Overview

Requirements for Scalmalloy utilization

Implementation schedule

Cost comparison
The following requirements are needed to perform Scalmalloy® on your machines

- Selective-Laser-Sintering machine
- Heat treatment functionality (325° for 4 hours)
- Powder sieving possibility
- Possibility to do tensile test as well as density test of printed part (during qualification period)
- APWORKS certified parameters setting and approval
Overview

Requirements for Scalmalloy utilization

Implementation schedule

Cost comparison
# Implementation Schedule

## Scalmalloy qualification

<table>
<thead>
<tr>
<th>DAY 1</th>
<th>DAY 2</th>
<th>DAY 3</th>
<th>DAY 4</th>
<th>DAY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TEST PRINT I</strong></td>
<td><strong>TEST PRINT II</strong></td>
<td><strong>TEST PRINT III</strong></td>
<td><strong>FINAL PRINT</strong></td>
<td><strong>QUALIFICATION</strong></td>
</tr>
<tr>
<td>• Density Check Print</td>
<td>• Density Check Print</td>
<td>• UTS Check</td>
<td>• Start of final qualification print job (test specimens)</td>
<td></td>
</tr>
<tr>
<td>• Support structure printing &amp; testing</td>
<td>• Support structure printing &amp; testing</td>
<td>• Yield Strength Check</td>
<td>• Heat treatment &amp; machining of printed test specimens</td>
<td></td>
</tr>
<tr>
<td>• Youngs Modul Check</td>
<td></td>
<td>• Youngs Modul Check</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACTIVE ON_SITE APWORKS SUPPORT**

**ACTIVE OFF_SITE APWORKS SUPPORT**

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Overview

Requirements for Scalmalloy utilization
Implementation schedule
Cost comparison
Use of APWORKS experience on Scalmalloy parameter setting results in cost and time reduction

<table>
<thead>
<tr>
<th>Machine Run-Time</th>
<th>Engineering Work Time</th>
<th>Unproductive Machine Run-Time</th>
<th>Total Costs Own</th>
<th>Total Costs By APWORKS</th>
<th>Qualification by APWORKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,250 €</td>
<td>6,300 €</td>
<td>8,400 €</td>
<td>16,950 €</td>
<td>9,100 €</td>
<td>- 45%</td>
</tr>
</tbody>
</table>

Assumptions:
- Hourly rate machine: 50€ (15 hours/week)
- Hourly rate engineer: 70€ (30 hours/week)
- Hourly rate unproductivity: 100€ (for 3 weeks)
- Duration external qualification: 3 weeks