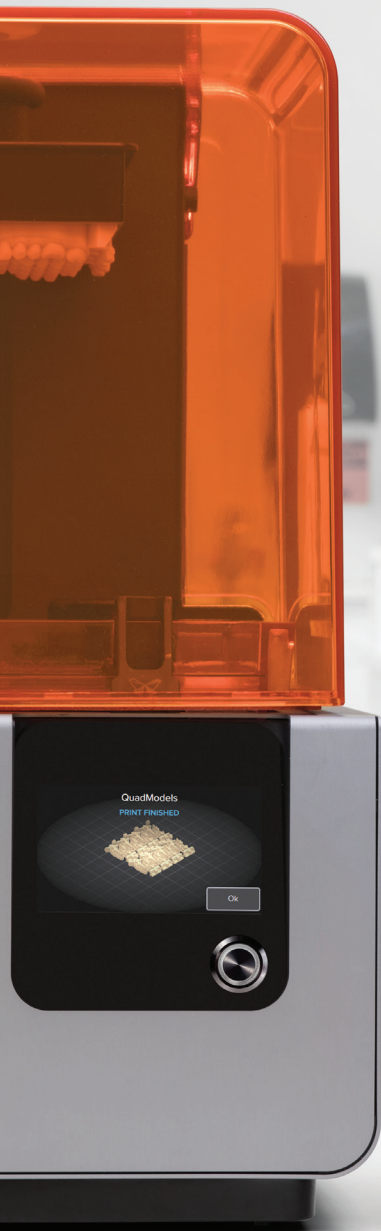
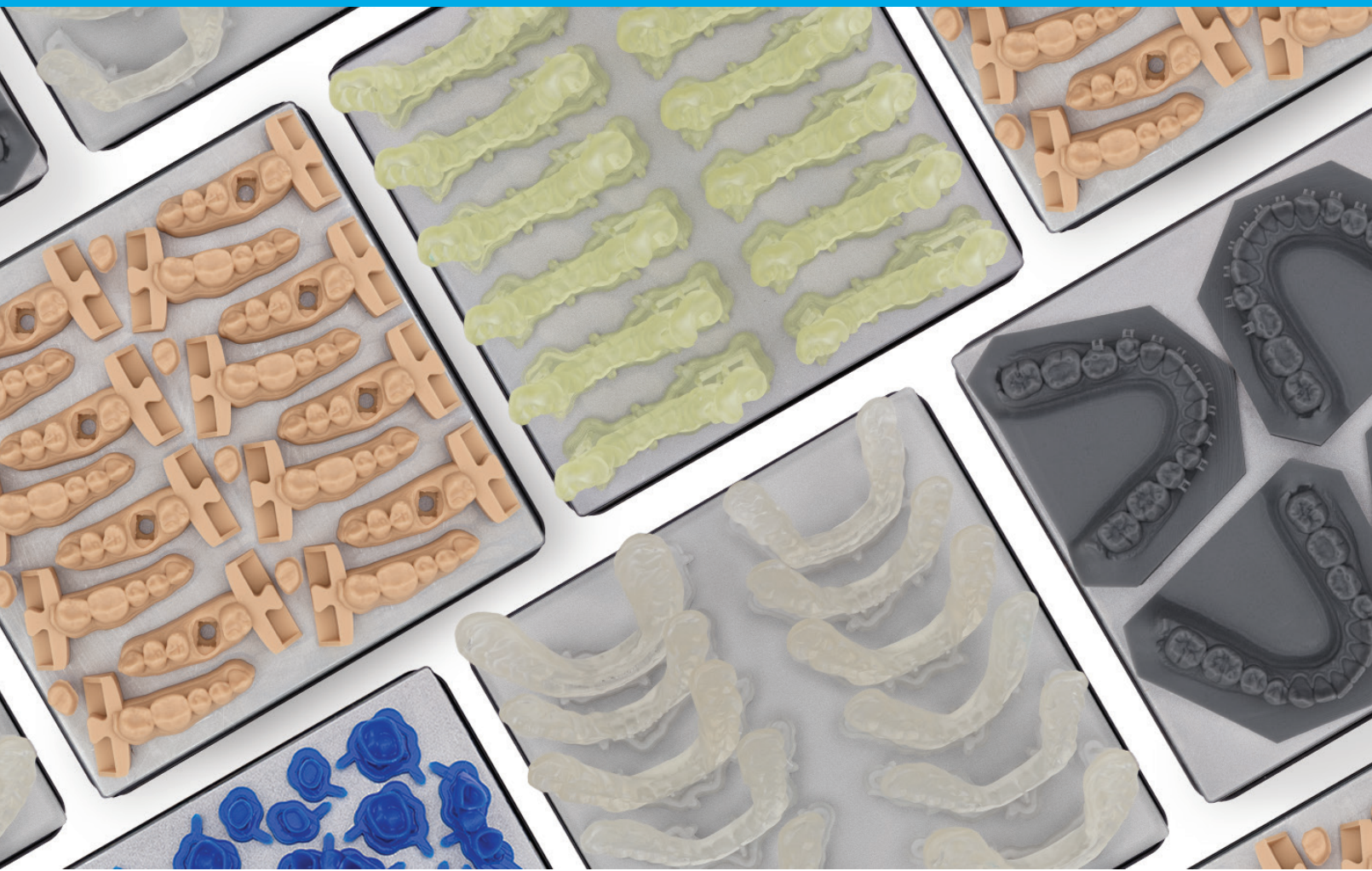


