

V-Print®

3D PRINTING MATERIALS FOR THE DENTAL PRACTICE
AND DENTAL LABORATORY

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VOCO – The Dentalists

Manufacturing dental products is our passion

For forty years, VOCO has been known around the world as an innovative manufacturer of dental products with particular expertise in the field of light-curing resins for direct and indirect restorative dentistry. VOCO applies this knowledge and experience to the field of digital dentistry and has successfully launched a wide variety of products for additive and subtractive fabrication techniques worldwide. Alongside materials for the subtractive workflow, such as Grandio blocs and Structur CAD, VOCO offers professional users V-Print, a tried and tested range of top-quality dental materials for 3D printing.

All 3D printing materials are developed at VOCO headquarters in Cuxhaven, Germany by an interdisciplinary research team comprising dental technicians, dental engineers and chemists all along the digital process chain. This guarantees optimal user-friendliness and performance in the dental operatory. V-Print printing materials from VOCO also offer practical advantages to facilitate your day-to-day work.



How do they do it?!

VOCO uses nothing but the best raw materials that fully comply with the strict quality standards it sets for itself. In combination with research expertise acquired over decades in the field of light-curing resins, VOCO is able to produce printing resins of the very highest quality. This is achieved by using special dental monomers that form extremely stable three-dimensional networks during the light-curing process.

Consequently, all V-Print products yield homogeneous printed objects with high stability. This homogeneity has multiple advantages. The products do not need to be shaken before printing starts, resin vats are easy to clean, and excellent physical properties of the final printed objects are achieved. Selected raw materials are employed to prevent discoloration of the splint materials, with the result that they are barely visible when worn. This contributes considerably to successful treatment.

You can benefit from the expertise of a certified manufacturer of dental materials when fabricating your dental workpieces.

Printer and material compatibilities for optimum flexibility

Perfect solutions for the digital world of modern dentistry – that's the goal of the Dentalists at VOCO, achieved in cooperation with numerous renowned 3D printer manufacturers. A comprehensive list of printer and material compatibilities can be found at www.voco.dental/3dprintingpartners.



VOCO SolFlex 170 / 170 HD / 350 / 650 / SMP

ASIGA MAX UV

W2P SolFlex 163 HD / 170 / 350 / 650 / Plus



rapidshape D20 II / D30 II / D40 II / D10+ / D20+ / D30+

straumann P20 / P30 / P40 / P10+ / P20+ / P30+

dental wings D20 II / D30 II / D40 II / D10+ / D20+ / D30+

VOCO
TRUSTED
PARTNER



[www.voco.dental/
3dprintingpartners](http://www.voco.dental/3dprintingpartners)

Advantages of all V-Print® materials!



Ready for use immediately and without shaking – V-Prints are sedimentation-stable

All V-Print printing materials are sedimentation-stable! This means that fillers and dyes do not settle over time, either in the bottle or, far more importantly, during the printing process. The V-Print bottle does not need to be shaken before use, so no air bubbles enter the material. This allows immediate filling of the vat and the ability to immediately start printing. Unsupervised printing overnight is possible. The printing process runs reliably from the first step to the last, and the final product properties are reproducible. You can decide when each print job is started and reduce your preparation time. No need to invest in homogenization equipment because V-Print printing materials do not require time-consuming preparation.



Rapid and reliable printing, including easy cleaning of the vat – optimum flowability

During the development of V-Print materials, the focus was on excellent final material properties along with good flow properties for an optimal printing process. The flowability of V-Print not only ensures an optimal printing process but also makes it easier to return the material to the bottle if necessary. The developed flow characteristics also make it easier for you to clean the vat with minimum wastage.



Safe removal from the build platform – high green strength

The printed objects have yet to be post-cured when removed from the build platform, meaning they have not attained their final physical properties. The high green strength of all objects printed with V-Print is required for safe and deformation-free removal from the build platform.



Fast and cost-effective – post-curing without protective gas

Objects made from V-Print materials can be post-cured without protective gas. One of the aims when developing V-Print was to achieve a high surface quality without the use of protective gas. Fewer working steps means time savings for you. The handling is simpler and the streamlined process saves the expense of nitrogen or a more high-end light polymerization unit.



Safe for users and patients alike – thanks to biocompatible dental products

That goes without saying.



