Dfab

3D FOR PATIENTS



CLEAN, EASY, FAST, SMART

Natural-looking, printed chairside restorations for all: Smart Dentistry



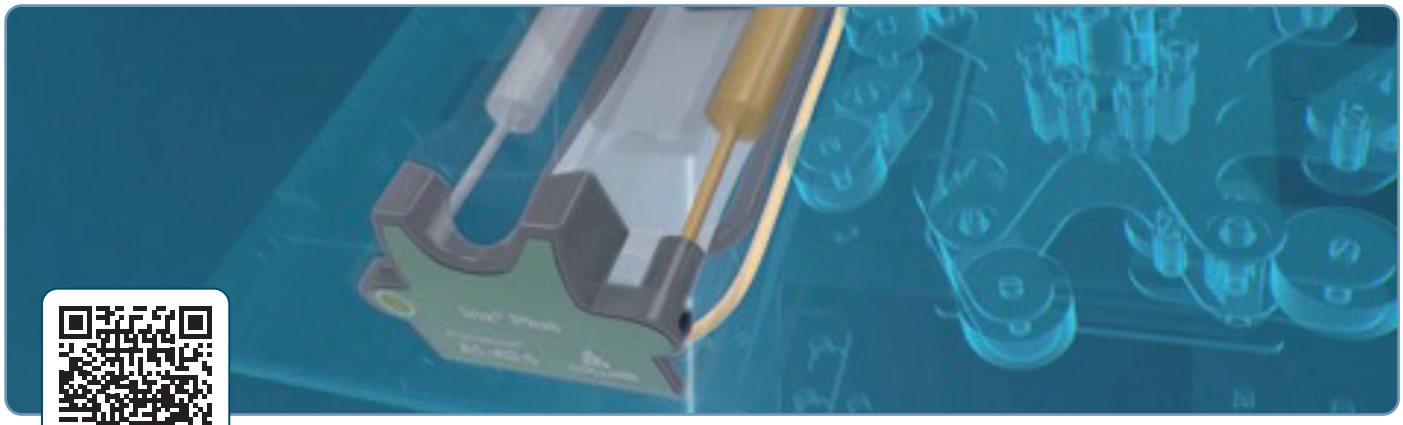
Permanent restorations in a single visit

- Photoshade technology is used to reproduce the natural color gradients of teeth.
- A minimally invasive approach is used for natural teeth and implant-supported restorations.
- Achieve laser-print precision directly in front of your patients.

Photoshade Natural Aesthetics

How is the restoration color gradient determined?

Inside the single-use cartridge, two different shades of viscous hybrid composite filled with ceramics (not liquids or powders) are mixed.



TSLA (Tilting Stereolithography): How does it work? Scan the QR code to find out.

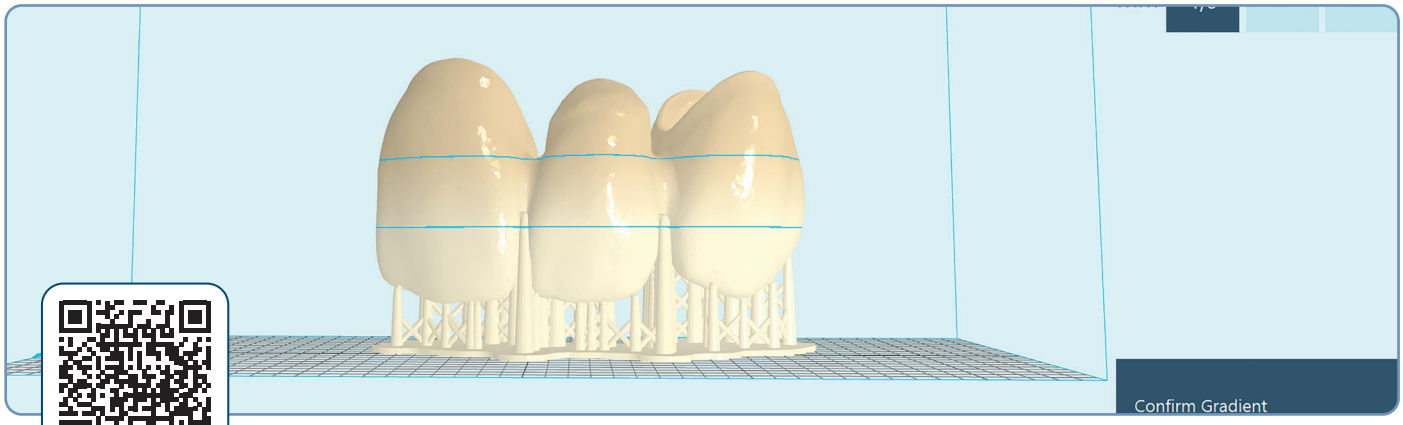
How do you set up the shade?