Form 2

3D Printing
for Digital Dentistry



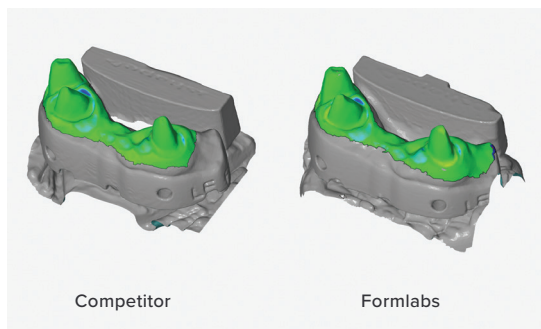


Industrial 3D Printing on Your Desktop

The Form 2 makes industrial 3D printing affordable for dental businesses of all sizes, enabling cost-effective, mass-customized digital production of a wide range of dental products.

PROFESSIONAL PRECISION

Our library of standard and biocompatible resins are developed for specific dental applications, and specially tuned to meet the performance, precision, and accuracy needs of each function. A finely-tuned optical system and streamlined user experience ensure precise prints straight out of the box.



The precision of Dental Model Resin, our most accurate material, is on par with established, large-format dental 3D printers in the 70,000€ price range.

- Overall global accuracy was found to be within ± 100 microns over 90% of surfaces.
- Margins and contact points were accurate within ± 35 microns of the digital model over 80% of surfaces when printed on 25 micron settings.

■ + 0.50 mm
 ■ + 0.25 mm
 ■ ± 0.10 mm
 ■ - 0.20 mm

SIMPLE MATERIAL SWAPPING WITH A GROWING RANGE OF APPLICATIONS

With a library of dental materials, a single printer can be used for a wide range of applications. Automated resin cartridges and interchangeable resin tanks can be swapped in less than a minute, with no mess or wasted material. With new applications under development, the printer you buy today will be even better tomorrow.



FAST RETURN ON INVESTMENT

Affordable materials and low-cost machine pricing make 3D printing the cost-effective digital manufacturing choice for dental businesses of any size. Get a return on investment within months, rather than years.

“The Form 2 has enabled our restorative practice to use precision surgical guides at a fraction of the cost previously attainable. We now utilize three Form 2 printers for surgical guide and medical model production. The return on investment has been a ridiculously short two months for the first two printers, and just three weeks for third printing models. Our Form 2’s have given us the ability to satisfy our core principles of quality care and CBCT justification in a truly cost effective manner for all of our patients.”

