resione

F Series Flexible Resin Instruction

RESIONE makes 3D printing more practical

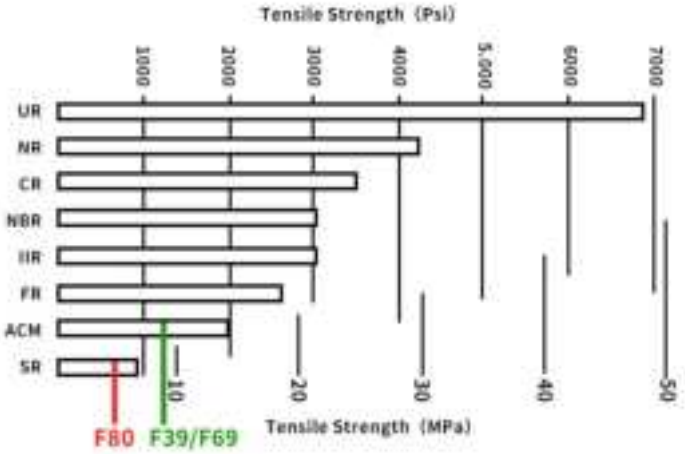
1. The Product Description

F39,F39 and F69 are flexible resins that are white, transparent and black respectively (with clear print details). Compared to other flexible materials, they have a high printing success rate, and the printed parts have excellent tear strength and flexibility. These resins are widely used in the field of hand work, such as vests, capes, weapons, shoes, etc., as well as the manufacture of tire models, shoe samples, seals, buffers, gaskets, transmission belts and other flexible prototypes. In addition, mixing the flexible resin with other resins can enhance the flexibility of the print.

F80 is a soft and elastic resin, you can choose between black and pink colors for your printing needs. The pink option is particularly well-suited for creating dental gingival models, while the black option is suitable for making toy tires, shoe samples, seals, buffers, and various elastic prototypes. F80 resin can retain its softness even in colder temperatures. It is not recommended for novice users due to its high viscosity, which can pose a printing challenge.

2. Material Properties Data

	METHOD	F39/F69 DATA	F80 DATA
Shore Hardness	ASTM:D2240-05	60~75A	50-60A
Tear strength	ASMT:D624-98	47.2KN/m	9.75KN/m
Tensile Strength	ASTM: D412-06	7.9MPa	3.8MPa
Elongation at Break	ASTM: D412-06	255.10%	159%
Viscosity（25℃）	ASTM:D4212-10	1250mpa.s	2360mpa.s



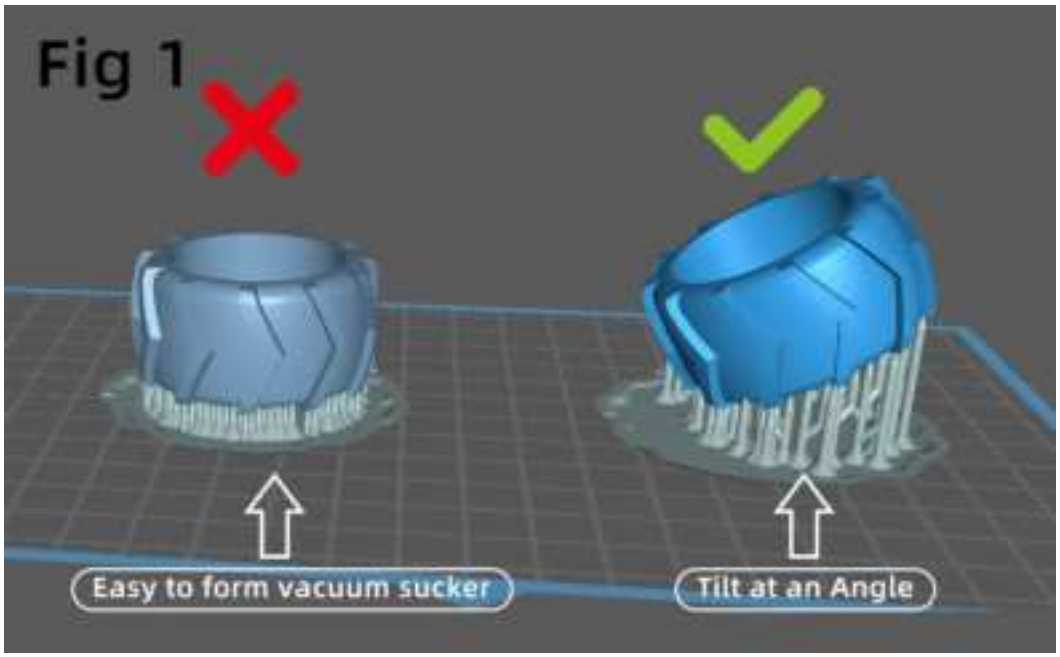
Comparison of tensile strength of various rubber materials at 25°C

