Toothpaste Dispenser Design Challenge

v1.3

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Operations Manufacturing Engineering

OME I Design Challenge

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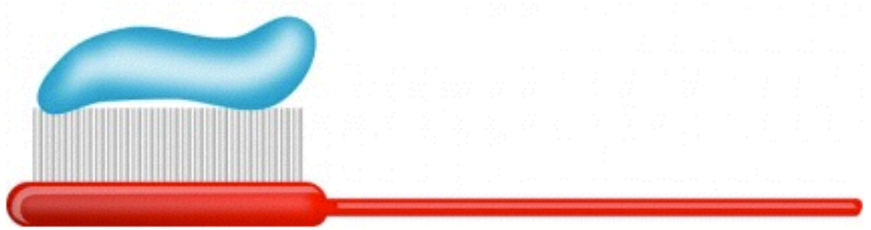

OME I Design Requirements

Design Goals:

Show your fixture design skills in selecting appropriate datums and ways to hold the parts.

Show your understanding of the manufacturing process development.

Show your understanding of how to implement a fixture within a production assembly line.

Fixture Intent:

Fixture intent is to work inside an **assembly manufacturing line** (not for Home use)

Able to dispense toothpaste onto a toothbrush **without using hands**.

Able to dispense toothpaste reliably with consistent volume. OPTION: Design custom toothpaste canister to hold necessary amount for production.

Supports manual or auto load and unload toothbrush process. **PLUS:** Show how to use this fixture without any operators.

Cycle Time:

22 seconds maximum

if more need to add multiple machines and describe how material is split between machines

Layout:

Maximum footprint (0.5 meters x 0.5 meters)

Machine can be table top or standing platform

Reliability:

Able to dispense at least 50 units consecutively without stopping.

Accuracy:

Dispense within +/-0.10 grams.

Toothpaste does not drip on the sides.

OME I Submission Requirements

- Submit main concept using **powerpoint or pdf** file format.
  - Post pictures of CAD concepts and explain step-by-step process.
  - Desired to also submit the associated CAD files for further review.

- Do showcase your area of expertise within the design.
  - Approach project to show how YOU will do this in a real factory environment.
  - Think of all the consequences of your decisions and discuss assumptions.
  - Example: Will there be an issue with lead-time for selected components?

- Submit proposal to: **OME_Design_Challenge@group.apple.com**