HIGH PRODUCTIVITY RAPID MANUFACTURING SYSTEMS

DIGITALWAX D

FOR DENTAL & BIOMEDICAL APPLICATIONS

3D SOLUTIONS

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DWS

DWS Additive Manufacturing

DWS, Digital Wax Systems, was founded in Vicenza in 2007, drawing on lengthy consolidated experience in prototyping.
DWS develops hi-tech solutions for prototyping and high-speed production, with the aim of reducing development times for new products and, as a consequence, time to market. These systems have become must-haves and strategic resources for corporate competitiveness. The goal of DWS is to innovate processes to make production faster and more flexible.

DWS is the only Italian company today capable of developing systems for prototyping and rapid production through implementation of stereolithography technology, with in-house manufacture of all the necessary resins and materials. It exports 95% of its production to over 60 countries around the world and is divided into four business units: jewellery, dental, general applications and, from today, also consumer goods.

The advantages that qualify DWS as an excellence can be summarised as follows:

- the use of new-gen photosensitive resins and materials developed in-house
- the innovative BluEdge® laser system
- dedicated 3D editing and manufacturing software
- the absence of the immersion in resin phase
- speed, accuracy and high surface quality.

The production process is one of its kind and protected by international patents. DWS is leader in the jewellery sector and also an important player with very interesting solutions for the dental sector and industrial applications in general.

Dental & Biomedical

Jewelry & Fashion

General applications

DigitalWax® D systems

DigitalWax® D line-up

Legend
HD = High Definition
UHD = Ultra High Definition
Applications range
+ = productivity
> = building speed
o = resolution

009D	020D	028D	029D	030D SR	030D HR
HD	HD	UHD	UHD	HD	UHD
All applications	Orthodontic applications	All applications	All applications	Orthodontic applications	All applications
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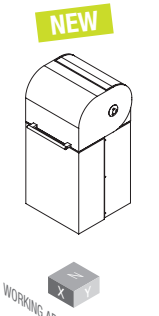
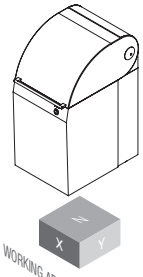
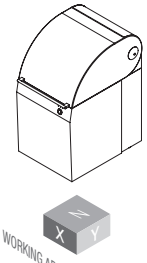
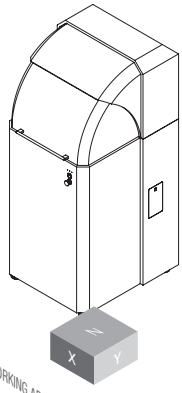
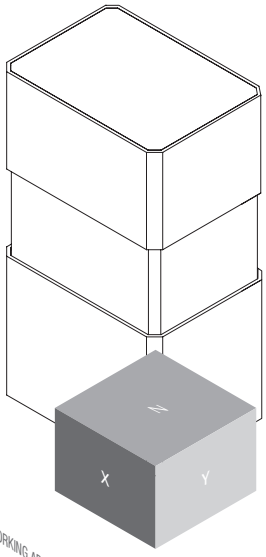
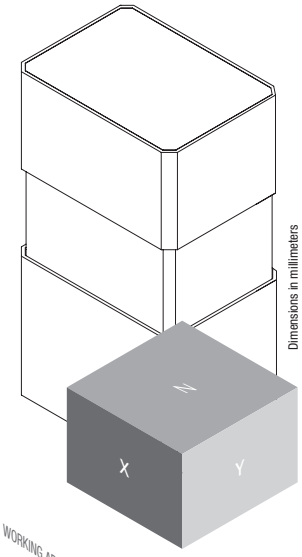
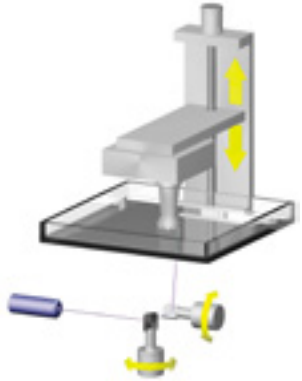
					
WORKING AREA 50x37x100	WORKING AREA 130x130x90	WORKING AREA 90x90x90	WORKING AREA 150x150x100	WORKING AREA 250x250x250	WORKING AREA 300x300x300

Dimensions in millimeters

Building process

The object is created layer by layer.

The **DLP Projection** method is characterised by high accuracy and a high productivity, the main features of the DigitalWax® 009D.



The **Galvanometer** type scanning method allows the highest building speed and accuracy. It is adopted by DigitalWax® 020D, 028D, 029D and 030D systems.

DigitalWax® D: Additive Manufacturing systems for digital dentistry

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 dental 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.

