

Fastener Detection System

The VeriFast™ Fiber Optic fastener detection system represents the combination of CenterLine's nut and stud welding electrode expertise with industry proven sensing technology. The VeriFast system is an optical sensing device capable of detecting a number of critical assembly process variables such as fastener presence, orientation and position. This in-process monitoring capability allows you to track the quality and repeatability of your projection welding process to avoid incurring the costs of manufacturing parts that are out of specification.

Main Features

- Available for Series 2, 3, and 4 CenterLine weld nut and stud electrode units.
- Data is directly communicated from the electrode to the weld monitoring system by fiber optics.
- Able to sense the presence of a single fastener at the point-of-weld.
- Capable of sensing piloted and non-piloted nuts.
- Capable of sensing proper stud length.
- Able to detect when the weld pin has returned to start position.
- Incorporates standard components for quick turnaround time.

Control Connection Requirements

Minimum recommended control connection requirements are:

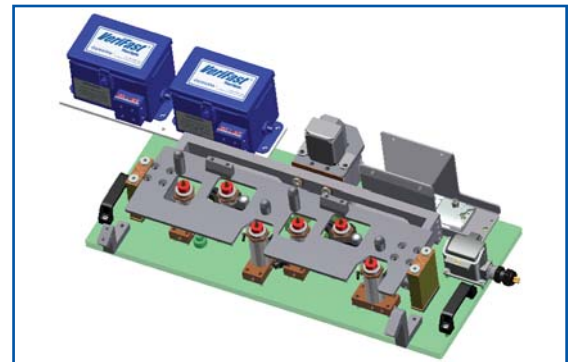
IOLink or DeviceNet Master: An IOLink or DeviceNet network is required to provide process communication from the VeriFast Fiber Optic system to the PLC control system.



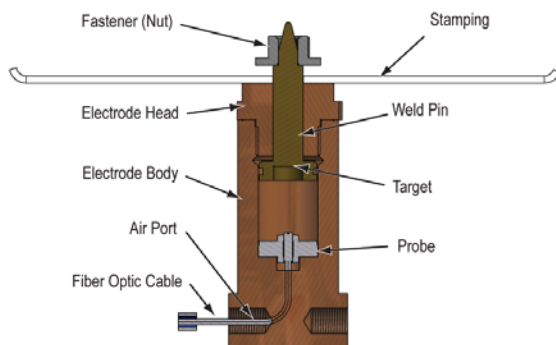
VeriFast Fiber Optic unit shown with Nut Weld Electrode

Integration and Set-Up

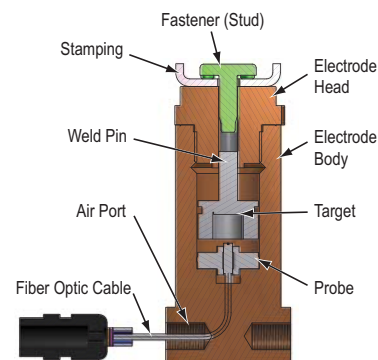
The VeriFast system can be integrated into a variety of weld control systems. It is compact, easy to install, and a detailed installation manual is available to facilitate integration with your process. Set-up and calibration are maintained electronically – no mechanical adjustments are necessary.



Changeable tooling example with installation of VeriFast Fiber Optic assemblies.



Electrode setup for nut welding



Electrode setup for stud welding

The VeriFast™ system is controlled by the automation control equipment. Within specification limits, the VeriFast detects the presence and orientation of fasteners and/or parts.

The VeriFast Fiber Optic sensor signal is calibrated to indicate the position achieved by the fastener (nut or stud) weld pin in various stages of travel. The values of this signal are then compared to programmed set point values (with tolerances). Results that do not match the set point values can trigger either an interruption in the cycle, or a warning message indicating that the process has fallen outside the set value. These occurrences can indicate a potential part quality issue.

The set point values consist of:

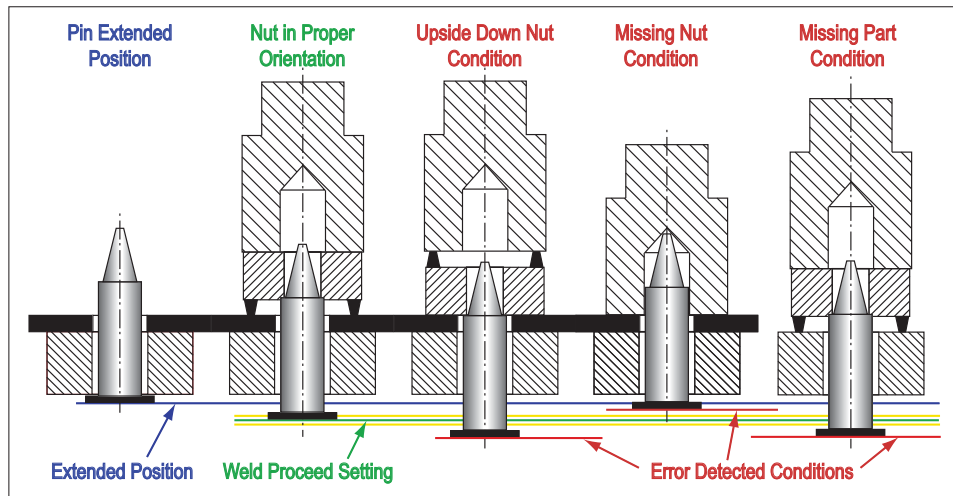
- Weld Pin Extended Position (System ready to load part and fastener)
- Weld Proceed (Presence and correct fastener orientation)

And may also include:

- Nut is Upside Down
- Stud is the Wrong Length (Not shown)
- No Fastener Detected
- No Part Detected

The VeriFast Fiber Optic system has the ability to detect differences as small as 0.008" (0.2 mm).

This example shows a nut application. It demonstrates the difference between correct fastener orientation and other error conditions.



If you require more information about the VeriFast Fiber Optic system, please contact CenterLine.

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