–Dr. Timothy Hart, DDS, MS, Prosthodontist

Printing on the Form 2	Quad with Dies (Dental Model)	Full Arch with Dies (Dental Model)	Quarter Arch Surgical Guide	Full Arch Surgical Guide	Splint / Retainer (Dental LT Clear)	Full Arch Orthodontic Model (Grey)
PARTS PER BUILD	16 quads and dies	4 arches and dies	18 guides	12 guides	12 splints	9 arches
TIME TO PRINT AT 50 MICRON LAYER HEIGHT	2 quads / 3 hr 16 quads / 8.5 hr	2 arches / 5.5 hr 4 arches / 8 hr	1 guide / 2.5 hr 18 guides / 6 hr	1 guide / 2.5 hr 8 guides / 7.5 hr	1 splint / 2.5 hr 12 splints / 9.5 hr	1 arch / 2.5 hr 9 arches / 7.5 hr
COST PER PART	1,4€ / quad	2,8 – 4,7€ / arch	1,8 – 2,8€ / guide	2,8 – 4,7€ / guide	3,7 – 5,6€ / splint	1,4 – 3,3€ / arch

High precision 3D printing, intuitive software, and a growing library of specialized materials. All in one package for only 3299€.



RELIABLE, 24/7 PRODUCTION

A powerhouse of productivity, the Form 2 is designed and rigorously tested for for continuous, 24/7 production. Thousands of customers already rely on the Form 2 for their business needs.

“Over 200 guides printed with only 2 failures. Amazing.”
– **Dr. Pierre Obeid, BSc, DDS, Leamington Sedation Dentistry**

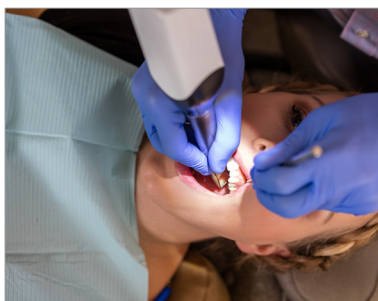
SCALABLE PRINT CELLS THAT GROW WITH YOU

Pay for exactly as much production capacity as your business needs. Scale production by adding printers as you need them, without making a big investment in a large-format machine. Wireless connectivity, a small desktop footprint, and cloud-based printer management through Dashboard make it easy to manage print cells of several Form 2s.

“We started with the Form 2 instead of going to a \$35,000 printer simply because I couldn’t see a lot of difference in what one did vs. the other. We decided to get a second printer since the cost was low enough that it was easy to do. Now we have four printers here with different materials for different applications.”
– **Matt Roberts, CDT, CMR Dental Lab**

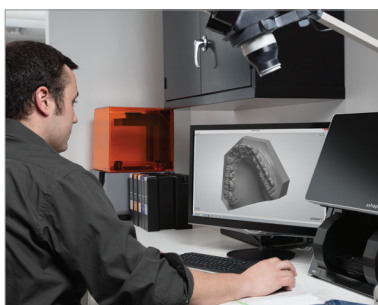
The Digital Workflow

The Form 2 enables you to go from patient scans, to 3D prints, to ready-for-use dental products in a matter of hours. All 3D printed dental products follow the same basic steps.



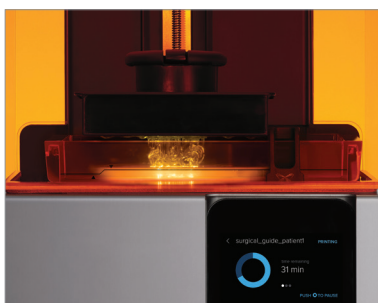
1. SCAN

To design a patient-specific product, capture patient anatomy digitally using an intraoral scanner directly with the patient. Alternatively, digitally capture impressions or stone models using a desktop optical scanner. For treatments that require it, use a CBCT scanner to capture patient osteotomy.



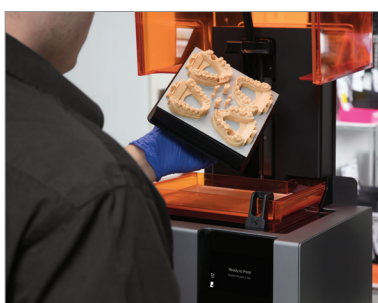
2. DESIGN

Using the digital scan of the patient anatomy, dental treatments and products are designed using dental computer aided design (CAD) software. Plan the treatment, making clinical choices as normal, and design the desired dental products based on this treatment plan. The Form 2 is compatible with any dental CAD software that allows open export of digital design files. The design phase ends with the export of the digital model as an .STL or .OBJ file. See our dental applications guides for design guidelines for specific applications.



