

Varseo S

The new smart 3D printing system

NEW



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Smart & safe for the future

BEGO is a long-established family company with over 125 years of dental experience, a pioneer of CAD/CAM technology, and a specialist in all dental fabrication techniques. Now BEGO has developed the Varseo S 3D printing system, which offers you:

- a system developed with and for dental laboratories
- a coordinated portfolio of in-house developed 3D printer, light-curing device, scientifically tested materials, software tools and services
- the means to achieve fast, simple and cost-efficient fabrication of a wide range of restorations made from resins – in your own laboratory and with complete flexibility and unrivalled precision

Our 3D printing system makes you MDR ready!

Validated processes from scanning to finishing and the associated process documentation provide you the certainty that future requirements for the production of medical devices will be met in compliance with the Medical Device Regulation (MDR).

Award winning 3D printer Varseo S

The 3D printer Varseo S has been recognized as one of the best solutions available for the German industry and was awarded with the "BEST OF" seal of the 2017 INDUSTRIEPREIS in the category Medical Technology. The top-class jury of 30 experts composed of professors, scientists, industry experts and specialized journalists praised in particular the high economic and technological benefits of BEGO's 3D printing system for the dental sector.





Varseo S

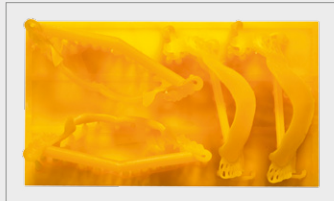
The 3D printing system specially developed for dental uses with an innovative cartridge system

The new smart 3D printer Varseo S – as the further development of Varseo – will delight you with its compact and stylish design and the following features:

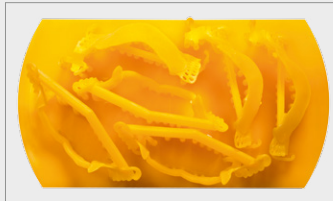
- **Variability:**
 - Extensive and expandable range of materials and indications
- **Speed:**
 - High construction speed – independent of the number of elements to be produced
 - User-friendly display for quick and easy access to all important functions
 - Network capability of the device permits rapid BEGO service via remote control
- **Efficiency:**
 - Approximately 30 % larger building plate than the previous Varseo model allows simultaneous printing of even more objects
 - Unique cartridge system
 - Material change in seconds
 - Low material consumption
 - Minimal material ageing
 - Simple material handling and storage – directly in the cartridge, without decanting
- **Openness:**
 - “Open STL file” device for all dental software solutions

SMART PRINTING

Varseo vs. Varseo S



3D printed CAD/Cast partial denture frames from VarseoWax CAD/Cast



3D printed surgical guides from VarseoWax Surgical Guide



3D printed models from VarseoWax Model



3D printed customized impression trays from VarseoWax Tray



3D printed splints from VarseoSmile Splint



DLP technology

The 3D printing system Varseo S uses a special variation of stereolithography, the so called DLP technology (Digital Light Processing). The hardening of the resin is caused by selective mask illumination. With a modern illumination process, complete slices are projected on the resin and illuminated areas are cured. The three-dimensional object is created through the successive stacking of two-dimensional layers. The DLP technology allows a significantly faster printing than classical laser-based 3D printing technologies. The high surface accuracy resulting from the printing process ensures an exceptional fit of the printed objects.

Product details

Physical data

Height	748 mm
Width	362 mm
Depth	461 mm
Weight	47 kg
Nominal voltage	100–240 VAC, 50/60 Hz
Rated capacity	100 VA
Dimensions (L × W × H)	110 × about 65 × 85 mm
Resolution	60 µm (± 30 µm)
Layer	50–100 µm
Building speed	20–40 mm/h

