

HIGH PRODUCTIVITY RAPID MANUFACTURING SYSTEMS

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# DIGITALWAX X

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FOR GENERAL APPLICATIONS



**3D SOLUTIONS**

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### DWS Additive Manufacturing

DWS - Digital Wax Systems, is an innovative Italian company founded in Vicenza in 2007. It already had a long experience in the prototyping sector. It develops hi-tech solutions for prototyping and high-speed production applied to reduce development times for new industrial products. Today these systems are a strategic resource and a must-have element necessary to increase the competitiveness. The mission of DWS is to innovate production processes in order to make the production faster and more flexible. It is currently the only Italian company specialized in the development and application of the stereolithography technology, that provide best quality results combined with a drastic reduction of time to market.

All our systems are fully compatible with all CAD/CAM files in the market. Directly from a .stl 3D file, DWS systems create the best prototypes and finished products, in terms of high definition and accuracy. Completely designed and produced in Italy by DWS, DigitalWax® systems are used in 60 countries worldwide and provide companies with the innovative Additive Manufacturing technology in the market.

The point of strength of DWS is the perfect merge of high technology and human values that leads to a continuous improvement.

Our process is unique of its kind and it is protected by several international patents. Our best distinctive technology and solutions are:

- The innovative BluEdge® laser
- Dedicated software, constantly updated
- The absence of immersive building phase which strongly reduce the consumption of resins and allows a quick material change
- Proprietary photosensitive resins and hybrid materials, differentiated for every kind of applications, in order to give a full range solution for any needs.
- Accuracy and superior surface quality of the final product.

Thanks to all these solutions, DWS systems provides the best performance in terms of high definition and cost reduction. DWS is leader in the gold jewellery sector and also an important player with innovative solutions for the dental sector and industrial applications in general. Our customized solutions aim to meet the highest requirements of today's market and to improve the companies' competitiveness following the main lean manufacturing principles: less waste, more quality and more productivity.



Industrial



Jewelry & Fashion



Dental & Biomedical

DigitalWax® X systems



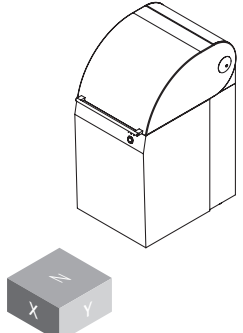
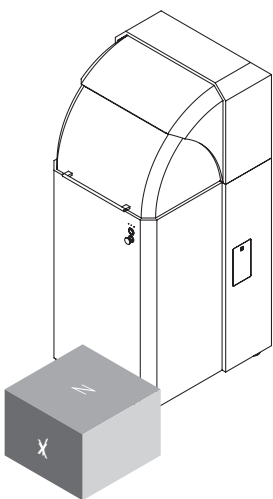
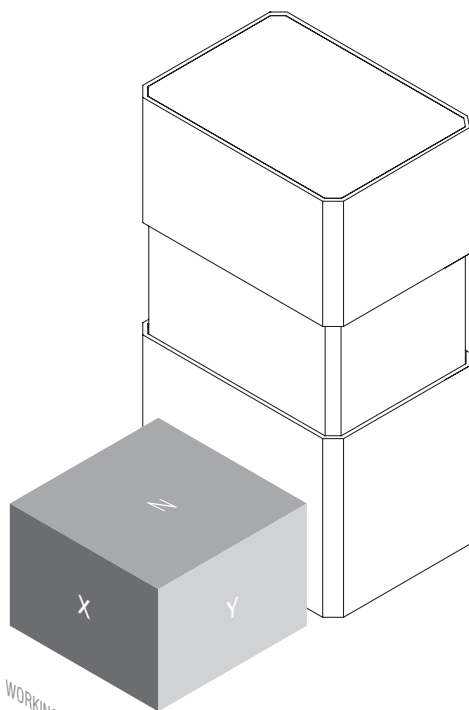
Legend

