

HIGH PRODUCTIVITY RAPID MANUFACTURING SYSTEMS

DIGITALWAX J

FOR JEWELRY INDUSTRY



3D SOLUTIONS

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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.



Jewelry & Fashion



Dental & Biomedical



Industrial

DigitalWax® J systems



DigitalWax® J line-up

Legend

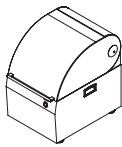
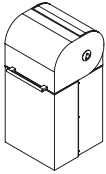
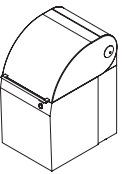
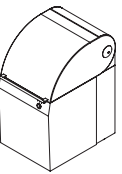
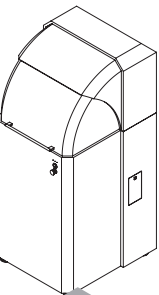
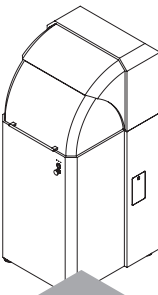
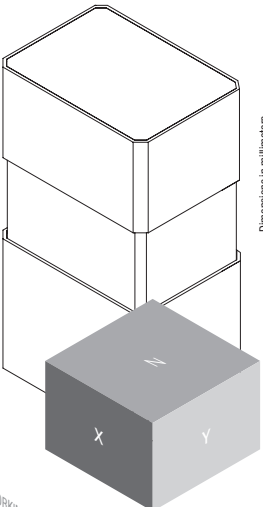
HR = Laser High Resolution - Optional