3. 3D PRINT

To print, import the .STL or .OBJ file into Formlabs' free PreForm software. For maximum control, use PreForm to orient the parts, generate supports, and lay out the build manually. Or, use the One-Click Print feature to set up the print automatically. Upload the print to a Form 2 printer, click print, and the build will automatically complete.



4. PREPARE

When the products finish printing, remove the build platform from the printer. Rinse parts in isopropyl alcohol (IPA), UV post-cure, then finish using standard dental polishing tools. When necessary, assemble printed models with pre-fabricated accessories, such as metal guide tubes for surgical templates, or use the printed model to fabricate other parts, such as vacuum-formed aligners.

For detailed post-processing guidelines, see our dental applications guides.

Application: Crown and Bridge Models

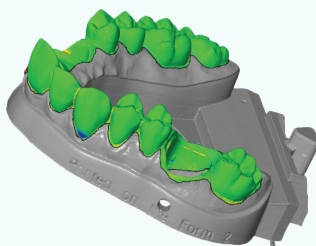
Print high accuracy removable die models with precision and consistency.



With crisp margins, precise contacts, and consistent occlusions, Dental Model Resin is a high performance material for crown and bridge models with removable dies. Smooth surface finish, hardness, and color similar to gypsum make it easy to switch from analog to digital model production. And with a per-model production cost competitive with stone models, the switch makes sense for your business.

BENEFITS

- ✓ Print accurate margins and contacts within ± 35 microns on 25 micron print settings
- ✓ Smooth surface finish, with color and hardness like analog stone
- ✓ Insert removable dies with consistently tight fit



An in depth study of 32 printed dies found margins and contact points to be accurate within ± 35 microns of the digital model over 80 percent of the die surfaces when printed on 25 micron print settings. Global accuracy across a full arch guide was found to be ± 100 microns over 90 percent of the surfaces.

■ + 0.30 mm ■ + 0.10 mm ■ +0.075 mm ■ - 0.10 mm

Printing on the Form 2	Quad with dies	Full arch with dies
PARTS PER BUILD	16 quads and dies	4 arches and dies
TIME AT 50 MICRON LAYER HEIGHT	2 quads / 3 hr 16 quads / 8.5 hr	2 arches / 5.5 hr 4 arches / 8 hr
COST PER PRINT	1,4€ / quad	2,8 – 4,7€ / arch



Application: Surgical Guides

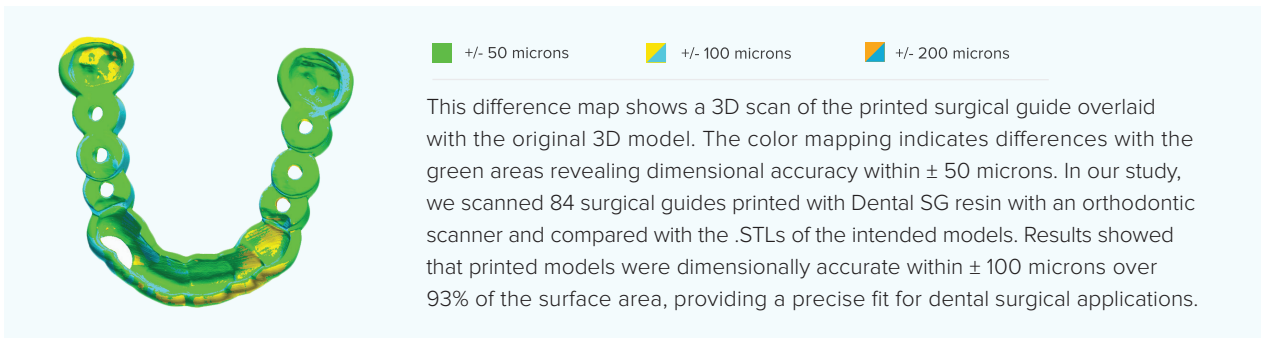
Perform precise, cost-effective surgeries with better clinical outcomes.