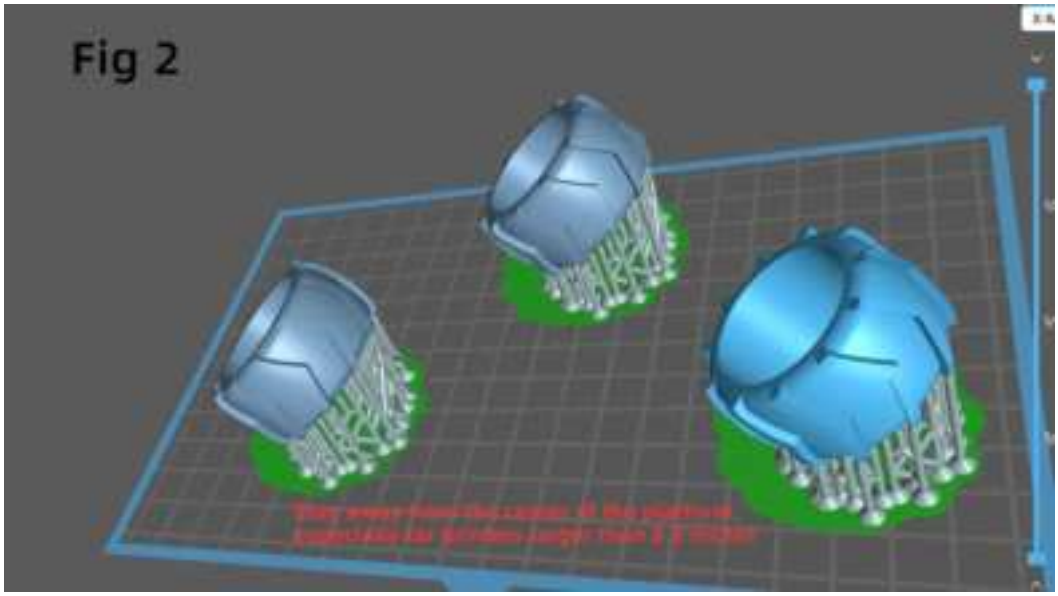
3. Printing

Because the soft resin prints are easy to be stretched and deformed when they are separated from the FEP film during printing. Please following below steps in order to improve the success rate of printing.

I.Model Location

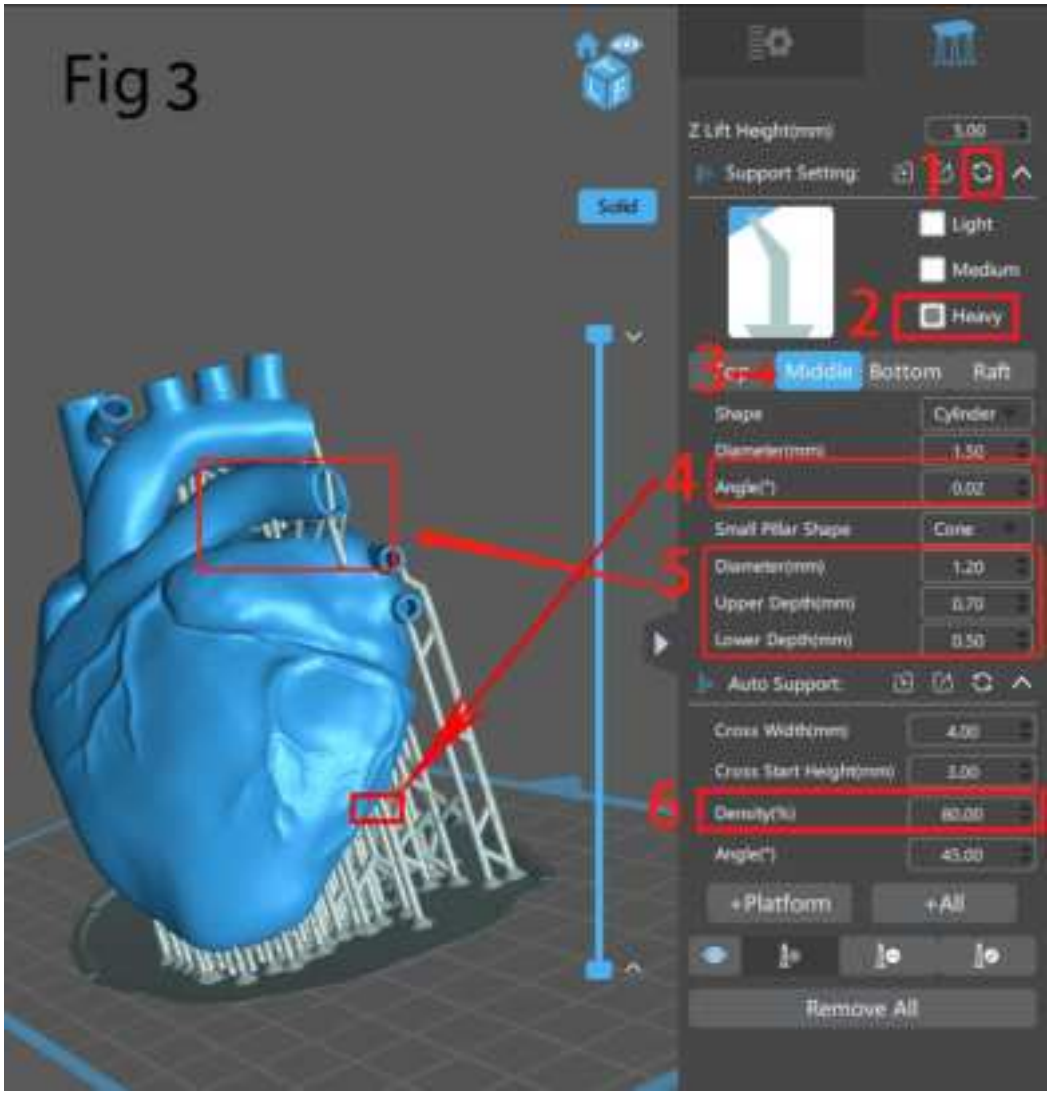
Due to the high viscosity of the soft resin, it is recommended to avoid placing the model in the center of the platform as much as possible (fig2). When placing the model, consider tilting it at a certain Angle to avoid placing it in a way that may lead to the formation of vacuum suckers (fig1).