Productivity

+ = Performance

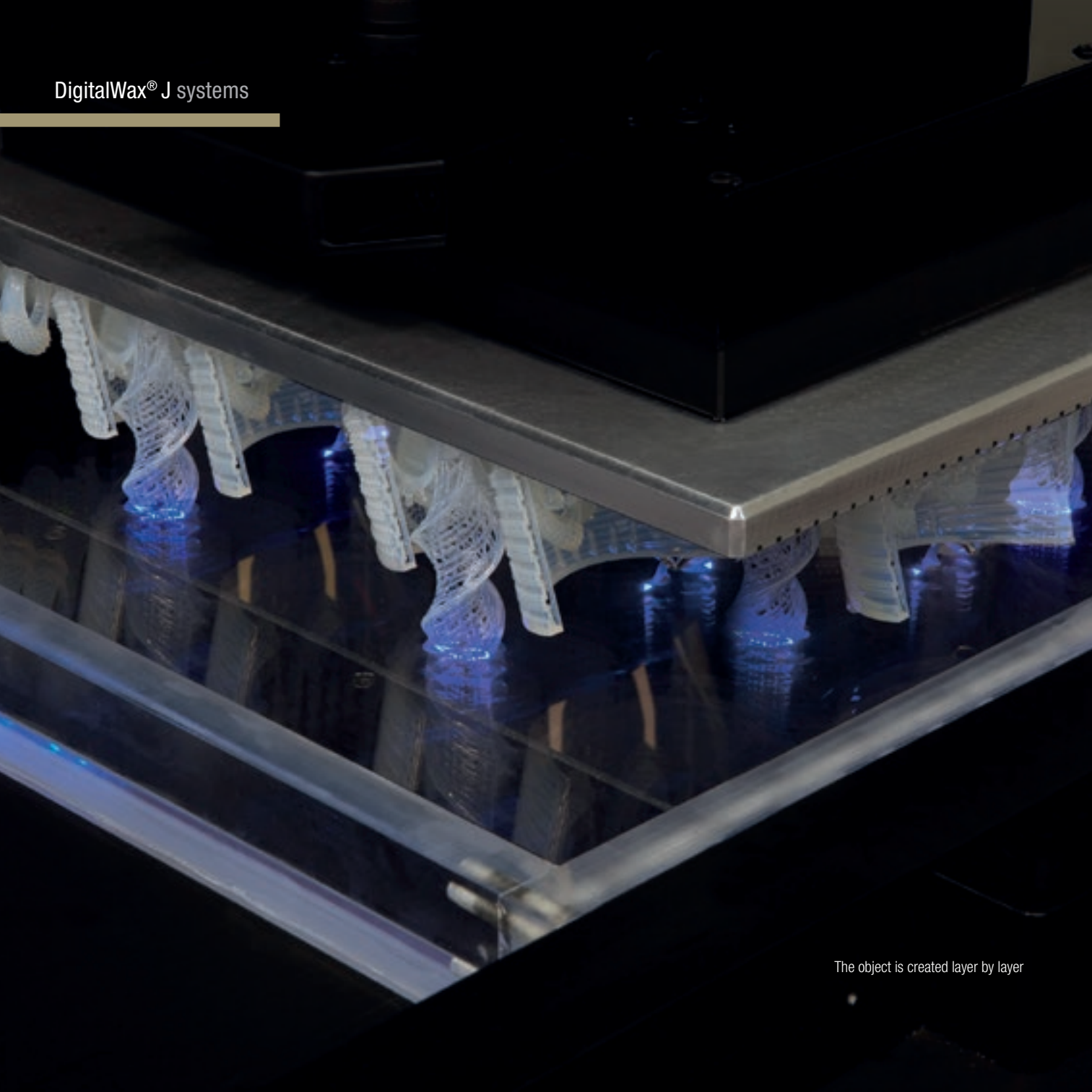
> = building speed

o = resolution

008 J	009 J	028 J	028 J+	029 J	029 J+	030 J
-	-	HR	HR	HR	HR	HR
10 Patterns*	50 Patterns*	80 Patterns*	150 Patterns*	270 Patterns*	800 Patterns*	3.200 Patterns*
+	+++	+++++	+++++	+++++	+++++	+++++
>	>>>>	>>>>>	>>>>>	>>>>>	>>>>>	>>>>>
oooo	oooo	ooooo	ooooo	ooooo	ooooo	ooooo
						
WORKING AREA 65X65X90	WORKING AREA 50X37X100	WORKING AREA 65X65X90	WORKING AREA 90X90X90	WORKING AREA 110X110X100	WORKING AREA 150X150X100	WORKING AREA 300X300X300
p 8	p 10	p 12	p 14	p 16	p 18	p 20

* Built in 24 hours - Patterns = wedding ring

DigitalWax® J systems



The object is created layer by layer

Building process



The **Plotter X-Y** scanning method is characterised by high accuracy and a relatively small productivity, the main features of the DigitalWax® 008J.



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



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

DigitalWax® J: Additive Manufacturing systems for jewelry

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.



Entry-level laser machine

DigitalWax® 008J is an entry-level rapid prototyping system for jewelry applications. With its unbeatable price-performance ratio and the lowest running cost in the market, DigitalWax® 008J is the perfect choice for small companies with low volume production needs. DigitalWax® 008J can build 2 to 10 models per day (24 hours), it depends on their size and complexity. The three-dimensional models are built by a special laser which hardens a proprietary photo-curable resin. The laser is specifically developed to guarantee high performance and long life. Thanks to the 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 head allows the use of a new generation, high performance UV photo-curable resins for direct casting and rubber mould applications.

Standard accessories supplied with DigitalWax® 008J:

- N. 1 Building platform mm 75x75 (working area mm 65x65)
- N. 1 Resin tank mod. RT800
- N. 1 Set of handling tools
- N. 1 DigitalWax® 008J Software Suite License
- N. 1 User manual

Technical data:

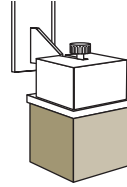
Laser source:	Solid State BluEdge® BE-1000
Working area (x, y, z):	65 x 65 x 90 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	0-40 mm/sec
Scanning method:	Plotter X-Y
Software:	DigitalWax® 008J Controller
OS compatibility:	32 bit Windows XP Pro - Vista - 7
Input file format:	.stl - .slc
Machine size:	380x515x560 mm
Weight:	43 Kg
Operating Temperature and Humidity:	22° - 25°C / 60%
Electrical consumption:	200 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.



PLOTTER X-Y

No Option 65x65x90



HIGHLIGHTS

BluEdge® laser source

High accuracy

Complete choice of materials

Lowest running cost

Long life UV laser

No lamp replacement

No calibration



Up to 10 *Patterns per day (24 hours)





Entry-level DLP® machine

Thanks to a productivity of up to 50 patterns per day, DigitalWax® 009J is the perfect entry-level solution with no compromises in terms of performance.

DigitalWax® 009J is the cheapest machine among the DigitalWax® products and it allows the highest accuracy and resolution thanks to the DLP®, the latest technology developed by Texas Instruments®. With a working area of 50x37 mm, DigitalWax® 009J is the ideal rapid prototyping choice with minimum investment and running costs. It's perfectly compatible with the extensive DigitalWax® J material portfolio, including the revolutionary Irix® Digital Stone.

Standard accessories supplied with DigitalWax® 009J:

- N. 1 Building platform mm 60x47 (working area mm 50x37)
- N. 1 Resin tank mod. RT900
- N. 1 Set of handling tools
- N. 1 DigitalWax® 009J Software Suite License
- N. 1 User manual

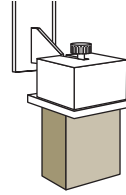
Technical data:

Working area (x, y, z):	50 x 37 x 100 mm
Slice thickness*:	0,01 – 0,10 mm
Light source:	LED UV
Scanning method:	DLP® Texas Instruments Inc.
Software:	DigitalWax® 009J Controller
OS compatibility:	32 bit Windows XP Pro - Vista - 7
Input file format:	.stl - .slc
Machine size:	315x335x630 mm
Weight:	15 Kg
Operating Temperature and Humidity:	22° - 25°C / 60%
Electrical consumption:	150 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.

