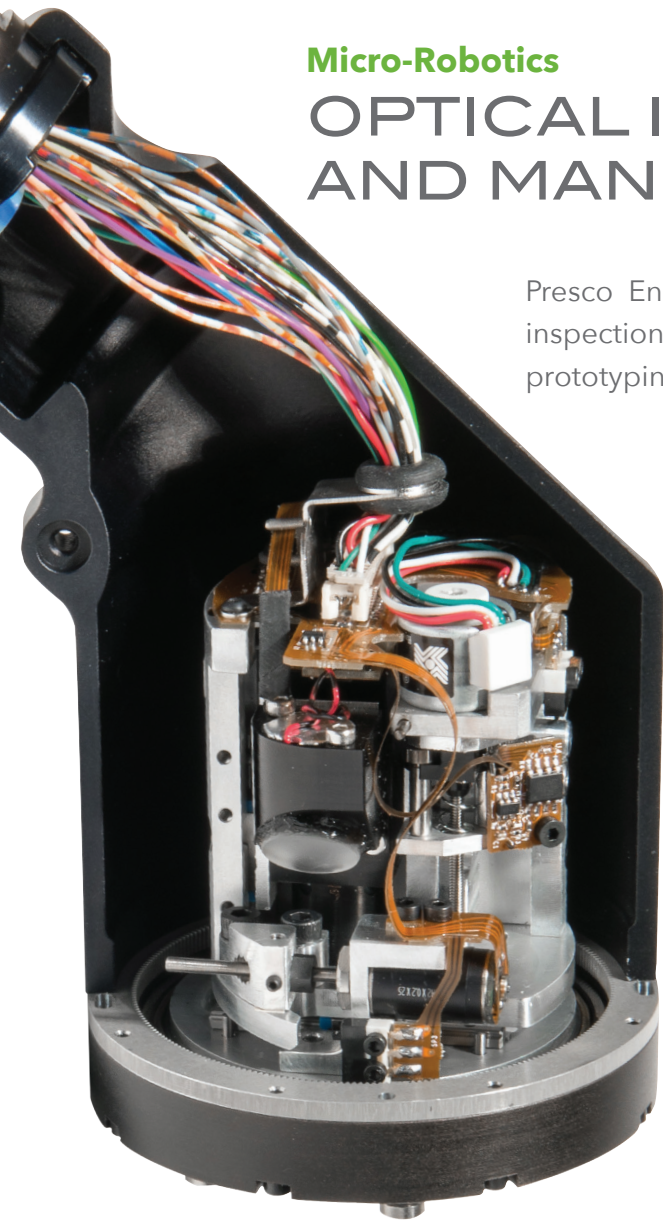


Micro-Robotics

OPTICAL INSPECTION DESIGN AND MANUFACTURING

Presco Engineering developed a miniature robot for an optical inspection and cleaning system. Presco's work included design, prototyping, and manufacturing of pre-production units.

- Automated Functions for:
 - Inspection
 - Cleaning of Ganged Fiber Optic Connectors
- Five Axes of Motion
- 50 Micron Positional Accuracy
- Small Size for Installation in Tight Locations



ACTUAL SIZE



This particular device is designed to ease the inspection and cleaning of fiber optic connectors located in difficult-to-access areas of equipment. A key requirement was small size to allow installation in tight locations and on panels with multiple adjacent connectors.

Presco's robot, with its three-inch diameter and coffee-cup-sized design, is a central element of the low-profile AVIT-rh product. It was designed to meet a number of FiberQA requirements including: small size, high-motion resolution, and excellent repeatability. The miniature stepper motors and R-Theta motion provide resolution better than 25 microns in both radial and rotational axes. To enable the small size and support motion in five axes, Presco designed and fabricated a custom flexible printed circuit to power motors, sensors, and a specially-designed optical microscope. Combined with the FiberQA imaging and processing software, the tool enables reliable detection of optical defects as small as 1.5 microns in diameter.