SprintRay
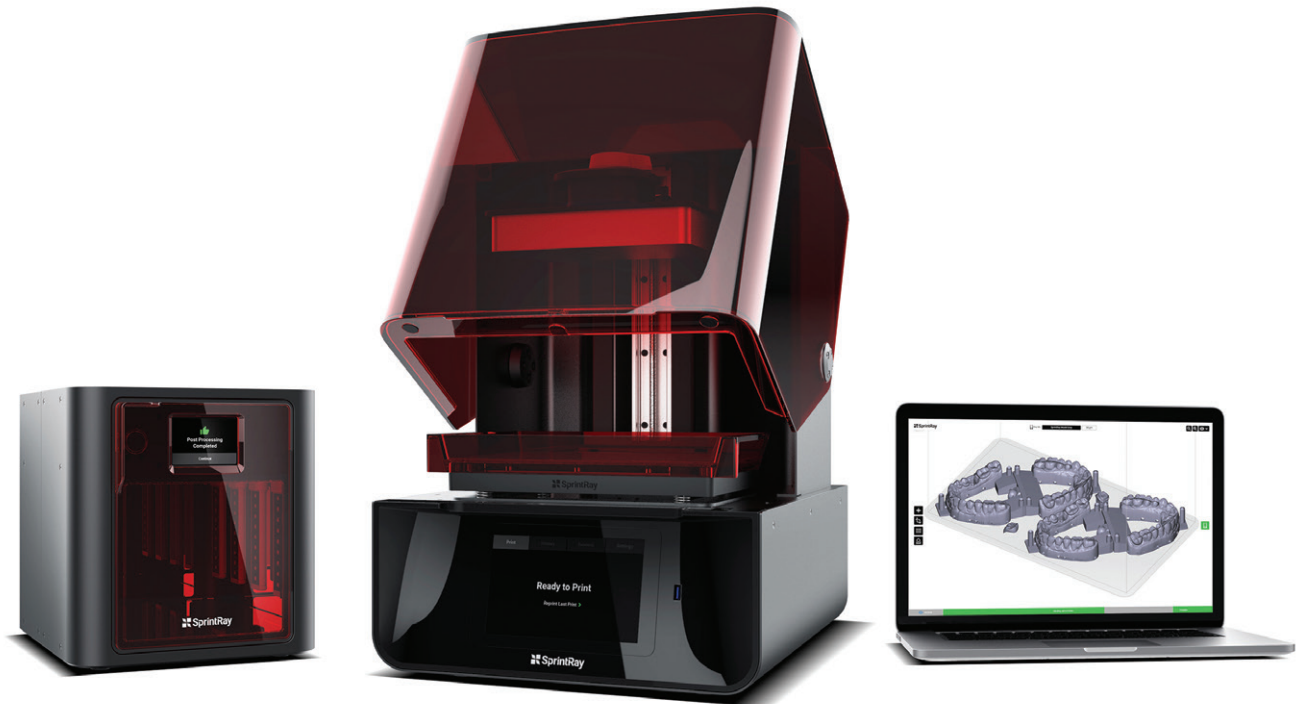
Digital Dentistry Comes of Age

SprintRay Pro represents an awesome step in technology towards fully digital dentistry

SprintRay was founded in 2015 with a vision: to make 3D printing more affordable and accessible for everyone.

It's that vision that led us to digital dentistry, where our printers have been used by thousands of dental professionals across the globe to improve the quality of care for their patients.

The MoonRay line of printers, launched in 2017 in Europe, represented a big step forward in dental 3D printing and continues to be the workhorse of choice for dental clinics and laboratories everywhere.

The SprintRay Pro adds a number of professional attributes including a larger build area and speed improvements that will encourage the dental industry to adopt the cutting edge technology as an improved treatment tool.

The Fivefold Approach

To develop the SprintRay Pro 3D printer line, we spoke with professionals across the dental industry, from endodontists to hygienists to general practitioners and lab technicians to identify key areas of improvement.