With the autoclavable, Class 1 biocompatible Dental SG Resin, you can 3D print digitally designed guides with precision at low cost. Take advantage of digital implantology to reduce chairside time, improve patient experience, and achieve high-precision implant placement with ease.

BENEFITS

- ✓ Guided surgery for as little as 1,8 – 2,8€ per guide
- ✓ Autoclavable in industry standard sterilization units
- ✓ Easier, faster surgeries



POSTCURED DATA	METRIC	METHOD
Flexural Strength	≥ 50 MPa	ISO 20795-1:2013
Flexural Modulus	≥ 1500 Mpa	ISO 20795-1:2013
Hardness Shore D	$\geq 80D$	ISO 868:2003
Charpy Impact Strength Unnotched	12 – 14 kg/m ²	ISO 179:2010

Printing on the Form 2	Quarter arch surgical guide	Full arch surgical guide
PARTS PER BUILD	18 guides	12 guides
TIME AT 50 MICRON LAYER HEIGHT	1 guide / 2.5 hr 18 guides / 6 hr	1 guide / 2.5 hr 8 guides / 7.5 hr
COST PER PRINT	1,8 – 2,8€ / guide	2,8 – 4,7€ / guide

BIOCOMPATIBILITY

Dental SG is a Class I biocompatible resin that adheres to the following ISO standards:

- EN-ISO 10993-1:2009/AC:2010
- EN-ISO 20795-1:2013
- EN-ISO 7405:2009/A1:2013

Applications: Splints and Retainers

High strength, wear resistant dental products for long term applications.



Our Class IIa biocompatible material enables efficient production of splints, retainers, and other orthodontic appliances. Dental LT Clear has high strength, fracture resistance, and polishes to high optical transparency for beautiful final appliances.

BENEFITS

- ✓ High strength, fracture resistant products
- ✓ Optically transparent clear color
- ✓ Mechanical properties compliant with ISO 20795-2:2013



Printing on the Form 2

Splint / Retainer

PARTS PER BUILD

12 splints

TIME AT 50 MICRON LAYER HEIGHT

1 splint / 2.5 hr
12 splints / 9.5 hr

COST PER PRINT

3,7 – 5,6€ / splint

BIOCOMPATIBILITY

Dental LT Clear is a Class IIa biocompatible resin that adheres to the following ISO standards:

- EN-ISO 10993-1:2009/AC:2010
- EN-ISO 10993-3:2009
- EN-ISO 10993-5:2009
- EN-ISO 10993-11
- EN-ISO 20795-1:2013
- EN-ISO 7405:2009/A1:2013

Application: Orthodontic Models

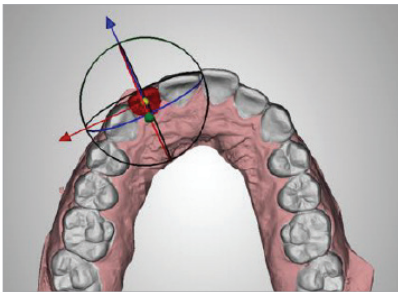
Cost-effective vacuum-formed appliances, in house.



Streamline your orthodontic workflow by 3D printing orthodontic models directly in-house and producing dental appliances with same-day delivery. With the Form 2, you can fabricate clear aligners, splints, indirect bonding trays, or other devices using a vacuum-forming machine. Or, add a separating layer and use the models to make retainers.

BENEFITS

- ✓ Orthodontic models for as little as 1,4€ per arch
- ✓ Vacuum-formed appliances under 9,4€ per part
- ✓ Ready to use products within one day



“Using the Form 2 for the past six months to produce models for pressure-formed retainers and indirect bonding setups, I have been impressed with the accuracy of fit of the appliances. They easily compare with appliances produced on much more expensive equipment in orthodontic labs. Moreover, the ease of setup and the simplicity of the software makes this truly plug and play.” – **Dr Lars Christensen PhD, Specialist in Orthodontics**