First, select the boundaries of the desired shade within the available range of A1 to A3.5.
This range can be adjusted if a different final shade is required (for example, A2 to A3 or A1 to A2).

Next, define the cervical and incisal/occlusal limits to customize the restoration to the patient's natural tooth shade. These limits are represented by blue horizontal lines on the screen, which can be moved vertically by the user to adjust their spacing. A wider distance between the lines creates a softer, more gradual color transition, while closer lines produce a sharper, more distinct gradient.

How is this achieved without layering?

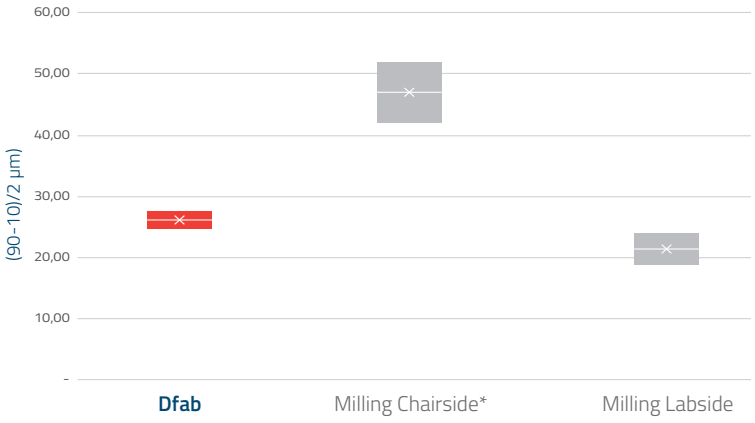
The software digitally blends the shades within the defined boundaries, generating a realistic color transition without the need for manual layering.



Scan the QR code to find out.

Clinical Data

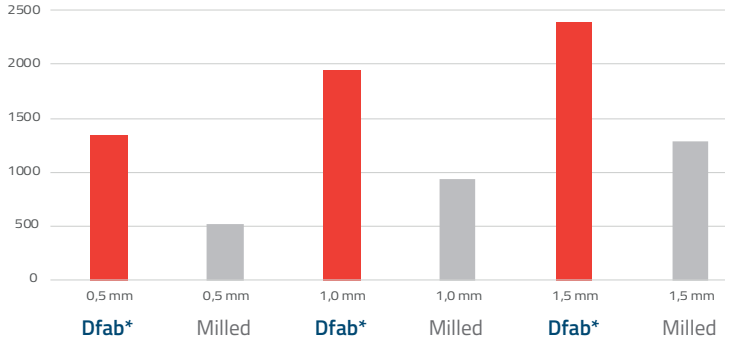
Marginal trueness in µm



* Statistically significative difference between Dfab (P< 0,01) and Labside Milling (P< 0,01)

Mangano et al. evaluated **the trueness, precision, time efficiency**, and cost of three different workflows (additive chairside: Dfab + Irix Max; subtractive chairside: inLab MC XL + lithium disilicate and lab-based subtractive: DWX-52D + zirconia) used for manufacturing single crowns. Additive chairside and subtractive lab-based single crowns had significantly better marginal trueness than subtractive chairside single crowns in all three parameters. **Additive chairside manufacturing of definitive hybrid composite single crowns is now possible and shows high accuracy, time efficiency, and competitive cost[1].**

Fracture resistance (N)



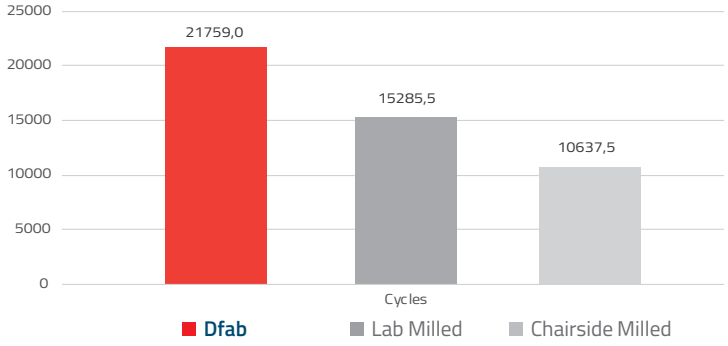
* Statistically significative difference between the Dfab and Milled samples (P< 0,001)

