THE INDUSTRIAL GRADE DLP DENTAL 3D PRINTERS

Faster Printing Speed
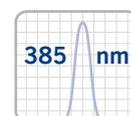
Higher Accuracy

Better Process Reliability

Truly Clear Appliances

Open Material System

SolFlex 650 · 350 · 170

INDUSTRIAL GRADE DLP DENTAL 3D PRINTERS

385 nm

VOCO

THE DENTALISTS

SolFlex 650 · 350 · 170

VOCO SOLFLEX PRINTERS BRING INNOVATION TO THE DENTAL INDUSTRY

The SolFlex series of industrial grade 3D printers offer innovative features for

• easier

• more efficient workflows and

• higher process reliability

for the dental laboratory and dental practice. SolFlex 3D Printers have proven themselves scapable of handling individual mass production in the hearing aid industry. They are ready for the dental industry with VOCO's individually matched materials. Different from most other printer manufacturers, VOCO is not only manufacturing the printer but we also make all of our 3D print materials and therefore can guarantee the perfect compatibility of printer and material. The know-how of more than 3 decades in the dental industry combined with our own research and development of leading resin technologies ensures superior print materials.

Three important innovations make your dental workflow fast, precise and economical.

INNOVATION 1

Most 3D printers have one light source mounted in the middle of the printing platform. VOCO's SolFlex 350 and 650 printers have a high-tech Texas Instrument DLP* light source that moves into different positions in order to keep the same distance between the light source and the build object. Thanks to the moving lightsource, also known as Pixel Stitch technology (PST), building quality and precision will remain high regardless of where the object is placed on the platform. This becomes very important for high-precision objects like crown and bridge models or drilling templates.

Cross section of the SolFlex moving DLP

SolFlex 650
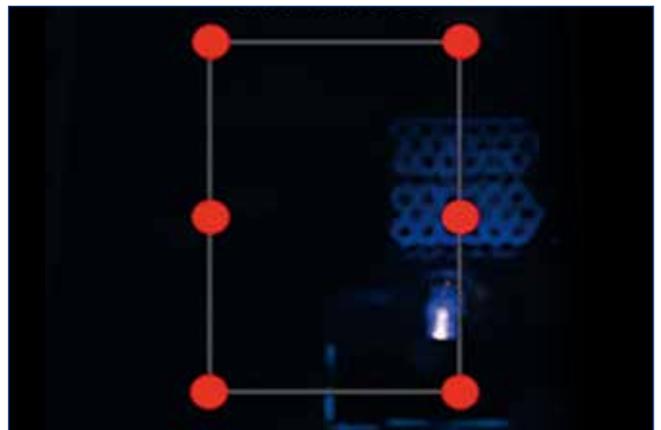
Six DLP moving-points

SolFlex 650 · 350 · 170

SUPERIOR QUALITY AND DESIGN

SolFlex 3D printers have been elegantly designed by experts and are hand-crafted in Austria and Germany using only high-quality industrial grade components. Complemented by large building volumes in a true desktop size and an easy to use touch screen interface, SolFlex 3D printers are innovative robust machines that perform at the highest level. Benefiting from such high-quality design, SolFlex 3D printers perform at a noise level that is virtually unnoticeable.

SolFlex 350   SolFlex 650

SolFlex 170

SolFlex 650

The SolFlex 650 is designed for precise printing of large, massive objects in large quantities. To meet this requirement, the SolFlex 650 can be equipped beside the Flex-Vat with a rigid tray, the so-called PowerVat.

PowerVat

– Precise printing of solid objects e.g. models
– Processing of highly viscous materials
– Material storage in the PowerVat possible
– Cost-effective replaceable film

[2]

Available in 3 different sizes

	SolFlex 650	SolFlex 350	SolFlex 170
The SolFlex 3D printers are available in three different sizes. Depending on your needs, there will be a SolFlex printer for you.			
Max Capacity[3] Models	6 / 12	3 / 6	2 / 4
Surgical Guides	6 / 12	3 / 6	2 / 4
Splints	12 / 24	6 / 12	3 / 6

[1] Full arch splints, models and surgical guides. Printed on one or two levels with individual support.
[2] Not available in combination with innovation 3

SolFlex 650 · 350 · 170

OPEN PRINT STANDARD – BE PREPARED FOR THE FUTURE

All SolFlex printers follow the open print concept. That means it is easy to use these materials and enter the parameters into the interface of the printer. With this feature, you are open to further print resin developments and new indications without any future limitations. VOCO will continue to develop more materials. We believe our materials to be superior regarding material properties, usability within the digital workflow and the precise match to the SolFlex printers.

With **V-Print splint**, **V-Print SG** and **V-Print model**, VOCO offers you a selection of 3D printing materials very precisely matched to the SolFlex printers.

Reliably print splints and drilling templates with V-Print splint and V-Print SG. Both materials are classified as medical device class IIa are tasteless and have a high flexural strength.

The large vat volumes of the SolFlex printers even make overnight printing possible, independent of the network – thanks to the integrated PC.