DLP PROJECTION

No Option 50x37x100



HIGHLIGHTS

DLP® Display Technology by Texas Instruments

High speed and accuracy

Complete choice of materials

Lowest running cost

No lamp replacement

No calibration



Up to 50 *Patterns per day (24 hours)





Desktop size system

DigitalWax® 028J is a high accuracy rapid manufacturing system for jewelry applications. With its unbeatable price-performance ratio and the lowest running cost in the market, DigitalWax® 028J is the perfect choice for fast production of high quality models. DigitalWax® 028J can build up to 80 models per day (24 hours), it depends on their size and complexity. The three-dimensional models are built by a special laser which hardens a proprietary photo-curable resin. The laser is specifically developed to guarantee high performance and long life. Thanks to the 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 head allows the use of a new generation, high performance UV photo-curable resins for direct casting and rubber mould applications.

Standard accessories supplied with DigitalWax® 028J:

N. 1 Building platform mm 75x75 (working area: mm 65x65)
N. 1 Resin tank mod. RT800
N. 1 Set of handling tools
N. 1 Personal Computer with LCD monitor
N. 1 UPS 650VA 230V 50/60 Hz
N. 1 DigitalWax® 028J Software Suite License
N. 1 User manual

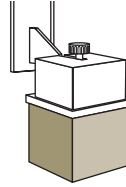
Technical data:

Laser source: Solid State BluEdge®	BE-1500A/BE-1500AHR
Working area (x, y, z):	65 x 65 x 90 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	0-2200 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 028J Controller
OS:	Windows 7
Input file 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-curable resin used.
 Technical specifications subject to changes without notice.



HR Option 65x65x90



HIGHLIGHTS

- BluEdge® laser source
- High speed and accuracy
- High surface quality
- Complete choice of materials
- No lamp replacement
- No calibration
- Long life UV laser
- Lowest running cost



Up to 80 *Patterns per day (24 hours)



DigitalWax® 028J Plus



Desktop size system

DigitalWax® 028J Plus is a high accuracy rapid manufacturing system for jewelry applications. With its unbeatable price-performance ratio and the lowest running cost in the market, DigitalWax® 028J Plus is the perfect choice for fast production of high quality models.

DigitalWax® 028J Plus can build up to 150 models per day (24 hours), it depends on their size and complexity.

The three-dimensional models are built by a special laser which hardens a proprietary photo-curable resin. The laser is specifically developed to guarantee high performance and long life.

Thanks to the 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 head allows the use of a new generation, high performance UV photo-curable resins for direct casting and rubber mould applications.

Standard accessories supplied with DigitalWax® 028J Plus:

- N. 1 Building platform mm 100x100 (working area: mm 90x90)
- N. 1 Resin tank mod. RT800
- N. 1 Set of handling tools
- N. 1 Personal Computer with LCD monitor
- N. 1 UPS 650VA 230V 50/60 Hz
- N. 1 DigitalWax® 028J Software Suite License
- N. 1 User manual

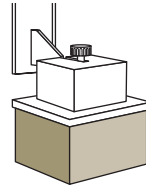
Technical data:

Laser source: Solid State BluEdge®	BE-1500A/BE-1500AHR
Working area (x, y, z):	90 x 90 x 90 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	0-2200 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 028J Controller
OS:	Windows 7
Input file 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-curable resin used.
Technical specifications subject to changes without notice.

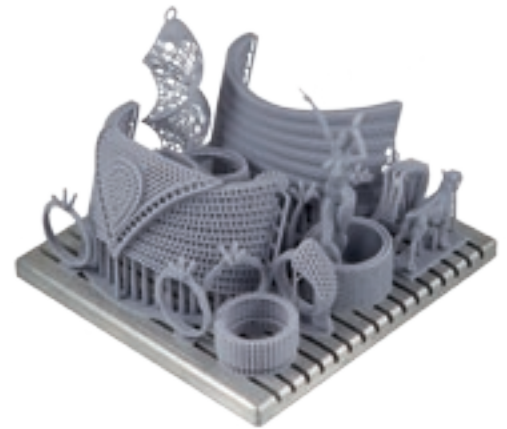


HR Option 90x90x90



HIGHLIGHTS

- BluEdge® laser source
- High speed and accuracy
- High surface quality
- Complete choice of materials
- No lamp replacement
- No calibration
- Long life UV laser
- Lowest running cost



Up to 150 *Patterns per day (24 hours)





High performance production system

DigitalWax® 029J is a rapid manufacturing system conceived to achieve the highest productivity and quality. The unbeatable price-performance ratio and the lowest running cost in the market make DigitalWax® 029J the perfect choice for medium and big companies, for service bureau oriented business and for all those who need to get models for direct casting and silicon rubber moulding, in large quantities and in a short working time.

DigitalWax® 029J can build up to 270 models per day (24 hours), it depends on their size and complexity.

The three-dimensional models are built by a special laser which hardens a proprietary photo-curable resin. The laser head is specifically developed to guarantee high performance and long life.