HR = Laser High Resolution - Optional

+ = productivity

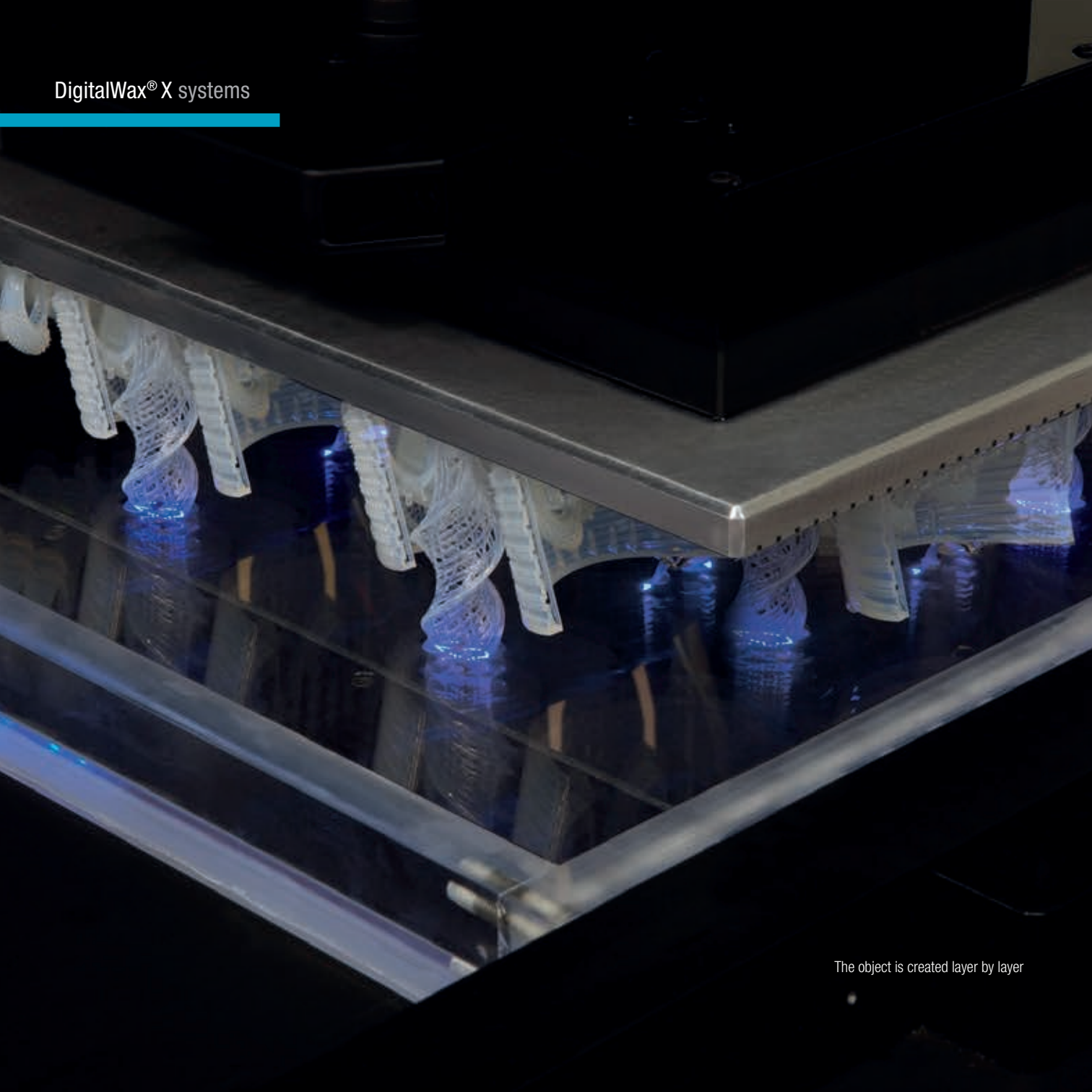
> = building speed

o = resolution

020X	029X	030X
-	HR	HR
+++++	+++++	+++++
>>>>	>>>>	>>>>
oooo	oooo	oooo
 <p>WORKING AREA <b>130X130X90</b></p>	 <p>WORKING AREA <b>150X150X200</b></p>	 <p>WORKING AREA <b>300X300X300</b></p>

Dimensions in millimeters

DigitalWax® X systems



The object is created layer by layer

## Building process



The **Galvanometer** type scanning method allows the highest building speed and accuracy and is adopted by DigitalWax® 020X, 029X and 030X systems.