Corbani et al. studied **the fracture resistance** and failure pattern of 3D-printed (Dfab & Irix Max) and milled composite resin crowns (Cerec MC XL Dentsply Sirona and Coltene's Brilliant Crios blocks) as a function of different material thicknesses. **3D-printed Irix Max crowns showed high fracture resistance at different material thicknesses and can be suggested as a viable solution in conservative dentistry[2].**

In vivo data: One-year follow-up

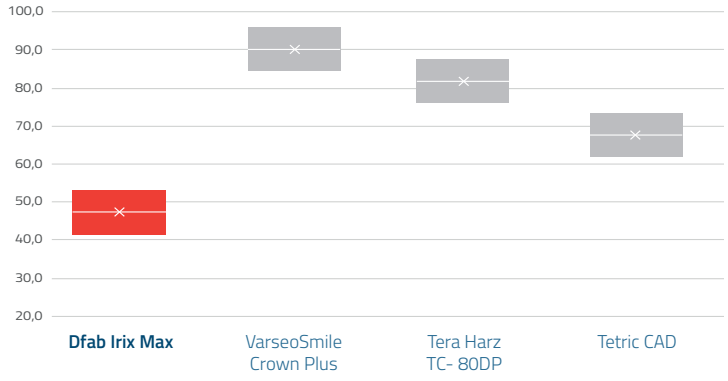
"...This retrospective clinical study included 85 patients who had been restored with 95 fixed short-span implant-supported hybrid composite (Irix Max®, DWS Systems) restorations...
At the end of the study, 1 year after insertion, the survival rate of hybrid composite restorations printed with TSLA was therefore 100 % for both crowns and bridges. The incidence of biological complications was zero[3]..."

Accelerated fatigue (number of cycles)



Rolando et al. studied **the fatigue resistance** of milled (laboratory DWX 51D, Roland or chair-side, MCXL, Dentsply Sirona) polymer infiltrated ceramic network restorations (PICN), (Vita Enamic) or 3D printed (Dfab, Irix Max hybrid composite). The 3D printed samples showed a significantly higher fatigue resistance than lab-milled and chairside-milled specimens. The chairside-milling process was significantly worse than the lab-milled one[4].

Mean overall RMS* values and standard deviations at pooled thickness



Demirel et al. showed that Irix Max had **lower gaps and high trueness and fit.** Ultrathin laminate veneers fabricated with the Dfab TSLA technology and Irix Max may require less clinical adjustments[5].

*The Root Mean Square (RMS) values represent the deviation of the TV.stl files (test veneers) from the RV.stl file (reference veneer).

In vivo data: Two-year follow-up

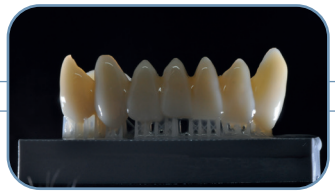
"...At the 2-year follow-up, all 95 implant-supported restorations remained functional, with no reported fractures or failures. The same was true for the 90 restorations evaluated 1 year after delivery. Both operators assessed the quality of closure and marginal fit of the restorations as excellent[6]..."

Clinical Cases

Fazioni M. et. al. *CAD/CAM 2_2024*

Rehabilitation of the anterior mandibular sextant with chairside 3D printed hybrid composite restorations: a 7 years follow-up.


Initial situation


The splint on the printing platform

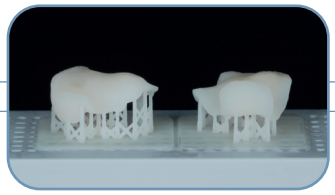

Following cementation

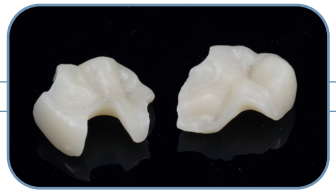

7 year follow-up

Saratti C. M., Tehrany A. A. *DDSMag #8, 2025*

Chairside workflows in modern dentistry: Indirect resin composite restorations with advanced 3D-printing technology.


