

# **Technical Data Sheet 2024**

**Ortho Model Resin(IPA Clean)**

**Pro Model Resin**

**Dental Casting Resin**

**Gingiva Mask Resin**

**C&B Resin**

**Denture Base Resin**

**Surgical Guide Resin**

**Tray Resin**

**Water Washable Ortho model 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
Pro model resin	0.05-0.1	20-30	2.5-4.5	6	6	60	80	150	2-3
Gingiva mask resin			4-8						
C&B resin			3-6						
Denture Base resin		25-35	2.5-3.5						
Surgical guide resin									
Water Washable Ortho Model Resin									
Tray resin									
Ortho model resin		25-30	2.5-4.5						
Dental Casting resin		30-50	3-5						

Above settings are tested on ELEGOO MARS 3 (6.6" monochrome LCD screen, light intensity 3500~4500 $\mu\text{w}/\text{cm}^2$ ), they should be adjusted according to different 3d printers and printing model structure , most settings can be keep as 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

When 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) while using fast printing film.

### Notice :

1. Shake the resin well before use.

2. Please increase lifting distance 20-30% when print with Gingiva Mask Resin .

# Technical Specification

## Ortho Model Resin & Pro Model Resin & Dental Casting Resin

Technical Parameters after Molding	Ortho Model resin (OTM series)	Pro Model Resin (DN series)	Dental Casting Resin	Test Standard
Tensile strength (MPa) :	18.10 ±10%	25.9 ±10%	30.59 ±10%	ASTM D638
Tensile modulus (MPa) :	268.45 ±10%	305.9 ±10%	433.67 ±10%	ASTM D638
Elongation at yield point(%)	4.98 ±10%	5.61 ±10%	6.22 ±10%	ASTM D638
Flexural modulus (MPa) :	397.96 ±10%	616.4 ±10%	811.08 ±10%	ASTM D790
Flexural strength (MPa) :	21.72 ±10%	22.2 ±10%	39.81 ±10%	ASTM D790
Notched impact strength (J/m) :	74.30 ±10%	192.6 ±10%	113.97 ±10%	ASTM D256
Maximum force (KGF) :	76.80 ±10%	109.9±10%	129.8 ±10%	ASTM D638
Maximum force point of deformation ( mm)	4.72 ±10%	14.47 ±10%	5.04 ±10%	ASTM D638
Elongation at break (%) :	8.44 ±10%	25.5 ±10%	8.85 ±10%	ASTM D638
Hardness (Shore D) :	80-88	80-85 D	85-88	ASTM D2240
Shrinkage rate(%)	0.2-0.5	0.2-0.5	0.2-0.5	
Viscosity (MPa.S) :	20-400	250-450	50-170	GB/T 4472
Density (g/cm <sup>3</sup> ) :	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

## Gingiva Mask Resin & C&B Resin & Denture Base Resin

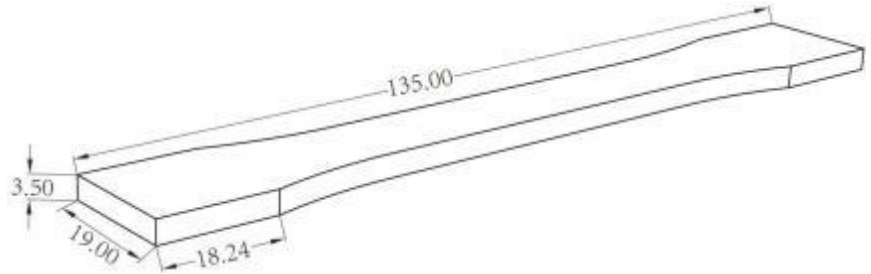
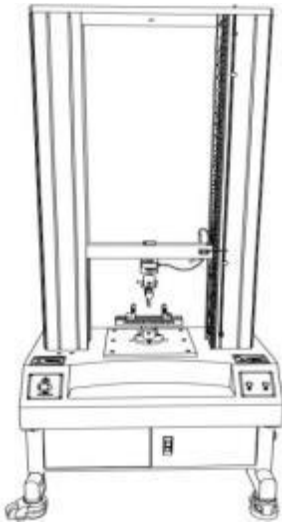
Technical Parameters after Molding	Gingiva Mask Resin (GC-82 series)	C&B Resin (MC-22A )	Denture Base Resin (DBM-29C01)	Test Standard
Tensile strength (MPa) :	1.33 ±10%	30.00 ±10%	25.62 ±10%	ASTM D638
Tensile modulus (MPa) :	1.32 ±10%	490.91 ±10%	320.80 ±10%	ASTM D638
Elongation at yield point(%)	40.62 ±10%	6.36 ±10%	5.50 ±10%	ASTM D638
Flexural modulus (MPa) :	--	927.13 ±10%	693.51 ±10%	ASTM D790
Flexural strength (MPa) :	--	30.98 ±10%	25.48 ±10%	ASTM D790
Notched impact strength (J/m) :	--	32 ±10%	118.46±10%	ASTM D256
Maximum force (KGF) :	5.64±10%	127.3 ±10%	108.70 ±10%	ASTM D638
Maximum force point of deformation ( mm)	60.7 ±10%	3.65 ±10%	9.99 ±10%	ASTM D638
Elongation at break (%) :	110.28 ±10%	6.45±10%	17.65 ±10%	ASTM D638
Hardness (Shore D) :	50-60 (Shore A)	80-90	80-85	ASTM D2240
Shrinkage rate(%):	--	0.2-0.7	0.2-0.5	
Viscosity (MPa.S) :	350-550	150-250	250-450	GB/T 4472
Density (g/cm <sup>3</sup> ) :	1.05-1.25	1.05-1.25	1.05-1.25	GB/T 22235

