

Splint Soft Resin Application Guide

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Recommended Resin: SS/ SH

3D Printing Splints with AccuFab Printers

Shining 3D currently offers a material for splint application. Splint Soft SS01 resin is a high flexural strength, low water absorption material for long-term retainers and nightguards.

This material is suggested using HyperClear resin tank from AccuFab-CEL for minimum polishing on support generation area to high optical transparency and resist discolouration over time.

This application guide demonstrates each step from 3D scanning to 3D printing on AccuFab printers with normal resin tank and HyperClear resin tank.

Use the current workflow to ensure a high satisfaction result.

Scan

Dental design software requires a digital impression of the patient's anatomy in order to design a splint, retainer or nightguard.

To acquire this data, scan a patient directly with Aoralscan intraoral scanners or a poured model with AutoScan desktop scanners.

Design

There are several dental software options providing by Shining 3D. In this application guide, we will work through using Shining 3D self-developed splint design software CreSplint, or we provide options to use exocad or Maestro 3D for more advanced professional design.

There are also 3rd party design platform we provide from Shining 3D Dental Cloud to give our users more options for creating a design.

How to use CreSplint

Shining3D provides CreSplint for AI one click design nightguards and retainers. Both or either upper and lower jaw can be imported into CreSplint. The final product would be automatically come out in a perfect status, but still, the result can have minor adjustment by changing the path of insertion, margin line and other design parameters. Of course, you could also use the third party professional CAD software to design.

Shining 3D suggested parameter

SS01 Suggested Parameter		
Minimum thickness (Splint, Retainer, Nightguard)	0.6mm	
Minimum occlusal thickness		0.6mm
Gap (suggest for CreSplint)	0.10-0.20mm	(the smaller the value, the perfect the matching)

After AI design, you can send file from 'GO TO PRINT' to Accuware. Choose the correct machine and serial number in advance if you have multiple printers. There is layer thickness options including but not only limited to arrange between 50 and 100um. Shining 3D software have a smooth connection, so users would not need to export and import with repeated action.

Print *Use latest Accuware and Firmware version

One-Click Printing

Splint one-click printing to the imported data, auto layout, support generation and slicing will be automatically performed with AI algorithm and sending into printer for printing.

If you are using HyperClear, we strongly suggest you use splint one-click printing for easy post-processing and minimal polishing afterwards.

Manually added support

You can either place the splint in non-contact area horizontally facing the platform or place the model vertically with incisor facing the platform. Please make sure you place the model in optimum printing area for good printing quality.

If you choose to layout vertically, you could delete most of the support and keep the support on incisor for decreasing labor in post-processing.

Post-process

Part removal

You can use FabWash or scrapping tools to remove the printed parts.

Washing

FabWash

Please place the ceramic platform for cutting on FabWash first.

If you use IPA with over 75%, we suggest using the FabWash pre-set time.

If you use IPA with over 90%, we suggest decreasing the pre-set 1 or 2 min.

Hand Wash

Please use soft brush for cleaning, prevent hard brush which may cause surface damage. Wash in over 75% IPA for 1-2 min.

Drying

Blow to dry the model and make sure there is no resin residues and alcohol staying on surface.

Residues remain will be shown in reflection under room light. Please repeat the cleaning process if the above is shown.

Curing* optimum curing environment 20-30 degrees, humidity lower than 70%, the same environment condition as printing

Fabcure1/1s:10min

Fabcure2: 3min *there will be preset curing parameter inside the curing system which easier for easy processing.

We suggest to cure before removing the support, the uncured resin will be soft and easy to be damaged by any sharp products

Easy Post-processing

Support needs to be removed by griding tools for easy operation afterwards.

HyperClear process

Use fine tool polishing, 107um polish for 10000-20000rpm/min for only polishing on the outer added support area for a fine adjustment on the final product.

Normal resin tank process

Use different gliding tools for rough and fine smoothing on the surface
For a rough tool polishing first, 151um polish for suggested 20000-30000rpm/min. Then suggested to use a fine 107um polishing tool for 10000-20000rpm/min.

Use polishing powder mix with water for a depth advance polishing on machine. Make sure the polishing area is even on surface, to prevent structure damage on splint. Also this will prevent the residue attaching after wearing.
Use Hatho white resin polish and use Hatho pink splint polish for final high polish.

Sterilization

Clean the finalized splint under soft brush using acid-base soap water.

Please do not clean with toothpaste or other corrosive product, which may damage the splint surface.

Please soak in 75% IPA for 20 min and clean with water to ensure no chemical odors and fulfill the biocompatibility. If the patient is sensitive with IPA, please soak in mouth washer for 5 min for decreasing in IPA taste