Initial situation


Onlays printed in Irix Max with Dfab

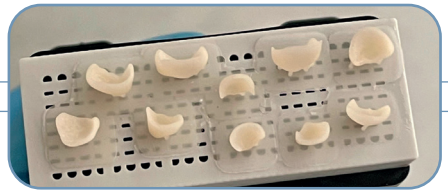

Polished onlays


Cemented onlays

Dulla J.A., Trikoili E., Yilmaz B., Çakmak G. *3D Printing 2_2025*

The use of 3D printing technology for the prosthetic rehabilitation of a three and a half year old child with ectodermal dysplasia


Initial situation

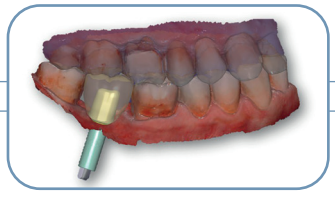

Mini invasive restorations printed in Irix Max with Dfab


Restorations cemented

Mangano F. G. *DDSMag #5, 2024*

Additive hybrid composite restorations: a simple case.


Abutment in position


CAD design


Following cementation


1 year follow-up

Dfab Desktop

A revolution in dentistry: Precision Meets Simplicity



Dfab Desktop is a compact, high-performance 3D printer designed for dental clinics and laboratories. It enables fast, precise production of permanent and temporary restorations with natural aesthetics, powered by the proprietary Nauta Photoshade* software for a simplified digital workflow.
Thanks to its exclusive Photoshade technology, Dfab Desktop reproduces the natural color gradient of teeth - from incisal to cervical - directly during printing, minimizing post-processing and enhancing realism. In addition Dfab Desktop supports dedicated materials for surgical guides and quadrant dental models, offering broad versatility for professional use.
All printed parts follow a streamlined finishing process: support removal, alcohol rinsing, UV + heat curing, and finishing/polishing.

** Nauta Photoshade software must be installed on an external PC, which is not included with the Dfab Desktop printer.*

Key features

- Chairside permanent dental restorations in one visit.
- Fast printing: 1 crown in 8 minutes, 18 veneers in 30 minutes.
- Photoshade Technology: natural color gradient of teeth achieved through printing.
- Five dedicated materials.
- Intuitive user experience: disposable cartridges and a user-friendly interface.
- Cloud ecosystem: full traceability of procedures and materials.
- Minimalist design: functional and elegant.

Technical Specifications

Technology	TSLA (Tilting Stereolithography)	**Power Supply**	24V DC with provided external power supply AC 100-240V / 50-60 Hz (160 W)
Laser Source	Solid State BluEdge®	**Power Consumption**	70 W
Scanning Method	Galvanometer	**Software**	Nauta Photoshade
Working Area	50 x 20 x 40 mm	**Input File Formats**	.stl, .nauta, .fictor
Machine Size	300 x 300 x 307 mm	**Connectivity**	Active internet connection
Weight	15 kg	**I/O Interfaces**	1 USB port
Operating Conditions	20° - 25°C / RH 60%		

External PC (not provided) minimum requirements
PC OS: Windows 8 or higher
Memory: RAM 4 GB
Graphics Card: OpenGL 2.0 compatible

Technical specifications are subject to change without notice.

Dcure

Hybrid UV & Heat Curing Unit



Dcure is a hybrid curing device that combines UV light and heat, designed for the final stabilization of 3D-printed objects produced with DWS Dfab 3D printers. It ensures optimal mechanical strength and aesthetic quality in just a few minutes, through a fully automated cycle.
While primarily used for materials intended for dental restorations, Dcure is also suitable for the post-curing of surgical guides and quadrant dental models, offering flexibility across various clinical applications.
Treatment programs are selected via a single button and can be updated via USB. Printed parts are placed in a Pyrex glass container, which is easy to clean and sterilize.
Dcure is recommended for use with DWS materials printed with DWS Dfab 3D printers.

Key features

- Made for parts manufactured with DWS Dfab 3D printers
- Timer-based operation and single-button control
- Easy to use, clean and maintain
- Low energy consumption
- Minimalist design: functional and elegant.

Technical Specifications

Technology	Hybrid curing (UV light & Heat)	**Weight**	2,2 kg
Ventilation	forced convection system	**Operating Conditions**	20°- 30°C / RH 60%
Working Area	cylindrical container diameter 7 cm height 4 cm	**Power Supply**	24V DC with provided external power supply AC 100-240V / 50-60 Hz (60W)
Machine Size	150 x 150 x 153 mm	**Power Consumption**	50 W

Technical specifications are subject to change without notice.

