

Materials Formulated for Clear Aligner Models



High-temp Resistant Dental Model Resin

Odor:	Odourless
Colors:	Milky White
Specification:	5KG/Bottle
Washing Agent :	IPA or ethanol
Machines Compatibility:	3D printers with 405nm Light source



Water Washable Dental Model Resin

Odor:	Odourless
Colors:	Milky White
Specification:	5KG/Bottle
Washing Agent :	Water
Machines Compatibility:	3D printers with 405nm Light source

Advantage

-  Fast forming rate
-  High precision
-  Ultra-high surface hardness
-  High-temperature resistance
-  Superior toughness and force retention

Advantage

-  Fast forming rate
-  High precision
-  Ultra-high surface hardness
-  High-temperature resistance
-  Water washable

RF-MI-1101 Product Performance

Parameter	Standard	Unit	Result
Shore	ASTM D2240	Shore D	86
Flexural Strength	ASTM D790	Mpa	69.6
Flexural Modulus	ASTM D790	Mpa	1713
Elongation	ASTM D638	%	17.2
Water Sorption	ASTM D570	%	0.45-0.6

RF-MI-2103 Product Performance

Parameter	Test standards	Unit	Result
Shore	ASTM D2240	Shore D	87
Flexural Strength	ASTM D790	Mpa	106
Flexural Modulus	ASTM D790	Mpa	2964
Elongation	ASTM D638	%	13.2
Water Sorption	ASTM D570	%	0.7

Model Processing Solution

Washing Material

IPA or Ethanol

Supporting equipment:
Ultrasonic cleaning machine or Mechanical mixing and cleaning machine

Supporting cleaning agent:
Ethanol (alcohol) or isopropanol IPA

High-Temp resistant dental model resin is suitable for IPA or ethanal washing



Water Washable

Supporting equipment:
Ultrasonic cleaning machine or Mechanical mixing and cleaning machine

Cleaning agent: Water

Water washable dental model resin is suitable for water washing



Washing-free material

No need solven to clean, and more environment friendly.

Spinner RFADM-03 is developed for our washing free resin and dental mode cleaning. This superior machine is high-speed in operation and its powerful action gives quick and exceptional results. It is silent in operation and 100% safe for all cleaning applications.

Both High-Temp resistant dental model resin & Water washable dental model resin are suitable for solven-free machine.



RFADM-03

RFADM-03 Specification

Model:	RFADM-03
Inner Gallbladder Diameter:	770X770mm
Inner Gallbladder Height:	419mm
Motor Model:	YEJ-90L-4-B51.5KW
Electrical Requirements:	200-240VAC, 50/60Hz
Maximum Speed:	1000rpm/min
Machine Weight:	380Kg
External Dimensions:	900x900x1250m

AUTOMATIC THERMOFORMING

Advantages

- Equipment size: 2300mmx1050mmx2000mm
- Controllable molding temperature range:0°C -700°C, coil material can be uniformly heated
- Heating efficiency:<30s/100°C
- Working efficiency of film pressing(single time to finish pressing film): ≤30s/pcs(two at one time)
- Defective rate of film pressing(rework ratio):<1%
- Good adhesion of pressed film
- Water cooler:Refrigerating capacity 1400W(Environmentally friendly refrigerant is available), temperature control accuracy ±0.3°C

Applicable coil specifications:

- Coil outer diameter: 100-480 mm
- Coil aperture: 70 mm
- Coil width: 100-137 mm(Customizable size)



Molding process



01 Coil loading



02 Mold feeding



03 Heat forming

Device Communication Description

- Support external data monitoring interface and communication interface
- Support TCP/IP RS232/485 and other communication modes

LASER MARKING

Advantages

- Equipment size: 1350mmx1050mmx2000mm
- Visual recognition rate $\geq 98\%$
- Recognition time $\leq 2\text{S}$
- Laser marking two-dimensional code recognition rate $\geq 99\%$
- Laser single marking time $< 4\text{S}$
- laser: Green laser