## DigitalWax® X: Additive Manufacturing systems for general applications

Due to their reduced moving parts and unique user-friendliness, DigitalWax® machines are characterised by high reliability and extra-low maintenance. A great flexibility is made possible by the quick material change, the absence of pre-heating and calibration.

The machines are controlled by dedicated software that is perfectly compatible with most 3D CAD systems used in the industrial applications.

BluEdge® is a Class 3B laser source created by DWS Research & Development Centre that emits ultraviolet rays which solidify layer upon layer of photosensitive resin. By means of a vertical positioning device, the modelling platform base rises up for a measure corresponding to the thickness of the solidified layer. These motion capabilities, together with a synchronised laser allow the creation of exceptionally complex and precise three-dimensional prototypes.

DigitalWax® stereolithography machines are characterised by innovations such as a transparent resin tank which allows the laser beam to pass through it, and a laser scanning unit placed directly under the tank. These innovations, in comparison to conventional techniques, make the whole process more flexible and more economical, especially in terms of material consumption.



## Desktop 3D printer

Designed for the production of functional prototypes, finished parts, concept models with the highest definition and resolution.

DigitalWax® 020X meets the strictest quality standards, reducing to a minimum or even doing away with the need to finish pieces.

All this in just a few hours thanks to a fast accurate laser and considerably lower consumption of photopolymerizable material, used without waste or the need for further support materials.

DigitalWax® 020X is reliable, quiet and ideal for engineering, design, consumer products and for all sector in general that call for speed and accuracy in the new product development stage and manufacturing division.

The flexibility of this product is guaranteed by the wide range of "X Series" materials, from which you can pick the most suitable for your requirements and business.

### Standard accessories supplied with DigitalWax® 020X:

No. 1 Building platform mm 138x138 (working area mm 130x130)

No. 1 Resin tank mod. RT800

No. 1 Set of handling tools

No. 1 DigitalWax® 020X Software Suite License

No. 1 User manual

### Technical data:

Light source: Solid State BluEdge® BE-1500C

Working area (x, y, z): 130 x 130 x 90 mm

Slice thickness\*: 0,01 – 0,10 mm

Scanning method: Galvanometer

Laser scanning speed: 0-4300 mm/sec

Software: DigitalWax® 020X Controller

OS: Windows XP Professional

Input files format: .stl - .slc

Network interface: USB

Machine size: 380x515x810 mm

Weight: 58 Kg

Operating Temperature and Humidity: 22° - 25°C / 60%

Electrical consumption: 400 W

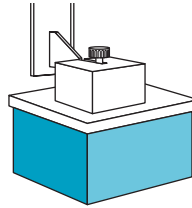
Power supply: AC 230/115 V / 50-60 Hz

\*it depends on the kind of photo-sensitive material used.  
Technical specifications subject to changes without notice.





No Option 130x130x90



#### HIGHLIGHTS

- Desktop size system
- Quick material change
- BluEdge® laser source
- High speed and accuracy
- Low running costs
- Long life UV laser
- No calibration





## High productivity Additive Manufacturing system

High accuracy, large size capacity and the lowest running cost in the market are the main features of this innovative system.

Fully compatible with the majority of 3D CAD/CAM systems, DigitalWax® 029X is the perfect solution either for rapid prototyping and rapid manufacturing of complex parts, delivering the highest level of accuracy and surface quality.