You'll love it! – odorless or low-odor

All V-Print printing materials are very low-odor even in their liquid state, which makes their processing very pleasant for the user. You've surely already produced a denture base conventionally from PMMA? Then you'll love digital fabrication with V-Print dentbase.

In their cured state, all objects made from V-Print printing material are completely odorless or very low-odor. This increases customer acceptance and thus treatment success, e.g., in the case of long-term splint therapy.

Overview – V-Print® printing materials

	Color	Indications	Class
	Clear	Dental drilling templates	MD II
	Clear	Therapeutic splints Auxiliary parts and functional parts for diagnostics Bleaching splints (home bleaching)	MD II
	Clear	Therapeutic splints Auxiliary parts and functional parts for diagnostics Bleaching splints (home bleaching) Palatal plates	MD II
	Pink	Removable denture bases (coming soon)	MD II
	Blue	Individual impression and function trays Bases for bite templates and wax assemblies for full dentures Occlusal registrations	MD I
	Beige	Try-ins for full and partial dentures Transfer and grinding templates Correction and occlusal impressions	MD I



	Color	Indications	Class
V-Print model	Beige	Dental working and presentation models	Tec Resin
V-Print model fast	Blue	Dental models	Tec Resin
V-Print cast	Blue	Fabrication of objects that can be burned out without leaving any residues for casting processes and pressable ceramics	Tec Resin





V-Print® SG

Material for 3D printing transparent surgical guides

Indications

Dental drilling templates

Advantages

- **Autoclavable** at 250 °F/134 °C
- **Optimal flow properties**
- **High precision** for optimal fit
- **Excellent green-state stability**, so not subject to distortion
- **High flexural stability**
- **Biocompatible**
- **Neutral flavor**
- **FDA-cleared** class I medical device
- **Compatible with multiple printers**
from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO

For a complete list go to www.voco.dental/3dprintingpartners



REF 6043 Bottle 1,000 g Clear

Color	Transparent	
Viscosity	1,550 mPa·s	Internal test
Flexural strength	95 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,660 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	16 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2
Water solubility	1.9 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2

(autoclaved 134°C, 5 mins) *see page 16



Dimensionally stable, steam-sterilized drilling template with accurate fit of drill sleeves



Guided implantation: Medical device class II – approved for wound contact



V-Print® splint

Material for 3D printing of splints, night-guards and other diagnostic parts

Indications

Production of:
 Therapeutic splints
 Patient-matched night guards/splints
 Auxiliary parts and functional parts for diagnostics

Advantages

- **FDA 510k cleared**
- **Biocompatibility and neutral flavor** ensure high level of patient acceptance
- **385 nm wavelength** allows esthetically pleasing clear-transparent results
- **Rigid with high flexural strength** for durable orthodontic objects
- **Easy to polish and stain resistant**
- **Compatible with multiple printers**
 from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO

For a complete list go to www.voco.dental/3dprintingpartners



REF 6044 Bottle 1,000 g Clear

Color	Transparent	
Viscosity	1,000 mPa·s	Internal test
Flexural strength	75 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,100 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	27.7 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2

*See page 16



Approx. 125 ×



Depending on object volume, support structures, etc.



Splint with support structures



Splint-model combination from 3D printer



V-Print® splint comfort

FDA 510k-licensed biocompatible 3D print resin to produce clear thermo-flexible therapeutic splints and night-guards

Indications

- Therapeutic splints
- Patient-matched night guards/splints
- Auxiliary parts and functional parts for diagnostics

Advantages

- **High flexural strength and excellent wear resistance** allow for device as thin as 1mm
- **Thermo-flexibility, biocompatibility, odorless and neutral flavor** increases patient acceptance
- **Extremely fracture resistant and durable**
- **Clear-transparent, easy to polish and color stable** for excellent esthetics
- **FDA 510k clearance**
- **No sedimentation** – therefore, no shaking or “rolling” prior to use
- **Validated for 3D printers** from Asiga, Dental Wings, Rapid Shape, Microlay, Shera, Straumann and VOCO

For a complete list go to www.voco.dental/3dprintingpartners



REF 6126 Bottle 1,000 g Clear

Color	Clear	
Viscosity	1,280 mPa·s	Internal test
Modulus of elasticity Fracture toughness	115 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	15 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2
Water solubility	2.5 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2

