Requirements Sheet

Team Number ____

Product Type: BMX

1. Market Description

This bicycle is to be designed for the mass consumer market. The expected sales volume is 100,000 per year. Affordability, excellent performance/cost ratio and light weight are most important to be successful in this market.

2. Requirements

Manufacturing Cost (C): \( C \leq 8.6 \) $ /part

Performance \( (\delta_1, \delta_2, f_1): \)
- Displacement \( \delta_1 \leq 0.060 \) mm
- Displacement \( \delta_2 \leq 0.009 \) mm
- First natural frequency \( f_1 \geq 340 \) Hz

Mass (m): \( m \leq 0.23 \) lbs

Surface Quality (Q): \( Q \geq 4 \)

Load Case (F): \( F_1 = 75 \) lbs / \( F_2 = 100 \) lbs / \( F_3 = 75 \) lbs

The part has to conform to the interface requirements and geometrical boundary conditions shown on page 2 of this document. This requirement cannot be waived.

3. Priorities

Structural performance is the first priority for this product. Next, the customer cares about light-weighting (low mass) and thirdly, manufacturing cost should be as low as possible. These priorities are shown in the Ishii-matrix below:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Constrain</th>
<th>Optimize</th>
<th>Accept</th>
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<tbody>
<tr>
<td>Cost</td>
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<tr>
<td>Performance</td>
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<td>Mass</td>
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Modifications to these requirements have to be negotiated with Management.
No forbidden zone for your team