Printing on the Form 2	Full arch orthodontic model
PARTS PER BUILD	9 arches
TIME AT 50 MICRON LAYER HEIGHT	1 arch / 2.5 hr 9 arches / 7.5 hr
COST PER PRINT	1,4 – 3,3€ / arch



Coming Soon

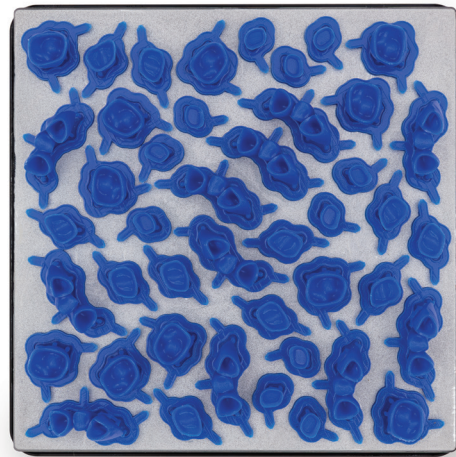
A dedicated team of engineers and technicians is focused on testing and developing new dental materials and workflows every day at Formlabs. With new materials and software periodically being released, the Form 2's dental ecosystem will continue to grow.



DENTURES

The first integrated workflow for 3D printed dentures.

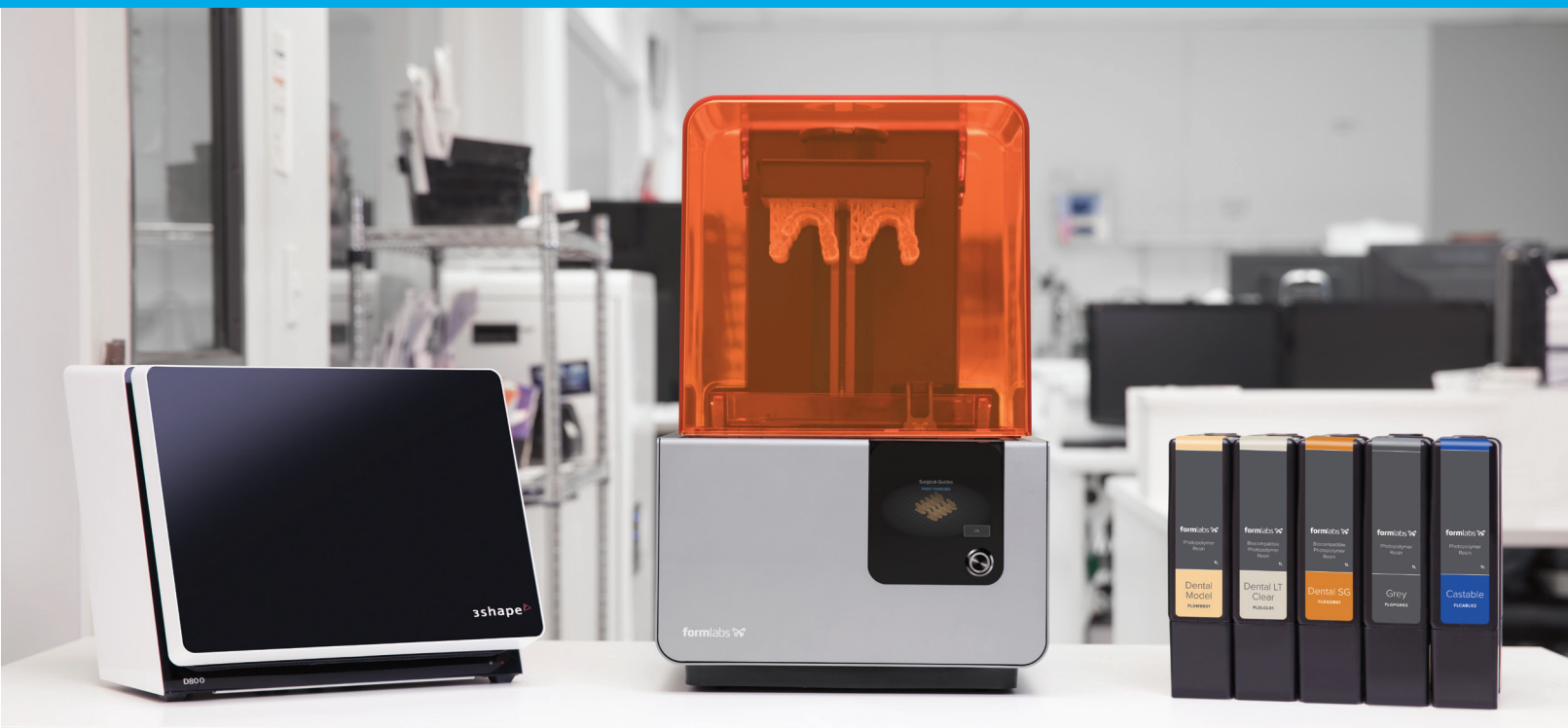
We're pushing the boundaries of digital dentistry. With a streamlined workflow that simplifies the manufacturing process, high quality 3D printed dentures are coming soon on the Form 2. Clinical studies and workflow tests are currently in development at Formlabs and our partner dental labs. **Coming Fall 2017.**



