

# Varseo S

The smart 3D printing system

MDR  
READY



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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 for the BEGO 3D Printing System

Like the previous generation in 2015 and 2016, the BEGO Varseo S 3D printer 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 and 2018 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 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



## 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

#### Technical data

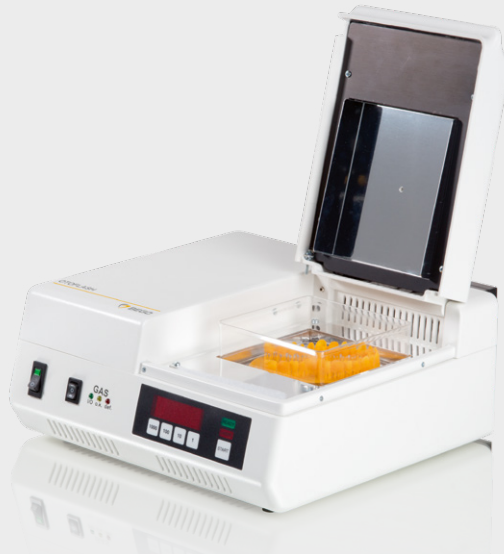
Height	748 mm
Width	362 mm
Depth	461 mm
Weight	47 kg
Nominal voltage	100–240 VAC, 50/60 Hz
Rated capacity	100 VA
Dimensions (L × W × H)	110 × about 65 × 85 mm
Resolution	60 µm (± 30 µm)
Layer	50–100 µm
Building speed	20–40 mm/h

# SMART PRINTING

Product details		
<b>Forms available</b>	<b>Quantity</b>	<b>REF</b>
Varseo S Partner (incl. availability)	1	26460
Varseo S Basic (incl. availability)	1	26455
<b>Availability</b>	<b>Quantity</b>	<b>REF</b>
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	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
Non-stick film	1	19778
BEGO CAMcreator Print	1	99118
Special USB stick, calibration file	1	
<b>Material packages</b>	<b>Quantity</b>	<b>REF</b>
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 Temp A2 (VarseoSmile Temp A2 500 g + cartridge incl. stamp)	1	41070
Material package VarseoSmile Temp A3 (VarseoSmile Temp A3 500 g + cartridge incl. stamp)	1	41059
Material package VarseoSmile Temp C2 (VarseoSmile Temp C2 500 g + cartridge incl. stamp)	1	41071

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)
Support (inclusive)	<ul style="list-style-type: none"> <li>• Device installation, commissioning, and familiarization in your laboratory</li> <li>• Professional hotline support</li> <li>• Loan device in the event of malfunction within 48 hours (as part of the one year guarantee term)</li> </ul>	Professional hotline support
Services (not free)	Activation of other material keys	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 pressure	1.0–1.2 bar
Gas type	Nitrogen N <sub>2</sub> /2.6
Gas flow	About 10 l/min

Product details		
<b>Availability</b>	<b>Quantity</b>	<b>REF</b>
BEGO Otoflash	1	26465
<b>Accessories</b>	<b>Quantity</b>	<b>REF</b>
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 an 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 <sup>3</sup>
Thermal stability at 55 °C	1.8 MPa
Flexural strength	$\geq 50$ MPa
Residual ash content	$\leq 0.1$ % at 700 °C
Wavelength	405 nm

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



# SMART MATERIAL SELECTION



## VarseoWax Model

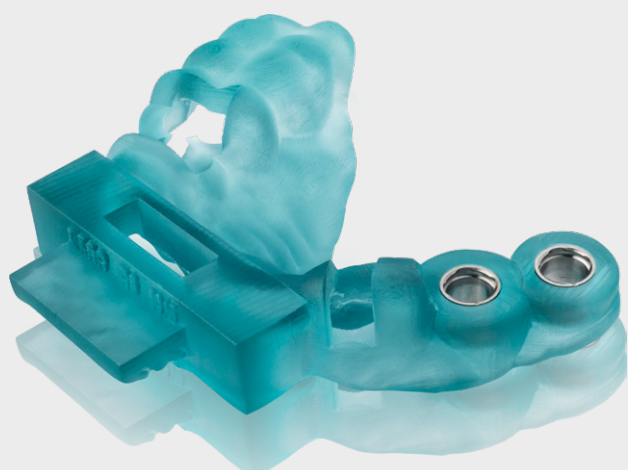
### The resin for 3D printing of dental models

- VarseoWax Model is a resin for 3D printing of 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	≥ 1,500 MPa
Density	ca. 1.12 g/cm <sup>3</sup>
Layer thickness	50 µm
Viscosity	1,100 mPa*s
Charpy impact strength	≥ 3 kJ/m <sup>2</sup>
Flexural strength	≥ 50 MPa
Wavelength	405 nm

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

# SMART MATERIAL SELECTION



## 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	≥ 1,500 MPa
Density	ca. 1.12 g/cm <sup>3</sup>
Layer thickness	100 µm
Viscosity	1,100 mPa*s
Notched impact strength	≥ 3 kJ/m <sup>2</sup>
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

\*\* Those symbols are a commercial designation/registered trademark of companies which are not part of the BEGO company group.