Irix Max

Technical Data Sheet



Irix Max: Ceramic Filled Hybrid Composite Material for Permanent Restorations

Irix Max is a photosensitive ceramic filled hybrid composite material (42% of ceramic in weight) for the customized production of permanent restorations such as: inlays, onlays, veneers, single crowns and bridges up to three elements by stereolithographic 3D printing.
Irix Max is a Class IIa CE marked medical device*.
To meet aesthetic and functional requirements, Irix Max is available in different monochromatic shades and the unique Photoshade adaptive gradient. Restorations made with Irix Max are characterized by excellent esthetics and high strength values. For perfect characterization, they can be customized with biocompatible products (lacquer, glaze, etc.) and/or light-curing colors.

CE 0051

** Medical device in Class IIa according to Rule 5 of Annex IX, Directive 93/42/EEC.*

Features

- High dimensional stability
- Precise fit
- Superior surface quality
- High translucency
- Available in six shades: N, A1, A2, A3, A3.5, B1
- Available in Photoshade adaptive gradient technology

Advice for use

Irix Max is developed for use with DWS Dfab dental 3D printers, equipped with Photoshade technology for adaptive gradient shading. To ensure optimal mechanical performance, dimensional stability, and safety of the printed restoration, the Dcure curing unit must be used, as it performs a hybrid thermal/UV treatment cycle tailored for this material. Always follow the operating instructions provided for the DWS Dfab 3D printer and curing unit. Refer to the official Instructions for Use (IFU) for detailed guidance on design, printing and post-processing procedures.

Technical characteristics of the liquid material

Environmental data for use	22°C - 27°C - max, RH 40% - 60%
Appearance / Color	Liquid / 6 shades available
Density	1,39 g/cm³
Viscosity	~ 5000 mPa▪s at 25°C

Technical characteristics of the printed and cured material

Flexural strength (MPa) (ISO 10477)	> 100
Water sorption (µg/mm³) (ISO 10477)	< 10
Water solubility (µg/mm³) (ISO 10477)	< 1.4
Fatigue Test (internal method)	Test cycles (1200000), Simulated 5 years use, No fracture observed*

** Internal fatigue test performed using chewing simulation machine CS-4.4 (SD Mechatronik). Microscopic evaluation confirmed absence of fractures after 1,200,000 cycles simulating 5 years of use.*

Restrictions of use and warnings

Irix Max is a medical device intended for professional use only (dentists and dental technicians). For detailed information on correct use - including application methods, precautions, contraindications, and safety warnings - please refer to the official Instructions for Use (IFU) provided by the manufacturer.

Contraindications

Do not use the device in patients with known allergies or hypersensitivity to methacrylates. Refer to the IFU for the complete list of contraindicated applications.

Precautions and protective measures

The liquid material may cause skin sensitization and is harmful to aquatic life. Use nitrile gloves and protective goggles during handling.

Once polymerized, the solid material is not classified as hazardous.
Refer to the Safety Data Sheet (SDS) available at www.dwssystems.com for detailed safety information.

Storage

Store at 5–30°C in a dry place, away from direct sunlight and heat sources. Do not use after the expiry date indicated on the label.

Disposal

Dispose of liquid material and contaminated containers in accordance with local regulations.
Cured material can be disposed of as non-hazardous industrial waste.
Refer to the IFU and Safety Data Sheet (SDS) at www.dwssystems.com for detailed disposal guidance.

