



FDM BEST PRACTICE

Sparse Fill

SOFTWARE / PRODUCT / FINISHING

When processing parts for sparse fill interior build style, slightly sloping part geometry's that are created with an air gap between the outer contour and the rest of the part cause the outer contour to not attach to the rest of the part or "delaminate". Sometimes repositioning the part will eliminate this problem, or there is a method to correct the air gap using the custom groups feature in Insight.

Creating A Sparse Fill

STEP 1: After slicing, building supports, and creating toolpaths, inspect the slice file layers to look for the air gap (figure 1).

NOTE

It is best to view each layer in shaded mode to detect the air gap.

STEP 2: If, after inspecting the slice file, detect the air gap between inner and outer walls of the part, it may be possible to correct the problem by rotating the part. If the geometry of the part allows an orientation that eliminates the sloped surface from the z-plane, then rotating the part will correct the problem. Figure 1 was rotated 90 degrees along the y-axis, then reprocessed (sliced, build supports, create toolpaths, figure 2).

In some cases it may be necessary to incrementally rotate the part in X or Y by several degrees even though it may create a rough bottom and/or top surface because it will no longer lay flat (figure 3).

STEP 3: If a different orientation will not solve the air gap problem, another method is to create custom groups for the slice layers with the air gap (figure 4). The part in figure 4 has been processed with default sparse parameters. A custom group

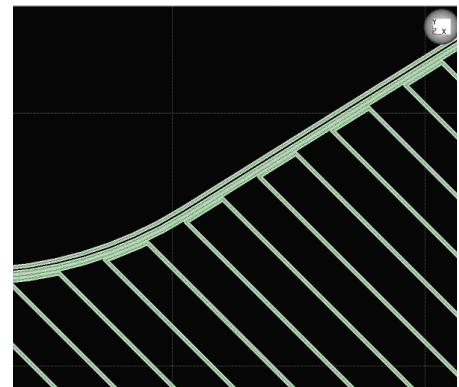


Figure 1: Air Gap Problem 1

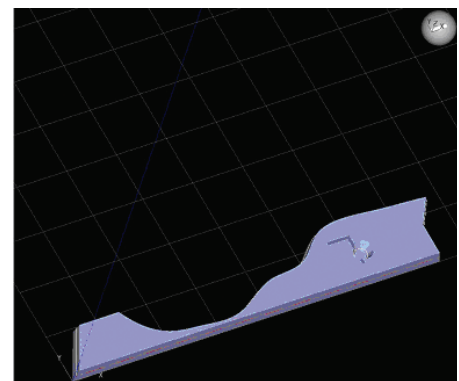


Figure 2: Use New Orientation 1

SPARSE FILL

has been created (Group 1) and the individual layer has been placed in the custom group. The parameters for the custom group have been set to: contour style has been changed from perimeter only to contours to depth, the depth of contours set to 0.08 inches, and the air gap between rasters has been changed to 0.10 inches.

The result is the air gap between the outer contour and the part is gone (figure 5). This method can be applied if rotating the part is not an option.

NOTE

The 5 layers before a part feature is visible (at the top), should not be modified.

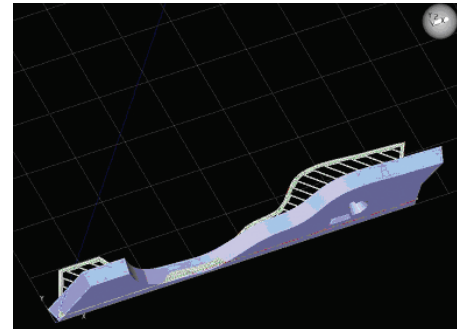


Figure 3: Use New Orientation 2

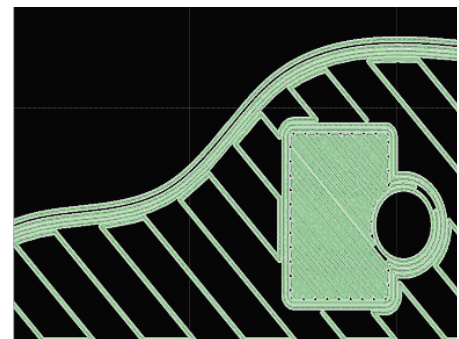


Figure 4: Air Gap Problem 2

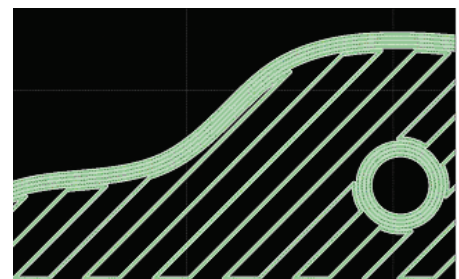


Figure 5: Solid Wall No Air Gap



SPARSE FILL

CONTACT

For questions about the information contained in this document,
contact Stratasys at www.stratasys.com/contact-us/contact-stratasys.



E info@stratasys.com / STRATASYS.COM

HEADQUARTERS

7665 Commerce Way, Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937 3000 (Intl)
+1 952 937 0070 (Fax)

2 Holtzman St., Science Park, PO Box 2496
Rehovot 76124, Israel
+972 74 745 4000
+972 74 745 5000 (Fax)

ISO 9001:2008 Certified

© 2009, 2014, 2015 Stratasys Inc. All rights reserved. Stratasys, FDM and Fortus are registered trademarks and Fused Deposition Modeling, FDM Technology, Fortus 250mc, Fortus 360mc, Fortus 400mc, Fortus 900mc, Insight and Control Center are trademarks of Stratasys Inc., registered in the United States and other countries. ULTEM 9085 is a trademark of SABIC Innovative Plastics IP BV. All other trademarks are the property of their respective owners. Product specifications subject to change without notice. BP_FDM_SparseFill_1115