II.Supports Settings

Please use heavy and massive support (Density: 80%-95%), vertical supports (Angle: 0°).The supports in the middle of the model also need to be thick(Figure 3).A thin raft or none raft are much better considering easy remove the prints from the build plate,because F series resin are very tightly stick to the build plate.



III.Printing Settings

You can download the resin printing parameters from RESIONE's official website. The detailed operations are as follows: RESIONE's official website —>Support—>Settings

Matters needing attention

The slow Lifting Speed is required to ensure that the model will not stretched and deformed; High Lifting Distance ensures that the printing piece is completely separated from the FEP film; Long Rest Time After Retract ensures the resin fully backflow.

4. Cleaning and Post-curing

Cleaning

Cleaning with the ethanol(concentration≥95%), or IPA. It is not recommended to brush the prints with a toothbrush. Please use compressed air to dry the prints after cleaning it. It is a normal phenomenon if there are a little sticky hand feeling. (Cleaning and soaking time should not exceed 3min)

Post-curing

If you use a post-curing box with a power of 40W, our recommended post-curing time is about 10-20mins (The post-curing time shall be appropriately adjusted according to the power of the post-curing box). So you can get a dry surface print.

RESIONE Resin	F39/F39T	F80	F69
Cleaning time	≤3min	≤3min	≤3min
Cleaning solvent	95% Ethanol or IPA	95% Ethanol or IPA	95% Ethanol or IPA
Post-curing light source	385-405nm UV (40W)	385-405nm UV (40W)	385-405nm UV (40W)
Post-curing time	10-20min	10-20min	10-20min

Attentions

a. If the post-curing irradiation time is too long, it will lead to the warping of the prints, and it hardens it and Fragile.

b. The resin prints will be fragile after post-curing. It is not recommended to apply force to the prints immediately. Just need to wait for a while until the internal stress of the prints is completely released.

5. Use and Save

a. During the printing process, the required resin liquid should be gradually added as needed, and after the printing is completed, the remaining resin should be filtered and stored in a new light-resistant container as soon as possible, and sealed to prevent the resin from absorbing moisture.

b. If the resin print is hung on the platform for a long time after printing without timely treatment, it may absorb moisture and expand. After this happens, it may be easy to cause damage when cleaning the print. It is recommended to clean carefully and dry with compressed air after cleaning, and then leave the print for a while to return it to its normal size.

c. Resin printing parts will harden and become brittle at low temperatures like traditional plastic. The resin print can maintain normal performance at 25-35℃. For F series soft resins, this change is particularly significant, F39/F69/F39T will harden and lose elasticity below 20 ° C, and the lower the temperature, the higher the hardness. The F80 can maintain some elasticity at low temperatures, but it feels slightly stiffer than at room temperature. **(This change is reversible)**

d. In order to extend the good flexibility of the flexible resin print, it is recommended to store it in a sealed bag or coat it with a soft waterproof coating.

e. Printed parts should not be heated and dried, because doing so will make their material properties **irreversibly** hard and brittle.

For more questions, please contact support@godsaid3d.com

Group: https://www.facebook.com/groups/resione

Linktree: https://linktr.ee/resione