Information for orders

CODE	PRODUCT	CODE	PRODUCT
10200437	IRIX MAX N, DLTY, SIZE S, SET 5	10200449	IRIX MAX N, DLTY, SIZE L, SET 3
10200438	IRIX MAX A1, DLTY, SIZE S, SET 5	10200450	IRIX MAX A1, DLTY, SIZE L, SET 3
10200439	IRIX MAX A2, DLTY, SIZE S, SET 5	10200451	IRIX MAX A2, DLTY, SIZE L, SET 3
10200440	IRIX MAX A3, DLTY, SIZE S, SET 5	10200452	IRIX MAX A3, DLTY, SIZE L, SET 3
10200441	IRIX MAX A3.5, DLTY, SIZE S, SET 5	10200453	IRIX MAX A3.5, DLTY, SIZE L, SET 3
10200442	IRIX MAX B1, DLTY, SIZE S, SET 5	10200454	IRIX MAX B1, DLTY, SIZE L, SET 3
10200443	IRIX MAX N, DLTY, SIZE M, SET 3	10200455	IRIX MAX PHOTOSHADE A1-A3.5, DLTY, SIZE S, SET 5
10200444	IRIX MAX A1, DLTY, SIZE M, SET 3	10200456	IRIX MAX PHOTOSHADE A1-A3.5, DLTY, SIZE M, SET 3
10200445	IRIX MAX A2, DLTY, SIZE M, SET 3	10200457	IRIX MAX PHOTOSHADE A1-A3.5, DLTY, SIZE L, SET 3
10200446	IRIX MAX A3, DLTY, SIZE M, SET 3		
10200447	IRIX MAX A3.5, DLTY, SIZE M, SET 3		
10200448	IRIX MAX B1, DLTY, SIZE M, SET 3		

Temporis

Technical Data Sheet



Temporis: Photosensitive Composite for Temporary Restorations

Temporis is a photosensitive composite material for the customized production of temporary restorations such as: inlays, onlays, veneers, single crowns and bridges up to three elements by stereolithographic 3D printing.
Temporis is a Class IIa CE marked medical device*.
To meet aesthetic and functional requirements, Temporis is available in different monochromatic shades and the exclusive Photoshade adaptive gradient. For perfect characterization, restorations can be customized with biocompatible products (lacquer, glaze, etc.) and/or light-curing colors.

CE 0051

** Medical device in Class IIa according to Rule 5 of Annex IX, Directive 93/42/EEC.*

Features

- High dimensional stability
- Precise fit
- Superior surface quality
- Available in six shades: N, A1, A2, A3, A3.5, B1
- Available in Photoshade adaptive gradient technology

Advice for use

Temporis is specifically developed for use with DWS Dfab dental 3D printers, equipped with Photoshade technology for adaptive gradient shading. To ensure optimal mechanical performance, dimensional stability, and safety of the printed restoration, the Dcure curing unit must be used, as it performs a hybrid thermal/UV treatment cycle tailored for this material. Always follow the operating instructions provided for the DWS Dfab 3D printer and curing unit. Refer to the official Instructions for Use (IFU) for detailed guidance on design, printing and post-processing procedures.

Technical characteristics of the liquid material

Environmental data for use	22°C - 27°C - max, RH 40% - 60%
Appearance / Color	Liquid / 6 shades available
Density	1,35 g/cm³
Viscosity	~ 3000 mPa▪s at 25°C

Technical characteristics of the printed and cured material

Flexural strength (MPa) (ISO 10477)	> 80
Water sorption (µg/mm³) (ISO 10477)	< 40
Water solubility (µg/mm³) (ISO 10477)	< 1.4

Restrictions of use and warnings

Temporis is a medical device intended exclusively for use by qualified professionals (dentists and dental technicians). For detailed information on correct use - including application methods, precautions, contraindications, and safety warnings - please refer to the official Instructions for Use (IFU) provided by the manufacturer.

Contraindications

Do not use the device in patients with known allergies or hypersensitivity to methacrylates. Refer to the IFU for the complete list of contraindicated applications.

Precautions and protective measures

The liquid material may cause skin sensitization and is harmful to aquatic life. Use nitrile gloves and protective goggles during handling.

Once polymerized, the solid material is not classified as hazardous.
Refer to the Safety Data Sheet (SDS) available at www.dwssystems.com for detailed safety information.

Storage

Store at 5–30°C in a dry place, away from direct sunlight and heat sources. Do not use after the expiry date indicated on the label.

Disposal

Dispose of liquid material and contaminated containers in accordance with local regulations.
Cured material can be disposed of as non-hazardous industrial waste.
Refer to the IFU and Safety Data Sheet (SDS) at www.dwssystems.com for detailed disposal guidance.