DigitalWax® 009D NEW

Entry-level DLP® system for dental applications

Thanks to a wide production capacity, DigitalWax® 009D is an entry-level with no compromise in terms of performance.

DigitalWax® 009D is the most economic machine among the DigitalWax® products and it allows the highest accuracy and resolution thanks to the DLP® display technology developed by Texas Instruments®. High speed and low running cost together with accuracy and resolution are the DWS essential features of this new product.

With a working area of 50×37 mm, DigitalWax® 009D is the ideal rapid prototyping choice with minimum investment and running costs. The extensive DigitalWax® D material portfolio is available, including the revolutionary Temporis®.

Standard accessories supplied with DigitalWax® 009D:

- No. 1 Building platform mm 65×47,5 (working area mm 50×37)
- No. 1 Resin tank mod. RT900
- No. 1 Set of handling tools
- No. 1 DigitalWax® 009D Software Suite License
- No. 1 User manual

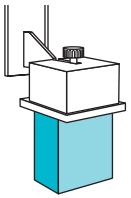
Technical data:

Light source:	LED UV
Working area (x, y, z):	50 x 37 x 100 mm
Slice thickness*:	0,01 – 0,10 mm
Scanning method:	DLP® Texas Instruments Inc.
Software:	DigitalWax® 009D Controller
OS compatibility:	Windows 7
Machine size:	315 x 335 x 630 mm
Weight:	15 Kg
Operating Temperature Range:	22°- 25°C
Operating Humidity Range:	30-60%
Electrical consumption:	150 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.

DLP PROJECTION

HD 50x37x100



HIGHLIGHTS

- DLP® Display Technology by Texas Instruments®
- High accuracy
- Complete choice of materials
- Compatible with Temporis® material
- Low running costs
- No calibration

RD096B

RF080

DigitalWax® 020D

Desktop system for orthodontic applications

High productivity and the lowest running cost on the market are the main characteristics of this **innovative rapid manufacturing system for orthodontic applications**.
The high speed and accuracy of the machine mean shorter production times with no manual intervention, ensuring maximum client satisfaction and zero defects.
DigitalWax® 020D is fast: combining CAD/CAM design with intraoral scanning, impression scanning or stone model scanning, DWS 3D printers create finished products for orthodontic applications.

Production of:

- Orthodontic models
- Surgical guides
- Delivery and positioning trays
- Clear aligners and retainers

Standard accessories supplied with DigitalWax® 020D:

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® 020D Software Suite License
No. 1 User manual

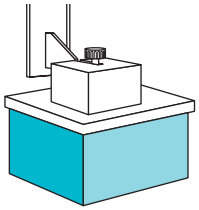
Technical data:

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® 020D Controller
OS:	Windows 7
Input files format:	.stl - .slc
PC interface:	USB
Machine size:	380x515x793 mm
Weight:	56 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.

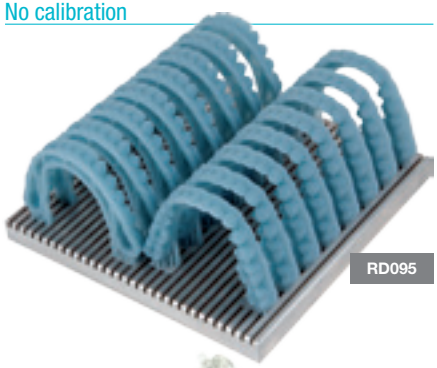
GALVANOMETER

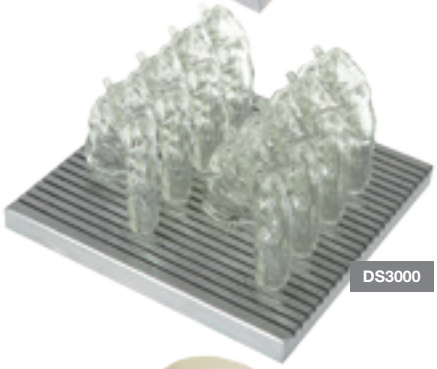
HD 130x130x90



HIGHLIGHTS

- Desktop size system
- Quick material change
- BluEdge® laser source
- High speed and accuracy
- Complete choice of castable materials
- Compatible with Temporis® material
- Low running costs
- Long life UV laser
- No calibration





DigitalWax® 028D

Desktop high accuracy system

DigitalWax® 028D is a high performance, rapid desktop manufacturing system, for small and medium size dental labs.

The three-dimensional models are built by a special laser, which hardens a proprietary photocurable material. Thanks to layer-by-layer forming technology, there are no limits to the geometric complexity of the models: undercuts, cavities, thin surfaces and complex shapes can be created without any difficulty.

The BluEdge® laser is specifically developed and manufactured by DWS to guarantee high performance and long life.