Thanks to the 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. We offer high performance UV photo-curable resins for direct lost-wax casting and for rubber moulding.

Standard accessories supplied with DigitalWax® 029J:

N. 1 TTT system

N. 1 Building platform mm 130x130 (working area: mm 110x110)

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® 029J Software Suite License

N. 1 User manual

Technical data:

Laser source: Solid State BluEdge® BE-1700/BE-1700HR

Working area (x, y, z): 110 x 110 x 100 mm

Slice thickness*: 0,01 – 0,10 mm

Laser scanning speed: 2600 mm/sec

Scanning method: Galvanometer

Software: DigitalWax® 029J 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

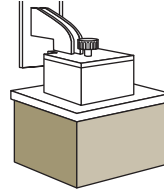
Power supply: AC 230/115 V / 50-60 Hz

*it depends on the kind of photo-curable resin used.

Technical specifications subject to changes without notice.



HR Option 110x110x100

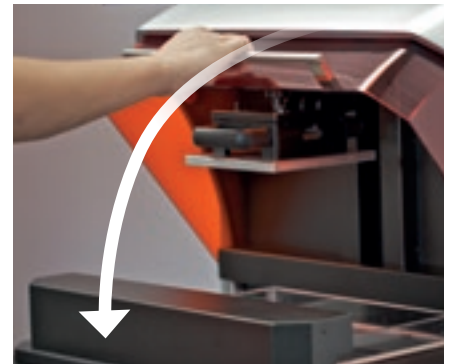


HIGHLIGHTS

- BluEdge® laser source
- TTT - Tank Translation Technology
- High speed and accuracy
- High surface quality
- Complete choice of materials
- Extra-long life UV laser
- No lamp replacement
- No calibration
- Lowest running cost



Up to 270 *Patterns per day (24 hours)



DigitalWax® 029J Plus



High productivity additive manufacturing system

DigitalWax® 029J Plus is a production-grade rapid manufacturing system conceived to achieve the highest productivity and quality. The large working area of 150x150 mm and the lowest running cost in the market make DigitalWax® 029J Plus the perfect choice for medium and big companies, for service bureau oriented business and for all those who need to get models for direct casting and silicon rubber moulding, in large quantities and in a short working time.

DigitalWax® 029J Plus can build up to 800 models per day (24 hours), it depends on their size and complexity.

The three-dimensional models are built by a special laser which hardens a proprietary photo-curable resin. The laser head is specifically developed to guarantee high performance and long life. Thanks to the 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. We offer high performance UV photo-curable resins for direct lost-wax casting and for rubber moulding.

Standard accessories supplied with DigitalWax® 029J Plus:

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® 029J Software Suite License

N. 1 User manual

Technical data:

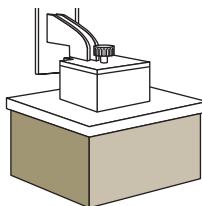
Laser source: Solid State BluEdge®	BE-1800A/BE-1800AHR
Working area (x, y, z):	150 x 150 x 100 mm
Slice thickness*:	0,01 – 0,10 mm
Laser scanning speed:	5000 mm/sec
Scanning method:	Galvanometer
Software:	DigitalWax® 029J Controller
OS:	Windows 7
Input file format:	.stl - .slc
Machine size:	610x660x1400 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.

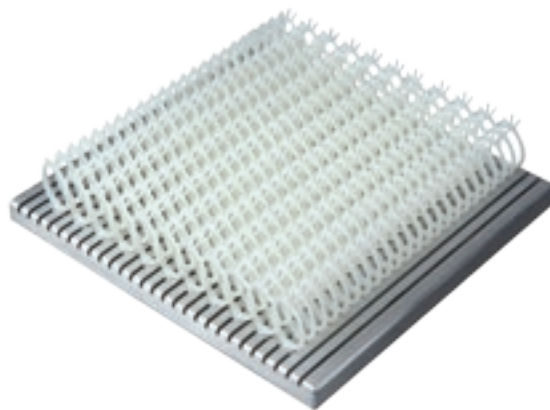


HR Option 150x150x100

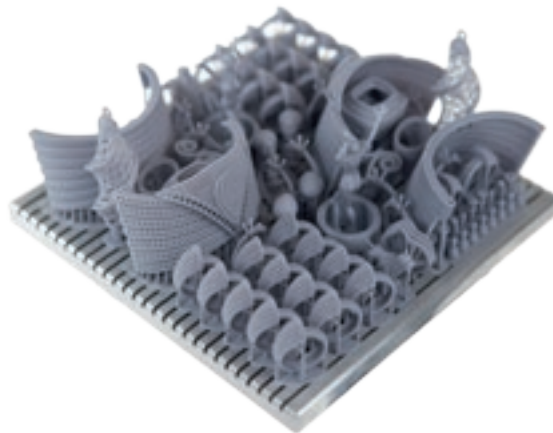


HIGHLIGHTS

- BluEdge® laser source
- TTT - Tank Translation Technology
- High speed and accuracy
- High surface quality
- Complete choice of materials
- Extra-long life UV laser
- No lamp replacement
- No calibration
- Lowest running cost



Up to 800 *Patterns per day (24 hours)





High productivity additive manufacturing system

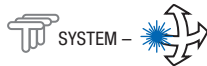
DigitalWax® 030J rapid manufacturing system has been specifically developed for high productivity applications in the jewelry field.

