

# V-Print®

3D PRINTING MATERIALS FOR THE DENTAL PRACTICE  
AND DENTAL LABORATORY

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## VOCO – The Dentists Manufacturing dental products is our passion

For four decades, 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 the 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 surgery. 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 which comply fully with the strict quality standards it sets itself. In combination with research expertise acquired over decades in the field of light-curing resins, VOCO is thus able to produce printing resins of the very highest quality. This is achieved by using special dental monomers which 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 the success of 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 Dentilists 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](http://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)

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## 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 out 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 start of the 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 homogenisation 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 good 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 polymerisation unit.



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

That goes without saying.



### **You'll love it! – odourless and low-odour**

All V-Print printing materials are very low-odour 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 odourless or very low-odour. This increases customer acceptance and thus treatment success, e.g., in the case of long-term splint therapy.

## Overview – V-Print® printing materials

	Colour	Indications	Class
	Clear	Dental drilling templates	MD IIa
	Clear	Therapeutic splints Auxiliary parts and functional parts for diagnostics Bleaching splints (home bleaching)	MD IIa
	Clear	Therapeutic splints Auxiliary parts and functional parts for diagnostics Bleaching splints (home bleaching) Palatal plates	MD IIa
	Pink	Removable denture bases	MD IIa
	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



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





## V-Print® SG

Light-curing resin for the generative production of dental drilling templates

### Indications

Dental drilling templates

### Product advantages

- **Classified as MD IIa** – for optimal safety
- **High customer acceptance** – flavourless and odourless
- **Optimum patient safety** – can be steam sterilised at 134°C for 5 minutes before use
- **Dimensionally stable** – perfect fit even after steam sterilisation
- **Biocompatible** – that goes without saying



REF 6043 Bottle 1,000 g Clear

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2
Water solubility	1.9 µg/mm <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2

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



Approx. 90 x



Depending on object volume, support structures, etc.



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



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



## V-Print® splint

Light-curing resin for the generative production of dental, therapeutic splints

### Indications

Therapeutic splints  
 Auxiliary parts and functional parts for diagnostics  
 Bleaching splints (home bleaching)

### Product advantages

- **Classified as MD IIa** – for safety and long-term therapy use
- **Biocompatible and flavourless** – for excellent customer acceptance
- **Transparent** – for hardly noticeable splints
- **High flexural strength** – for long-lasting objects
- **High precision** – a great fit for good wearing comfort



REF 6044 Bottle 1,000 g Clear

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2

\*See page 16



Approx. 125 x



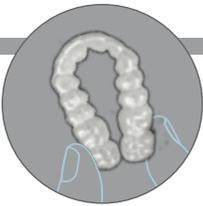
Depending on object volume, support structures, etc.



Splint with support structures



Splint-model combination from 3D printer



# V-Print® splint comfort

Light-curing resin for the generative production of thermoflexible dental, therapeutic splints

### Indications

- Therapeutic splints
- Auxiliary and functional parts for diagnostics
- Bleaching splints (home bleaching)
- Palatal plates

### Product advantages

- **Highly flexible and abrasion-resistant** – extremely fracture-resistant and durable
- **Thermoflexible and flavourless** – for excellent wearing comfort
- **Transparent** – for hardly visible splints
- **Low-odour and easy to polish** – for pleasant processing
- **Biocompatible and flavourless** – for excellent customer acceptance
- **Classified as MD IIa** – for safety and long-term therapy use



REF 6126 Bottle 1,000 g Clear

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2
Water solubility	2.5 µg/mm <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2

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

**Approx. 125 x**

Depending on object volume, support structures, etc.



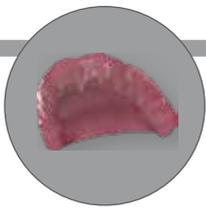
Very flexible splint from 3D printer



View of bite elevation in anterior region



View of bite elevation in posterior region



## V-Print® dentbase

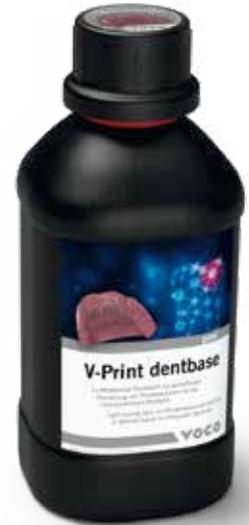
Light-curing resin for the generative production of denture bases for removable dentures

### Indications

Removable denture bases

### Product advantages

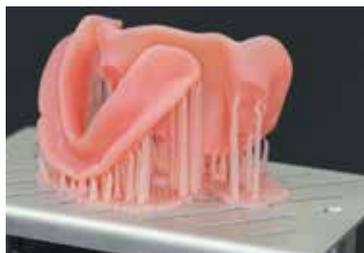
- **Classified as MD IIa** – for safety and long-term use
- **Highly aesthetic** – with natural gingiva Colour
- **High wearing comfort** – thanks to precise, custom-fit fabrication
- **Compatible** – with commercially available lining materials
- **Safe removal from the build platform** – thanks to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