CROWNS AND BRIDGES

Castable/pressable crowns and bridges for direct investment casting.

Formlabs' Castable Resin was designed to capture precise details and smooth surfaces, and is currently being tested at Formlabs and our partner dental labs for casting and pressing crowns and, bridges. When used with approved investment materials, it burns out cleanly on an industry standard 1-hour burnout schedule at 850 C. Detailed guidance and applications guides will be released in **Summer 2017.**



Precise. Industrial. Scalable. The Form 2.

PRINTER

Price	3,299€
Dimensions	35 × 33 × 52 cm 13.5 × 13 × 20.5 in
Weight	13 kg / 28.5 lbs
Operating Temperature	Autoheats to 35° C or 95° F Self-heating Resin Tank
Power Requirements	100–240 V 1.5 A 50/60 Hz 65 W
Laser Specifications	EN 60825-1:2007 certified Class 1 laser product 405 nm violet laser 250 mW laser
Connectivity	Wi-Fi, Ethernet, and USB
Printer Control	Interactive touch screen

PREFORM SOFTWARE

System Requirements	Windows 7 and up Mac OS X 10.7 and up
File Type	.STL or .OBJ

PRINTING PROPERTIES

Technology	Stereolithography (SLA)
Peel Mechanism	Sliding peel process with wiper
Resin Fill System	Automated cartridge system
Build Volume	145 × 145 × 175 mm 5.7 × 5.7 × 6.9 in
Layer Thickness (Axis Resolution)	25, 50, 100, 200 microns 0.001, 0.002, 0.004, 0.008 in.
Laser Spot Size (FWHM)	140 microns 0.0055 inches
Supports	Auto-generated Easily removable

FINISHING KIT

Includes

- Finishing tray
- Scraper
- Pre and post-rinse tubs
- Rinse basket
- Squeeze bottle
- Flush cutters
- Tweezers
- Disposable Nitrile gloves
- Removal tool
- Removal jig

The New Leader in Dental 3D Printing.

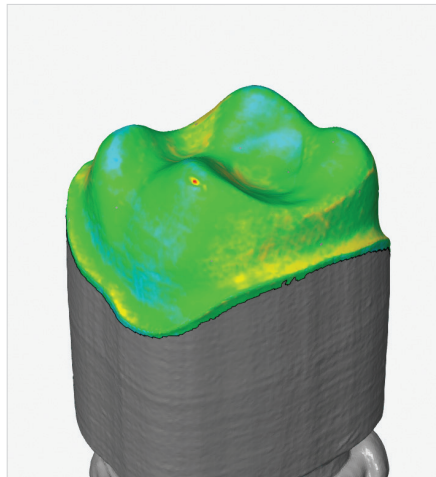
“After 8 years of 3D printing, using several different printers, I find the Form 2 3D printer to be the perfect choice for precision 3D printing, for models, surgical guides and ortho applications. The combination of precision, cartridge resin for quick change of printing resins, and low cost, make the Form 2 the perfect choice for any size dental laboratory.”

– Lee Culp, CDT, Sculpture Studios

LOW COST



HIGH PRECISION



SCALABLE



Contact us today to discuss a solution
for your dental office or dental lab.



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