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

# SMART MATERIAL SELECTION



## 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	≥ 1,500 MPa
Density	ca. 1.12 g/cm <sup>3</sup>
Layer thickness	100 µm
Viscosity	1,100 mPa*s
Notched impact strength	≥ 3 kJ/m <sup>2</sup>
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 IIa\* medical device

Technical specifications	
Color	clear
Modulus of elasticity	≥ 1,000 MPa
Density	ca. 1.0–1.1 g/cm <sup>3</sup>
Layer thickness	50 μm
Viscosity	400–600 mPa*s
Notched impact strength	≥ 15 %
Flexural strength	≥ 30 MPa
Wavelength	405 nm

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

\* Class IIa medical device as defined by Directive 93/42/EEC  
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Available in the shades A2, A3, and C2 according to the VITA\* classical shade system

## VarseoSmile Temp

### The resin for 3D printing of temporary crown and bridge constructions

- The specially developed printing and processing parameters ensure smooth production sequences with reproducible results at any time
- Very good fit and simple finishing due to smooth surfaces of the printed objects
- Outstanding dimensional stability and strength – thus precise and dimensionally stable fit for the patient
- Objects can be customized by means of stains e.g. els paintart\* (from Saremco Dental AG, Switzerland)
- CE mark certifies safety, performance, and constant monitoring of the resin – it stands for comprehensive quality of the product across all batches
- Biological compatibility tests verified by neutral institutes guarantee monitored safety for each patient
- Fulfils the requirements for a medical device of class IIa\*\*

Technical specifications	
Color	A2 Dentin, A3 Dentin, C2 Dentin
Modulus of elasticity	≥ 2,000 MPa
Density	ca. 1.4–1.5 g/cm <sup>3</sup>
Layer thickness	50 µm
Viscosity	2,500 – 6,000 mPa*s
Flexural strength	≥ 80 MPa
Wavelength	405 nm

Product details					
Availability	Inhalt	Einheit	Stück	REF	
VarseoSmile Temp, A2 Dentin	0.5 kg	bottle	1	41022	
VarseoSmile Temp, A3 Dentin	0.5 kg	bottle	1	41023	
VarseoSmile Temp, C2 Dentin	0.5 kg	bottle	1	41024	

\* Those symbols is a commercial designation/registered trademark of a companie which is not part of the BEGO company group.

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

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## VarseoVest P

### Low-dust, phosphate-bonded, shock-heat precision investment material, especially for casting 3D-printed partial denture frames

- VarseoVest P was developed especially for the investing of 3D-printed partial denture frames; it creates an excellent fit and smooth surfaces of the cast objects – after each casting and even with pressureless investing
- Varseo Vest P is characterized by its low dust development during processing, thus contributing to a significant reduction of harmful quartz and cristobalite dusts in everyday laboratory use
- The outstanding flow properties ensure easy investment even on slender object details; the long working time of more than 5 minutes enables fatigue-free processing of the investment material
- The mould is inserted directly into the furnace, which is preheated to 850-950°C, only 20 minutes after investing – this allows for 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 – which forms the basis for reliable further processing
- Despite its strength, an easy deflasking of the cast object is possible
- The unambiguous expansion control with the special mixing liquid BegoSol®HE ensures reproducible fit results
- Easy application of VarseoVest P by a comparable processing method to conventional investment materials

Key material values according to DIN EN ISO 15912	
Beginning of setting (Vicat time)	About 9:50 Min.
Compressive strength	About 5 MPa
Linear thermal expansion	0.9 %
Flowability	142 mm

Product details	
<b>Physical data</b>	
Mixing liquid	BegoSol® HE
working time at 21 °C	ca. 5:20 Min.
Shelf life in an unopened bag	36 months

Product details				
Availability	Contents	Presentation	Quantity	REF
VarseoVest P, 72 x 250g bag	18 kg	carton	1	54744
VarseoVest P, 60 x 300g bag	18 kg	carton	1	54742
VarseoVest P, 20 x 300g bag	6 kg	carton	1	54743
Die Packungen enthalten kein Anmischliquid.				
Accessories	Contents	Presentation	Quantity	REF
BegoSol® HE mixing liquid*	1 litre	bottle	1	51095
BegoSol® HE mixing liquid*	5 litre	canister	1	51096
Silikonmuffelformer	1	Satz	1	54877

\* BegoSol® HE is sensitive to freezing  
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## Varseo Starter Set CAD/Cast

Your introduction to the Varseo CAD/Cast technology

The set contains:

- VarseoVest P 6 kg = 20 x 300g
- VarseoWax CAD/Cast, 1 kg
- BegoSol® HE 1 l
- Silicone muffler former
- Varseo holder for lacquer filter (E-D-high-speed sieve)
- Varseo lacquer filter E-D-high-speed sieve (10 piece)

## Varseo S Accessories Set

Your introduction to 3D printing with Varseo S

The set contains:

- Spray bottle, 1,000 ml
- 2 x Plastic cup 600 ml, incl. lid
- 3 x Anti-acid tweezers
- Solvent-resistant funnel, 16 cm
- PVC plaster-mixing bowl, black
- Varseo holder for lacquer filter (E-D-high-speed sieve)
- Varseo lacquer filter E-D-high-speed sieve (10 piece)
- Solvent-resistant brush
- Measuring cup, 1,000 ml

Availability	Presentation	Quantity	REF
Varseo Starter Set CAD/Cast	Set	1	41040

Availability	Presentation	Quantity	REF
Varseo S Accessories Set	Set	1	41041

## BEGO 3D Printing - Training Courses

In the BEGO TRAINING CENTER in Bremen we teach dental technology at the highest level. On the basis of our own concept, we have developed a sophisticated programme for seminars and practical courses that help interested dental technicians to become even more successful. Interested technicians from all over the world are encouraged to contact their BEGO Sales Partner or our website to get more information.





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