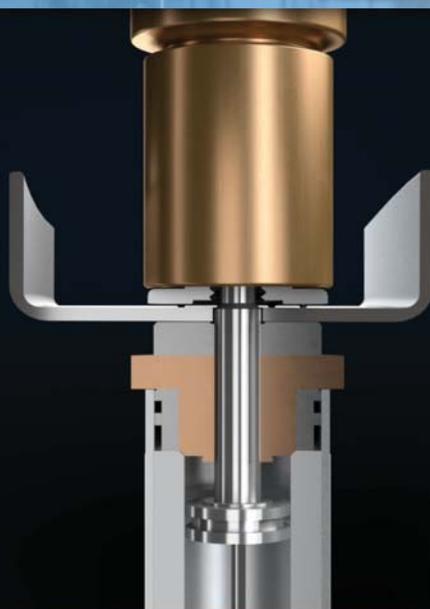


VeriFast™ LVDT Nut Detection

Ver. 1.1



centerline®

connecting needs with capabilities

VeriFast™ LVDT Nut Detection System

The VeriFast™ LVDT system provides a reliable method for monitoring the quality of the projection welding process.

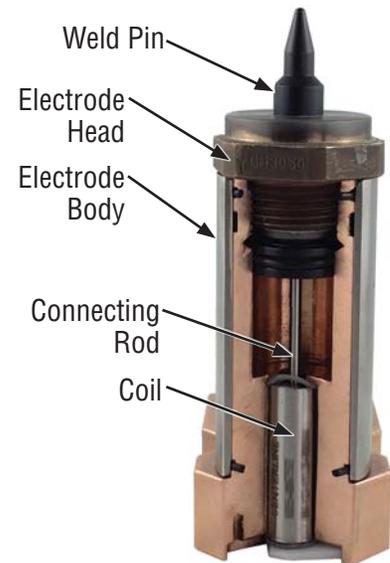
Main Features

- Ability to sense:
 - fastener presence and orientation at the point of weld
 - piloted and non-piloted nuts
 - welding stud lengths
 - infinite weld pin positions (return to start, fully retracted, etc)
 - measurement of projection collapse
- Uses standard, readily available consumables.
- Compact design.
- Easy to set up and maintain.
- Available in two standard pin stroke lengths, 22 mm & 50 mm.
- Real time linear position is communicated from the electrode to the monitoring system and can be calibrated to indicate actual measurement.

Why use a VeriFast LVDT?

The VeriFast LVDT technology has many unique & beneficial features that are derived from its core principles of operation as well as the materials and techniques used in its construction.

- **Extreme Accuracy**
The LVDT system has an extremely high measurement resolution. When taking into consideration system signal noise, the practical resolution is 0.0009" (0.02 mm) which enables the system to effectively detect minute changes in process conditions.
- **Unaffected by Foreign Matter** such as grease, oil, water, weld dust. The LVDT coil is contained inside CenterLine's weld body.
- **High Mechanical Life**
Because there is normally no contact between the LVDT's core and coil structure, no parts can rub together or wear out. This results in the LVDT having features such as extended mechanical life.
- **Environmentally Robust**
Internal high-permeability magnetic shield minimizes the effects of external AC or DC fields. Both the case and core are made of corrosion resistant metals, with the case also acting as a supplemental magnetic shield.
- **Standard Solutions**
VeriFast LVDTs are engineered specifically for integration into CenterLine weld bodies.

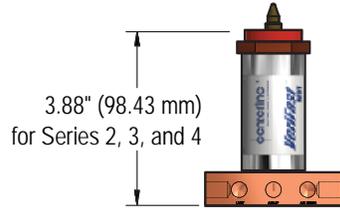


Integration and Set-Up

The VeriFast system can be integrated into a variety of 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.