For VOCO/W2P printers, only combinable with PowerVat *See page 16



Very flexible splint from 3D printer



View of bite elevation in anterior region



View of bite elevation in posterior region



V-Print® dentbase

Light-curing resin for the generative production of denture bases for removable dentures

Indications

Removable denture bases

Advantages

- **Classified as MD II** – for safety and long-term use
- **Highly esthetic** – with natural gingiva color
- **High wearing comfort** – thanks to precise, custom-fit fabrication
- **Compatible** – with commercially available lining materials
- **Safe removal from the build platform** – thanks to high green strength
- **Optimal customer acceptance** – flavorless and odorless
- **Biocompatible** – that goes without saying

For a complete list go to www.voco.dental/3dprintingpartners

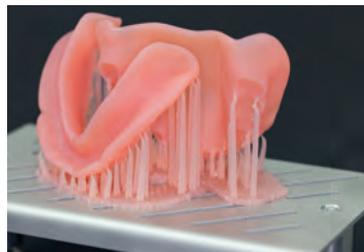
COMING
SOON



REF 6048 Bottle 1,000 g Pink

Color	Pink	
Viscosity	1,700 mPa·s	Internal test
Flexural strength	90 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,450 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	24 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2

*See page 16



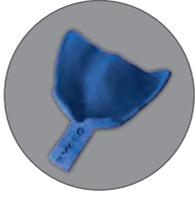
Additively fabricated denture bases



Rapid removal of support structures
(design possible with SolFlex 3D printers)



Grinding of support attachments and
problem areas



V-Print® tray

Light-curing resin for the generative manufacture of individual trays, base plates and occlusal registrations using CAD / CAM technology

Indications

Individual impression and function trays
Bases for bite templates and wax assemblies for full dentures
Occlusal registrations

Advantages

- **Timesaving** – printable in high layer thicknesses (up to 200 µm)
- **Distortion-free impressions** – thanks to the great strength
- **Universal** - suitable for all types of impression material
- **Rapid and efficient** – object printing including the forming of functional peripheries, retention elements and gaps for implant impressions.
- **Biocompatible**
- **FDA cleared** class I medical device
- **Compatible with multiple printers**
from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO

For a complete list go to www.voco.dental/3dprintingpartners



REF 6047 Bottle 1,000 g Blue

Color	Blue	
Viscosity	1,500 mPa·s	Internal test
Flexural strength	100 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,720 MPa*	Equivalent to DIN EN ISO 178**
Water absorption	30 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2
Water solubility	3 µg/mm ³ *	Equivalent to DIN EN ISO 20795-2

*/**See page 16



Partial tray printed in thick layers



3D-printed partial tray on printed model



V-Print® Try-In

Light-curing resin for the generative production of try-ins for prosthetics

Indications

Try-ins for full and partial dentures
Transfer and grinding templates
Correction and occlusal impressions

Advantages

- **Verification and possibility to assess** the fit, occlusion, functionality, phonation and esthetics before the production of prosthetics
- **Biocompatible**
- **FDA cleared** class I medical device
- **Compatible with multiple printers from** Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO

For a complete list go to www.voco.dental/3dprintingpartners



REF 6049 Bottle 1,000 g Beige

Color	Beige	
Viscosity	850 mPa·s	Internal test
Flexural strength	85 MPa*	Equivalent to DIN EN ISO 20795-1
Modulus of elasticity	2,500 MPa*	Equivalent to DIN EN ISO 20795-1
Water absorption	17.5 µg/mm ³ *	Equivalent to DIN EN ISO 20795-1
Water solubility	< 0.1 µg/mm ³ *	Equivalent to DIN EN ISO 20795-1

*See page 16



Printed monolithic try-in



Try-ins made from V-Print Try-In after polishing – ready for insertion!



Corrective impression-taking with V-Posil Mono Fast is possible



V-Print® model

Light-curing resin for the generative production of dental models

Ideal for:

Precision models for any type of dental need, including but not limited to: Functional crown and bridge models, Models with dies, Diagnostic models, Cast models for thermoforming aligners or other appliances, Orthodontic models, Implant models

Advantages

- **No shaking required** – V-Print Model is always immediately usable, with no sedimentation separation or need for time-consuming mixing
- **Suitable for overnight print jobs** – does not need to be continually mixed to avoid sedimentation
- **Models can be ground precisely**, without undesirable changes (e.g. as caused by heat influx)
- **Non-scratch, very hard surface** allows for trial fitting without deformation
- **Suitable for thermoforming** – no deformation caused by heat
- **High degree of precision** for optimally fitting restorations
- **Compatible with multiple printers** from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO.