**Surgical Guide Resin&Tray Resin& Water Washable Ortho model Resin**

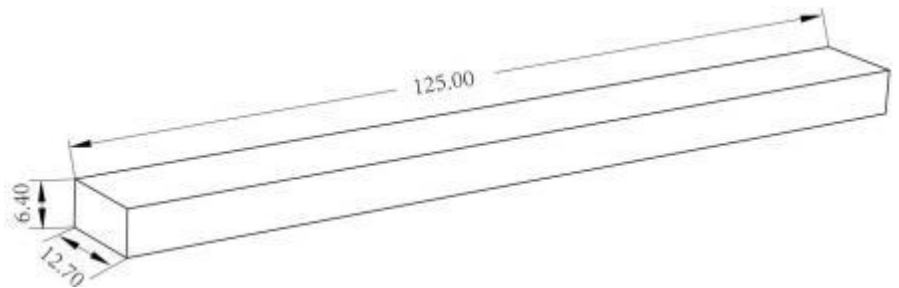
<b>Technical Parameters after Molding</b>	<b>Surgical Guide Resin (DB-07-B)</b>	<b>Tray Resin (GK-E series)</b>	<b>Water Washable Ortho model Resin (WOTM series)</b>	<b>Test Standard</b>
Tensile strength (MPa) :	26.78 ±10%	38.36 ±10%	22.89 ±10%	ASTM D638
Tensile modulus (MPa) :	310.88 ±10%	447.12 ±10%	232.05 ±10%	ASTM D638
Elongation at yield point(%)	6.18 ±10%	7.22 ±10%	6.92 ±10%	ASTM D638
Flexural modulus (MPa) :	761.26 ±10%	979.24 ±10%	327.96 ±10%	ASTM D790
Flexural strength (MPa) :	25.19 ±10%	44.15 ±10%	15.05±10%	ASTM D790
Notched impact strength (J/m) :	31.80 ±10%	454.37 ±10%	86.90±10%	ASTM D256
Maximum force (KGF) :	113.60 ±10%	162.76±10%	105.10±10%	ASTM D638
Maximum force point of deformation ( mm)	13.87 ±10%	6.80 ±10%	8.45±10%	ASTM D638
Elongation at break (%) :	24.45 ±10%	35.44 ±10%	14.91±10%	ASTM D638
Hardness (Shore D) :	80-83	80-88	80-85	ASTM D2240
Shrinkage rate(%):	--	--	--	
Viscosity (MPa.S) :	120-180	350-650	200-450	GB/T 4472
Density (g/cm <sup>3</sup> ) :	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

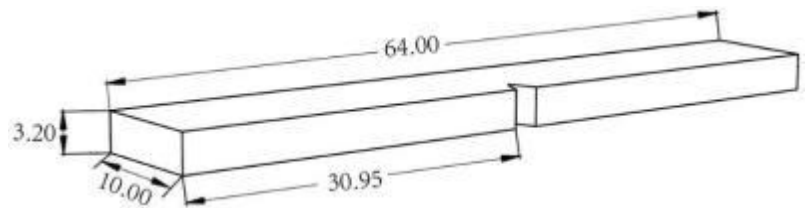
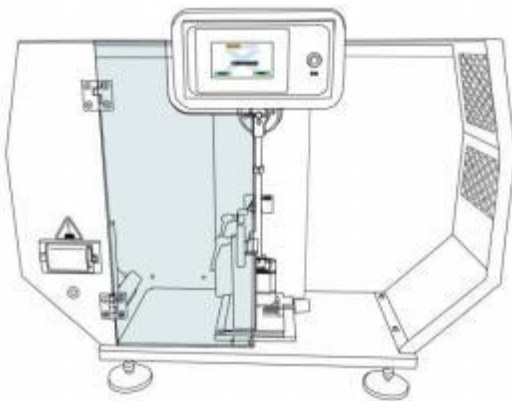


Tensile test specimen ASTM D638



Flexural test specimen ASTM D790

## Digital IZOD Impact Tester



Impact test specimen ASTM D256

## Testing Environment

Temperature:  $23 \pm 2^\circ\text{C}$

Relative Humidity:  $50\% \text{RH} \pm 5\% \text{RH}$

Standard For Testing Splines: ASTM

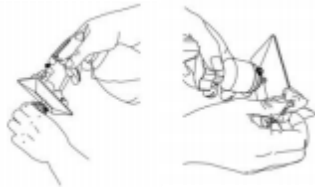
Post Curing Box: 405nm UV,  $200 \text{mw}/\text{cm}^2$

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 platform.



3. Spray alcohol again then dry it repeat a few times till no resin on surface.



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



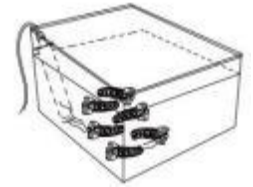
5. Repeat step 3.



6. Place the work piece into a container with alcohol, the alcohol should fully cover it.



7. Put the container into ultrasonic machine, clean for 1-2 mins.



8. If no ultrasonic cleaner, try to use an ultrasonic rod, Clean for 5-10 mins.



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



10. Suggest to do post curing in water, curing time depends on the light power of the curing box, (Curing time 30-60s, curing both sides). Repeat step 9.

**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 handling.
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°C environment.
3. Keep away from heat source, keep away from moisture and avoid sun exposure.
4. Shelf life 18 months.