A quick 3D printout with high surface quality can be very helpful during the concept design phase: the DM210 ceramic nano-filled resin enables a designer to visually inspect the design for form, fit, and function. The new DL350 polypropylene-like resin has been specifically developed by DWS for flexible, fully functional prototypes.

DigitalWax® 029X allows the production of lost wax casting products as well by a simple and quick material change.

### Standard accessories supplied with DigitalWax® 029X:

N. 1 TTT system
N. 1 Building platform mm 160x160 (working area: mm 150x150)
N. 1 Resin tank mod. RT500
N. 1 Set of handling tools
N. 1 Personal Computer with LCD monitor
N. 1 UPS 650VA 230V 50/60 Hz
N. 1 DigitalWax® 029X Software Suite License
N. 1 User manual

### Technical data:

Laser source: Solid State BluEdge®	BE-1800C
Working area (x, y, z):	150 x 150 x 200 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	6500 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 029X Controller
OS:	Windows 7
Input file format:	.stl - .slc
Machine size:	610x660x1400 mm
Weight:	150 Kg
Operating Temperature and Humidity:	22° - 25°C / 60%
Electrical consumption:	500 W
Power supply:	AC 230/115 V / 50-60 Hz

\*it depends on the kind of photo-curable resin used.  
 Technical specifications subject to changes without notice.