REF 6048 Bottle 1,000 g Pink

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm <sup>3</sup> *	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 production of individual trays, base plates and occlusal registrations

### Indications

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

### Product advantages

- **Saves time** – printable in high layer thicknesses (up to 200 µm)
- **Distortion-free impressions** – thanks to very strong material
- **Universal** – can be used with all types of impression material
- **Fast and efficient** – object printing including shaping of margins, retention elements and recesses for implant impressions



REF 6047 Bottle 1,000 g Blue

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2
Water solubility	3 µg/mm <sup>3</sup> *	Equivalent to DIN EN ISO 20795-2

\*/\*\*See page 16

Approx. 60 x (upper jaw)  
or 85 x (lower jaw)

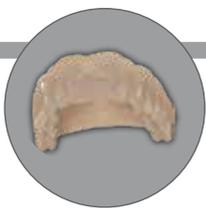
Depending on object volume,  
support structures, etc.



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

### Product advantages

- **Advance checks** – verifying and, if necessary, adapting the fit, occlusion, function, phonation and aesthetics **before** the permanent denture is fabricated



REF 6049 Bottle 1,000 g Beige

Colour	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 <sup>3</sup> *	Equivalent to DIN EN ISO 20795-1
Water solubility	< 0.1 µg/mm <sup>3</sup> *	Equivalent to DIN EN ISO 20795-1

\*See page 16



Approx. 50 x (upper jaw or lower jaw)

=



Depending on object volume, support structures, etc.



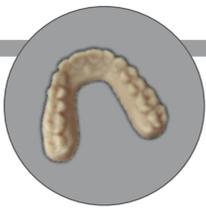
Printed monolithic try-in



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

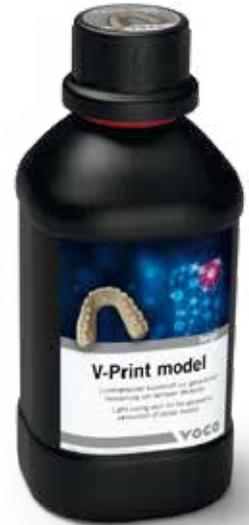
Light-curing resin for the generative production of dental models

### Indications

Dental working and presentation models

### Product advantages

- **Can be ground precisely** – no undesirable changes to the workpiece (e.g. due to heat generation)
- **Scratch-proof, very hard surface** – allows trial fitting without deformation
- **Suitable for thermoforming technique** – no deformation caused by heat from the process
- **High precision** – for perfectly fitting restorations



REF 6042 Bottle 1,000 g Beige

Colour	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



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)

### Indications

Dental models

### Product advantages

- **Saves time** – for rapid printing in high layer thicknesses with no loss of quality
- **Suitable for thermoforming technique** – temperature-resistant as the basis for fabrication of aligner and retainer splints
- **High strength and minimum wastage** – the high strength allows material-efficient hollowing of the models



REF 6125 Bottle 1,000 g Blue

Colour	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**

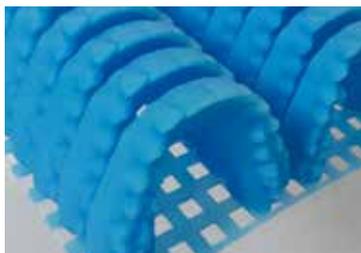
\*/\*\*See page 16



Approx. 70 x



Depending on object volume, support structures, etc.



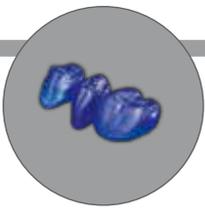
Multiple models can be printed quickly in thick layers



Optimal for the thermoforming technique



No clogging when using the cutting wheel



## V-Print® cast

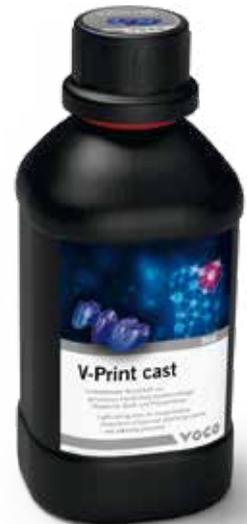
Light-curing resin for the generative production of burn-out objects for casting and pressing processes

### Indications

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

### Product advantages

- **Reproducible** – simple duplication before casting
- **Quick finishing** – precision-printed objects give high quality of reproduction
- **High dimensional stability and edge strength** – reliable checking of the occlusion and lateral movements
- **Finishing at an early stage** – instrument-friendly finishing of objects even in the green state
- **Excellent compatibility** – can be used with commercially available, phosphate-bonded investment materials
- **Restorations free of impurities** – V-Print cast burns out without residues



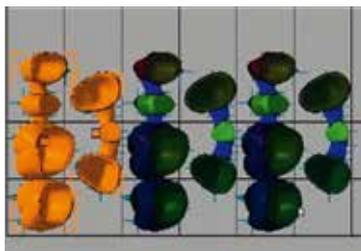
REF 6045 Bottle 1,000 g Blue

Colour	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 x 4.0 x 10.0 mm

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