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® 030J 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® 030J 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:

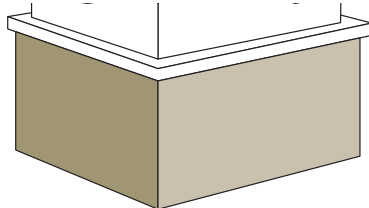
Laser source:	Solid State BluEdge®
Working area (x, y, z):	300x300x300 mm
Machine size:	1100x700x2000 mm



GALVANOMETER

HR Option

300x300x300



HIGHLIGHTS

BluEdge® laser source

TTT - Tank Translation Technology

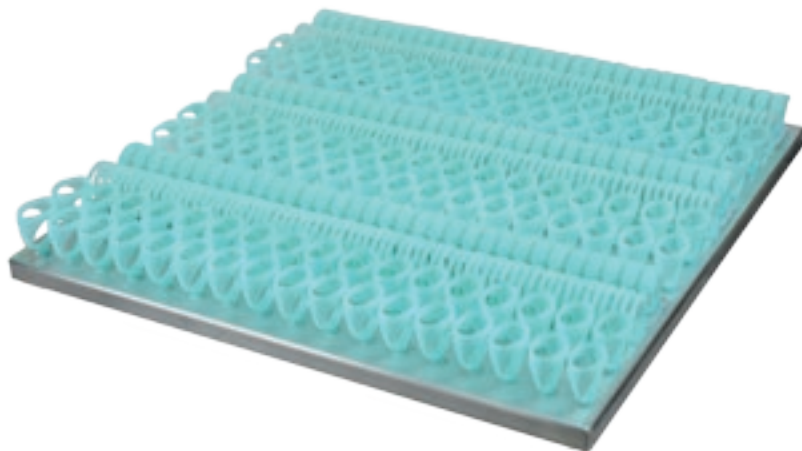
Highest productivity

High speed and accuracy

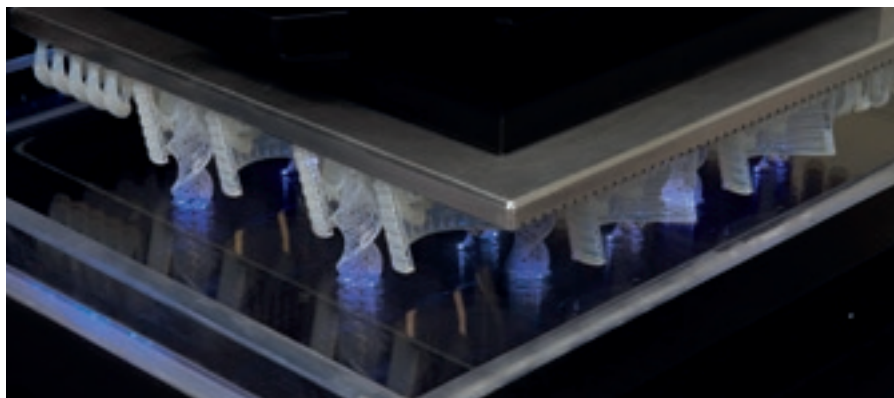
Superior surface quality

Complete choice of materials

Lowest running cost



Up to 3.200 *Patterns per day (24 hours)