SMART PRINTING

Product details		
Forms available	Quantity	REF
Varseo S Partner (incl. availability)	1	26460
Varseo S Basic (incl. availability)	1	26455
Availability	Quantity	REF
Original Varseo S operating instructions	1	86087
Wooden spatula, not sterile	1	19548
Bubble syringe, sterile	1	19549
Stainless steel spatula	1	19550
Card set, blank	1	19551
Torque screwdriver 1.5 Nm	1	19556
TORX Bit T20x25 mm	1	19557
O Ring 128x3Vi399 / FKM 90	1	19524
Protective resin bottle cap	1	19563
Electricity cable	1	12622
USA mains power cable	1	12554
Test gauge, small	1	19409
Test gauge, large	1	19410
WLAN USB adapter, 150 Mbit/s, high gain	1	20119
Varseo S cartridge, complete with stamp (Varseo S Basic)	1	20008
Adhesion preventive film	1	19778
Special USB stick, calibration file	1	
Accessories	Quantity	REF
CAMbridge licence dongle	1	20370
Material packages	Quantity	REF
Material package VarseoWax CAD/Cast (VarseoWax CAD/Cast 1 kg + cartridge incl. stamp + VarseoVest P 6 kg)	1	41053
Material package VarseoWax Tray (VarseoWax Tray 1 kg + cartridge incl. stamp)	1	41054
Material package VarseoWax Surgical Guide (VarseoWax Surgical Guide 1 kg + cartridge incl. stamp)	1	41055
Material package VarseoSmile Splint (VarseoSmile Splint 1 kg + cartridge incl. stamp)	1	41056
Material package VarseoWax Model (VarseoWax Model 1 kg + cartridge incl. stamp)	1	41057
Material package VarseoSmile Dent opaque pink (VarseoSmile Dent opaque pink 1 kg + cartridge incl. stamp)	1	41058
Material package VarseoSmile Temp A3 (VarseoSmile Temp A3 500 g + cartridge incl. stamp)	1	41059

Varseo S services		
	Partner package	Basic package
Activation (inclusive)	Activation of a material key of your choice and making the associated materials package available	Activation of all material keys provided
MDR* ready (inclusive)	Validated processes from scanning to finishing incl. documentation and material-specific guidelines	Validated processes from scanning to finishing incl. documentation and material-specific guidelines (only for materials authorized by BEGO)
Online access (inclusive)	To all BEGO 3D Academy areas	To selected BEGO 3D Academy areas
Support (inclusive)	<ul style="list-style-type: none"> Device installation, commissioning and familiarization in your laboratory Professional hotline support Loan device in the event of malfunction within 48 hours (as part of the one year guarantee term) 	<ul style="list-style-type: none"> Professional hotline support
Services (not free)	<ul style="list-style-type: none"> Activation of other material keys 	<ul style="list-style-type: none"> Device installation, commissioning and familiarization in your laboratory

* Medical Device Regulation



BEGO Otoflash

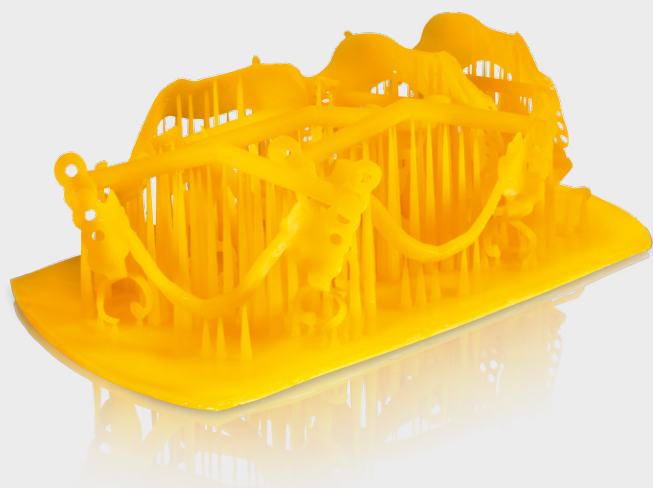
Light-curing device for rapid and reliable light-curing of VarseoWax and VarseoSmile resins

- BEGO Otoflash has two flashlight bulbs shining from below into the polymerization chamber and hence makes short resin light-curing times possible
- The wide wavelength field ensures very good resin hardening and hence achievement of the final physical characteristics of the printed objects
- The protective gas equipment prevents oxygen inhibition, guarantees completely adhesive-free surface curing and hence efficient reduction of the residual monomer content and biocompatibility
- The device can be used for photopolymerization of all materials that harden under light at wavelengths of from 300 to 700 nm

Physical data	
Nominal voltage	100, 115, 230 VAC, 50/60 Hz
Power consumption	About 250 W
Flash frequency	10 flashes a second
Size of the polymerisation space	About 120 × 120 × 50 mm
Spectral distribution	300–700 nm
Dimensions (L × W × H)	About 310 × 310 × 140 mm
Weight	About 6 kg
Gas type	1.0–1.2 bar
Type of gas/Type	Nitrogen N ₂ /2.6
Gas flow	About 10 l/min

Product details		
Availability	Quantity	REF
BEGO Otoflash	1	26465
Accessories	Quantity	REF
Pressure reducer for the protective gas connection	1	20349

SMART MATERIAL SELECTION



VarseoWax CAD/Cast

The resin for 3D printing of CAD/Cast partial denture frames and press-to-metal templates