SYSTEM - GALVANOMETER

HR Option 150x150x200

#### HIGHLIGHTS

BluEdge® laser source

TTT - Tank Translation Technology

High speed and accuracy

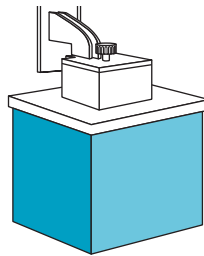
High surface quality

Complete choice of materials

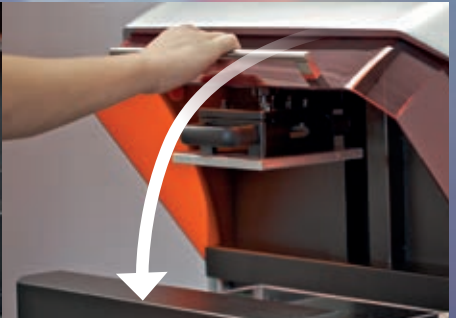
Extra-long life UV laser

No calibration

Lowest running cost



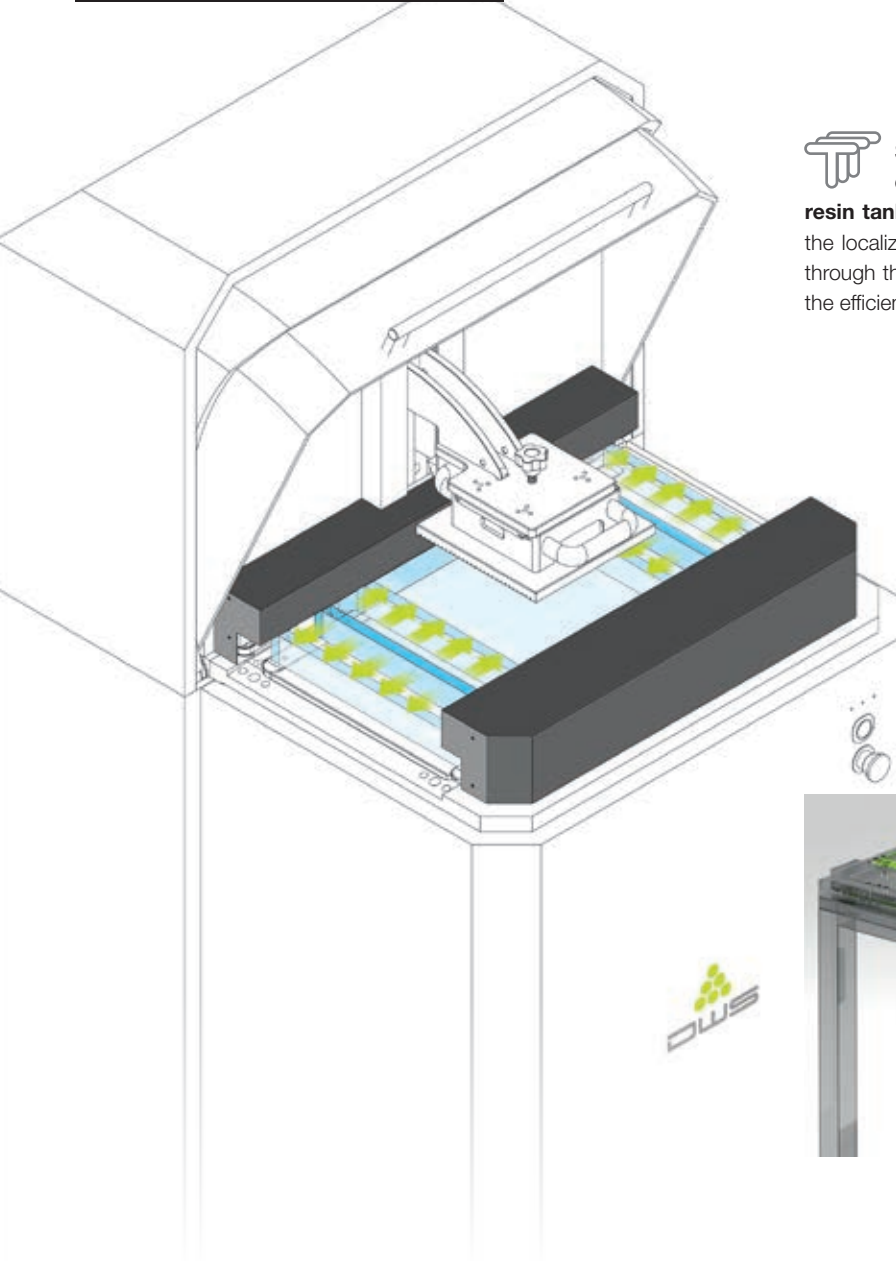
DigitalWax® advantages



Resin tank loading system, left or right - Quick material change

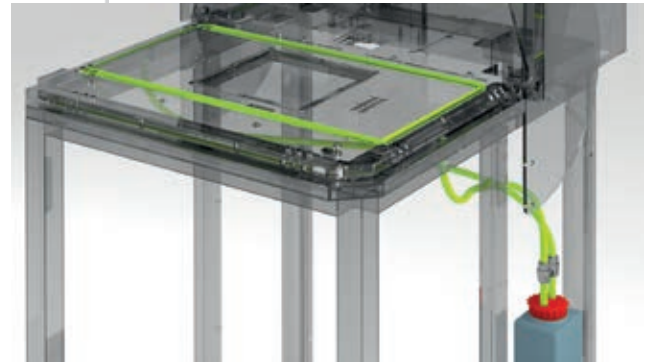
Easy and safe locking system

## TTT SYSTEM



SYSTEM (Tank Translation Technology) consists of an electromechanical device that **automatically shifts the resin tank during the growing of the model**: it allows to reduce the localized wear of the tank caused by the laser beam irradiation through the same area, improving both the life of the resin tank and the efficiency of the building process.

The **Leakage Protection System** prevents damages due to improper infiltration of liquids inside the sophisticated scanning and laser devices.





