10%	4.62 ±10%	47.97±10%	25.16±10%	ASTM D638
Tensile modulus (MPa)：	267.74±10	0.598 ±10%	3.33 ±10%	819.52±10%	305.70±10%	ASTM D638
Elongation at yield point(%)：	7.387±10%	41.26 ±10%	69.83 ±10%	6.08±10%	5.21±10%	ASTM D638
Flexural modulus (MPa)：	672.86±10%	//	//	2355.41±10%	841.55±10%	ASTM D790
Flexural strength (MPa)：	25.48±10%	//	0.86 ±10%	65.44±10%	29.05±10%	ASTM D790
Notched impact strength (J/m)：	47±10%	//	471 ±10%	10±10%	34.99±10%	ASTM D256
Maximum force (KGF)：	95.8±10%	2.8±10%	19.6±10%	203.50±10%	106.76±10%	ASTM D638
Maximum force point of deformation (mm)	106.27±10%	75.87 ±10%	69.49 ±10%	3.94±10%	12.95±10%	ASTM D638
Elongation at break (%)：	187.13±10%	135.58 ±10%	122.71 ±10%	6.9±10%	22.83±10%	ASTM D638
Hardness (Shore D)：	73-75	40-50 (ShoreA)	55-60	88-93	79-82	ASTM D2240
Shrinkage rate(%):	//	//	//	//	//	
Viscosity (MPa.S):	500-650	550-750	50-150	500-700	80-170	GB/T 4472
Density (g/cm³)：	1.05-1.25	1.05-1.25	1.05-1.25	1.22-1.28	1.05-1.25	GB/T 22235

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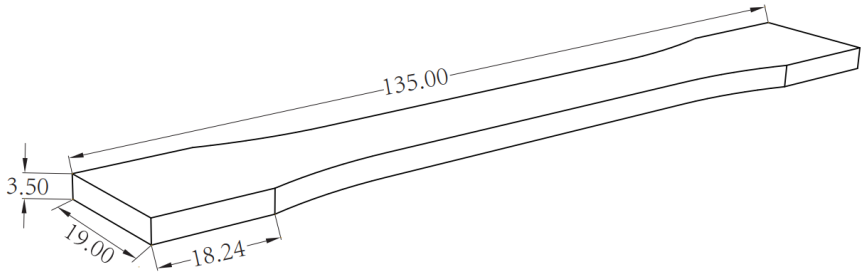
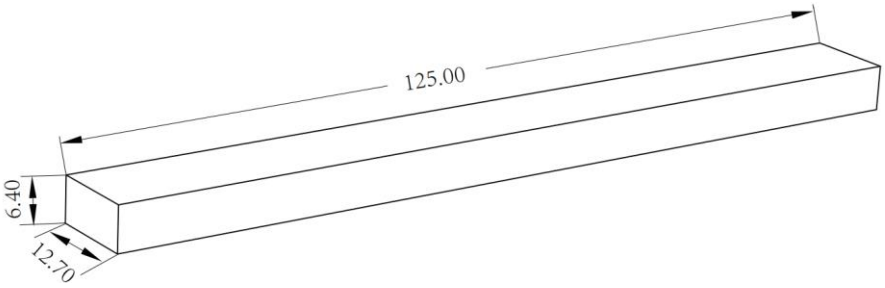
Introduction of Testing Machine & Testing Environment

Computer-controlled Servo Tensile Testing Machine

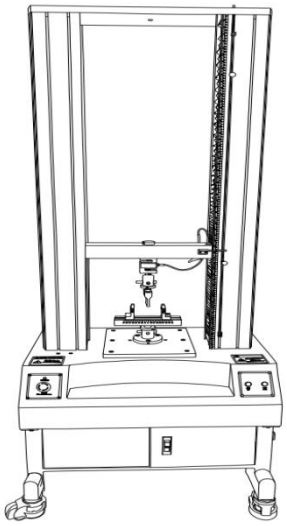


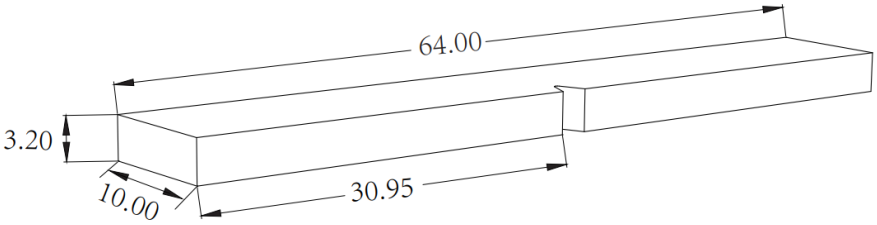
Tensile test specimen ASTM D638



Flexural test specimen ASTM D790

Digital IZOD Impac





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/cm
Put the test strip in water and post cured for 1 minute on both sides.

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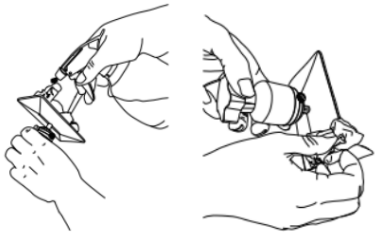
Cleaning and Post-curing

1. Take off the printing platform from the printer.

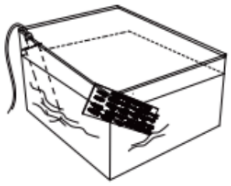


2. Spray isopropanol (alcohol> 95%) to clean away residue resin on the prints, wipe off the resin with tissue on the plateform.

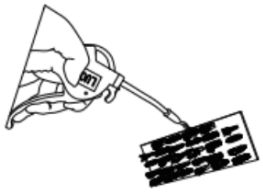
3. Spray alcohol again, dry it with air gun, repeat a few times till there's no resin on surface.

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: 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 24 months.

05th-Sep, 2024