Process



01 Visual recognition



02 Laser marking



03 Tilting mechanism

Reading and marking machine parameters

Green laser

- Laser customization:
- Input voltage: 220V
- Cooling mode: Water-cooling
- Laser wavelength: 532nm
- Laser output power: 10w
- maximum speed of Marking line: 7000mm/s
- minimum width of Marking line: 0.01mm
- Mark repetition accuracy: 0.01mm
- The size of the scan and marking area: 180*180mm

Visual recognition

- Brand: Hikvision:
- Camera parameter: MV-CA060
- Lens parameter: MVL-HF0624M
- Illuminant: B100100
- Light source controller: HDP24-2
- Vision software: VisionMaster

Device Communication Description

- Provide interface and production system integration for monitoring the current process and status of each clear aligner
- Support TCP/IP RS232/485 and other communication modes
- The interface can be integrated with the trimming equipment to provide the required parameter information of the aligner trimming

AUTOMATIC TRIMMING

Advantages

- Equipment size: 1350mmx1050mmx2000mm
- After cutting, the edge of the appliance is consistent with the original cutting line, and the accuracy is <0.3mm
- Cutting individual appliance operation time: $\leq 25s$
- No interference in the cutting process
- Percentage of raw edge of appliance after cutting <2%
- Cut defect(rework) rate: <1%
- Provide supporting tool software to solve the automatic generation of cutting lines, manual correction functions
- Provide supporting tool software to solve the function of base shape generation for cutting and positioning
- Provide API interface to solve the custom cutting line path, tool Angle setting function

Process



01 The camera takes pictures and reads the code



02 Automatic cutting



03 Finished product display



Automatic trimming parameters

Six Axis Robot Module

- Brand: ABB IRB1200-7/0.7
- Payload: 7KG
- Armspan: 703mm
- Weight: 54KG
- Repeated positioning accuracy: 0.02mm
- Power: 0.39KW

Spindle Module

- Brand: Zhen Yu
- Power: 800W
- Rotational speed: $\leq 40000r/min$
- Heat dissipation mode: Water-cooling

Visual recognition

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- Illuminant: B100100
- Light source controller: HDP24-2
- Vision software: VisionMaster

Description of main consumables

- The cutting tool is durable, the diameter is as small as possible, and the blade can be stressed out
- Average tool life < 800 (appliance cutting times, refer to the cutting effect of TPU diaphragm model)
- Unit appliance cutting tool cost is less than 0.1 yuan
- The water cooler needs to be replaced once every six months with pure water or distilled water. You need to add antifreeze in winter

Device Communication Description

- Provide or cooperate with automated production line model recognition systems
- Support TCP/IP RS232/485 and other communication modes
- The cutting line can be automatically obtained and the cutting can be completed based on the unique identification information of the model

BRACES ALL-IN-ONE MACHINE

Advantages

- Equipment size: 1650mmx1100mmx1900mm
- Working efficiency: $\leq 45S$ / piece (film pressing, marking, cutting)
- Controllable molding temperature range: 0°C -700°C, sheet can be uniformly heated
- Material specification: $\varphi 125$ mm diaphragm (can also be customized)
- Visual recognition rate $\geq 98\%$
- Marking content: numbers, letters, bar codes, QR codes, LOGO
- After cutting, the edge of the appliance is consistent with the original cutting line, and the accuracy is <0.3 mm
- Percentage of raw edge of appliance after cutting $<2\%$
- Cut defect(rework) rate: $<1\%$
- Provide supporting tool software to solve the automatic conversion function of cutting line
- Provide API interface to solve the custom cutting line path, tool Angle setting function

Molding process



01 Automatic die loading



02 Manual upper tooth mold



03 self heating



04 Automatic forming



05 Identification marking



06 Retainer cutting

Device Communication Description

- It can support external data monitoring interface and communication interface, which can be integrated with the trimming device to provide parameter information required for the trimming of the invisible corrector
- Support TCP/IP RS232/485 and other communication modes
- Provides an interface and production system integration for monitoring the current process flow and status of each of the invisible aligners, automatically obtaining the cutting line and completing the cutting based on the unique identification information of the model



Reading and marking machine parameters

Green laser

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