- VarseoWax CAD/Cast can be burned out without leaving any residue and thus provides optimal conditions for pore-free, smooth and precise partial dentures
- The resin expansion tailored to the VarseoVest P investment material facilitates preheating using the shock heat method and significantly reduces the time required for heating
- The excellent dimensional stability of the plotted objects enables deformation-free investment and thus excellent accuracy of fit of the casted objects
- The printed plastic boasts first-class green strength, so that no light-curing is necessary if frames are processed immediately, which in turn results in unparalleled process time savings
- As a system component of the Varseo S 3D printing system, VarseoWax CAD/Cast offers outstanding processing reliability – the printing and processing parameters specially developed for the resin ensure smooth production sequences with reproducible results at any time

Technical specifications	
Color	yellow
Modulus of elasticity	$\geq 1,500$ MPa
Viscosity	600–900 mPa*s
Shore hardness D	79–83
Density at 22 °C	1.08 g/cm ³
Thermal stability at 55 °C	1,8 MPa
Flexural strength	≥ 50 MPa
Residual ash content	≤ 0.1 % bei 700 °C
Wavelength	405 nm

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoWax CAD/Cast	1.0 kg	bottle	1	41000

Images and illustrations are examples; colors, symbols, designs and information on the depicted labels and/or packaging may differ from reality.



VarseoWax Model

The resin for 3D printing of dental models

- VarseoWax Model is a resin for 3D printing of implant models, full and partial dental models, models with removable dies, solid or hollow in construction
- The excellent dimensional stability of the plotted models forms the ideal basis for precise, smooth and pore-free model surfaces
- VarseoWax Model can be insulated against adhesive wax, is resistant to moisture in order to facilitate problem-free cleaning and accordingly, its handling during processing is comparable to that of a conventional plaster model
- The opaque color selected allows optimal identification of all model contours and preparation margins on die models, thus offering the ideal basis for highly precise restorations
- The possibility of duplication with silicone or hydrocolloid underlines VarseoWax Model's broad scope of applications
- Solid models are suitable and validated for use as the basis for the further processing of thermoforming foil
- As a system component of the Varseo S 3D printing system, VarseoWax Model offers outstanding process reliability – the printing and processing parameters specially developed for the resin ensure smooth production sequences with reproducible results at any time

Technical specifications	
Color	yellow-brown
Modulus of elasticity	$\geq 1,500$ MPa
Density	ca. 1.12 g/cm^3
Layer thickness	$50 \text{ }\mu\text{m}$
Viscosity	$1,100 \text{ mPa}\cdot\text{s}$
Notched impact strength	$\geq 3 \text{ kJ/m}^2$
Flexural strength	≥ 50 MPa
Wavelength	405 nm

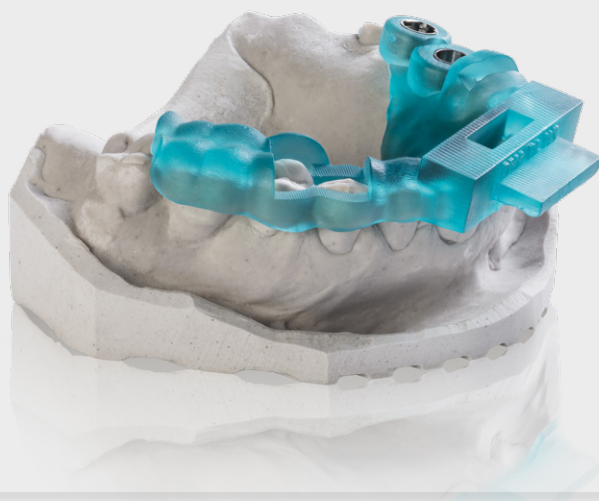
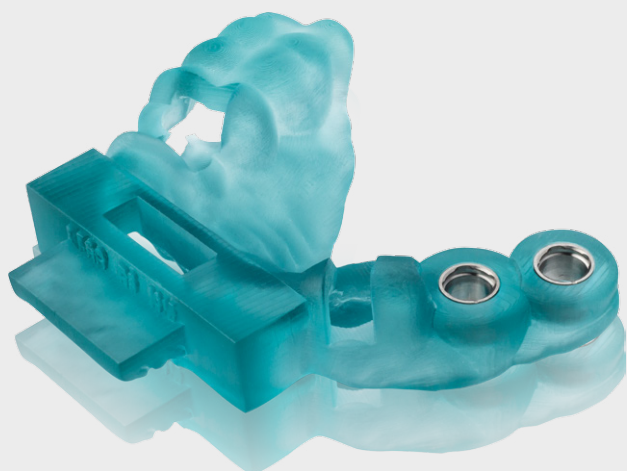
Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoWax Model	1.0 kg	bottle	1	41010

Please note:

The construction of digital implant models is possible in connection with BEGO Semados® implant models or universal DIM-analogs of nt-trading*.

