

POSITIONING PARTS IN RELATION TO AIRFLOW

 CAD Insight Finishing Maintenance/System
Skill Level

Lack of airflow around the part as it builds can result in distorted parts and poor part quality. Understanding how this can happen will help you position parts in the build area for best results. Part quality can be assured with proper part placement in the build chamber.

Airflow

The airflow in a Fortus 200mc moves from both sides of the top of the chamber, across the build area and then to the bottom. The air is then sucked into the sides and circulated back to the top after passing across the interval heating elements. The airflow on Fortus 360mc and Fortus 400mc systems moves from left to right. The air passes through heaters located on the sides and near the bottom of the build chamber and blows across the build area at the top of the chamber. This airflow provides a uniform thermal gradient throughout the build chamber.

Just as importantly, the airflow carries the heat that is generated by the head and tip away from the part. Distortion occurs if the part and support materials are not able to cool down to the envelope temperature while it is building (figure 1).

Positioning Small Parts

Small parts are more susceptible to “heat distortion” because the head is radiating heat as the part is building and there is less time for the part to cool. To minimize distortion on small parts, it is best to run multiple parts on the build platform. The parts can be the same as long as they are positioned in the build area properly. By doing this, you are moving the heated head from part to part allowing time for each part to cool as it is built.

Positioning Multiple Parts

When building multiple parts, align them along the “Y” axis. Doing so will prevent blocking of the airflow between the parts. Space parts approximately 1 inch apart (figure 2).



Figure 1: Example of Distorted Part
Distorted part due to improper air flow.

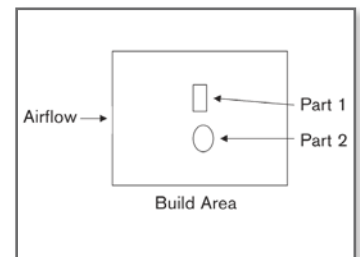


Figure 2: Build area configuration
Position parts as close to the center as possible.

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