For a complete list go to www.voco.dental/3dprintingpartners



REF 6042 Bottle 1,000 g Beige

Color	Beige	
Viscosity	1,530 mPa·s	Internal test
Flexural strength	70 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,120 MPa*	Equivalent to DIN EN ISO 178**
Surface hardness	17 HV1*	Internal test

*/**See page 16

Approx. 70 ×

Depending on object volume, support structures, etc.



Simple separating cuts without clogging



Scratch-proof for safe trial fitting



Printed model casting for fit check on the dental model



V-Print® model fast

Light-curing resin for the generative production of fast printable models, especially for the dental thermoforming technique (e.g. for aligner or retainer splints)

Ideal for:

Generative production of dental models, especially for the dental deep-drawing process (e.g. aligner or retainers)

Advantages

- **Time-saving** – for fast printing in high layer thickness without loss of quality
- **Suitable for vacuum forming** – temperature resistant as a basis for e.g. aligner or retainer splints
- **High strength and material saving** – the high strength allows material-efficient hollowing of the models
- **Compatible with multiple printers**
from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO.

For a complete list go to www.voco.dental/3dprintingpartners



REF 6125 Bottle 1,000 g Blue

Color	Blue	
Viscosity	1,500 mPa·s	Internal test
Flexural strength	95 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	3,300 MPa*	Equivalent to DIN EN ISO 178**

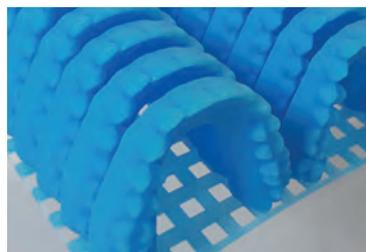
*/**See page 16



Approx. 70 ×



Depending on object volume, support structures, etc.



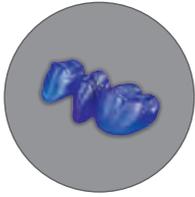
Multiple models can be printed quickly in thick layers



Optimal for the thermoforming technique



No clogging when using the cutting wheel



V-Print® cast

Light-curing resin for the generative production of burn-out objects for casting and pressing processes

Indications

Production of objects that can be burned out without leaving any residues for casting processes and press ceramics

Advantages

- **Reliable printing process** – non-sedimenting over the entire printing duration
- **Reproducible** – simple duplication prior to casting
- **Quick finishing process** – precisely printed objects allow for high quality of reproduction
- **High form and edge stability** – reliable checking of occlusion and lateral movements
- **Finishing at an early stage** – instrument-friendly finishing of objects in light-cured state
- **High compatibility** – can be used with commercially available phosphate bonded investment materials
- **Restorations free of impurities** – V-Print cast burns without residue
- **FDA cleared** class I medical device
- **Compatible with multiple printers** from Asiga, Dental Wings, Rapid Shape, Straumann, and VOCO.

For a complete list go to www.voco.dental/3dprintingpartners

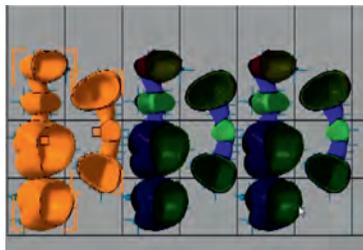


REF 6045 Bottle 1,000 g Blue

Color	Blue	
Viscosity	1,550 mPa·s	Internal test
3-point flexural strength	78 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,470 MPa*	Equivalent to DIN EN ISO 178**

*/** See page 16

Depending on object volume, support structures, etc.



Digitally simple duplication of objects



Good grindability without formation of smear film

General information: The measured values do not represent target values within the scope of the product's continuous quality control.

*Manufacturing note: SolFlex 3D printer / OtoFlash G171. Other approved printers/post-curing units may differ slightly.

**Test specimen dimensions 80.0 × 4.0 × 10.0 mm

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