VeriFast™ LVDT Styles

Base Mount



Body Style: SXAR



Body Style: SXTR

Threaded



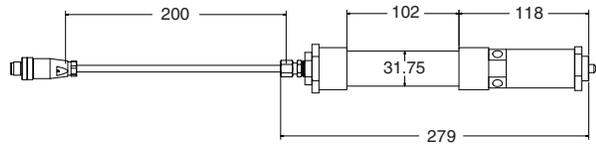
Body Style: SXGR

Tapered

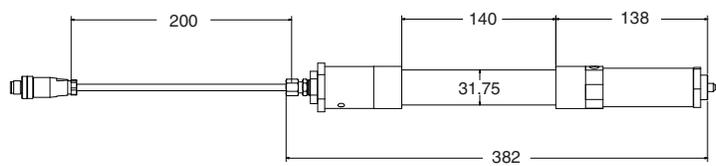


Body Style: SXCR

Clamp Mount

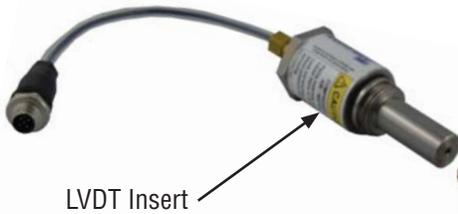


22 mm Pin Stroke



50 mm Pin Stroke

Thru Arm



LVDT Insert

Thru Arm LVDT
Weld Body

Connecting Rod
(Custom Length)

Customer's
Tooling

LVDT Insert

Available in 22 mm & 50 mm Pin Strokes

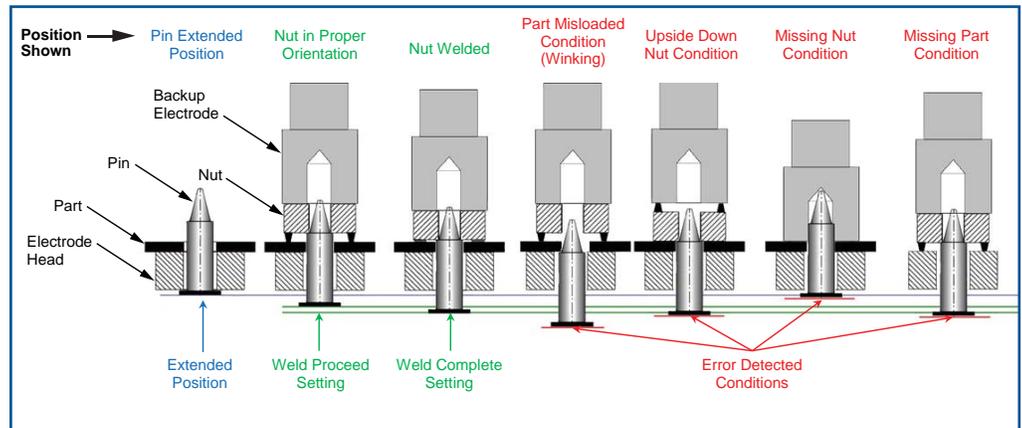
How It Works

The VeriFast system is controlled by the automation control equipment.

The VeriFast LVDT signal indicates the position of the fastener weld pin in various stages of travel. The values of this signal are then compared to programmed set point values (with tolerances) to indicate the presence and orientation of fasteners and/or parts. Results that do not match the set point values can be used to 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 fastener or part quality issue.

Set Positions for Presence and Orientation of Fasteners & Parts

The diagram below shows various conditions that may be present for a projection nut welding application. It indicates the difference between correct fastener orientation and error conditions.



Other conditions that may be present and detected (not shown) are: weld pin retracted & multiple material thickness using the same fastener.

The VeriFast LVDT system has the ability to detect differences as small as 0.0009" (0.02 mm) (assuming a maximum of 10mV analog signal noise).

Control Connection Requirements

The VeriFast LVDT **must** be used in conjunction with a CenterLine **Signal Conditioner (Part # 605-38996)**.

Minimum recommended control connection requirements are:

Analog Input Interface: PLC is recommended

Required Input Type: 0-10VDC

Sampling Resolution: 16 bit (14 bit is acceptable, however, lower measurement resolution will result.)



Signal Conditioner
Part # 605-38996

Contact us for more information about the VeriFast LVDT system.



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