* This symbol is a commercial designation/registered trademark of a company which is not part of the BEGO company group.

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VarseoWax Surgical Guide

The resin for 3D printing of surgical guides and placement aids for implant prosthetics

- VarseoWax Surgical Guide is a resin which is highly resistant to chemicals; the printed objects can be cleaned and disinfected both conveniently and easily
- The Varseo system is compatible with all common implant planning systems which export to STL format – this facilitates simple transfers of the data sets and production of the drilling templates
- The 3D printing parameters are tailored for surgical guides to ensure exact shaping in the area around the drill sleeves and, consequently, precise drill holes as well as optimal accuracy of fit during subsequent insertion in the patient's mouth
- Extremely short fabrication times and low material consumption equate to cost-efficient production in the laboratory
- The CE mark certifies security, efficiency and permanent monitoring of VarseoWax Surgical Guide and stands for excellent cross-batch quality standards of the product
- Biocompatibility confirmed by an independent institute means safety for patients
- VarseoWax Surgical Guide satisfies the requirements for a Class I* medical device

Technical specifications	
Color	blue-transparent
Modulus of elasticity	$\geq 1,500$ MPa
Density	ca. 1.12 g/cm ³
Layer thickness	100 μ m
Viscosity	1,100 mPa*s
Notched impact strength	≥ 3 kJ/m ²
Flexural strength	≥ 50 MPa
Wavelength	405 nm

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoWax Surgical Guide	1.0 kg	bottle	1	41012

BEGO qualified the following software solutions** for implantat planning since the introduction of the Varseo 3D printing system:

smop
powered by **swissmeda**

3shape
Implant Studio™

coDiagnostiX™

3Shape** and dental wings** also qualified the BEGO Varseo as a validated 3D printer for sugical guides.

* Class I medical device as defined by Directive 93/42/EEC

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VarseoWax Tray

The resin for 3D printing of individual impression trays

- VarseoWax Tray is water- and solvent-resistant during processing
- The printed objects can be universally used for all impression materials
- The outstanding dimensional stability and strength enable precise and deformation-free impressions to be taken on patients
- Thanks to the CAD wax-up, retention holes can be conveniently produced in the impression tray in one step – there is no need for additional drilling
- CAM production ensures evenly rounded edges – no time-consuming grinding of the margins necessary
- The smooth surfaces of the printed objects form the basis for an excellent fit
- Tested parameters tailored to the VarseoWax Tray resin ensure the rapid and economic production of impression trays
- The CE mark certifies security, efficiency and permanent monitoring of VarseoWax Tray and stands for excellent cross-batch quality standards of the product
- Biocompatibility confirmed by an institute means safety for patients
- VarseoWax Tray satisfies all the requirements for a Class I* medical device

Technical specifications	
Color	blue
Modulus of elasticity	$\geq 1,500$ MPa
Density	ca. 1.12 g/cm ³
Layer thickness	100 μ m
Viscosity	$1,100$ mPa*s
Notched impact strength	≥ 3 kJ/m ²
Flexural strength	≥ 50 MPa
Wavelength	405 nm

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoWax Tray	1.0 kg	bottle	1	41013

* Class I medical device as defined by Directive 93/42/EEC

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VarseoSmile Splint

The resin for 3D printing of occlusal splints

- The resin's excellent flow properties produce a dense surface and high level of impact strength for guaranteed stability and long-term durability in the patient's mouth
- Maximum possible patient safety due to high elongation limit and elasticity
- Smooth print surfaces provide the basis for great accuracy of fit and minimal finishing
- The 3D printing parameters specially aligned to splints enable quick and cost-effective production of splints in the laboratory
- The excellent dimensional stability simplifies the processing of printed objects and enables further processing free from deformation
- The high level of transparency is equal to that of thermoforming splints and provides the basis for ideally checking the accuracy of fit
- The CE mark certifies security, efficiency and permanent monitoring of VarseoSmile Splint and stands for excellent cross-batch quality standards of the product
- Biocompatibility confirmed by an independent institute means safety for patients
- VarseoSmile Splint satisfies the requirements for a Class I* medical device

Technical specifications	
Color	clear
Modulus of elasticity	$\geq 1,000$ MPa
Density	ca. $1.0-1.1$ g/cm ³
Layer thickness	50 μ m
Viscosity	400–600 mPa*s
Notched impact strength	≥ 15 %
Flexural strength	≥ 50 MPa
Wavelength	405 nm

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoSmile Splint	1.0 kg	bottle	1	41050