Information for orders

CODE	PRODUCT	CODE	PRODUCT
10200395	TEMPORIS N, DLTY, SIZE S, SET 5	10200407	TEMPORIS N, DLTY, SIZE L, SET 3
10200396	TEMPORIS A1, DLTY, SIZE S, SET 5	10200408	TEMPORIS A1, DLTY, SIZE L, SET 3
10200397	TEMPORIS A2, DLTY, SIZE S, SET 5	10200409	TEMPORIS A2, DLTY, SIZE L, SET 3
10200398	TEMPORIS A3, DLTY, SIZE S, SET 5	10200410	TEMPORIS A3, DLTY, SIZE L, SET 3
10200399	TEMPORIS A3.5, DLTY, SIZE S, SET 5	10200411	TEMPORIS A3.5, DLTY, SIZE L, SET 3
10200400	TEMPORIS B1, DLTY, SIZE S, SET 5	10200412	TEMPORIS B1, DLTY, SIZE L, SET 3
10200401	TEMPORIS N, DLTY, SIZE M, SET 3	10200413	TEMPORIS PHOTOSHADE A1-A3.5, DLTY, SIZE S, SET 5
10200402	TEMPORIS A1, DLTY, SIZE M, SET 3	10200414	TEMPORIS PHOTOSHADE A1-A3.5, DLTY, SIZE M, SET 3
10200403	TEMPORIS A2, DLTY, SIZE M, SET 3	10200415	TEMPORIS PHOTOSHADE A1-A3.5, DLTY, SIZE L, SET 3
10200404	TEMPORIS A3, DLTY, SIZE M, SET 3		
10200405	TEMPORIS A3.5, DLTY, SIZE M, SET 3		
10200406	TEMPORIS B1, DLTY, SIZE M, SET 3		

DS3000

Technical Data Sheet



DS3000: High-Resolution Material for 3D Printed Surgical Guides

DS3000 is a photosensitive material specifically designed for the customized production of dental surgical guides using stereolithographic 3D printing. DS3000 is a Class I CE marked medical device*.
Thanks to its smooth surface finish, high resolution, and dimensional accuracy, DS3000 ensures optimal fit and clinical reliability.
Its transparency and mechanical stability make it ideal for guided surgery workflows based on intra-oral digital scans.

CE

** Medical device in Class I according to Rule 5, Annex VIII of EU Regulation 2017/745*

Features

- Dimensional Accuracy
- High Resolution
- Smooth Surface Finish
- Transparent
- Durable

Advice for use

DS3000 is compatible only with DWS Dfab dental 3D printers. To ensure optimal mechanical performance, dimensional stability, and safety of the printed surgical guide, the Dcure curing unit must be used, as it performs a hybrid thermal/UV treatment cycle tailored for this material. Always follow the operating instructions provided for the DWS Dfab 3D printer and curing unit. For detailed guidance on design parameters, printing workflow, and post-processing procedures, refer to the official Instructions for Use (IFU).

Technical characteristics of the liquid material

Environmental data for use	22°C - 27°C - max, RH 40% - 60%
Appearance / Color	Liquid / Light yellow, transparent
Density	1,1 g/cm^3
Viscosity	~ 1000 mPa▪s at 25°C

Technical characteristics of the printed and cured material

Hardness (ASTM D2240)	86 ~ 89 Shore D
Elongation at Break (ASTM D638)	3 ~ 5 %
Tensile Strength (ASTM D638)	40 ~ 60 MPa
Tensile Modulus (ASTM D638)	> 1700 MPa
Flexural Strength (ASTM D790)	> 100 MPa
Flexural Modulus (ASTM D790)	> 2000 MPa
HDT (ASTM D648)	49 ~ 62°C @ 1.81 MPa

Restrictions of use and warnings

DS3000 is a medical device intended exclusively for use by qualified professionals (dentists and dental technicians). For detailed information on correct use - including application methods, precautions, contraindications, and safety warnings - please refer to the official Instructions for Use (IFU) provided by the manufacturer.

Contraindications

Do not use the device in patients with known allergies or hypersensitivity to methacrylates. Refer to the IFU for the complete list of contraindicated applications.

Precautions and protective measures

The liquid material may cause skin sensitization and is harmful to aquatic life. Use nitrile gloves and protective goggles during handling.

Once polymerized, the solid material is not classified as hazardous.
Refer to the Safety Data Sheet (SDS) available at www.dwssystems.com for detailed safety information.

Storage

Store at 5–30°C in a dry place, away from direct sunlight and heat sources. Do not use after the expiry date indicated on the label.

Disposal

Dispose of liquid material and contaminated containers in accordance with local regulations.
Cured material can be disposed of as non-hazardous industrial waste.
Refer to the IFU and Safety Data Sheet (SDS) at www.dwssystems.com for detailed disposal guidance.