## High productivity Additive Manufacturing system

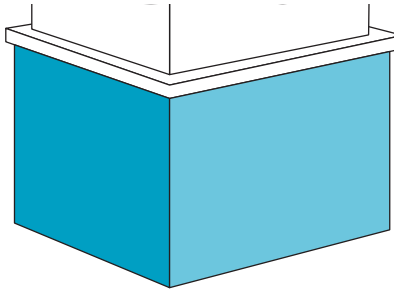
DigitalWax® 030X rapid manufacturing system has been specifically developed for high productivity applications in the industrial field. High accuracy, large size capacity and the lowest running cost in the market are the main features of this innovative system. In combination with a new generation of fully castable materials, DigitalWax® 030X is the perfect solution for the mass production of wax-like patterns, delivering the highest accuracy and surface quality for a perfect replacement of the conventional mould injection method. The great flexibility of the DigitalWax® 030X allows a quick material change and a choice of different materials, either for direct casting and rubber moulding applications. Thanks to its long-term experience, DWS has developed the DC series of wax-based resins for direct casting and the DM/DL Series of hybrid materials for the production of master models for rubber moulding applications.

### Technical data:

Laser source:	Solid State BluEdge®
Working area (x, y, z):	300x300x300 mm
Machine size:	1100x700x2000 mm



SYSTEM - GALVANOMETER **HR Option** 300x300x300



#### HIGHLIGHTS

- BluEdge® laser source
- TTT - Tank Translation Technology
- Highest productivity
- High speed and accuracy
- Superior surface quality
- Complete choice of materials
- Lowest running cost



## Materials

### DIGITALWAX® DC Series: resins for direct casting

**DC casting resins** are specifically designed for **direct lost wax casting** applications. Designed to allow the production of high-definition, detailed parts and smooth surfaces that do not require manual finishing.

Type	Application	Features	Colour
<b>DC080</b>	Direct casting	Hard casting resin	Light yellow
<b>DC100</b>	Direct casting	Soft casting resin	Light yellow

### DIGITALWAX® DM/DL/AB/GM Series: resins for rubber moulds and functional parts

**DM nano-filled resins** are the right materials for heat resistant parts with high accuracy and excellent surface quality.

**DL, AB** and **GM resins** have been developed for rapid prototyping and rapid manufacturing of functional parts.

Type	Application	Features	Colour
<b>DM210</b>	Mock-up design	Smooth surface	Dark blue
<b>DM220</b>	HTV rubber mould	High temperature resistance	Light blue
<b>DL260</b>	Mock-up design	Extra-smooth surface	Opaque grey
<b>DL350</b>	Functional prototype	PP-like	Light yellow
<b>DL360</b>	Functional prototype	Transparent	Light yellow
<b>AB001</b>	Functional prototype	ABS-like	White
<b>AB002</b>	Functional prototype	ABS-like	Grey
<b>GM08</b>	Functional prototype	Rubber-like, transparent	Light yellow
<b>GM08B</b>	Functional prototype	Rubber-like	Black



## UV Curing Units

### HIGHLIGHTS

Best casting results

Low power consumption

Simple use and maintenance

Timer setting



### UV Curing Unit 'S' and 'M'

The UV Curing Unit device concurs the secondary solidification of the models built by the DigitalWax® systems. These models are perfectly formed, but they need an additional exposure to a specific UV light source. This allows the consolidation and the stabilization of their structure and ensures the best casting results.

UV Curing Unit model "S2" is usually suggested for DigitalWax® 008J and DigitalWax® 028J, while the model "M" is more suitable for DigitalWax® 029J because it can cure a complete platform all at once.

#### Technical data:

	UV Curing Unit 'S2'	UV Curing Unit 'M'
Ventilation	Forced ventilation inside	Forced ventilation inside
User controls	On/Off button Timer Safety device on door opening	On/Off button Timer Safety device on door opening
Timer setting	0 ÷ 30 minutes	0 ÷ 30 minutes
Curing area dimensions	160 x 160 x 160 mm	225 x 250 x 225 mm
Machine size	265 x 300 x 330 mm	370 x 330 x 480 mm
Weight	11,8 kg	20,5 kg
Power consumption	35 W	120 W
Power supply	90-264 V / 50-60 Hz	220 V / 50-60 Hz

Technical specifications subject to changes without notice.







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