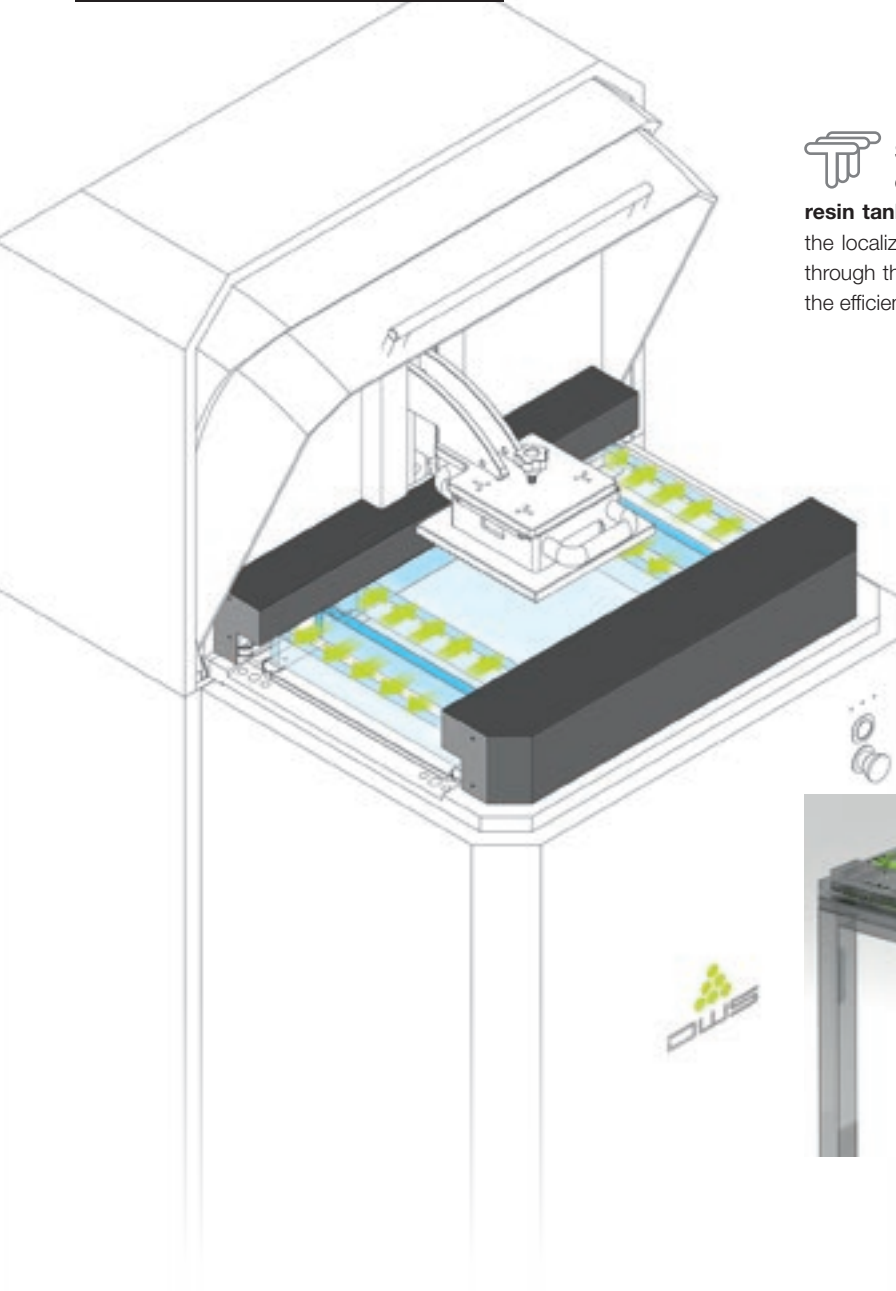




Resin tank loading system, left or right - Quick material change

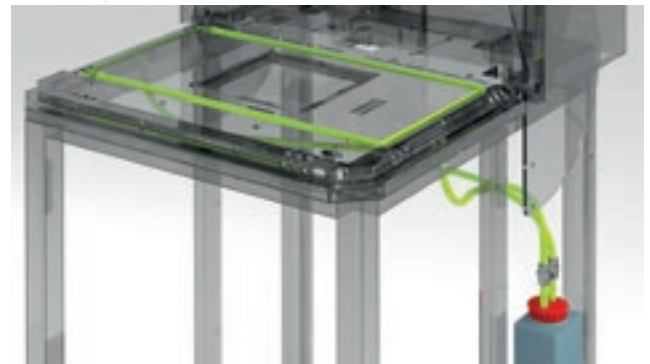


TTT SYSTEM



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.