WE MAKE YOUR PROCESS ECONOMICAL

Payback example SolFlex 170

Splints	Digital production[3]
Value added per splint	ca. 64 €
Investment (printer, software, starter package etc.)	22,889 €
Amortisation from (per piece)	ca. 358
Amortisation after X printjobs (3 splints / day)	ca. 120
Amortisation after X months (3 splints / day)	ca. 6

[3] VOCO internal enquiry

- The SolFlex 3D printer reduces production times and thus increases your efficiency
- Allows higher order volumes to be processed
- Ensures a consistently high product quality
- Provides significant monetary advantages thanks to digital manufacturing
- Increases in-house value added

Payback over 2 years

Required printed objects		
	Week	4
	Month	15
	Year	179

SolFlex 650 · 350 · 170

VOCO SOLFLEX PRINTERS BRING INNOVATION TO THE DENTAL INDUSTRY

INNOVATION 2

Flex-Vat technology

With patented Flex-Vat technology, SolFlex 3D printers differentiate themselves from all other 3D printers in that the SolFlex vat is flexible and made from one piece of high-tech silicone. This innovative technology significantly reduces the peeling forces during manufacturing, enabling SolFlex printers to work much more quickly.

Additionally, the number of required support structures are reduced, saving post-processing time and material.

Flex-Vat

INNOVATION 3

Sensor Monitored Production

An optional feature available on each SolFlex model is what VOCO refers to as Sensor Monitored Production (SMP). SMP is performed by a sensor that measures the peeling forces emerging on the Flex-Vat surface. This information is used by the SolFlex printer to control and optimize the building speed, which in turn increases process efficiency and reliability, reducing time and material-consuming print failures. In fact, for most print jobs, the SMP technology reduces print time by up to 40 %.

up to **40%** faster

SMP Speed Sensor

SolFlex 385 nm DLP* vs. 405 nm DLP and SLA*
Print truly clear splints

The SolFlex 3D printers use the newest generation of Texas Instruments DLP Technology with a wavelength of 385 nm. A major advantage of DLP technology vs. the cheaper SLA technology is that it lasts longer. While the SLA technology "draws" the silhouette of the object for each layer, the DLP technology projects the silhouette all at once; which is significantly faster and more precise. In general, VOCO SolFlex DLP printers have a higher resolution than SLA printers. With a wavelength of 385 nm, the SolFlex printers print in the invisible spectrum of light; which allows the production

of truly clear ortho appliances without the yellow tint, unlike SLA printers or DLP printers with a wavelength of 405 nm.

*DLP = Digital Light Processing; SLA = Laser-based stereolithography

SolFlex 650 · 350 · 170

THE INDUSTRIAL GRADE 3D DLP DENTAL PRINTERS

- **Sensor Monitored Production**
  Intelligent laser sensor monitors layer building and increases print speeds up to 40 %

- **Print Truly Clear Ortho Appliances and Extremely Precise Models**
  Advanced 385 nm DLP prints crystal clear without yellowing like most 3D printers

- **Patented Flex-Vat Technology**
  Faster speeds and fewer support structures

- **Pixel Stitch Technology (PST)**
  Higher accuracy across a larger build platform

- **Open Material System**
  Use V-Print materials or other manufacturers' resin

Technical Data

	SolFlex 650	SolFlex 350	SolFlex 170
Base area	400 × 400 mm	400 × 400 mm	296 × 318 mm
Build area	128 × 120 mm (6 exposure areas)	64 × 120 mm (3 exposure areas)	56 × 89 mm (1 exposure area)
Max. build height	130 mm	130 mm	120 mm
Layer thickness	25 - 200 µm	25 - 200 µm	25 - 200 µm
Building speed	up to 138 mm/h[4]	up to 138 mm/h[4]	up to 138 mm/h[4]
Pixel size	50 µm[5]	50 µm[5]	70 µm[5]
Precision	± 25 µm	± 25 µm	± 35 µm

[4] Depending on layer thickness material etc.   [5] Pixel Size and Print Volume may vary.

Presentation SolFlex 650

REF 9104	3D printer
REF 9105	SMP – 3D printer (incl. Sensor Technology)
REF 9109	SMP Upgrade Kit
REF 9112	Flex-Vat – Flexibel material reservoir[6]
REF 9113	PowerVat 650 – material reservoir[7]
REF 9115	Handle bar 350 / 650 – Handle bar Flex-Vat
REF 9122	Platform – Building platform

Presentation SolFlex 350

REF 9102	3D printer
REF 9103	SMP – 3D printer (incl. Sensor Technology)
REF 9109	SMP Upgrade Kit
REF 9111	Flex-Vat – Flexibel material reservoir
REF 9115	Handle bar 350 / 650 – Handle bar Flex-Vat
REF 9121	Platform – Building platform

[6] for REF 9105   [7] for REF 9104

Presentation SolFlex 170

REF 9100	3D printer
REF 9101	SMP – 3D printer (incl. Sensor Technology)
REF 9108	SMP Upgrade Kit
REF 9110	Flex-Vat – Flexibel material reservoir
REF 9120	Platform – Building platform
REF 9119	Interchangeable plate for building platform

Available from:

VOCO
THE DENTALISTS