PUSHING THE BOUNDARIES OF 3D PRINTED TOOLS

Machined aluminum mold inserts have become a standard approach for prototype and low volume injection mold runs. While this saves time and money compared to steel tools, they are still costly and slow to produce. Other 3D printed tools have been used to address this problem but to date they have not been robust enough to perform on most customer applications.

FORTIFY DIGITAL TOOLING

Introducing Fortify Digital Tooling, a 3D print material system you can rely on to reach your production goals. This solution for low volume injection mold tooling is available for trials now from Fortify. The material system is based on Loctite resin reinforced through Fortify’s proprietary DCM (Digital Composite Manufacturing) process.

This Fortify tool produced 1,000 polypropylene parts under the following operating parameters:

- Material Temperature: 450°F
- Injection Pressure: 3100 psi
- Injection Speed: 5 mm/s
- Pack Pressure: 1200 psi
- Clamp Tonnage: 5 tons
- Cycle Time: 65 s
- Mold Clamp: Injection Time: 5 s
- Cooling Time: 30 s
- Mold Open: Cooling Time: 30 s
Fortify Digital Tooling is powered by resin from Fortify's Digital Tooling insert and molded parts for an automotive application.

FORTIFY DIGITAL TOOLING PARAMETERS

<table>
<thead>
<tr>
<th>Part Size:</th>
<th>100 mm or smaller</th>
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<tbody>
<tr>
<td>Cycle Time:</td>
<td>1 - 2 minutes</td>
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<tr>
<td>Mold Part Tolerances:</td>
<td>+/- .127 mm</td>
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<tr>
<td>Temperature:</td>
<td>Up to 320 C</td>
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</tbody>
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Qualified Materials:
- TPU
- Acetal
- ABS
- Polypropylene
- Nylon 6
- GF Nylon
- Polycarbonate

DIGITAL COMPOSITE MANUFACTURING (DCM)

DCM delivers new levels of additively manufactured part performance by introducing aligned reinforcing fibers. The technology combines magnetics and DLP (digital light processing) to produce custom microstructures in high-resolution 3D printed composite parts.

Contact sales@3DFortify.com to discuss your molding needs and receive a free copy of Fortify’s Injection Molding Design Guidelines.