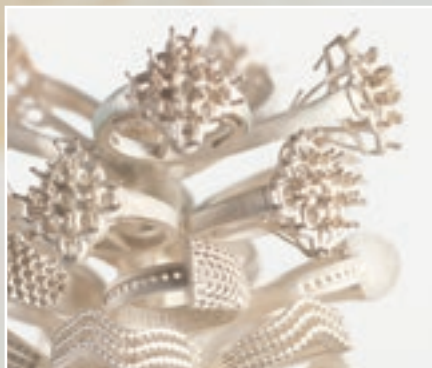
DigitalWax® models



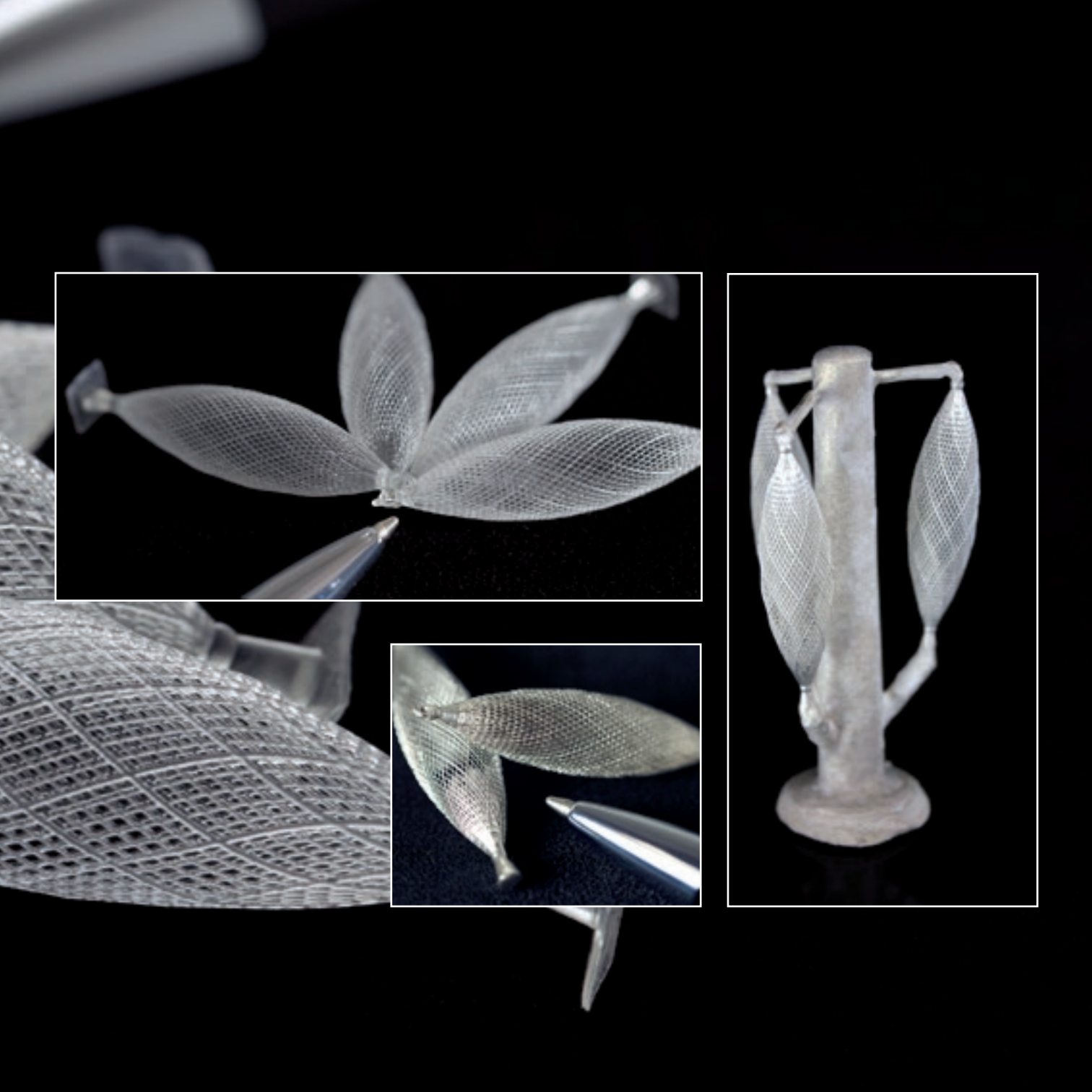


Courtesy of Francesca Gabrielli - Designer

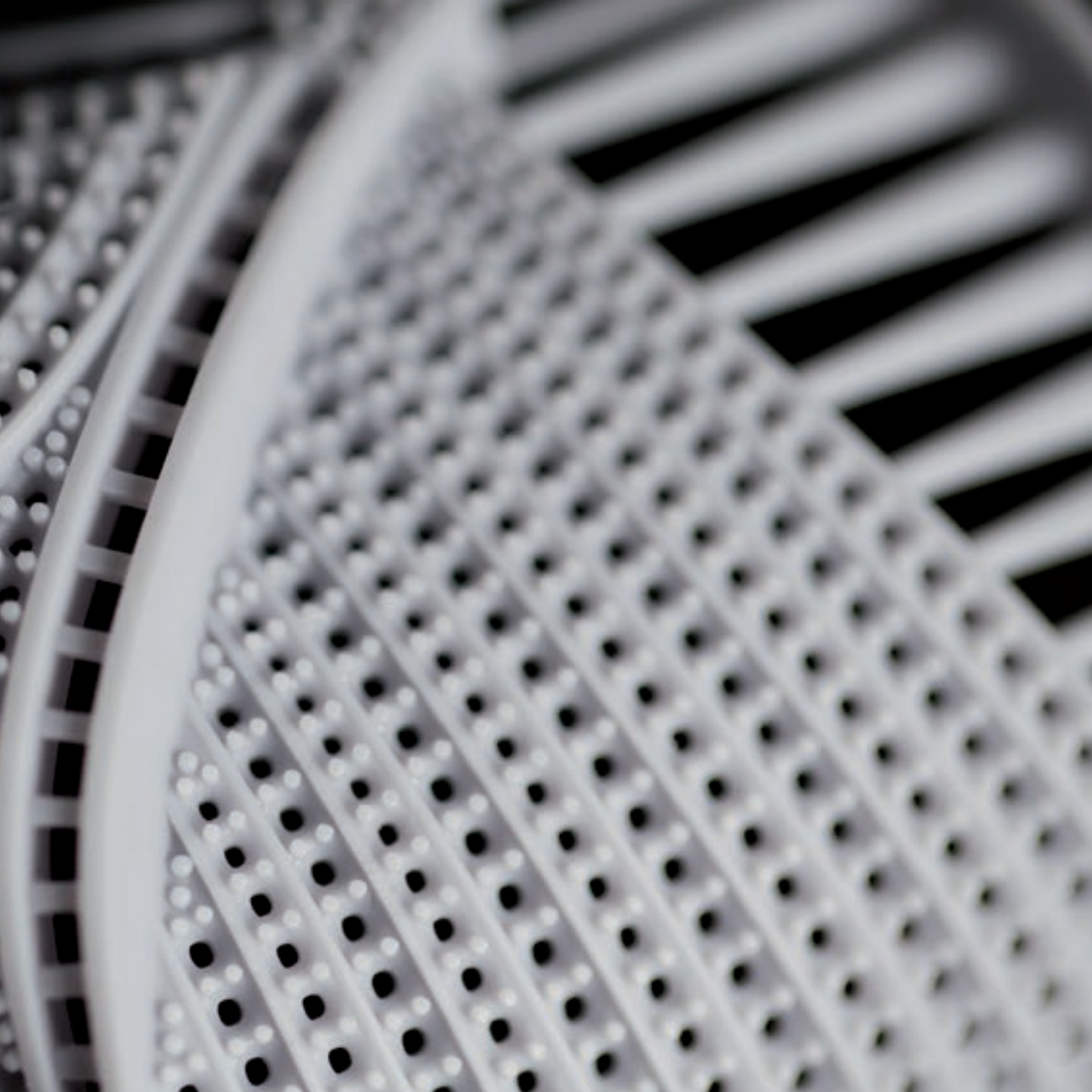












Materials

DIGITALWAX® DC Series: resins for direct casting

DC casting resins are specifically designed for **direct lost wax casting** of jewelry models. Designed to allow the production of high-definition, detailed parts and smooth surfaces that do not require manual finishing. These products are ideal for special applications such as **stone-in-place casting** of resin models and filigrees.

Type	Application	Features
DC100	Direct casting	High accuracy, low shrinkage
DC300	Direct casting	Wax-like, high growth factor
DC400	Direct casting	Wax-like, high growth factor
DC500	Direct casting	Wax-like, easy burnout
DC550	Direct casting	Wax-like, smooth surface
DC600	Direct casting	Wax-like, easy burnout



Materials

DIGITALWAX® DM/DL Series: resins for rubber moulds

DM/DL moulding resins have been designed for the **creation of master models** to be used in the production of rubber moulds, including VLT, liquid silicone and vulcanised rubber. These resins are suitable **for thin models as well as thick ones**, replacing traditional silver master models.

Type	Application	Features
DM210	Direct moulding - max 90° C	Nano-filled ceramic, smooth surface
DM220	HTV moulding - max 170° C	Nano-filled ceramic, smooth surface
DL260	Direct moulding - max 90° C	Plastic-like, ultra-smooth surface



Materials

IRIX® Digital Stone®, available in all colours