Given the depth of experience in using, supporting and maintaining the 3D printers to date we identified five areas that are now the strengths of the Pro models:

1. Expanded build area

2. Faster print speeds

3. Improved user practicality

4. Elegant design

5. Intelligent software

With these five pillars in mind, we set about our work raising the bar with SprintRay Pro.

Expanded Build Area

The usable build platform size is an important element in the productivity of the 3D printer. Using DLP technology, the large build area extends the competitive advantage over the more traditional laser SLA systems. This advantage means that a single 3D printer of this size is enough to satisfy a small lab or large group practice.

The 1080 pixel projector, providing the ultra violet source, is newly designed to give greater accuracy and a 95 micron pixel size that is perfect for a large range of dental applications.

Applied to a range of suitable resins and biocompatible resins the projector solidifies parts to an awesome level of detail with shortened curing times.

SprintRay Pro Build Platform
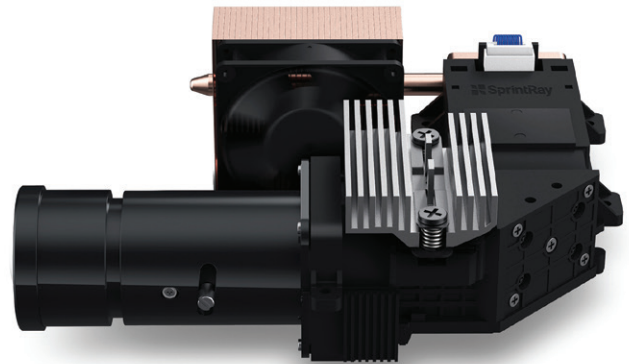
SprintRay Pro FHD UV Projector

Faster Print Speeds

Quick turnaround times make for happy patients. Making printing technology faster without increasing complexity was a big engineering hurdle.
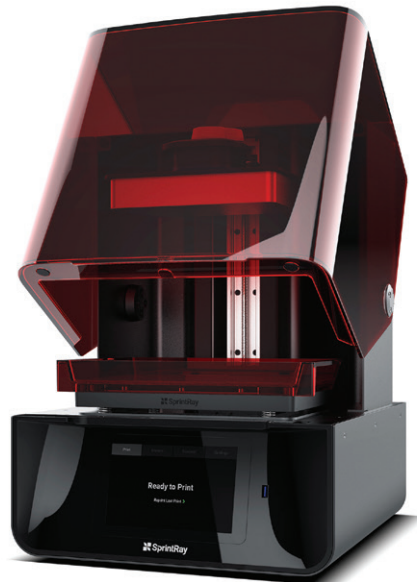
Using a proprietary elastomer as the main bed for photo-curing resin, we developed STEM Tank™ (Selectively Textured Elastomeric Membrane).

This elastomer is selectively textured to a non stick surface, reducing suction and adhesion of the cured resin to the bottom of the tank. STEM Tank™ eliminates the need for mechanical separation (i.e. mechanical tank tip motor), yielding between two and four times faster printing than the original platforms and nearly 40 times faster than the traditional laser based SLA times.

SprintRay Pro STEM Tank

Extended User Practicality

We created the first-ever Printer Operating System, PrintOS, which allowed us to build intelligence into the printer itself.

One of the barriers when starting to use a 3D printer is not having enough time to learn complicated or non-intuitive software systems.

SprintRay Pro is equipped with a 6-core computer controlled via a 7-inch touchscreen.

To ensure smooth operation, we developed our first-ever Printer Operating System, PrintOS, which allowed us to build intelligence into the printer itself. The printer is now connected directly to the internet, allowing for communication with our cloud-based dashboard to monitor print jobs, view usage data, and receive software updates over-the-air. In addition to these launch-day features, a pipeline of new functionality is in the works for SprintRay Pro.

Elegant Design

Every mechanism and component of the SprintRay Pro is meticulously designed to maximise the efficiency in its use while reducing the overall number of moving parts.

The new cover allows for single hand operation while saving space, allowing it to be used on counter tops with overhanging cupboards. By using a constant torque position control hinge for the cover allows SprintRay Pro to maintain its small form factor, even when the lid is lifted.