Expected
availability as a
class IIa** medical
device from
the fourth quarter
of 2017

* Class I medical device as defined by Directive 93/42/EEC

**Class IIa medical device as defined by Directive 93/42/EEC

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SMART MATERIAL SELECTION

Expected availability as a class IIa* medical device from the fourth quarter of 2017



Coming soon:
**VarseoSmile
Temp**



VarseoSmile Dent

The resin for 3D printing of full denture bases

- The smooth surfaces of the printed denture bases form offer the basis for an excellent fit
- The outstanding dimensional stability and strength enable precise and deformation-free fit in the patient's mouth
- CAM production ensures evenly rounded edges – no time-consuming grinding of the margins necessary
- Tested parameters tailored to the VarseoSmile Dent resin ensure the rapid and economic production of full denture bases
- The CE mark certifies security, efficiency and permanent monitoring of VarseoSmile Dent and stands for excellent cross-batch quality standards of the product
- Biocompatibility confirmed by an independent institute means safety for patients
- VarseoSmile Dent satisfies the requirements for a Class IIa*-medical device

Technical specifications	
Color	pink, opaque pink, dark pink
Modulus of elasticity	$\geq 2,000$ MPa
Density	ca. $1.0-1.1$ g/cm ³
Layer thickness	50 μ m
Viscosity	400–600 mPa*s
Notched impact strength	> 15 J/m ²
Flexural strength	≥ 65 MPa
Wavelength	405 nm

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoSmile Dent pink	1.0 kg	bottle	1	41001
VarseoSmile Dent opaque pink	1.0 kg	bottle	1	41017
VarseoSmile Dent dark pink	1.0 kg	bottle	1	41018

Available in
three color
graduations

* Class IIa medical device as defined by Directive 93/42/EEC

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VarseoVest P

Phosphate-bonded, shock heat precision investment material especially for casting 3D printed partial denture frames

- The VarseoVest P investment material has been specially developed for CAM constructions produced by means of 3D printing and offers an excellent fit and smooth cast objects every single time
- The outstanding flow properties ensure easy investments even on slender partial denture clasps and margins; the long working time of approx. 6 minutes enables fatigue-free processing of the investment material
- The mould is inserted directly into the furnace, which is preheated to 800–950°C, only 20 minutes after investing, which represents a considerable reduction in the duration of the heating process
- The impressive strength of the investment material ensures that the moulds do not crack or tear as a result of the plastic expanding and also guarantees reliable further processing
- VarseoVest P investment material offers a high degree of edge strength yet still permits easy deflasking – for economic use of the blasting material
- The unambiguous and clear expansion control with the special mixing liquid BegoSol® HE ensures reproducible fit results
- Simple application of VarseoVest P investment material in combination with the VarseoWax CAD/Cast resin thanks to processing techniques comparable to common investment materials

Key material values according to DIN EN ISO 15912	
Beginning of setting (Vicat time)	About 12 Min.
Compressive strength	About 5 MPa
Linear thermal expansion	1.0 %
Flowability	137 mm

Product details					
Availability	Contents	Presentation	Quantity	REF	
VarseoVest P, 36 × 500 g bag	18 kg	carton	1	54873	
VarseoVest P, 60 × 300 g bag	18 kg	carton	1	54874	

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoVest P, 20 × 300 g bag	6 kg	carton	1	54875
The packages do not contain any mixing liquid.				
Accessories	Contents	Presentation	Quantity	REF
BegoSol® HE mixing liquid*	1 litre	bottle	1	51095
BegoSol® HE mixing liquid*	5 litre	canister	1	51096
The combination of the VarseoVest P investment material with the VarseoWax CAD/Cast resin makes it easy to use.				
VarseoWax CAD/Cast	1.0 kg	bottle	1	41000

* BegoSol® HE is sensitive to freezing

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Varseo S Accessories Set

Your introduction to 3D printing with Varseo S

The set comprises:

- Spray bottle, 1000 ml
- 2 × Plastic cup 600 ml, incl. lid
- 3 × Anti-acid tweezers
- Solvent-resistant funnel, 16 cm
- PVC plaster-mixing bowl, black
- Holder for lacquer filter
- Lacquer filter
- Solvent-resistant brush
- Measuring cup, 1000 ml

Availability	Presentation	Quantity	REF
Varseo S Accessories Set	Set	1	41041

BEGO 3D Academy

The BEGO 3D Academy offers Varseo S users online access to everything they need to know about 3D printing with Varseo S

You profit from:

- Tips & tricks
- Video tutorials
- Webinars
- Informationen about our 3D printing seminars, courses and event offers
- Specialist articles, case studies and interviews
- News and press releases



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