Information for orders

CODE	PRODUCT
10200458	DS3000, DLTY, SET 5

Precisa RD096GY

Technical Data Sheet



Precisa RD096GY: High-Resolution Material for 3D Printed Dental Models

PRECISA RD096GY is a ceramic-filled, gypsum-like resin specifically developed for the production of high-precision dental models derived from intraoral digital impressions. Its ceramic base ensures extremely smooth surfaces and high-resolution details, making it ideal for modern digital dentistry workflows.

Features

- Excellent Dimensional Accuracy
- High Resolution & Detail Fidelity
- Smooth Surface Finish
- No Manual Finishing Required After Printing
- Gypsum-like Appearance & Texture

Advice for use

PRECISA is compatible with DWS Dfab dental 3D printers. To ensure optimal mechanical performance, dimensional stability, and safety of the printed object, the Dcure curing unit must be used, as it performs a hybrid thermal/UV treatment cycle tailored for this material. Always follow the operating instructions provided for the DWS Dfab 3D printer and curing unit. For information regarding precautions, protective measures, storage conditions, and disposal, please refer to the Safety Data Sheet (SDS) available at www.dwssystems.com.

Technical characteristics of the liquid material

Environmental data for use	22°C - 27°C - max, RH 40% - 60%
Appearance / Color	Liquid / Gray
Density	1,41 g/cm³
Viscosity	~ 1500 mPa▪s at 25°C

Technical characteristics of the printed and cured material

Hardness (ASTM D2240)	93 ~ 94 Shore D
Elongation at Break (ASTM D638)	2 ~ 3 %
Tensile Strength (ASTM D638)	30 ~ 50 MPa
Tensile Modulus (ASTM D638)	3440 ~ 4600 MPa
Flexural Strength (ASTM D790)	65 ~ 105 MPa
Flexural Modulus (ASTM D790)	4500 ~ 6900 MPa
HDT (ASTM D648)	53 ~ 75°C @ 1.81 MPa

Information for orders

CODE	PRODUCT
10200460	PRECISA RD096GY, DLTY, SET 5

Materials and Cartridges



Irix Max

Hybrid composite with ceramics for permanent translucent restorations

CE marked Class IIa Medical Device, complaint with Directive 93/42 EEC

Irix Max for Dfab | Technical Properties

Compressive Strength MPa	292
Degree of Conversion %	80
Density g/cm³	1,36
Elongation at Break %	3-4
Flexural Modulus MPa	3505 4429
Flexural Strength MPa	>100 135
Fracture Resistance 1.2M Cycles (5 Years Simulation)	No Fractures Observed
Fracture Resistance Three Units Bridge N	1360
Fracture Resistance² Crown Thickness 0.5, 1.0, 1.5 mm N	1345 | 1946 | 2384
Tensile Modulus MPa	3600
Tensile Strength MPa	55
Viscosity ~ mPa▪s @ 25°C	6000
Water Solubility µg/mm³	<1,4
Water Sorption µg/mm³	<10



Temporis

Composite for long term provisional restorations

CE marked Class IIa Medical Device, complaint with Directive 93/42 EEC

Temporis for Dfab | Technical Properties

Compressive Strength MPa	290
Density g/cm³	1,38
Elongation at Break %	4
Flexural Modulus MPa	2824
Flexural Strength MPa	115
Tensile Modulus MPa	3000
Tensile Strength MPa	50
Viscosity ~ mPa▪s @ 25°C	3500
Water Solubility µg/mm³	<1,4
Water Sorption µg/mm³	<40



DS3000

Clear resin for surgical guides

CE marked Class I Medical Device, complaint with EU Regulation 2017/745

Precisa RD096GY

Gray resin for high precision models

ME Communication

Dfab

3D FOR PATIENTS

Via della Meccanica, 21
36016 Thiene (VI) - Italy
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info@rd-printing.com
dfab.dental

The manufacturer of all hardware and consumables in this pamphlet is:

DWS S.r.l.
Via della Meccanica, 21
36016 Thiene (VI) - Italy

MADE IN ITALY

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Further readings:

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Information:

This document is reserved for healthcare professionals as it contains information on medical devices that may create situations of danger to the health and safety of the patient if not correctly read, understood and applied by a professional.

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