Thanks to the nanotechnologies and the DWS patented additive manufacturing process, it is now possible to manufacture jewelry products using the innovative **IRIX® Digital Stone®** material. A just-in-time production of the orders is made possible by **IRIX® Digital Stone®**, allowing the expansion of the product range without investments in further production equipments.

Our customer will be able to order any customized colour according to the leading fashion trends. The creation of the stone is performed using nanotechnologies applied to the additive process, obtaining a biocompatible material having the main features of a natural stone.

Absolute advantages: biocompatibility, no geometrical limit, wide colour range, maximum versatility for the manufacture of the finished product and the matching with precious metals.

Type	Application	Features
Irix® White	Digital Stone®	Nano-filled ceramic, White colour
Irix® Black	Digital Stone®	Nano-filled ceramic, Black colour
Irix® Ivory	Digital Stone®	Nano-filled ceramic, Ivory colour
Irix® Coral	Digital Stone®	Nano-filled ceramic, Coral colour
Irix® Turquoise	Digital Stone®	Nano-filled ceramic, Turquoise colour
Custom colours available as special order		



UV Curing Units

HIGHLIGHTS

- Best casting results
- Low power consumption
- Simple use and maintenance
- Timer setting



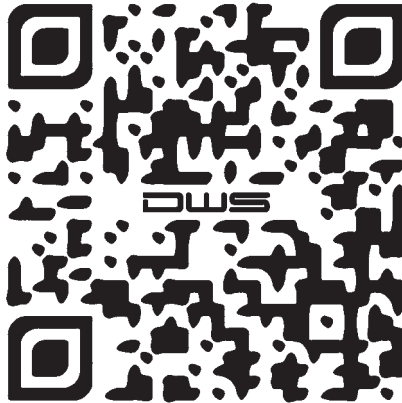
UV Curing Unit 'S' and 'M'

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, DigitalWax® 009J 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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