Thanks to high speed scanning technology, DigitalWax® 028D is suitable for a wide range of dental applications: direct castable patterns, provisional restorations and gypsum-like models from intraoral scanners.

Standard accessories supplied with DigitalWax® 028D:

- No. 1 Building platform mm 100x100 (working area: mm 90x90)
- No. 1 Resin tank mod. RT800
- No. 1 Set of handling tools
- No. 1 Personal Computer with LCD monitor
- No. 1 UPS 650VA 230V 50/60 Hz
- No. 1 DigitalWax® 028D Software Suite License
- No. 1 User manual

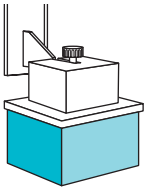
Technical data:

Laser source: Solid State BluEdge®	BE-1500B
Working area (x, y, z):	90 x 90 x 90 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	0-4300 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 028D Controller
OS:	Windows 7
Input files format:	.stl - .slc
Machine size:	380x515x733 mm
Weight:	56 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.

GALVANOMETER

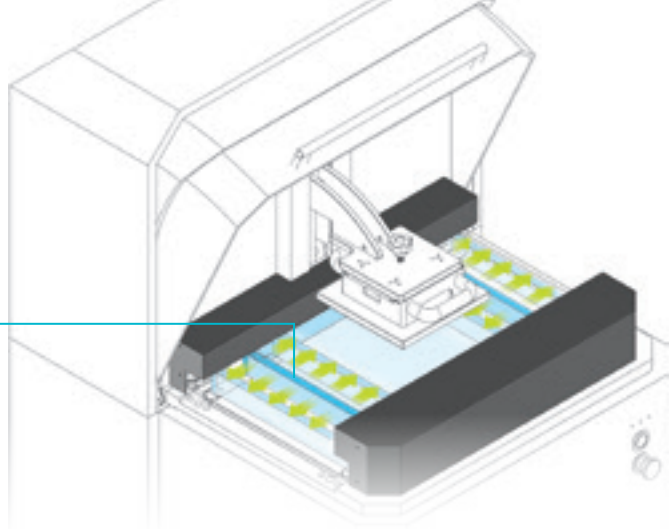
UHD 90x90x90



HIGHLIGHTS

- Desktop size system
- Quick material change
- BluEdge® laser source
- High speed and accuracy
- Complete choice of materials
- Compatible with Temporis® material
- Low running costs
- Long life UV laser
- No calibration

DigitalWax® 029D



High performance production system

DigitalWax® 029D is a additive manufacturing system conceived for medium production volumes, suitable for considerable quantities of castable patterns and provisional restorations. The wide working area means DigitalWax® 029D is suitable for the production of medium quantities of orthodontic models and gypsum-like models from intraoral scanners.

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

Standard accessories supplied with DigitalWax® 029D:

- No. 1 Building platform mm 160x160 (working area: mm 150x150)
- No. 1 Resin tank mod. RT500
- No. 1 Set of handling tools
- No. 1 Personal Computer with LCD monitor
- No. 1 UPS 650VA 230V 50/60 Hz
- No. 1 DigitalWax® 029D Software Suite License
- No. 1 User manual

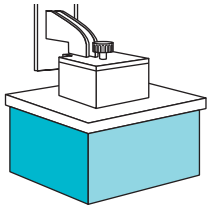
Technical data:

Laser source: Solid State BluEdge®	BE-1800B
Working area (x, y, z):	150 x 150 x 100 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	6500 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 029D 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-sensitive material used.
Technical specifications subject to changes without notice.

SYSTEM – GALVANOMETER

UHD 150x150x100



HIGHLIGHTS

- Perfect for medium volume production
- Quick material change
- BluEdge® laser source
- High speed and accuracy
- Superior surface quality
- TTT - Tank Translation Technology
- Complete choice of materials
- Compatible with Temporis® materials
- Extra-long life UV laser
- No calibration
- Low running costs

DigitalWax® 030D

High productivity additive manufacturing system

High productivity, large size capacity and the lowest running cost on the market are the main features of this innovative system.
In combination with a new generation of intraoral scanner systems, DigitalWax® 030D is the perfect solution for the mass production of digital impression models, delivering the highest accuracy and surface quality for a perfect replacement of the conventional physical impressions.
The right physical and visual properties are guaranteed by the new RD material series, specifically developed by DWS for digital impression SLA printing.
The great flexibility of the DigitalWax® 030D also allows the production of lost wax casting products, such as crowns, bridges and partial frameworks thanks to simple quick material change. Thanks to its long-term experience, DWS has developed the RF series of photocurable resins for direct casting of dental parts, which includes three different solutions for a full coverage of the casting applications.

