

## 3D Sprint TruShell for Orthodontic Models

### Single-click optimization of printing orthodontic dental models

3D Sprint TruShell print management software was specifically developed for orthodontic tooling models. Through a single-click workflow, 3D Sprint TruShell creates shelling, scaffold and support generation optimized for production on the 3D Systems ProX<sup>®</sup> 800 stereolithography system with Accura<sup>®</sup> 55 or Accura 60 material.

### SIMPLE, HIGH PRECISION

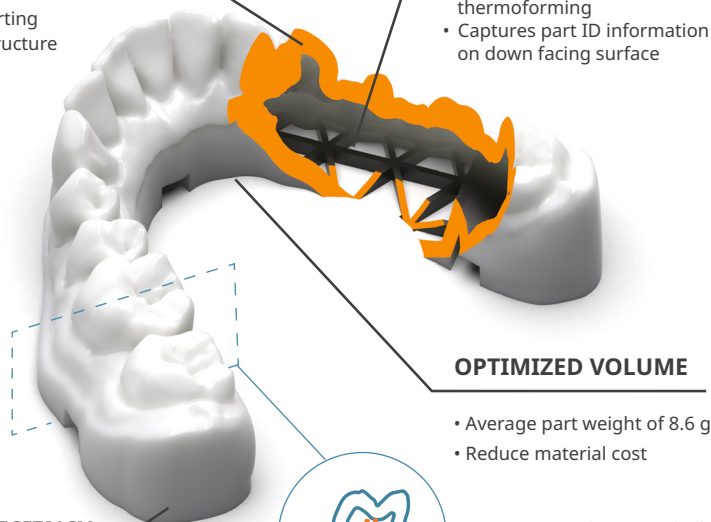
In a single operation, 3D Sprint TruShell produces open bottom, self-supporting shelled models, together with an optimized support structure. In addition, through the Auto Place feature in 3D Sprint, the number of parts per build platform on the ProX 800 are maximized with automatic part nesting.

#### SELF-SUPPORTING UNIFORM SHELL

- Definable wall thickness
- Gusset feature ensures self-supporting internal structure

#### SCAFFOLD

- Optimized single vector triangulated grid
- Resists deformation during thermoforming
- Captures part ID information on down facing surface



#### OPTIMIZED VOLUME

- Average part weight of 8.6 g
- Reduce material cost

#### HIGH EFFICIENCY

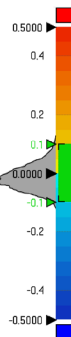
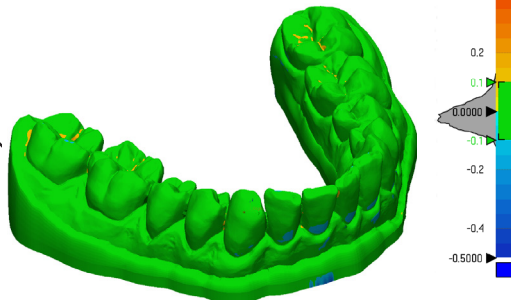
- Optimized single-click workflow
- Shelling, scaffold and support generation



- Without TruShell
- With TruShell

#### HIGH PRECISION

- +90% Accuracy ±100 μm\*



### ORTHODONTIC TOOLING MODELS

**Printer:** SLA ProX 800

**Material:** Accura<sup>®</sup> 55 / Accura<sup>®</sup> 60

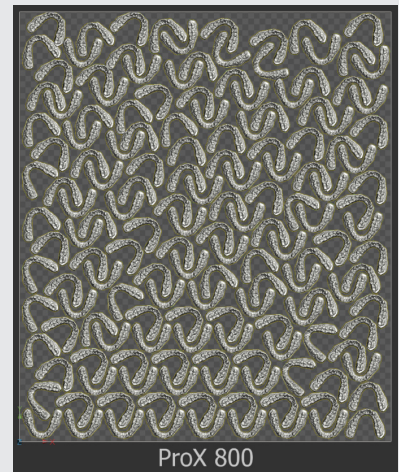
**Wall Thickness:** User definable

**Average Density Print:** 160 arches / platform

**Average Print Time/Part:** 3 - 4 minutes

#### SOLID ARCH VS TRUSHELL COMPARISON\*

|                      | SOLID ARCH | TRUSHELL |                          |
|----------------------|------------|----------|--------------------------|
| Weight:<br>(Average) | 14.3 g     | 8.6 g    | <b>40%<br/>REDUCTION</b> |



#### EFFICIENT NESTING

- Average 160 arches / platform
- Single-click [AUTO PLACE] feature in 3D Sprint TruShell

\*Based on a 2.5 mm wall thickness using Accura 55 (with a solid density of 1.20 g/cm<sup>3</sup>).  
Dependent on customer data and specifications.

## ProX® 800 Stereolithography Printer

|   |  |
|---|--|
| <b>Max Build Volume (xyz)<sup>1</sup></b> | Flexible build volume options with interchangeable material delivery modules (MDM) |
| Full:                                     | 25.6 x 29.5 x 21.65 in<br>(650 x 750 x 550 mm);<br>109.3 U.S. gal (414 l)          |
| Half:                                     | 25.6 x 29.5 x 10.8 in<br>(650 x 750 x 275 mm);<br>71.9 U.S. gal (272 l)            |
| Short:                                    | 25.6 x 29.5 x 1.97 in<br>(650 x 750 x 50 mm);<br>25.09 U.S. gal (95 l)             |
| <b>Max Part Weight</b>                    | 165 lbs (75 kg)  |
| <b>Max Resolution</b>                     | 4000 DPI <sup>2</sup>  |

<sup>1</sup> Maximum part size is dependent on geometry, among other factors.

<sup>2</sup> Equivalent DPI based on laser spot location resolution of 0.00635 mm in 3D Systems' testing.



### Materials for ProX SLA 800 Printers with 3D Sprint TruShell

|                  | Solid Density<br>(g/cm <sup>3</sup> )<br>@ 25 °C | Viscosity<br>(cps)<br>(@ 30 °C) | Flexural<br>Modulus<br>(MPa)<br>ASTM D 790 | Flexural<br>Strength<br>(MPa)<br>ASTM D 790 | Tensile<br>Modulus<br>(MPa)<br>ASTM D 638 | Tensile<br>Strength<br>(MPa)<br>ASTM D 638 | Elongation<br>at Break<br>ASTM D 638 | Impact<br>Strength<br>(J/m)<br>ASTM D 256 | Heat<br>Deflection<br>Temp (°C)<br>ASTM D 648 |
|------------------|--|---------------------------------|--|---|---|--|--------------------------------------|---|---|
| <b>Accura 55</b> | 1.21   | 155-185                         | 2690-3240                                  | 88-110                                      | 3200-3380                                 | 63-68                                      | 5-8 %                                | 12-22                                     | @ 66 PSI - 55-58<br>@ 264 PSI - 51-53         |
| <b>Accura 60</b> | 1.20   | 150-180                         | 2700-3000                                  | 87-101                                      | 2690-3100                                 | 58-68                                      | 5-13 %                               | 15-25                                     | @ 66 PSI - 53-55<br>@ 264 PSI - 48-50         |

Note: Not all products and materials are available in all countries – please consult your local sales representative for availability.

Warranty/Disclaimer: The performance characteristics of these products may vary according to product application, operating conditions, or with end use. 3D Systems makes no warranties of any type, express or implied, including, but not limited to, the warranties of merchantability or fitness for a particular use.

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