A magnetic locking mechanism secures the build platform, ensuring there is no mechanical wear and tear. The chassis is cast and machined for absolute dimensional accuracy and durability, a similar technique used for manufacturing high-performance engine blocks.

The STEM Tank™ is built with optimal fluid dynamics, guiding the flow of resin under the platform.

Intelligent Software

Using a similar user interface as for the current MoonRay range we have simplified the interaction and used machine learning techniques to develop multiple optimised algorithms and handle raw dental scans and models.

Top of the list of enhancements is a single button scan repair and base tool. This eliminates most of the need for further third party software and allows end users to complete the entire workflow without leaving our software suite. In addition we have added a few handy tools, such as single-click support generator and model duplicators, in order to simplify the printing workflow. What's more: as SprintRay Pro grows, so will its software.

With years of new features and support ahead of it, we've got big plans for this already impressive package.

One-button scan repair and base tool eliminates the need for 3rdparty software, allowing end-users to complete the entire workflow without leaving our software suite.

Maximising Options

With the MoonRay and now adding the Pro to its line of 3D printers SprintRay has extended its appeal to all dental professionals.

Using both third party and proprietary resins, the choice of options to produce dental models, aligners, dentures, surgical guides, indirect bonding trays, guards and splints or crowns and bridges is complete.

While the magic of 3D printing is very much retained, its familiarity for the leaders in the dental sector is increasing and the SprintRay Pro continues this trend.
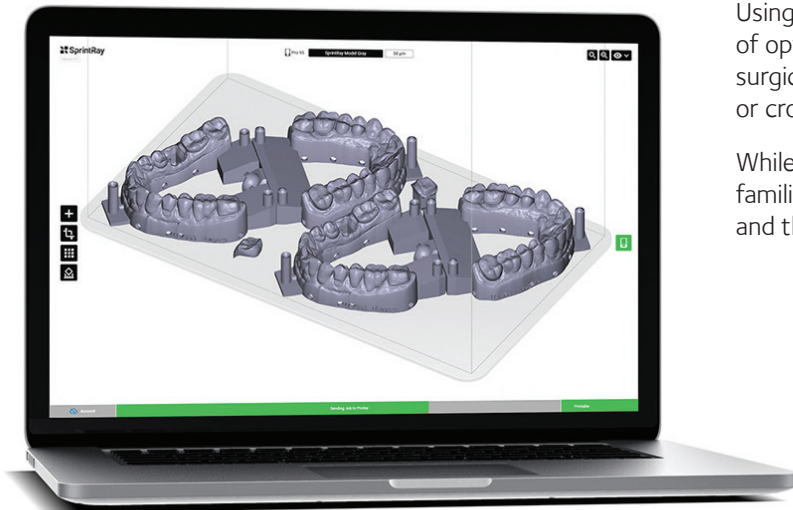
SprintRay Pro

Printing Technology	Digital Light Processing (DLP)
Print Volume	7.4 x 4.2 x 8 in / 19 x 10 x 20 cm
Layer Thickness Options	20 Microns, 50 Microns, 100 Microns
Minimum Feature Size	95 Microns
Print Speed	up to 2 in/hour @ 100 Microns 1 in/hour @ 50 Microns 0.5 in/hour @ 20 Microns
Resin Curing Unit	SprintRay Custom-Built 1080P FHD Projector Texas Instruments DLP Chip 405nm LED LED-based Light Source 50,000 Hours Expected Lifetime
Resin Tank	500 ml Capacity Built-in Drain Vacuum Formed Protective Cover Up to 50 Litres Extended Lifetime
Connectivity	5GHz Wi-Fi Chipset Direct Ad-Hoc Mode via Wi-Fi b/g/n Local Network via Wi-Fi b/g/n Local Network via Ethernet Cable
Printer Control	7" Touch-screen with Direct Print via USB Port
Unit Dimensions	14 x 16 x 20 in / 35 x 40 x 50 cm
Shipping Size & Weight	20 x 20 x 22 in - 40 lb 53 x 53 x 58 cm - 18 kg

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