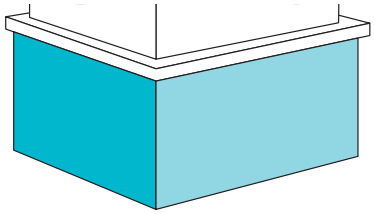
Technical data **030D SR**:	
Laser source:	Solid State BluEdge®
Working area (x, y, z):	250x250x250 mm
Machine size:	1100x700x2000 mm

Technical data **030D HR**:	
Laser source:	Solid State BluEdge®
Working area (x, y, z):	300x300x300 mm
Machine size:	1100x700x2000 mm

Technical specifications subject to changes without notice.

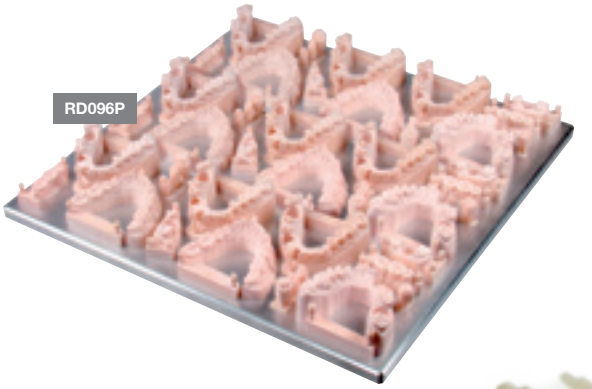
SYSTEM – GALVANOMETER

SR	250x250x300
HR	300x300x300



HIGHLIGHTS

- Perfect for digital impression models
- Quick material change
- Highest productivity
- High speed and accuracy
- BluEdge® laser source
- Superior surface quality
- TTT - Tank Translation Technology
- Complete choice of materials
- Compatible with Temporis® material
- Extra-long life UV laser
- No calibration
- Low running costs



TEMPORIS® - Digital Provisional Restoration System®

TEMPORIS® is a class IIA light curable material range for the fabrication of long-term temporary crowns and bridges. In order to meet esthetic and functional requirements, TEMPORIS® materials are available in different shades and they can be trimmed, shaped and polished. For a perfect customization, TEMPORIS® materials can be layered with light curable composites and personalized with light-curing stains.

Type	Application	Features
DD-1000-N	Long-term temporary restorations, class IIA*	BL3 shade
DD-1000-A1	Long-term temporary restorations, class IIA*	A1 shade
DD-1000-A2	Long-term temporary restorations, class IIA*	A2 shade
DD-1000-A3	Long-term temporary restorations, class IIA*	A3 shade
DD-1000-A3.5	Long-term temporary restorations, class IIA*	A3.5 shade
DD-1000-B1	Long-term temporary restorations, class IIA*	B1 shade

* The polymer is to be considered a long-term invasive medical device in class IIA as provided for by the Rule 5, Annex IX, Dir. 93/42/EEC and subsequent amendments.

DIGITALWAX® RD and GL Series: Digital Impression materials for dental models

RD digital impression materials have been designed for the production of impression models directly from intraoral digital capture devices, as a replacement of the traditional physical impression.
GL material, gingiva-like, has been designed for the production of realistic models of soft tissues and gingival masks.

Type	Application	Features
RD095	Digital impression models	Ceramic-like, blue colour
RD096B	Digital impression models	Gypsum-like, light blue colour
RD096GY	Digital impression models	Gypsum-like, grey colour
RD096GR	Digital impression models	Gypsum-like, green colour
RD096P	Digital impression models	Gypsum-like, pink colour
RD096W	Digital impression models	Gypsum-like, white colour
RD096Y	Digital impression models	Gypsum-like, yellow colour
RD096IV	Digital impression models	Gypsum-like, ivory colour
RDECO	Digital impression models	Cost-effective, grey colour
GL4000	Soft tissue models, gingival masks	Gingiva-like, pink colour

DIGITALWAX® RF Series: resins for direct casting

RF casting resins are specifically designed for direct lost wax casting of dental objects and allow the production of high-definition crowns, bridges and partial frameworks.

Type	Application	Features
RF065	Direct casting	Easy burnout - Clear transparent
RF068	Direct casting	Rigid - Clear transparent
RF080	Direct casting	Extra-rigid - Clear transparent

DIGITALWAX® DS Series: Transparent materials for medical applications

DS resins are developed for the production of high-precision clear patterns.

Type	Application	Features
DS2000	3D medical imaging	Clear transparent
DS3000	Surgical guides	Bio-compatible, clear transparent

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® 009D and DigitalWax® 028D, while the model “M” is more suitable for DigitalWax® 029D 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.

HIGHLIGHTS

Best casting results

Low power consumption

Simple use and maintenance

Timer setting

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