

Small Sensor Rapid Prototyping System Specifications

I. Introduction

The Naval Research Laboratory requires a 3-D rapid prototyping system with the capability to rapidly build and print mechanical components of space-flight sensor prototypes to test form, fit and function in a relevant environment.

II. Background

A rapid prototyping system capable of printing in a material (Ultem 9085) that is suitable for use in the vacuum of space or in the testing of such sensors.

The system will be used to create fixtures to hold sensors in high vacuum test chambers, create prototype structural components of space-flight sensors, and create accurate models of 3-D geometries for use as mock-ups.

III. Technical Requirements

The Contractor shall provide a turnkey rapid prototyping system capable of meeting the following technical specifications:

A. Materials Compatibility:

1. System shall print in ABS plastic and Ultem 9085 materials.

B. Accuracy:

1. The system shall print with resolution/accuracy of 0.005" or better in ABS plastic and 0.010" or better for the Ultem 9085 material.

C. Capacity:

1. The system shall print to a volume of 16" x 14" x 16" or greater.
2. The system shall be capable of automatically switching build material canisters if the initial canister becomes empty during a large build process.

D. Physical Restrictions:

1. The system shall operate within a volume of 10' x 7' x 10'.

E. Software Compatibility:

1. System shall be compatible with SolidWorks CAD software.

IV. Installation and Manuals

- A. The Contractor shall provide on-site installation.
- B. The Contractor shall provide operator training to a mechanical engineer to operate system.
- C. The Contractor shall provide the necessary manuals.

V. Warranty

- A. The Contractor shall provide a 3-year Comprehensive Annual Maintenance warranty.